heat, the beginning and high heating are included.

Many fire coils can be interwoven one between the other, to be cleaned from a common hearth, and be connected in such a way that the water in the first coil, after passing the rooms to be heated, can enter the second coil from below, then the third, etc., and, after passing the rooms from the last coil, can enter the first coil below, to repeat the circulation of the water over again.

The fire coil, with its conduits of pipes, is called a system; the whole length of the same should not exceed 180 meters (575 feet); the shorter the better.

The conducting pipe is of the same caliber as the fire coil, starts at the upper end of the latter, passes through the rooms to be heated, and connects again, on its backward conduit, with the lower end of the fire coil.

For the circulation of the water in the pipe it is of advantage to conduct the hot water in the same to the highest point of the arrangement, and only on the return to the boiler is it passed into the heating coil of the heater placed in the rooms for the abstraction of the heat. The heating coil can be placed in a convenient position in the room, or in channels covered with grating.

Since a hot water heating apparatus consists only in an uninterrupted line of pipes, the heated water in the circulating coil must pass all the rooms. By the insertion of a threeway cock the water in the run can be connected with the heating coil, or the same may be closed and the water turned into the cock-run. The disconnection of one room increases the heating capacity of the others.

The heat emission capacity of the pipes is calculated by the formula for water heating; approximately, can be taken on an average that in a system the emission of heat per one meter of pipe is 95 to 100 units, the room having a temperature of 20°. The distribution of pipes must be done, not according to the mean value, but according to the value of emission for one unit of length for the whole length of pipe, where the whole length of the system, height of air circulation, horizontal extension, the turns and bends of the conduit, are to be considered.

The tightening of joints is executed by making universal joints with right and left threads; no tightening it off by other means must be used.

Before putting the arrangement to use, the system must be tested under a pressure of 150 atmospheres.

The filling up of the system with water is done from the lowest point, which must be done carefully, and all air expelled from the cistern before being heated, avoiding explosion of the fire coil.

As much as 200 tons of terra-cotta have been used in the Potter Building, New York. The building is 165 feet high and has eleven stories and two stories below the surface. The fronts of the first and second stories are of cast iron.

Fall of a Solid Stone Staircase.

A VERY unusual building accident happened in an interior town of France, some months ago, which illustrates anew the importance of employing competent and careful architects in the erection of public buildings, and of the exercise of constant care in constructions which are commonly supposed to be especially substantial. In the eulogies so often met with, of the superiority of European buildings to those of this country in regard to solidity of construction, we are frequently told of the stairways, which are built of solid stone, and which are at once assumed to be absolutely secure from danger. Yet it was precisely such a stair of solid stone steps, built into the solid walls of the Court House, in the small city of Thiers, France, which gave way suddenly when filled with people, and caused the shocking death of twenty-four victims, and the maiming and wounding of one hundred and fifty more. The particulars are briefly these: The stairs were very wide, and each step, consisting of a single stone, was imbedded in the wall of the building at its outer end, while the other end, by a sort of dovetail construction well understood by stone masons, rested upon the step below without other support. There was a light iron balustrade to guard this side of the stairs. An interesting trial was in progress in the court room on the second floor, and early in the morning a large crowd had gathered in the building awaiting the opening of the upper doors. Of these, it is estimated that as many as five hundred had gathered on the stone stairway. There being some delay in the resumption of the proceedings, the crowd on the stairway began to manifest its impatience by stamping. Suddenly there was a crashing sound under their feet and the whole stair gave way and sank into the pit below, with all the crowd of men, women, and children who were on it and under it. It is seldom that a more distressingly painful accident occurs, even in this land of reckless building. While few people realize the fact, it is nevertheless true that the lives of a community are almost, or quite, as completely in the care of the architects they employ, as of their physicians—with this very serious difference, that, while a doctor's mistake seldom costs more than one life at a time, a single slip of an incompetent or cheap architect may result in the slaughter of hundreds of innocent victims. There is one other difference, that, while most intelligent people are prudently shy of cheap doctors, many of them think that when an architect is wanted, any Bohemian who can make an excuse for a plan, and who will work for a day laborer's pay is good enough for them.—*The Building Trade Journal.*

The latest door-knob device we have noticed is one operated by pressing on a button in the center of the knob, similar to the ordinary electric button, but the knob itself remains stationary.

Ancient Cisterns and Cements.

SOME few miles west of Bougie are the scattered remains of the ancient Tubusuptus, the modern Tiklat. The side is strewn with Roman stone. The walls of the great cisterns are still standing, consisting of 15 galleries, each being 116 feet by 13 feet 9 inches, and about 20 feet deep. The dividing walls are 2 feet 9 inches thick, built of rubble, but carefully constructed. These great reservoirs are a peculiar feature in North Africa, being found, some in fairly perfect condition, on the outskirts, or frequently within the walls of nearly every town. Those at Carthage, for instance, known as the smaller cisterns, to distinguish them from the larger series, which may be assigned to Punic times, are even now in good preservation, although built with small and irregular-shaped stone. The hardness of the mortar here, as elsewhere, is very noticeable; and the cement lining, known as *opus signinum* extremely thin, and made of crockery shards, is of so hard a texture as to be broken with great difficulty. The secret of mortar composition appears to have passed from the Romans to the Arabs, who still employ the same ingredients in the construction of arches, terraces, and cisterns. The composition appears to be one part sand, two parts wood ashes, and three of lime. After being thoroughly incorporated, the mixture is beaten for three days and nights with wooden mallets, sprinkling a little water, and at times adding a small quantity of oil, till the whole becomes of due consistency. In the jointings of pipes, also, the Arabs follow the method of the Romans, beating together two, and lime with oil, and without water. The composition speedily assumes the hardness of stone and is impervious to water.

Owing to the shutting down of Western nail mills, pending the settlement of the wages question, nails have become scarce, and the price has advanced. Eastern nail mills are taking advantage of the situation to do a rushing business. One mill recently had to decline an order for 50,000 kegs.—*American Machinist.*

A building was in process of erection opposite a public building in Washington City. One of the clerks who had been looking out of the window for some time, said to another clerk who was reading a newspaper:—

"I have been watching that workman over there for half an hour, and he has not done a lick of work in all that time. I wonder what he gets paid for?"

Just about the same time the workman remarked to a fellow workman:—

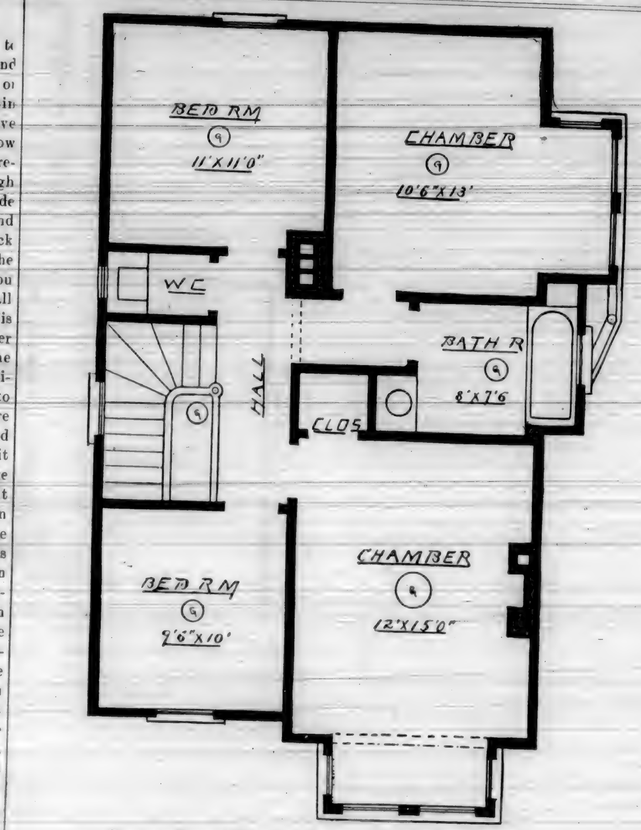
"Just look at that government clerk over there. He hasn't done anything except look out of the window for the last half-hour. No wonder the country is going to the dogs."—*The Wood-Worker.*

To darken light mahogany and cherry, bichromate of potash dissolved in water is excellent, and gives it the appearance of age.

Porcelain Portrait Oil Painting.

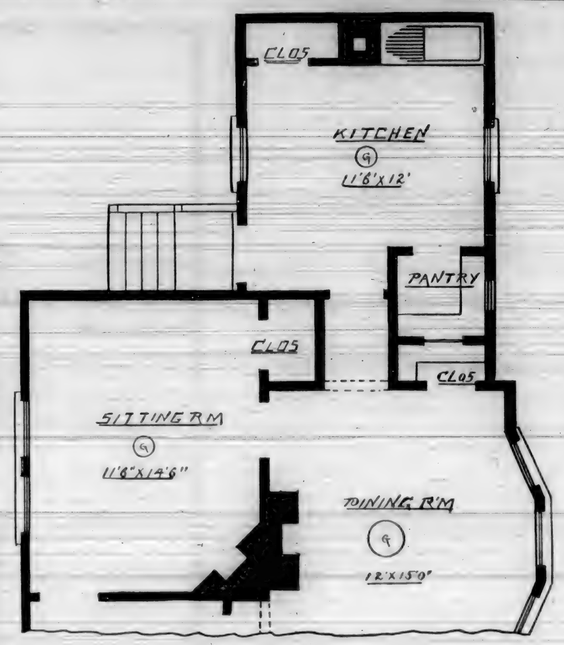
FIRST, procure the portrait that you wish to paint (a bust cabinet picture of the head and shoulders is the best), and lay it in a dish, or pan of soft water, and let it soak until the thin paper that the photo is taken on will remove easily from the card on which it is pasted. Now procure a piece of glass the size of the paper removed and with flour paste (strained through a cloth) paste it on the glass, the print side down; now hold the glass in one hand and with the fingers of the other rub on the back of the print, commencing at the head of the portrait and rub around and around until you reach the edge of the glass, rubbing out all blisters and surplus paste. When the paste is thoroughly dry, take a piece of fine sandpaper or emerypaper and sandpaper as much of the paper from the back of the print as you possibly can, without cutting through the print to the glass on which it is pasted. Now procure a little Cosmoline from your druggist, and rub this over the back of the print and hold it over a stove and warm it in, until you make the photo transparent so that you can see it as well from the back of the glass as you can from the front. Now it is ready to commence painting: procure two or three small camel's hair brushes with hair about one-eighth of an inch long and about as large around as a knitting needle. First mix a little white lead with boiled oil, two parts, and Japan dryer, one part (use oil and dryer to mix all of your colors with), with your small brush and a little of the white paint just make a little dot on the small white spot that is found in the sight of the eye of the photo (this is called the high light); mix a little black and paint the sight of the eye around the little white spot that you have made; if the eyes are blue black, brown, or gray, mix a little paint as near the color of the eye as possible and paint the rim or circle that surrounds the sight of the eye with it; now mix a little vermilion red and white together and paint the lips. If there is any jewelry represented in the photo, paint it yellow. Now procure another piece of glass the same size as the one you have and clean it off well; now cut four pieces of blotting paper each one-eighth of an inch wide and two inches long, paste one of these on each edge of the glass, the same side that your photo is pasted on; paste the top of these papers and lay on your other glass so that the edges are even; cut four strips of writing paper about three-fourths of an inch wide and two inches long, paste one of these and stick it to the upper glass allowing about one-third of its width to lap on the glass, press it closely over the ends of the glass and lap the remainder on the under glass; paste one on each end of the glasses. This will bind the two glasses together. Royal Glue for sticking and binding the glasses together is recommended. Now with a little white paint paint on the back of the (in painting hold the glass toward the light) last glass the white of the eyes; mix a little burnt Sienna and Naples yellow and white together, making a flesh color, paint all the flesh that is shown in the photo. With a little vermilion red paint the cheeks right on top of the flesh color just put on and rub this with your brush until it shows to suit your taste from the front of the glasses. Now mix up colors to match the hair or beard and clothing, and paint them. Paint the background any color to suit your taste. When done, if the colors do not suit, you can rub them off with a rag, and mix and try again. When completed place in a velvet frame and you will have one of the nicest oil paintings you ever saw.

A singular building operation is now in progress in Boston, where the old Masonic Temple, recently occupied by the United States Court, is in process of being replaced by a modern dry goods store. The structure stands at the corner of two of the principal streets, one of which, after the usual Boston fashion, had been widened through its whole length, except at the corner in question, where, either on account of the ownership of the land by the United States, or by reason of the cost of altering the old building, the city authorities had been unable or unwilling to change the original line. As the building thus projected three or four feet into the street, constituting a disagreeable obstruction, the new owners, who bought the property from the United States, reflected that if they were themselves to demolish the old Temple, which was perfectly useless to them, the city government, seeing the land cleared, would probably seize the opportunity, while there was no building on it, to condemn enough of it to complete the widening of the street. Although they would, of course, be compensated for the land taken, the reduction in the size of the intended store would be a serious detriment to their business, while the very widening of the street would deprive them of the benefit of that advertising which a store prominent enough to block the way in a crowded thoroughfare always gets; and they resolved to manage their building operations in such a way that there should be constantly on the



SECOND FLOOR PLAN OF A SUBURBAN DWELLING.—PLATE 4.

land a structure so large and costly that the city authorities would hesitate before incurring the expense of demolishing it. With this idea the work was begun by piercing the walls of the old Temple near the ground, and inserting needles, with shores outside and inside sufficient to take the whole weight of the superstructure; and removing the foundations, to replace them by the foundations for the new building. As these approached the sidewalk level, it became necessary to commence the second and more hazardous portion of the undertaking, which consisted in raising the Temple about fifteen feet, so as to allow the work of the new building to be carried on under it. Boston is somewhat noted for the skill of its building-movers, and although the old Temple was by no means a credit, in point of construction, to the masons who built it, having walls of rather incoherent rubble, faced with the "saw-tooth work" which pleased the unscientific fancy of our grandfathers, the contractor in this case contrived, by putting timbers across the windows, and tying them together, to convert the shell of the building into a reasonably rigid box, under which were placed 300 jack-screws, resting on the piles of timbers, which by this time had replaced the shores. The work of lifting was then intrusted to six men, whose duty it was to go steadily around the building, giving each screw, as they reached it, a quarter-turn. When the screws had been turned to their full length, about fourteen inches, more timbers were inserted, and the screws were reset for another lift. So far, the work has gone on with perfect success, and by the time the old Temple has ceased to be of service in protecting its owners against the economical city authorities, the new building will be far enough advanced to take its place.—*American Architect and Building News.*



ADDITIONAL PLAN, FOR FIRST STORY, SUBURBAN DWELLING.—PLATE 5.

Book Learning.

PROFESSOR HUXLEY says: "I do not say that knowledge is not an extremely good thing; but if a man is to make a good workman, or to do anything in practical life, you must give him an education that fits him for the conditions of life with which he has to deal, and you will give him an education by filling his head with a number of intellectual abstractions, or even by giving him the largest acquaintance with scientific principles. And I think it is a profound mistake, considering the career to which the majority of artisans or persons in that class of life are necessarily bound, ever to take them out of the wholesome discipline of practical contact with the realities of life, for the mere sake of giving to them a greater or less amount of knowledge. A man who is inclined to do so may always pick up knowledge, and he may do so at the same time that he is getting his education, in the highest sense of the word, out of his contact with the realities of his daily life; but if you make a book-worm of him, if you take him away from all that contact with reality and turn him back afterwards into it, he has lost touch of life. I have had to do with mankind in many stations in life, and it seems to me that what is wanted in a foreman is a man of energy, punctuality, business habits, and power of dealing with men, all of which things are not to be got out of books or laboratory work. These qualifications are the most essential qualifications in a foreman, and what you want besides in such a man is not book learning, but an intelligence sufficiently trained to be able to deal with new conditions, and an amount of knowledge sufficient to enable him to know where to go and find more if he wants it."

Facts Worth Knowing.

A CUBIT is 2 feet.
A pace is 3 feet.
A fathom is 6 feet.
A span is 10⅞ inches.
A palm is three inches.
A great cubit is 11 feet.
A league is 3 miles.
There are 2,750 languages.
Oats, 35 pounds per bushel.
Bran, 35 pounds per bushel.
Barley, 48 pounds per bushel.
A day's journey is 33⅓ miles.
Two persons die every second.
Sound moves 743 miles per hour.
A square mile contains 640 acres.
A storm blows 36 miles per hour.
Coarse salt, 85 pounds per bushel.
A tub of butter weighs 84 pounds.
Buckwheat, 52 pounds per bushel.
The average human life is 31 years.
A barrel of rice weighs 600 pounds.
An acre contains 4,840 square yards.
A firkin of butter weighs 56 pounds.
A barrel of flour weighs 196 pounds.
A barrel of pork weighs 200 pounds.
Slow rivers flow five miles an hour.
Timothy seed, 45 pounds per bushel.
A hurricane moves 80 miles per hour.
A rifle ball moves 1,000 miles per hour.
Rapid rivers flow seven miles per hour.
A hand (horse measure) is four inches.
Electricity moves 288,000 miles per hour.
The first lucifer match was made in 1829.
Gold was discovered in California in 1848.
The first horse railroad was built in 1826–27.
A mile is 5,280 feet, or 1,760 yards in length.
Corn, rye, and flaxseed, 56 pounds per bushel.
The first steamboat plied the Hudson in 1807.
A moderate wind blows 7 miles an hour.
Wheat, beans, and clover seed, 60 pounds per bushel.
The first use of a locomotive in this country was in 1829.
The first almanac was printed by George Von Purbach, in 1640.
The first steam engine on this continent was brought from England in 1753.—*American Inventor.*

The Boston Society of Architects have held council in the matter of more nearly equalizing the rates of profe-sional compensation, by increasing charges on all work costing less than $10,000. The proposition is a fair and just one, as the expense of preparing plans, specifications, and details for buildings of moderate cost very nearly equals those costing more than the sum named; and the work of superintending is but little greater in the more costly than in the cheaper class buildings. Certainly the expense to an architect in preparing plans, specifications, and details for three separate and distinct buildings, costing an aggregate of $20,000, is very much greater than those for a single building costing the same sum, and the value of time consumed in superintending the three, is infinitely more than for the single building. Consequently at five per cent in both cases, the compensation in that of the three would fall, comparatively, far below that of the single building. And five per cent being no more than should be paid by owners in any case, the regular fee of five per cent would be a hardship upon the architect.

The responsibilities and duties of architects are greatly undervalued, and the importance to owners of securing the services of a competent, experienced, and qualified man, overlooked. The miserable idea of economizing in the matter of architectural services, is a mistake that has caused thousands of owners to regret their folly. And it is a firmly established fact that the practical damages sustained by owners, to more or less valuable property through this sort of false economy, amounts to millions of dollars each decade of time. The shortages in rentals, loss of time in renting, the inferiority of the class of renters, and the diminished selling value of the property, on account of wretched planning and bad construction, in buildings planned by and erected under the superintendence of second to tenth rate architectural pretenders, in thousands of cases, amount yearly to several times more than would have paid the full schedule rates to competent architects. The owner who, for one moment, permits the consideration of economy to intervene in the selection of an architect, does a very unwise thing.

POLISH FOR MARBLE.—One-half ounce of magnesia; two ounces oxalic acid; one pint of warm rain-water. Use a white woolen cloth.

METHOD OF DEADENING SOUNDS IN BUILDINGS.—General M. C. Meigs, writes to the *Sanitary Engineer* as follows in reference to an article on deadening the sounds from water-closets, which appeared in a late issue: "I have found it impossible to make myself heard by a person on the other side of a large window, double glazed, interval between panes seven-eighths of an inch. Glass is very elastic, and should, I suppose, therefore, be a good sound-conductor. But the voice cannot be heard through two sheets of ordinary French window-glass separated by seven-eighths of an inch of air. In this, I think, may be found a hint for shutting off sound."

LEAD POISONING FROM A PAINTED WATER TANK.—Dr. Bartley, chemist to the Brooklyn Board of Health, reports an interesting case of lead poisoning which was caused by using water from a tank on shipboard, which had been painted nine months before with red lead.

The case was that of a Norwegian vessel which reached the port of New York with all the officers and crew more or less seriously ill from lead poisoning. They were removed to the Long Island College Hospital, where one of them subsequently was seized with convulsions and died. The curious element in this case is the fact that the water tank, which had been painted while the vessel was at Copenhagen, should have been used without any evil consequences during several voyages, having been several times filled at certain ports at which the vessel stopped. It was only after having the tank refilled at Cadiz, and after having proceeded on her voyage for some time, that the symptoms of sickness began to manifest themselves, when one after another of the crew sickened, until all were affected, with the result previously mentioned. Meantime the vessel had touched at several South American ports, where the tank had been again refilled several times. No less than nine months, as above mentioned, had elapsed between the time of painting the tank and the first outbreak of the malady, the tank in the interval having been in constant use.

To account for this anomalous circumstance, Dr. Bartley supposes that the first few times the tank was filled, it was with hard water—containing carbonates—the result being the formation of an insoluble film of carbonate on the surface, which protected the lead beneath from solution and the water from contamination. Later a softer water was probably used—containing nitrates and nitrites—which are known to have a marked influence on the corrosion of lead pipes, and which would act in a similar manner upon the lead paint.

The circumstance is instructive, as exhibiting very strikingly the danger of using lead paints for such a purpose as that herein described.—*Manufacturer and Builder.*

OLDEST HABITATIONS IN AMERICA.—Major Powell, Chief of the Geological Survey, who has been about a month in the field, has discovered in New Mexico, near California Mountain, what he pronounces to be the oldest human habitation upon the American continent. The mountains in this vicinity are covered with huge beds of lava, in which the prehistoric man and his comrades excavated square rooms, which were lined with a species of plaster made from the lava, and in these rooms were found various evidence of quite an advanced civilization, among them a species of cloth made of woven hair, and a large number of pieces of pottery. In the sides of the rooms cupboards and shelves were excavated. In one room, sticking out of the bare face of the wall, was a small branch of a tree. When this was pulled out, it was found that there was a hollow space behind the wall Colonel J. H. Stephenson, Major Powell's assistant, broke this with a pick and found a little concealed niche, in which was a small carved figure resembling a man done up in a closely woven fabric, which with the touch of the hand turned to dust. It was blackened and crisp, like the mummy clothes of Egypt. In all, some sixty groups of these lava villages were found, there being twenty houses in each group. The evidences of civilization were similar, but removed by their crudity and evident want of skill a good deal from the articles found in the cliff houses which have been so fully written up in the reports of the geological surveys.—*Santa Fe New Mexican.*

DISCOVERY OF A ROMAN RACE-COURSE AT NANTES.—Archæological researches have recently revealed in the neighborhood of Nantes the existence of a race-course of presumably Roman origin. The foundations of the hippodrome occupy an area of about 223 by 174 meters. Further discovery has been made in the vicinity, of an ancient roadway leading to the Loire, near the banks of which river traces of a number of villas prove the existence of a buried city, inasmuch as a theater capable of accommodating 4,000 persons has been brought to the light of day. A quantity of ornaments, jewels, and pottery has been recovered among the ruins. Thus far the absence of coins has frustrated the endeavors of savants engaged in unearthing the relics to establish the epoch of this most-recently-found city of the Roman occupation.—*New York Evening Post.*

BROWN STAIN FOR WOOD.—A brown stain for wood for the imitation of oak, walnut, and cherry-tree wood is obtained by thinning ordinary tincture of iodine with alcohol, more or less being added of the latter according as a lighter or darker shade of brown is desired. The stain should be applied with a broad brush or a rag. After it has dried, the work should be polished. It is possible, however, to dispense with ordinary French polish by adding white shellac to the stain. One or the other of these processes of polishing is indispensable to give permanency of stain.

Nothing definite has yet been reached regarding a proposed cable street railway at Washington, D. C. The route embraces the central, southeastern, and northeastern sections of the city. It will be a cable road about seven miles long, and the estimated cost is $536,000. The road is to begin from the Bank of Washington, and will take in the museum, the Soldiers' Home, the new Catholic University, Glenwood Cemetery, Government Printing Office, the jail, workhouse, the Congressional Cemetery, the navy yard, etc. The commissioners were favorably impressed with the measures proposed by the company at a recent meeting.

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$3,000.

Bernal Heights. Two-story frame.
O.—H. Benical.
C.—L. D. Frichette.
$2,000.

C

Clementina, nr. Fifth. Alterations.
O.—L. McCloud.
C.—C. Cody.
$2,500.

Chattanooga, bet. Twenty-second and Twenty-third One-story frame.
O.—A. McPherson.
Day's work.
$2,500.

Castro, nr. Market. One-story frame.
O.—J. Andersen.
C.—F. Guttero.
$1,600.

Church, nr. Fifteenth. Additions.
O.—J. W. Hammerton.
Day's work.
$750.

Chattanooga, bet. Twenty-second and Twenty-third Two one-story frames.
O.—J. Bolger.
A.—Huerne & Everett.
Day's work.
$3,000.

E

Eddy, nr. Webster. Additions.
O.—A. Vogler.
C.—J. Weiss.
$900.

Eddy, bet. Buchanan and Webster. Additions.
O.—W. Bogler.
C.—H. J. Weiss.
$600.

Eighth, nr. Market. One-story frame
O.—W. Jones.
Day's work.
$1,000.

Eddy, nr. Devisadero. Two-story frame.
O. and B.—F. Buckley.
A.—Huerne & Everett.
$2,000

Eighteenth. nr. Sanchez. One-story frame.
O.—F. Jeannot.
A.—Huerne & Everett.
C.—B. E. Everson
$700.

F

Fulton, cor. Franklin. Ten two-story frames.
O.—J Buckweld
A.—Curlett & Cuthbertson.
C.—D. Perry.
$32,000.

Fourteenth, bet. Valencia and Guerrero. One and one-half story frame.
O.—F. A. Flaherty.
Day's work.
$2,000.

Fillmore, nr. Post. Two-story frame.
O.—H. Levy.
A.—McDougall & Son.
C.—J. A. Leonard.
$5,000.

Fifteenth, nr. Noe. One and one-half story frame.
O.—D. Maugher.
A.—McDougall & Son.
C.—Martin & Maguire.
$2,200.

Fillmore, bet. Hayes and Grove. Two-story frame.
O.—Mrs. Allie McAbee.
A.—J. H. Littlefield.
C—Haskell & Webb.
$4,500.

Fillmore, corner O'Farrell. Two-story frame.
O.—J. H. Jacobs.
C.—Treadwell & Thompson.
$6,500.

Fulton, bet Devisadero and Broderick. Two-story frame.
O.—Dr. Brucker.
A.—J. M. Curtiss.
C.—J. Bamber.
$3,000.

G

Garden, bet. Harrison and Bryant. Additions.
O.—Jas. Mooney.
Day's work.
$2,000.

H

Howard, bet. Twenty-first and Twenty-second. Two-story stable.
O.—John English.
A.—Schmidt & Havens.
C.—F. W. Kern.
$1,600.

Howard, bet. Fourteenth and Fifteenth. Two-story frame.
O.—J. Swift.
A.—Townsend & Wyneken.
C.—H. J. Weiss.
$5,000.

Howard, bet. Eleventh and Twelfth. One-story frame.
O.—J. P. Stoltz.
C.—W. A. Sherline.
$1,100.

Howard, nr. Eleventh. Two-story frame.
O.—Wm. Denie.
C.—G. M. Gray.
$1,500.

Hill, nr. Valencia. Additions.
O.—J. C. Gouldin.
C.—A. Kowlner.
$2,000

Hill, cor. Valencia. Three-story frame.
O.—J. C. Gouldin.
C.—A. Kowlner.
$6,000.

Howard, nr. Moss. Additions.
O.—Dr. J. P. P. Van Den Bergh.
Day's work.
$5,000.

Harrison, bet Fifth and Sixth. Two-story frame.
O.—George Dawson.
C.—O. M. Sherman.
$3,000.

J

Jessie, bet. Fifth and Sixth Two-story frame.
O.—J. Gould.
A.—F. J. Welch.
C.—P. Laherty.
$2,500.

Jones, nr. Pacific. Additions.
O.—W. Fell.
C.—H. Dunkirk.
$1,000.

L

Lombard, nr. Jones. Two-story frame.
O. and B.—J. P. Hunter.
Day's work.
$3,500.

Liberty, bet. Church and Dolores. One-story frame.
O.—Joseph Carr.
A.—M. J. Welch.
C.—C. F. Buckley.
$1,000.

Liberty, bet. Church and Dolores. One-story frame.
O.—Thos. Earling.
A.—M. J. Welch.
C.—C. F. Buckley.
$1,000.

M

Mission, nr. Fourteenth. One-story frame.
O.—S. A. Moore.
Day's work.
$1,000.

McAllister, nr. Lyon. One-story frame.
O.—J. H. Cope.
C.—Wm. Little.
$1 600.

Mission, bet. Ninth and Tenth. Two-story frame.
O.—F. W. Kenerleber
A.—H. Geilfuss.
C.—F. W. Kern.
$6,000.

Minna, bet. Eighth and Ninth. Four two-story frames.
O.—I. Shaw.
C.—Johnson & Walton.
$8,000.

Market, bet Seventh and Eighth. Two-story frame.
O.—J. J. Donnovan.
Day's work.
$1,000.

Market, bet Eighth and Ninth. One-story frame.
O.—Cronan & Dunbar.
C.—Anderson Bros.
$3,000.

Market, bet Eighth and Ninth. One-story frame.
O. and B—Anderson Bros.
Day's work.
$1.000.

Mission, bet Tenth and Eleventh. Two-story frame stable.
O.—W. A. Fredericks.
C.—T. C. Riddell.
$1.500.

Mission, nr. Twenty-first. Two-story frame.
O.—Peter Unrath.
A.—Daley & Praun.
C.—J. Bamber.
$4,000.

N

Nineteenth, cor. Church. Two-story frame.
O.—Geo L. Long.
A.—J. T. Kidd.
C.—A. Jackson.
$1,400

Noe, nr. Eighteenth. One-story frame.
O.—F Jenetti.
Day's work.
$1,200.

P

Pine, cor. Scott. Two-story and basement frame.
O. Mrs. Cyro Morse.
A.—J. H. Littlefield
C.—Bateman Bros.
$4,700.

Pine, nr. Buchanan. Two-story frame.
O.—C. H. Syk s.
C.—A. Ackerson.
$3,000.

Pierce, cor. Golden Gate ave. Two-story frame.
O.—Susan McGlunn.
A.—T. J. Welch.
C.—E. & F. J. Owens.
$3,500.

Page, between Devisadero and Broderick. Two-story frame.
O.—S. D. Sweetzer.
A.—Townsend & Wyneken.
C—A. H. Plummer.
$5,000.

S

Stockton, nr Montgomery Avenue. Two s ory frame.
O.—Mrs. A. Mann.
C.—J. E. Alexander.
$2,500.

Sacramento, bet. Fillmore and Steiner. One-story and basement frame.
O.—Mrs. J. W. Cherry.
A.—B. M. Dugan & Son.
C.—Casebeer & Frazier.
$3,000

Sixteenth, nr. Sanchez. Two-story frame.
O.—J. M. Granaghan.
A.—M. J. Welch.
C.—T. Sullivan.
$2,500.

Scott, nr. Golden Gate ave. Three two-story frames.
O.—Wm. Matthews.
A.—Pissis & Moore.
C.—D. F. McGraw.
$8,000.

Stevenson, 1866, nr Jessie. Alterations.
O.—Miss C. Tighe.
C.—Bateman Bros:
$1,000.

T

Twenty-third, cor. Chattanooga. Additions.
O.—M. F. Gale.
Day's work.
$600.

Taylor, nr. Broadway. Additions.
O.—J. H. McCoy.
A.—T. D. & J. J. Newsom
C.—W. Hall.
$3,000.

Twenty-fourth, bet. Mission and Capp. Two-story frame.
O. and B.—A. Roberts.
Day's work.
$2,000.

Twenty-fourth, nr Mission. Two-story frame.
O. and B.—A. Roberts.
Day's work.
$2,500.

V

Valencia, nr. Sixteenth. Additions.
O.—H. Carroll.
Day's work.
$900.

Vanderwater, nr Mason. Two-story frame.
O.—Joe Cuneo.
Day's work.
$1,500.

Valencia, nr. Sixteenth. Additions.
O.—J. T. Farrell.
Day's work.
$600.

W

Walnut, nr. Sacramento. Two-story frame.
O.—H. Lank.
C.—Crawford & Marshall.
$2,000.

OAKLAND.

SIXTH, cor Broadway—2-story fr; cost, $5,000; o, H. Davis; a, Curlett & Cuthbertson; c, W. A. Griffith.
WASHINGTON, nr Seventh—3-story brick; cost, $25,000; o, S. Hancock; a, J. Marquis; supt, C. W. Crinsby.
SEVENTH, nr Washington—3-story brick; cost, $10,000; o, — Buckrath; a, Matthews & Son; c, Remillard Brick Co.
FRANKLIN, cor Sixth—3 1-story ctgs; cost, $5,000; o, W. Collins; a, C. Mau; c, J. Todd.
SEVENTH, cor Castro—2-story fr; cost, $3,200; o, J. Rackliffe; c, J. E. Kane.
THIRTEENTH, bet Clay and Jefferson—Additions; cost, $2,250; o, H. Brussil; c, Peter Ahern.
HIGHLAND PARK—1½-story fr; cost, $3,500; o, N. R. Johnson; c, A. W. Pattiani & Co.
TWELFTH, nr Grove—1-story fr; cost, $3,000; o, F. H. Smith; c, A. W. Pattiani & Co.
SAN PABLO CROSSING—1-story ctg; cost, $2,000; o, H. Westphal; c, A. W. Pattiani & Co.
UNION, nr Eighth—2-story fr; cost, $2,300; o and b, J. W. Armstrong; day's work.
CENTER, nr Tenth—1-story ctg; cost, $2,000; o, Miss Mary J. Watson; c, J. C. Johnson.
FOURTEENTH, cor Harrison—2-story fr; cost, $3,000; o, Katie Fitzgerald; c, J. Spencer.
FOURTH, bet Jefferson and Grove—1-story ctg; cost, $1,750; o, W. Sagehorn; c, Darrell & Smith.
BIRCH, bet Second and Liberty—1-story fr; cost, $2,000; o, G. P. Morrow; c, A. W. Pattiani & Co.
EIGHTH, cor Harrison—Alterations; cost, $1,000; o, W. D. Heaton; day's work.
SIXTH, bet Alice and Jackson—1-story fr; cost, $1,000; o, Mrs. Megginnis; c, J. B. Clements.
TWELFTH, cor Harrison—Additions; cost, $1,500; o, A. C. Dietz; c, J. A. Benham.
TELEGRAPH AVENUE, cor William—Alterations and additions; cost, $2,000; o, F. Delger; day's work.
FREDERICK, nr San Pablo Avenue—2-story fr; cost, $3,600; o, Mrs. Dellehante; a, Matthews & Son; c, Jas. Toohig.
EIGHTH, cor Adeline—2-story fr; cost, $4,000; o, J. P. Riley; a, Chas. Mau; c, Jas. Toohig.
TWENTY-SIXTH, nr Market—1½-story fr; cost, $1,200; o, M. Carroll; c, W. H. Griffin.
TWENTY-SIXTH, nr Market—1-story ctg; cost, $1,000; o, H. L. Wallace; c, R. A. Pritchard.
TWENTY-SIXTH, bet San Pablo ave and Market—1-story ctg; cost, $1,000; o, C. E. Powell; c, J. C. S. Whalin.
SAN PABLO AVENUE, cor Thirty-fourth—2-story fr; cost, $3,000; o, Dr. Young; c, R. Jackson.
PERALTA, nr Union—Additions; cost, $1,000; o, David Demmorest; c, Dorrell & Smith.
HOLLIS, nr B—Additions; cost, $600; o, A. C. Bryan; day's work.
UNION, cor Peralta—1-story fr; cost, $500; o and b, Jas. Harmon; day's work.
SIXTEENTH, nr Park—1½-story fr ctg; cost, $1,600; o and b, A. R. Dow; day's work.

ALAMEDA.

DWIGHT WAY, nr Cottage ave—2-story fr; cost, $2,770; o, C. F. Wilkinson; c, A. W. Pattiani & Co.
SANTA CLARA AVE., bet Walnut and Willow—1-story ctg; cost, $2,000; o, C. Thompson; c, C. H. Foster.
SANTA CLARA AVE., nr Webb—2 2-story ctgs; cost, $6,000; o, W. Hess; a, Geo. E. Voelkel; c, A. Knepp.
MORTON, nr Central avenue—1-story ctg; cost, $4,000; o, H. Stark; c, C. Shaner.

MISCELLANEOUS.

Santa Cruz—Two-story frame. O., E. H. Garrett; A., Salfield & John; C., Chas. Kaye & Co.; $1,500.
San Rafael—School House. O., San Rafael County; A., Curlett & Cuthbertson, C., D. Perry; $12,000.
San Mateo—Memorial Chapel and Family Vault. O., Mrs. A. M. Parrott; A., Huerne & Everett; C., W. D. Perrine; $11,000.
San Jose—School-house. O., Santa Clara County; A., J. O. McKee; C., F. Davis; $3,000. Stockton Avenue. Frame cottage. O., Dr. Gunckel; A., J. O. McKee; C., Robt. Summers; $4,000. S. W. cor Reed and Second. Brick building. O., Second Methodist Church; A., Theodore Lenzen; C., A. J. McIlvain; $7,500.
Woodland—Main, cor. Elm. Two-story brick block. O., Prior & Gibson; C., Glenn & White; $6,000. First. Two-story brick stores. O., Thomas & Armstrong; A., W. H. Winne; C., Curson & Welch; $10,000. Second. One-story frame. O., Mrs. A. Spurgeon; A. and C., Gilbert & Sim; $1,200. L la. One-story frame. O., Mrs. E. Garret; C., Glenn & White; $1,000. College ave. Two-story frame. O. and B, Samuel Caldwell; $2,500. Cleaveland. One-story frame. O. and B., Henry Tuson; $1,000. Three frames. O., J. Q. A. Clark; day's work; $1,200. One-story frame. O., David Digges; C., A. Poole; $1,500. One-story frame. O., Oliver Webster; C., Albert Sears; $1,500. Frame fruit drying establishment. O., Mrs. G. G. Briggs; C., W. H. Winne; $2,500. One-story frame and barn. O., Wash Lambert.; C., Samuel Cole; $1,000.
Black's Station—Two-story frame. O., Henry Clauson; C., White & Newton; $2 000.
Knight's Landing—Building. O. and B., Mr Heelds; $8,000.
Winters—Five one-story frames. O. and B., W. J. Cannedy; $2,000.

TITLE THE CALIFORNIA ARCHITECT AND BUILDING NEWS
FORMERLY THE CALIFORNIA ARCHITECT AND BUILDING REVIEW
FORMERLY THE QUARTERLY ARCHITECTURAL REVIEW

AUTHOR

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DATE 1886

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THE

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Advertisements inserted at reasonable rates.

SAN FRANCISCO, JANUARY 5, 1886

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WHOSE who labor to make human actions harmonize, find great difficulty in piecing them together and causing them to assume the same gloss; for in general they contradict each other in so strange a way that it seems impossible that they should have issued from the same workshop.—*Montaigne.*

WHEN we truly and earnestly aspire to be, that in some sense we are; the mere aspiration, by changing the frame of the mind, for the moment realizes itself.—*Mrs. Jameson.*

ONE principal point of good breeding is to suit our behavior to the three degrees of men—our superiors, our equals, and those below us.—*Swift.*

RECTITUDE is the first law of the gentleman: When he says "Yes," it is law; and he dares to say the valiant "No," at the fitting season. The man of rectitude will not be bribed, it is only the low minded that sell themselves.—*Smiles.*

SCIENCE has been well defined to be knowledge reduced to order; that is, knowledge so classified and arranged as to be easily remembered, readily referred to, and advantageously applied.—*C. Davies.*

The Year Begins Well.

SUMMARY OF BUILDING INTELLIGENCE FOR JANUARY, 1886.

62	Frames, total cost	$265,150
4	Brick " "	247,000
13	Alterations and additions	111,100
79	Total cost	$623,250

FOR SAME MONTH IN 1885.

62	Frames, total cost	$236,850
2	Brick, " "	314,000
9	Alterations and additions	39,300
73	Total cost	$590,150
	Less errors in published statement, Jan., 1885	12,435
	Correct totals for January, 1885	$577,715

By the above it will be seen that the building activities for the month ending with present issue leads the same period of 1885 by $45,535.

Its Seventh Volume.

WITH present issue commences the seventh volume of this journal as a monthly, and its eighth, including the quarterly of 1879. As will be noticed, the enlargement, commencing with present number, increases the length of the book two inches, thus adding 576 inches of additional printed matter each month, the number of pages being as heretofore, thirty-two.

Early in its history it was recognized, and by action of San Francisco Chapter confirmed as the official organ of the profession on the Pacific Coast, which enviable recognition it continues to enjoy, and no effort in the future, within possibilities, shall be wanting in rendering it worthy of that distinction.

Situated as we are, far distant from the great principal centers of commerce, manufacturing, building, and other great interests and enterprises of the country, and at the extreme westerly terminus of communication across the American Continent, with not a foot of territory between us and the setting sun, short of the shores beyond the broad waters of the Pacific Ocean, other than the intervening islands; with mountain ranges and vast spreading, barren plains, separating us from advantages at easy command to all our Eastern contemporaries; with entire lack, or high cost of many facilities and things necessary in making up an acceptable journal, its great success is phenomenal.

Sir F. Buxton has well said: "The longer I live, the more I am certain that the great difference between men—between the feeble and the powerful, the great and the insignificant—is *energy*, invincible determination, a purpose once fixed, and *death or victory*. That quality will do anything that can be done in the world, and no talent, no circumstances, no opportunities, will make a two-legged creature a man without it."

It was the spirit of the above quotation that influenced the founding of *this*, the first journal published upon the Pacific Coast, in the interest of architectural and building sciences, and that too under the most forbidding and unauspicious circumstances and conditions, within and without—has sustained it, lo, these seven years, and will be its inspiration in the years to come.

Whatever of abilities or talent may have been lacking in the past, there has been no absence of honest purposes and desires. The great ambition has been to establish permanently, a class publication devoted to the interests represented in this journal, and such has been accomplished to an extent magnificently beyond the expectation of thousands who, in the days of its beginning, doubted the possibility of permanency. But it has been done, and, all things considered, fairly if not handsomely done, and, although "the future is a great land, a man cannot go around it in a day, cannot measure it with a bound, cannot bind its harvests into a single sheaf, and is wider than the vision, and has no end," its hopes inspire and its promises encourage earnest, persevering effort, the fullest developing possible of which the patrons of this journal may expect to realize during the year just entered upon, of which the present issue is the representative number.

Wishing happiness and prosperity to one and all of our kind readers, we ask a return of the consideration, in a renewal and continuation of subscription and advertising patronage, and the generous support that has heretofore come to us from all quarters.

Lien Law Decision as to Proper Time of Filing Lien.

THE Supreme Court of California has rendered an important decision in the case of Perry, Woodworth & Co. *vs.* Brainard, which definitely settles a feature of the lien law which has been a subject of innumerable disputes, some holding that the maturity of claim, by delivery of materials, or the completion of a sub-contract was sufficient without regard to the completion of the building or works; an error also entertained by lawyers not well posted in this department of legal practice, as was manifestly the case with the legal minds who advised and misled the plaintiffs in the above action to file a lien

prior to the proper time, and then further inducing their clients to reject the common-sense and logical decision of the Superior Court Judge, and still further advise an appeal to the court of last resort, only to meet defeat and heavy cost, which in such cases are generally considerably weighty.

The decision of the lower court was that the lien sought to be enforced by the action had been filed *prior to the completion of the building*, and was therefore prematurely filed. Such being the case, judgment was rendered in favor of the defendant and against the lienors. This not being satisfactory, the case was appealed to the Supreme Court, which tribunal confirmed the judgment of the Superior Court.

In support of the decision, Justice Ross—Justices Myrick, McKee, Sharpstein, and Thornton concurring—quotes from the lien law: "Every original contractor within sixty days after completion of his contract, and every person save the original contractor, claiming the benefits of this Chapter, must, within *thirty days after* the completion of any building, improvement, or structure, or after the completion of the alteration or repairs thereof, or the performance of any labor in a mining claim, file for record," etc., and make the "within thirty days after completion," the groundwork of the decision. Other cases of similar import are mentioned, denying the existence of "privity of contract between the owner of the building and the sub-contractor, but the sub-contractor's rights are based simply and solely upon his contract made with the contractor."

The decision further says, by the contract, the owner agrees to pay a certain sum and "this sum is a fund which may be held under the statute for the payment, *so far as it will go*, of all the various sub-contractors, for work and materials furnished by them to the contractor, who is the principal and head of all; and all the parties entitled to payment or contribution out of this fund should be able to reach the fund and get their *proportionate shares*." "One contractor ought not to be able to reach this fund and appropriate it to the extent of his claim before another sub-contractor should reach it, for if the fund *should not be sufficient* to pay the claims of all the sub-contractors, then each should be paid only a *proportionate share thereof*." "The amount of all the claims of all sub-contractors can be ascertained only after all the work and materials have been furnished, and after the building has been completed, so far as the contractor is required to complete the same; for the whole of the work may in fact be done by sub-contractors only, or the last item of work performed or materials furnished may be performed or furnished by a sub-contractor. The building in such a case will be completed by a sub-contractor, and the sub-contractor completing the building or furnishing the last item of work or materials therefor, is entitled to his proportionate share of the general fund, equally with the sub-contractor who furnished the first item of work or materials, or any intermediate portion thereof."

Building Prospects—1886.

AS a matter of course, all statements reaching beyond the present hour, are more or less speculative and hypothetical. But well trained human judgment may safely venture to step a little beyond the limits that hold the future in abeyance, and surmise the probabilities that are to be. The past and present are the measures by which the future may be measured and weighed, and upon which results yet unborn may reasonably be predicated and predicted.

There have been but few years since the organization of this State, in which all the conditions have been more favorable at the commencement of the year, for general prosperity throughout the State.

Timely and abundant rains have gladdened all hearts, in cities and country districts, and the common feeling everywhere prevailing is buoyant and cheerful. Large crops and harvestings are confidently anticipated, and the promise of abundance in all directions seems assured. As a natural sequence, confidence and hope abound in all circles of active life, and the opening of the year 1886 is full of prospective blessings.

Among the prominent good influences affecting and producing this desired state of things, is the turn matters have taken in regard to the Chinese labor question. The monster evil had settled down in our midst, taken strong root, and was fast sending its tendrils into every field of labor, trade, and commerce, until it became bold and defiant, and put forth its shoots in an arrogant strike, demanding the discharge of white men, and asserting the Mongolian right to control at least the cigar manufacturing trade. The serfs and slaves of the six companies felt that they had their fingers firmly fixed upon the throat of labor, with power to crush out all opposition, and master the situation. But the daring, aggressive move made was a grand mistake against the invaders of labor rights, and resulted in the overthrow of a gigantic Mongolian combination. And the outlook to-day for Chinese labor is more gloomy to them than it has been at any period in the history of the State.

The feeling inspired by the results in this connection is of the most pleasing character, and one of the immediate effects is the substitution of several hundred of our own race, some of them with families, as permanent, congenial fellow-citizens, instead of a like number of human beings having no sympathy with the laws, institutions, or welfare of our common country, beyond the mercenary purposes and perversions ever present with that people.

These facts in this connection are material only so far as they bear an influence upon the future of San Francisco, which they do in this wise: that every white person added to population, as against a Chinaman, is a gain in a general sense, as each individual so added becomes a consumer of American product, while the Chinaman spends nothing that can be saved and carried away to his foreign home.

But the more desirable feature of the case is the influences that flow from this improved condition of things; the healthful feeling incited, not only among the working people, but among employers and manufacturers, who feel a relief in the break that has been made, which foreshadows a redemption from the thraldom that has rested upon them, and the prospect of freedom from that cruel competition which so sternly threatened destruction to honest white effort in legitimate pursuits.

Following the movement of the cigar-makers will be the other branches of manufacture, so much demoralized by the invading hordes of Chinamen. The boot and shoe trade, from men and women's fine work, down to common slippers, is largely in the hands of Chinese operatives, and together with many other branches of manufacture, demands the pruning knife of reformation. And as one by one, the white men, girls, and boys reassert their rights to perform such labor, and purify the present polluted streams of operations, a more healthful state of affairs will arise, and, with the Mongolians gone, a bettered condition of things will come to pass, and brighter skies will span the heavens of manufacture and labor upon the Pacific Coast, and lead to numerous building improvements.

All this foreshadows the better future, and points to increased wealth among the working classes, and increased demands for white men's homes. Aside from all this, with the large amount of building done during the past five years, there are comparatively few houses to rent. This fact presents encouragement, and with the low price of all kinds of building materials, and the abundant supply of mechanical labor, it is fair to anticipate a prosperous year in building pursuits.

Without committing the unwarranted error indulged in by some of our daily contemporaries, of inflating prospects by statements of "contemplated work," much of which, as published, not likely of consummation, we may state the assured fact that a goodly number of plans are in preparation in architects' offices, and the outlook for spring is good.

Royal Institute of British Architects.

THE journal of proceedings is regularly received at this office, and contains much of interest, as showing the earnest interest taken by the members in matters pertaining to architectural sciences. The fact cannot be successfully controverted that all such organizations, properly conducted, are a source of special profit to every active member, of general benefit to the profession, and from which the building community derives great advantage.

Stand by the California Journal; Besieged But Not Dismayed.

WITHIN the past sixty days, the Pacific Coast cities and towns, especially San Francisco, have been *fairly flooded* with thousands of sample copies of Eastern class journals. They have been sent from every section of the United States where such journals are published, done up in best possible style, and with every attention to appearances, so as to render them attractive, and catch subscribers.

A host against one. Singly and alone, we are called upon to combat this mighty avalanche of competition—this well-drilled and equipped host of competitors, who come not with modest mien awaiting a welcome, but with bold effrontery and aggressive strides, entering not only workshops, offices and business places of all kinds, but private residences, soliciting patronage and support, and seeking to allure to their subscription net all who can be reached through the devices incorporated in Christmas numbers.

Unparalleled efforts. The number of Eastern journals represented this year, and the mass of sample copies distributed, exceeds, ten times over, those of any former year, from which it is fair to infer that heretofore California has been considered an unpropitious field, or the recognized great success of the CALIFORNIA ARCHITECT AND BUILDING NEWS has influenced a changed sentiment toward this coast among our contemporaries, who, after having failed for so many years to adequately supply the wants of the Pacific States in class literature, are now generously willing to divide with us the crop produced from our planting.

Overdoing. If each succeeding year from the present time shall continue to develop corresponding increase, enlargement and improvement in class journals, that has characterized the past five years, a full decade of years will not have passed ere their patrons will receive monthly issues as large as Webster's Unabridged.

Don't understand. Eastern contemporaries may not be able to comprehend the situation, because their pathways lie through much larger and broader fields, where competition is scattered through scores of adjacent States; but the dumping down in San Francisco of several tons of "sample copies," makes a very decided impression upon the "sample copy" market, and floods it. *But* "he that wrestles with us strengthens our nerves, and sharpens our skill; our opponent is our helper." So we consider it, and not only propose to hold our own in the face of the avalanche of interlopers, but to so far excel them in supplying a journal specially adapted to this coast, that their presence will be *eminently immaterial.*

Support the home journal. Every individual in any manner id entified with, or interested in building matters, whether as architect, owner, contractor, material men or otherwise, should subscribe for this journal.

The Cohesive Strength of Stone.

IN all cases which have come within my notice, the stone possessing the least cohesive strength, or that which will crush with less pressure than any other, is nevertheless strong enough, when once fixed, for almost all practical purposes. No architectural members have to sustain greater pressure, in proportion to their size, than the mullions of large Gothic windows. The tracery in the great north window of Westminster Hall is now executed in Bath stone, which is remarkable for having the least cohesive strength of all the specimens experimented upon and described in the report on the stone for the new House of Parliament. Some of the mullions of that window are less than 9 inches wide and more than 50 feet high, sustaining not only their own weight, but also the whole of the tracery beneath the arch.

The eastern window of Carlisle Cathedral, built of a friable red sandstone, is 50 feet high; the mullions are smaller and the tracery much heavier than in that at Westminster, yet in neither of these examples are there any symptoms of crushing. The cohesive strength of stones is never more severely tested than during their conversion by workmen from the rough state to being fixed in their final situation in a building. During these operations, iron levers, jacks, lewises, and various other implements, are applied, frequently without judgment, and with but little regard to the mechanical violence which a stone will bear; therefore, it may be considered a useful practical rule that, however soft a stone may be, if it resists the liability of damage until out of the mason's hands, there can be little doubt of its possessing sufficient cohesive strength for any kind of architectural work.—*C. H. Smith.*

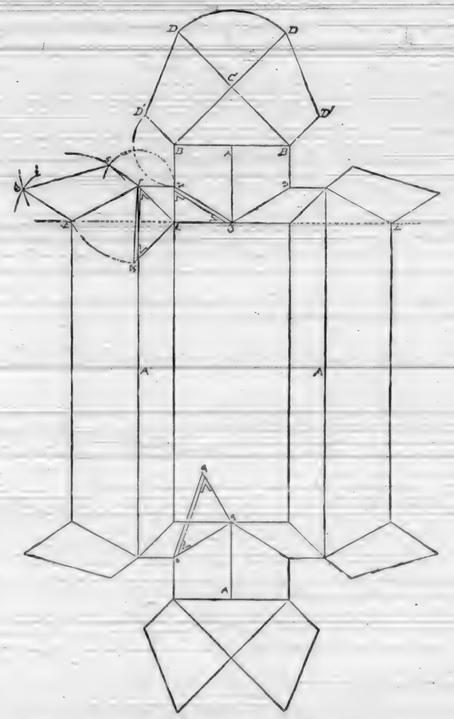
A Graphic Illustration of Roof Framing.

THE following article introduces to the readers of this journal a contributor well and favorably known upon this coast, and in many of the Eastern cities, as one possessing special abilities in the delineation and exemplification of acute and difficult geometrical, mathematical, and mechanical problems, in domes, roof framing, ground arches, and constructural works generally. His monthly contributions will prove instructive and valuable to every architect and mechanic.—ED.]

A GRAPHIC DESCRIPTION AND ILLUSTRATION OF THE METHOD OF STANDING HIP AND VALLEY RAFTERS IN POSITION OVER GROUND PLANS.

Although the science of roof framing and kindred mechanical sciences have for generations received the attention of hundreds of able minds, its simplification is still a matter to be more fully developed. Innumerable methods have been introduced, many of which possess merit, and must be regarded as good. The object of the present and succeeding articles is not to set aside any of the good things done in the same line, but to still further assist in rendering plain, and simplifying, to the clear understanding of the most ordinary mechanical intellect, the matters treated upon.

The method of determining the length and cuts of the members of a structure, by the air of "graphic" diagrams, is practical, accurate, and reliable, and commends itself especially to the student of architectural, engineering, and mechanical sciences. By its simplicity and conclusiveness, and the absence of technical phrases and algebraic symbols, the uneducated and less learned cannot fail, with but little study and application, to understand and comprehend its intricacies.



The usual process of calculation when applied in detail, becomes laborious and wearisome even to the professional mind. Hence the ease and accuracy with which the general result is reached by the graphic method, commends itself even to the less cultured, as superior to any system that requires long calculations and mental effort. The method of graphic diagrams offers better facilities—those denied by the more complicated principles—and enables the reaching of results by a simpler and less difficult process.

Explanation: Draw ground plan, A A A A; draw the elevation, B C B; square out from the back of the common rafter, B C, both sides, C D and B D, as shown; take B 2 in the compass, describe the curve, 2 D, cutting line, B D. Now take the distance A 3, line from face of gable to line of deck on the level; set compass to the distance A 3, and stand in C with it, describing the curve, cutting the lines squared from the back of common rafters, at D D; connect D D^1; now we have the length of valley rafter to stand in position over 2 3.

Now to get the length of timbers and cuts in the deck of the building, continue the deck lines, E E; make a seat line, 1 1; square up to 4; 1 to 4 is the height of elevation; 4 ^{1}1 is the length of deck rafter; take the distance ^{1}1 4, and describe curve, cutting deck line at E; ^{1}1 E is the length of rafter to stand in position over 1 ^{1}1. Now we come to the more difficult part of the cuts to be found. Examine the ground plan, and connect the line 2 I, and square up to 3; make 1 3 equal to the height of the elevation; now take 2 3 in the compass, and stand in E with it; describe the curve, X X, from E; now take another compass, and take the distance ^{1}1 2, and from ^{1}1 describe from 2; cutting curve,

X X, from E, the point now found, 5, is an important one, as it finds the direction and lean of timber when in position.

Now to find the point 6 is all that is needed to get at all of the cuts and lengths of timbers; move to the other end of plan; draw line, 7 8; square up to 9, 7 9 being the height of elevation; connect 8 9, and take it in the compass; come back to 5; stand in 5; describe curve, cutting at 6; now take the distance 1 3 in the compass, and stand at E and draw the curve 2 2; when they cut at 6, connect E 6; then 6 E is the distance that will lay level in position over 1 3 in the ground plan. Repeat that same rule on the four corners, and cut all around the outside edges; hinge and stand up, and you will have a model showing every timber in position. Weaken with the back of a knife or compass, on each hinge line, and stand up on the ground plan line; cut all around the outside of the figure, and there can be no possible mistake. In the next diagram another form of roof will be treated. Models in card-board, illustrating the foregoing, can be seen at the office of this journal.

M. J. Marion.

Mr. Garrett's Porch.

In our November issue we gave a brief account of the unfortunate litigation between Messrs. Robert Garrett, President of the Baltimore and Ohio Railroad, and his neighbor, Henry Janes, the millionaire merchant of that city, by which the latter has sought to prevent Mr. Garrett's erection of a certain porch in front of his palatial residence, now building on Mt. Vernon Place; and we remarked upon the ambiguities and puerile contradictions which are so apt to characterize our building ordinances. The latest intelligence is that Mr. Janes has announced, that in case his suit fails to stop the erection of Mr. Garrett's porch, he will relieve himself of its obnoxious proximity by moving out of his own residence, which he will then donate to the Colored Orphans' Association of Baltimore for use as an asylum for their dusky *proteges*. Here's a "how-d'ye-do," unquestionably, of a very pronounced type, and one that affects not only Messrs. Janes and Garrett, but all the other residents of this especially aristocratic section of Baltimore. It suggests remark upon the great desirability of so amending our legislation against nuisances as to protect public-spirited citizens, who have erected costly homes, from wanton spoliation by the recklessness or malice of a neighboring owner. It is plainly a crying outrage if all the other residents in Mt. Vernon Square must have the value of their investments in that section, amounting to many hundreds of thousands of dollars, imperiled by a quarrel between neighbors Janes and Garrett, in which the neighbors have no part and which they are helpless to control. It is a well-understood principle that no man has a right to use his property so as unnecessarily to injure that of his neighbor, and in all cities there are laws which in this view prohibit the erection of slaughter houses, rendering establishments, and other unhealthful nuisances.

But the law fails to recognize the fact that there are many erections which cannot be strictly defined as injurious to health, which yet destroy the value of adjacent property just as completely. Such is the case above cited. If Mr. Janes establishes his colored orphan asylum next to Mr. Garrett, the result cannot fail to be a disastrous depreciation in all the property on Mt. Vernon Square. In St. Louis, recently, a livery stable proprietor drove a profitable trade for several years by purchasing lots in a choice residence section and advertising his purpose to build a stable there. In a number of cases he was bought off only by the payment of a large bonus from the adjacent property owners, whereupon Mr. Russell would immediately select another lot and repeat the transaction. For a while this fellow established a sort of reign of terror among property holders in the finer parts of the city and earned the title of "livery stable fiend," and he recently had an imitator in Chicago. Of course we cannot here outline the necessary enactment to protect the community from such outrages, but it will doubtless provide for a considerable enlargement of the definition of the term nuisance so as to cover injury to property as well as to health.—*Inland Architect and Builder.*

Toughening Timber.—An exchange says: It is claimed that by a new process white-wood can be made so tough as to require a cold chisel to split it. The result is obtained by steaming the timber and submitting it to end pressure, technically "upsetting" it, thus compressing the cells and fibers into one compact mass. It is the opinion of those who have experimented with the process that wood can be compressed 75 per cent, and that some timber which is now considered unfit for use in such work as carriage building, could be made valuable by this means.

Real Estate Transactions, 1885.

Nothing more clearly indicates the degree of prosperity prevailing in any city or locality than the number of real estate transactions, and the prices paid for building lots and land, under a well-balanced market uninfluenced by either depressed or excited conditions.

The real estate circular furnishes the following items of facts: Sales in 1884, 3,874; value, $13,374,207. In 1885, 3,650; value, $13,250,000. City hall lots have increased in value, twenty per cent within twelve months, the present prices being from $850 to $1,000 per front foot, for a depth of one hundred feet. The cable road street-cars have been instrumental in retarding increase in values in the older districts of the city, and increasing those in the outlying sections, where, a few years ago, and until the extension of the cable roads, they remained at nominal prices. The difference in time required to reach localities ten blocks beyond the old limits is a matter of small consequence, requiring less than one minute per block.

Two years ago a lengthy article appeared in this journal, advising the immediate improvement of all lots on Market Street, inside of Ninth Street, with substantial first-class buildings. If this had been done, there would now be clustered around the city hall center, the natural centering point in this city for large retail stores for generations, if not for all time, one hundred or more prosperous business firms. All this is destined to be at a not remote period. The pioneers in this direction are the new Odd Fellows' Hall, with its fine stores, and the Murphy Building now occupied by one of the most enterprising and progressive dry goods firms in the city. The three-quarter million dollars spent in the erection of these two edifices simply reflect the character of future improvements in that neighborhood; in fact, those who own property having a market value of $1.000 to $1,500 per front foot, cannot afford to do less than erect very fine, *first-class* structures.

Mr. Magee, of the *Circular*, most excellent authority in all matters connected with real estate, says: "All of Market Street, as far out as Valencia, would now be fine retail store property, if the owners would only build suitable stores on their land. The city hall lots should have been built on five years ago." So it was strongly urged and argued by us two years ago, and we appreciate endorsement from Mr. Magee, even at the present time.

It is but a matter of time when this will be done, and business pushed *solid* out to Ninth Street. "Out to Valencia Street," about four blocks further westerly, might properly be improved with frame structures to last a few years and then give way to more permanent buildings.

Business for architects. The foregoing foreshadows future prospects for architects. Even the older portions of the city present a large field of work to be done in the removal of old and worn-out buildings, and the substitution of new edifices of greater or less cost; in addition to which will be all the growth in residence improvements which follows business enlargement and progression, and the erection of large brick buildings on principal streets, will necessarily stimulate improvements on all cross and adjacent streets, and in neighborhoods where some must locate to obtain lower rent rates.

Fall of a Brick Wall—One Man Killed.

While the December number of this journal was being worked off, a rather sad affair happened on Seventh Street, in the city of Oakland, resulting in the death of a human being, who was standing idly upon what proved to be a fatal spot.

A brick building, twenty-two feet frontage, and three stories in height, was in course of construction, and so far advanced as to be up to the level of the third floor joist. A cast-iron girder was placed at the proper point to provide for the store front openings. About the girder, and resting thereon, were the two side wings or sections of brick-work, the center portion of the front wall being omitted to provide for building a bay-window through each story, twelve feet wide.

Without any sign or warning, the iron girder dropped to the ground floor, and with it fell in a mass all brick work resting on the casting, and a portion of the westerly wall, the easterly wall being a party wall. The man killed was standing directly under the girder and front wall, at the time of the occurrence, and was badly crushed.

There are two reasonable accountings for the let-down: one, that the girder was defective, and yielded under the superincumbent weight placed upon it; the other, that the

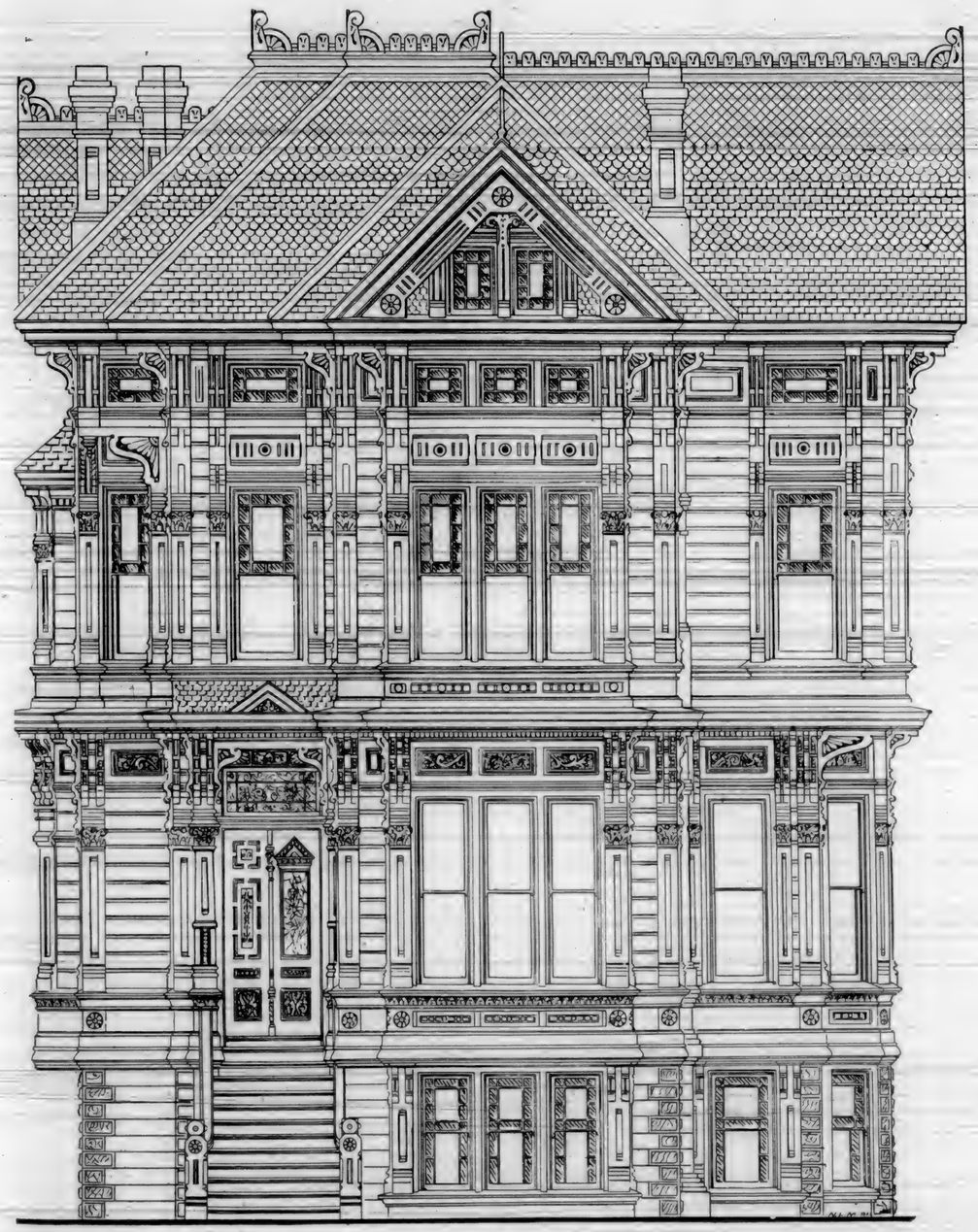


PLATE I.—FRONT ELEVATION.

brick seating on which the westerly end of the girder rested, gave way, owing to the soaked condition of the bricks from the heavy rains, and the soft mortar in the joints, the cement in which had not set sufficiently to produce any hardening effect. The wall that fell, facing the heavy rains then so copious and continuous, very naturally kept the new brick work very tender, and added greatly to the general weight; and it is altogether likely that the secret of the tumble was in these suggestions.

The girder was defective, in that there was a flaw in the bottom plate, which, although 1¼x14 inch, was rendered of no value by the flaw. But the center rib, 1x24 inch, with a top or crown flange, 1x5 inches, was more than sufficient to carry safely all the load imposed, with no more than five feet of front wall at the sides of the building.

S. F. Chapter of Architects.

OWING to the regular meeting night falling on New Year's, no session was held for the month of January. It is to be hoped that the members of the profession will re-double their interest in the Chapter work the current year. There are possible results which should call forth the united energies and efforts of every architect upon the Pacific Coast.

Commingling and friendly intercourse is necessary to a healthful life, and every hour spent in developing that which may be attained by fraternal association is as seed sown in good ground.

Self-preservation, if no higher purpose, should induce every reputable practicing architect to unite in right effort to preserve the integrity of the profession, which of late years has suffered so much from the innovations of the scale bugs, teredos and other ruinous and destructive professional insects.

P. S. A called meeting of the Chapter was held on the 8th, but being out of the regular order of time, but few were present. After reading of minutes, ordering payment of bills, and receiving the application of Mr. Seadler, of Sacramento, to become a fellow, the Chapter adjourned to meet the first Friday in February.

Nature and Art in Arboriculture.

IT does not need the arguments of Hazlitt to convince anybody who will give five minutes' consideration to the subject," remarks the *Daily News* of Monday last, "that we have no source but nature from which to borrow ideas of real beauty, and nature never yet gave us a single example of a flower-bed laid out with geometrical figures, or a flowery bank cut up by zigzags and straight lines. Nature abhors a straight line almost as much as she does a vacuum, and all her operations in woods and fields are a perpetual protest against formal regularity. No doubt it is our right and our privilege to prune and pinch, to tie and train 'the growth of the luxuriant year,' and if we insist upon it, nature will fall into line, but only under protest. We may plant and prune as we please, but if we want really beautiful effects, we must, after all, be guided by the principles on which nature works in all her loveliest achievements. 'The art itself is nature,' as Shakespeare profoundly expresses it, and we must conform to nature's laws, or all the beauty we shall attain to will be of a bad and bastard type, however much we may admire it for a time. It will be but of the type which Pope so neatly satirizes when he speaks of the garden where grove nods at grove, each alley has a brother, and half the platform just reflects the other. This is the journeyman artificer's style of garden planning—the cunning of the compass and the straight edge. We have had enough of this sort of thing and are tiring of it. What we want is a new style, in which the freedom and irregularity of nature are combined with the neatness and order that should characterize the garden plot—the order which is Heaven's first law, not the order which delights in clipping shrubs into exact spheres, which always will have tulips planted in beautiful straight lines, and exactly so many inches apart, and which year after year has, for the sake, we suppose, of a neat and orderly appearance, nipped and clipped all our embankment planes into sprouting scaffold poles, utterly destroying the natural characteristics of these fine free-growing trees. The 'mixed border,' as at present managed, is not altogether satisfactory, though it is pretty safe to predict that it will be in the direction of the mixed border combined, perhaps, with the massing of color shown in the formal beds that future developments of flower-gardening will be effected. We have in some of our parks and public gardens many an odd corner in which nature and art are combined with exquisite effect; but as yet these odd corners are the minor features of our public gardening, and stars and garters, stripes, circles, squares, gridirons, bootjacks, and hot-cross buns, are still predominant, and very often they are worked out in colors that strike the cultivated eye as the squeak of an ungreased wheel assails the ear. Now is the time to brood over these things, and plan something better for the ensuing year."—*Timber.*

Science of Architecture.

[Special for this Journal. By F. Hillert, Architect and Mechanical Engineer.]

(Continued.)

THE purpose of the expansion apparatus is to take the increased volume of water, increased by the expansion capacity of heat. For the size of the apparatus, see the same for water heating, which is located at the highest point of the arrangement. Since the water is heated to 200° *celsius*, the highest point must be closed. By reason of this condition the expansion apparatus is a pipe closed and filled with air (expansion pipe), or is a suction and compressing valve (expansion valve) surrounded and closed in by the expansion reservoir.

The expansion pipes have a width of 60 to 70 mms. ($2\frac{5}{16}$" to $2\frac{11}{16}$"), and its length is from $\frac{1}{40}$ to $\frac{1}{50}$ of the whole string of pipes. The expansion pressure valve must be so loaded by weight (inclosed in the reservoir) that at a pressure of about 15° atmospheric the same opens, and the expanded water by heat flows into the reservoir; the expansion suction valve at the cooling of thearrangement permits the water (contracted in the pipe) to run in and fill up the system from the reservoir.

III. MEAN OR MIDDLE PRESSURE WATER HEATING.

This system can be deducted from the warm (low pressure) water as well as from the hot (high pressure) heating.

From a warm water (low pressure) heating arrangement a middle pressure heating can be made, when, as in the high pressure heating, the highest point of the pipe is closed by a pressure valve, furnishing the possibility of heating the water above 100°.

From a high pressure heating apparatus we obtain a mean pressure heating arrangement, so soon as the first is calculated, that the required heat in the room is so arranged that the water in the fire-coil is not heated above 120°.

The advantage which the warm water middle pressure heating apparatus has over the warm water low pressure arrangement is in the somewhat smaller first cost. The disadvantages are, in the higher pressure all the parts have to sustain by the insertion of the pressure valve.

The advantage which the middle pressure heating apparatus has over the high pressure, consists in the smaller tension in the fire-coil, and in the lower temperature of the water, giving a milder and less strong radiating heat, a larger reserve of hot water. The disadvantages are only in the first higher cost of the arrangement.

Apparently, in general, for warm water heating the form of low pressure is the most recommendable, and for hot water heating that of mean pressure.

STEAM HEATING.

The same depends on the extraction of the so-called latent heat of the steam. In a similar manner, as with water heating, steam is conducted to heaters placed in rooms to be warmed. In the heater the condensation of the steam to water sets free the latent heat to be given over to the walls of the heater, and by the same distributed to the surrounding air.

The important parts of the steam heating arrangement are: (*a*) the steam boiler; (*b*) the conducting pipes for the steam and for the condensed water; (*c*) the condensation apparatus.

The steam boiler for steam heating is constructed on the same general principles as a steam boiler for industrial purposes. Important for boilers for heating purposes is the volume of water and the tension of the steam. The first (water) is selected in large quantities, since the use of steam is very irregular. The use of steam is large at the starting of the heating, before a constance of heat distribution in the system is arrived at. Tubular boilers are, in general, less to be recommended than smoke-flue boilers Under certain conditions it may become necessary to use tubular boilers, which may be the case when the same is placed under rooms which are occupied, a municipal regulation forbidding the putting up of common constructed boilers in such places, which may be avoided by using the tubular boiler (so-called inexplosives). They all agree in this respect, that, through the small quantity of water and steam in them, a considerable large damage by explosion is excluded.

The use of such boilers calls for a very careful attendance, and a larger measure of water-feeding capacity, since by the small volume of water in the tubular boiler and the large

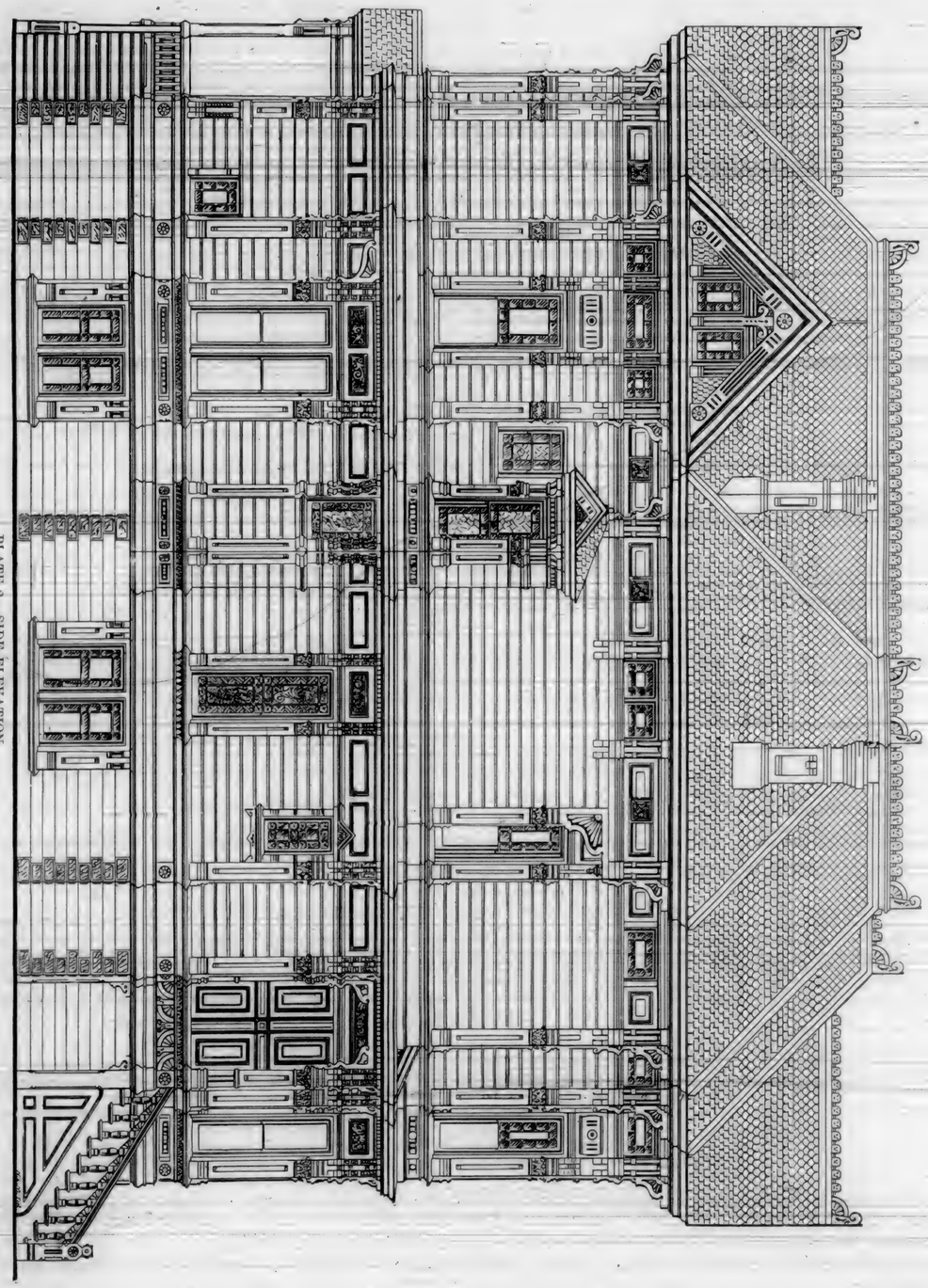


PLATE 2.—SIDE ELEVATION.

heating surface of the same, it may happen, at the beginning of the firing, to be impossible for the feed-pumps to supply—by the fast creation and use of the steam—the loss of water in the boiler as fast as required.

The feed apparatus for tubular boilers, according to those circumstances, have from two to three times the capacity of those for boilers with a large quantity of water.

For the pressure in the boiler, if possible 3 to 4 atmospheres can be taken; for pipes and heater, not above 2° atmospheres. The reduction of the pressure is made by a so-called reduction valve. For feed water for the boiler the condensed water of the heaters should be used as much as possible.

In the disposition of the steam conducting pipes special care must be taken to avoid a cooling off of the pipes as much as possible, and the condensation water to run off with the direction of the steam. The best manner is to lead the steam in a main pipe direct to the highest point of the arrangement, and from there conduct the same by the shortest route to the heater. Is this method of conducting impossible by local reasons? And when there should be a necessity to place the main conduit of the steam lower than the heater, then the conducting pipes in all cases must run ascending, the incline to be in the direction of the motion of the steam; also, care must be taken that the condensing water has an outlet at its lowest point. All branching off for steam must be made at the upper circumference of the main steam conducting pipe.

When more heaters are to be placed in the different stories above each other, the common steam-conducting pipe can be used for the condensing water conduit from the heater, by connecting the admitting and discharge pipes from each heater with the steam pipe, and insert in the connecting pipe of the discharge a "back-lift valve," which must be so balanced that, when the surface of the condensation water in the heater reaches a certain height, this column of water will open the same, giving an opportunity for the water to escape. The steam pipe, arranged for the common use of steam and water, is not recommendable; it is difficult to remove the air accumulated from the heater, the action of the back-lift valve making a disturbing noise all along the pipe. It is therefore better to arrange separate steam and condensing water pipes, and insert in each of them, with the boiler, a valve.

The section of the steam pipe should be taken at least as large as the section of a safety valve required for a boiler, to furnish the needed amount of steam. For long conducting pipes this manner of calculating—taking from praxis—is insufficient, and it is then to be recommended, to make correct calculation, considering all the losses of pressure and resistances.

Pipes not used for the emitting of heat should be protected by surrounding them with non-conducting material, and care must be taken that by the interpolation of "compensators" and movable bearings, the expansion of pipes does not produce untightness and leaking.

The condensation water—draw off—pipes, which must also be run with care, must descend continually to the end. The diameter of the same—steam having a 1696 larger volume than the formed condensation water—can be much smaller than the steam pipes; but it also must be considered that the condensation water conduits, at the beginning of the heating and before the state of continuance is established, the condensation being more intense, must carry off quick all the condensed water.

The heater applied for steam heating is similar in form as the warm water heater described before. In the construction of the same, precaution must be used to prevent any untightness and leakage by the sudden start and letting on of steam. All tightening of joints, etc., must be made with metallic or mineral stuff; all organic matters are, therefore, to be excluded.

For the calculation of the heater the previous formulas for warm water heating can be used; as an average figure may be taken, that a wrought-iron steam heater can condense in the state of continuance—the temperature of the surrounding air being 20° 1.5 kg. (3.31 lbs.) of steam per square meter (10.76 sq. ft.) in an hour's time, emitting about 800 units of heat, provided that the surface being washed by the steam is like the heat-emitting surface. With other heaters a corresponding lower (heat-emitting) figure must be brought in account. Special precaution must be taken, and means provided for the removal of the atmospheric air from conducting pipes and heaters; also when the system is placed out of work, and air to be admitted. For this purpose air valves are to be put in, to be opened and closed by hand, or self-acting arrangements being attached to do this hand work effectively in the proper time.

The three systems of central heating first discussed may be combined to the forms (1) Water air heating; (2) Steam air heating; (3) Steam water heating.

The two first combined heating arrangements are to be constructed by uniting the calculations for air and water respectively steam heating. With both kinds all the warming apparatus can be placed in one heating chamber, and from the same conduct the warm air, as with air heating, to the rooms to be heated. Or, right square under the rooms to be heated is placed a heating chamber, and led to the same from a common fire-place, the warm water representing the steam. By the last method we have the advantage, that the warm air can ascend perpendicular, and that for large horizontal distances a single fire-place is sufficient.

The steam water heating arrangement can either be executed as a warm water heater, by which the water is not heated direct by the fire, but by steam; or an oven for a steam heating apparatus is constructed, containing and holding a larger quantity of water which is heated by steam, thus supplying a large reserve for heating after the steam has been shut off. It may be recommended to name an apparatus after the first arrangement "Steam warm water heating.' This system is, on account of its expensiveness, only at such single instances to be recommended where the different warm water heating arrangements shall be served from a single fire, and the horizontal extension does not permit a concentration of the heating boilers. The second combined system, properly called "steam water heating," has of late been frequently applied for rooms where a quick warming with a longer "after heating," as with warm water, is desired.

The heaters for steam water heating, which do exist in many various constructions, can be classified in the direct and indirect. The direct water heaters contain a space filled partly with water, the other part with steam, heating gradually the water. By the indirect steam water heaters, the space for the water and for the steam is separated, and the transmission of the heat from the steam to the water is done through a common surrounding wall.

Saw and Hatchet Carpenters.

THEY are getting to be pretty plentiful of late. They always appear in great numbers when times are dull and regular skilled mechanics are slack of work. But it may be necessary to explain to some of our readers what a "saw and hatchet" carpenter is. He is a man who has no regular trade or business, but has learned to use a hand-saw and hatchet so as to be able to put up a tolerably passable rough board fence. He then considers himself a jack-at-all-trades, and is around in season and out of season making bids on all sorts of jobs, from a chicken-coop up. There is nothing he will not undertake to do, and if he can arrange to get the material on credit he don't allow any such slight consideration as the price of the job to prevent his getting it. His hatchet is not the genuine G. Washington brand, and generally serves a better purpose in beguiling the unsuspecting citizen into giving him a job, or the accommodating lumber dealer into furnishing him the material, than in the actual execution of the work.

To an inquirer not personally acquainted with the skill of carpenters of the city, business in the building line would appear phenomenally dull. It is the saw and hatchet gentlemen who make nearly all the complaint. It is true that many worthy and competent carpenters are slack of work, and the price of their labor fluctuates with the demand for their services. It is impossible to fix uniform prices on small rough jobs or house repairs, where the saw and hatchet man abounds. They are nuisances to the retail lumber dealer and the dealer in building material. They ruin the business of the honest, skilled mechanic, who has served his time and mastered the trade, and produce unsightly "puckers" around the mouth of the retail lumber dealer, who so very often has to "whistle for his pay." An instance very recently was brought to our notice where an unsophisticated property-owner—a widow—asked for bids on some cheap building. The bills for the material aggregated $570, and the bids ran all the way from $800 down to $500. Of course the saw and hatchet man got the job, and made whatever he got for it off the lumberman and the employés, and it is natural to suppose that the widow got a poor class of cheap work. We have reason to believe that the class of workmen we allude to is not confined to any particular locality, but prevails over the entire country to the great detriment of the skilled mechanic and annoyance of the lumber dealer, besides being an imposition on the citizen. A reform in this matter is much needed. If a citizen has work that is needed at all it is worth doing well, and ought to be worth a fair living price.—*Southern Lumberman.*

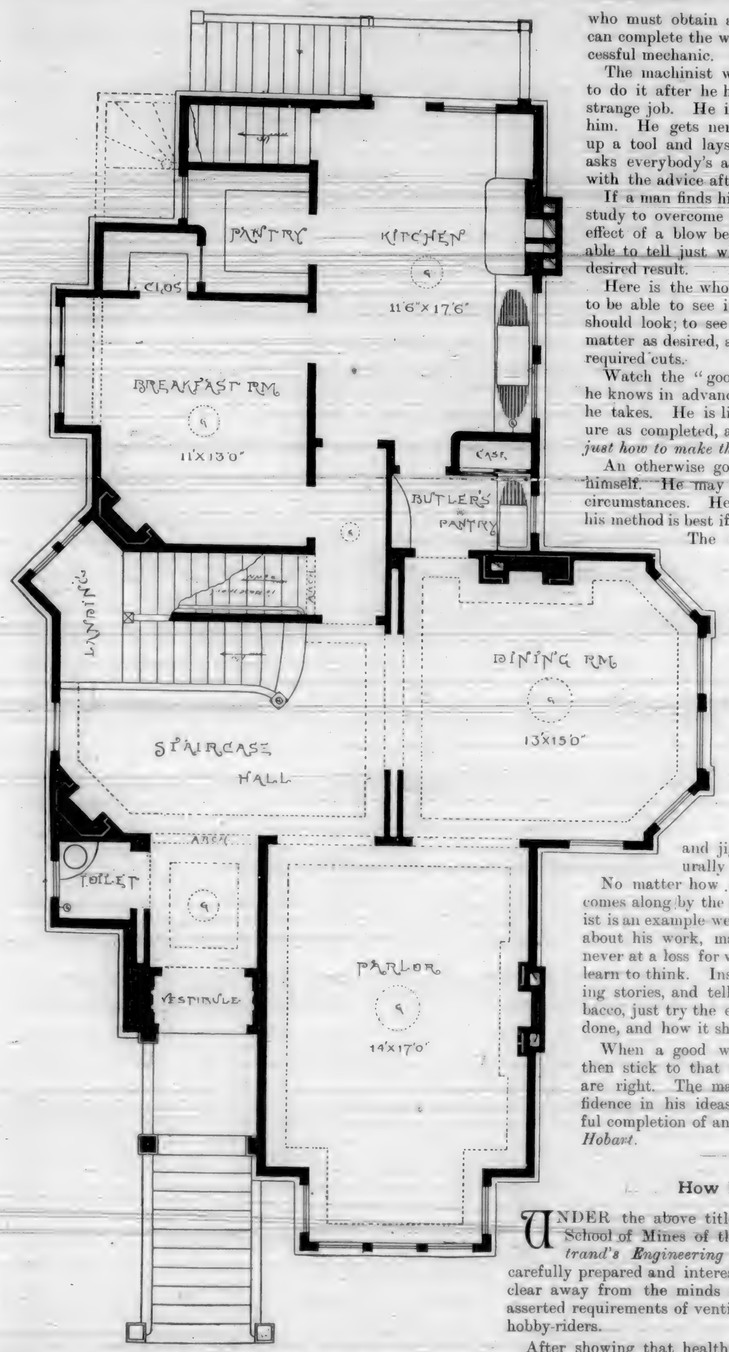


PLATE 3.—MAIN FLOOR PLAN.

Confidence.

CONFIDENCE in one's self goes far toward success. The machinist who is able to go about an ugly job feeling sure that he can devise ways and means for successfully completing the work, is the man who is valuable to his employer. A man who knows how to think, is apt to be such a man, while the man who must depend upon some job he has done before, or who must obtain an idea from his neighbor before he can complete the work, is not the man to make a successful mechanic.

The machinist who don't know what to do, or how to do it after he has got a hint, is a sorry chap on a strange job. He is in misery, and so are all around him. He gets nervous, jumps here and there, picks up a tool and lays it down again without using it; he asks everybody's advice, and don't know what to do with the advice after he gets it.

If a man finds himself in this condition he ought to study to overcome it. Let him learn to think out the effect of a blow before he strikes, and he will soon be able to tell just what kind of a blow will produce a desired result.

Here is the whole secret of being a good mechanic: to be able to see in advance just how a finished job should look; to see what cuts are needed to shape the matter as desired, and to know just how to make the required cuts.

Watch the "good machinist" and you will see that he knows in advance exactly the effect of every action he takes. He is like a good artist. He sees the picture as completed, and knows what marks to make and *just how to make them.*

An otherwise good man may have no confidence in himself. He may be too easily led by surrounding circumstances. He may underestimate himself, when his method is best if he only had the nerve to stick to it.

The other extreme is often met with. The "self-sufficient" workman is the man.

What he doesn't know about a job, never ought to be known. This man is another who doesn't know how to think. He sees or hears of a certain way of doing, and advocates that method without thinking why and wherefore, or if the method he advocates will have the desired effect.

The thinking machinist is neither of the above men. He is between them, and never reaches either extreme. He thinks when he is not aware of it, and methods and jigs suggest themselves to him naturally

No matter how ugly the job, a way to do it always comes along by the time it is wanted. Such a machinist is an example well worth following. He goes quietly about his work, makes no fuss or confusion, and is never at a loss for ways and means. Let us, therefore, learn to think. Instead of running our brains on telling stories, and telling which is the best brand of tobacco, just try the effect of thinking out how work is done, and how it should be done.

When a good way of doing a job is thought of, then stick to that way, and have confidence that you are right. The man who thinks is apt to have confidence in his ideas, and can go ahead to the successful completion of any job that comes to him—*James F. Hobart.*

How Much Ventilation?

UNDER the above title Mr. James L. Greenleaf, of the School of Mines of this city, has published in *Van Nostrand's Engineering Magazine* for November, 1885, a carefully prepared and interesting paper, designed, as he says, to clear away from the minds of some people a feeling that the asserted requirements of ventilation are made by enthusiasts and hobby-riders.

After showing that healthy men are constantly vitiating the air in which they live, and that the dangerous and unpleasant impurity thus added to the air is mainly the organic matter given off from the lungs and skin rather than the carbonic acid, he goes on to discuss the practical question, "How much air is necessary per individual to keep the impurities down to a safe limit?" His conclusion is that if we are content with a somewhat tainted air, from 1,500 to 1,800 cubic feet of fresh air per head per hour will answer, but that if we wish the air in our rooms to be entirely free from traces of mustiness, and to be perfectly fresh

to the senses, the supply must be from 3,000 to 4,000 cubic feet per head per hour. The paper is one that should be read by all architects and by all who are interested in the subject of ventilation.

Finishing.

WOOD finishing is the process of applying to the surface after it has been prepared, by filling and smoothing, or otherwise, a thin coating of varnish or other substance, to render it durable, enhance its beauty, or change its appearance. There are numerous methods of finishing, and a variety of materials are used, the varieties of varnish being the principal. The distinctive qualities of these varieties are treated under their proper headings.

In their natural state all woods are more or less porous, consisting of bundles of hard fibers, with interstices filled with a softer substance. These constitute the grain, and as the hard or soft parts predominate, the wood is said to be hard, fine, or close-grained, or soft and open-grained. To fill these softer parts, or pores, and give to the whole an even, uniform surface, hard, and capable of a brilliant polish, is the object of the finishers' art. This hard, firm surface was formerly gained by the successive application of several coats of varnish, at least three preliminary coats being required to fill the pores; the inequalities were then reduced by fine sand or glass-paper, and several additional coats laid on, the last, after becoming thoroughly hard, being polished if desired. In this operation, however, a great quantity of varnish is absorbed by the open pores of the wood, and it is consequently so expensive that it is now seldom used. Recourse is therefore had to various plans to render the wood non-absorbent before applying varnishes, and certain compounds called fillers are largely used for this purpose.

Richness of effect may be gained in decorative wood-work by using woods of different tone, such as amaranth and amboya, or inlaying and veneering. The Hungarian ash and French walnut afford excellent veneers, especially the burls or gnarls. A few useful notes on the subject are given by a recent American authority. In varnishing, the varnishes used can be toned down to match the wood, or be made to darken it, by the addition of coloring matters. The patented preparations, known as "wood fillers," are prepared in different colors for the purpose of preparing the surface of wood previous to the varnishing. They fill up the pores of the wood, rendering the surface hard and smooth. For polishing mahogany, walnut, etc., the following is recommended: Dissolve beeswax by heat in spirits of turpentine until the mixture becomes viscid; then apply, by a clean cloth, and rub thoroughly with a flannel or cloth. A common mode of polishing mahogany is by rubbing it first with linseed oil, and then by a cloth dipped in very fine brick-dust; a good gloss may also be produced by rubbing with linseed oil, and then holding trimmings or shavings of the same material against the work in the lathe. Glass-paper, followed by rubbing, also gives a good luster.

Logwood, lime, brown soft-soap, dyed oil, sulphate of iron, nitrate of silver exposed to the sun's rays, carbonate of soda, bichromate and permanganate of potash, and other alkaline preparations, are used for darkening the wood; the last three are specially recommended. The solution is applied by dissolving one ounce of the alkali in two gills of boiling water, diluted to the required tone. The surface is saturated with a sponge or flannel, and immediately dried with soft rags. The carbonate is used for dark woods. Oil tinged with rose madder may be applied to hard woods like birch, and a red oil is prepared from soaked alkanet root in linseed oil. The grain of yellow pine can be brought out by two or three coats of japan, much diluted with turpentine, and afterwards oiled and rubbed. To give mahogany the appearance of age, lime water used before oiling is a good plan. In staining wood, the best and most transparent effect is obtained by repeated light coats of the same. For oak stain a strong solution of oxalic acid is employed; for mahogany, dilute nitrous acid. A primary coat or a coat of wood fillers is advantageous. For mahogany stains, the following are given: two ounces of dragon's blood dissolved in one quart of rectified spirits of wine, well shaken, or raw sienna in beer, with burnt sienna to give the required tone; for darker stains, boil half a pound of madder and two ounces of logwood chips in one gallon of water, and brush the decoction while hot over the wood; when dry, paint with a solution of two ounces of potash in one quart of water. A solution of permangate of potash forms a rapid and excellent brown stain.

True and False.

THE statement of building intelligence for 1885, as appearing in December number of this journal, and in the *S. F. Chronicle Alta, California*, and other journals that used our table of facts, were correct. The statement in an evening journal, making the sum of expenditures $7,858,110 was not true, except in this,—to take the total sum of reports appearing in this journal, and upon general principles adding thereto ten per cent, which gives the exact figures of $7,858,110. But this was not honest journalism, as the figures given by our contemporary were presented to the readers of that journal as *original facts*, while in truth the reports of this journal were taken as a basis, and the ten per cent added, without one word of credit to us for the pilfering done from our columns.

The attempt of the journal referred to, to furnish weekly building reports in *imitation* of our monthly, are lamentable failures. To make up large lists and delusive showings, our files of two months or more back are sometimes resurrected and paraded to swell up the list; cases are reported which have no existence in fact; small jobs of a hundred or two dollars are magnified into respectable operations, and extravagant exaggerations utilized to swell appearances and bolster up appearances beyond fair and legitimate facts.

For several years, and until a few months since, this was the only journal that attempted to furnish reports of building activities, which were depended upon monthly by the city press generally, most of whom gave due credit, including the evening journal in question, until it fell upon the idea of a *new stroke of enterprise in imitating and patterning after us*, and fixing up weekly reports.

One thing is certain, the grand flourish of $7,858,110 for the year was not derived from any original data in possession of the *Evening Bulletin*. It was borrowed capital without acknowledgment.

Yellow Pine.

IN places where wooden floorings or trimmings undergo severe or constant use the valuable Southern yellow pine has become almost indispensable. In ship work its durability has been long acknowledged, but it is only within a few years that its usefulness for house purposes has been appreciated. In former times it was tedious stuff to work by hand, but its tediousness is now overcome by improved tools and steam dressing, and the increased call for hard pine wainscotings and ceilings that have attended the active building operations of late has been readily supplied. No wooden flooring that is used bare is superior to narrow strips of Georgia yellow pine. A well-laid surface of the wood improves with age and friction; its resinous quality hardens for it a sort of natural varnish. Art, too, has recently touched this sturdy old timber. Thin door panels are sawed out of planks containing thick deposits of resin. When these panels are placed in doors that the sun can strike, the effect produced is a rich, red wine color, showing inside the room. There is a process of artificially seasoning pine. There is also one of steaming it, so that the resin will show uniformity in the board, but the naturally veined surfaces are handsome enough when properly smoothed.

The supply of this timber seems exhaustless. A large fleet of schooners and other craft is devoted exclusively to its transportation from Virginia, North and South Carolinas, Georgia and Florida. The latter State is renowned for the long boards that are cut from its trees. Georgia owns the standard of quality, but any untapped stock rates high. Trees from which the pitch has been partly removed in the manufacture of turpentine turn out lighter wood, but such cuttings have not the wearing merit of sawings from virgin trees. Since the war, owing to better railroad facilities, large tracts of new forests have been opened to commerce. Europe, especially England, is a large buyer of this wood. Its excellence in railroad work on account of toughness and comparative lightness, is becoming recognized abroad as well as in this country.

When yellow pine vessels become dismasted or capsized at sea, they form most dangerous wrecks, and at night are an especial terror to navigators. Their buoyant cargoes prevent them from sinking, and they become, so to speak, a floating reef. Several abandoned schooners have been known to drift about the ocean from six to eighteen months. Not long ago one appeared on the coast of France. Captains report these drifts to the Government. The Government in turn spreads the information, but the danger is only partly provided against, as currents or driving winds can vary the situation indefinitely.

A LITTLE girl of two and a half years burnt her finger for the first time the other day. She placed her finger on a hot potato, and suddenly drew it back, exclaiming, "O der's a pin in it!"

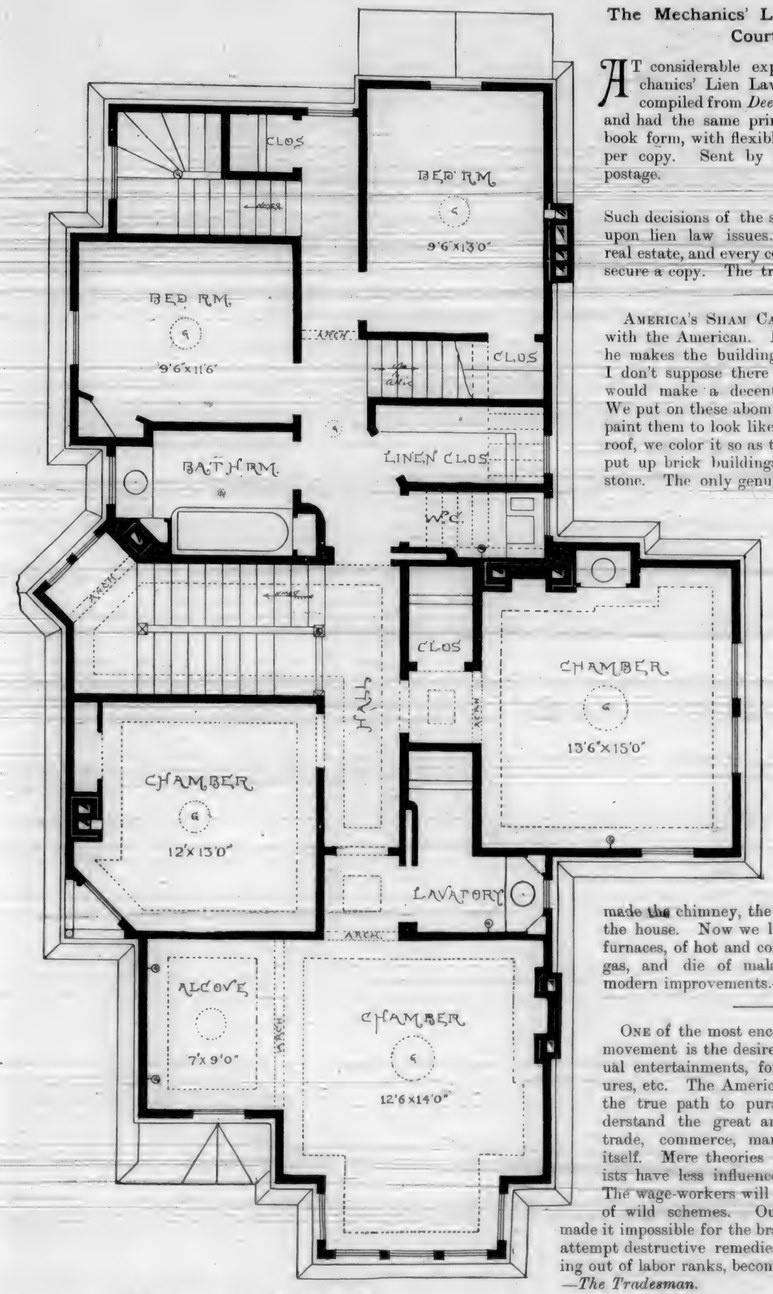


PLATE 4.—SECOND FLOOR PLAN.

THE London plumbers and gas-fitters are adopting a system of registration, for protection against incompetent workmen, who assume to do work on their own account and, by botching it, injure the reputation of the trade.

IT is stated that the Pennsylvania Railroad Company has under consideration the Frost gasoline light as a means by which to furnish illumination for its passenger coaches. The Frost light has an illuminating power equal to seventy-five candles, or nearly as much as a 6' Lungren burner.

The Mechanics' Lien Law, and Supreme Court Decision.

AT considerable expense, we have had the Mechanics' Lien Law of the State of California compiled from *Deering Code of Civil Procedure*, and had the same printed and bound in convenient book form, with flexible cloth covers; price, 50 cents per copy. Sent by mail to any address, free of postage.

ALSO,

Such decisions of the supreme court as bear directly upon lien law issues. Every architect, owner of real estate, and every contractor and workman should secure a copy. The trade supplied.

AMERICA'S SHAM CASTLES.—There is the trouble with the American. If he has $100,000 to spend, he makes the building look like a $200,000 house. I don't suppose there is a building in Detroit that would make a decent ruin. We build for show. We put on these abominable sheet-iron cornices, and paint them to look like stone. If we have a shingle roof, we color it so as to look like slate or tiles. We put up brick buildings and thinly face them with stone. The only genuine thing, as well as the only original thing about American architecture is the pioneer log-house of the backwoods. There the logs were logs with the bark on, and the roof was of clapboards split from the oak blocks, the chimney was built of clay, and stood boldly and generously out as if it were not a thing to be hidden, but the warmest and most inviting thing about a house. The floor was uncovered boards, and the blackened beams overhead stood boldly out in the grateful light of a hickory fire blazing on the huge, ample hearth. The log-house was a product of the immediate land around it. The clay dug from the well made the chimney, the logs cut in the clearing made the house. Now we live—or try to—in an age of furnaces, of hot and cold water, of shoddy and sewer gas, and die of malaria and diphtheria and all modern improvements.—*Detroit Free Press.*

ONE of the most encouraging features in the labor movement is the desire for arbitration, for intellectual entertainments, for laborers' night schools, lectures, etc. The American workingmen recognize that the true path to pursue is to know more, to understand the great and vital questions underlying trade, commerce, manufacturing and government itself. Mere theories take very little hold. Socialists have less influence than ever with the masses. The wage-workers will not be led into the adoption of wild schemes. Our public school system has made it impossible for the brain and brawn of a country to attempt destructive remedies. Men and women are arising out of labor ranks, becoming fair writers and lecturers. —*The Tradesman.*

SOME investigations made relative to the heat of combustion of stone coal have led to the conclusion by Meunier and others that during the formation of coal a certain quantity of heat must have been absorbed, since the theoretical heat of combustion was always less than that actually observed. From want of knowledge, however, as to the real constitution of coal, it is regarded as impossible to determine the nature of this absorbtion. It is also a fact that, from want of knowledge as to the composition of coal, the heat of combustion cannot be calculated. It is well known that two coals of precisely the same chemical composition may and do afford very different degrees of heat in combustion.

Child and State.

PUBLISHED by, and in the interest of, the Boys' and Girls' Aid Society of this city, contains the elevation design for the contemplated building, and many interesting facts and statements. Through the generosity of Senator Fair, the society was enabled to secure an eligible lot, and the timely gift of Mr. Crocker, of $31,000, supplies the greater part of the fund necessary to active operations.

It is hoped that before the advent of 1887 the society will not only have a "roof over its head," but a completed and fairly, if not thoroughly equipped home for hundreds, who, but for the doings of the society, might remain upon the currents of life leading to unhappiness and a bad ending.

The $4,000 from the late Mr. Sharon will still further help on the work; and pre-supposing some things not yet made known, it is fair to set down, in the list of *likely things*, considerable sums from others moved by innate nobility of soul, or by the example of the few millionaires and wealthy men who have, by their grand gifts to deeds of charity and public benefaction, reared monuments of fame, which will perish when, and not until, good deeds shall no longer be considered meritorious.

HOUSING OF THE BERLIN POPULACE.

A flood of light is let in on the singular spread of socialism in the German capital by statistics showing that in Berlin no less than 94,000 families, comprising nearly 400,000 individuals, have to live, sleep, and often work in suites of a single room. In 3,000 of these rooms there is neither stove nor fire-place. One-fourth of their tenants are poor lodgers. Twenty-five thousand families live in cellars under sanitary conditions that are characterized as absolutely shocking. Such meager accommodations as our despised New York tenements afford, with their two or three rooms to each family, are at a premium, and would be accounted a great boon by thousands. Only of the poorest and the best classes of dwellings—those renting at 10,000 reichmark a year or over—is there abundance, for the Berlin builder is a speculator, not a philanthropist. The poor have not even the chance of going to church of a Sunday, to meditate on better things to come, were they so minded; for all the Protestant churches and chapels in Berlin have together hardly seats for 50,000, while the servant girls alone number over 60,000.—*New York Tribune.*

THE BRONZE BACCHUS FROM THE TIBER.

—The chalky incrustation which covered the bronze statue lately found in the bed of the Tiber has been removed, and the admirable modeling of the statue has thus been fully revealed. It is one of the most beautiful works of the kind, and with the exception of some damage to the legs and left hand, is in a capital state of preservation. The statue, about six feet, is doubtless that of the youthful Bacchus. In the left hand is the usual staff, while the right probably held a drinking-cup, in the attitude so often seen in pictures of the god at Pompeii. The soft and feminine form, the ivy wreath on the head, the luxuriously waving hair, which is modeled in the manner of the hair of Apollo, are other proofs that the statue was meant for Bacchus. It seems to belong to the first century of the Roman Empire, when Rome was illuminated by the last rays of Greek art. The lines and surfaces of the statue in all the uninjured parts are as fresh and pure as if the work had just left the master's hand. The figure was only half buried, head downward in the bed of the river, so that the action of the water has roughened the lower parts. The eyes inserted are of ivory and give extraordinary vitality to the expression.—*London Daily News.*

SOME Pittsburg men who looked for a leak in a natural gas pipe, with a lantern, found the leak, and then went to the hospital.

Our Illustrations.

ATTENTION is directed to the illustrations given in this issue. Plates 1 and 2 represent the front and side elevation of a very comfortable private residence, suitable for either city or country. Plates 3 and 4 show the two floor plans, which sufficiently explain themselves. As will be seen, the arrangements are complete for a comfortable home, with possibilities for additional rooms and enlargement. Plates 5 and 6 are the two elevations for a convenient, moderate cost, suburban cottage. There are but few journals, even during the holiday season, which have produced illustrations of greater practical value than those in present number.

(From an address by Professor Thurston, of Cornell University.)

AT Bloomfield, New Jersey, the authorities are introducing most successfully a course of instruction of both boys and girls in the use of tools into their public school system. A manual training school affords a means of rewarding merit at Girard College, where the best students and most promising youth are admitted into the wood-working and machine shops under instruction, and there, under the careful and skillful tuition of expert mechanics, I have seen boys of twelve doing work at the vise with hammer and chisel and file that many an old workman might be glad to rival. The city of Chicago has a manual training school; at St. Louis, Washington University is doing excellent work in well-appointed shops. Boston, in her great Institute of Technology, besides the classes of aspirant mechanical engineers, has organized other classes of boys ambitious to learn the use of tools, and is cultivating the special Yankee talent in a systematic and fruitful manner; and all over the country these primary technical schools are springing up.

"A year or more ago, I received a letter from a capable and successful superintendent of schools in a Western city, saying that he had seen plainly the approach of the new era in primary education of the people for the work and life of the people, and desired to be ready for its advent in his own city, and asked to be instructed that he might intelligently direct the changes of method and system inevitably to come in his own organization.

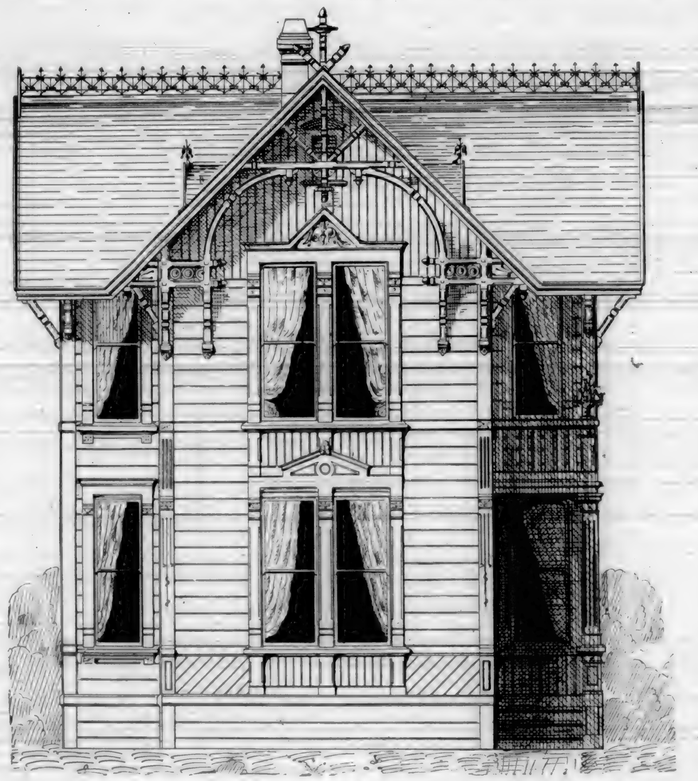


PLATE 5.

He came East and worked in the shop and studied under instructors all summer, to obtain the requisite knowledge and skill. Fortunately, he proved a natural mechanic, and an extraordinarily capable man, and he is now ready to lead in the movement when the looked-for time shall arrive.

"Trade schools now form a part of every school of engineering, and schools of engineering are springing up all over the land."

ANCIENT SANITARY LAWS.—That sanitary regulations are not wholly the invention of the present generation, is evidenced by the historical fact, which perhaps is not generally known to most people, that more than two centuries ago the father of Shakespeare was fined by the authorities of Stratford-on-Avon for depositing garbage in the street in front of his cottage.

Building Report from Woodland, Yolo County.

MESSRS. GILBERT & SON kindly furnish us the following facts relative to building improvements in that part of the State:—

"The private residences taken alone are decidedly better, and show a marked improvement over the majority of those of former years, and confidence is felt that the buildings and improvements for 1885 will compare favorably with any town of same size in Northern California in number of buildings and aggregate value.

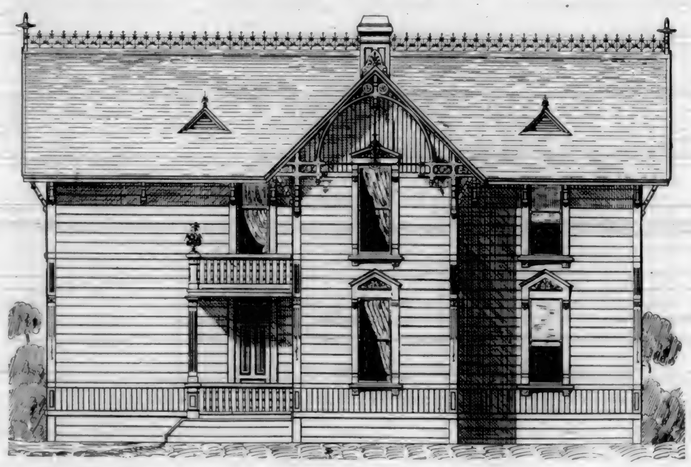


PLATE 6.

"The two months showing smallest returns were January and May—25 buildings at $34,700, and the two largest months, September and November—61 buildings at $157,375."

1885.			WOODLAND CITY.						YOLO COUNTY.				
Month.	No. per month.	FRAME BUILDINGS.		BRICK BUILDINGS.		ADDITIONS & IMPROVEM'S.		FRAME BUILD NGS.		BRICK BUILDINGS.		TOTAL VALUE PER MONTH.
		No.	Value.	No	Value.	No	Value.	No.	Value.	No.	Value.	
Jan	12	2	$ 2,200	..	$.....	4	$3,800	4	$ 5,400	2	$ 2,000	$13,400
Feb	12	3	3,100	1	1,400	3	6,300	2	3,000	3	13,000	26,800
M'h	22	8	13,500	5	37,000	4	4,700	5	7,100	..	.....	62,300
Apl	13	9	33,400	..	.....	..	.....	4	7,700	..	.....	41,100
M'y	13	4	5,300	1	5,500	2	2,000	6	8,500	..	.....	21,300
Jne	19	13	39,100	..	.....	4	5,000	1	2,100	1	12,000	58,200
J'ly	15	10	25,100	..	.....	..	.....	3	3,600	2	10,000	38,700
Agt	12	6	33,100	..	.....	2	2,000	4	5,000	..	.....	40,100
Sep	31	20	44,800	..	.....	..	.....	9	22,275	2	15,000	82,075
Oct	27	12	21,200	2	2,500	..	.....	12	24,400	1	2,500	50,600
N'v	30	10	14,000	7	19,100	1	1,000	10	33,700	2	7,500	75,300
Dec	18	8	11,700	2	16,000	1	1,500	7	12,000	..	.....	41,200
Total	224	105	$246,500	18	$81,500	21	$26,300	67	$134,775	13	$62,000	$551,075

Total number of buildings in Woodland, 144; value, $354,300. Total number of buildings in Yolo County, 80; value, $196,775. Total number of buildings for City and County, 224. Final aggregate, $551,075.

While the preceding statement shows 224 buildings and improvements for Woodland and Yolo County, at a value of $551,075, it would be safe to add to this amount 10 per cent for engagements costing less than $1,000 (minor improvements, barns, carriage-houses, out-buildings, etc., not reported), $55,107.50, making the final value invested in 1885, $606,182.50. This presents a gain over 1884 of 91 buildings and $251,628.50 capital.

For comparison, we give a recapitulation of the annual statistics for six years, from 1880 to 1885 inclusive, presenting the number of buildings, aggregate value, average value, and largest single engagement each year:—

YEAR.	NO. OF BUILDINGS.	AGGREGATE VALUE.	AVERAGE VALUE.	LARGEST NGAGEMENT.
1880	54	$126,720	$2,346	$28,000
1881	59	140,640	2,382	34,580
1882	71	169,950	2,393	15,500
1883	84	204,519	2,434	52,000
1884	133	359,544	2,702	28,000
1885	224	606,182	2,461	25,000
Total for 6 years	625	$1,607,605	$2,448	$52,000

Woodland, twenty-five years ago, contained within present city limits one dwelling. At the present time it is one of the prettiest inland cities, with rows of brick stores and structures, churches, school houses, hotels, theater, and other evidences of modern life and prosperity, besides many fine residences and the earlier constructed buildings, and the less costly cottages of more recent construction. The future outlook is good.

TO TEMPER TOOLS.—The quality of the steel should be uniform throughout; indeed, it is always better to have them tempered rather too hard than soft, for use will reduce the temper. If at any time it is necessary to perform the operation yourself, the best method is to melt a sufficient quantity of lead to immerse the cutting part of the tool in. Having previously brightened its surface, plunge it into the melted lead for a few minutes, till it gets sufficiently hot to melt a candle, with which rub its surface; then plunge it in again, and keep it there till the steel assumes a straw color, but be careful not to let it turn blue. When that is the case, take it out, rub it again with the tallow, and let it cool. If it should be too soft, wipe the grease off, repeat the process without the tallow; and, when it is sufficiently hot, plunge it into cold spring water, or water and vinegar mixed. By a proper attention to these directions, and a little practice, every workman will have it in his power to give a proper temper to the tools he may use. If a saw is too hard, it may be tempered by the same means; but as it would be not only expensive, but in many cases impossible to do it at home, a plumber's shop is mostly at hand, where the process may be repeated when they are melting a pot of lead. But here observe that the temper necessary is different to other cutting tools; you must wait till the steel just begins to turn blue, which is a temper that will give it more elasticity, and, at the same time, sufficient hardness.

Glass Flooring.

THE substitution of glass flooring for boards continues to increase in Paris, this being especially the case in those business structures in which the cellars are used as offices. At the head-quarters of the Crédit Lyonnais, the whole of the ground is paved with large squares of roughened glass, imbedded in a strong iron frame, and in the cellars beneath there is sufficient light, even on dull days, to enable clerks to work without gas. The large central hall at the offices of the Comptoir d'Escompte has also been provided with this kind of flooring, and it is said that, although its prime cost is considerably greater than that of boards, glass is, in the long run, far cheaper, owing to its almost unlimited durability.

IF you go about telling people you have an inheritance worth a million worlds, and yet get out of temper about the loss of a nickel, they will not believe you.

MASONS' AND BUILDERS' EXCHANGE OF SAN FRANCISCO.

ROOM 11, 314 MONTGOMERY ST.

BELOW will be found a list of the members composing this Exchange. Boxes are provided for each member, so that architects, owners, or others desiring the services of any particular member, or those having boxes who are not members, and yet whose business is directly connected with that of the Exchange, can readily secure the attendance of the party sought, by leaving a note in the respective boxes.

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BENDER, JACOB, 1009 Clay Street ..... " 73
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CAIN, R. K., 213 Page Street ..... " 61
CALVERT, JOHN, 812 Hyde Street ..... "
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CLAWSON, L. E., 129 Oak Street ..... " 2
DUNBAR, WM., 27 Eleventh Street ..... " 14
DOWNS, JOHN, 269 Minna Street ..... " 18
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GLYNN, JAS., 432 Clementina St. ..... " 57
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HOCK, T., 422 Golden Gate Avenue ..... " 60
HAFF, J., 516 Kearny St. ..... " 6
HIGGINS, ROBERT, 1724 Jessie Street ..... " 13
HUGHES, JOHN, 310 Seventeenth Street ..... " 21
JORDAN, D., 911 Webster Street ..... " 59
KNEEDLER, G. W., 1013 Vallejo Street ..... " 51
KINCAID, J. E., 2219 Pacific Avenue ..... " 45
LIEBERT, J. G., 330 Oak Street ..... " 32
LOANE, F. M., 1512 Golden Gate Avenue ..... " 38
MITCHELL, ROBERT, 807 Turk Street ..... " 26
MCCARTHY, JOHN, 2503 Folsom Street ..... " 7
MCGOWAN, MATT., 614 Linden Avenue ..... " 17
MCDERMOTT, JOHN, 124 Tenth Street ..... " 33
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WESTERN IRON WORKS ..... " 69

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CLAWSON, L. E. ..... " 2

MISCELLANEOUS.

DAVIS & COWELL, Lime and Cement ..... Box 43
WHITTIER, JAS. E., Asphaltum ..... " 41
MCCLURE, P. L., Grader and Waterman ..... " 30
SIBLEY, L. B., Teamster ..... " 40
WARREN, CHAS., Grader ..... " 37
BUCKMAN, A. E., Grader ..... " 42
KELSO, JOHN, Grader ..... " 76
ENGLISH W. D. & CO., Graders ..... " 70
BUTTERWORTH, T. C., Glazier ..... " 48
HARNEY & SON, Street Contractors ..... " 54

AN EXTRAORDINARY OFFER.

WE want Live, Energetic, and Capable Agents in every county in the United States and Canada, to sell a patent article of great merit, ON ITS MERITS,—an article having a large sale, paying over 100 per cent profit, having no competition, and on which the agent is protected in the exclusive sale by a deed given for each and every county he may secure from us. With all these advantages to our agents, and the fact that it is an article that can be sold to every house owner, it might not be necessary to make an "EXTRAORDINARY OFFER" to secure good agents at once, but we have concluded to make it to show, not only our confidence in the merits of our invention, but in its salability by any agent that will handle it with energy. Our agents now at work are making from $150 to $600 a month clear, and this fact makes it safe for us to make our offer to all who are out of employment. Any agent that will give our business a thirty days' trial, and fail to clear at least $100 in this time, ABOVE ALL EXPENSES, can return all goods unsold to us, and we will refund the money paid for them. Any agent or general agent who would like ten or more counties and work them through sub-agents for ninety days, and fail to clear at least $750, ABOVE ALL EXPENSES, can return all unsold and get their money back. No other employer of agents ever dared to make such offers, nor would we if we did not know that we have agents now making more than double the amount we guaranteed; and but two sales a day would give a profit of over $125 a month, and that one of our agents took eighteen orders in one day. Our large descriptive circulars explain our offer fully, and these we wish to send to every one out of employment who will send us three one-cent stamps for postage. Send at once and secure the agency in time for the boom, and go to work on the terms named in our extraordinary offer. We would like to have the address of all the agents, sewing machine solicitors, and carpenters in the country, and ask any reader of this paper who reads this offer, to send us at once the name and address of all such they know. Address at once, or you will lose the best chance ever offered to those out of employment to make money.

RENNER MANUFACTURING CO.,
116 Smithfield St., Pittsburg, Pa.

Market Reports.

Hereafter we will give, as far as practicable, the Market Report (monthly) in the following manner:—

LUMBER—Nothing doing in cargo lots, and prices for same are $1 50 to $2 below the following rates, which are for retail lots:

Rough Pine, merchantable	per M feet,	$14 00
" " No. 2	" "	11 00
" Redwood, No. 1	" "	17 00
" " No. 2	" "	13 00
1x6 T. & G. No. 1 Pine	" "	26 00
" " " No. 2 Pine	" "	21 00
1x4 and 1¼x4x6 T. & G. No. 1 Pine	" "	28 00
" " " No. 2 Pine	" "	23 00
Stepping, Pine	" "	37 50
Surface Redwood, No. 1	" "	30 00
1x4 T. & G. Redwood, 12 ft. and over	" "	28 00
1x6 " " " " "	" "	25 00
1x4 and 6 T. & G. Redwood, No. 2	" "	20 00
Siding, ½ inch	" "	22 50
Fancy Pickets	per M,	25 00
Rough "	"	15 00
Rough Square	"	14 00
Shingles	"	2 00
Laths	"	3 25
Battens, ½x3	per lineal foot,	¾ ct.

NAILS—Rates were recently reduced to:—

20 keg lots	$3 15
100 keg lots	3 20
Smaller quantities	3 25

(The reduction in above rates is caused by Eastern factories unloading again on this market.)

PAINTS AND OILS:—

Pioneer White Lead (local factory)	6c @ 6½
Cal. Linseed Oil, raw (single bbl lots)	45
" " " boiled " " "	47½
Turpentine, per gallon	50

(There is a lively competition between Eastern Linseed and Home Manufactures.)

BRICK—California Building Description, soft, per 1,000 ..... $6 50
" " " red, " " 7 50
" " " hard, " " 8 50

Building Intelligence.

Where owners' names are left blank, it is so done in most instances by special request.

B

Brush, bet. Montgomery and Sansome. Five-story and basement brick.
O.—Charles Crocker.
A.—Edward R. Swain.
Total of contracts awarded for brick, carpenter, iron, granite, stone, steel, beam and vault work amounts to $180,000. Painting, plumbing, plastering, and other portions of the work not yet let.

Broderick, cor. Water. Three two-story frames.
O.—G. B. Beale.
A.—Townsend & Wyneken
C.—H. B. Hosmer.
$13,500.

Broadway, nr. Leavenworth. Alteration.
O.—H. Mahoney.
C.—M. Murray.
$1,500.

Brannan Place, Green, bet. Dupont and Stockton. Three-story frame.
O.—Joe Vacarro.
Day work.
$5,000.

Bay, NE cor. Dupont. Factory.
O.—J. Mayer.
A.—H. D. Mitchell.
C.—W. E. Wellbye.
$10,000.

C

California, bet. Larkin and Polk. Three-story pressed brick.
O.—H. Campbell.
C.—W. B. Bradbury.
$25,000.

Clay, cor Franklin. Two-story frame.
O.—P. N. Lilienthal.
A.—Pissis & Moore.
$30,000.

Church, corner Dorland. Two-story frame.
O.—C. B. Williams.
A.—C. Geddes.
C.—J. Wilson.
$5,500.

Chattanooga, bet. Twenty-second and Twenty-third. Four one-story frames.
O.—J. Bolger.
A.—Huerne & Everett.
C.—Doyle & Son.
$6,100.

California, above Montgomery. Additions and alterations.
O.—Spring Valley Water Works Co. J. Schussler, sup't of building.
Day work.
$5,000.

Clipper, corner Church. Two-story frame.
O.—H. Bernhardt.
A.—J. Hoffman.
C.—A. Klahn.
$8,500.

D

Devisadero, nr. Page. One-story frame.
O.—Miss E. O. Darrow.
C.—H. Darrow.
$800.

Dupont, bet. California and Sacramento. Additions and alterations.
O.—Joe Goetz.
A.—T. J. Welch.
C.—J. L. Binet.
$5,000.

Dolores, bet. Duncan and Twenty-eighth. Frame church.
O.—German Methodist Episcopal Church.
C.—A. Klahn.
$1,000.

Dorland, nr. Seventeenth. Two one-story frames.
O. C. Coulson.
C.—G. M. Salisbury.
$2,000.

E

Eddy, nr Mason. Additions and alterations.
O.—C. H. Twombly.
C.—C. M. McDonald.
$5,000.

Eddy, nr. Devisadero. Two-story frame.
O. and B.—F. Buckley.
A.—Huerne & Everett.
$2,000.

Ellis, nr. Gough. Two-story frame.
O.—M. Foley.
A.—T. J. Welch.
C.—Emgerson & Gore.
$5,500.

F

Fair Oaks, bet. Twenty-fourth and Twenty-fifth. Three-story frame.
O. and B.—J. L. Binet.
Day work.
$5,000.

Franklin, cor Golden Gate ave. Three-story frame.
O.—J. A. Borgerot.
A.—W. A. Bayless.
C.—J. A. Leonard.
$10,000.

Fulton, bet. Franklin and Gough. Three-story brick, United States Brewery.
O.—F. Keonenberg & Co.
A.—H. Geilfuss.
C.—Bulk work, T. Haaf; carpenter, W. Pluns.
$80,000.

G

Geary, nr. Octavia. Two-story frame.
O.—A. M. Goldsmith.
A.—J. Marquis.
C.—H. Tibbets.
$7,500.

Green, bet. Kearny and Dupont. Additions.
O.—J. Picceroni.
C.—J. Foster.
$1,200.

Gough, cor. Post. Two-story frame.
O.—Mrs. J. V. Elvert.
A.—Kennitzer & Raun.
C.—F. Klatt.
$6,500.

H

Hyde, bet. Greenwich and Lombard. Two-story frame.
O.—Mrs. Libby.
A.—Townsend & Wyneken.
Day work.
$800.

Haight, near Broderick. Two-story frame.
O.—M. Riley.
A.—J. J. Clark.
C.—J. W. Smith.
$3,000.

Hampshire, nr. Twenty-first. One and one-half story frame.
O.—W. Coons.
A.—J. B. Williams.
$1,800.

Howard, bet. Thirteenth and Fourteenth. One and one-half story frame.
O.—J. O'Connor.
A.—M. J. Welch.
C.—M. D. Creman.
$1,900.

Howard, bet. Thirteenth and Fourteenth. Two-story frame.
O.—Maria Quinn.
A.—S. and J. C. Newsom.
C.—D. B. Spangler.
$2,250.

Haight, nr. Broderick. Two-story frame.
O.—M. Riley.
A.—J. J. Clark.
C.—J. W. Smith.
$7,500.

Hyde, bet. Sacramento and Clay. Two-story frame.
O.—M. Wunch.
A.—Kennitzer & Raun.
C.—H. Meyne.
$7,500.

J

Jackson, nr. Van Ness. Two-story frame.
O.—Eliza R. Dingerfeld.
A.—Percy & Hamilton.
C.—B. F. Ellis.
$2,000.

Jackson, cor. Van Ness. Two-story frame.
O.—S. Tanen.
A.—Percy & Hamilton.
C.—B. F. Ellis.
$6,000.

Jackson, nr. Van Ness. Two-story frame.
O.—Mrs. E. Daningfield.
A.—Percy & Hamilton.
C.—B. F. Ellis.
$2,000.

L

Lombard, nr. Jones. Two-story frame.
O. and B.—J. P. Hunter.
Day work.
$3,500.

M

Mission, bet. Fifth and Sixth. Repairs.
O.—J. W. Brown.
Day work.
$2,500.

McAllister, cor. Franklin. One-story frame.
O.—B. Williams.
A.—H. Geilfuss.
C.—J. Fuchs.
$1,700.

Market, nr. Fifth, south side. Additions and alterations.
O.—J. McCauley.
Day work.
$3,000.

Mason, cor. Guerrero. Two-story frame.
O.—Sarah B. Farackerley
A.—M. J. Welch.
C.—C. Buckley.
$2,800.

Montgomery Avenue, junction Stockton. Two-story frame.
O.—
C.—A. Alexander.
$2,500.

N

Nineteenth, cor. Lapidge. Two-story frame.
O.—J. Thompson.
A.—T. J. Welch.
C.—J. Blake.
$6,500.

O

O'Farrell, cor. Gough. Two-story frame.
O.—I. Selig.
A.—J. Marquis.
C.—R. Parker.
$14,000.

Oak, bet. Scott and Devisadero. Two-story frame.
O.—P. Duffy.
Day work.
$2,500.

Oak, bet. Devisadero and Broderick. Two-story frame.
O.—N. Schlessinger.
A.—M. Donnall & Son.
C.—J. A. Leonard.
$4,800.

Oak, bet. Scott and Devisadero. Additions.
O.—and B.—J. Weigner.
Day work.
$1,500.

P

Pine, nr. Broderick. Two-story frame.
O. and B.—W. F. Lewis.
Day work.
$3,700.

Polk, bet. Fulton and Grove. Two-story frame.
O.—B. Bowman.
A.—T. J. Welch.
C.—J. Blake.
$4,500.

Polk, nr O'Farrell. Three story frame.
O.—H. Slessinger.
A.—P. R. Schmidt.
C.—H. Keenan.
$8,000.

Pine, nr. Stockton. Additions.
O.—Miss Prine.
C.—S. M. Hills.
$2,000.

Pine, nr. Larkin. Additions.
O.—Chicago Brewery Co.
Day work.
$30,000.

Pine, nr. Devisadero. Two-story frame.
O.—Mrs. Myrick.
A.—T. J. Welch.
C.—A. McElroy.
$8,500.

S

Seventeenth, bet. Noe and Sanchez. One-story frame.
O. and B.—L. Sauer.
A.—Salfield & John.
$2,000.

Sacramento, cor. Baldwin. Two three-story frames.
O. and B.—Thomas Holt.
Day work.
$8,000.

Sutter, bet. Scott and Devisadero. Two-story frame.
O. and B.—James Geary.
Day work.
$3,000.

Seventeenth, nr. Collins wood. One-story frame.
O.—W. Thomas.
Day work.
$1,500.

Seventeenth, nr. Noe. One-story frame.
O. and B.—A. Sauer.
Day work.
$1,700.

Seventeenth, nr. Noe. One-story frame.
O.—
C.—F. Bohnenberg.
$2,000.

Stevenson, near Nineteenth. Additions.
O.—H. Walsh.
C.—J. W. Powers.
$1,800

Second, near Frederick. One-story frame.
O.—N. Treadwell.
C.—B. Treadwell.
$1,200.

Shotwell, cor. Twenty-sixth. One-story frame.
O. and B.—C. O. Smith.
Day work.
$2,000.

Shotwell, near Twenty-sixth. One-story frame.
O.—A. Wadwell.
C.—McCormack & Elam.
$1,500.

T

Twenty-first, cor. Guerrero. Alterations.
O.—E. G. Denningston.
A.—Percy & Hamilton.
C.—B. F. Ellis.
$2,000.

Twenty-sixth, cor. Treat ave. One-story frame.
O.—W. Halpin.
Day work.
$1,000.

Twenty-third, nr. Bartlett. Additions.
O.—H. Fitzgerald.
Day work.
$800.

Twentieth, bet. Valencia and Guerrero. One and one-half-story frame.
O.—F. Mettmann.
C.—F. C. Kleebauer.
$2,000.

V

Van Ness Avenue, cor. O'Farrell. Work on the Roman Catholic Cathedral has been commenced. Contract to the amount of $12,000 has been let to O. E. Brady for grading and fence work.

Vincent, cor. Green. Two-story frame.
O.—C. Munsanti.
Day work.
$2,300.

Valencia, cor. Twenty-first. Three-story frame.
O.—J. T. Poheim.
A.—B. E. Henriksen.
C.—Moore Bros.
$21,500.

Valencia, bet. Nineteenth and Twentieth. Two-story frame
O.—G. Perini.
A.—B. E. Henriksen.
C.—Moore Bros.
$1,000.

Valencia, bet. Sixteenth and Seventeenth. Three-story frame.
O.—C. F. Hornung.
C.—F. O. Bergman.
$10,000.

ALAMEDA.

Park, cor. Buena Vista—2-story fr; O. H. Johnson; a, W. Benson; c, Burns & Wright; $4,000.
Central Ave., nr Park—2-story fr; a and b, Louis Aime; day work; $2,000.
Park—2-story fr; o, G. W. Coggin; c, Pattiani & Co.; $3,500.
Minto, cor Pacific—1 story frame; o, Capt. Larsen; c, H. Hansen; $2,000.
San Jose Ave.—1-story ctg; o, Mrs. Fulton; c, Pattiani & Co.; $2,000.
Union, cor Eagle Ave—1 story ctg; o, Mr. Bacon; c, A. Walker; $3,500.
Pacific Ave., nr Peru—Two 1-story ctgs; c, A. Walker; $1,600.
Benton, nr Railroad Ave—1-story ctg; o, G. Soule; day work; $1,000.
Willow—1-story ctg; o, J. N. Coleman; c, Pattiani & Co.; $3,250.
San Antonio Ave—1 story ctg; o, F. Peters; c, Pattiani & Co.; $1,950.

BERKELEY.

Oxford, nr College Way—1-story fr; o, L. Dunand; c, A. H. Broad; $1,800.
Dwight Way—2-story ctg; o, C. T. Wilkinson; c, Pattiani & Co; $3,150.
University Grounds—Additions; o, State of California; c A. H. Broad; $2,600.
Opposite Station, Berkeley—1-story fr; o, Hansen Bros.; day work; $500.
Dwight Way—2-story fr; o, H. Roach; c, C. R. Lord; $2,500.
Union, cor Alston Way—1½-story fr; o, Mrs. Wilton; c, A. H. Broad; $1,900.
Haste, nr Fulton—1-story ctg; o, Mrs. Cummings; c, A. H. Broad; $3,500.
University Ground Observatory—O, State of California; c, A. H. Broad; $3,000.

OAKLAND.

Seventh, cor Adeline—2-story fr; o, H. Sanders; c, A. B. Larmar; $3,000.
Eighteenth, nr Adeline—O, A. J. Larsen; c, F. Nelson; $1,500.
Kirkham, bet. Seventeenth and Eighteenth—1-story ctg; o, E. Thorsang; c, F. Nelson; $1,200.
Nineteenth, cor Adeline—Alteration and additions; o, F. Busby; c, G. A. Kirk; $4,000.
Thirteenth—1-story fr; o, Mrs. Jayne; c, Pattiani & Co.; $2,850.
East, cor Thirtieth—1-story fr; o, N. R. Johnson; c, Pattiani & Co.; $2,850.
Brush—1-story ctg; o, Miss Patch; c, Pattiani & Co.; $2,000.
Kirkham, opp Ninth—1-story fr; o, H. Snow; day work; $2,000.
Madison, nr Sixteenth—Four 2-story frame Dwellings; day work; $32,000.
Thirteenth, nr West—Additions; o, Mrs. Dr. Wilson; day work; $900.
Eighteenth, cor Kirkham—1½-story fr; o and b, H. Wirth; day work; $1,500.
Grove, bet Fourteenth and Fifteenth—2-story fr; o, W. H. Bayley; c, L. H. Campbell; $2,850.
Thirteenth, nr Jackson—2-story stable; o, Mr Upham; c, Knight & Littlefield; $3,000.
Thirteenth, nr Harrison—2-story fr; o, Mrs. L. R. Casey, a, Matthew & Son; c, W. Dahl; $3,000.
Castro, bet. Seventeenth and Eighteenth—2-story fr; o, H. Fife; day work; $1,000.
West, cor Fourteenth—Additions and alterations; o, W. Collins; day work; $1,000.

EAST OAKLAND.

Thirteenth, nr Fourteenth Ave—1½-story fr; o, N. R. Johnston; c, Pattiani & Co.; $2,500.
Third Ave, bet Eleventh and Twelfth—1½-story fr; o, F. Climp; c, R. A. King; $1,000.
Fifteenth, bet Seventh and Eighth Ave—1 story ctg; o, F. C. Brower; a, Robt. Trice, c, Moody & Carpenter; $2,000.
Twelfth, cor Seventeenth Ave—1½ story fr; o and b, F. E. Brumker; day work; $2,000.

MISCELLANY.

San Mateo—Two-story frame. O., R. Winson; A., Copeland & Banks; $3,500.
Merced—Front. Two-story brick. O., Terker and Selver; A., P. Manning; C., Meacy & Peck; $7,000. Fourteenth. Frame building. O., J. S. Wright; A., P. Manning; C., Fala & DeWitt; $2,000. Seventeenth. Two story and basement brick. O., Ellin Lewis; A., P. Manning; day work.

The California Architect and Building News.

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THE

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Devoted to Architecture, Decorating, and Furnishing.

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Advertisements inserted at reasonable rates.

SAN FRANCISCO, CAL., FEBRUARY 5, 1886.

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Congratulations and Compliments.

THESE have come to us freely, from all quarters, since the January issue of this journal, for which we return hearty thanks. The improvements made have met with universal admiration and favor, and if dollars equal in number to the words of compliment expressed had been received, our exchequer would have become plethoric, and tax bills on ten million dollars' worth of real estate been items of small moment. This is gratifying, and we trust that action—*the prompt payment of subscriptions*—will express more substantially and practically, if not louder than words, the genuine sympathy of thousands for the success of this—California's first and only class journal published in the interest of architectural and building sciences.

Building Prospects.

THE total results, as shown by the following totals, would indicate unfavorably as against February, 1886. But it must be borne in mind that the present season has been extraordinarily unpropitious for building operations, while in 1885, the early months were altogether favorable. Otherwise, nothing appears to change the probable results as stated in our last issue. The continuous rains and storms have been a great drawback to active operations.

SUMMARY FOR CURRENT MONTH.

56 Frame buildings, at total cost of	$258,297
3 Brick buildings, at total cost of	93,000
13 Alterations and additions, at total cost of	25,900
72 Total for February, 1886	$377,197

FOR SAME MONTH IN 1885.

121 Buildings, at a total cost of	$660,397
Present month	377,197
February, 1886, less than February, 1885	$283,200

Notwithstanding this odds against present month, architects report a large number of plans in preparation, and prospects good.

The purpose of the reports in this journal is to give as nearly as possible the exact state of facts, whether stimulating or depressing, leaving it to the good sense and judgment of our readers to draw their own conclusions. We shall at no time seek to follow the example of journals who attempt to collate building facts, and for the sake of appearances, and to make large showing at any hazards, parade figures that do not represent facts. We claim, and know that the building reports appearing in this journal are more nearly correct than any other, and more reliable.

Our Promise Redeemed.

THE patrons of this journal were promised enlargement and improvement. As to how well this promise has been observed and fulfilled, it is only necessary to refer to the present, as compared with former issues. In typography, illustrations, matter, general make-up and appearances, the changes speak for themselves; and considering the great disadvantages we labor under, of limitedness of local field and facilities, distance from the densely populated sections, where teeming life and business is in perpetual flow from State to State, and from city to city, and innumerable facilities and advantages surround our Eastern contemporaries, our present claim to comparative excellence with the best class journals published in same interests, will meet the approval of all who review the situation.

OTHER IMPROVEMENTS WILL FOLLOW.

Changes and improvements are always attended with greater or less cost and expense, and as in the present instance in this journal, large outlay; but these become immaterial considerations, when

THE SUSTAINING HAND OF PATRONAGE

Is freely extended. And to us, a grand success of this pioneer California journalistic enterprise is more desired than the money profits returned from its publication.

LET IT BE HEARTILY SUSTAINED

By large increase in both its subscription and advertising patronage. The terms and rates are within reach of all, and none should fail to add their mite.

Architects, contractors, owners, mechanics, artisans, material men, house furnishers and decorators, and all interested in building pursuits, should realize that a journal of this kind and character is an essential and important auxiliary and medium of thought and practical information, and, as such, should meet a warm and hearty subscription indorsement.

Profits on $30,744,861—Building Contracts.

IT is always fair and reasonable to presume in business transactions, where large sums of money change hands, and the conditions surrounding operations are animated and active, that the average results would show fair gains and profits to the operators. This proposition is applicable in all cases, and specially so to the building trades of the Pacific Coast during the past six years.

From 1880 to 1885, inclusive, the amount of money known to have been expended in building-improvements in San Francisco, alone, amounts to $27,949,874, and allowing that the unreported transactions would add ten per cent to the sum stated, the total amount changing hand among contractors, material men, subcontractors and others, would reach $30,744,861. Had this large expenditure yielded the moderate profit of *ten per cent*, the aggregate of earnings to those engaged in the *erection* of buildings alone would have been $3,074,486, a sum sufficient to have shown itself conspicuously in many individual cases, over and above ordinary, personal, and family expenses.

This sum of $30,744,861 has all passed through the hands of *original contractors* in the various branches of building constructions, exclusive of the cost of lots, lands, furniture, fixture, and numerous decoration, ornamentation and other expenditures. It is fair to judge and measure the magnitude of business successes in cities and communities, by the results developed among those engaged in general or special enterprises and operations. If many millions of dollars change hands, as in the matter under review, and those who have handled the money have but little or nothing to show at the ending of transactions as profits, the inference is fair that bad judgment, reckless venture or incompetency has ruled; while on the other hand, if wise and prudent conception of values, and good management have prevailed, general appearances will clearly indicate, in various ways, that the active participants have done well. Advantageous and profitable transactions enrich and add to community as well as individual wealth; while undertakings with no more than bare living profits in them, added to the frequent cases entailing actual loss, humiliates, demoralizes, and empoverishes.

All this is applicable in the matter under discussion, and the facts of the case serve to show that the parties engaged in the various building pursuits, have enjoyed splendid opportunities, during the past six years, to improve and advance their financial condition; and if the business was one of fair average profits as a rule, the results naturally manifesting themselves would sustain the presumption that the laborer has reaped the value of his hire. That some few have done well is unquestionably true, and deplorable indeed would it be, if among the host of contractors in San Francisco there were none sufficiently wise, prudent, competent, and intelligent to handle their business with profit to themselves. But the much greater proportion have but little to show as accumulations of profits from the undertakings of the period named, and safe to say, a very large proportion—reasonably stated—fully one half of the whole number, have barely subsisted, *i. e.*, paid their way, living moderately, but with nothing left to show as gains and profits for time, labor and skill employed and expended; while very many who have rated themselves competent contractors, especially in the carpenter's department, have made sad havoc of most or all their hands have touched,—living upon moneys belonging to their creditors, extracted from the payments handled during progress of operations, and piled up, loss upon loss, to very large amounts, ending in pro ratio settlements ranging from ninety-five, fifty, forty, twenty, ten, and sometimes not one farthing per cent.

The irresistible conclusion from this condition of things is, that fools still live, and, unfortunately for the intelligent classes of contractors, there is no law under which they can be estopped plying their stupid follies. For a man who estimates and agrees to perform and furnish material and labor for one dollar, which is reasonably worth and will cost a dollar and two, five, ten, or twenty cents, is a fool without qualification, or a dishonest creature, who should be dealt with as rogues of other kinds are. But the point sought to be maintained is this: that, while a very large sum of money has flowed in building channels, the profits, if averaged among first contractors as a whole, would be far below any business standard of fairness; and the man who would assume the risk of balancing accounts between the losses and gains of the business for the six years mentioned, with the actual total balance to the credit of the $3,074,486, would need no very large money-bag to carry the sum of difference in gold coin. If the shortages could be ascertained, and were deducted from the gains, the balance would be small indeed in favor of the latter.

A very limited number of contractors, as compared with the whole, might be named as being well fixed; not rich, but in a fair way to reach a point where contracting will lose its charms, and that ease and luxury of financial competency be enjoyed which enables one to choose his comforts outside the vexations of business care and anxieties. But, of these few, while they have done well in their contracting ventures, their accumulations are more the result of investment in property and speculation, and special business advantages, than from the margins on contracts. Aside from these more favored ones, the examples of success average exceedingly small, and sustain, beyond question, the fact, that, *with the exceptions out*, the profits on house-building contracts have been far, very far, less than they should have been, the amount of money involved, considered; not averaging two per cent, and quite as likely the percentage being on the loss side; this most assuredly is true, if the few engagements that have paid—say ten in each one hundred of the whole number—be withdrawn. "Fat" contracts are occasionally, but rarely obtained; but for each one such, there are fifty that are exceedingly lean, and scores with neither fat, flesh, nor marrow in them, and creditors at completion have to content themselves with the pickings from dry bones—pro ratio settlements.

Allusion to contractors in this connection could not be avoided, as they are the mirrors through which the points in argument are reflected; for it is an indisputable fact that the parties engaged in any pursuit reflect the conditions and results of action, in their mode, style, and manner of living; in their investments, personal expenditures, and otherwise. By these the approximate magnitude of earnings and resources may be estimated, and appraisement placed upon the profitables of transactions. Accepting and applying this as a maxim of judgment, it must be admitted that not even the most successful and prosperous of the contractors in San Francisco are extravagant spendthrifts and high livers, nor those who have done fairly well and maintain good standing and credit; but to the contrary, as a rule, they are men of moderate display and economical habits; while hundreds who have misdevoted their time and personal energies to contracting, have neither a roof over their heads, nor a foot of ground to call their own. All these things considered, and the facts and comparisons applied, the proofs are irresistible that the building-contracting business has been one of exceedingly small average profit to contractors, and of large gains to owners in securing the erection of buildings at nominal prices, or no excess over actual cost of labor and material.

Master Painters' Association.

REGULAR meeting held 5th inst. E. M. Gallagher, President, presiding; J. A. Donovan, Secretary *pro tem.* Committee to confer with architects reported progress. L. Dwyer proposed, and Samuel Hurdis elected unanimously to membership; E. M. Gallagher elected President, and Thos. Downing, of San Francisco, and J. A. Wiswell, of Alameda, Vice-presidents; election of Secretary laid over until next meeting; B. L. Brandt re-elected Treasurer, and M. J. Donovan, Sergeant-at-arms.

The following members compose the Executive Committee for ensuing term: C. A. Bernard, J. S. Mellon, J. F. Sullivan, J. A. Donovan, and H. White, of San Francisco; and F. M. Farwell and P. W. Keiss, of Alameda County, with the President and Secretary as members *ex officio*.

Mr. J. F. Sullivan offered the following:—

Whereas, It has become necessary on the part of the Master Painters of the Pacific Coast, to protect themselves against the innovations and abuses which have been imposed upon the painting art, by the acts, methods, and customs of men not actuated by a high and honorable sense of right and duty to themselves nor their clients; therefore,

Resolved, That no member of the Master Painters' Association of the Pacific Coast will employ any one who, as journeyman painter, shall, from and after the present time, work for those who use admixtures commonly known as "slumgullion" or "dope," instead of pure paint stock, thereby abusing the confidence of architects and owners, and bringing disrepute upon the painters' art; for it is a well-known fact that the misdeeds of individuals operate to the disadvantage of all engaged in the business.

Respectfully submitted,

J. F. Sullivan.

Under the order of communications, the above resolution was adopted. Thanks, by rising vote, was tendered the President, for official competency and impartiality.

The first case of reference by architects.

The Committees of Measures and Values were called upon for the first time since their appointment, to examine and report upon a case of unsatisfactory painting, and reported as follows:

We, the undersigned Committee of the Master Painters' Association of the Pacific Coast, at the request of Messrs. Curlett & Cuthbertson, architects, have examined the painting work of a building on Sixth Street, bet. Broadway and Franklin Streets, Oakland, Alameda County, and find the same not in accordance with the specifications. Approved,

E. M. Gallagher, *President*,
J. A. Wiswell,
F. T. Hall,
J. F. Sullivan,
H. G. Jarmin,
A. Wason,
J. A Donovan,
M. J. Donovan,
Committee.

A curious argument is advanced that the burglar, so far from being a curse, is a blessing to society. It is argued that the fact of his existence gives employment to many men as detectives, and that artisans and inventors are constantly employed in devising means of circumventing him.

The Growth of San Francisco.

IN the July number of this journal, 1879, the following article appeared. The hue and cry then was that the building business was overdone, and the loss of rentals predicted for all those then venturing to invest money in the further improvement of real estate. The caption and substance of the article read:—

"too many idle houses."

"This is the old stereotyped expression among many owners in discussing the feasibility of improving their real estate. Every 'to let' sign noticed by them, becomes a scarecrow, and hundreds of building lots lie idle from year to year, which, if *properly* improved would produce uninterrupted income from rentals. If it is a fact that the total number of vacant tenements is large, that fact is no argument against the building of more houses in desirable locations. All facts should be considered in determining results or averages in all cases, and when the above argument is used, to it should be added—'but a large proportion of the unoccupied places are old, ill-contrived, inconvenient and undesirable places.' And the reason why many new buildings remain untenanted, is because they too are illy planned, are destitute of necessary conveniences, are badly located, with equally undesirable surroundings, etc. Of good, convenient, well-equipped houses, there are but few in San Francisco unrented to-day. If owners commit or permit errors in the planning and erection of buildings on their property, the mistake is their own, and they should not cry out, 'Too many houses to rent,' because their own are defective and undesirable They should take the blame home to themselves, and charge the non-renting to errors of their own mistaken judgment."

This was six and one-half years ago. Then, as now, the croakers declaimed and prophesied, predicting depreciation in both improved property and rentals; they said that men who, under the conditions then existing, would tie up their coin in the further improvement of their land, would play the part of simpletons, and fix for themselves sources of regret and loss; that the tenement market was overstocked with more houses on hand than sufficient to supply demand for years to come. But then, as now, there were those who heeded not the wail of discouragement, nor listened to the words of the would-be wise; but, relying upon their own more advanced ideas and better judgments, they chose to be guided by the signs of promise that omened better things, and pointed to that which has followed. Since then all of

7,000 building improvements

Have been made in San Francisco alone, and hundreds of owners are reaping the benefits resultant from a right conception of the then prospective needs and requirements, and the near future demand for more buildings. And although the voice of the croaker has been more or less continuously heard, from then until now, and still daily vexes the ears of those who have faith in the future of our great city, and the princely State of the Pacific Coast—California—the great building interests of this city falter not, as if, in addition to the growing wealth and the wholesome and promising condition of business, and matters and things generally, some powerful, irresistible hand or force of destiny was influencing, impelling and directing the minds of the whole people to permanent investment in houses, lands, and realties.

are more houses needed?

Some will answer, No. So it has been said every year during the past twenty-five, and every day of that quarter of a century. But experience proves the fact that, excepting the period made dark and gloomy by the horrors of sand-lot-ism in its day of prowess and glory, there has been no time when tenement property was a drug in the market; and judging from all the signs of the times, past, present, and prospective, building may go on as it has done during the recent past years, and 1890 will find, perhaps, ten thousand houses added to the present number in San Francisco, with demand equal to supply, and proportionately no more "to let" signs out than there are to-day.

The Sugar Pine of California

IN every practical sense and working quality it is equal to the white pine of the Eastern States—Susquehanna, Albany, etc., with the if's herein noticed. It derives its name from the sugar-like substance that exudes to its surface upon exposure. It also contains considerable pitch and gum, which is the *if* referred to, inasmuch as their presence is somewhat detrimental, in that they cause shrinkage, and the pitch, unless held back by shellac or similar preparations, will force its way to the surface, through any number of coats of paint, and in special pieces containing an excessive quantity of the resinous matter, it is almost impossible to prevent blistering. This works bad when china gloss finishes, or grained or polished work is instituted.

fresh water seasoning

Is all that is required to make this product of the forests of California equal to any white pine produced in the United States. We have demonstrated this fact, and state it from personal experience. The more thorough and continuous, within reason, the water seasoning is to each separate piece, the more complete will be its effect in the removal of the superfluous, natural components of the wood. Rafting and soaking in fresh water and transporting the rafts down rivers and streams to tide water, is about the best that can be done when the fresh water sources are available; but in California this auxiliary to seasoning is not possible. Our sugar pine grows inland, and is conveyed to market by teams or rail, or shipped on small vessels at certain points. Were it even possible to float it in the Sacramento or other fresh water rivers, there would be thirty miles of ocean salt water to cross, and the strong ebb and flow of the tide of San Francisco Bay to encounter, before it could reach the market in this city. But even such rafting and floating, while it would improve the lumber to a considerable extent, would not wholly remedy the difficulty, for the reason that the large quantity of gum and sap in it can only be entirely removed by thorough soaking and friction. The bath process would nullify but not wholly dissipate the objectionable substance—still the benefit that any application of fresh water would be to sugar pine, would be worth all it would cost, where sugar pine is used for specially fine work or finishes. Reduced to its possible condition, the sugar pine of California would rank high among the white pines of the world.

Size of Rooms and Halls—Width of Carpets.

EDITOR California Architect: I wish the architects, builders, or whoever is responsible for the size of rooms and halls in the average house, had to buy and fit the carpets. If so, I am sure they would soon learn a very useful lesson; a lesson they should all know and practice, that is to make rooms the right size for carpets. Let me illustrate what I mean. It has been my fortune or misfortune to occupy many rented houses.

One on S Street, with four carpeted rooms downstairs and the same up-stairs; every one of these rooms was 12 feet, 4 inches wide. In length they varied, but five of them were from four to six inches too long for even widths of carpet. The hall was 56 inches wide. To carpet this house cost at least from $20 to $30 more than if the builder had given a thought to the fact that carpets are always 27 or 36 inches wide. The hall was eight yards long; so, you see, it took 24 yards to carpet it. At least that is what I had to pay for, when, if the hall had been 54 instead of 56 inches wide, 16 yards would have done. Two inches taken off the hall would have saved a great deal of bother, besides from $5 to $20 on every new carpet, and in no way marred the usefulness or beauty of the hall, and the same with the other rooms. Had the parlors been made 5 inches wider, and the other rooms that much smaller, all would have been improved, as the parlors would have been 4¼ yards wide, and the other rooms 4 yards, less one inch. It is easy to cut off or turn under a few inches of carpet, but expensive and bothersome to add that much. Even where a room is one inch too wide for a carpet, it is very annoying and expensive. In most cases a moment's thought on the part of the architect would remedy these defects, at least I regard them as defects, and quite expensive defects too. Take a room 4 by 5 yards, and even 20 square yards covers it. But suppose this room 4 yards and 3 inches, by 5 yards and 3 inches, and your carpet of a large and showy pattern, and from 25 to 30 yards are required. As Brussels carpets are most used, and Ingrains are more easily patched, the principal rooms should be made to fit the even sizes of Brussels. You have nice double parlors, and you choose a nice Brussels and find your center width just one or two inches too narrow to meet your borders, and even one inch compels awkward patching and perhaps from $20 to $50 extra expense. This cannot in all cases be avoided, but in the vast majority of cases, rooms and halls can be made the right size for carpets, and ought to be.

Another point—try to fit a carpet around a door casing with heavy moulding, and you have to cut and fold and twist, and then you leave an unsightly, dust-catching corner, as you cannot make the carpet fit neatly around such mouldings. Now, Mr. Architect and Carpenter, let a woman give you a very useful lesson: Do not let such mouldings touch the floor; leave about a quarter of an inch space, and then the carpet can be neatly slipped under them. Nearly all rooms have to be carpeted, not once, but every few years; and carpets have to be put down at least once a year, and many economical housewives have to change the carpets so as to equalize the wear and tear, and the architect or carpenter that compels them to add inch strips and fit around awkward mouldings, adds 25 per cent to their cost, and is very ignorant of an important practical point in his business.

Mrs. R.

Alameda, Jan. 12, 1886.

Professor Trilobite (eloquently)—"Yes; all things came by chance, and the great globe itself, like a mushroom, sprang up in the night." *Little Bessie Brighteyes*—"I should like to know, please, sir, where the seed came from."