

PORTABLE BATH TUB AND WASH STAND.

The accompanying engravings represent a portable bath tub and wash stand combined, now being manufactured and sold by Messrs. B. G. Carpenter & Co., Wilkesbarre, Pa. As may be seen by examination of the elevation (Fig. 1), this article is a novelty, both in its original conception and in the manner of its construction. In one article of furniture there is included a marble-top wash stand and bath tub, hot water boiler and the plumbing necessary to supply the tub with hot and cold water and to carry off the waste. The design of the inventors in its construction has been to arrange it in such a manner that the water supply may be taken from ordinary pipes where it is used in houses connected with city water works, or when employed in the country, from a tank situated in the attic. The inventors claim that it is very simple, and may be satisfactorily operated by even a child. The working parts of the article may be understood by examination of fig. 2. K represents a heater, which may be used of the style shown, or in place of it an oil, gas or vapor stove may be employed. J represents the hot-water boiler, which covers and surrounds the heater K. G represents the hot-water cock communicating with the bath tub. M represents the supply of cold water to the bath tub. B represents the wash basin attached to a marble slab on the wash stand. C represents a ball cock to supply and regulate water in the boiler. J D is a catch pan or waste from wash basin. B E is a waste pipe from the bath-tub F. In locating this article of furniture in the house, reference, of course, must be had to the situation of a chimney with which to connect the stove. The construction, however, is such that the pipes may be attached to the stove through the side or through the back. Not having had the opportunity of personally examining this article, we are unable to comment upon it as we would be pleased to do had we witnessed its operations. We have no doubt, however, that such an article can be made to answer a good purpose, especially in places where an elaborate system of plumbing is out of the question. We learn that quite a demand for the combined bath-tub and wash-stand has already been created, and we are assured by the manufacturers that the same is giving entire satisfaction.—From *Metal Worker*.

DESIGN AND WORK IN CABINET FURNITURE.

I this week present our amateur cabinet makers with a sketch of a wall book-case or whatnot. This is a piece of parlor furniture that is fixed to the wall with screws, or even hung up on two strong nails driven into the wall. It is a series of four shelves of the shape shown in plan Fig. 3. The job may be made in pine, stained and polished, or in mahogany to suit the furniture. Of course, it may also be made in any other suitable wood, as the maker may fancy.

Four shelves are made 3ft. long, 10 in. broad in the centre, and $\frac{1}{2}$ in. thick. They are supported by two upright back straps, $2\frac{1}{2}$ in. broad and $\frac{1}{2}$ in. thick. These are stop-chamfered between the shelves, and finished at the ends, as shown. The shelves are let into these straps about a quarter of an inch, and screwed from behind. The six front pillars are $1\frac{1}{2}$ in. thick at base and cap, and are turned throughout, with tenons to fit into round shelves in the circular corners of the shelves. Underneath the lowest shelf are two brackets. See Fig. 2.

Over the ends of each shelf are fence rails with their ends let into the base of the front pillar, and the opposite ends into the back straps. These fences are 2 inches high, and are cut on the upper edges into semi-circles of 2 inches diameter. A $\frac{1}{2}$ -inch hole being bored through the centre of each circle, a similar fence runs along the back of each shelf. These are to prevent the books or other articles touching the wall, as the case has no back. These latter fences are nailed to the back edges of the shelves; they help to prevent the shelves bending when weighty articles are placed thereon.

This article is used for books, ornaments or other articles, as the owner may have need. It is a very useful article, and may be made by any amateur having tools, as its construction is exceedingly simple. It is specially adapted for small rooms, as it hangs on the wall, taking up no floor space.

I will next week show a wall cabinet, with shelves for fancy books or ornaments.—A. CABE, in *Design and Work*.

RAPID WORK.—On the night of September 1st, 739 steel rails were rolled in the rail-mill of the Bethlehem Iron Company in 700 minutes.

WATER AND CREOSOTE IN STOVE PIPES.

The question frequently arises as to the cause of the wet or creosote running down stove-pipes, and what remedy may be employed. This difficulty is particularly annoying when it happens that the joints or lengths of pipe are so arranged as to throw all the gathered moisture outward, thus staining and disfiguring the pipe. An explanation of the trouble is readily understood, and in part it may be avoided. Almost all fuels commonly used in stoves contain a large amount of hydrogen in some form, usually in combination with carbon, and passing under the name of hydro-carbons. When a hydro-carbon is burned in air the results are water from the combustion of the hydrogen, and carbonic acid from the burning of the carbon. Usually the water makes its appearance, when the smoke is cooled a little, in the form of steam or vapor; a little further cooling and it takes the form of water. Those of our readers who have used kerosene stoves for heating small rooms have doubtless noticed the quantity of moisture which soon collects in cold weather upon the windows. This is the result of the combustion of the hydrogen contained in the hydro-carbons of the kerosene, the steam being condensed upon the cold surfaces. Wood contains, besides a considerable amount of the hydrocarbons, a large percentage of water, even when very dry. When wood is slowly heated, besides the water, acetic or pyroligneous acid, tar, &c., are given off, the whole forming the black, disagreeable liquid usually called creosote. When a brisk fire is kept up in a stove where wood is burned, all the steam, tarry matter, &c., usually pass off into the air before they have time to cool and run down the pipe. If, however, the pipe is very long, the smoke is pretty likely to get cooled on its way out, and then the nasty dripping begins. This often takes place when the fire is first lighted, and lasts only for the little while necessary to heat the pipe. When a pipe drips after the fire is well started and the drafts closed, the remedy is quite easy. A little register is put into the pipe near the stove and is opened whenever the drafts are closed. This allows a free circulation of air in the pipe, and the gases are carried out of the pipe at once, instead of moving along so slowly as to give ample time for condensation. The dripping when a new fire is kindled is a very serious matter, and we are not at all sure that there is any convenient remedy. Reversing the joints of pipe will not do it. With dry anthracite coal there is much less trouble than with wood, because the coal has little or no water in its composition, and if the fire is started with charcoal there is scarcely any steam to condense, and none of the tarry acid products. Here we may very properly give a word of caution to our readers upon the subject of dry fuel, and more especially of dry anthracite. To allow either coal or wood to be wet with snow or rain is a very great waste, the heating power of the wood being greatly reduced by the action of the water upon it, even when it is afterward dried. In preparing wood for fuel it should be cut up and sawn while green, and at once stored out of the way of both snow and rain. In a word it should, "never see the sun" from the time the green cordwood is hauled to the shed. To attempt to dry wood in the stick we think very wasteful both of power needed for its preparation and of its heating qualities. Cordwood newly cut, put under cover and at once sawed to stove length and piled up out of the sun and rain, where there is an abundant circulation of air, is, according to our experience, worth about one-fourth more than dry wood, prepared in the ordinary manner, and for our own use we would rather have one cord of such wood than two cords of dry cordwood dried in piles out of doors and then prepared for the stove. The two cords in heating power might be a little ahead of the first, but the satisfaction in using would more than make up the difference. When wet fuel of any kind is put into the stove, a great quantity of heat is wasted in converting the water into steam, which escapes up the chimney without giving back any of this list. If there is a little sulphur in the coal the presence of the steam greatly increases its destructive action, and stove and pipes are likely to show a rapid corrosion.

A LUMP OF COAL.—Forty thousand pounds of coal in one lump were carried over the Cincinnati Southern road recently, for the Cincinnati Exposition. It was taken out of the Soddy Coal Company's mine at Rathburn Station, twenty-three miles above Chattanooga.

The deepest perpendicular shaft in existence is the Adelbert shaft in a silver-lead mine in Przbirah, Bohemia, which is 3,280 feet deep. Twenty years ago, a mine in Hanover reached a depth of 2,900 feet, while there are numerous shafts that reach 2,000 feet.