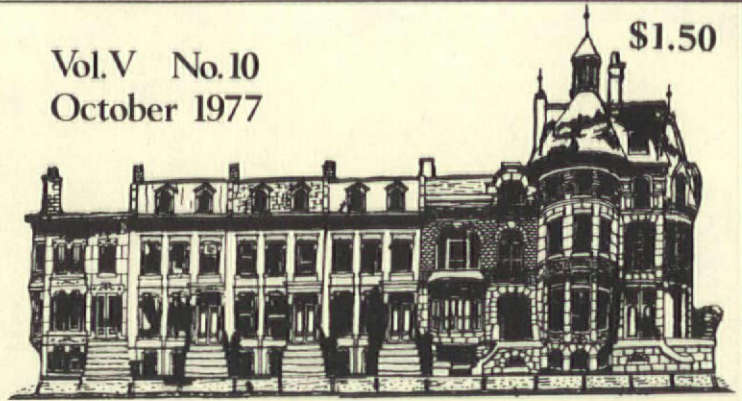


THE OLD-HOUSE JOURNAL

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Restoration And Maintenance Techniques For The Antique House

Using Wood Stoves Safely

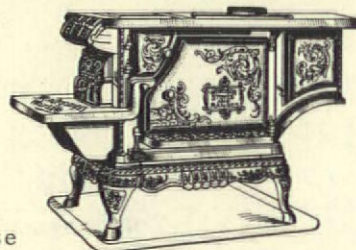
By Lynn Diller

WE LIVE IN NORTHERN MICHIGAN where wood is readily available. As a result, we know more and more people who are turning to wood as a source of heat—either as a total home heating system, or as a supplement to other types of heat. Unfortunately, we also know of a rising frequency of house fires in our area caused by wood stoves. Wood heat can be very satisfying—but it can also be dangerous if you have no prior experience.

THERE IS A BROAD SPECTRUM of stoves available, but I will confine myself in this article to two main types: Box stoves (illustrated below) and Franklin fireplaces. I will also make no secret of my dislike of Franklin fireplaces. Although they were a great improvement over conventional fireplaces 200 years ago, they cannot compare in efficiency with box stoves. The reason: Air flow.

THE WAY TO CONTROL how a wood stove burns is by regulating the air flow. The more you can control the flow of air through the stove, the more heat you can get out of a given amount of wood. We learned a long time ago that there is a great deal of difference between burning wood and heating with wood.

OUR NEIGHBORS heat with a Franklin and we with a 40-year-old Ivy box stove. We can go over to their house



and in an evening they will feed their fire 3 or 4 times. When we come home, our box stove is just ready for more wood.

FRANKLIN STOVES also require special safety precautions. I know of serious house fires started when logs rolled out of the doors of the stove. The doors have catches—but I guess people are reluctant to fiddle with them when they get hot. There's also a very real danger from sparks; I've seen many a rug with little black dots all over it from flying sparks. Never go away with the door to a Franklin stove left open!

BESIDES CONTROL of air flow, another important factor is the amount of cast iron. A general rule of thumb is: The more cast iron, the greater the heating capacity of the stove. An efficient stove will have cast iron chambers and baffles to absorb every bit of heat possible from a fire.

SOME NEW STOVES also have thermostatically controlled drafts. The cooler the room gets, the more the thermostat will open the draft to get a more vigorous fire. The only drawback to this system is that on a long cool night all the wood will be burned up while you sleep and you'll wake

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Coming Next Month

ADDING STORAGE TO THE OLD HOUSE

Rats vs. Restoration In Virginia

By Gail Niedernhofer

THIS IS A "coping" kind of article and "after" will be several years from now. There must be many of you somewhere in the middle of a restoration of a lovely, stubborn old house who will take comfort from knowing others have had to face problems as bad as yours.

MY HUSBAND, Dean, is an engineer with the Federal Government. We have spent the past two years looking for "our" house to restore near Washington, D. C. It was a natural progression for us, as Dean restores old cars and I restore old furniture. We had simply outgrown the space we had. It took only twenty minutes to determine we had found it when we finally saw it in June 1975.

PARK GATE dates to about 1750 and is a frame house whose style is common to Tidewater, Virginia, sometimes called "split-lean-to." It had no heat, two rooms with electricity and water to the kitchen sink. Typically, the kitchen was detached from this old Southern home. George Washington is said to have visited his niece, Matilda--the original owner--on occasions for tea.

IT TOOK FIVE MONTHS, five contracts and four cherry pies to convince the owner that we would be good for Park Gate and did mean to restore it and remain in it. We signed in October, settled on April for a transfer date, and were left with a winter for research and plans. We made many measurements and Dean enlarged these into drawings. We had to find room for an oil hot air furnace and its duct work as Virginia is warm enough in summer to warrant air conditioning. Dean sized the furnace and ducts after doing the necessary heat loss calculations. He also diagrammed the electrical loads.

OUR GREATEST ASSIST AND ENCOURAGEMENT from the beginning has come from Dean's brother, Bob, an architect, who with his wife, Pat, are currently restoring the oldest house in Alton, Illinois. Tapes and drawings were always in the mail for consultation. My Dad sent a sympathy card.

WE AGREED to let the owner have one year to move his 400 chickens in their three houses, provide water and electricity for his chicken houses during that time, give him the use of ten acres for growing corn for his chickens for three years, and keep our children quiet near the chicken houses and Park Gate was ours.



WE SADLY decided that the plaster was too badly detached to save. It all had to go. We spent all of our precious weekends before we moved in taking down 40 cubic yards of plaster and hauling it away with the help of four high school football players we hired. Our reward was seeing the incredible structure that was our house. The timbers were massive, hand-hewn, mortised, tenoned and wood-pegged. There were two beautiful scarf joints at center front and back. It was truly tempting not

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Gail is removing the last of the lath and plaster in the corner of the dining room.

to replace the plaster. It was apparent that we would never have gotten Park Gate wired, heated or plumbed with the cross braces and diagonal braces as long as the plaster was up.

IN ORDER NOT TO HAVE to build another chimney, our furnace was to be a horizontal oil furnace hung from the joists in the crawl space under the kitchen. It would use the old wood stove chimney in the kitchen as a flue. This necessitated covering all wooden structures within 18 in. such as joists and new uprights with metal and asbestos.

THE REAL BLOW came when we discovered the chimney was filled with concrete to a height of 5 ft. above the kitchen floor. This meant that to be safe and to pass fire codes, a fireproof chase must be built to house the flue until it could enter the chimney. The accompanying duct work would require 2 ft. of our kitchen space.

OUR LAST CHORE BEFORE MOVING in was to have an exterminator treat the entire house. He drilled around the foundation at regular intervals and pumped in chlordane. Above ground level he wet every board in the house and we remained out of the house for 24 hours.

FEELING WE NEEDED more time, we tried to postpone moving day. Two things deterred us. First, the mover threatened to sue us. Then our third notice of insurance cancellation arrived in the mail. Each policy had lasted long enough for the agent to drive by and see what they were insuring.

THE ONLY HOPE LEFT (and it turned out to be a good one) was a farm policy. But the building must be occupied. The policy was for far less than Park Gate was worth—but the agent agreed to a larger rider on our contents and one on the barn. He also agreed to increase the insurance in increments as significant portions

of the work were completed.

AND SO WE MOVED. It was a day whose horrors were calculated to make us say NEVER AGAIN! We had contracted for a van and 4 men to move our packed unbreakables and heavy antique furniture. When I saw 3 very slightly built young men arrive, I could only think of the 600-lb. chopping block on the front porch! At 5 p.m., they were joined by 3 others and another van. At 1 a.m., we finally waved goodbye to them from the porch at Park Gate. Pack rats should never move!

AMONG THE HIGHLIGHTS of our unpacking was the discovery that all the bed slats had been carefully numbered—but didn't say to which bed they belonged.

OUR LIFE STYLE WAS PRIMITIVE for our utilities were minimal. We had a bathroom with an old sink, cold water only, a clawfoot bathtub with no plumbing and a flush toilet—which had been my present for Mother's Day. There were no walls which meant we had to staple black plastic around the necessary room.

THE FIRST TWO WEEKS we were at Park Gate were extremely hot. With no walls or ceilings, the heat quickly built up under the tin roof. Sleeping was easier with an old window fan in a hall window and several expanding screens in bedroom windows. On the first cool night we went off to sleep to country sounds without the fan.

WE AWOKE ABOUT MIDNIGHT to an incredible din that sounded like bowling in the kitchen. Investigations then and at 3:30 a.m. brought quiet, but we had obviously been invaded. In the morning it was obvious that the robbers had been bowling with a peck of new potatoes. They had lifted them out of a small paint bucket on a shelf and dropped them to the floor to roll out.

WE DISCOVERED OUR MARAUDERS that evening when we locked up the barn. A flashlight into the chicken house showed dozens of large forms lined up at the chickens' food trough. Park Gate was overrun with RATS!



Laura, John, Nancy and Gail tuckpointing fireplace in dining room. John is cleaning original bricks before replacing.

BECAUSE THE OWNER of the chickens liked to sleep late in the morning, he routinely left the troughs full of water and feed mash for the chickens to breakfast on, instead of clearing them out each evening.

WE HAD BEEN ABLE TO LAUGH our way through our previous crises, but this was no laughing matter. Our treatment had to be swift, practical and effective. We called the chickens' owner and told him of our finding and that he must empty the food and water each night. I called an exterminator and he set out ten bait boxes, two under each chicken house, two under the slave quarters and two high in the eaves of the cellar. We had the exterminator bill the owner of the chickens.

I WENT TO THE county extension agent for literature on rat control. There I discovered that rats prefer a varied diet and on that basis, I bought some of every available rat poison and distributed it in their runways. I called the commonwealth attorney's office and discovered that there are no statutes on rats as a nuisance, but we did get a lot help from the Environmental Health Office.

A SANITARIAN CAME OUT, inspected several large rat carcasses and their obvious access to all our buildings. He wrote a strong letter to the owner calling the situation an obvious health hazard. He reinforced our request for food and water to be taken up at night and for cleaning of the chicken houses. Dean purchased a .22 gauge pistol and shot several dozen each evening.

WE CONSULTED WITH OUR ATTORNEY about the letter from the Environmental Health Office, more to warn him that we might do something drastic if the situation didn't clear quickly. We phoned the neighbors to warn them that the rats might spread out, looking for new homes.

WE SET HARD TO WORK mortaring up the many rat hole air spaces in the foundation. A moment to remember occurred when Laura and I were mortaring side by side. She said, "Some moms teach their daughters things like baking and

sewing, but you teach us neat things like mixing cement and patching walls."

A DESPERATE CALL was made to a neighbor with a trailer. They graciously said we might borrow it for as long as we needed it. We went right after it and parked it in the yard for sleeping. We had the feeling that Park Gate was only ours during the daylight hours. The next day we got a kitten whom we promptly named "Killer." We had big plans for him.

THE FOOD AND WATER in the chicken houses still were not being taken in at night and our ideas ran the gamut from a bulldozer to arson. If the chickens hadn't been such tough old birds, we might have had a "chicken fry." We priced power equipment to move the chicken houses and even priced new, rat-proof chicken houses. We finally settled for giving the owner 30 days to remove the chickens.

THE TRAILER SUITED us very well. It slept 5 which matched our head count. During the days we continued mortaring the rat holes first from the exterior and then worked our way around the inside. The final step was to case the sill beam with tin flashing.

OBVIOUSLY THE RATS HAD FREE RUN for years because we found a large handmade door key, a clock key, a thimble and a glass stopper in the walls. There were also hundreds of peach, plum and cherry pits and bushels of black walnut shells. When the seige seemed over, three weeks later, we returned to the house to sleep. Nancy, age 7, told of nightmares for several nights, but John, age 9, offered to sit up with a club. Thankfully, there have been no more night noises and only one batch of mice, expertly handled by Killer.

WE ARE VERY HAPPY in our lovely, stubborn, old house. We love the work and the distractions from the work, such as friends and neighbors dropping by. We only wonder what we used to do in our spare time and look forward to taking "After" pictures someday.



Dean and Gail completing rough-in of upstairs bathroom in the master bedroom.



The children are putting the old glass from the rotten sash into the new sash.

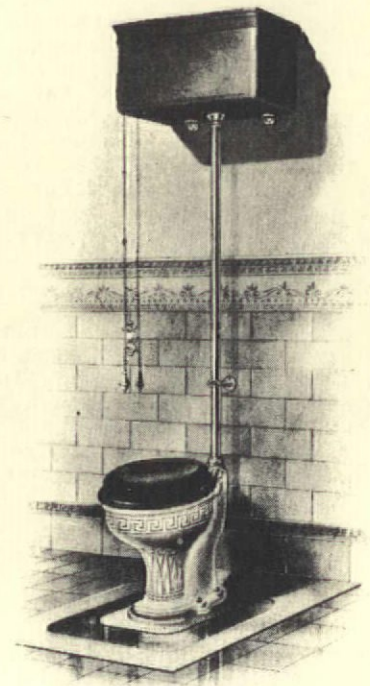
Keeping High-Tank Toilets In Working Order

By Don Yule

I HAVE PREVIOUSLY WRITTEN for *The Old-House Journal* (Sept.-Oct. 1976) about the repair and use of the coal stoves in our 1879 Brooklyn brownstone. Besides the stoves, all other equipment in our house is also original—including the plumbing! While it is delightful to live in a house that is a working museum, it does take a little ingenuity to keep everything in working order. Here I will describe our Victorian-era toilets and the repairs that I have had to make.

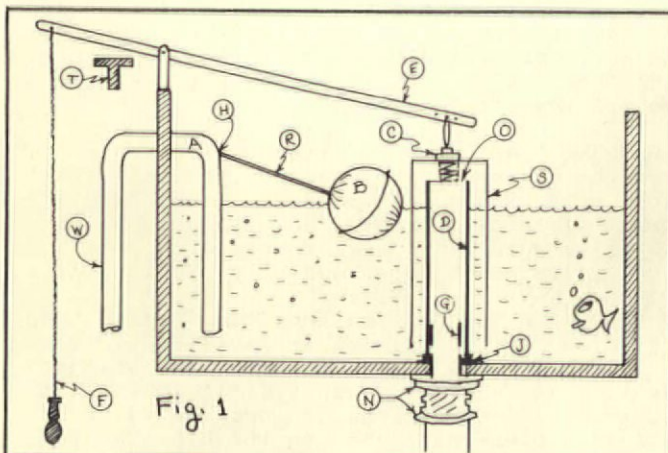
BELIEVE IT OR NOT, the inventor of the reservoir tank flush toilet was named Thomas Crapper. He and his family operated a large factory in 19th century England that was devoted to the manufacture of plumbing fixtures. Mr. Crapper was a respected member of the English industrial establishment.

AN EARLY VERSION of one of Mr. Crapper's inventions is placed in a closet-sized room on the top floor of our house, in between the two bedrooms. Open the frosted-glass-panelled door and—voilà!—the ceramic "throne" mounted on its slate base. The seat and lid are golden oak—as is the flush box which sits on iron brackets seven feet above the floor. A brass pipe leads from the flush box down to the bowl, and a chain with a wooden handle on the end hangs down from the left side of the box.

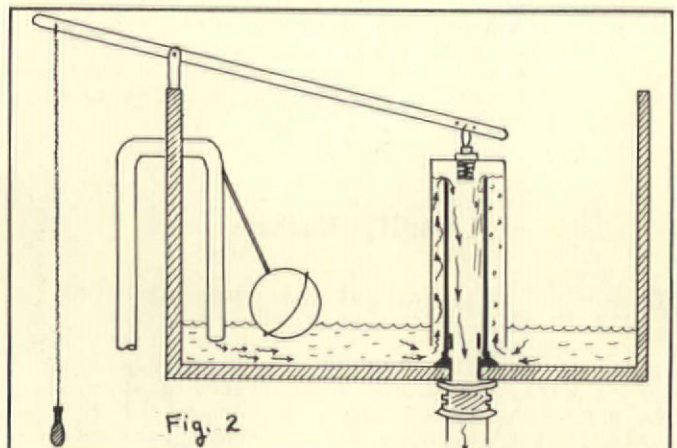


ALTHOUGH THE FUNCTIONING of this type of toilet is similar to the modern variety, there is a fundamental difference in the operating principle. Whereas in a modern toilet the water descends from the box into the bowl by gravity flow, in the earlier high-tank toilets the water is siphoned down.

FIGURE 1 SHOWS THE FLUSH BOX in the full position. The float valve (A) is held closed by the high position of the float ball (B), buoyed up by the water level. In operation, the chain (F) is pulled down, raising the valve sleeve (D) and the outer cannister (S). Water starts rushing through the perforated tube (G). The water rushing down through the pipe to the bowl creates a partial vacuum inside the valve sleeve. When the chain is released, a water-tight seal is



Critical elements are the valve sleeve (D), the valve gasket (J) and the outer valve cannister (S).



When valve (D) is lifted, water rushes into pipe (G), setting up a siphon that draws rest of water through (O).

again formed at (J) when the valve sleeve (D) drops. However, the vacuum inside the valve causes the water to rise between the cannister (S) and the outside of the valve sleeve (D) until it reaches the overflow hole (O) at the top of the valve sleeve. A siphoning action is thus started, and the rest of the water in the flush box is drawn out through the overflow until the water level reaches a hole in the bottom of the cannister (S) and the siphon is broken.

AS IN A MODERN TOILET, the float falls with the descending water level, opening inlet valve (A) and admitting water to refill the tank. This type of flush box is inherently more durable and trouble-free than the modern type, but after a century of use, naturally some repairs were required. If you have a similar toilet, you may have encountered some of the following problems, for which I offer my solutions.

A Perpetual Drip

IF YOU HAVE THE FAMILIAR situation of a perpetual drip from the flush box into the toilet bowl, the flush valve gasket (J) may need replacing. This is a collar of rubber or leather that fits under the flush valve unit. To reach it, unfasten the flush valve cylinder (S-D) from the lifting arm and remove it from the tank. (I am assuming that you have first turned off the water supply to the flush box!)

THE GASKET WILL BE FOUND fitting snugly around a perforated pipe (G) that sticks up a short distance into the tank. If this gasket is old, it may be very hard and you may have to cut it with a blade to get it off. Try to keep it in one piece, however, as it will be very handy when trying to find a new one. The rubber "dripless" kind can be found at most large plumbing supply stores (in Brooklyn, at least). But they come in many shapes and sizes—which is why it is handy to have the old one with you. To install the new one easily, oil it first, then slip it down over the perforated pipe and press it down evenly all over.

IF YOUR GASKET is the flat leather variety, you can make a new one yourself from single-ply leather...most easily obtained from the tongue of an old shoe. Just trace the outline of the old gasket with a pencil and cut it out with scissors.

Faulty Gaskets

TWO OTHER GASKETS that may cause problems are located where the flush tube exits from the tank. If either leaks, first try tightening the collar nuts (N). If this doesn't work, you can remove either gasket and make a new one from leather or rubber. For double leak insurance, coat the new gaskets with Permatex gasket cement before installing.

Tighten the collar nuts only snugly, as the gasket might bunch up or be squeezed out to the side if the nut is turned too tight.

ANOTHER CAUSE OF DRIP is if the float valve is incorrectly adjusted, allowing water to run out the overflow (O). This is remedied by bending the rod (R) downward so that the float is lower—achieving a correspondingly lower water level in the flush box.

SOMETIMES THERE IS A GASKET under a collar nut that connects the float valve to the water supply line (W). I find that a 1/2-in. faucet washer works perfectly here. Another cause of valve malfunction can be a worn screw (H) that acts as the hinge for the float rod and ball. Be sure to replace with a brass screw, as steel would rust quickly.

ALSO, THERE IS A RUBBER SEAT inside this valve that might need replacing if the water cannot be completely stopped by lifting up the float ball. The float valve may be unscrewed in half to reach this rubber seat. Clean off all corrosion with brass polish while the valve is apart.

Mending Copper

THE FLUSH BOX normally has a lining made of copper. Mine had several pinhole leaks caused by corrosion and by the float ball rubbing against the inside of the tank as it rose and fell. The seams of this liner can be re-soldered—as can any holes—but I found plastic steel also works well for this repair.

ONE PROBLEM PECULIAR to siphon-type flush boxes is a leak in the copper shell (S) that surrounds the flush valve (D). If there is a major air leak here, the siphon action will not work and you will be obliged to hold the chain down to get all the water in the box to drain down into the bowl.

THESE COPPER SHELLS are held in place by a nut (C) on the center rod of the flush valve unit. This nut may be loose, or the gasket under it may need replacing. An open seam or other hole in the shell may be soldered or repaired with plastic steel. If the shell is too far gone, you may be able to obtain a new one at the plumbing supply store. Or you can fashion your own from an appropriately sized plastic bottle. Just cut the top off so that you have the same length as the original shell, punch the correctly sized hole in the bottom, and you'll have a unit that will work as well as the original item.

I HAD ONE FINAL PROBLEM with out flush box. When the chain was pulled too vigorously, the flush valve would pop up farther than its normal distance of travel and get hung up on the valve guide. To operate properly, the flush valve needs be raised only about 1/4 in.

TO GUARD AGAINST this malfunction, I fashioned a stop out of a metal ell brace (T) and screwed it to the wall in back of the tank so that the lifting rod would bump against it when it had travelled far enough to open the valve. I glued a piece of rubber to the brace where the rod strikes it for silent operation.

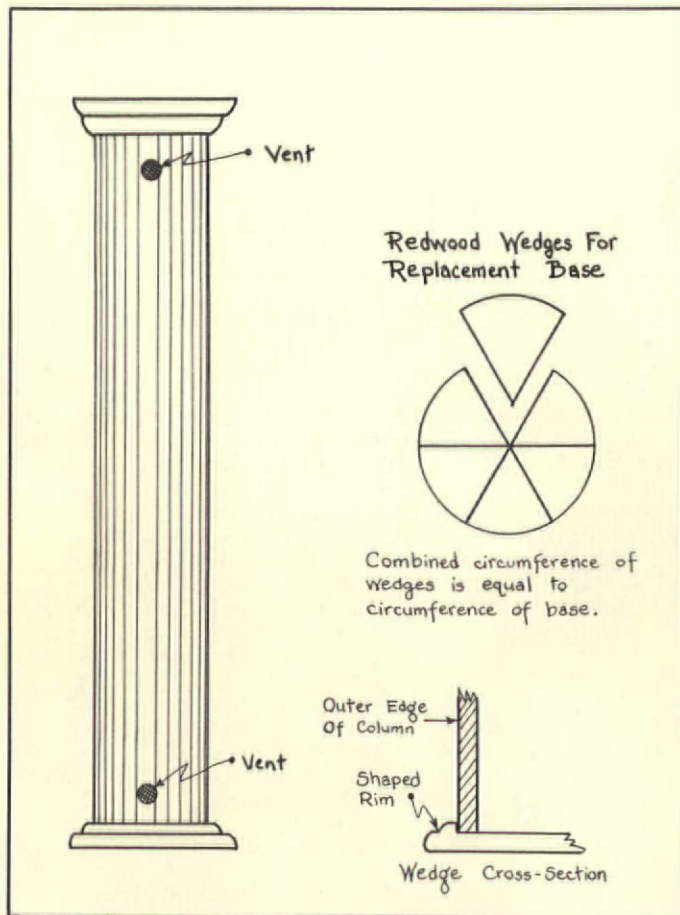
NOW THE VALVE WILL only open the correct distance, no matter how vigorously my five-year-old son yanks the chain! ■ ■

Preserving Wooden Columns

By Betsey Creekmore

WOODEN COLUMNS, especially those which have been moved from the structure to which they were originally attached to another dwelling, require close monitoring on a regular basis to ensure that condensation formed within has not caused deterioration of the wood at the base of the columns. Fluted columns are particularly susceptible to condensation formation.

CONDENSATION INSIDE the column occurs even when the columns have been properly stripped and treated with a wood preservative, then sealed at top and bottom and regularly and properly painted. The outward sign of wood deterioration due to internal condensation is paint peeling wetly off the base of the column. Confirmation of serious deterioration is made by peeling off approximately two in. of the paint from the base at one of the base seams and prying out a small piece of the base. If the wood has deteriorated, a piece is easily pried out and will be thoroughly waterlogged. By reaching inside the column through this hole, surrounding base wood and flute braces will feel much like a stiff wet sponge.



PREVENTIVE PRESERVATION should be practiced by column-owners to avoid wood deterioration. In order to prevent condensation from causing deterioration, each column must be properly vented. This venting process is accomplished by drilling a hole the width of one flute or, if the columns are not fluted, approximately two in. in diameter, about five in. up from the base of the column. At least one additional vent should be located approximately five in. down from the column capital.

THE OPTIMUM LOCATION and size of the vent holes vary with the height and girth of the columns and their exposure. An architect, engineer, or general contractor should be consulted to determine optimum placement, size, and number of vents for the particular column.

THE VENT HOLES MUST remain unclogged, but it is necessary to cover them with fine mesh screening (painted the color of the column), or a commercially available vent plug. The covering both conceals the holes and prevents wasps and birds from building nests in the column. Care must be taken when painting the columns not to clog the vent holes.

VENT HOLES ARE REQUIRED for pilasters, as well as for columns, and should also be placed in the space between the porch roof and ceiling to provide cross-ventilation. If the pilasters are not vented, their bases may deteriorate in the same manner as the columns. An unvented space between porch roof and ceiling will also collect condensation and deteriorate, a sign of which is the appearance of rust spots through the paint around the nails on the ceiling boards.

IF THE PAINT DOES PEEL OFF the bottom of a column base and a test indicates deterioration, the bases will have to be replaced. At this point, although the first step must be to vent the columns properly, the deterioration will have resulted in weakening the bearing-strength of the base and, over time, the column will settle through the base, resulting in its being pulled loose from the column capital and, eventually, falling.

WHEN THE COLUMNS HAVE BEEN VENTED, replacement of the base should be undertaken. To replace the base, cured and treated redwood should be acquired, approximately 1/4 in. thicker than the base. Pie-shaped wedges should be cut from the redwood boards, with the outer edges of each piece rounded, or shaped, with a router so that the contour of the original base is preserved. All pie-shaped wedges should be cut, shaped and fitted together to insure that the circumference of the circle formed by combining the wedges is the same as that of the base of the column. Each column must be measured, since there will probably be minor variances in circumference among columns.

WHEN THE PIE-SHAPED WEDGES have been cut and shaped, beginning at the test hole (located at a base seam) remove enough of the deteriorated wooden base to allow placing of the first wedge. The wedges must fit tightly, so the first wedge should be used as a model for the other wedges. The wedge should be planed from the point toward the edge to the point that it is to fit under the column. A rim, with the same contour as the original base should be left at the outer edge.

AFTER THE FIRST WEDGE is in place, the process is repeated with the other wedges, until the

old base has been completely replaced. Cracks between wedges should be sealed (marine caulking compounds designed to repair boat hulls are excellent) and smoothed. When the sealant has cured thoroughly, the base may be painted.

THE PROCESS FOR VENTING and replacing the bases of pilasters is the same as for columns, except that rectangular wedges rather than pie-shaped wedges should be used in base replacement. When columns, pilasters, and porch roof have been vented, an annual termite check should be made.

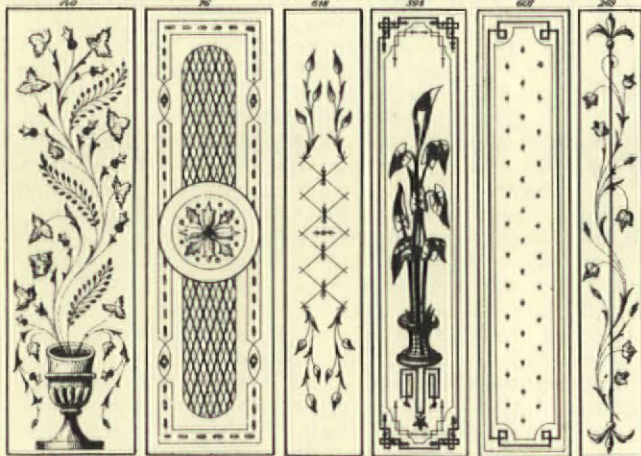
Getting Cut Glass Reproduced

OUR HOUSE ORIGINALLY had cut and ground glass panels in the front door and in the sliding doors between the front and back parlors. The latter had been broken when a former owner built partitions to convert the house into apartments. We undertook an exhaustive search to have replacements made for us; what we discovered may help other old-house owners facing a similar dilemma.

FIRST THING WE FOUND OUT was what this art is called by its practitioners today. It is usually called "floral etching," "mitre cutting" or "floral engraving." When shops refer to "carved" glass, they usually mean etching by sand-blasting. Not understanding this distinction sent us on several wild goose chases.

NEXT, WE FOUND OUT how cut and ground glass is made. First, the glass is fogged by chemical etching or sand-blasting. Then the glass cutter—using a specially shaped grinding wheel—moves the glass over the grinder to make the mitre-shaped cuts that form the pattern. All the work we saw was done free-hand.

GEORGE O. STEVENS' ILLUSTRATED PRICE LIST, BALTIMORE.



PATTERNS OF CUT AND GROUND GLASS. (Double Thick.)
For Prices see page 80

THE GROOVES AND CUTS are then polished until they are clear. Because of the extensive handling required, today's craftsmen work with plate glass to avoid problems of breakage. This is usually thicker than the original and, in our case, required that we re-shape the mouldings in the door.

SINCE THE CRAFTSMAN must move the glass over a stationary wheel, many objected to the size of our panels—over 6 ft. long—because they lacked room to turn the glass. Some design elements were deemed impossible or too difficult. For example, a motif with a central 6-in. circle could not be done because it required rotating the panel in a full circle over the grinding wheel. In general, "bar glass" styles with diagonal lines or sunbursts of straight lines were cheapest. Designs with geometrically perfect circles and arcs were expensive or impossible.

IT WOULD HAVE BEEN POSSIBLE to make a less expensive counterfeit via simple sand-blasting. In this method, the areas to remain clear are covered with some sort of contact stencil and the remainder of the glass is sand-blasted lightly to achieve the fogged background. In this process, the clear areas are slightly higher than the fogged area—exactly the reverse of the cut-glass effect. Too, the clear areas are not faceted, so the end product does not sparkle the way cut glass does.

WE OPTED FOR THE FULL cut-glass process. We provided the shop with a full-scale drawing of the agreed-upon pattern. We adapted a pattern from the George O. Stevens "Illustrated Price List." This is an 1879 catalog that is reprinted in "Architectural Elements" (Pyne Press, Princeton, N.J.). The cost was \$400 for four panels 6 ft. x 8 in. wide. We are quite happy with the result, even though the craftsman's technique was not quite as fine as the original.

OUR PANELS were cut by Martin's Glass Art Studio, 422 E. 75th Street, New York, N.Y. 10021. Another shop we found that did cut glass work was Paul's Cut Glass, 29-10 36th Ave., Astoria, N.Y. 11106. Two shops that do sand-blasting of glass are: Carved Glass and Signs, 767 E. 132nd St., Bronx, NY 10454; and N.Y. Carved Arts Co., 115 Grand St., New York, N.Y. 10013.

Nancy Couturie
Hoboken, N.J.

(Stove Safety—Cont'd. from pg. 109)
up to a cold stove in the morning.

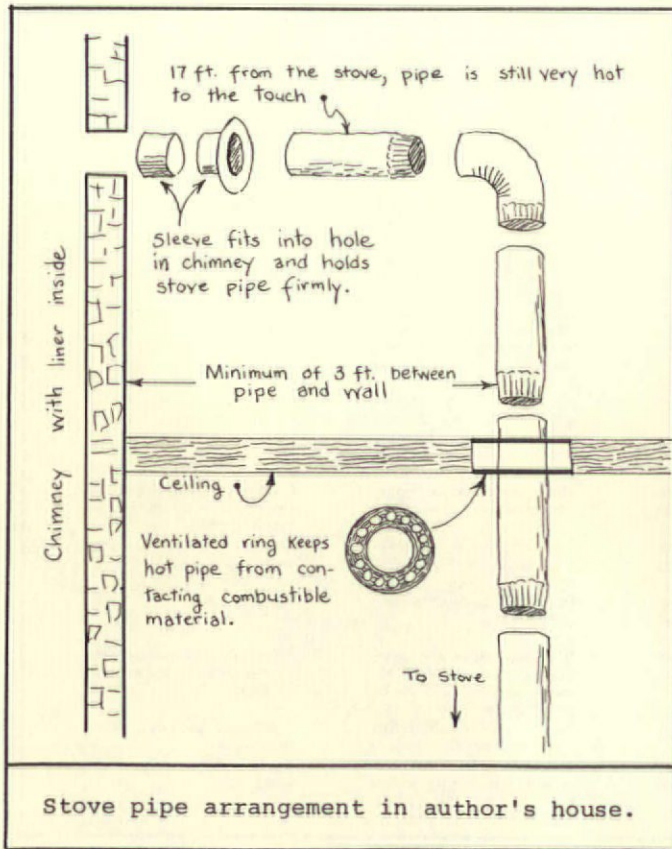
Chimney Hazards

MOST OF THE HOUSE FIRES caused by stoves result from faulty chimneys. All old chimneys (and some new ones) should be lined. You can buy metal chimney liners that go together in sections and which can then be slipped down into your chimney. (This procedure obviously won't work with chimneys that have bends and doglegs in them. These call for tile liners.)

WE FOUND IN LINING our old chimney that even "straight" flues aren't always that straight. We were finally able to wiggle the liner into position—but with much difficulty. We then wired it to the top of the chimney.

THERE IS A SLEEVE or "thimble" where the stove pipe enters the chimney wall. Make sure that the sleeve is tight and doesn't wiggle; all openings should be cemented tight.

MAKE SURE ALSO that the stove pipe has adequate ventilation around it wherever it passes through floors or walls. An old house will probably already have a "donut" or some kind of grate that holds the pipe safely as it passes through a partition. A hot stove pipe that contacts a partition directly can easily start a fire. The gases in our stove pipe travel 17 ft. before they enter the chimney—and the pipe is very hot to the touch at the chimney sleeve.



AS A GENERAL RULE, it is advisable to have the stove pipe travel as far as possible vertically before entering the chimney. This allows the gases to cool down somewhat—and gives you better control of the draft. A pipe that goes directly from the stove to the chimney through a wall (as it has to in a one-storey house) is a potential hazard.

Stove Pipe

STOVE PIPES come in different gauges of metal. Get the heaviest gauge possible. Light gauge pipe will be eaten away by the accumulation of crud inside. (Sheet metal stoves will also burn away in a couple of years!)

THE METAL-ASBESTOS PIPE is a great improvement over the old plain sheet metal pipe. This is a pipe with a layer of asbestos over it—with a cladding of metal on the outside. With metal-asbestos pipe, you can run a complete chimney almost anywhere you want it.

OUR NEIGHBORS had a chimney fire last winter, and it burned the paint off the outside of their metal-asbestos pipe all the way up to the upstairs ceiling. Had this been ordinary stove pipe, they probably would have lost their house. Metal-asbestos pipe is fairly expensive (about \$35 per yard), but isn't your house worth it?

METAL-ASBESTOS PIPE can be run right up through the roof if you don't have a chimney to connect to. But one caution: Some of these chimney kits have metal rain caps for the top that are supposed to be safe for use with wood stoves. But our firechief told us that some of them have screens that can trap soot and cause chimney fires. ALL WOOD-BURNING STOVE SYSTEMS SHOULD BE CHECKED OUT BY A HOME HEATING EXPERT, FIRE MARSHAL, OR OTHER QUALIFIED PERSON!

Cleaning Stove Pipe

AS A PRECAUTIONARY MEASURE, you should clean out the stove pipe periodically. Ash will collect in an elbow and should be scraped out every few weeks to maintain a good draft. Tap your pipe every few days, and if you hear pieces of soot falling it means that the pipe is ripe for cleanout.

FOR CLEANING, you have to let your fire die completely out. Even a warm stove pipe will smoke...so be prepared for a period without heat while the apparatus gets cool enough to work with.

STOVE PIPE is fitted together with just friction; the crimped end being shoved into the open end. So it's fairly easy to jiggle them apart for cleaning. Any accumulations in elbows can be scraped out. For longer sections, take an old burlap bag and stuff it with rags or newspaper to give it bulk and shape. Tie the bag to a rope and pull it through the pipe to scrape the soot off the inside. You can also buy contraptions that will do this job. When the heating season is

over, you can take all the pipes down and have them cleaned at the carwash.

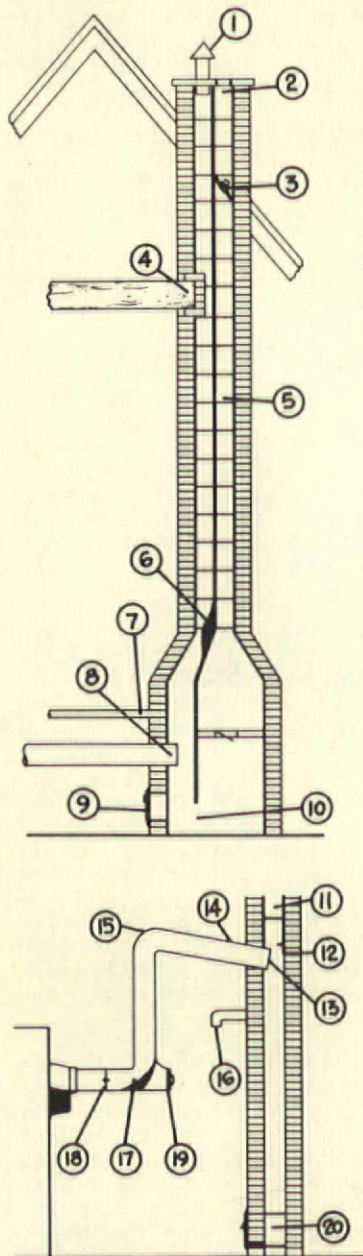
THIS MESSY PROCEDURE is quite necessary to prevent combustibles from building up inside the pipe. If the buildup goes on unabated, it is quite likely that you'll get a roaring fire inside the stove pipe...which is very dangerous!

AFTER YOU HAVE GONE THROUGH the awful job of cleaning a stove pipe once, you'll ask: "Isn't there any way to avoid this?" There is...or at least ways to increase the intervals between cleanings. Burning only dry, seasoned wood will cut down on the need for cleanings. You can also buy soot destroyers. You throw

the soot destroyer into the fire every few days. After using it for several days, the soot will detach itself from the pipe and fall back into the firebox. You will still have flyash settling in elbows and flat spots, but the creosote and soot problems are greatly diminished. If you can't find soot destroyer locally, you can buy it by mail from Cumberland General Store (see box).

ANOTHER SAFETY NOTE: Always be very careful if you use a vacuum cleaner to clean ashes and soot from the inside of your stove. The air rushing into the bag will fan even a very small spark and set the inside of your cleaner on fire.

Twenty causes of chimney troubles and their cures.



No.	Fault	Examination	Correction
1.	Pipe extension not of same area as chimney opening, and extension below opening of cap.	This is ascertained by measurement.	Pipe to be extended and opening to be same as chimney opening.
2.	Chimney opening smaller than inside dimension.	Ascertained by measurement.	Extend chimney above gable of roof. Widen opening to same dimension as chimney area.
3.	Obstructions in chimney.	Found by lowering weight on a line.	Use weight to break and dislodge. Must be handled by brick contractor.
4.	Projection into the chimney.	Lower a weight or light on extension cord.	Must be handled by competent brick contractor.
5.	Break in Chimney linings.	Build smudge fire blocking off other chimney opening, watching for smoke escape.	Must be handled by competent brick contractor.
6.	Collection of soot at narrow space in the opening.	Lower light on long extension cord.	Clean out with weighted brush or bag of loose gravel on end of line.
7.	Two or more openings into same chimney.	This is found by inspection from basement.	The least important opening must be closed, using some other chimney flue.
8.	Smoke pipe projects into flue but beyond surface of the wall.	Measurement of the pipe from within or observation of pipe by means of lowered light.	Length of pipe must be reduced to allow end of pipe to be flush with wall.
9.	Air leak at base of clean-out door.	Build small fire, watching for smoke or flame through the cracks.	Cement up all cracks around the base.
10.	Failure to extend the length of flue partition down to floor level.	This is found by inspection.	Extend partition to floor level.
11.	Broken clay tiles.	Can be found by light and mirror reflecting condition of walls.	All breaks should be patched with cement.
12.	Clay lining fails to come below opening of smoke pipe.	Found by observation through flue opening into chimney.	Clay tiling should be extended below flue opening.
13.	Partial projection of smoke pipe into flue area.	Found by measurement after pipe is withdrawn or by sight from chimney opening, using light on a cord.	Projection must be eliminated.
14.	Loose seated pipe in flue opening.	Air leaks can be determined by smoke test or examination of chimney while fire burns below location.	Leaks should be eliminated by cementing all pipe openings.
15.	Smoke pipe enters chimney in declining position.	This is observed by measurement.	Correct the pipe to permit smoke to enter in an ascending pipe.
16.	Second flue opening below that for smoke pipe.	This is found by observation from within basement.	Change to allow only one opening in each chimney.
17.	Accumulation of soot narrows cross-sectional area of pipe.	Examine pipe from clean-out opening.	Remove soot.
18.	Hand damper in a full closed position.	If handle does not give true position of plate remove section of pipe to ascertain position.	Allow sufficient opening of plate for needed escape of gases.
19.	Clean-out opening on pipe leaks air.	Flames visible when furnace is under fire.	Tighten or cement to eliminate leak.
20.	Clean-out pan not tightly seated in base of chimney.	This air leak can be determined by watching action of small fire built in bottom of chimney shaft.	Cement to eliminate all leaks.

Reprinted from Washington Stove Works' "Parlor Stove Installation Manual."

Additional Resources

STOVE SUPPLIES—Just about anything you'd need for stove operation is available from The Cumberland General Store: Stove polish, soot destroyer, stove pipe and fittings, flue adapters, tin plates for covering old flues, shovels and pokers, etc. Their fascinating 250-page catalog is available for \$3.00 from: Cumberland General Store, Dept. O, Route 3, Crossville, TN 38555.

PARLOR STOVE INSTALLATION MANUAL—The checklist on the opposite page was reprinted from a helpful 8-page brochure on proper installation of parlor stoves. Also shown are 5 models of authentic old-fashioned cast iron parlor stoves that are very well made. You can get the manual by sending 75¢ to: Maggie Stout, Washington Stove Works, P.O. Box 687, Everett, WA 98206.

CONSUMER GUIDE TO WOOD STOVES—An excellent 10-page booklet containing useful purchasing guidelines for wood stoves is available from RAIN Magazine. Compares 6 brands of box heaters and 8 models of automatic wood circulators. Also has tips on installation and repair plus reviews of 8 books and periodicals dealing with wood burning. Send \$1 and ask for Rain Paper #1 to: RAIN Magazine, 2270 N.W. Irving, Portland, OR 97210.

BEST BOOK—"Woodburning Stoves" is the most detailed and practical review of heating and cooking with wood. (See The Journal, Feb. 1977 p. 23.) Many easy-to-follow diagrams and illustrations. 143 pages; hardcover. \$10 + \$1 postage and handling from: Overlook Press, Dept. O, P.O. Box 58, Woodstock, NY 12498.

Keep Your Distance

STOVES AND PIPES should always be placed a good distance from walls and furniture. The dry radiant heat from the stove will crack furniture and loosen veneer. A good rule of thumb: Keep stoves and stove pipes at least 3 ft. from walls; keep furniture at least 10 ft. from stoves.

IF IT IS NECESSARY to place stoves closer than 3 ft. from a wall, you can buy asbestos sheets or special reflective panels to protect the wall. For example, a strong light panel with ceramic tile pattern on it is available from: Frank Rafferty Distributors, 89 High St., P.O. Box H, Belfast ME 04915.

IT IS ALSO NECESSARY to have something under the stove to protect the floor. Some people use bricks or slate under the stove. I prefer the metal-covered asbestos pads made especially for this purpose. You should select one

that sticks out at least a foot on all sides of the stove. They are good for catching falling ashes and coals—and a good place to lay hot stove pokers and shovels.

IT'S A GOOD IDEA to keep two inches or so of sand in the bottom of your stove. This will protect the bottom from warping and cracking—and keep a lot of heat from being radiated towards the floor.

Burning Wood

ONE MAJOR FACTOR determining how well your stove will work is the fuel you use. Soft woods such as pine, spruce and poplar burn more quickly and give less heat than hard woods such as maple, oak or beech. Pine and spruce also have a lot of sap which means a lot of creosote up your chimney. This goo coats the inside of your chimney and a stray spark can easily set it afire. If you are lucky, the fire will be contained in the chimney—but some people are not so lucky. Hence the need for the chimney cleaning mentioned earlier.

THE GREENER THE WOOD, the greater the creosote problem. We know of a fellow who was boasting that he had gotten a really good deal on some "freshly cut, slow-burning pine." It would have been funny if it hadn't been so serious. If he could get the wood to burn at all, his chimney would have enough soot inside to catch fire in a couple of weeks. It wasn't such a good bargain for him!

SOME PEOPLE consider dry oak the next best fuel to coal. But green oak, unlike the well-seasoned material, will gum up a chimney after a while...just as soft woods will. All firewood should be allowed to dry a year before burning. (If you leave it to dry too much longer than that, it will start to rot and be full of ants and other creepy-crawlies when you bring it into the house.)

A LITTLE BIT of rotten wood is good for starting fires and quick heat in the morning. Small pieces of wood give you a quick, hot fire. Larger pieces will burn longer and are good for nighttime when you can't feed the fire so often.

YOUR BOX STOVE can also be used as an auxiliary kitchen range. We leave a water kettle on the stove at all times. It helps to combat winter dryness—and it provides us with a steady source of hot water for coffee or hot chocolate. We rinse the kettle out every day and put fresh water in. Otherwise, deposits will build up and the water tastes funny. Too, don't let a pot on the stove boil dry; the bottom will burn out.

LYNN DILLER lives with her husband in an 1892 house in Lewiston, Mich. They were lucky, they say, because the house hadn't been badly neglected—and hadn't been modernized, either. They presently heat half with wood and half with oil. This winter they hope to use wood completely and just keep the oil as a backup system.

Products For The Old House

Stair Parts

ONE OF THE JOURNAL's subscribers runs an interesting business in Memphis, Tenn. Gang Wood Products makes architectural millwork—specializing in staircases and staircase parts. He'll make anything from a single baluster to fabricating and installing a complete circular wooden staircase.

IN ADDITION to the staircase parts, they can make all types of custom millwork: Gingerbread trim, mantels, casings for doors and windows, built-up porch columns, etc. They will also custom-match any moulding in hardwood or softwood.

TO MATCH A MOULDING, they need a sample or else a full-scale cross section of the piece to be copied. There's a \$50 set-up charge to grind the cutters needed for a special moulding.

FOR QUOTES ON more complex custom work such as mantels and door casings, they'd need a detailed set of plans.

GANG WOOD PRODUCTS primarily serves the Tennessee-Mississippi-Arkansas market, but they can ship all over the country. They have a four-page folder that illustrates some of the types of circular stairs and parts they supply (stamped, self-addressed envelope, please). For other custom work, send details to: Gregory Gang, Gang Wood Products, 1184 Lamar Ave., Memphis, TN 38104. Tel. (901) 725-7472.

Waterproofing Basements

HOMEOWNERS PLAGUED with wet basement walls will get some useful tips in a new 16-pg. booklet called "How to Waterproof Masonry Walls." The illustrated step-by-step guide explains the common causes of water seepage and offers ideas on techniques and products to cure the problem.

THE BOOKLET comes from United Gilsonite Laboratories, which makes Drylok—a waterproofing paint for interior and exterior walls. Drylok contains portland cement and a synthetic rubber binder.

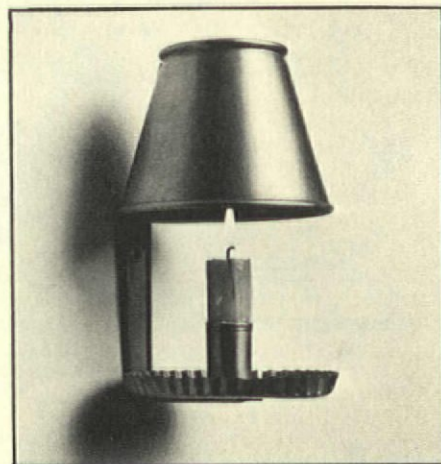
TO OBTAIN A COPY of "How to Waterproof Masonry Walls," send 25¢ to: United Gilsonite Laboratories, Dept. 1048, Box 70, Scranton, PA 18501.

Colonial Tinware

A WIDE RANGE of utilitarian items are handmade by Christopher Nordloh, proprietor of Colonial Tin Craft. Reproductions of early Colonial and 18th Century lighting fixtures are made from tin and wood and range from six-arm chandeliers to sconces and hooded candlesticks.

SOLID COPPER LANTERNS are antiqued to resemble naturally aged copper, and there are tin pie safes as well as a few contemporary adaptations.

THE COLONIAL TIN CRAFT Catalog is \$2.00. Write to: Colonial Tin Craft, Dept. OHJ, 7805 Railroad Ave., Cincinnati, Ohio 45243.



About Those Brass Beds...

IN THE SEPTEMBER ISSUE, we described an attractive line of brass beds made by Joao Isabel. But there was, unfortunately, a typographical error in the address we gave. The correct address is: Cal Donly, Joao Isabel, Inc., 120 East 32nd Street, New York, NY 10016. Their 4-color catalog is available for \$3.

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