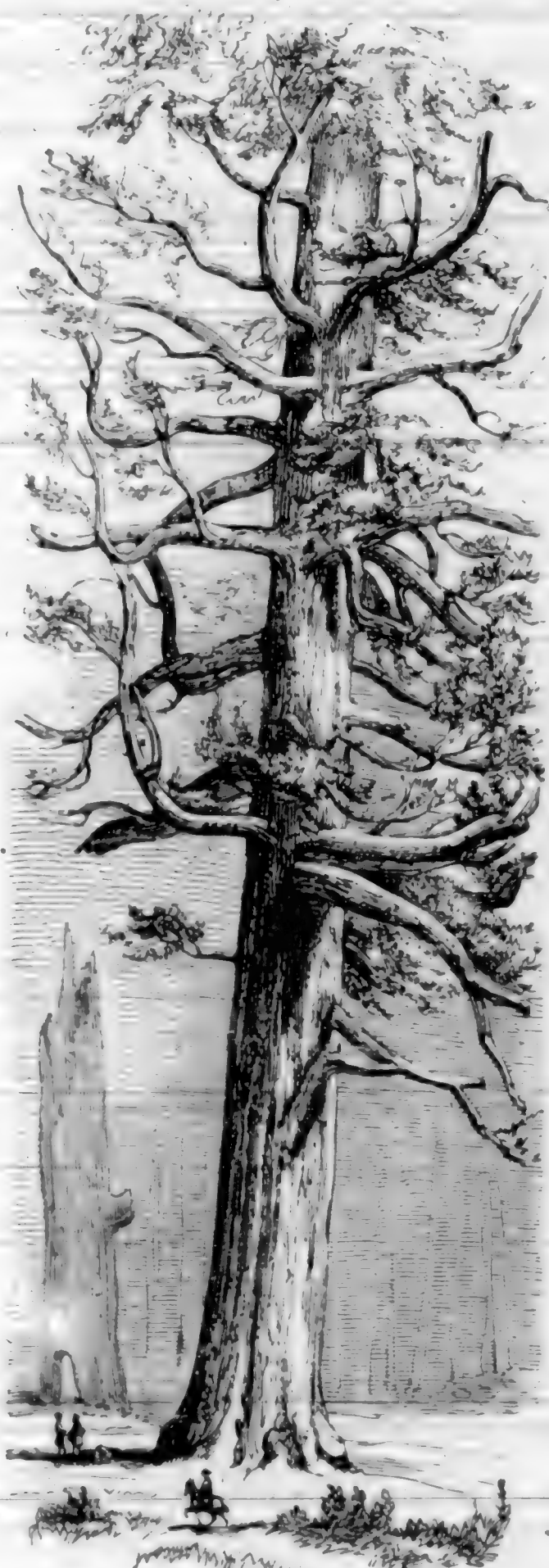


"In the Heart of the Sierras"—The Noble Trees of California.

HERE statement of dimensions and altitudes of the grand trees of California, can give no realizing sense of their idealistic presence and magnitude. It is the grandeur of their exalted individuality and awe-inspiring presence that thrills through the soul, and fills it with profound and speechless surprise and admiration; and not merely of one tree, but of whole vistas formed by their stately trunks. Who, then, by pen or pencil, can picture these as they are seen and felt?



CUT 1. THE GRIZZLY GIANT.

Once fairly within the impressive precincts of the grove of big trees, we are soon brought face to face with one of the oldest, most storm-tossed, and grizzled of this entire family of Brobdingnags. It is called

"THE GRIZZLY GIANT"

(see cut 1), and it looks at you as defiantly as the oldest veteran grizzly bear ever could. By careful measurement, we found its dimensions to be, at the ground, including a jutting spur, ninety-one feet, and three feet six inches above the ground, seventy-four feet six inches. Professor Whitney places its circumference, eleven feet from the ground, at sixty-four feet three inches; with its two diameters at base, thirty, and thirty-one feet; and eleven feet above base, twenty feet.

The "Mariposa" is eighty-six feet in circumference at the ground, and seven feet

above it, is sixty-six feet. This tree seems to have been badly burned by two consuming fires, at different periods, after each of which the new growth has, visibly, attempted its restoration. The "Workshop" is an immense living giant, with a capacious hollow at its base, which forms a room twelve by sixteen, in which all sorts of little souvenirs are made from broken pieces of the big tree.

The "Haverford" (named after the "Friends" College, Philadelphia), in which sixteen horses have stood at one time, is burned into three compartments; across two of the spurs of which the distance is thirty-five feet; and transversely, thirty-three feet.

The "Washington" has a girth of ninety-one feet at the base, is round and very symmetrical. Although burned out somewhat near the ground, the new growth, as usual, is rapidly healing the wounds that fire has made. This is an especially excellent provision of nature for preserving and perpetuating this grand species, when in its prime; inasmuch as while restoring the ravages of the elements by the new growth, a much needed support is added to the abutments, which intercepts and prevents its premature downfall.

The "Ohio" is seventy-six feet in girth at the ground, and six feet above the ground is fifty-five feet. The "U. S. Grant" is sixty-five feet six inches below, and forty-five feet above. The "General La Fayette" is thirty feet in diameter, and is situated about thirty yards from the above two.

The "Wawona," the "Tunnel Tree" (see cut 3), through the heart of which a wagon road passes, is not only one of the great attractions of the Big Tree Grove, but may be considered one of the sights of California. At the base this tree is twenty-seven feet in diameter; while the enormous trunk, through which the excavation is made, is in solid heart wood, where the concentric rings, indicating its annual growth, can be readily seen and counted, and its approximate age determined by actual enumeration, and thus satisfactorily settle that interesting fact beyond the least peradventure. The arch, or "tunnel," as it is called, is ten feet in height, by a width of nine feet six inches at the bottom, and six feet six inches at the top. "Driving through a living tree," one would suppose to be as great a feat as Daniel O'Connell's, who boasted that he could "drive a coach and four" through any act of Parliament ever made in the British House of Commons.

The "New York" is one hundred and four feet in circumference, and over three hundred feet in height. The "Ohio" is one hundred and three feet in circumference, and three hundred and eleven feet in height. The "Massachusetts" is ninety-eight feet, with an altitude of three hundred and seven feet.

A few points of interest may be well to notice in regard to the "Mother of the Forest." If cut up into inch boards, it would make five hundred and thirty-seven thousand feet of sound lumber. From the ground to the first branch it is one hundred and thirty-seven feet. Its full height is three hundred and twenty-one feet, with a circumference at the base of ninety feet. One hundred and sixteen feet from base it is thirty-nine feet six inches circumference. The average thickness of bark is eleven inches, although in places it exceeds two feet.

Great as are these majestic proportions, they are eclipsed by those of the "Father of

the Forest." This tree, when standing in its primitive majesty, is accredited with exceeding four hundred feet in height, with a circumference at its base of one hundred and ten feet. Now, with its majestic form pro-



CUT 2. MINER'S CABIN.

to the ground, the following measurements recently taken, proves that he was among the giants of those days, and that "even in death still lives." From the roots, to where the center of the trunk can be reached on horseback, it is ninety feet. The distance that one can ride direct through it on horseback, is eighty-two feet six inches. But no one can approximately realize the immense proportions of this prostrate forest sire, without climbing to its top, and walking down it for its entire length; by this, he will ascertain that it was nearly two hundred feet to the first branch.

"Old Hercules," the largest standing tree in the grove until 1862, then being three hundred and twenty-five feet in height, by ninety-five feet in circumference at the ground; this was blown down by a heavy storm in that year.

Let us take a peep at the original Big Tree stump. It is perfectly smooth, sound, and level. Its diameter across the solid wood after the bark was removed (and which was from fifteen to eighteen inches in thickness), is twenty-five feet, although the tree was cut off six feet above the ground. On July 4, 1854, the writer formed one of a cotillion party of thirty-two persons, dancing upon this stump; in addition to which the musicians and lookers on numbered seventeen, making a total of forty-nine occupants on its surface at one time.

This tree was three hundred and two feet in height, and at the ground ninety-six feet in circumference before it was disturbed. Some sacrilegious vandal removed the bark to the height of thirty feet, and had it transported to England, where it was burnt at the Crystal Palace fire. The next act in this botanical tragedy was the cutting down of the tree in order to accommodate those who wished to carry home specimens of its wood as souvenirs of their visit. But how to do this was the puzzling conundrum. If one could fittingly imagine so ludicrous a sight as a few lilliputian men attempting to chop down this Brobdingnagian giant, his contempt would reach its becoming climax.

Measurement of Brickwork and Masonry.

BRICKWORK is measured by either one of four methods, viz.: By the number of bricks it contains; by the number of cubic feet; by the perch of 25 cubic feet; or by the reduced rod consisting of 272 superficial feet and a width of a brick and a half. The first method is most generally employed, and the cubic foot and perch in a few localities. The reduced rod is the method used principally in England.

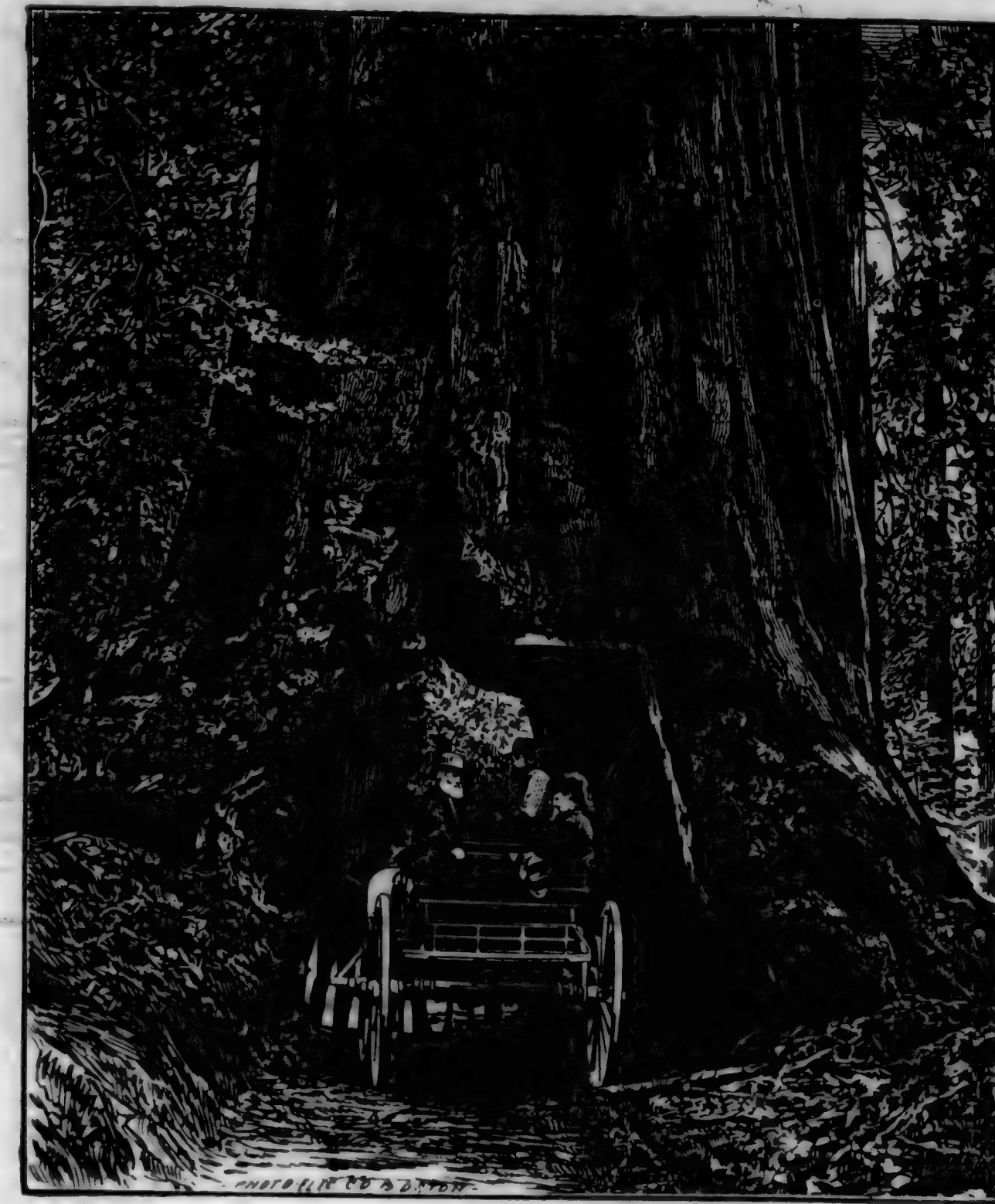
To ascertain the number of bricks contained in a wall: First find the superficial area, then multiply by 7½ (the number of bricks in one foot of brickwork four inches thick), and then multiply by the number of half bricks in the thickness of the wall. Example: How many bricks does a wall 12 ft. x 20 ft. and 2 bricks thick contain? Answer, 7,200, viz.: 12 x 20 = 240 x 7½ = 1,800 x 4 = 7,200.

Ashlar masonry, or that which is dressed on either face, bed, or side joints, is measured by the cubic foot; rubble masonry, sometimes in the same way, but usually by the perch of 25 cubic feet.—Scientific American.

Saw-Dust Ornaments; How Made.

A MOULD, or die, which has the design to be produced artistically engraved and sunk in it, is covered with thin strips of chemically prepared veneer of any desired kind of wood, and a material previously prepared, consisting chiefly of sawdust, is fed on the top of the veneer; the mould is then closed and heated, and afterward subjected to a hydraulic pressure of some tons to the square inch. The article to be produced is then taken from the mould in a semi-shaped state, inspected, recovered with veneer as often as may be found necessary, and after five or six minutes a panel, or frieze, is produced equaling in artistic effect handiwork that has taken very many days to produce. These panels have a fine surface and show up the grain of the wood well; they can also be sawed, planed, or bored like ordinary wood.

PRESERVATION OF PENCIL AND CHARCOAL DRAWINGS.—Pencil drawings may be fixed by immersing them in weak skin-milk, or coating over them, rapidly, a solution on the drawing side, of two ounces of best alcohol, in which four grains of camphor have been dissolved. An ounce of shellac dissolved in half a pint of alcohol, applied lightly with a brush, will serve to fix charcoal drawings.



CUT 3. DRIVING THROUGH LIVING TREE "WAWONA."

This, therefore was given up as altogether too chimerical and impracticable. Finally the plan was adopted of boring it off with pump-augers (see cut 4). This employed five men twenty-two days to accomplish; and after the stem was fairly severed from the stump, the uprightness of its position and breadth of its base prevented its overthrow; so that two and one-half of the twenty-two days were spent in inserting wedges and driving them into the butt of the tree by logs suspended on ropes, thereby to compel its downfall. While these slow and apparently hopeless attempts were being undertaken, and the workmen had retired for dinner, a gust of wind took hold of its top, and hurled it over without the least seeming effort; its fall causing the earth to tremble as by an earthquake.

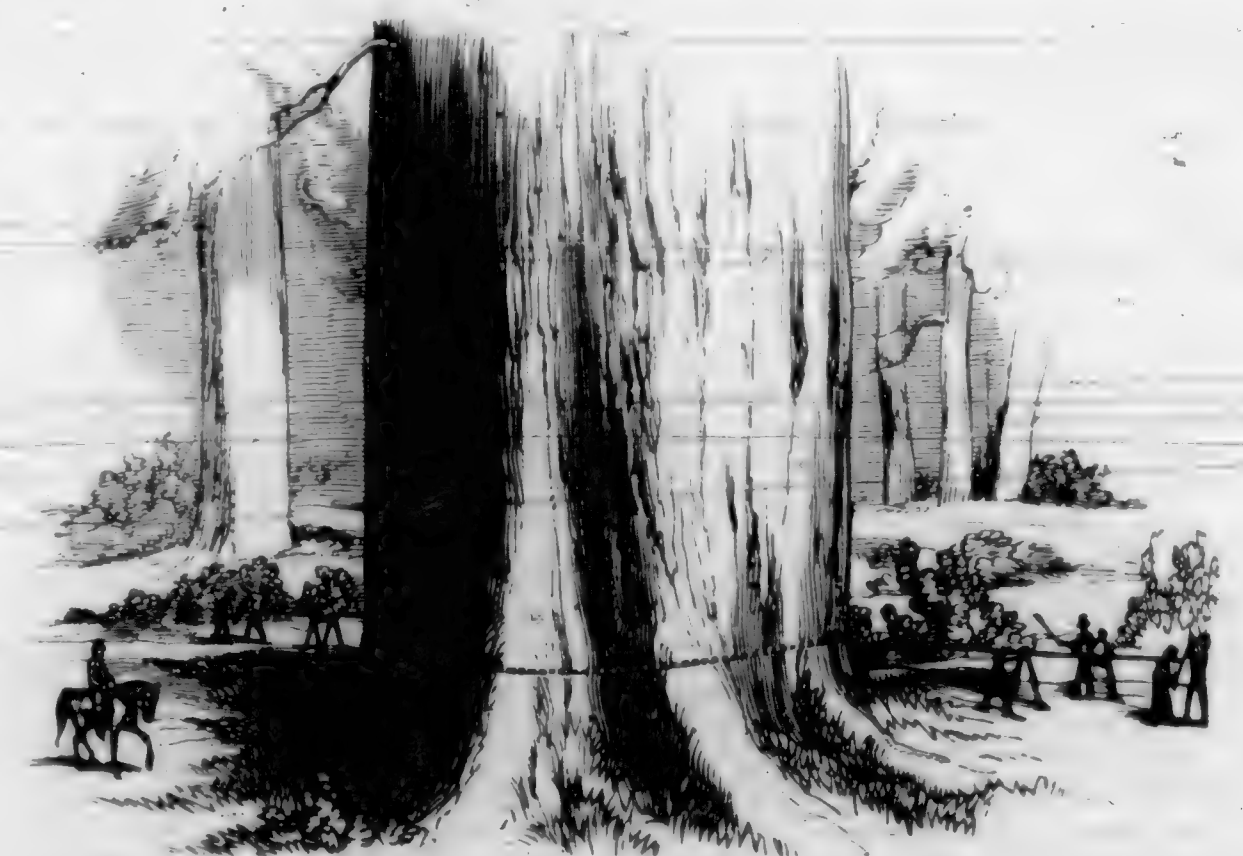
The cuts illustrating this article and the description thereof, are taken from a new work, by J. M. Hutchings, entitled, "In the Heart of the Sierras," the Yosemite Valley, both historical and descriptive; and scenes by the way; Big Tree Groves; the High Sierra, with its magnificent scenery, ancient and modern glaciers, and other objects of interest; with tables of distances and altitudes, maps, etc. Profusely illustrated. Copies may be had by addressing the Pacific Press Publishing House, Twelfth and Castro Streets, Oakland, Cal., or at the branch office, No. 18 Post Street, this city. Price, in fine English Cloth, embossed in jet and gold, gilt edges, \$4.50. Finer bindings furnished if desired.

This work is sold by subscription, and active, energetic agents are wanted in all parts of the world. Address as above, for terms and territory.

TO SOFTEN WROUGHT IRON.—To soften wrought iron, heat until it becomes a low red color, and cool it in soft soap. Re-heat

it to a low red as before, and let it cool in lime. It is said that this treatment makes the iron very soft.

PAINTING OF BUILDINGS.—The taste of the ancient Greek was too artistic and complete to allow him to indulge in the vulgar pride of parading the marble of the Parthenon when he could heighten its effects. Color was applied to all those parts which by form or position were protected from the rain. Thus the sculptures on the pediment and frieze were given highly colored backgrounds, and the sculptures themselves were painted. The brush was also employed to adorn the work of the chisel in the cervices or mouldings of the capital, and the walls beneath the colonnade were covered throughout with pictures, on the ground of polished marble illustrative of the divinity to whom the temple was dedicated.



CUT 4. BORING DOWN THE ORIGINAL BIG TREE WITH PUMP-AUGERS.

Twenty-five one-story frame cottages. Owner, Electric Homestead Association; architects, Strange & Gottschalk; contractors, Wyatt Bros. Cost, \$15,150.

Plaster, How to Make It, for \$1.00. Shavings and Sawdust, for \$1.50. Three-story brick block. Owner, F. M. Hellman; architects, Kysor, Morgan & Walls. Cost, iron work, \$5,200; grading, \$1,400.

People's Encyclopedia (three large volumes), for \$20.00.

Owner, S. B. Zwynne; architect, C. S. Morgan & Merithew; contractor, W. A. Vernon. Cost, \$2,300.

Science of Carpentry, for \$4.00. Universal Assistant, for \$2.50.

Two-story frame. Owner, Judge Bicknell. Day work. Cost, \$15,000.

Grimshaw on Saws, for \$4.00. Mechanics' Geometry, for \$4.00.

Two-story frame residence, brick. Owner, Dr. Owens; architects, Strange & Gottschalk. Day work. Cost, \$4,000.

Woodward's Farm Homes, for \$1.00. Woodward's Graperies, for \$1.00.

Two-story frame. Owner, H. J. Jevne. Day work. Cost, \$12,000.

Album of Mantels, for \$8.00. Architects' Companion, for \$2.50.

Three-story brick. Owner, Mr. Mapp; architect, A. M. Edelman; contractor, J. E. Wood. Cost, \$23,000.

Building Superintendence, for \$3.00. American Cottage Homes, for \$3.00.

Remodel First National Bank. Architects, Calkin & Haas; contract not let. Cost, \$30,000.

American House Carpenter, for \$5.00. Cutting Tools, for \$2.00.

Magnolia.

Two-story frame hotel. Owner, Dr. Bedford; contractor, J. Gerry. Cost, \$20,000.

Building Superintendence, for \$3.00. American Cottage Homes, for \$3.00.

Two-story brick. Owner, Dr. Bedford; contractor, J. Reiman. Cost, \$28,000.

Builders' Companion, for \$1.50. Builders' Work, for \$5.00.

Monrovia.

Two-story frame. Owner, E. W. Little; contractor, Zimmerman & Blair. Cost, \$5,000.

Architecture and Building, for \$3.50. American Cottage Building, for \$3.50.

Two-story bank and stores, brick. Owner, F. M. Myers; architects, Calkin & Haas; contract not let. Cost, \$10,000.

Painter, Gilder, and Varnisher, for \$1.50. Architects' Companion, for \$2.50.

Two-story frame. Owner, E. F. Spence; contractor, J. Reiman. Cost, \$10,000.

Limes, Cements, and Mortars, for \$4.00. Wonders of Art, for \$1.25.

Two-story frame. Owner, C. Z. Culver; architect, Newson; day work. Cost, \$5,000.

Napa.

One-story frame. Owner, T. C. Grant; architect and builder, W. H. Wharff. Cost, \$4,500.

Ontario.

Two-story bank and stores, brick. Architects, Calkin & Haas. Cost, \$20,000.

American House Carpenter, for \$5.00. Cutting Tools, for \$2.00.

Orange.

Two-story frame hotel. Owner, C. Z. Culver. Day work. Cost, \$20,000.

Album of Mantels, for \$8.00. History of Architecture, for \$15.

Portland, Or.

Dr. Josephi will erect a private sanitarium to cost about \$6,000.

Building Superintendence, for \$3.00. American Cottage Homes, for \$3.00.

Redlands.

One-story frame. Owner, Trinity Church; architect, Frank Crocker; contractors, Newell & Paine. Cost, \$2,647.

Builders' Companion, for \$1.50. Builders' Work, for \$5.00.

Sacramento.

The Capital Hotel will be enlarged under the direction of Architect Goodrich.

Practical Perspective, for \$5.00. Woodward's Country Homes, for \$1.50.

Salem, Or.

A new wing will be added to the State Insane Asylum. Cost, about \$90,000.

Steel Square Problems, for \$1.00. Workshop Companion, for 35c.

San Bernardino.

Two-story brick. Owner, Christian Kuytz; architect, Jones & Palmer; contractor, Ernest Vieweg. Cost, \$7,500.

Lumberman's Hand-Book, for \$2.00. Practical Geometry, for \$1.00.

Two-story brick. Owner, Richard Stewart; architects, Jones & Palmer; contractors, Burt & Porter. Cost, \$3,425.

Ruskin's Works (four volumes), for \$6.00. Industrial Drawing for Carpenters, for \$2.00.

Two-story brick. Owner, Richard Stewart; architects, Jones & Palmer; contractors, Sims, Anderson, Baker & Co. Cost, \$2,210.

Every Man His Own Mechanic, for \$3.50. Tredgold's Carpentry, for \$7.50.

Two-story brick. Owner, Richard Stewart; architects, Jones & Palmer; contractors, Driver, Burt & Goodall. Cost, \$6,250.

Plaster, How to Make It, for \$1.00. Shavings and Sawdust, for \$1.50.

San Jose.

Cottage on Fourth Street, near Julian. Owner, Mr. Stern; architect, Theodore Lenzen; contractor, P. R. Wells. Cost, \$1,300.

Architecture and Building, for \$3.50. American Cottage Building, for \$3.50.

Cottage for James Wood. Architect, Theodore Lenzen; contractor, W. S. Bowles. Cost, \$1,700.

Plaster, How to Make It, for \$1.00. Shavings and Sawdust, for \$1.50.

G. N. Schafer is erecting a \$3,000 dwelling on Stockton Avenue. Theodore Lenzen, architect.

Manual for Furniture Men, for \$1.00. Common-Sense Church Architecture, for \$1.00.

G. W. Page is the architect of the new Congregational \$6,000 church.

Artisan, for \$5.00. Builders' Guide, for \$2.00.

Santa Ana.

Two-story frame school. Architects, Kysor, Morgan & Walls; contractor, Drips. Cost, \$19,000.

Artistic Homes, for \$3.50. Modern House Painting, for \$5.00.

Sierra Madre.

Two-story frame hotel. Owner, Dr. Pinney; day work. Cost, \$12,000.

Practical Perspective, for \$3.00. Woodward's Country Homes, for \$1.50.

Miscellaneous.

ALAMEDA.—School and hall for Catholic Church. Figures now being received. John J. Clark, architect.

St. HELENA.—New college and church. Plans now ready for figures. John J. Clark, architect.

OAKLAND.—Contract labor for brick work, \$42,000. Remillard & Co. John J. Clark, architect; St. Mary's College, owners.

Builders' Companion, for \$1.50. Builders' Work, for \$5.00.

Work has commenced on the proposed extension of the Court House buildings in Suisun.

Grimshaw on Saws, for \$4.00. Mechanics' Geometry, for \$4.00.

Work has commenced on the Catholic Church in Benicia. It will cost about \$25,000.

Artistic Homes, for \$3.50. Modern House Painting, for \$5.00.

Work has commenced on the brick foundation for J. J. Post's residence on the corner of Fifth and Columbia Streets, Seattle. The main building will be 512x317 feet. Otto Ranke has the contract for the brick work.

Cutting Tools, for \$1.50. Cummings' Details, for \$5.00.

Contract has been let for a 200-foot wharf in Tacoma.

Cutting Tools, for \$1.50. Home Hand-Book, for \$10.00.

A \$4,000 brick store is being built on Pacific Street, Tacoma, by C. Uzaforage.

Practical Perspective, for \$5.00. Woodward's Country Homes, for \$1.50.

A country hotel is being erected at Warm Springs Station (C. P. R. R.) for H. Pohlmann. Theodore Lenzen, architect. Cost, \$3,000.

Science of Carpentry, for \$4.00. Universal Assistant, for \$2.50.

Under the supervision of Captain Powell, plans are being prepared here for order light station at Cape Meares. This station will be located just south of the entrance to Tillamook Bay. It will cost about \$60,000.

Practical Perspective, for \$5.00. Woodward's Country Homes, for \$1.50.

Lumberman's Hand-Book, for \$2.00. Practical Geometry, for \$1.00.

Riverside citizens have subscribed \$66,700 toward two railroads for the valley.

Science of Carpentry, for \$4.00. Universal Assistant, for \$2.50.

The foundation for a Catholic Church has been laid in Lathrop. The structure, when completed, will cost \$1,500.

Artistic Homes, for \$3.50. Modern House Painting, for \$5.00.

The corner-stone of the First Presbyterian Church, on the northwest corner of Tenth and Alder Streets, Portland, Or., has been laid. The church will cost about \$100,000 when finished.

Plaster, How to Make It, for \$1.00. Shavings and Sawdust, for \$1.50.

A contract has been let by Toklas & Singerman for construction of a four-story brick store in Seattle on the corner of Front and Columbia Streets. It will cost \$75,000 when completed.

American House Carpenter, for \$5.00. Cutting Tools, for \$2.00.

It is rumored that the S. P. Company will build a new bridge across the Pajaro River at Watsonville. It is expected that work will commence in about two weeks.

Builders' Companion, for \$1.50. Builders' Work, for \$5.00.

A large hotel and sanitarium is to be built at Altadena, north of Pasadena.

Artistic Homes, for \$3.50. Modern House Painting, for \$5.00.

A \$1,000 church is to be built by the Presbyterians of Gervais, Or.

Practical Perspective, for \$5.00. Woodward's Country Homes, for \$1.50.

The Methodists intend to build a \$30,000 church in Seattle this summer.

Science of Carpentry, for \$4.00. Universal Assistant, for \$2.50.

About \$2,000 has been raised for a church edifice in Paradise Valley.

American House Carpenter, for \$5.00. Cutting Tools, for \$2.00.

C. C. Powning will erect a fine brick building in Reno, Nev.

SAN FRANCISCO BUILDING NEWS.

B
Baker, nr. Sutter. Two-story frame. O.—J. McGinn. \$1,700.

C.—Roettger. O.—J. Gleason. \$3,200.

Brannan, nr. Fifth. Additions. \$500.

Belcher, nr. Ridley. Two two-story frames. O.—G. W. Moore. A.—G. W. Wright. \$14,000.

Belcher, nr. Fourteenth. One-story frame. O.—R. T. Barry. C.—D. Perry. \$1,500.

Bluxome, cor. Fifth. Additional story. O.—E. Buckler. \$1,200.

Brannan, nr. Fifth. Two-story frame. O.—E. Stoetzer. A.—H. Geilfuss. C.—L. D. Frichette. \$2,000.

Bush, nr. Taylor. Two-story frame. O.—Mrs. M. E. Cusheon. A.—and B.—W. H. Wharff. \$6,000.

Bush, cor. Steiner. Interior fittings. O.—J. Cuff. A.—T. J. Welch. C.—Mahoney Bros. \$4,500.

Bryant, bet. First and Second. Alterations to brick building. O.—Lachman & Jacobi. A.—P. R. Schmidt. C.—Mahoney Bros. \$15,000.

Broderick, nr. Hayes. One-story frame. O.—George Wittman. A.—Townsend & Wyneken. C.—N. B. Ritchie. \$1,500.

C
California, nr. Baker. One-story frame. O.—Mulvy. C.—Walker. \$2,500.

California, nr. Laguna. Two-story and attic frame. O.—C. F. Doe. A.—Curlett & Cuthbertson. C.—A. Jackson. \$18,000.

Capp, cor. Twenty-second and Twenty-third. Two-story frame. O.—Mrs. J. F. Harris. A.—A. J. Barnett. C.—O. E. White. \$6,500.

D
Dolores, cor. Twenty-ninth. Frame building. O.—J. Carstensen. A.—Salfeld & Kohlberg. C.—B. Dryer. \$5,500.

Devisadero, bet. Post and Geary. Two-story frame. O.—J. F. McCormick. A.—B. E. Henriksen. C.—J. C. Weir. \$2,500.

Davis, cor. Sacramento. Preliminary contract. O.—Mrs. A. M. Parrott. A.—Pissis & Moore. C.—American Bridge Building Co. \$10,164.

E
Eddy, bet. Laguna and Buchanan. Three-story frame. O.—O. H. Marx. A.—H. D. Mitchell. Day work. \$7,000.

Ellis, bet. Jones and Leavenworth. One-story frame. O.—and B.—Smith. \$4,000.

Elgin Park, nr. Ridley. One-story and basement frame. O.—F. Bowers. \$2,500.

Eddy, bet. Steiner and Fillmore. Two-story frame. O.—Annie Gill. A.—M. Balcynski. C.—C. E. Dunshee. \$3,700.

F
California, nr. Baker. Remodeling. O.—J. McGinn. \$1,700.

Chestnut, bet. Powell and Mason. Brick Building. O.—Scheutzen & Co. A.—Winterhalter. C.—J. Haaf. \$14,000.

California, bet. Scott and Devisadero. Two-story frame. O.—J. Dupuy. A.—W. Mooser. C.—J. B. Gonyeau. \$7,500.

California, cor. Laguna. Two-story and basement frame. O.—C. F. Doe. A.—Curlett & Cuthbertson. C.—A. Jackson. \$20,000.

Church, cor. Twenty-ninth. Two-story frame. O.—Henry Beutner. A.—Warren. C.—Mitchell & Son. \$4,800.

F
Fifth, cor. Brannan. One-story frame. O.—W. T. Garratt. \$4,000.

Fourth, nr. Channell. Frame Warehouse. O.—S. P. R. R. \$3,000.

Fourth, nr. Channell. One-story frame. O.—Wesson. \$800.

Fifteenth, bet. Noe and Castro. Two-story frame. O.—G. R. Starr. \$2,500.

Fillmore, nr. Hyde. Two two-story frames. O.—Mrs. Platt. \$4,000.

Filbert, bet. Hyde and Larkin. Alterations. O.—J. Moeller. A.—H. Geilfuss. C.—F. Klatt. \$3,200.

Fell, nr. Buchanan. Two-story frame. O.—J. Heilfron. A.—H. Geilfuss. O.—J. Blake. \$5,000.

Folsom, cor. Twenty-fourth. Two-story frame. O.—L. Bogeld. A.—C. I. Havens. C.—F. W. Kern. \$3,200.

Fifteenth, nr. Noe. Two-story frame and stable. O.—Geo. Starr. A.—Dam'roger. C.—A. Klahn. \$3,500.

Folsom, bet. Third and Fourth. Alterations. O.—Duchen & Lasalle. A.—M. J. Welsh. C.—R. Linnott. \$1,800.

Franklin, cor. Linden. Two two-story frames. O.—Jane James. C.—Chas. Jones. \$6,500.

Fillmore, nr. Fulton. Additions. O.—Chas. Becker. A.—John & Zimmerman. C.—W. Pluns. \$2,000.

Folsom, cor. Tenth. Frame buildings. O.—Mrs. C. H. Rogers. A.—T. J. Welsh. C.—W. P. Clark. \$12,000.

Franklin, cor. Linden Avenue. Two two-story frames. O.—Mrs. J. James. A.—S. and J. Newson. C.—C. L. B. Jones. \$5,500.

Folsom, cor. Twenty-fourth. Two-story frame. O.—L. Bagaler. A.—C. I. Havens. C.—F. W. Kern. \$3,000.

C
Gough, cor. Pine. Additions. O.—Raphael. \$800.

Gough, cor. Oak. Three two-story frames. O.—George Raphael. A.—Macy & Jordan. C.—N. R. Ellis. \$14,000.

Grove, bet. Gough and Octavia. Two-story frame. O.—G. Hoffman. A.—W. Winterhalter. C.—L. Weisman. \$3,700.

H
Howard, cor. Spear. One-story frame. O.—White Bros. \$3,000.

Haight, nr. Scott. Two-story frame. O.—M. McCarthy. A.—M. J. Welch. C.—T. Sullivan. \$3,500.

Harrison, bet. Second and Third. Two-story frame. O.—J. R. Watson. A.—Macy & Jordan. C.—O. E. White. \$10,000.

Hayes, nr. Baker. Three-story frame. O.—A. Goehring. A.—John & Zimmerman. C.—W. Pluns. \$8,000.

Henry, bet. Noe and Castro. Two-story frame. O.—G. B. Bellett. \$2,100.

Hill, nr. Valencia. Two-story frame. O.—Mrs. C. Weglehner. C.—F. W. Kern. \$3,500.

Howard, bet. Seventh and Eighth. Two-story frame. O.—J. Clancy. A.—H. D. Mitchell. C.—C. A. Flood. \$6,000.

Hyde, cor. Union. Additions. \$700.

- Hayes**, bet. Scott and Devisadero. Two-story frame. O.—Wm. Sullivan. C.—G. G. Gillespie. \$3,000.
- Howard**, cor. Lafayette. Three-story frame. O.—Maurice Sheehan. A.—C. I. Havens. C.—Doyle & Son. \$10,000.
- Herman**, bet. Valencia and West Mission. Two-story frame. O.—Market Street R. R. Co. \$3,000.
- Harrison**, nr. Sixteenth. Three one-story frames. O.—John Center. Day work. \$4,000.
- Harrison**, cor. Seventeenth. Additions. \$600.
- Hayes**, cor. Webster. Two-story frame. O.—A. Hughes. A.—Clark. C.—H. Kemman. \$4,000.
- Howard**, bet. Eleventh and Twelfth. Three-story frame. O.—W. A. Frederick. A.—C. I. Havens. C.—Doyle & Son. \$8,000.
- Hyde**, nr. Jackson. Two-story frame. O.—W. Velluth. A.—J. J. Newsom. C.—Wissinger & Co. \$5,000.
- Hill**, nr. Valencia. Alterations. O.—Caroline Weglehn. A.—H. Gelluss. C.—F. W. Kern. \$3,250.
- Haight**, nr. Braderick. Two-story frame. O.—J. Hughes. A.—J. J. Clark. C.—H. Keenan. \$4,000.
- Hayes**, nr. Baker. Two-story frame. O.—A. Goehring. A.—John & Zimmerman. C.—W. Plans. \$6,500.
- Illinois**, nr. Napa. Two-story frame. O.—and B.—John White. \$1,800.
- Kentucky**, nr. Napa. Two-story frame. O.—Ovicomi. \$2,000.
- Larkin**, cor. Union. Two-story frame. O.—Mrs. Hynes. C.—J. Adams. \$2,400.
- Larkin**, nr. Broadway. One-story frame. \$1,500.
- Leavenworth**, bet. Clay and Washington. Two-story frame. O.—Anna V. Daniels. A.—Piasis & Moore. C.—Moore Bros. \$5,000.
- Leavenworth**, nr. Pine. Two-story frame. O.—T. J. Shackelford. A.—J. M. Curtis. C.—Moore Bros. \$4,000.
- Lombard**, bet. Powell and Mason. Two-story frame. O.—J. B. Metzler. A.—John & Zimmerman. C.—B. Dryer. \$2,700.
- Leavenworth**, bet. Pine and California. Two-story frame. O.—Schackelford. A.—J. M. Curtis. \$4,000.
- Lombard**, bet. Powell and Mason. One-story frame. O.—Chas. Metzler. A.—John & Zimmerman. C.—B. Dryer. \$3,000.
- Market**, cor. City Hall Avenue. Three-story brick building. O.—George F. Martin. A.—W. F. Smith. Mason & Co. \$20,000.
- Mission**, bet. Eighteenth and Nineteenth. Three-story frame. O.—F. Eidenger. A.—Miller & Armitage. C.—F. V. Steinman. \$6,800.
- Market**, cor. Tenth. Three-story brick. O.—Mrs. Hopkins. A.—Moore & Shultz. \$125,000.
- Mason**, nr. Filbert. Two-story frame. O.—Corrigan. A.—Piasis & Moore. C.—Hedman & McLennan. \$7,000.
- Mission**, nr. Twentieth. Additions. \$700.
- Mission**, bet. Third and Fourth. Four-story brick and basement. O.—J. C. Roberts. A.—C. Kenitzer. C.—C. Chisholm. \$15,000.
- Minna**, nr. Ninth. Two-story frame. O.—Mrs. Corrigan. A.—J. J. Clark. Day work. \$2,700.
- Mission Road**. Two-story frame. O.—C. B. Rodgers. A.—J. J. Clark. C.—Doyle & Son. \$4,500.
- Magdalen Asylum**. Remodeling. A.—J. J. Clark. Day work.
- Mission**, bet. Eighteenth and Nineteenth. Three-story frame. O.—F. Eidenger. A.—Miller & Armitage. C.—J. O. Steinman. \$5,000.
- Octavia**, bet. Ellis and Eddy. Five two-story frames. O.—Estate of W. Sharon. A.—J. P. Gaynor. C.—A. Miller. \$40,000.
- Pacific**, bet. Gough and Octavia. Two-story frame. O.—L. Emanuel. A.—S. and J. C. Newsom. C.—J. H. McKay. \$7,500.
- Pine**, cor. Sansome. Alterations. O.—Dr. Ryar. \$6,000.
- Page**, cor. Broderick. Two-story frame. O.—Fred. Plageman. A.—John & Zimmerman. C.—Theodore Van Borstel. \$12,000.
- Post**, nr. Lyon. Additions. \$700.
- Pine**, cor. Jones. Improvements. \$1,000.
- Paraguay**, nr. Railroad Ave. Additions. O.—C. G. Meyer. A.—John & Zimmerman. C.—F. Bohnenberg. \$1,000.
- Post**, bet. Powell and Mason. Two-story frame. O.—Chas. Brenig. A.—W. Mosser. C.—A. Jackson. \$5,000.
- Post**, nr. Baker. Two-story frame. O.—L. Eder. A.—McDonagh & Son. C.—Townsend & Co. \$4,500.
- Seventeenth**, bet. Valencia and Guerrero. Two-story frame. O.—Mrs. M. Huan. A.—John & Zimmerman. C.—J. Klein. \$4,500.
- Sheridan**, bet. Ninth and Tenth. Two-story frame. O.—James Loneragan. C.—P. Lynch. \$2,500.
- Sutter**, bet. Jones and Leavenworth. Two two-story frames. O.—Mrs. H. Toy. A.—P. R. Schmidt. C.—S. H. Kent. \$8,500.
- Steiner**, cor. Jackson. Two-story frame. O.—M. J. Balfe. A.—Curlett & Cuthbertson. C.—W. Linden. \$8,000.
- Sansome**, nr. Jackson. Additions. O.—J. G. Kittle. A.—Percy & Hamilton. C.—George Richardson. \$3,500.
- Sansome**, cor. Sacramento. Additions. \$1,500.
- Speare**, bet. Market and Mission. Two-story brick. O.—Capt. Hartshorn. A.—Percy & Hamilton. C.—J. McCarthy. \$4,500.
- Sixteenth**, cor. Mission. Alterations. \$800.
- Sutter**, bet. Baker and Lyon. Alterations. O.—Hazelbrush. C.—Weinohl. \$800.
- Stockton**, nr. O'Farrell. Repairs. \$600.
- Sixteenth**, bet. Church and Sanchez. Two-story frame. O.—Enina A. Hunter. A.—Reed. C.—S. D. Matthews. \$3,000.
- Steiner**, cor. Jackson. Two-story frame. O.—M. J. Balfe. A.—Curlett & Cuthbertson. C.—W. Linden. \$5,500.
- Sutter**, nr. Webster. Two-story frame. O.—W. H. Kane. A.—J. T. Kidd. C.—W. Harmon. \$5,000.
- Scott**, nr. Washington. Two-story frame stable. O.—F. C. Talbot. A.—C. I. Havens. C.—Gray & Stover. \$1,500.
- Thirteenth Avenue**, nr. N. Frame dwelling and stable. O.—J. Betzold. A.—M. Balayaski. C.—B. F. Ellis. \$3,200.
- Turk**, bet. Laguna and Buchanan. Two-story frame. O.—Dr. Kleinburg. A.—J. E. Voekel. C.—J. K. McKay. \$6,000.
- Twenty-sixth**, cor. Serpentine Ave. Two frame buildings. O.—J. Fitzgerald. \$3,000.
- Twenty-ninth**, nr. Church. One-story frame. O.—J. L. Lyomon. C.—S. F. Daniels. \$1,000.
- Twenty-fourth**, cor. Church. Two-story frame. O.—Nicholas Thompson. C.—G. E. Houkes. \$4,000.
- Twenty-first**, cor. Vicksburg. Two-story frame. O.—John Foster. C.—W. P. Ruggles. \$3,500.
- Twenty-ninth**, cor. Church. Two-story frame. O.—H. Buttner. A.—R. Warren. C.—F. Mitchell. \$3,500.
- Vallejo**, nr. Laguna. Two-story frame. O.—Mrs. S. M. Huntington. A.—and C.—W. H. Wharf. \$3,600.
- Virginia Avenue**, cor. Mission Road. Two-story frame. O.—P. B. Rogers. A.—J. J. Clark. C.—Doyle & Son. \$4,500.
- Van Ness**, cor. Ellis. Additions. O.—D. Hunter. \$700.
- Valencia**, bet. Twentieth and Twenty-first. Additions. \$500.
- Valencia**, bet. Twenty-second and Twenty-third. Two two-story frames. O.—Joseph Moore. A.—C. I. Havens. C.—F. W. Kern. \$6,500.
- Van Ness Avenue**, cor. California. Conservatory. O.—Stoss. \$500.
- Waller**, cor. Webster. Two two-story frames. O.—J. Williamson. A.—C. V. Pierce. C.—Kincaid & Thompson. \$6,000.
- Washington**, bet. Fillmore and Steiner. Two-story frame. O.—F. F. Laplace. A.—Huerne & Everett. C.—F. Buckley. \$5,500.

CARPENTRY MADE EASY.

By Wm. E. Bell, a practical mechanic, who fully appreciates, from personal experience, that there are many things perplexing to under stand and difficult to do until they are fully explained and tested. It is designed to make the science and art of carpentry clear and comparatively easy to all who require information on the subject. Price, \$5.00 by express, prepaid.

HOWARD CHALLEN, Publisher,
150 NASSAU STREET, NEW YORK.

THE CALIFORNIA ARCHITECT AND BUILDING NEWS.

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A Square is One Inch In Depth By Width of Single Column.

Advertisements alone inserted that refer to materials used in the construction and furnishing of houses, and to matters and trades belonging to the building interest.

No Others Received.

SAN FRANCISCO, CAL., JULY 15, 1887.

The Fire Ordinances.

IN view of the fact that Acting Police Judge Page has declared order No. 1752, comprising all ordinances relating to fire matters and building construction, invalid, a general meeting of the architects in San Francisco was called and a representative number assembled on the 17th of June last to take the situation into consideration—there being no difference of opinion among the members of the profession that the order named was, and as re-enacted is, defective and insufficient. A free discussion of the subject matter was entered into, resulting in the appointment of a committee of three to prepare a petition to the Board of Supervisors asking that action be deferred in the re-passage of the order until amendatory suggestion could be prepared—it being declared invalid simply upon the technical ground of insufficient publication and requiring only proper re-publication to render it again effective.

The committee performed the duty assigned them, and although the time for completing their work was exceedingly limited, thirty-six of the most prominent architects readily appended their signatures to the petition, which was duly presented to the Board and referred without producing the result desired.

The reason for this was, as expressed by His Honor the Mayor and members of the Board, that unless the invalid order was repealed the city might be without any fire law. That while the invalidation restored the ordinance operating prior to the passage of 1752, it was not an assured fact that it would stand the scrutiny and assault of some shrewd limb of the law, who might seek and find fatal defects therein, resulting in like fate that befell order 1752; consequently, for the city's protection and safety, it became necessary to re-enact the invalid order with all its deficiencies and defects until a better could be provided. The

assurance was also given that whenever a more practical form of Fire and Building Ordinance should be presented, the Board would give it attention and careful consideration, and if found to be an improvement upon the present, it would be passed.

This places the whole matter in the hands of the architects, builders, and others most directly interested to formulate a code of Building Ordinances that will meet every requirement of the fire department and the entire building fraternity, not including those features which may be more specially denominated Fire Ordinances, relating to destructive agencies, etc.

There is no disposition expressed on the part of either the architects or builders in San Francisco to antagonize the fire wardens, or the chief or members of the fire department, but there is an earnest wish that an ordinance may soon be perfected, relieved of all those features which in the past have caused annoyances, vexations, arrests, etc., for causes which if placed within the arbitration of a board of impartial, competent referees, would be given consideration according to merit, and adjusted upon equitable basis, instead of—as in the present ordinance—the same rule applying in all cases, while in fact scarcely any two are relatively equal. But if anything is to be effected in the matter, the architects or builders, jointly or severally, must take the initiative, and proceed as best judgment and experience may suggest.

Perfect Ventilation and Pure Air Essential to Human Life and Health.

THIS no intelligent person will question. It is a fact so universally understood that argument in its support is wholly unnecessary; still, while its vital importance is universally admitted, and its factorship in the healthfulness of mankind recognized, a strange degree of apathy, except in words, exists in the practical application of the means best calculated to secure this highly essential provision of the great Creator, who, in his creation of our earth, not only fixed the great sources of light in the firmament, but also surrounded the planet upon which we dwell with the prerequisite to health—pure air. As is well known, its entire absence produces death, and human life and health, in large degree, are affected by the free or restricted use of this health-giving agency.

All this being well understood, tens of thousands have employed their genius, talents, and both mechanical and scientific skill in discovering and devising the most perfect and practical method of utilizing this indispensable element in dwellings, churches, school-houses, theaters, and places where people dwell or assemble in large numbers for purposes of worship or pleasure, and as a result numerous devices have been worked out and applied that in part, at least, have produced the object sought, while but few of the inexpensive kind have gained a perpetuity beyond occasional use.

Hence it is with pleasure that we notice the invention of our fellow-townsmen, Mr. P. Abrahamson, who has perfected a ventilator that must supersede all others in its simplicity, completeness, and practicability. The array of testimonials from those who have used them should be sufficient to satisfy the most scrupulous as to its effectiveness, giving, as it does, an abundant supply of fresh air without a particle of draft. It is practical for all purposes of ventilation, from the sick room to the largest structures in which people live or assemble.

Building Summary.

For the first time this year, our monthly report is larger than its predecessor in 1886. Values of reported improvements to date are far ahead of last year to similar period. During the month there have been commenced of building improvements,

70 frame buildings, value	\$648,700
2 brick " "	52,500
20 alterations " "	50,500
92 " " " "	\$751,700

The high prices of building materials is materially affecting the construction of small houses.

Price of Lumber Again Advanced.

ANOTHER dollar has been added to the price of lumber, thus making rough lumber \$21 per M; rustic, \$36 per M, and other kinds in proportion. Our list will be found corrected so as to correspond with latest quotations. We sincerely hope that the "raise" will come to a halt very soon. Lumber is now 75 per cent greater in price than it was a short time ago. We repeat again that the erection of small buildings has been practically stopped on account of the exorbitant price of materials.

Wood Mantels.

THE firm of L. and E. Emmanuel is one of our largest manufacturers of wood mantels. In a conversation with these practical men the following points were brought out:—
"The old mantels in England were made of wood. It took America a long time to discover, however, that grave-yard material is not exactly the thing to incase fire-places. Why mantels made out of marble slabs should have been introduced, it is difficult in the light of present tastes to understand. They are cold and gloomy. There is a home look about a wooden mantel that is an incentive to proper home conduct. We are not prepared to say that marble mantels have caused unpleasantness that has led to divorce, but it would not be surprising to learn that they had. Pleasant surroundings lead to contentment and happiness. No one will dispute the influence of flowers, happily chosen wall decorations and works of art. White marble slabs in our parlors and drawing rooms do not inspire the sympathetic side of human nature. The feeling is to get away from them, and there should be nothing in a home which the inmates should want to get away from. There is nothing inviting about such mantels. They are repellent. They are going fast, and let us hope that no vitiated taste will whirl them into fashion again."

Mechanics' Liens.

THE laws of nearly all the States and Territories provide for the securing and collection of builders' and mechanics' liens upon property for which materials have been furnished, or on which labor has been performed. The following is a synopsis of the general laws relating to these liens:—
A lien is lost by the voluntary surrender of the property to the owner or his agent. There is no common law lien without possession. It is a right created by law in favor of the tavern-keepers, livery-men, pasturers, carriers and mechanics. It may be created by contract between the parties, as in a lease.

Whatever is affixed to land belongs to the owner of the land, except in a few cases. Hence, carpenters who built houses on the land of others had no lien. But as the principle is just, and the practice beneficial, States have, by law, given builders and persons who furnish material a lien on the land and building, if claimed within a limited time. Under this kind of mechanics' lien, no possession is required. The right to pay the charge and take the property is a right of redemption which is lost by a public sale of the property. The surplus, if any, is paid to the owner.

Liens by State law are generally foreclosed in a court upon a petition for that purpose. By its decree the property is sold and the proceeds divided according to the rights of the parties.

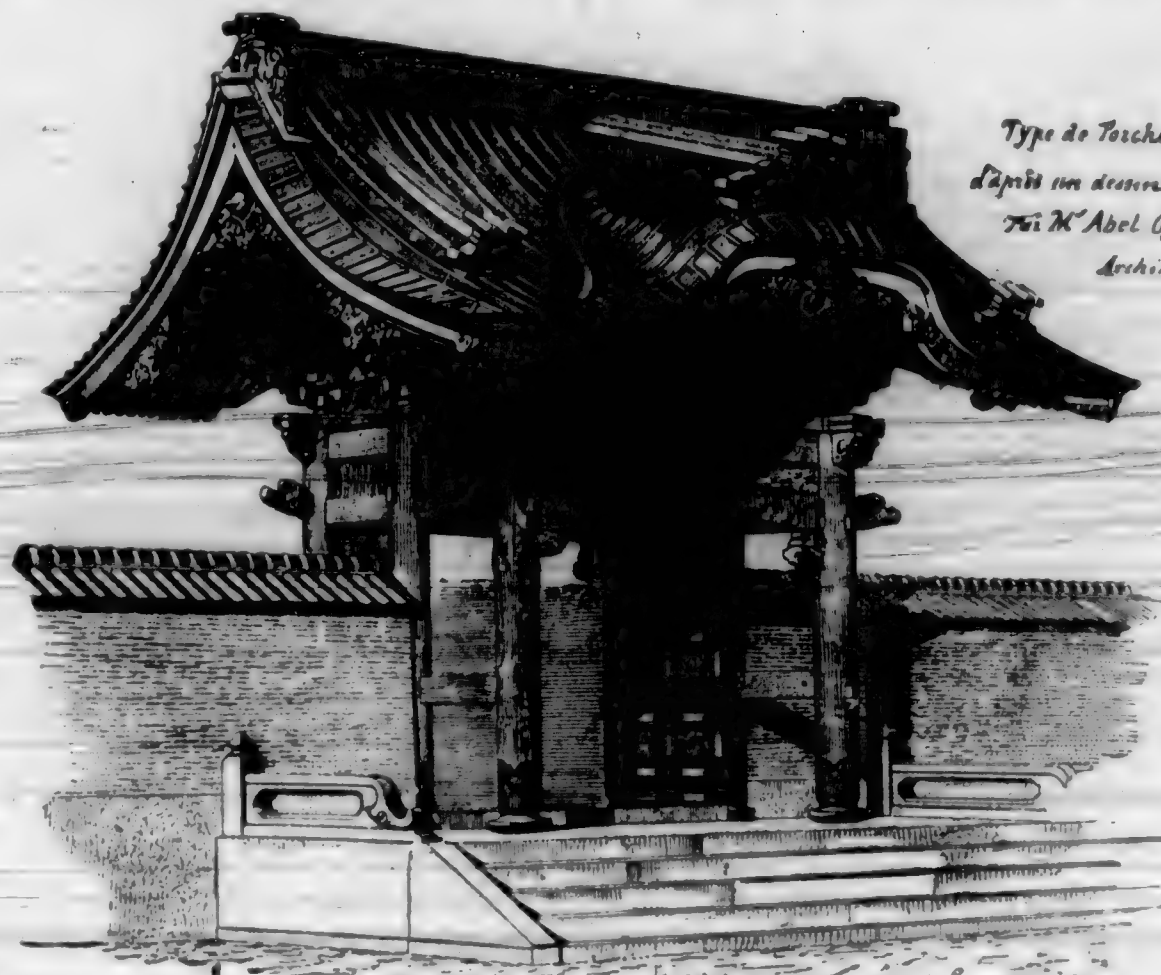
Liens may, in certain States, be enforced against vessels and wharves as well as buildings, for construction, alteration, or repairs. In most States, while the same general principle is maintained, the modes of procedure vary.

A workman desiring the protection of the law for the security of his wages, may draw up a paper, addressed to the county clerk of the county where the work was done, filled up in a manner similar to the following form, setting forth all the circumstances of the work done, his bargain with the contractor, the failure to receive his pay, and his fears that he will lose all if his lien is not made. This paper, sworn to before a justice or notary public as true, is filed in the county clerk's office and becomes a cloud upon the building, which the owner is only too glad, frequently, to remove by paying the debt himself and taking it out of the contractor's bill. In either event the owner or contractor must pay the debt if it is an honest one.

NOTICE TO THE COUNTY CLERK.

To Philip Best, clerk of the city and county of New York, in the State of New York:—

Sir: Please to take notice that I, James Van Horn, residing at No. 45 Conkling Avenue, in the city of New York, in said county, have claim against William Y. Heath, owner (or only contractor, as the case may be)



of a new two-story brick dwelling-house, amounting to Nineteen Hundred and Sixty-two Dollars and forty cents, now due to me, and that the claim is made for and on account of brick furnished and labor done before the whole work on said building was completed, and which labor and materials were done and furnished within three months of the date of this notice; and that such work and brick were done and furnished in pursuance of a contract for twenty thousand serviceable brick and the mason work of putting up the outer walls of said new building, between the undersigned and the said William Y. Heath, which building is situated on lot —, in block —, in West's Addition to the city of New York, on the west side of Salina Avenue, and is known as No. 432 of said avenue. The following is a diagram of said premises:

[Insert diagram.]

And that I have and claim a lien upon said dwelling house and the appurtenances and lot on which the same stands, pursuant to the provisions of an Act of the Legislature of the State of New York, entitled, "An Act to secure the payment of mechanics, laborers, and persons furnishing material toward the erection, altering, or repairing of buildings in the city of New York," passed, — 18—, and of the Acts amending the same.

JAMES VAN HORN.

New York, December 1, 1882.

James Van Horn, being duly sworn, says that he is the claimant mentioned in the foregoing notice of lien; that he has read the said notice, and knows the contents; and that the same is true to his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he believes it to be true.

JAMES VAN HORN.

Sworn before me this first day of December, A. D. 1882.

J. L. LESLIE, Police Justice.

The lien laws of certain States provide that any person who shall either labor himself, or furnish laborers or materials for constructing, altering, or repairing any building, shall have a lien therefor upon such building and the specific lot or tract of land on which it is located; but a suit to enforce payment of said claim must begin within six months from the time the last payment therefor is due. Landlords, also, may enforce a lien for arrears of rent upon all crops of their tenants, whether growing or matured.—*Hill's National Builder.*

A REMARKABLE TREE.—A Nevada paper describes a remarkable kind of wood which is said to grow there. The trees do not grow large, a tree with a trunk about a foot in diameter being much above the average. When dry the wood is about as hard as boxwood, and being of a very fine grain, might, no doubt, be used for the same purposes. It is of a rich red color and very heavy. When well seasoned it would be a fine material for the wood carver. In the early days it was used for making boxes, for shafting, and in a few instances for shoes and dies in quartz batteries. Used as a fuel it creates an intense heat. It burns with a blaze as long as ordinary wood would last, and is then found—almost unchanged in form—converted into charcoal that lasts twice as long as ordinary wood. For fuel, a cord of it brings the same price as a ton of coal. Unfortunately it burns out stoves faster than any kind of coal.

DRAUGHTSMEN SCARCE.

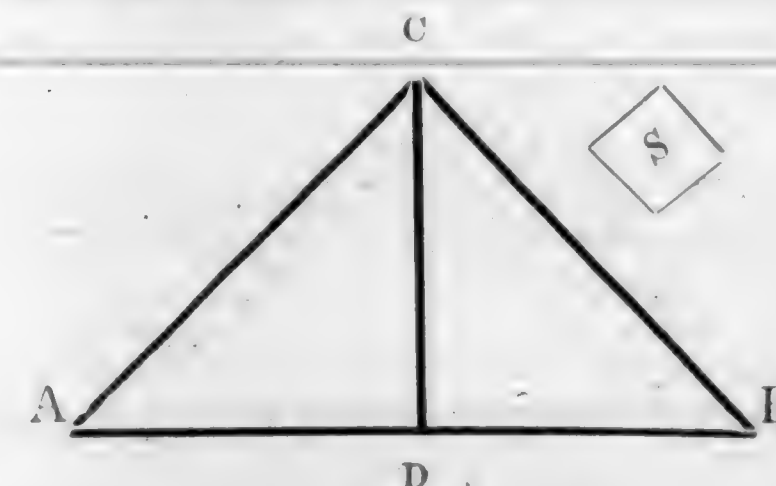
Still the demand for draughtsmen is unabated, and many architects are really pressed for help. We can readily place twenty first-class draughtsmen in good positions. Any information will be furnished upon application to this office, either in person or by letter.

ASKED, ANSWERED, and COMMUNICATED.



Two Steel Square Problems.

TO DETERMINE by the steel square the result of any number, for example—6 multiplied by the sin 45°. Take 6 on both blade and tongue, and mark the line AC=BC=6. Then CD drawn to the middle of AB=6x sin 45°. Sin 45°=0.70711.



STEEL SQUARE PROBLEM.

Problem.—Referring to any rectangular frame-work which slopes alike on all four sides. **Given.**—The rise and seat of the corner-posts. **Required.**—The cuts for the ends of the corner-posts, the blade of the level to be applied to the two faces adjoining to the ridge-line.

By the Steel Square.—On the blade take the rise. On the tongue take the seat x sin 45°. Mark along the tongue. The angle made by the tongue and the line is the proper bevel.

Problem.—**Given.**—The run and rise of a common roof. We wish to place upon it a perpendicular square pipe to stand upon the

roof diamond-shaped, thus: Re-

quired.—The cuts for the bottom end of the pipe; the blade of the bevel to be applied to the two faces adjoining the lowermost vertical edge.

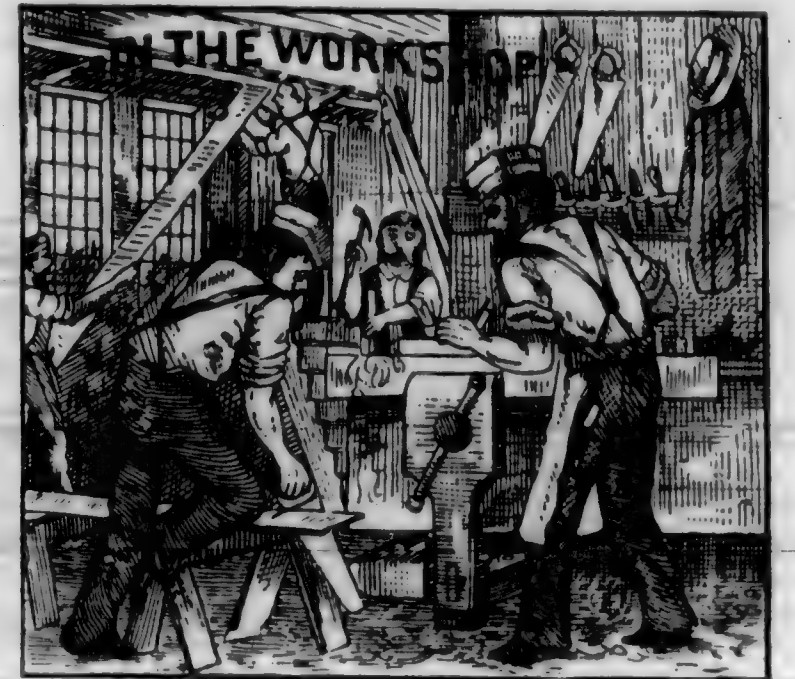
By the Steel Square.—On the blade take the run of the roof. On the tongue take the rise x sin 45°. Mark along the tongue. The angle made by the tongue and the line is the proper bevel.

If the bevel is applied to mark the end of the higher half of the pipe, we have only to reverse the direction of the stock of the bevel so as to mark an obtuse angle.

These two problems are very much alike. Their demonstration is a good study in solid geometry.—*Fred Lacey, in Builder and Wood Worker.*

To remove paint and putty from window glass put sufficient saleratus into hot water to make a strong solution, and with this saturate the paint or putty which adheres to the glass. Let it remain until nearly dry, then rub off with a woolen cloth.

Architects, Contractors, Carpenters, and mechanics generally are respectfully requested to furnish us items of interest for this column. We will gladly answer any and all questions pertaining to the architectural and building interests. If illustrations are necessary to explain your ideas, send us a sketch of them, and we will make the cuts. We especially invite suggestions from apprentices and young mechanics.



Architectural Pupilage.

MR. WILLIAM WOODWARD, an English architect, gives a father the following advice concerning instruction for a son who expects to become an architect:—

1. Do not think that he is in a fair way of doing justice to himself, or to his master, by confining his studies to the office hours. Home studies, schools of art, and the other accessible fields of morning and evening architectural education, are absolutely necessary.

2. Do not think that your son has acquired much more than the rudiments of his business at the end of three or five years of pupilage, or that the architect with whom you have placed him will be able to inject into him the knowledge which his master has taken thirty years of practice to acquire.

3. At the end of his three or five years of pupilage, put him into another architect's office for, say, another five years, as an improver. This will enlarge his mind, and get him out of a few awkward grooves into which he slipped in the first office; or, better still, if within your power, let him commence practice on property which is entirely your own.

4. Unless you have friends who will secure him employment at the end of his educational career, settle the largest annuity upon him; he will require it.

5. There are abundantly ample (perhaps too many) sources of architectural knowledge open to your son; the rest is in his own hands.

A PRACTICAL HINT.—This was the way a country blacksmith was seen removing that portion of the ax handle from the ax that remained in the eye, the break being close to the iron. The wood could not be driven out, and as nails had been driven in at the end, it could not be bored out. He drove the bit, or sharp edge, into moist earth, and built a fire around the projecting part. The wood was soon charred so that it was easily removed. The moist earth so protected the tempered part of the ax that it sustained no injury.

For glue to be properly effective it requires to penetrate the pores of the wood, and the more a body of glue penetrates the wood the more substantial the joint will remain. Glues that take the longest to dry are to be preferred to those that dry quickly, the slow-drying glues being always the strongest, other things being equal. For general use no method gives such good results as the following: Break the glue up small, put into an iron kettle, cover the glue with water and allow it to soak twelve hours; after soaking boil until dense. Then pour

it into an air-tight box; leave the cover off until cold, then cover up tight. As glue is required, cut out a portion and melt in the usual way. Expose no more of the made glue to the atmosphere for any length of time than is necessary, as the atmosphere is very destructive to made glue. Never heat made glue in a pot that is subjected to the direct heat of the fire or a lamp. All such methods of heating glue cannot be condemned in terms too severe. Do not use thick glue for joints or veneering. In all cases work it well into the wood in a similar manner to what painters do with paint. Glue both surfaces of your work, excepting in case of veneering. Never glue upon hot wood, or use hot cauls to veneer with, as the hot wood will absorb all the water in the glue too suddenly, and leave only a very little residue, with no adhesive power in it.

THE DAM AT SAN MATEO.—A remarkable dam is about to be constructed by a water company at the San Mateo Cañon, four miles from San Mateo, Cal., in order to form a reservoir. The cañon is very narrow and steep, and 15 feet below the bottom is a solid rock on which the foundation of the dam will rest. The structure will be 170 feet high, 175 feet wide at base, 20 feet at the top, and 700 feet in length. It will be the largest stone dam ever known to have been built. The dike will have a curvature of eighty feet, and the convex side will be upstream. The material will be a new sort of concrete composed of stones. The walls will be perfectly smooth. The reservoir that will be formed by it and the adjacent hills will be about eight miles in length and 150 feet deep in the deepest places. Its capacity will be about 32,000,000,000 gallons. The water will be conveyed by tunnels to the city of San Francisco.

PAINT on the walls of a kitchen is much better than kalsomine or whitewash. Any woman who can whitewash can paint her own kitchen. The wall needs first to be washed with soap-suds, then covered with a coat of dissolved glue; this must be allowed to dry thoroughly, and then covered with paint. A broad flat brush does the work quickly.

In times now long past, flooring strips were supposed to be thoroughly seasoned before they were put down, but now the tree that stands in the forest to-day may form the floor that is laid a week or ten days hence.

When cleaning a stove, if a small quantity of sugar is put into the stove blacking it will not burn off so quickly.

A PORTABLE SAW MILL.



The Essentials of Perspective.

A New Work, by L. W. MILLER.

The aim of the book is to simplify and make real the basic laws underlying the draughtsman's art, in the hope that correct habits of thought and expression will aid in developing an art that will be symmetrical and harmonious, and not disfigured by the errors too often noticed in the work of our artists.

The point of view throughout is that of the artist rather than the merely scientific theorist, and the result is a thoroughly practical and simple text-book free from all unessential or theoretical discussion.

The style is clear, direct, and practical, and its instructions are happily supplemented by the numerous drawings which the author informs us "are the same that he has used for many years in teaching perspective from the blackboard." They therefore have the merit of practically illustrating the fundamental principles of the science, and are purposely made free from burdensome details in order that the applications made may be apparent at a glance.

PRICE, \$1.50.

We will send a copy, post-paid, to any address upon receipt of the publisher's price, one dollar and fifty cents.

THE above engraving represents a familiar scene to those who have watched the gradual clearing of our forests. In certain localities the timber, from a distance, looks like an immense forest, capable of yielding

millions of feet of lumber; but, upon close inspection, the area is very limited that will furnish material for first-class lumber. Again, there are regions that seem to require just so much lumber. The portable mill shown in cut is especially adapted to just such places. Easily moved from place to place, and with a cutting capacity of many thousands of feet per day, the mill recommends itself to the consideration of those who are endeavoring to build up new towns. Full particulars can be obtained by addressing the J. I. Case Co., Racine, Wis.

Agreeable Colors.

THE most agreeable colors are those difficult to name which seem to tremble on the verge of another color. Both white and black are, in nearly every case, enriched and improved by judicious tempering with other colors. Thus white will be improved with a dash of yellow or red for warmth, blue or green for coldness, so that a green tinted white will look best in a pattern where there is much Indian red, and a pinky white may be opposed to much blue or gray. Black is always improved by the addition of a little blue, in which we follow nature, who rarely employs black unmixed with other color. Black is, after all, a relative color, requiring contrast to advantageously set it off. Under certain circumstances, where it would have a harsh or unpleasant effect, burnt umber may be made to stand for it. It is noticeable that emerald green, so beautiful in itself, regarded as a color, is terribly self-assertive.—*Painters' Magazine.*

The Pyramids of Ghizeh.



PON the western banks of the Nile, within a few miles of the renowned city of Cairo, are to be seen the wonderful tombs of Egyptian kings, the pyramids.

Although there are many such structures scattered over the sands of the desert, the three pyramids at Ghizeh command our attention as the most remarkable evidence of mechanical skill and constructive genius of all ancient works. The largest pyramid, as shown by our illustration, stands upon the rock plateau of the Nile, a few hundred feet from its banks, and is the grandest edifice—if it may be so termed—ever erected under the Egyptian monarchs.

The largest, or the Pyramid of Cheops, was 480 feet high, and its base is a square measuring 764 feet, and covers an area of about thirteen acres. It is constructed of an almost solid pile of stone masonry, consisting of about two hundred courses, each gradually receding back of the other until the top is reached, which originally was a point, but is now a platform thirty-two feet square.

It is believed that these pyramids were covered with an outer casing of stone or marble. The great pyramid, however, was covered with syenite, red granite, brought from a quarry situated near Syene, nearly 500 miles from Ghizeh. Many remains of this ancient covering are to be found at the base of this pyramid, while a portion of it still remains in place. The theory that these stupendous structures were erected for the purpose of kingly tombs, is evinced from the fact that part way up the side upon the north face is to be found a small opening, that originally was sealed up and covered over, probably for ages. Connecting this entrance were long, narrow passages, terminating in small sepulchral chambers, that originally contained the mummy case of the dead. These have long since been removed by relic hunters and explorers.

The four faces, or sides, of the pyramids are directed to the four cardinal points of the compass, proving that the ancients were acquainted with the laws that govern modern science.

One of the wonderful features of these grand structures, from a mechanical point of view, is the large size of some of the stones used. They gradually vary from the largest at the bottom, from six feet square by sixteen feet long, to three feet by eight feet, the platform at the top being formed of nine large stones, each weighing a ton. When we contemplate the complicated machinery required to raise these blocks to a height of five hundred feet, we are nonplussed; but when we realize that many of these massive blocks, weighing from ten to thirty tons, were brought from four to five hundred miles, we are amazed at the resource, genius, and constructive ability of that singular and remarkable race of people, the ancient Egyptians.

THE SPHINX—THE GIGANTIC MONUMENT OF ANTIQUITY—A REMINISCENCE OF EGYPT.

A few years ago the editor of this journal terminated a long and interesting tour of Egypt at Cairo, within the shadow of the prehistoric pyramids, and surrounded by the mighty relics of the Egyptian dynasties. Standing on the banks of the historical Nile, and looking out upon that almost unknown sea, the great desert, whose rolling sands have for ages buried many gigantic works of the ancients, our attention is arrested by those huge piles of masonry, which serve as tombs for numberless dead, and which we have learned to call the Pyramids of Ghizeh. Within

three hundred paces of these colossal ruins stands the most striking object to be found in Egypt.

As if keeping sentinel over the downfall of a mighty people, guarding the sacred relics from the hand of the modern vandal, the Sphinx, that colossus of monolithic structures, raises its head above the ever-drifting, restless sands. Its face turned toward the east—staring into vacancy and the events of centuries—gigantic, majestic, awe-inspiring, it has witnessed the flight of time for nearly seven thousand years, witnessed the birth and fall of dynasties, the rise and decline of empires, the origin and destiny of Republics.

The archaeologist, who wanders amongst the ruins of ancient Egypt, soon learns that upon that ancient highway, the Nile, are to be found the stupendous and gigantic structures that seem to have exhausted all human resources and rules of mechanics; the lofty walls and monolithic columns of Carnak and Luxor, the colossal statues of Memnon and Rameses, the Caryatid Temple of Ipsamboul, all strike the beholder with a profound awe and reverence, not only for the mighty works themselves, but the resources and deeds of a powerful and potent people.

The Sphinx, in comparison with the great stone structures of Egypt, stands pre-eminently the grandest work of time. Of an uncertain era, yet belonging to prehistoric ages, its workmanship bears witness to a period of educated art that even the lapse of ages, and the hand of time, have not obliterated.

It has generally been supposed that the Sphinx was a stone image entire, partaking of the head and shoulders of a man, and the breast and body of an animal, as many of the Sphinxes of Thebes and Carnak were formed, but recent excavations have dispelled the idea.

It was demonstrated by Cavaglia, in 1816, that the Sphinx of Ghizeh was shaped from a spur of solid rock, and that instead of being a body formed from the rock itself, it is little more than a gigantic head, 172 feet long and 56 feet high. The length is derived from what would seem to be the rear end of the spur or rock to the nose. The height is from the neck to the top of the head.

The rock in front of the figure or breast was removed by the ancient builders to a depth of fifty feet below the neck, or level



Pyramid of Cheops and the Sphinx, Remarkable as a Work of Masonry and Sculpture.

of the sand on the pyramidal plateau, near which the Sphinx stands.

Cavaglia found, upon removing the sand which had for ages accumulated about the breast of the figure, that two thousand three hundred years ago there existed a small nave or temple, built in front of the breast. This chapel was formed of three tablets, dedicated by the Egyptian monarchs, Thothemes III. and Rameses II., to their deity, the sun, of which the Sphinx was the emblem. These tablets formed the three sides of the temple, the fourth being composed of doors, on either side of which were recumbent lions, as if guarding the entrance. Opposite the doorway was placed a miniature altar, supported between the fore-paws of a lion. This is believed to be of Roman origin. In 1869 another effort was made to excavate the statue that had become buried to the neck by the ever-drifting sand, when it was found that surrounding the Sphinx, nearly circular in form, was a flight of stone steps descending from the surrounding plateau to the temple before spoken of, and it is now believed that the statue stands in the midst of a circular basin of stone, hollowed out of the solid rock, and that the Sphinx was left in the center, while the surrounding rock was excavated. The rock from which the figure is cut is the common granite to be found on the Nile, and from which much of the work is constructed that lines the banks.

Upon examination it will be found that the Sphinx has been repaired by the introduction of blocks of red syenite or granite, but this work is generally supposed to be of Roman origin. Much of the stone used for this purpose seems to have been



DESIGN FOR A SUBURBAN RESIDENCE TO BE BUILT OF STONE.

brought from the neighboring temple of Khafra, which was constructed of red syenite.

We note that at present renewed efforts are being made under the supervision of Messrs. Maspero and Grebaut, the noted engineers, to excavate the figure. Already the level of the platform temple and steps has been reached, after a continued labor of fifteen months, and it is expected that the excavations will be so far continued that we shall know more of the origin and purpose of this gigantic sentinel of the desert.—*Hill's National Builder*.

Working Without Thinking.

THE practice is too common for the mechanic to work without thinking. Having learned a trade he goes through a daily routine, which is so familiar that he could almost do it with his eyes closed, or in the dark. The part he has to do probably has little or no variety in it, and he settles down to the conclusion that there is no avenue open to him for advancement. He works like an inanimate machine, which, when the power is on whirs away day in and day out, until it is worn out, and unfit for further duty.

The unthinking workman does not closely observe even his own field of operation, and therefore never suggests any improvement in methods or material. A worker in woods, of this type, never stops to inquire from whence his supply of wood is obtained; when is the best time to cut timber, the better method of seasoning it, its extreme strength and durability; nothing is thought of beyond the mere fact that it is to be worked up into wheels, bodies, buildings, etc., as the case may be. Should anyone put the question to him covering either of the above, he would very likely give the curt reply that he had not time to bother his brains with such things, as they would be of no value to him.

The above model will serve for mechanics of every kind. It is a fact that some of the most valuable improvements have been thought out by men who worked at an entirely different branch from that to which the improvement pertained. In the carriage line the body-maker has invented a new kind of spring, axle, or something else. The blacksmith may have studied out an improvement on the sewing machine; the painter, a new tap and joints, and the trimmer has brought to light a patent priming or filler for woods. One's own trade seems to warp the mind, and from its monotony cause a lack of interest therein, beyond a desire to push it through and get done with it.

Now, if the skilled workman would take greater pride in his calling, and endeavor to master its every feature by long and arduous study, there would soon be wonderful advancement in the mechanic arts.—*Painters' Magazine*.

Harvey's Hot Water System of Heating.

THE difficulty of obtaining a uniform distribution of heat in buildings warmed by hot-air furnaces is well-known, and this difficulty has been met and overcome by an ingenious device consisting of a water-back in the furnace and water radiators in rooms remote from furnace where more heat is desired; this is produced by hot-water circulation, a very superior method of heating all kinds of buildings, especially dwelling-houses. The advantages in the use of this improvement in ordinary hot-air furnaces will be readily seen and appreciated by anyone familiar with furnace and hot-water heat. The hot-water circulation begins as soon as the furnace fire is started and the heat of the radiators increases and diminishes with the heat of the furnace and continues long after the furnace fire is out. Just here is where the economy comes in, and it is one of the principal advantages that this combination possesses over that of the combination hot-air and steam furnace where no heat is derived from radiators until steam is made, and should the fire become too low to make steam the radiators get cold.

The Bundy Hot-water Radiator, with vertical tubes and its upper and lower circulating chambers, is perhaps the most efficient, and is pronounced by those who have used it the quickest circulator on the market. It has been extensively used in Canada, England, and the United States for the past three years.

The cost of such an appliance is very moderate.

Its economy is unquestionable.

Its durability is the strongest argument favoring its use.

The comfort afforded and the advantages to health are of the most practical importance.

It is equally adapted to the small cottage or the largest residence.

In building a new house a large proportion of the expense of this system can be saved by discarding the extra chimneys and mantels, one chimney being sufficient.

It can readily be introduced into houses already occupied without damage to the walls, furniture, or carpets.

C. D. Harvey not only introduces the Bundy Radiator, but also the Harvey Hot-water Radiator and Furnace, to the attention of those who desire first-class methods of heating houses.

Mr. Harvey has been in this city over TEN YEARS and has introduced his system in over five hundred different houses. Upon application he will furnish a list of testimonials in accordance with the above.

Mr. Harvey can be found at 30 New Montgomery Street, corner Jessie. He has the largest stock, embracing all the latest improvements in the heating line, to be found west of the Mississippi Valley.

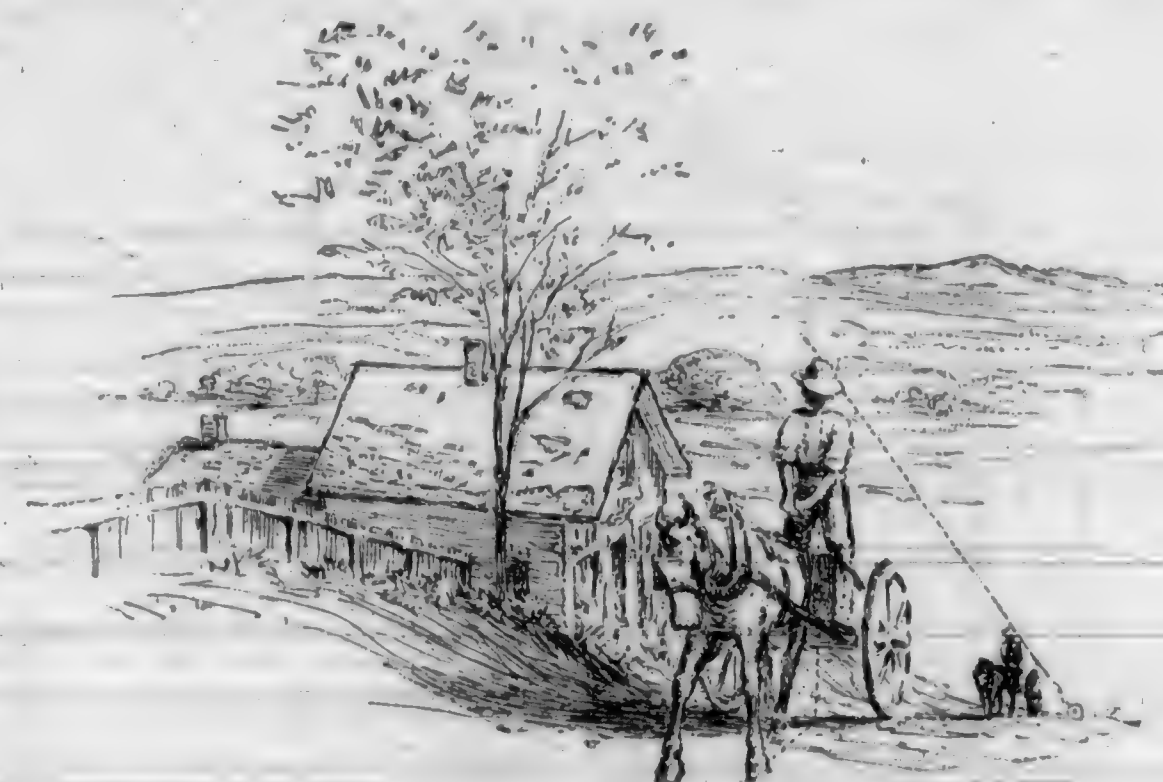
The Essentials of Perspective.

BY L. W. MILLER.

I WISH for a moment to consider the principles of perspective as applied to fixing the sizes of the objects represented. In the first place, let it be clearly understood that the only measurements which are of any consequence to the draughtsman are relative measurements. As far as the artist is concerned, he never thinks of any others; but architects and others who work from plans and elevations which are drawn to scale, do indeed use the actual measures, because in their case that is the most convenient way, but even then the actual measures become relative as fast as they are applied to the drawing, and these last are the only ones which appear in the result.

The term "drawing to scale," an expression constantly used in connection with the construction of geometrical plans and diagrams, has absolutely no significance when applied to a drawing in perspective. You may draw two or three lines in it by scale if you wish, but all the others will have to be measured by means of these; and even the first two or three may be put in just exactly as well without reference to any scale at all, and indeed much better, as far as producing a good effect is concerned. No one can tell in looking at a perspective drawing whether a building is twenty feet high or fifty feet, except by comparing it with some other object for which we carry a fairly accurate standard in our minds. Steps, for example, are of about the same height for all kinds of buildings and furnish a pretty good standard by which to measure other things; and lamp posts, gateways, for foot-paths, etc., serve a similar purpose. The commonest and surest standard of heights is, however, the human figure. The horse answers pretty well, but you are not so sure of him. A pony may easily be mistaken for a horse, but a child will never be mistaken for a man if he has been drawn in any respectable fashion; and so the magnitudes of a picture become intelligible the moment the human figure is introduced.

Two kinds of measurements are employed in making pictures. The first enables us to determine the apparent size of an object with reference to some very obvious dimension—its height, for instance; the other relates to the foreshortening of objects, and to fixing distances between them, along lines which run to a vanishing point.



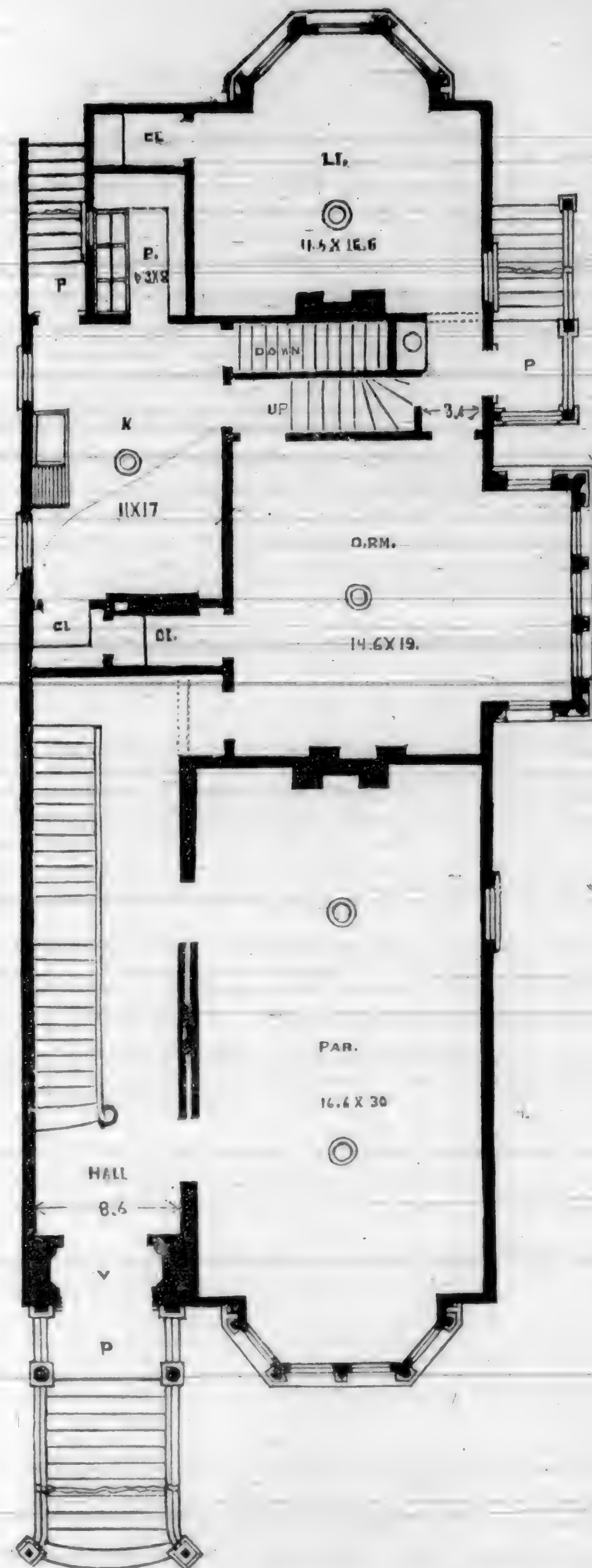
Look at the small engraving at top of page. It is quite a different, and a very much easier, matter to determine how high one driver's head ought to be, as compared with the other's, than it would be to measure the distance between the two. Now the length of the house might be compared with that of another one which was known to stand parallel with it—supposing such an one had appeared in the picture—by just such a process as that employed to determine the relative heights of the two men; but the width of the end of the house—which, as you see, faces the road—would have to be determined by the same method as that which would be employed to measure the distance between the carts.

The same is manifestly true of the spacing of the posts in the fence, or of the widths of the windows, and, generally, of all distances which one has occasion to measure along lines, which are said to "run into the picture," because they go to a vanishing point.

* * * * *
MEASUREMENTS BY MEANS OF TRIANGLES.

If the method of measuring by means of diagonals of squares is not applicable to every case that can possibly arise in the course of a draughtsman's practice, another and more general





statement of what really amounts to the same principle, will be found to be so; and as the greater includes the less, this other method might have been described in the first place, and all that has been said about diagonals omitted; if the method explained had not been not only simpler, and for that reason more convenient whenever it was applicable (and it almost always is, as artists use perspective) but being somewhat easier to understand, its discussion beforehand serves a very good purpose.

If in measuring the windows in a previous study it had also been necessary or desirable to determine the exact length of the house itself, the reader will see that we have not yet learned enough about perspective to do it; there is a way, however, of fixing such measures.

The width of each window and the length of the house itself in our large sketch shown were fixed in this way—at least they might have been so determined, if the drawing had been made to measure instead of being sketched on the spot.

The line to be measured is, in this case, the ground line of the front of the house. Let us measure its length first and attend to the windows afterwards. We have seen that any measures we

may have occasion to use must be set off, if we are to be sure of them, on some line that is parallel to the picture plane, and that such a line is always parallel to the horizon of the plane in which it lies; that is, it is always parallel to the original or actual horizon when drawn on level surfaces and always vertical or upright when drawn on vertical surfaces, and so on. Our observations at the screen taught us that long ago. Such a line is drawn, then, in such a position as to have one point in common with the line to be measured. Theoretically, this may be wherever you please, but in practice it will usually be most convenient to draw this imaginary line through the nearest end of the line to be measured. As it is never used for any other purpose, it may be called the "line of measures."

The point which was called the vanishing point of diagonals in preceding figures, has been called the vanishing point of the base of the triangle in our large engraving (see the little diagram in the corner).

This name is a good one, because it does not allow the student to forget the real significance of the point, something which pupils find it very easy to do; but it is too long, and we shall have to call the point simply "measuring point"—only do not forget that it always is the vanishing point of the base of an isosceles triangle, otherwise it would not be of the slightest use as a measuring point. If your picture necessitates the establishing of many measurements, you have to regard it as in good part covered with pictures of isosceles triangles the bases of which all vanish at one or other of these points.

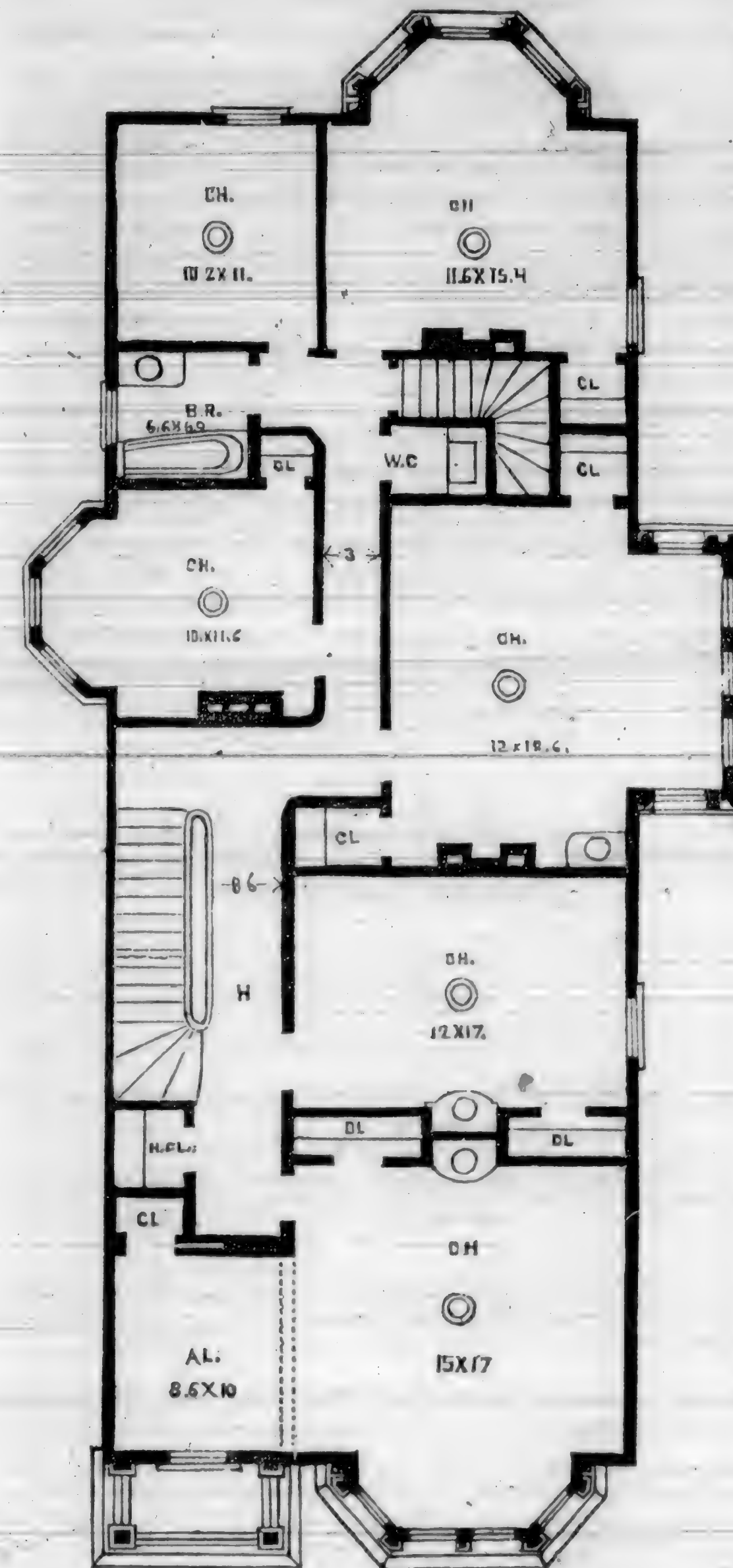
The above is taken from a new work (by publisher's permission) entitled, "The Essentials of Perspective." We have carefully read the book and can confidentially recommend the same to anyone desiring to become proficient in perspective drawing.

Boys as Inventors.

SOME of the most important inventions have been the work of mere boys. The invention of the valve motion to the steam engine was made by a boy. Watt left the engine in a very incomplete condition, from the fact that he had no way to open or close the valves, except by means of levers operated by the hand. He set up a large engine at one of the mines, and a boy was hired to work these valve levers. Although this was not hard work, yet it required his constant attention. As he was working these levers he saw that parts of the engine moved in the right direction, and at the exact time that he had to open or close the valves. He procured a long, strong cord, and made one end fasten to the proper part of the engine, and the other end to the valve lever. Then he had the perfect satisfaction of seeing the engine move off with regularity of motion. A short time after, the foreman came around and saw the boy playing marbles at the door. Looking at the engine he soon saw the ingenuity of the boy, and also the advantages of so great an invention. Mr. Watt then carried out the boy's inventive genius in a practical form, and made the steam engine a perfect automatic-working machine. The power loom is the invention of a farmer boy who had never seen or heard of such a thing. He cut one out with a knife, and after he had got it all done, he with great enthusiasm showed it to his father, who at once kicked it to pieces, saying that he would have no boy about him who would spend his time on such foolish things. The boy was afterward apprenticed to a blacksmith, and he soon found that his new master was kind and took a lively interest in him. He made a loom of what was left of the one his father had broken up, which he showed to his master. The blacksmith saw that he had no common boy for an apprentice, and that the invention was a very valuable one. He immediately had a loom constructed under the supervision of the boy. It worked to their perfect satisfaction, and so the blacksmith furnished the means to manufacture the looms, the boy to receive one-half the profits. In about a year the blacksmith wrote to the boy's father, that he should visit him and bring with him a wealthy gentleman, who was the inventor of the celebrated power loom. You may be able to judge of the astonishment of the old man when his son was presented as the inventor, who told him the loom was the same as the model he (the father) had kicked to pieces but a year before.

Cyrus H. McCormick was not twenty-two years old when he produced the first practical reaper the world ever saw. Numerous other instances where boys produced valuable inventions might be cited.

In building book-cases, there should be a half-inch space between the shelf and the wall—dust can then be easily brushed back, falling to the bottom.



Useful Hints Relating to House Building.

IN building a house for myself, to cost about \$5,000, what are the special points which I must watch—points which may be overlooked by the architect or contractor, because, perhaps, not properly in their province, or because the owner should himself know them? I have never yet built a house, and am, in consequence, wholly inexperienced—an easy prey to imposition and mistakes.

The writer having had some experience in building houses as an owner, and paid somewhat dearly for it, proposes in this article to indicate some of the points desired.

In the first place, be most careful in the choice of your lot. Do not allow the cost per foot to be the most important element in your decision. A low-priced lot in the beginning may be the dearest in the end; that is, if it is chosen simply because it is low in price. Avail yourself as much as possible of the benefit of others' improvements. If there are desirable residences adjacent to the lot of your choice, the value of yours will be assured at the outset. Remember that you are about to put a certain sum of money upon whatever lot you select, and that a badly located lot will decrease the value of this; while, on the contrary, a good lot will enhance the value. Many have suffered disappointment, and actual loss, by an error of judgment in this regard. Your choice will make the difference between a good asset and a poor one.

Having chosen well to this point, see to it in the second place

that the lot can be easily drained. To this end, it is not necessary that the ground should be high, but rather that it have a slope in some direction; otherwise, owing to the soaking into the ground of the surface water, which ought to run off, your cellar may be damp or wet at times. A dry cellar is of the utmost importance, and this is one of the ways to secure it.

Another point to be considered in your choice should be the exposure it would give your house. By this we mean the way it should front. A wise decision here will conduce greatly to the comfort and health of your family. The writer's experience is that the best frontage or facing for a house is a little west of south. This, more than any other, opens up the rooms to the sun in the winter and to the southwesterly breezes in the summer, thus making the house warm, healthy, and cheerful in the former, and cool and delightful in the latter, as the prevailing winds during the summer are from the southwest. At the same time, they carry away from the house the odors and heat of the kitchen; and during the winter the living part of the house is protected from the cold northerly blast.

A good size for the lot for a house to cost about \$5,000 is 60 x 150 feet. If a stable in the rear is needed, the lot should not be less than 175 feet deep.

The next subject to be settled upon is the plan and specifications for such a house as your limit of cost will cover. This is a most difficult undertaking, and often ends in disappointment, usually because too much is expected for a given sum of money.

If style of interior and exterior is required, the size must be curtailed. If the rooms must be spacious and numerous, then the style and finish must be plain and unpretentious, both within and without. Of one thing be assured—everything cannot be obtained for \$5,000 at the present cost of labor and materials.

This point fully understood, the writer has found that the quickest and best way to get the plan desired is to look at houses already built in the immediate or adjacent towns, which approximate to the cost named. Among the many which are now to be seen in all our suburban towns, there will be no difficulty in finding a house which will entirely satisfy the requirements. No mistake can then be made in the cost, for the builder himself is near at hand to duplicate for you, for a definite sum, the house you may select.

Disappointment in architectural effect will not happen, because you can see beforehand what an appearance the finished house will present.

It is better far to go to an architect with ideas well defined of what is wanted, and to ask of him to add to these his own taste and skill, than to go (as many do) with nothing settled in the mind but the cost, and to require of him to produce something entirely original in design and finish. His effort to fill such an order is generally a failure, not from any want of skill on his part, but rather because of his inability to grasp the intangible and indefinite ideas which may be in the mind of another. He must have some standard to work up to besides simply the cost.

If the architect succeeds in his effort as to the plan, you may consider you have made a fortunate beginning.

The specifications come next. As for these, let them be most carefully drawn, leaving nothing open, indefinitely or obscurely stated. Have them so drawn that they cover everything you want; otherwise you will have extras, which are always very costly.

It is a remarkable fact that anything taken from the specifications, after the contract has been signed, you can get no allowance for, but anything added to them greatly increases the cost. Why this should be so, only the contractor can tell you, and he generally will not. Hence, you must plan beforehand so as to avoid them, or, in the pithy words of the late Rev. Henry Ward Beecher, "First think out your work, and then work out your thoughts." This applies pre-eminently to building operations.—*Scientific American.*



THE principal object of this publication is to furnish information, IN ADVANCE OF CONTRACTS, to architects, builders, contractors, and all those directly interested in furnishing materials of all kinds for buildings, bridges, plumbing work, machinery, and the thousand and one trades that are benefited by all kinds of building improvements. One great feature of this journal is the furnishing of special information

to its yearly subscribers, having a special system of its own in this regard. It is published by B. Edwards, Chicago, and the subscription for the weekly edition is \$5.00 per year. Subscriptions may be left at this office or sent direct to Mr. Edwards.

Steel Square Problems, for \$1.00.
Workshop Companion, for 35c.
Two-story frame residence. Owner, Fredrick Mohr; architect, John Hall; contractor, B. F. French. Cost, \$5,000.
Artisan, for \$5.00.
Builders' Guide, for \$2.00.
Two-story frame residence. Owner, Herm. F. Baer; architect, John C. Pelton, Jr.; contractor, D. Hennessey. Cost, \$8,000.
Practical Perspective, for \$5.00.
Woodward's Country Homes, for \$1.50.

Olympia.

Mr. Chalmers has let the contract for a brick building to Patunde & Co.
American House Carpenter, for \$5.00.
Cutting Tools, for \$2.00.

Pasadena.

Addition to two-story frame residence. Owner, E. C. Webster; architect, J. L. Frank; contractor, Geo. Webster. Cost, \$7,000.
Builders' Construction (three volumes, very fine), for \$14.00.
Plaster, How to Make it, for \$1.00.
The opera house is an assured thing. It will cost \$80,000. Address, Col. A. M. Gray.
Architecture and Building, \$3.50.
American Cottage Building, for \$3.50.

SAN FRANCISCO BUILDING NEWS.

A
Army, nr. Guerrero. Two one-story frames.
O. and B.—J. M. Comerford.
\$3,000.

B
Buchanan, bet. Union and Filbert. One-story frame.
O.—Louis Zimmerman.
A.—W. Schrof.
C.—I. Merry.
\$1,400.

Balmy, nr. Twenty-fourth. Two-story frame.
O.—Deering.
Day work.
\$1,500.

Bush, No. 2233. Additions.
\$1,600.

Bartlett, bet. Twenty-fourth and Twenty-fifth. Additions.
\$1,200.

Belcher, bet. Ridley and Fourteenth. Two-story and basement frame.
O.—G. W. Moore.
A. and B.—G. W. Wright.
Day work.
\$4,000.

Broadway, cor. Buchanan. Frame building.
O.—A. A. Adler.
A.—Macy & Jordan.
M.—J. Haaf.
C.—J. M. Kelly.
\$17,000.

Bartlett, bet. Twenty-fifth and Twenty-sixth. Additions.
O.—Gibbs.
\$3,500.

Bush, nr. Hyde. Two-story frame.
O.—J. Eliaser.
C.—R. Parker.
\$4,000.

C

Clementina. Alterations.
O.—L. G. Somp.
A.—G. E. Voelkel.
C.—J. H. McKay.
\$6,000.

Clay, bet. Van Ness and Franklin. Additions.
O.—L. Schwabacher.
A.—O. Kenitzer.
C.—Thos. Mannix.
\$1,300.

Castro, cor. Nineteenth. Two-story frame.
O.—E. Ring.
A.—T. J. Welsh.
C.—C. M. Arnold.
\$5,500.

Clay, nr. Franklin. Alterations.
O.—W. M. Hoag.
A.—J. J. Newsom.
C.—Martin & Maquiro.
\$3,200.

Chattanooga. Three one-story frames.
O. and B.—J. M. Comerford.
\$5,000.

Capp, nr. Twenty-fifth. One-story frame.
O.—C. O. Smith.
\$2,200.

Capp, cor. Twenty-second. Alterations.
O.—D. B. Murphy.
A.—S. and J. Newsom.
C.—Knowles & Wetmore.
\$3,500.

California, cor. Jones. Carpenter work, etc.
O.—Chas. Crocker.
A.—Curlett & Culbertson.
C.—Mahoney Bros.
\$50,000.

California, bet. Scott and Devisadero. Two-story frame.
O.—H. M. Levy.
A.—P. R. Schmidt.
C.—P. Crichton.
\$8,000.

California, cor. Jones. Two-story and attic frame.
O.—Mrs. F. F. Moulton.
A.—Clinton Day.
C.—R. P. Herbert.
\$15,000.

Pomona.

One-story frame cottage. Owner, J. H. Adams; architects, Costerisan & Merithew; contractor, day work. Cost, \$1,500.

Shavings and Sawdust, for \$1.50.
People's Encyclopedia (three large volumes) for \$20.00.

One and a half story frame cottage. Owner, Dr. F. D. W. Crank; architect, J. W. Forsyth; contractor, Henry Hanson. Cost, \$3,000.

Science of Carpentry, for \$4.00.
Universal Assistant, for \$2.50.

Santa Monica.

One-story frame cottage. Owners, Potts & Carlisle; architect, J. W. Forsyth; contractor, T. M. Plotts. Cost, \$1,800.

Grimshaw on Saws, for \$4.00.
Mechanics' Geometry, for \$4.00.

Salinas.

A brick hotel is being built by Jas. Jeffery.

Builders' Companion, for \$1.50.
Builders' Work, for \$5.00.

San Lorenzo.

Two-story frame. Owner, Elias Llewellyn; architect, Matthews; contractor, Dahl. Cost, \$6,500.

Ruskin's Works (four volumes), for \$6.00.
Industrial Drawing for Carpenters, for \$2.00.

Ventura.

Three-story brick hotel. Owners, Rose & Fargo; architects, Curlett, Eisen & Cuthbertson; contractor, David Perry. Cost, \$60,000.

Woodward's Farm Homes, for \$1.00.
Woodward's Graperies, for \$1.00.

Walla Walla.

Architect Babcock has let the contracts for the \$10,000 Ennis Block.

Building Superintendence, for \$3.00.
American Cottage Homes, for \$3.00.

Winters.

J. Cradwick and H. Seaman are each building a two-story brick building. They will spend about \$5,000. A. Ritchie was their architect.

Painter, Gilder, and Varnisher, for \$1.50.
Architects' Companion, for \$2.50.

D. P. Edwards is having built a cozy \$2,000 cottage. T. D. Ball is doing the work.

[Our correspondent claims that the lumber combination will deter many from making improvements, owing to the recent advancement in prices.—Ed.]

Limes, Cements, and Mortars, for \$4.00.
Wonders of Art, for \$1.25.

Haight, bet. Webster and Fillmore. Two-story frame.
O.—L. Friedlander.
A.—P. S. Barber.
C.—H. Inwood.
\$3,800.

Hampshire, cor. Twenty-fifth. Alterations.
O.—Mrs. McKenny.
A.—J. J. Newsom and J. W. Wessinger.
\$2,000.

Haight, nr. Broderick. Two-story frame.
O.—J. Hughes.
A.—J. J. Clark.
C.—H. Keenan.
\$4,200.

Jackson, cor. Devisadero. Two-story frame.
O.—Hallafy.
A.—Swain.
C.—S. M. Hills.
\$7,000.

Lyon, nr. Sacramento. Two-story frame.
O.—A. Balaner.
C.—Van Wei.
\$5,000.

Lyon, cor. Sacramento. Two one-story frames.
O.—D. R. Collins.
\$4,000.

Larkin, nr. McAllister. Alterations.
O.—H. Plagman.
A.—John & Zimmerman.
C.—B. Dreyer.
\$3,000.

Liberty, nr. Valencia. Two-story frame.
O.—B. Schloss.
A.—A. J. Barnett.
C.—D. F. McGraw.
\$4,500.

Larkin, nr. Turk. Additions.
\$1,000.

Mission, bet. Twenty-second and Twenty-third. One-story frame.
\$2,500.

New Books Just Received.

AMERICAN STAIR BUILDER. New edition of 1887. By Lucius D. Gould. Price, \$2.50. One of the best works on the subject of stair building.

MODERN COTTAGES. By J. H. Kirby. Just issued. Price, \$1.50.

ESSENTIALS OF PERSPECTIVE. By L. W. Miller. Price, \$1.00. The newest as well as one of the best of the books on the subject.

IMPROVED PLUMBING APPLIANCES. By J. Pickering Putman, architect. 94 illustrations. Price, \$1.50. A perfectly new work just received and too late for further notice in this issue.

DIRECTORY OF ARCHITECTS. Fourth edition. Price, \$1.00.

MODERN ARCHITECTURAL DESIGNS AND DETAILS. A few copies remain of this really good work. Price, \$10.00.

DETAIL COTTAGE AND CONSTRUCTIVE ARCHITECTURE. Similar to the above in general design.

LEFFELL'S HOUSE PLANS. \$3.00, post-paid.

SCIENCE OF CARPENTRY MADE EASY. Price, \$5.00.

MECHANIC'S GEOMETRY, or the Science of Framing by the use of Card-board Models. \$5.00.

Mission, nr. Nineteenth. Three-story frame.
O.—A. McElroy.
A.—T. J. Welsh.
C.—R. Doyle.
\$7,500.

Market, cor. Fell. Four-story and attic.
O.—M. C. De Laveaga.
A.—P. R. Schmidt.
C.—Mahoney Bros.
\$130,000.

Mission, bet. Fourth and Fifth. Two-story brick and basement.
O.—E. McGary.
A.—J. J. Barnett.
C.—O. A. White.
Brick mason—Richardson.
\$45,000.

Masonic Cemetery. Brick vaults.
O.—B. A. Becker.
A.—W. Mooser.
C.—W. Matthews.
\$7,500.

Oak, bet. Octavia and Laguna. Additions.
O.—J. Carbery.
\$3,000.

Oak, nr. Scott. Two-story frame.
O. and B.—W. Plums.
\$4,500.

Powell, nr. Francisco. Three-story frame.
O.—J. J. Thueren.
A.—W. Schrof.
C.—Knopf.
\$4,400.

Polk, cor. Sutter. Alterations.
A.—P. R. Schmidt.
C.—Wilson & Son.
\$3,000.

Pine, cor. Franklin. Alterations.
O.—H. Simon.
A.—Pissis & Moore.
C.—Langstaff.
\$5,000.

Post, nr. Baker. Two-story frame.
O.—Sheehan.
\$1,800.

Page, bet. Scott and Devisadero. Eight two-story frames.
O. and B.—W. Hinckle.
\$35,000.

Page, bet. Octavia and Laguna. Two-story frame.
O.—Mrs. McDerbott.
\$4,000.

Page, nr. Webster. Two-story frame.
O.—Black.
A.—A. J. Barnell.
C.—Comary.
\$5,500.

Post, cor. Franklin. Two-story frame.
O.—H. M. Levy.
A.—P. R. Schmidt.
C.—P. Crichton.
\$7,800.

Pine, bet. Van Ness and Franklin. Two-story frame.
O.—J. Deutsch.
A.—W. H. Wharff.
C.—H. E. Hatch.
\$4,500.

Pine, bet. Van Ness and Franklin. Two-story frame.
O.—A. Oberdena.
A.—W. H. Wharff.
C.—H. E. Hatch.
\$4,500.

Stevenson, nr. Seventh. Repairs.
\$1,000.

Stuart, nr. Folsom. Two-story frame.
O.—Scott.
C.—Kincaid & Thompson.
\$2,500.

Stuart, nr. Folsom. Two-story frame.
O.—Rider.
C.—J. P. Smith.
\$3,000.

Stuart, nr. Folsom. Two-story frame.
O.—Scott & McCord.
C.—J. P. Smith.
\$3,000.

Steiner, nr. Pine. Additions.
O.—Mrs. Kafka.
\$1,500.

Sutter, nr. Broderick. Two-story frame.
O.—Stowell.
A.—W. P. Moore.
C.—D. F. McGraw.
\$6,500.

Twenty-sixth, nr. Dolores. One-story frame.
O. and B.—J. M. Comerford.
\$1,500.

Twenty-fifth, cor. Harrison. One-story frame.
O.—P. Gleeson.
A.—T. J. Welsh.
C.—R. Sinott.
\$2,000.

Twenty-second, cor. Treat Avenue. One-story frame.
O.—J. H. Handley.
C.—J. Dyer.
\$2,500.

Turk, cor. Laguna. Two-story frame.
O.—D. Silverstein.
A.—H. D. Mitchell.
C.—G. H. Walker.
\$5,000.

Van Ness, cor. O'Farrell. One-story frame.
O.—St. Mary's Cathedral.
M.—Butler & McGowan.
C.—Mahoney Bros.
\$130,000.

Willow Avenue, nr. Mission. Two two-story frames.
O.—A. Deerie.
A.—W. Schrof.
\$10,000.

Washington, nr. Scott. Two-story frame.
O.—M. Poltzen.
C.—W. Plums.
\$3,000.

Washington, nr. Scott. One-story frame.
C.—W. Plums.
\$3,000.

ARTISTIC TILES AND MANTELS.

ONE of the most artistic displays in Tiling, Mantels, Brass goods, etc., can be found in the rooms of E. A. Pattison & Co., 308 Stockton St., San Francisco. The design in tiling entitled "Cupid among the Roses," is worthy of particular mention. This firm is the sole Pacific Coast Agent for the Perth Amboy Terra Cotta Co. A large and well-selected line of wooden and iron mantels is kept constantly on hand, and the prices are such as to command the attention of those about building. The floors of Messrs. Pattison & Co's warerooms are covered with Tile and Parquette flooring of the most beautiful and artistic designs, and should be examined before purchases are made elsewhere. Special personal attention is given to furnishing designs and estimates for all work connected with the tasteful arrangement of everything connected with Mantels and Tiling. This firm also makes a specialty of stained glass. Write or call for information as per address mentioned.

Union Artificial Stone Paving Co.

THEO. VAN TASSELL is the manager of this newly-incorporated company. He is fully prepared to furnish all kinds of cement and artificial stone work. See new ad.

Labor Becoming Tyrannic.

PERSONS who watch the movements of various labor organizations of the present day cannot help seeing the evident tendency of those organizations to become monopolistic, to refuse freedom to others, to tyrannize over laborers in various disagreeable ways, and to attempt to acquire control of things not properly within their jurisdiction. For instance, not long ago there was a convention of glass-blowers at Atlantic City, New Jersey, and during the session a resolution was adopted abolishing the apprentice system in glass-factories. The matter has, perhaps, small importance, but it is significant of the tendency of the labor movement, and it has an interest beyond the narrow boundaries of the glass industry, because similar action has already been taken by other trades. The point involved is this: Men who are earning their bread at skilled labor formally declare that no American boy shall be allowed to acquire the skill required to perform that labor. They turn their backs on the five or six million young men and boys in this country and deny them their right to become expert mechanics. The purpose, of course, is to make skilled labor scarce, and so to keep up wages. The result is to exclude the young from the chance to earn good wages, to force many of them into idleness, and to tempt others into crime. Against such a system the people of the country have a right to make vigorous protest. It is a matter that affects society at large. It touches directly every man who has children, and indirectly every human being from the lowest to the highest. The right of a boy to learn any honest trade that he desires to learn is positively indisputable; and to this is joined the clear right of every employer to take a boy into his shop to help him to acquire knowledge and skill. The denial of these rights by a trade union is tyranny, and it ought to be resisted to the last extremity. We assert that the solitary chance of the success of the labor movement, so called, lies in its obedience to the requirements of justice. When it sets justice at defiance, it is doomed. The people of this country are not going to permit any body of men to trample the most ordinary human rights under their feet.

On the same subject a Chicago journal says: "A father might to-day tramp all over Chicago with a son who wanted to learn an honest trade, so as to become a useful citizen, and fail, unless he took him to the Manual Training School and paid tuition for him. Hundreds of boys are now thus taught handicraft at the expense of fathers who can afford to pay for it. But let a poor man's son try it, and he will be met at the door of the factory or shop by a walking delegate of the Knights of Labor and turned away. If that does not do, his young face will be bruised by brutal fists, and so will the faces of those who stand by him. If anyone supposes that there is any limit to this kind of opposition, any point at which the would-be monopolists of labor would draw the line of limitation upon themselves, he does not understand depraved human nature. If individual liberty to acquire skill and earn bread and control earnings is not protected by law and by resolute public sentiment behind that law, then a reign of absolute lawlessness is visible not very distant in the future. The disbarred classes on one hand, and the employing classes on the other, will join hands and fight for their rights. The violence will not very long be all upon one side, and the violence which has human liberty and rights back of it will win. We are always glad to see a tyrannical and heartless employer forced to do right by 'organized labor,' but when organized labor determines to rob the American boy of his birthright, then it is evoking moral and material forces against itself which will not fail to beat it to pieces.—*Lumber World*."

Household Conveniences.

NOTHING astonishes an American abroad more than the backwardness of foreigners in adopting the little household conveniences which with us are matters almost of necessity. On the Continent, where people seem to live generally in the streets, and to have well-founded objections to staying in their houses any more than they can help, it is not so surprising that great pains should not be taken to render domestic life easy and convenient; but in England, the country, above all others, of beautiful and happy homes, one is often distressed to see the labor habitually expended upon work which in this country would be done almost automatically by some sort of ingenious appliance. We remember once going over the Belgravia mansion of Sir George Grey, ex-viceroy of India, and finding the kitchen in this aristocratic abode furnished with an enormous open fire-place, in which swung a crane, with pot-hooks and hangers, the whole, with the addition of a brick oven, forming the only cooking apparatus of

the establishment; and every traveler can give plenty of illustrations of the discomforts of English houses. Even where American devices are transported across the water, they are received with suspicion, and are regarded as eccentric novelties for years after they have come into universal use with us. The last of these inventions to be introduced to the British public seems to be the well-known electric gas-lighting apparatus. Few houses, even of very modest pretensions, would now be built in or near any of our Northern cities without this indispensable feature; but it appears to gain ground very slowly in England. The *Builder* says, rather doubtfully, after describing the system by which the gas can either be turned on, lighted, or turned off by pushing a button, with the automatic burner, or turned on by hand and lighted by a pull at a pendant chain, that the apparatus appears to it "rather a pleasing toy than a serious convenience," going on to explain that "it is hardly worth while to have a special electric mechanism merely to light the gas." This sounds very funny to people who never think of using matches or tapers to light the gas in their houses, and who would not on any account go back to that old-fashioned and dangerous practice. Even if the *Builder* thinks it of no advantage to be able to light the gas in the room by pulling a chain, or touching a button, instead of feeling in the dark on the mantel for the match-box, at the peril of upsetting the bric-a-brac behind which it lies concealed, and then succeeding in reaching the key, and turning on the gas just in time to have the red-hot remnant of the match drop into one's sleeve, while the gas, unlighted, pours into the room, it must, we should imagine, acknowledge that there is practical utility in an apparatus by which the gas in any room can be lighted from any other. In thousands of American houses the entrance-halls and vestibules are now lighted by the touch of a button in the rooms above, so that a ring at night, or an unusual noise below stairs, is immediately answered by lighting up the rooms, as a preliminary to a descent to see what is the matter; while in hundreds more the lanterns in the carriage, porch, or along the driveway are lighted and extinguished from the house in the same manner. With us the use of this simple and effective system is rapidly extending. We know a house where not only the gas-lights, but the fires are kindled and extinguished by the touch of a button; and the best of all systems of burglar alarm is that under which the house-breaker, on crawling through the basement windows, instead of frightening the family out of their wits by sounding a bell and displaying a sign in the bedrooms to the effect that ferocious criminals have arrived in the kitchen, sets in motion an apparatus which begins by suddenly illuminating with great brilliancy the place in which he had intended to do his deeds of darkness, at the same time deafening him by ringing an immense gong close to his head until the attention of the police is attracted to the place; the whole of the little drama going on without interrupting the slumbers of the unconscious master of the house in his room above.—*American Architect and Building News*.

LATH OR LATHS?—Lath or laths is the question. Most of the newspapers print it in the plural. At the East it is commonly called laths. In the West one scarcely ever hears a lumberman talking about laths; simple lath in a collective sense is good enough for the wild and untutored Western merchant. Webster's dictionary says that laths is right, and that is sufficient for the Eastern lumbermen who have graduated from college or high school to the lumber yard. Webster has doubtless decided that if it is right to say boards, pickets, and shingles, it is the proper thing to say laths. By the same rule corn should be corns, because beans are beans, and trout should be trouts. Words are as usage makes them. The *Lumberman* says lath, thus taking the liberty to disagree from the dictionary, choosing rather to conform to common sense and side with the great mass of men who handle the stuff.

"Oak is the grand, everlasting wood of the ages," quotes a lumber journal.

CARPENTRY MADE EASY.

By Wm. E. Bell, a practical mechanic, who fully appreciates, from personal experience, that there are many things perplexing to understand and difficult to do until they are fully explained and tested. It is designed to make the science and art of carpentry clear and comparatively easy to all who require information on the subject. Price, \$5.00 by express, prepaid.

HOWARD CHALLEN, Publisher,
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THE CALIFORNIA ARCHITECT AND BUILDING NEWS.

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Advertisements alone inserted that refer to materials used in the construction and furnishing of houses, and to matters and trades belonging to the building interest.

No Others Received.

SAN FRANCISCO, CAL., AUGUST 15, 1887.

Improving the System.

THE building contracting business in San Francisco, and more or less throughout the State, within the past twenty-five years or more, in all the mechanical branches, has been conducted in a manner anything but satisfactory as a whole to architects, material men, or the responsible and better class of contractors. The true history of the business during the past quarter of a century presents a deplorable state of facts. Incompetent and irresponsible men, and withal men enjoying no fair degree of honest intent and purpose, have from time to time crowded in and operated as contractors, monopolizing a large proportion of the work offering, taking it at taking prices, with but little concern as to involvements, consequences, or results, thereby rendering it difficult and almost impossible for honest contractors to compete, and in thousands of cases ending in compromise, and, in short, *pro rata* settlements.

The effect of this has been sadly disastrous all around. The really competent and good men have been prevented from realizing what was and is their due—engagements at living prices, and fair compensation for the skill and service required of them in conducting and executing honest work. Material men have suffered severely by short payments, millions of dollars within the time named being lost through trusting men who had all to gain and nothing to lose by contracts undertaken at ruinous prices, and but for the fact that building materials, especially lumber, the chief commodity used in building construction in California, has always, except at special times when breaks in combinations and fierce competition for a period has "knocked the bottom out" of regular trade, paid, as it is now doing, large margins of profits, many of the dealers would have been forced to succumb under the severe losses which have at times followed in quick succession.

And while architects have not been involved in the direct

losses growing out of this state of things, they have been severely contingent losers in time, annoyances, and vexations, as every engagement made with inferior contractors involves trouble and expense to the man of plans, who is expected to combat and counteract the short-comings of those under his supervision, and in the event of failure of any kind he is expected to be a Solomon, meeting the antagonizing views of everyone involved in the transaction, and satisfying the demands of all contending parties, or else meet the denunciations of those who may feel themselves aggrieved. While those who suffer more financially are greater losers in dollars and cents, the architect is by far the worst punished party concerned, in the misrepresentations and vexatious annoyances that attach to every case of failure by a contractor.

All this suggests, Who is most to blame? As a rule, those who lose place the *onus* upon the architect, who has, unfortunately to himself, yet innocently, allowed the contract to fall into improper hands. But a single second thought must bring the conviction that no sane or sensible architect would willingly permit himself to be the victim of such circumstances as generally follow engagements with men of known disrepute and dishonor. And when contractors present the credentials of ample credit, and their material men as bondsmen, it is not an easy matter for the architect to convince the owner that he should pass the lowest man, and pay from ten to twenty-five per cent more to the second or third higher bidder. Consequently, architects reply, and the majority of the better classes of contractors chime in, No; the fault lies in the fact that incompetent men are granted credit without regard to their financial or moral responsibility. The doors of trade are too easy upon their hinges, and the custom has been next to universal that any man, no matter what his actual pecuniary or moral status might be, could find all required credit and bonds necessary to enable him to claim his rights as a contractor, and undertake the work of construction, whether large or small.

But with the many-sided views existing in the issue, it is not likely that a unanimous agreement can possibly be reached as to who is most chargeable, nor is it now necessary, if all interested contractors, material men, and architects, will combine upon a plan that will serve every best interest, and substitute for the bad that has been, a condition of things that will be just to all concerned, and best alike for contractors, material men, architects, and owners, leaving the possibilities of failures and *pro rata* in the future to extreme and incidental cases, averaging, at most, fairly within the limits of experience in the commercial world, and, we hope, far less.

But some will say, Have not owners profited by the state of things referred to? Yes; they have. But in reply, Have they not done just as all other men have done in other connections, availed themselves of the benefits appearing from this condition of affairs? It is a universal law among mankind to make the best bargain possible, and he who would refuse acceptance of a proposition purporting to lighten the drafts upon his exchequer, would not be estimated in the business world as sagacious and prudent, the results promised being the same. Hence to remedy the evils that have been in the building line, material men, contractors, and architects must advise the method, and by faithful, honest understanding carry into practice such rules and systems as will insure integrity and justice to all parties.

THE REMEDY IN HAND.

A movement is on foot among the material men, and others concerned in the risks and responsibilities of the building trades, which we hope will be worked to a successful issue, the object of which is to close the doors that have been open too wide, and bar them against the ingress of impecunious interlopers, by making reputation, competency, and responsibility a necessary passport to credit. Let this be done and strictly adhered to, and it will not be long ere the skunk-weed class will disappear.

Building Summary for August.

THE past month has been a brisk one as far as building improvements are concerned. The number of improvements now under way is much greater than the same period of last year. Recapitulation for the month is as follows:—

105 frame buildings, value.....	\$388,100
7 brick " " " " " " " " " " " "	150,000
24 alterations, value.....	44,250
136 " " " " " " " " " " " "	\$582,350
From Jan. to Aug. 15, 1886, 841 buildings, value.....	\$4,528,735
" " " " " " " " " " " "	4,603,964

The indications are that in the remaining months of this year the discrepancy in number of buildings will be overcome, and this year show a larger number of improvements than 1886. The value is certainly greater.

San Francisco Chapter of Architects.

THE regular meeting was held the evening of the 5th inst., President Pissis presiding. After the reading and approval of minutes, reports of committees, and attention to general business, the nomination of officers for the ensuing year followed, the election to be held September 2. The committee reported favorably upon the application of Gingo Hamada as associate member. At this point a general discussion was indulged in, in regard to the past work of the Chapter, and its future prospects. An expression of abiding faith in its possibilities was unanimous, and the best of feelings permeated the evening's intercourse. The many material benefits to the profession, growing out of the Chapter's organization, were fully reviewed. The adoption by the Chapter of a schedule of charges for professional services, which is by our courts recognized as authority in cases of dispute, has been of great advantage to both members and non-members of the Chapter. But the more especial good done by the organization is found in its moral influence in bringing together a large portion of the membership of the profession, and establishing professional courtesies and friendly intercourse far greater than existed prior to the existence of the Chapter.

A more general, interested co-operation of the architects of San Francisco would doubtless add to the efficiency and influence of the Chapter. Among those who have assisted by service as officers and otherwise, and at convenient times or regularly attend the meetings of the Chapter, are Messrs. Wright, Sanders, Carlett, Laver, Pissis, Welsh, Clark, Moore, Wolfe, Henriksen, Restor, Curtis, Gath, Macy, Bennett, Everett, Babson, Eisen, while many others in San Francisco, San Jose, Los Angeles, Oakland, Sacramento, and other places, hold inactive membership, and visits from non-members frequently occur.

While the Chapter may not have made that decidedly successful advance possible, and placed itself in the position for good that it might have done, its management has been free from individualism and clique influence. A generous and liberal sentiment and harmony of purpose have prevailed, and those who have been most earnest in the work have been actuated by best judgment and honest intent and purpose; so that whatever mistakes may have been made have been the result of error of judgment.

Those who have not affiliated are alone to blame for any seeming imperfection of the organization, as the doors of the Chapter have ever been open to every good man, and those who could have done better than seems to them to have been done by those who have done the best they knew how, are at fault in not assuming the position that has ever been free to them, and by the force and influence of their greater wisdom helping to found and perpetuate an architectural organization in San Francisco that would accomplish all that could be accomplished by a body of intelligent, practicing architects.

THE SEWAGE SYSTEM FOR SAN DIEGO, CAL.—The *Sanitary News* describes a somewhat novel plan for disposing of sewage in the system which Colonel Waring has engaged to build for San Diego, Cal., at a cost of about \$400,000. The main sewer runs a quarter of a mile into the harbor to an outlet-reservoir constructed alongside the deep ship-channel. The reservoir will have an area of one acre, and cost some \$50,000. The collected sewage will fill this reservoir not more than one and a half feet deep. High tide will add three and a half feet of sea water to the mass. The contents thus diluted will be discharged into the outgoing tide by automatic gates opening an hour after high tide, and closing an hour before low tide. At Stockton and Sacramento, where the conditions are nearly identical, Colonel Waring will make wells in various flat parts of the cities, connecting with a deep outlet well by large siphons. Colonel Waring has used this plan for two years successfully at Norfolk, Va. At Los Angeles he recommends the purchase of 10,000 acres of land six miles from the city, and the disposal of the sewage upon it by irrigation.

Artificial Stone Sidewalks.

THE superiority of well-laid artificial stone sidewalks is universally admitted, and as a rule everybody is having new sidewalks put down, and those who can afford the slight additional expense over wood, especially in front of new buildings, adopt the more durable, and practically more economical, device—artificial stone. There are numerous examples of excellent work of this kind in San Francisco, and some wretched abortions. When the number engaged in contracting this class of work was limited to those who both fully understood the art of manipulating cement, and who retained a feeling of pride in the quality of work done by them, a better class of work was produced. But its growing and rapidly increasing popularity offered inducements to many adventurers to become sidewalk contractors, until at the present time there is a host of them—some good workmen, having learned the trade by service under the earlier employers who introduced the business in this city, and as many more who possess not the first item of practical knowledge, except to make a few figures by way of ascertaining the number of square feet contained in the space to be covered, and ordering the required material. As to the proper way to manipulate the same they know nothing, and are forced to depend upon such hired help as they may control; consequently competition is large and zealous, and, as a result, prices low, with the finale of some miserably poor work.

Some men are actually contracting to put down artificial stone sidewalks in San Francisco for less than the first cost of the raw material alone, required in the execution of good work, with nothing allowed for labor. Many owners think this is nice, and imagine that they are doing a good thing for themselves by a deal of this kind, failing to realize the fact, as fact it is, that to do cheap work of this kind the cheapening is compensated to the worker, by the inferior quality or diminished quantity of cement used, and the economizing of labor. The outcome of all this is that some of the earlier laid sidewalks put down by the pioneer cheap men are, after a few years' wear, worn out or so badly disfigured by cracks that they present very unsightly appearances, while many of the cheaply laid kind laid within the past year or two are, in the line of their predecessors in kind, badly cracked.

It is all well enough to obtain the thing one wants as cheaply as possible, provided the thing actually wanted can be had for the cheap figure; but it is a little bit of humbuggery played on one's self to smile at a result which in reality gives the occasion to laugh to the party smiled at.

Most of the very cheaply laid sidewalks will prove "good for the trade," inasmuch as they will wear out in a few years, and require relaying, while those laid in first-class manner will endure for a generation.

Answer to "Draughtsmen Wanted."

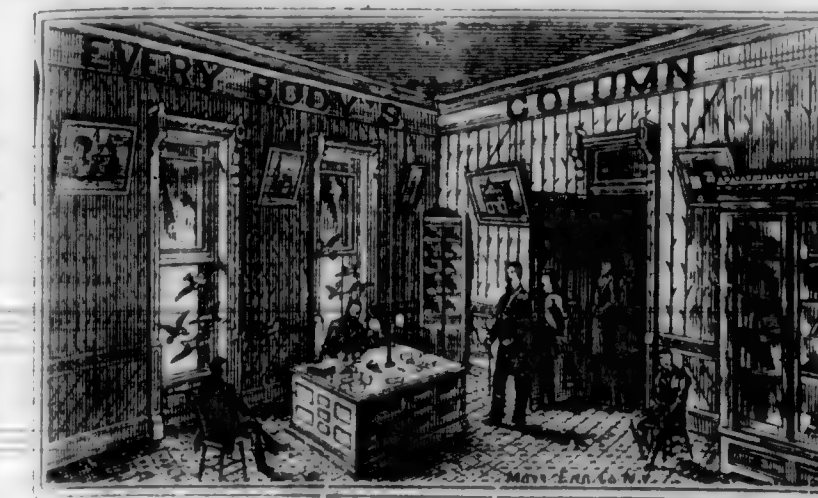
SINCE the first appearance in this journal of the article with above heading, we have received scores of letters, asking information in regard to situations. So far, our time and postage stamps have been freely given to answer inquiries; but we must decline, in future, to answer letters that do not contain return postage. Our books will show that over one hundred letters have been answered, upon which, in addition to our own trouble, we have had to supply stamps in order that the letters may be received by applicants. We will gladly answer any letter sent us by those seeking information, but will only do so when proper postage is inclosed for return answer.

MORE DRAUGHTSMEN ARE WANTED.

From present appearances, the demand will be greater than ever. We can readily place from fifteen to twenty good draughtsmen at good wages and a long engagement. Please remember that *carpenter sketchmen* are not wanted. We can only place thorough draughtsmen, who can execute all the details necessary to every portion of a building.

PLUMBERS, as well as architects, will be interested in the account given in the *Deutsche Bauunternehmer* of a novel method for thawing the ground, as a preliminary to excavation in winter. Instead of building a fire over the spot to be excavated, as is with us the ordinary practice, those who use the new method spread over it a layer of quicklime, followed by a stratum of snow. More lime is put on, and this again covered with snow, and if the ground is frozen to a great depth, several alternate layers are used. The whole is then left to itself overnight, and in the morning the ground is found to be free from frost. If no snow is to be had, water may be used for slaking the lime, which is then to be covered up to keep in the heat.

ASKED, ANSWERED, and COMMUNICATED.



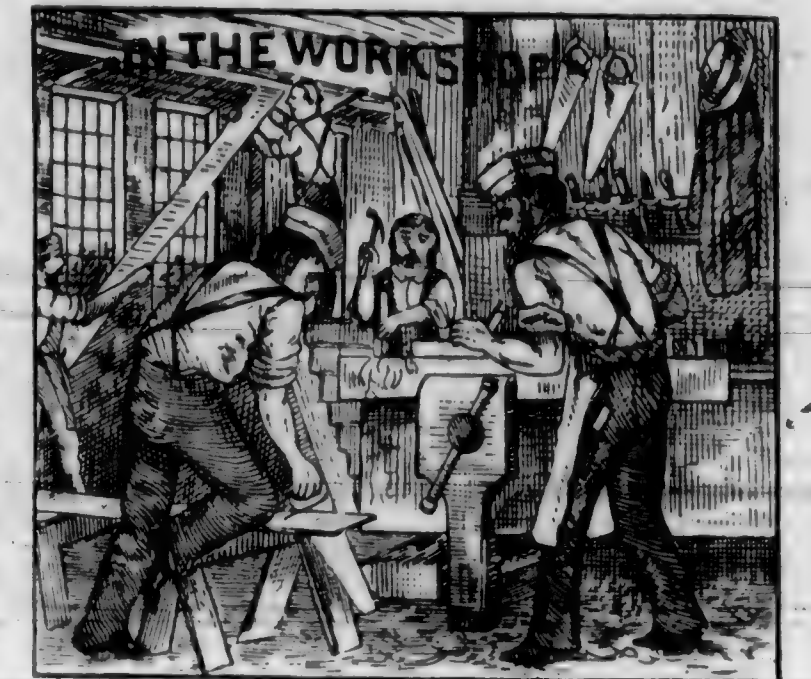
Pitch of Roofs.

From M. O. E. Nevada City, Cal.—I have a dispute with a brother tinner with reference to the pitches of roofs. My argument is that the term one-half pitch, one-third pitch, etc., refers to the fractional parts of the circle—in other words, the fractional part of 90°. Therefore, one-half pitch would be an angle of 45°, and one-third pitch, 30°, and so on. The argument of my opponent in this controversy is that a roof that rises 12 in. in 12 in. run is full pitch, while a rise of 6 in. in 12 in. run is one-half pitch, simply because 6 is one-half of 12. By the same argument, a rise of 4 in. in 12 in. would be one-third pitch, because 4 is one-third of 12. Will you please explain this subject and greatly oblige?

Answer.—The term pitch referring to the slope of the rafters of a roof, as used by architects and builders, is dependent upon both span and rise. Pitch is expressed in several different ways. Sometimes it is given in the degrees of angle which the rafter makes with the horizontal. This method, however, is not in common use outside of the books. The most general plan, however, of expressing pitch is by the height in parts of the span. Accordingly, it is quite common to hear a roof spoken of as one-half pitch or one-third pitch. If, for example, the span is 30 feet and the height is 10 feet, the pitch by this method is called "third pitch." Another plan, but not in such general use, is by the length of the rafters in parts of the span. Thus if the span is 30 feet and the length of the rafter 20 feet, by this method the pitch would be called "two-thirds pitch." It would seem from the statement made by our correspondent above that neither he nor his opponent in the controversy is correct. The latter is manifestly wrong, and he employs terms which have apparently been invented for his purpose. For example, notice the term "full" pitch. In describing his own explanation of these terms, our correspondent fails to indicate how the angle is to be measured, and we do not know that we quite understand what he means, although his description of the method is apparently plausible. What we have printed above is the recognized standard adopted by builders and architects in general. —*Carpentry and Building.*

PINE naturally treated is one thing; painted in brown or red and called black walnut, mahogany, or cherry, it is decidedly another. So in hard woods; to show the natural color and to bring out the beautiful grain of the wood is far preferable to any treatment which aims at different results.

Architects, Contractors, Carpenters, and mechanics generally are respectfully requested to furnish us items of interest for this column. We will gladly answer any and all questions pertaining to the architectural and building interests. If illustrations are necessary to explain your ideas, send us a sketch of them, and we will make the cuts. We especially invite suggestions from apprentices and young mechanics.



Redwood Shingles.

From A. W. H., Westfield.—"I desire to refer one or two questions about California redwood shingles to the readers of *Carpentry and Building*. I have seen redwood shingles that when first put on the walls and oiled looked very well, but after a few days or weeks, however, dark-colored shingles began to appear among them, and accordingly the sides of the building looked very bad indeed. I desire to inquire if there is any way by which this difficulty can be overcome."

In answer to the above, it may be stated that, to insure equality and uniformity of color, redwood shingles intended for oiling should be selected. The texture of the California production varies greatly, some being fine-grained, light-colored, soft woods, and other trees producing hard and brash kinds, down to what is known as black-heart redwood; consequently the yield in shingles from the respective classes must vary greatly as to color under treatment. Before exposure to the weather, this difference is not so marked, nor even when used in ordinary roofs and painted, or the natural surface exposed to the weather. But it must be apparent that where soft, porous, and hard-grained, brashy shingles are laid indiscriminately in same connection, and oiled, the oil penetrates the one and disappears, and remains on the surface of the other, producing widely different results in a little while.

Again, sappy redwood shingles should never be used, as the sappy parts have no lasting quality anywhere, and if used in shingles and oiled, the sappy portions will speedily show contrast.

Be Saving and Buy a Lot.

EVERY young man who earns wages ought to buy a lot and make a start of a home. The way to get a start is to save a little money each month and make a payment on your purchase, and so, little by little, pay for a lot and build your house. Don't spend all your money on livery turn-outs and dances and ice-cream to please your best girl. After a while you will need a home for that best girl, and the youngsters that some way or another generally come around and want to "put up" with you. Put a little of your spare cash into the ground as you go along, and after many days it will bring you a royalty.

Glue Which Will Hold in Water.

POWDER and dissolve one part of glue in one of thick linseed oil varnish boiling hot, and mix thoroughly. In using it, heat the two planed sides of the wood, apply the glue warm, and press the pieces together.

To Clean Oil Paintings.

The following recipe will be found valuable for the purpose: Mix well together two ounces of wood naphtha, one ounce spirits of salts, and a quarter of a pint of linseed oil. Before being used the bottle containing them should be shaken. The application is simply with a soft pad of linen, to which should be given a circular motion. When nearly dry give a second dressing, when the picture will come out in all its details.

Restoring Moulded Picture Frames.

SHOULD any portion of the moulding be destroyed, it may be restored by a composition made by boiling together some Venice turpentine, resin, and linseed oil, then adding glue dissolved in water, and, finally, whitening, till the mass is brought to the consistency of putty. The composition is then shaped to supply the defective part, and is to be colored or gilded to match the rest of frame.

A DOWN-EAST Yankee has invented a new screw—half nail, half screw—which is said to beat anything extant. Two blows of the hammer, two turns of the screw-driver, and it is in. Its holding power in white pine is said to be 332 pounds, against 298 pounds, the holding power of the present screw.

PLASTER when dry, treated with two coats of warm boiled oil, will, when painted, stand the elements as well as wood. Rogers' statuary is made in this manner. Shellac varnish is used sometimes in place of boiled oil, but if there is any common lime in the work it is apt to scale.

TO BE AVOIDED.—Resin is frequently used for producing an immediate adhesion of the belt to the pulley, and for this it is well suited, but if the owner has any regard for the consequences, he will soon learn that while the resin will give an instant grip to the slipping belt, it will soon be ground into the leather, stiffen the material and make the last state of that belt worse than its first.

NOT MUCH NEED OF IT.—There is not so much need of sandpaper in the manufacture of furniture and all cabinet work now a-days, as the machinery used turns out very perfect work. It is estimated by one of the largest manufacturers of sandpaper in the country that not more than seventy per cent of the amount of last year's business will be done this year.

THE salt industry at Manistee and Ludington, Michigan, has greatly curtailed the lath business. Edgings alone are now cut into lath, as slabs are more valuable for salt-barrel staves.

Constitution of the Builders' Association of California.

ARTICLE I.

SECTION 1. This Association shall be known as THE BUILDERS' ASSOCIATION OF CALIFORNIA.

SEC. 2. Its object shall be to encourage a more intimate acquaintance and cultivate a feeling of friendship among its members; to make them better acquainted with the wants and necessities of the building business; to arbitrate and settle disputes, if any arise among the members, and generally to advance and protect their business interests as contracting builders.

ARTICLE II.

SECTION 1. Any carpenter residing and doing business as a general contractor and builder in the State of California, and who has announced his willingness to join this Association prior to the adoption of this Constitution, shall be eligible to membership herein without vote, upon the payment of the fee, as provided in this Constitution and the By-Laws.

SEC. 2. Any carpenter residing and doing business as aforesaid may become a member, upon being proposed by two members and receiving the affirmative vote of two-thirds of the members present at a regular meeting, and paying the fee as prescribed in the By-Laws.

ARTICLE III.

SECTION 1. The regular meetings shall be held at least once a month upon the day and hour fixed in the By-Laws and in the City of San Francisco.

SEC. 2. Special meetings may be called by the President (and in his absence by the Vice-President) at his discretion, and shall be called by him, at the written request of the Executive Committee or of five other members.

SEC. 3. The President shall state the object of the special meeting in the call therefor, and no business shall be transacted, except such as appertains to the business specified.

SEC. 4. Adjourned meetings may be held at any time by authority of a majority vote of a quorum at a regular meeting, notice being given of such meeting as provided in the By-Laws, stating the business for which the meeting is to be held, and no other business shall be transacted thereat, except such as is stated in the notice.

ARTICLE IV.

SECTION 1. Nine members shall constitute a quorum for the transaction of business at all meetings.

ARTICLE V.

SECTION 1. Each individual member shall pay an admission fee of not less than twenty-five dollars, which fee shall accompany the application for membership.

SEC. 2. The dues to be paid by each member shall not be less than one dollar and fifty cents per month, payable in advance.

ARTICLE VI.

SECTION 1. The elective officers shall be a President, a Vice-President, a Recording Secretary, a Financial Secretary, a Treasurer, and an Executive Committee of seven members.

SEC. 2. The appointed officers shall be such as are prescribed in the By-Laws.

SEC. 3. Four members of the Executive Committee shall at all times be residents of the City and County of San Francisco. Four members of said committee shall constitute a quorum thereof.

SEC. 4. The President shall preside at the meetings, preserve order, see that the rules and laws are enforced, sign all drafts for money voted by the Association, appoint all committees unless otherwise ordered or provided for, and have the care and custody of all bonds which may be required of the other officers.

He shall see that all other officers and committees perform their respective duties, and shall report any neglect or delinquency forthwith to the Association. He shall not speak upon any question except one of order without calling the Vice-President, or in his absence some other member, to the chair.

He shall vote only upon applications for membership or upon questions requiring a two-thirds vote, except to give the casting vote when the members are equally divided. He shall at the commencement of his term appoint a Finance Committee consisting of three members not having charge of the Association Funds, and perform such other and further duties as may be imposed by the By-Laws.

SEC. 5. The Vice-President shall, during the absence or inability of the President to act, perform all the duties of that officer. He shall preside when called upon by the President, and perform such other duties as may be imposed upon him by the laws or rules.

SEC. 6. The Recording Secretary shall keep correct minutes of the proceedings of the Association, file and preserve all papers and documents belonging thereto, conduct the correspondence, draw and attest all drafts for monies voted and perform all other duties usually devolving upon a secretary, or which may hereafter be imposed by law or rule.

SEC. 7. The Financial Secretary shall keep correctly the accounts between the Association and its members and others, in proper books to be provided for that purpose. He shall collect and receipt for all money due from any source, and pay the same to the Treasurer at each meeting, when practicable, but at least once each month, taking his receipt for the same. He shall report at the first stated meeting in each month the amount of all monies received during the preceding month, and the source from which received, together with the amounts paid out and for what paid. His books and accounts shall be kept in such a manner that the financial condition of the Association and the state of each account can be determined at any time. He shall render the Finance Committee all the facility required in the examination of his accounts, and upon retiring from office, deliver to his successor, or other person designated by the Association, all money, books, papers, or other property belonging thereto.

SEC. 8. The Treasurer shall receive and receipt for all money received by him as such and deposit the same, or all amounts in his hands exceeding fifty dollars, in some bank designated by the Association or the Executive Committee, in his name as Treasurer of the Builders' Association, with the distinct understanding that the said account shall be transferred to his successor in office, upon notice from the Association, through the President and Secretary thereof, stating the person who has been elected to succeed him.

The money, when so deposited, shall be paid out by said bank, only upon drafts or checks signed by the President, attested by the Secretary, and countersigned by the Treasurer.

The Treasurer shall keep a correct account of all monies received, deposited and paid out, and render a correct report thereof, at the first stated meeting in each month.

Upon retiring from office he shall deliver to his successor or such person as the Association shall designate, all money, books, papers, and property in his hands belonging thereto.

SEC. 9. The Executive Committee shall have and exercise a general supervisory care over the affairs of the Association. They shall designate the bank in which the funds of the Association shall be deposited, unless the same shall have been done by a vote of the Association, and require the officers to change the same, when in their judgment the safety thereof requires it. They shall hear, examine into, and, if possible, settle all disputes between members, when they can do so to the satisfaction of all parties concerned; otherwise report the facts, testimony, and their conclusions thereon, to the Association for their action.

All amendments to the Constitution and By-Laws or Rules, and all agreements to be entered into by and between the members affecting the building business, shall be referred to them to examine and report thereon before action.

ARTICLE VII.

SECTION 1. The regular elections for officers of the Association shall be held semi-annually at the second meetings in January and July in each year, and they shall be installed at the first regular meetings in February and August following their election.

SEC. 2. The elections shall be by ballot and the majority of all the votes cast shall be necessary to elect, except where there is only one nominee for an office, when the election may be by acclamation.

SEC. 3. The time and manner of making nominations and matters pertaining to the qualifications, etc., of officers may be provided for by the By-Laws.

ARTICLE VIII.

SECTION 1. The money of the Association shall be kept in one General Fund.

SEC. 2. Rent, salaries, and other necessary current expenses may be paid by a majority vote of a quorum at any regular meeting. But no money shall be otherwise appropriated or paid out in amounts exceeding twenty-five dollars for any one purpose, except by resolution signed and introduced by a member, which shall be laid over at least one week and then passed by a two-thirds vote of the members present.

ARTICLE IX.

SECTION 1. Any amendments to this Constitution must be proposed by a member at a regular meeting, each section proposed to be amended written out in full as it will read when amended. Such proposition shall then be laid over for two weeks, and when acted on must receive the affirmative vote

of two-thirds of the members present, except as provided in section 2 of this Article.

SEC. 2. By-Laws not in conflict herewith may be adopted from time to time as the Association shall determine, and may be repealed or amended as provided in said By-Laws. But no By-Laws or Rules shall be passed abridging the right of any member to carry on or transact his business in such manner as he shall deem just and proper, unless such law or rule shall have received the affirmative consent of at least three-fourths of all the members of this Association. Due notice of the passage of any such By-Law or Rule shall be given to each member in writing at least two weeks before the same shall take effect and be in force.

This Section shall not be repealed except by a three-fourths vote of all the members of the Association.

BY-LAWS.

SECTION 1. The regular business meetings of this Association shall be held on the second and fourth Wednesdays of each month in the City and County of San Francisco, at 8 o'clock P.M.

SEC. 2. Notice of all special or adjourned meetings shall be given either by postal card or by advertisement in two or more daily papers of the City and County of San Francisco. The notice must state the nature of the business to be transacted thereat.

SEC. 3. The fee for admission to membership shall be twenty-five dollars. The dues shall be one dollar and fifty cents per month, payable in advance.

SEC. 4. Any member who shall be in arrears for three months dues shall be notified by the Financial Secretary, and if he fails to pay the same, or such part thereof as shall bring him less than two months in arrears, during the space of two months thereafter, he shall be suspended from the rights and privileges of membership, and so notified.

SEC. 5. Any member guilty of a violation of his agreement entered into and signed by him with the other members, or of a violation of the Constitution, By-Laws or Rules of the Association, first having been duly tried by the Executive Committee (or by a Special Committee duly appointed in case the Executive Committee or any member thereof are disqualified from acting), and duly convicted by their report and a vote of the Association, shall be fined, suspended or expelled, as shall be adjudged by a two-thirds vote of the members present.

SEC. 6. Any member desiring to bring charges against another shall reduce the same to writing, specifying clearly and explicitly the nature of the same, with time, place and circumstances connected therewith and signed by him and delivered to the Association or Executive Committee.

SEC. 7. A copy of the charges shall be immediately served upon the member against whom they are made by the Recording Secretary or some person selected by him or by the Executive Committee, and at least five days' notice given him of the time and place of trial.

SEC. 8. The testimony shall be taken in writing by the committee and signed by the witness. The committee may adjourn from time to time and a quorum may proceed at any meeting.

SEC. 9. When the testimony is all in on both sides they shall consider the same and see if they can settle the matter to the satisfaction of all parties. If they fail to do this they shall report the testimony, together with their conclusions thereon, to the Association for their action and decision.

SEC. 10. The Association shall then proceed to take action thereon and may have the testimony read if desired by either party. During the reading and discussion of the testimony both parties shall be entitled to be present and to be heard. But when the Association proceeds to act thereon all parties interested shall be excluded from the room.

SEC. 11. If the Association finds the accused guilty, it shall forthwith proceed to fix the penalty, first voting upon expulsion. If two-thirds of the members vote in favor of that penalty, the member shall stand expelled. If not, the next vote shall be upon suspension. If two-thirds of the members vote in favor of suspension that shall be the penalty, and the Association shall proceed to fix the time or duration thereof by vote of that penalty, which time shall not exceed six months. If two-thirds of the members do not vote in favor of suspension, the penalty shall be a fine, and the Association shall then proceed to fix the amount of the fine (unless the same shall have been previously fixed in the By-Laws for like offenses), which may be done by a majority vote, but shall in no case exceed the sum of two hundred dollars.

SEC. 12. The President, in his discretion or when directed by the Association, shall appoint a Sergeant-at-Arms to serve during his pleasure, who shall have charge of the room, furniture, etc. He shall serve papers when required by the Association or by the Executive Committee, assist in preserving order at the meetings, and perform such other duties as may be required of him by the Association or the presiding officer thereof.

SEC. 13. The Finance Committee shall examine and audit all demands against the Association; examine and report upon the books of the officers at the end of each term, and at such other times as the Association may require.

SEC. 14. The President may appoint a special committee of investigation at any time he may deem the same necessary or when required by vote of the Association; said committee shall consist of one or more members who shall examine and report upon the matter referred to them.

SEC. 15. The Association may at any time require its officers who have the charge or collection of its funds to give bonds for the faithful discharge of their duties, which bonds (when required) shall be made payable to the President, in trust for and for the benefit of the Association.

SEC. 16. The Association may employ a clerk to take charge of its rooms, who may also act as Secretary, or it may assign either of its Secretaries to that duty. It may pay any of its officers or employees for their services such sums as it may from time to time determine by By-Law or Rule.

SEC. 17. Nominations for officers shall be made at the first regular meetings in January and July of each year, but nominations may be made on the night of election, if the nominees all decline or if ordered by a two-thirds vote of the members present.

SEC. 18. These By-Laws may be repealed or amended in any manner not in conflict with Section 2 of Article VIII of the Constitution, by designating the Section proposed to be repealed or by writing out in full the Section proposed to be amended as it will read when amended, such proposition being signed by the member offering the same, the proposition being first laid over for one meeting and adopted by a two-thirds vote of the members present.

Carved Signs.

CARVING is practically an art as well as a craft, not merely in interior woodwork but in sign work. Carving well executed in these gives an enriching effect. Soft wood is generally selected for ease of working, this being stained, painted, or gilded. Many fanciful contours are produced, and much taste is frequently displayed in these productions which have laid hold of popular taste. Good carving in the undulations it exhibits will afford not only contrast of form to the general surface but an attractive play of light and shade. The forms at the same time should be well defined, for a mere medley of protuberances and depressions is confusing and unattractive. Right proportion and disposition of parts will impart an aspect of completeness to the design that will not fail to please.

As regards the technique of carving it may be classified in four divisions: 1. The ornamentation of a plane or curved surface with designs in slight relief. 2. The ornamentation of a plane or curved surface in high relief, the *alto rilievo* of the Italians. 3. Work entirely curved or wholly in relief. 4. Figures in the round. The first division includes all carving which follows the contour of the sign-board, or forms the contour itself. Undercutting, as a rule, should be sparingly used.

The wood selected for carving, that is to say, the portion to be operated on, should be rubbed over with chalk and the design outlined in strong, dark lines. The depth of the ground of the relief work having been determined, care must be taken that the tools do not cut beneath this. The amount of detachment or absolute relief will depend on the degree of skill required to be exercised in securing due proportions, proper spaces to clusters of ornament if introduced, and the proper degree of prominence and depression to the figure. There must be an observance of right proportions.—*Painters' Magazine.*

It is estimated by a leading Chicago commission house that 8,000,000 cross-ties, mainly cedar, were cut in territory contiguous to the great lakes the past winter.

Owing to the increased growth of the fruit-growing industry on the Pacific Coast, box making in California and Oregon has been very brisk this season.



FIRST FLOOR PLAN OF \$5,500 DWELLING.



SECOND FLOOR PLAN OF \$5,500 DWELLING.

Valuable Hints.

If varnish or oil does not flow easily, add powdered camphor.

SHELLAC and borax boiled in water produces a good stain for floors.

DON'T inclose the sink—no place in a kitchen is so much neglected.

PORCH floors should be of narrow stuff and the joints laid in white lead.

LIME-WATER is fire-proof protection for shingles or any light wood-work.

COMMON brick absorb a pint of water each, and make a very damp house.

THE lowest-priced builder is not always the cheapest, as poor work will testify.

A CLOSET finished with red cedar shelves and drawers is death to moths and insects.

Do not locate a furnace register next to a mantel, that is, if you wish to utilize the heat.

TERRA-COTTA flue linings are a great improvement over the old roughly-plastered chimney.

For basement flooring, oak is preferred to maple because it will stand dampness better.

To properly select the colors applicable to the proper place, consult an educated painter.

A VENTILATING flue from the kitchen into the chimney often does away with atmospheric meals.

STOPS to doors and windows should be fastened with round-head screws, so as to be easily moved.

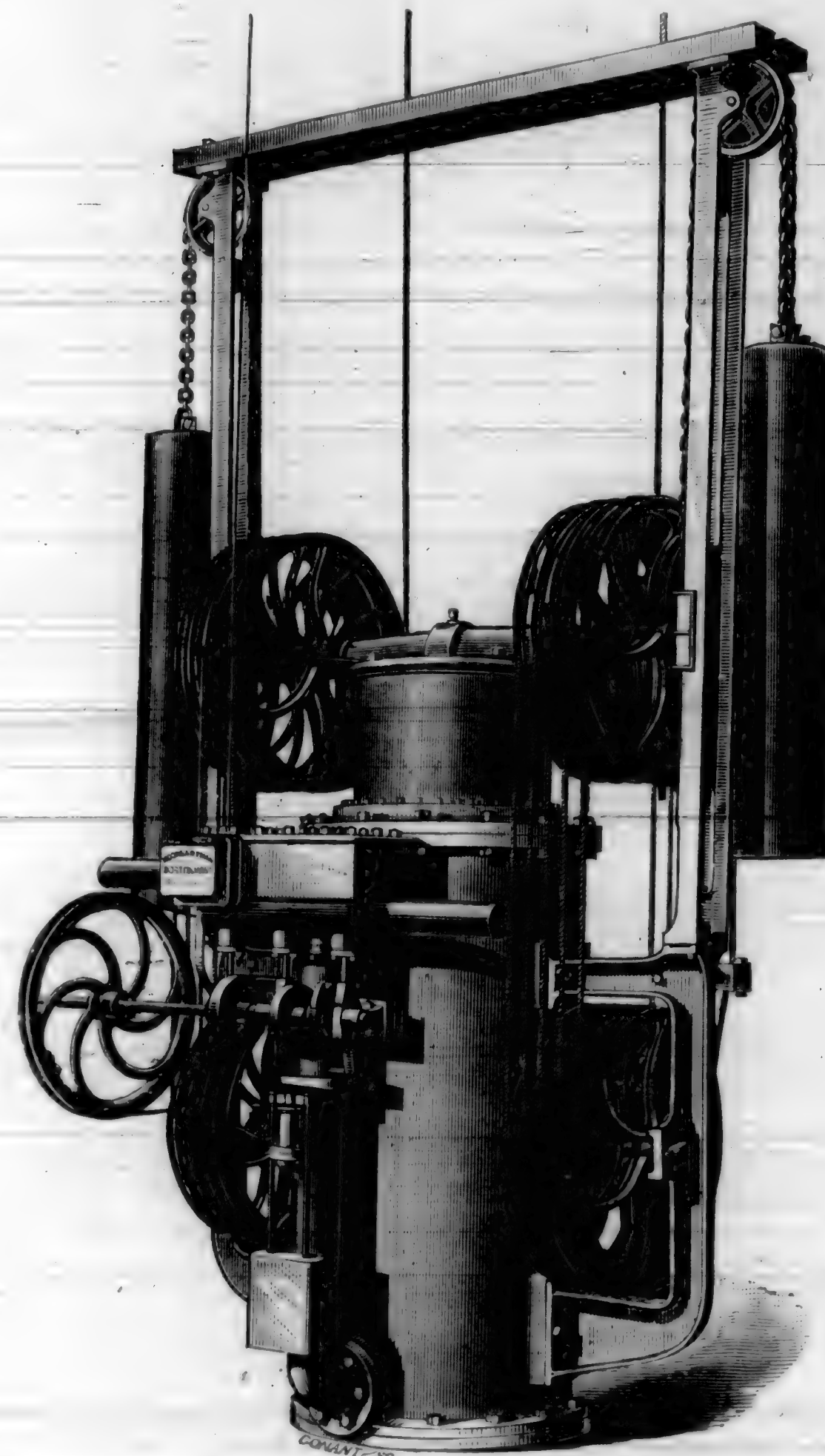
It is better to oil floors than to paint them—a monthly rubbing will make them as good as new.

Do not use one chimney-flue for two stove-pipes—the draught of one will counteract that of the other.

Do not finish windows to the floor—the circulation across the floor is one of the causes of cold houses.

ASH-PITS in cellars under fire-places and mantels save taking up ashes, for they may be raked down through a hopper.

Do not construct solid doors of two kinds of hard wood—the action of the atmosphere on one or the other will cause the door to warp.



Elevators.

IN considering the many new patents for elevators, and the appliances connected with the same, two essential requisites are necessary. The first one is in regard to the absolute safety of the devices; the second relates to the cost of running expenses. It is a fact that many are more interested in the last proposition than the first, taking it for granted that an elevator is safe as long as it is well built and supplied with any of the modern safety appliances to guard against accidents.

An elevator that thoroughly combines the above two essentials, should receive the consideration of all those who require, either in public, mercantile, or private buildings, an elevator that is simple in all its details, easily understood, and the running expenses of which are considerably less than those of any other machine now in use.

Our attention has recently been called to a new double capacity patent hydraulic elevator, which certainly seems to embody these desired qualities.

The object of this double capacity hydraulic elevator is economy in the use of water. It can be operated by water-pressure from the city main, or from a tank in upper story of building; is always ready for use, night or day, and costs nothing when not in operation. No engineer, steam boiler, or tanks required when city pressure can be obtained.

This machine has one capacity for light loads, and another which, combined with the first, will lift heavier loads. The loads to be lifted may be varied to suit.

A double-capacity hydraulic elevator divides the water into two parts, and uses water in proportion to the loads lifted. Consequently if the lighter load is lifted a less quantity of water is used than though the maximum load is lifted. A single capacity elevator requires as much water to lift the empty car as to lift the maximum load.

In practice it has been found that the loads are constantly varying, and in an ordinary day's use, they will average about one-half the maximum. It is therefore desirable to have an auxiliary power instantly available for any increased load which may be put upon the car, especially if this auxiliary power costs nothing when not in use. The double-capacity machine fills this requisite, and is practically two elevators combined in one, either of which can be used when required. It stops automatically at each end of its stroke, and may be called from one floor to another by pulling the hand-rope at the floor where wanted.

A very important feature, and one not possessed by other machines, is the patent automatic lock or regulator, which avoids a waste of water by preventing the use of the larger capacity when the smaller capacity is competent for the load. Its action is entirely automatic, and dependent upon the load in the car; and it is impossible for a careless or unskilled operator to use more water than is required. The ordinary method of operating double-capacity elevators heretofore has been for the conductor to pull on the valve-rope until, in his judgment, he has opened the valve; but should he pull too far, the full quantity of water, though not needed, is admitted, and the desired economy is not obtained. A double-capacity machine without an automatic lock is little better than a single-capacity machine, and when it is known that elevators are often operated by those who know little or nothing of their construction, and that at each trip there may be a saving or loss of from fifty to seventy-five gallons of water, dependent upon the variation in pulling of the hand-rope, the object of this invention will be apparent.

This machine is guaranteed to be safe, economical, and durable, all parts being strongly and substantially built and made of the best material; when repairs are needed, the arrangement is such that each and every portion is accessible.

The Bancroft History building has been supplied with these elevators, and it is worth the time and attention of those about to build, to thoroughly examine the workings and cost of running these in actual use, before adopting any other style.

Information in regard to the above will be furnished upon application—either in person or by letter—to the San Francisco Tool Co., corner of First and Stevenson Streets, they being prepared to construct freight or passenger elevators of this style to lift any required load.

In towns and cities having electric plants furnishing light and power the economy of these elevators is still further increased by using pumping apparatus accessory to the elevator, consisting of a tank on top and one at the base of the building, with a pump connecting the two and run by an electric motor actuated by electric power. The pressure and quantity of water are obtained from the upper tank. The elevator discharges into the lower tank, from whence the water is pumped to the upper. The water is thus used over continually without waste.

The San Francisco Tool Co. make such electric motors, under the Keith system, pumps, tanks, etc. The Company is now outfitting the Pacific Power Co., of San Francisco, with a complete large electric plant for distributing power by electricity for elevator and other purposes. It is now running a small plant furnishing power for manufacturing purposes. All interested in this matter are invited to call and inspect the apparatus.

The Y. M. C. A. Block.

IN this number of the ARCHITECT we give a cut of the new Young Men's Christian Association building now being erected by Messrs. Gilbert & Sons, contractors and builders, of Woodland, Yolo County. The foundations of the structure, for in reality there are three buildings in one, are laid firmly in brick, each building having its own foundation and own separate studding, so that each structure is independent, although in the block, and can be sold separately or as a whole. The total frontage is 70 feet, depth 108 feet, height to the top of the mansard tower 75 feet 6 inches. The three buildings contain three floors. The one on the right is rented to a doctor for a residence, the first floor of which is arranged especially for Turkish and Russian baths, after the famous Hammam, of San Francisco. This enterprise will give Woodland what few towns of its size East or West can boast of—first-class scientifically arranged and managed steam baths. The building on the left is arranged for a private residence and has been rented to one of Woodland's enterprising merchants. The architecture of the three buildings, as seen in the front elevation, is distinct in each, yet not so striking



THE Y. M. C. A. BLOCK.

as to destroy the effect of a harmonious whole. The building on the right will take after the Eastlake style in finish, the center one, the Young Men's Christian Association building, which projects and is surmounted by the mansard tower, will be finished nicely after the Queen Anne style. The building on the left is rather quaint, being a modification of the Eastlake and suggestive of the Italian. The first floor of the Young Men's Christian Association building will be introduced by a spacious recess under an arch, at the left of which is the ticket office, and directly opposite is the Association bulletin board and directory. From this corridor you enter a private office to the left and the large store in the center, which will be sub-let by the Association. At the right you enter the hall-way leading to the stairs and rooms above, also to the gymnasium in the rear, with its bowling alley, walking track, gallery, tub and shower baths, and with all the improved gymnasium apparatus. It will be one of the finest equipped gymnasiums on the coast. The reading-room and library, the reception parlors and main hall, also the secretary's office, are located on the second floor and are models of convenience, and will be fitted up in a most attractive manner. The third floor is divided up into class-rooms, ladies' central committee kitchen, rooms for boys' branch, and quite a number of lodging-rooms for young men. These apartments will be airy and commodious and

will afford the Society delightful quarters. These three buildings are each provided with front and back stairways. They will have all modern improvements and lack no really essential feature to make them complete for their purposes. The probable cost of the block will be \$25,000 when finished, and will be a credit to the enterprising builders. The Association is fortunate in getting the second Association building erected on this coast, and no doubt its usefulness will be increased a hundred-fold when it gets into the new building. Surely the business men cannot invest their money in anything where it will do as much good and bring larger returns than in the Young Men's Christian Association.

Sobriety in the Saw-Mill.

A GREAT deal is said about total abstinence in different directions of labor, as to the lack of it, or the necessity for it, and the railroads, especially, have been widely commended for their increasing efforts toward its establishment among their employees, who not only have their own lives in their hands, but those of countless others, as well as the safety of all kinds of property. The importance of a level head, under such circumstances, cannot be overestimated, and it is more or less a requisite in any vocation.

But if there is any place more than another where drunkenness has no business whatever, it is in a saw-mill; and what is more, it is a very notable and undeniable fact that an intoxicated man at work in a saw-mill is a rarity. It is a place where everything goes with precision; where an error may mean limbs or lives, and where bad judgment might in a second wreck a piece of complicated machinery and occasion great damage. With sobriety and the best of care the accidents that occur in saw-mills are of shocking character and alarming frequency. The injury that might be done in a mill or factory of any kind if a man's functions were upset by drink is, of course, apparent, but a saw-mill seems to present the greater details of danger, and to involve unusual exactness. Give a drunken man full swing of the lever, clear the mill of other workmen, and there is no limit to the havoc he would probably create. If the inebriated sawyer did no other damage, what would be the character of the lumber he sawed? If one log looked like three to him, and he could see a double saw, with no ability to tell an inch from a foot, the product he turned out from a log would be a sight to behold.

It would not do to say that an intoxicated man, or one partially under the influence of strong drink, never could or never did run a saw-mill. It would be incredible to suppose there had not been several such cases, but it is the rule that the men who operate saw-mill machinery are sober. Some men have an ability to drink a certain amount of whisky and still control their functions, we reflect, and a man who was a little shot, and a devil-may-care fellow, might pull through a good many tough places.

But the saw-mill owner and the men who labor in it appreciate the situation. They know it means business; they know the danger, and the nicety with which everything must be handled. If they get careless they may pay dearly for it. As a result intemperate men largely keep away from saw-mill labor, either from choice or as a matter of compulsion. It is the exception when it is told that an accident in a saw-mill was caused by intoxication. That the rule of sobriety so generally prevails among saw-mills, while largely a question of direct necessity, is a fact for which lumber manufacturers deserve to be commended, for it takes determination to enforce it, and demands a recognition of merit, which, to a considerable extent, has been granted. The best engineers, fitters, and sawyers are men whose industry, exemplary habits, and consequent skill entitle them to good wages, which they receive, and nobody ought to begrudge them what they get.—*Northwestern Lumberman.*

SLIDING-DOORS into small apartments are to be preferred in place of folding.

IN building frame houses, fill the studding one foot high above the sill with brick—this discounts the use of rat-traps.



Recipe for a Cement for Repairing Worn Places in Stone Steps.

LA SEMAINE DES CONSTRUCTEURS, in reply to a correspondent who asked for the recipe of a cement for repairing the worn places in stone steps, gives the composition of the famous "ciment Sorel," which has for many years been used by a few contractors, who make a great secret of their process, for filling cavities and restoring abrasions in stone or marble. The first person to use the cement, Sorel, was the inventor of the so-called process of "galvanizing" iron, by covering it with a protecting film of zinc. In the course of his experiments he found that the oxide of zinc, mixed with a solution of the chloride of the same metal, gave a substance which soon became in air as hard as marble; and with slight variations, this mixture is the one employed by all his successors. Sorel, in practice, either used the washed residues from the manufactories of zinc white, which are perhaps heavier and less pure than the white pigment, or heated the ordinary zinc white of commerce to redness to increase its density, upon which the hardness of the cement depends. This, when intended for use, he mixed with a rather concentrated solution of chloride of zinc, having a density of fifty to sixty degrees by Beaume's hydrometer, usually adding about three per cent of borax or sal-ammoniac to lessen the rapidity of setting. So prepared, the "ciment Sorel," after setting, soon becomes as hard as marble. It adheres very strongly to stone, and resists heat, cold, moisture, and even the action of acids, and may be colored. To reduce the cost, and assimilate it to stone, powdered granite, marble, or hard limestone may be mixed with it, but soft, earthy substances should not be used. As at present manufactured in Paris, various additions are made to the powdered zinc oxide, to give certain colors or textures, and the chloride solution is sent separately in bottles, the price of the whole, ready for mixing, being about seven cents a pound. The basis of the cement is in all cases the same, some trifling differences in the mode of preparation, such as washing the zinc white with water containing borax before calcining it, or using protochloride of iron, or chlorohydric acid, in the solution, in place of zinc chloride, serving mainly to support the claims of particular manufacturers to a special method of fabrication. In general, the heavier the zinc oxide, and the more concentrated the chloride, the stronger is the cement. To repair stone, either

in the shape of statues or steps, the portion to be operated upon should first be scraped to a fresh, clean surface, and then moistened with the liquid chloride. A sufficient quantity of the dry cement is mixed with enough liquid to form a stiff paste, and placed in position, and after being allowed to set a few days, is trimmed off, and smoothed by rubbing with a piece of stone. In summer it will become hard enough to rub down in two days; in winter five or six days are necessary. While setting it must be protected from rain, and two weeks should elapse before a staircase repaired with it is opened to general use. Some of our readers, whose recollections of their experiences in the dentist's chair are fresh, will probably be struck by the similarity of the operations described to those which the dentist goes through in repairing a large cavity with cement filling, and in fact the cement used by dentists is nothing else than the "ciment Sorel," prepared with care for their purposes.

Strength the Great Factor.

THE architect or builder who can look back upon a long and honorable career with no element of failure to blot its history can boast of either great prudence and care, or an extreme amount of that commodity called "luck." But few extensive builders have passed through life without recalling some piece of construction where the element of failure was paramount to that of safety. We believe in the truism that it is better to be on the safe side in all our structures. The want of size in timber, the simple absence of a bolt, a few inches in the thickness of a wall, have often brought about elements of danger in buildings that call for the strongest condemnation. There are two reasons for this state of affairs: one is an imperfect knowledge of the strength and capacity of building materials, and the other is a self-confident conviction of a belief born of a hasty and careless consideration of the subject.

The failure of roof trusses, of girders, and joists, the cracking of walls, the settlement of buildings, all may be indirectly traced to the above causes.

In all constructive architecture the first and important factor to be carefully considered is strength. Where doubt exists, well-known authorities should be consulted and living examples examined. The experience of any architect or builder of extended practice is worthy of consideration.

Especially to the young architect and builder is this a serious matter, and although he may, in self-confidence, assume that he has mastered his profession, he will soon learn that after years of practice he has just begun to learn, and it is at this stage he begins to practice carefulness and give some study—perhaps when it is too late—to the factor of safety. Especially is this applicable to the construction of masonry. That great common product of every locality, bricks, used in all our great structures, have in them not only the element of safety, but danger to an extensive degree, if not properly and carefully used.

A brick of medium quality will withstand a great pressure to crush it, if properly laid. From 400 to 1,000 pounds per square inch will crush ordinary brick-work, if laid carelessly. Of course we understand that the figures vary according to the quality of the brick, but the manner of laying has more to do with the safety of brick-work than the strength of the material itself. Not only the manner of laying and bonding, but the mortar goes far to render the work free from failure. The liability to crush and grind, communicated from one brick to another, is much reduced by a bed of good mortar, for the mass, upon becoming compact and homogeneous, is as a solid body upon which movement and crushing effect cannot act; and although the weight of a high wall would seem to bear more upon the bottom courses, yet if we consider the fact that by good mortar and workmanship we cement the work into one common mass, we bring it to the condition of a post or column, bearing the weight of a superstructure equally the same at the bottom as at the top. The fact that much of the brick manufactured by hand in small districts is soft and unburned, renders their use dangerous unless extra care is taken in laying them. Very seldom should brick work be used in isolated or high piers, for the support of great loads; but if used at all, they should be of the best quality, hard-burned, and laid in cement divided by good bond-stone. High piers are liable to buckle or spring out of plumb before crushing, and should in all cases be avoided if we have any regard for the great factor of all good construction—STRENGTH.—*Hill's National Builder.*

In Kansas and Nebraska, where something neat yet cheap is demanded, whitewood has the call over pine for house finish.

Southern California Sandstone.

A FINE specimen of sandstone from quarries near Los Angeles has been left at the office of this journal, than which in texture and color we have seen nothing finer in this State. The deposit is within a mile or two of Los Angeles City, and the ledge is found in stratas of from six to sixty inches in thickness. Even the heavier stratas are said to be entirely free from seams and fractures, with marked uniformity in color. It appears not to be affected by exposure to the atmosphere, except to improve it in hardness. The proprietors of the quarry propose its introduction for building purposes in San Francisco as soon as transportation facilities are completed.

It is certainly gratifying to notice the unearthing of these natural finer products of our State in building materials. With the sandstone of Santa Clara County, and the more recently discovered Los Angeles stone, an ample supply of beautiful building stone of the kind is at hand, serving all present purposes, with the great probability that other counties of the State will in turn unbosom deposits of sand and other fine stones for building purposes, which will reduce the propensity of a certain class of owners who feel disposed to "send East" for the brown sandstone of Connecticut, to a simple exhibition of folly.

The American Glossary of Architectural Terms.

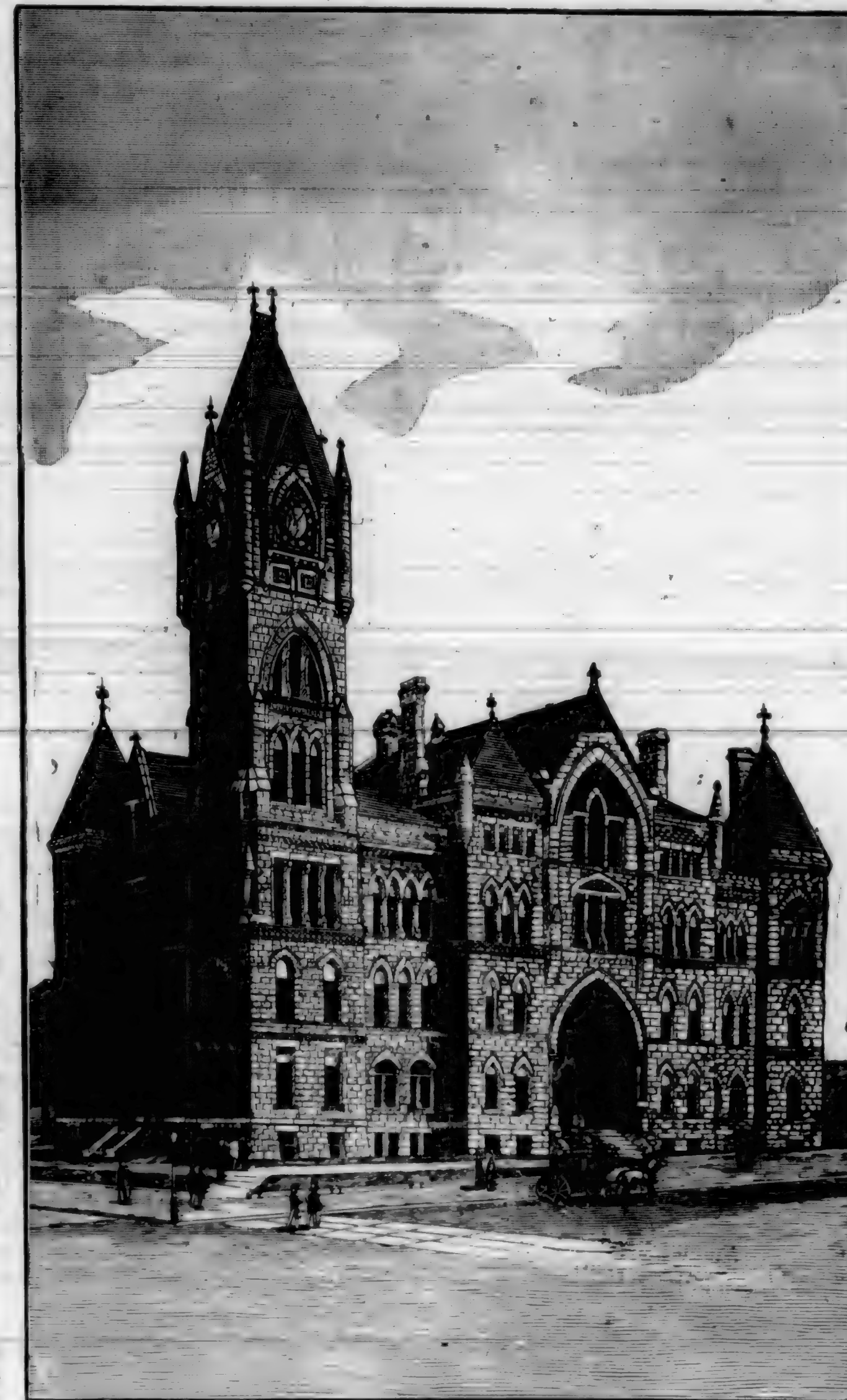
THE object of this new work has been to prepare a concise dictionary of all proper terms used in America and England, but not to treat of words whose etymology is uncertain. It is the only work of the kind ever issued adapted to the wants of the American architect and builder, arranged from a professional and practical standpoint. The illustrations are the most perfect and complete ever presented in any work of a similar standing, and the method used to exemplify on one page the meaning of the terms on the opposite page certainly recommends itself to all. Architectural students of all degrees should order a copy of this work. It is beautifully bound and printed, and will be sent to any address upon receipt of \$2.50.

Steam and Water Radiators.

IT will be news to some to know that three-fourths of all the radiators in use in the East are those manufactured by the A. Griffin Iron Co. Not content with supplying over one-half of America, they are making great efforts to secure the entire control of the Pacific Coast, and to this end are shipping weekly car-load lots, so as to fully meet all requirements of the trade. Their very best goods are shipped to this city, and in quantities to suit any demand, no matter how large they may be. C. D. Harvey is the agent on this coast, and may be found at 30 New Montgomery, corner Stevenson Street.

THE curious fact that the usual heat produced by friction is absent when the articles are magnetized, is just now being discussed by scientists who are seeking an explanation. Very striking examples are described in a late number of a scientific periodical. A workman fastened a couple of powerful magnets to his lathe to hold more securely a piece of metal which he wished to drill and turn. The presence of the magnets kept the metal so cold that no water was needed to keep the drill moist and cool. This unusual circumstance may lead to important mechanical advantages. It is such circumstances as the one noted above that lead to valuable discoveries. The scientists, who are looking for a reason why the heat should be absent, may not hit upon any valuable idea, but some practical mechanic probably will.

In arranging the openings of a room, do not forget the wall space. It is sometimes advisable to build a house to suit the furniture.



DESIGN FOR A PUBLIC BUILDING TO BE BUILT OF STONE.

New Inventions and Improvements.

MESSERS. E. C. STEARNS & Co., of Syracuse, N. Y., manufacturers of hardware specialties, ever responding to the demand for labor-saving tools and improvements generally, have recently produced and added to their constantly increasing line, several new articles, three of which are now ready for the trade. These consist of an improved "Silent Saw Vice," entirely new in design; an excellent door clamp, also entirely new in design, being a departure from the old style iron clamp, and a register and ventilator added to "The McGuire Star Thimble."

These three articles are soon to be handsomely illustrated in our columns.

Garland Trap.

WE are pleased to note that the "Garland Trap" is being used in all our boom towns and cities. It is superseding, in this city, all other patents, from the fact that its wonderful efficiency as a preventive of sewer gas obtaining access to buildings, has been over and over again thoroughly proven. See that your architect calls for the "Garland Trap."

MODERN ARCHITECTURAL DESIGNS AND DETAILS. A few copies remain of this really good work. Price, \$10.00.

DETAIL COTTAGE AND CONSTRUCTIVE ARCHITECTURE. Similar to the above in general design.



Finials in Sheet Metal.

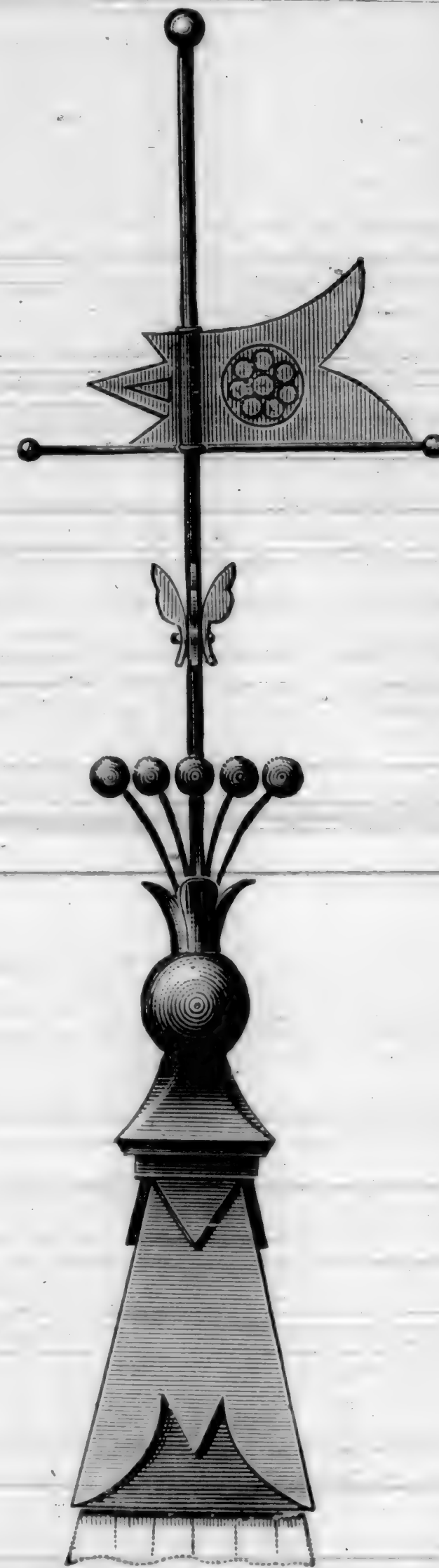
THE vagaries in designs with which architects are wont to trim public and private buildings at the present time are almost without parallel. There is no portion of a building perhaps where odd conceits are so often shown than in the finials surmounting towers. Two pieces of work of this kind are shown in the accompanying engravings. One is a very neat design of a finial carrying a vane, and may be asserted to belong to the conventional order of work of this nature. The other, in addition to the orthodox architectural features of the lower part, has a non-descript beast with wings and forked tongue, hanging to the neck. Whatever may be the

designs of finials, the question of the material out of which they are to be constructed is a matter of considerable importance to the builder. Sheet metal work is gradually being recognized as the most appropriate article and there are comparatively few pieces of work of this kind at the present time in which this material does not figure as an important element. The designs here shown are selections from a new catalogue recently issued by Bakewell & Mullins, of Salon, Ohio. The work is a volume of 200 pages and contains a thousand or more engravings representing architectural trimmings of almost every conceivable kind ranging on the one side from ambitious allegorical groups and statuary, heroic size, to leaves, rosettes, scrolls, etc. on the other. While the book is only a trade catalogue and intended primarily for the use of the customers of the establishment named, it is more of interest to architects, builders, and sheet metal workers in general on account of the number of designs it contains, more particularly because it shows work that has actually been executed and in many cases indicates the buildings upon which it has been employed. The work is one which will doubtless have a wide circulation.

New Books.

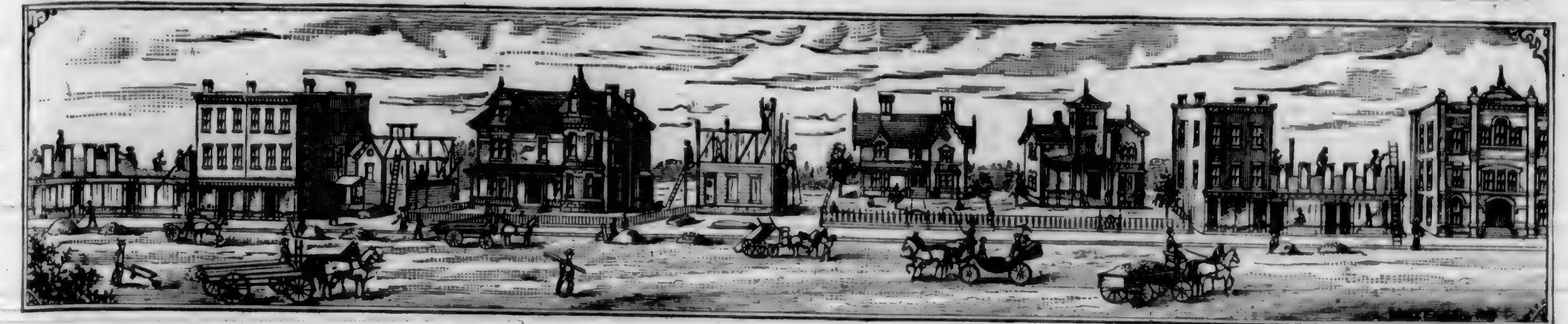
We have on hand the following books, which will be sent to any address upon receipt of the price.

Essentials of Perspective.....	\$ 1 50
Modern Architectural Designs and Details.....	10 00
Detail Cottage Architecture.....	6 00
Leffel's House Plans.....	3 00
Science of Carpentry.....	5 00
Mechanic's Geometry.....	5 00
Artisan.....	5 00
Artistic Homes.....	3 50
Mechanical Drawing.....	1 00
American House Carpenter.....	5 00
Building Superintendence.....	3 00
Builder's Companion.....	1 50
Cutting Tools.....	1 50
Cottages.....	1 00
Ornamental Drawing.....	1 00
Grimshaw on Saws.....	4 00
Universal Assistant.....	2 50
Limes, Cements, and Mortars.....	4 00
Builder's Guide.....	2 00
Gould's Carpentry.....	2 50
Trussed Roofs, Ricker.....	3 00
Amateur Mechanic's Workshop.....	3 00
Handbook of Legendary Art.....	3 00
Dwellings, Reed.....	3 00
Plumbing Appliances.....	1 50
Modern House Painting.....	5 00
Stair Building Made Easy.....	1 00
Cabinet Maker's Companion.....	1 25
Manual for Furniture Men.....	1 00
Rural Architecture.....	1 50
Architecture, Horton.....	1 50
Wonders of Art.....	1 25
Common Sense in Church Building.....	1 00
Old Homes Made New.....	1 50
Hints on Household Tastes, by Eastlake.....	3 00
American Cottage Builder.....	3 50
The Suburban Cottage.....	1 50
Homes for the People.....	2 00
Country Homes, Woodward.....	1 50



Cottage and Farm House, Woodward.....	\$1 50
Suburban Homes, Woodward.....	1 50
Rural Homes, Wheeler.....	1 50
Manual of Industrial Drawing for Carpenters.....	2 00
Illustrated Drawing Book.....	1 00
Mathematical Drawing Instruments.....	1 50
Drawing for Carpenters.....	1 75
Shavings and Saw Dust.....	1 50
Linear Drawing.....	1 50
Practical Draughting.....	1 00
Drawing for Cabinet Makers.....	1 50
Handrailing and Staircasing.....	1 50
Painter, Gilder, and Varnisher.....	1 50
Water Closets.....	1 00
Sewer Gas.....	1 25
Steam Engine Catechism.....	1 00
Paper Hanger's Companion.....	1 25
Principles of House Drainage.....	1 00
How To Paint.....	1 00
Practical Geometry.....	1 00
Lumberman's Hand Book.....	2 00
Lien Law.....	50
Cozy Homes.....	25
Every Man His Own Mechanic.....	3 50

**CIVIL ARCHITECTURE,
A SPLENDID WORK,
PRICE, \$10.00.**



COUNTRY BUILDING INTELLIGENCE

In this and succeeding issues we intend to devote considerable space to information in connection with buildings, from every portion of the coast.

Only reliable news will be found in this column. Our custom has been for the past eight years, to furnish only data which could be relied upon. We will not publish rumors of "THIS AND THAT IS GOING ON" unless we are reasonably assured that such is truly the case. In all cases we will file our authority for any statements made in this column. No doubt mistakes will sometimes occur, but these we intend to be a rare exception to our rule of reliable news.

We desire the co-operation of country editors and mechanics to this department of this journal. By spreading the news of building engagement in your part of the country, you enhance the value of your section by proclaiming it a go-ahead community.

Architects should also notify us of "plans to figure on;" we do not charge anything for the insertion of such notices. Remember this journal is in the EIGHTH YEAR of its existence, and is the only journal published this side of the Rocky Mountains in the interest of Architects, Contractors, and Material Men.

Alameda.

H. K. Starkweather is having built a \$2,000 house on Pearl Street.
Science of Carpentry, for \$4.00.
Universal Assistant, for \$2.50.

Alhambra.

Completion of school-house frame. Architect, B. J. Reeve; cost, \$2,000.
Cutting Tools, for \$1.50.
Home Hand-Book, for \$10.00.

Covina.

M. E. Church, frame. Owner, M. E. Church; architect, Reynolds; contractor, day work. Cost, \$7,000.
Cutting Tools, for \$1.50.
Cummings' Details, for \$5.00.

Coronado Beach.

The foundation for a new house, the property of Architect Falkenar, has been laid.
Grimshaw on Saws, for \$4.00.
Mechanics' Geometry, for \$4.00.

The laying of the brick foundation for the new building to be erected by the Methodist Society, on the corner of D and Fourth Streets, is commenced. A very handsome three-story brick is projected. The ultimate cost will reach \$60,000.

Coronado will have a fine school-house, on a lot 300x500 feet, bounded by E and F Avenues, and Sixth and Seventh Streets, being the second block west of the plaza.
Shavings and Sawdust, for \$1.50.
People's Cyclopedia (three large volumes), for \$20.00.

Earlham.

A Friends College, to cost \$50,000, is projected.
Ruskin's Works (four volumes), for \$6.00.
Industrial Drawing for Carpenters, for \$2.00.

East Oakland.

Highland Park. Owner, Highland Park College; architect, S. & J. Newson; contractor, Knowles & Wetmore. Cost, \$5,500.
Drawing for Bricklayers, for \$1.50.
Drawing for Cabinet Makers, for \$1.50.

Garvanzo.

A planing-mill is now erected here.
Woodward's Farm Homes, for \$1.00.
Woodward's Graperies, for \$1.00.
A brick-yard is already at work.
Building Superintendence, for \$3.00.
American Cottage Homes, for \$3.00.
The town boasts a new telegraph office.
Painter, Gilder, and Varnisher, for \$1.50.
Architects' Companion, for \$2.50.
A large number of houses are under contract and building in Garvanzo.

Limes, Cements, and Mortars, for \$4.00.
Wonders of Art, for \$1.25.
Judge Hatch is building a \$7,000 house.
Woodward's Farm Homes, for \$1.00.
Woodward's Graperies, for \$1.00.
A large addition will be built to the Garvanzo Park Hotel.
Building Superintendence, for \$3.00.
American Cottage Homes, for \$3.00.

Los Angeles.

Three-story and basement brick. Owner, J. Mullally; architect, B. J. Reeve. Cost, \$25,000.
Album of Mantels, for \$8.00.
Architects' Companion, for \$2.50.
Two-story and basement brick. Owner, P. Gainer; architect, B. J. Reeve. Cost, \$11,500.
Manual for Furniture Men, for \$1.00.
Common-Sense Church Architecture, for \$1.00.
Three-story frame. Owner, Gamable; architect, B. J. Reeve. Cost, \$14,000.
Artistic Homes, for \$3.50.
Modern House Painting, for \$5.00.
Two-story frame residence. Owner, W. S. Hutton; architect, John Hall. Cost, \$200.

Pavilion frame, brick. Owner, D. R. Waldon; architect, H. R. Leonard; contractor, R. W. McIntosh. Cost, \$3,500.

Every Man His Own Mechanic, for \$3.50.
Tredgold's Carpentry, for \$7.50.
Three-story and basement brick. Owner, L. Phillips; architect, B. J. Reeve. Cost, \$500,000.

Architecture and Building, for \$3.50.
American Cottage Building, for \$3.50.

One-story frame and brick. Owner, Mr. S. Callaghan; architect, John Hall; contractor, J. M. Tibbets. Cost, \$500.

Plaster, How to Make It, for \$1.00.
Shavings and Sawdust, for \$1.50.

Four-story and basement brick. Owner, L. Phillips; architect, B. J. Reeve. Cost, \$100,000.

Every Man His Own Mechanic, for \$3.50.
Tredgold's Carpentry, for \$7.50.

Two-story frame residence. Owner, M. E. Church; architect, Reynolds; contractors, Monroe & Co. Cost, \$2,000.

Woodward's Country Homes, for \$1.50.
Practical Perspective, for \$5.00.

Four-story and basement brick. Owner, L. Phillips; architect, B. J. Reeve; contractor, Grant. Cost, \$160,000.

Woodward's Country Homes, for \$1.50.
Science of Carpentry, for \$4.00.

One-story frame cottage, brick. Owner, N. J. Rowan; architect, John Hall. Cost, \$2,500.

Monrovia.

There are between thirty and forty buildings being erected in Monrovia at the present time.

Lumberman's Hand-Book, for \$2.00.
Practical Geometry, for \$1.00.

Several more contracts are now being let, some of them for very fine residences.

Steel Square Problems, for \$1.00.
Workshop Companion, for 35c.

One-story frame cottage. Owner, Mrs. Hutchinson; architect, E. A. Coxhead; contractor, Leitch. Cost, \$2,500.

National City.

Griffith & Heat are building a large brick block on Eighth Avenue. The contract is for \$9,000.

Practical Perspective, for \$5.00.
Builders' Companion, for \$1.50.

L. E. Brown has prepared plans for another \$15,000 house.

Ontario.

Two two-story brick blocks. Owner, C. P. Lyndal; architect, Geo. Fyfe; contractor, John Geary. Cost, \$3,400.

Two-story brick block. Owner, H. O. Bryan; architect, Geo. Fyfe; contractors, McIntyre & Newman. Cost, \$2,900.

Grimshaw on Saws, for \$4.00.
Mechanics' Geometry, for \$4.00.

Pomona.

The demand for building material is so great that a number of carpenters are compelled to suspend operations, awaiting the arrival of some kinds of lumber.

Hand Railing and Stair Casing, for \$1.50.
Drawing for Carpenters, for \$1.75.

W. H. Sailor is building a house in the Garthside tract.

Builders' Companion, for \$1.50.
Builders' Work, for \$5.00.

J. W. Heckman is building for L. W. Carpenter a \$1,600 house on Holt Avenue.

American House Carpenter, for \$5.00.
Cutting Tools, for \$2.00.

Henry Warren is building a \$1,500 house on Centre Street.

Plaster, How to Make It, for \$1.00.
Shavings and Sawdust, for \$1.50.

Completing Catholic Church. Architect, B. J. Reeve; cost, \$1,500.

Builders' Work, for \$5.00.
Building Superintendence, for \$3.00.

Redlands.

Jas. F. Drake is having a two-story house built.

Builders' Companion, for \$1.50.
Builders' Work, for \$5.00.

Rialto.

W. H. Wickersham, of Los Angeles, has been given the contract for building the large hotel at Rialto. George B. Robinson, from El Paso, Texas, has taken the contract for doing the brick work. Work on the building will begin at once. The house will cost in the neighborhood of \$125,000.

Artisan, for \$5.00.
Builders' Guide, for \$2.00.

Riverside.

H. A. Westbrook is building a residence on Brockton Square. The edifice will cost \$10,000.

Lumberman's Hand-Book, for \$2.00.
Practical Geometry, for \$1.00.

A new chapel is being erected on Sixth Street for the United Brethren.

Science of Carpentry, for \$4.00.
Universal Assistant, for \$2.50.

T. J. Wood has matured his plans for the erection of a large brick block on Orange Street. It is to be 26x80 feet, two, and perhaps three stories high.

American House Carpenter, \$5.00.
Cutting Tools, for \$2.00.

Rosecrans.

A large hotel is to be built at once.

San Bernardino.

Architect C. H. Jones has made plans for a one-story building for E. Katz.

Builders' Companion, for \$1.50.
Builders' Work, for \$5.00.

The corner-stone of the new \$20,000 M. E. Church was laid with appropriate exercises.

Album of Mantels, for \$8.00.
History of Architecture, for \$15.00.

The Anderson building, opposite the St. Charles Hotel, will be the largest in the city. It will cost \$52,870.

Builders' Companion, for \$1.50.
Builders' Work, for \$5.00.

The laundry building for the Southern California Road, at this place, will soon be ready for occupancy.

Ruskin's Works (four volumes), for \$6.00.
Industrial Drawing for Carpenters, for \$2.00.

One-story brick for Katz, \$5,000.

Artistic Homes, for \$3.50.
Modern House Painting, for \$5.00.

Two-story frame for R. H. Skelly, \$2,300.

American Cottage Homes, for \$3.00.
Builders' Work, for \$5.00.

Two-story frame for J. E. Drake, \$2,500.

Album of Mantels, for \$8.00.
History of Architecture, for \$15.

One-story brick for S. Haile, \$6,000.

American House Carpenter, for \$5.00.
Cutting Tools, for \$2.00.

Two-story office for Russ Lumber Co., \$3,000.

Six cottages for S. Weil, \$3,000.

San Diego.

An Agricultural Hall is about to be built.

Science of Carpentry, for \$4.00.
Universal Assistant, for \$2.50.

An opera house to cost \$300,000 is to be built in the near future.

Building Superintendence, for \$3.00.
American Cottage Homes, for \$3.00.

The bricklayers are at work upon the foundation of the new railroad depot at the foot of D Street.

Lumberman's Hand-Book, for \$2.00.
Practical Geometry, for \$1.00.

The masons have commenced work upon the foundation of the Methodist Church, corner Fourth and D Streets.

Practical Perspective, for \$5.00.
Drawing for Carpenters, for \$1.75.

Two million dollars' worth of buildings have been lately contracted for, of which half are in the way of construction.

Drawing for Stone Masons, for \$1.50.
Building Construction, for \$1.25.

Work on the railroad depot at the foot of D Street is being pushed rapidly. A portion of the frame is already in place. The building is to be 40x100 feet.

San Pedro.

Two-story frame. Owner, Mr. Bloomfield; architect, John Hall. Cost, \$3,000.

Santa Ana.

Two-story brick. Owner, Dr. Medlock; architect, B. J. Reeve. Cost, \$12,000.

Santa Monica.

Episcopal Church, brick. Architect, E. A. Coxhead; contractors, Davidson & Johnston. Cost, \$3,000.

San Luis Obispo.

A \$200,000 hotel is shortly to be erected, some three miles south of this town, by a company, and ground for the enterprise has already been broken, water pipes are laid, and erection is to be commenced at once.

Mural Painting (new), for \$3.00.
Home Hand-Book, for \$10.00.

Santa Paula.

Three brick buildings are soon to be erected at Santa Paula, one of which will be occupied by a banking firm.

Album of Mantels, for \$8.00.
History of Architecture, for \$15.00.

The Alvarado Bridge.

The contract of the county of Alameda with the California Bridge Company to construct an iron bridge at Alvarado, was approved recently by the Board of Supervisors. The contract price is \$7,440. The contract for the construction of the new Receiving Hospital was awarded to C. L. Crissman. The contract price is \$3,878.

Shavings and Sawdust, for \$1.50.
American Cottage Building, for \$3.50.

Miscellaneous.

Captain Flavel, of Astoria, will build two fine brick buildings in that city this season. Each will be three stories high; one on the corner of Chenamus and Main, the other on the corner of Chenamus and Cass Streets. The cost of both will be \$60,000.

Architecture and Building, \$3.50.
American Cottage Building, for \$3.50.

A \$10,000 flouring mill is to be built in Heppner, Or., this summer.

Woodward's Country Homes, for \$1.50.
Plaster, How to Make it, for \$1.00.

J. P. Allen will build a large family residence for Will Shoemaker, on the northwest corner of Twelfth and K Streets, Modesto. The building will cost, when completed, between \$4,000 and \$5,000.

American House Carpenter, for \$5.00.
Cutting Tools, for \$2.00.

Contract has been let for construction of the Despain Block in Pendleton, Or. It will be of brick, and cost nearly \$18,000.

Practical Perspective, for \$5.00.
Woodward's Country Homes, for \$1.50.

Hoffman & Bates, of Portland, Or., have been awarded the contract for building snowsheds on the Northern Pacific road west of the Cascades, and Hugh Glenn & Co., of The Dalles, for the one on the east side. Both contracts will consume about 11,000,000 feet of lumber.

Artisan, for \$5.00.
Builders' Guide, for \$2.00.

Mr. H. F. Larrabee is drawing plans for a two-story brick hotel, 48x86 feet, to be erected by Mrs. Kornmeyer, on the east side of Railroad Avenue, Oakdale, Cal.

Steel Square Problems, for \$1.00.
Workshop Companion, for 35c.

M. J. Mertens has purchased, and will soon erect a fine residence thereon, the lot on the northwest corner of Alameda Avenue and Union Street.

Builders' Companion, for \$1.50.
Artistic Homes, for \$3.50.

SAN FRANCISCO BUILDING NEWS.

B
Broderick, nr. Fulton. One-story frame.
O.—Mrs. M. Clark.
C.—Thos. Elan.
\$2,500.

Broderick, nr. Fulton. Alterations.
O.—H. R. Levy.
A.—J. P. Chadwick.
C.—H. Ritchie.
\$1,000.

Bryant, bet. Second and Third. Three-story frame.
O.—Thos. Green.
A.—W. H. Armitage.
C.—W. E. B. Stiles.
\$5,500.

Broadway. Buchanan. Three-story frame.
O.—A. Adler.
A.—Macy & Jordan.
C.—J. M. Kelly.
\$18,000.

Bush, nr. Pierce. Alterations.
O.—S. Nicoll.
\$1,500.

Bush and Steiner. Alterations.
O.—Mrs. Goull.
C.—Haner.
\$1,800.

Buchanan, cor. Filbert. One-story frame.
O.—L. Zimmerman.
A.—W. Schrof.
C.—T. Merry.
\$1,700.

C

Clay, nr. Mason. Additions.
Cost, \$600.

California, bet. Kearny and Montgomery Streets. Alterations.
Cost, \$1,000.

California, cor. Steiner. Two-story frame.
O.—J. G. Broemmeh.
A.—P. R. Schmidt.
C.—C. Hisholm.
\$12,000.

California, cor. Baker. Alterations.
O.—P. McGinn.
A.—Mooser.
C.—Hayes.
\$2,000.

California, nr. Laguna. Alterations.
O.—O. F. Willey.
A.—J. J. Newsom.
C.—Lynch.
\$3,500.

Chattanooga, nr. Church. Four one-story frames.
O.—Comertford.
\$6,000.

D

Devisadero, bet. Pine and Bush. Two two-story frames.
O.—Mrs. F. G. Miller.
A.—C. Kenitzer.
C.—C. T. Ruppel.
\$8,000.

Davis, bet. Sacramento and Commercial. Four-story brick and basement.
O.—Mrs. A. M. Parrott.
A.—Pississ & Moore.
Mason—Riley & Loane.
Carp.—Langstaff.
\$75,000.

E

Eighteenth, cor. Howard; three-story frame.
O.—J. E. A. Helms.
A.—Salfeld & Kohlberg.
C.—J. J. Dunn.
\$9,000.

Eighteenth, nr. Diamond. One-story frame.
O.—R. McGillan.
A.—J. J. Devlin.
C.—F. A. Williams.
\$1,500.

F

Fifth, nr. Bryant. Two-story frame.
O.—Klemm.
\$1,500.

Fulton, cor. Baker. One-story frame.
O.—B.—T. H. Day.
\$2,000.

Fulton, cor. Baker. One-story frame.
O.—Mr. Doyle.
C.—Houston.
\$2,500.

Folsom, nr. Fourth. Additions.
Cost, \$500.

Fremont, nr. Market. Four-story brick building.
O.—C. R. Bishop.
A.—W. F. Smith.
Mason—C. B. Merrill.
Carpenter—T. H. Day.
\$45,000.

Fourteenth, nr. Howard. Two-story frame.
O.—K. Muller.
A.—Salfeld & Kohlberg.
C.—A. Klahn.
\$2,800.

Fillmore, nr. Hayes. Additions.
O.—Miss A. Hill.
A.—Townsend & Wyneken.
C.—C. F. Coady.
\$2,000.

Fourteenth, nr. Guerrero; three two-story frames.
O.—Con McCarthy.
A.—T. J. Welsh.
C.—P. Maloney.
\$10,000.

Franklin, cor. Post. Additions, plumbing and painting.
O.—H. Levy.
\$4,250.

G

Greenwich, bet. Mason and Taylor. Three-story frame.
O.—Mrs. O'Connell.
A.—G. E. Voelkel.
C.—F. W. Graham.
\$3,500.

Green, bet. Octavia and Laguna. Two-story frame.
O.—J. Jennings.
A.—A. J. Barnett.
C.—T. Sullivan.
\$3,500.

Geary, nr. Gough. Two-story frame.
O.—Mrs. A. Taft.
A.—H. Geiffuss.
C.—C. E. Dunshee.
\$4,500.

Geary, cor. Webster. Additions.
O.—Mrs. Hydenfelt.
C.—McDougall & Son.
\$1,500.

Geary, nr. Webster. Additions.
O.—W. Hunt.
A.—H. D. Mitchell.
C.—G. Pattison.
\$2,000.

Green, cor. Octavia. Two-story frame.
O.—Jennines.
A.—A. J. Barnett.
C.—Sullivan.
\$3,500.

Green, cor. Octavia. One-story frame.
O.—Mr. Mahoney.
A.—W. Mooser.
C.—F. Grimm.
\$2,000.

Golden Gate, south side, bet. Octavia and Laguna. Two-story frame.
O.—A. Fassman.
A.—Copeland & Banks.
A.—P. R. Schmidt.
\$11,800.

Gough, cor. Oak. Five flats, stores and cottages.
O.—Geo. Raphael.
A.—Macy & Jordan.
C.—N. R. Ellis.
\$12,000.

Green, cor. Octavia. One-story frame.
O.—B.—M. Webber.
\$1,400.

Golden Gate Avenue, cor. Larkin. Alterations.
O.—P. Spreckles.
\$800.

Golden Gate Avenue, cor. Franklin. Two three-story frames.
O.—W. Gleason.
A.—J. Bestor.
\$6,000.

H

Howard, near Twenty-fourth. Frame building.
O.—M. P. Jennings.
C.—Geo. Houston.
\$1,700.

Howard, bet. Tenth and Eleventh. Additions.
O.—Sarah Mier.
C.—P. Farrar.
\$2,200.

Howard, nr. Thirteenth. Additions.
\$1,500.

Haight, nr. Webster. Two-story frame.
O.—M. Kolbing.
A.—John & Zimmerman.
C.—F. W. Kern.
\$3,500.

Harrison, cor. Fourth. Additions.
\$800.

Haight, nr. Devisadero. Two-story frame.
O.—W. Hayes.
C.—Newbert.
\$3,500.

Hollis, nr. Ellis. Alterations.
O.—W. A. Searls.
A.—Townsend & Wyneken.
C.—T. Roth.
\$1,000.

Hayes, nr. Scott. Two-story frame.
O.—W. Whitefield.
A.—McDougall & Son.
C.—A. Klahn.
\$3,500.

Haight, nr. Webster. Two-story frame.
O.—Friedland.
C.—H. Elmwood.
\$3,000.

Haight, bet. Fillmore and Steiner. Two-story frame.
O.—J. P. Devine.
A.—Chas. Giddes.
C.—J. and M. Rountree.
\$3,000.

Hayes, nr. Broderick. Two-story frame.
O.—B.—C. Keenan.
\$3,000.

Haight, nr. Buchanan. Two-story frame.
O.—Mary Deering.
A.—M. J. Welsh.
C.—R. Sinnott.
\$5,000.

Hawthorne, nr. Folsom. Two-story frame.
O.—Kenyon.
C.—Dutton.
\$2,500.

Hampshire, nr. Twenty-first. One-story frame.
O.—C. H. Munster.
\$1,400.

Howard, nr. Thirteenth. Additions.
\$1,500.

Howard, cor. Eighteenth. Two-story frame.
O.—J. Davis.
A.—Copeland & Banks.
C.—Wm. Plana.
\$6,000.

Hermann, cor. Jessie. Two two-story frames.
O.—Mrs. A. Kemme.
A.—T. J. Welsh.
C.—P. J. & M. Brennan.
\$9,000.

J

Jessie, nr. Second. Three-story brick.
O.—Sharon Estate.
Builder—S. M. Hills.
\$8,000.

M

Market, bet. Fifth and Sixth. Additions.
O.—P. F. Butler.
A.—T. J. Welsh.
C.—J. J. Dunn.
\$5,500.

Mint Avenue, nr. Fifth. Two-story brick.
O.—J. F. Leve.
C.—R. Kingrose.
\$2,000.

Mission, nr. Eighth. Three-story frame.
O.—McGeary.
A.—Townsend & Wyneken.
C.—McGeary.
\$8,000.

Mission, nr. Twenty-fifth. Additions.
\$700.

Mission, bet. Twenty-fourth and Twenty-fifth. One-story frame.
\$600.

McAllister, cor. Steiner. Two-story frame.
O.—A. J. Turner.
A.—H. Geiffuss.
C.—R. P. Hurlburt.
\$7,000.

McAllister, cor. Fillmore. Two-story frame.
O.—E. Turner.
A.—Balcynski.
C.—R. O. Chandler.
\$5,600.

Mission, bet. Twenty-third and Twenty-fourth. Frame building.
O.—J. M. Tully.
A.—M. J. Welsh.
C.—Sticker & Son.
\$2,000.

Mission, nr. Twenty-eighth. Two-story frame.
O.—M. Boyd.
Day work.
\$900.

N

Noe, cor. Castro. One-story frame.
O.—W. Schroeder.
C.—O. E. White.
\$1,900.

O

Oak, nr. Laguna. Two-story frame.
O.—J. Kennedy.
A.—J. Marquis.
C.—Martin & Maguire.
\$5,800.

P

Page, nr. Fillmore. Two-story frame.
O.—E. W. Spencer.
A.—G. M. Salisbury.
\$3,600.

Post, nr. Broderick. One-story frame.
O.—John Murphy.
B.—P. Lynch.
\$1,500.

Post, bet. Buchanan and Webster. Two two-story frames.
O.—B. Getz.
A.—J. J. Clark.
C.—C. E. Dunshee.
\$7,500.

Post, cor. Broderick. One-story frame.
O.—E. Nightingale.
\$1,500.

Pine, cor. Baker. Three two-story frames.
O.—B.—G. Hinkle.
\$12,000.

Pacific, nr. Leavenworth. Two-story frame.
O.—Wm. Kelm.
A.—Miller & Armitage.
C.—H. Jensen.
\$3,000.