

FURNITURE DESIGNS.

On page 84, we give an illustration of a side-board in oak carving and decoration, painted, designed, and manufactured by Messrs. Cox & Sons, in London, and also a counter, the panel ornaments of which are in *terra cotta*, by the same firm. On page 77, will be found two tasteful designs for a clock and key rack, taken from that excellent German publication, *The Workshop*.

We are indebted to the American *Builder* for these cuts.

WE regret that we have been obliged to postpone the continuation of the article we copied on page 39 in our last number, taken from an English scientific paper, on the CHIEF SYSTEMS OF SEWAGE DISPOSAL now in operation; it will be continued in April MAGAZINE.

MACHINE FOR TURNING ELLIPTICAL AND CROOKED WORK.

(See page 76.)

The annexed illustration represents in elevation a machine devised by Mr. John Richards, the well-known author of the text-book on wood working machines, for turning elliptical and curved articles, such as spokes for wheels, tool handles, &c. It represents in a striking manner the skill and ingenuity which Americans bring to bear upon the construction of machines for special work. The machine before us is not capable of doing all sorts of work, nor even a great variety of work, but it is capable of doing all sorts of work for which it was designed, and of doing it well. It will turn from 1,200 to 1,400 lineal feet of elliptical work in ten hours, and a brief description will suffice to explain its action which can only be thoroughly understood by ocular inspection. The material to be operated on is mounted on a pivoted swing frame, and the desired form is obtained by moving the material to the cutters, the latter being confined to a straight line, as shown in the engraving. The cutters are mounted on a carriage with wheels, which is made very heavy so as to resist the effects of the motion of the cutters, which are driven at a high velocity, about 8,000 ft. per minute. The pattern piece is carried on the same plane as the work to be turned, and for the description of article shown in the engraving, is placed at the end of the piece to be turned, or, as it were, on the same spindle. A screw, seen in front, the motion of which is regulated by change-wheels, gives a positive feed. American machines for doing special kinds of work are gradually attracting the attention of English manufacturers, and though our own inventors of wood-working machines are not inferior in skill and ingenuity to their rivals over the water, they have undoubtedly learnt some useful lessons from them. At the same time the economy which is possible with the use of machines in the United States is necessarily in some branches of industry reduced to a very small percentage here, owing to the comparatively low wages paid for skilled handicraft.

MOORE'S UNIVERSAL ASSISTANT.

Although this valuable work has had a very large sale, yet many of our readers may not have seen it and will doubtless be glad to know where they can obtain a Hand-book containing such a number of Industrial Facts. It is just the kind of book that should have a place on the shelf in every Mechanic Library. On our advertising page will be found a list of its contents and from whom it can be obtained.

A LITTLE GIANT.—A trial was recently made at the machine shop of Johnson, Hess & Co., Philadelphia, of a new application of power, with steam, to a five-wheeled engine, for propelling city railway cars. The application of power is so decided that under a pressure of only a few pounds of steam to a diminutive engine of only 4 in. stroke, a large truck, with several tons of iron on it and some fifteen men, was pulled and backed for several hours, without apparent resistance. It is the opinion of those who witnessed the trial that this little giant will pull fifty tons with ease, with no smoke or noise from the exhaust of any account.

HOLLOW CONCRETE BLOCKS FOR BUILDING.

A hollow concrete block for general building purposes has been introduced by Mr. James Woodhouse, of Lambeth. It resembles a block of stone molded in such a form that a vertical and horizontal groove or cavity is retained, so that really it possesses the advantages of a hollow brick. One of the single blocks is 2 feet long, 1 foot wide, and 9 inches high, in the centre of which are apertures formed by grooving the block all round and perforating the center; but the material can be worked up into blocks of any size. Quoin blocks are also made for working at the angles of buildings, and ornamental courses can be molded for cornices or string courses. When the blocks are put together, the apertures, both vertical and horizontal, are continuous, allowing a free circulation of air throughout the entire wall, ensuring ventilation and dryness. The blocks are proposed to be connected by cemented joggle holes or joints, by which they are joined together with great precision. The blocks can be moved and fixed by the lewis and can be laid by an ordinary bricklayer. A bricklayer can lay about four hundred bricks per day, equal to 25 cubic feet; and as the wages of the bricklayer and laborer are \$2.50 gold, in England, per day, the cost of brickwork for labor is about 9½ cents per cubic foot. It is stated that any bricklayer can lay 50 of these concrete blocks a day, equal to 75 cubic feet, thus showing a saving of over 200 per cent in labor. The advantages claimed are: Greater strength, damp-resisting qualities, resistance to fire, expedition in use, vermin expulsion, general applicability, sanitary qualities, cheapness, appearance, facilities of manufacture, etc. The author alludes to these advantages in order. Speaking of the strength of concrete, the author says concrete walls have withstood the most violent equinoctial hurricanes. The absorbency of brick and stone is well known. A common brick absorbs about a pint of water, and a small house of one-gallons, containing 12,000 bricks, is capable of holding 1,500 and gases, but the concrete blocks insure dryness in walls, so essential to health; it is fact, nearly non absorbent. Of the fire-clay, scoriæ, clinkers, shingle, etc., it is hardly necessary to dwell as our readers know the refractory nature of these component materials. In gravel concrete, great heat would disintegrate the mass, and cause fractures; but with the burnt ballast, slags, etc., used in the patent block, the most intense heat would be powerless to destroy the mass.

Another advantage in favor of this block construction, from a sanitary point of view, is the absence of mortar joints, through which vermin and germs of animal life can pass. The author also considers the advantages of concrete block walls from another point of view. By molded forms cheaper ornamentation can be obtained, and it is thought this will conduce to the adornment of our humble dwellings. The cost of this kind of walling in gold is stated comparatively as follows: 1 foot cubic plain faced masonry, built complete, 66 cents; 1 foot plain-faced brickwork, 24 cents; 1 foot plain-faced patent block, 18 cents; 1 foot molded masonry, \$1.08; 1 foot molded brickwork, 30 cents; 1 foot molded patent block, 24 cents.

The author, in conclusion, believes the old-fashioned brick wall must give place to this kind of walling. At all events, one great inducement is facility of manufacture. The ingredients—pounded shingle, burnt clay, slag, etc., can be procured on any site, as most lands have gravel or clay, all that is required being the mold. We have long advocated concrete blocks for wall building; several kinds of blocks have been introduced at different times, and we believe Mr. Woodhouse's patent hollow concrete block is a simple and effectual mode of obtaining the combined advantages of concrete—durability, lightness of walling, and damp-proof qualities.

FISH SKIN LEATHER.—The *Commercial Bulletin* has the following: Shoes have been manufactured in Gloucester, Mass., from the skin of the cusk. They are said to be strong and give evidence of durability. If the new material for shoes proves what it promises, it will open up a new market for fish skins which will no doubt be highly profitable. A patent has been applied for. The cusk belongs to the cod family; and we see no reason why the skins of a large number of useless fish that are now swimming about doing nothing may not be utilized. They would be glad of the chance.

ONE-HALF of the mines in the State of Pennsylvania have stopped work, and over 40,000 men thrown out of employment.