### IMPROVED COUNTERSINK FOR BORING TOOLS.

Mr. Richard J. Welles, of Kenosha, Wis., has recently patented an improvement in countersinks to boring tools, which is illustrated in our engravings. Fig. 1 is a side elevation of a boring bit with the countersink attachment. Fig. 2 is a side elevation of the attachment without the bit; and Fig. 3 is an end elevation. A and B represent the two pieces forming the countersink, said pieces being clamped on the bit shank, C, by screws, D, and having dowels, E, to aid the

Fig. 1

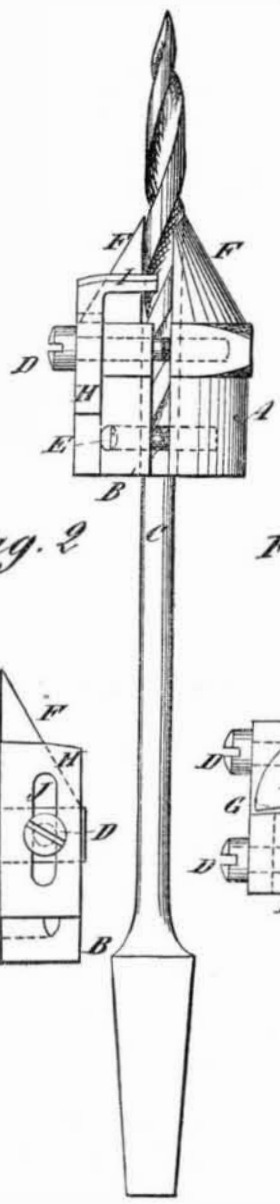
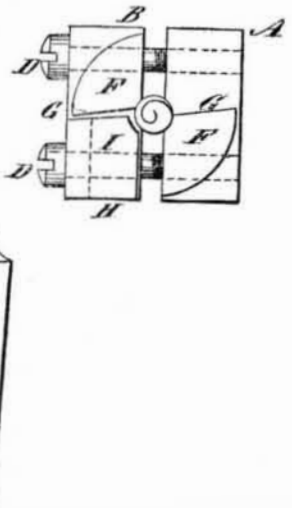



Fig. 2




Fig. 3

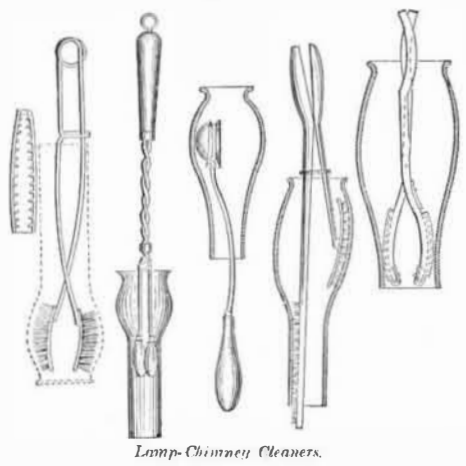



screws in keeping them in position. F represents the cutting points or bits of the countersink. They are in form about a quarter section of a cone, and arranged with their cutting edges, G, parallel to the clamping screws, D, so that they work alike, whether clamped to a large or small shank, C; and ample clearance is provided between the heel of one and the cutting edge of the other. H is the gage or stop for regulating the depth of the countersink. It is a small bar, with a foot, I, at the lower end, clamped to one of the pieces of the countersink by one of the clamp screws by which the two pieces are clamped to the bit, the screw passing through a slot, J, in the bar, to allow the latter to be shifted up and down, according to the required depth of the countersink. The pieces, A and B, are rounded at the upper end, to render the attachment capable of turning on the surface of the stuff without catching and binding on any irregularities thereof.

### HOUSEHOLD DEVICES, GATES, AND HINGES.

Continuing our extracts from Knight's "Mechanical Dictionary,"* we select, this week, a number of interesting illustrations of devices pertaining to the dwelling, and also a

Fig. 1.



*Lamp-Chimney Cleaners.*

series of engravings showing a variety of forms of gates and hinges.

In Fig. 1 are represented several kinds of

LAMP CHIMNEY CLEANERS.

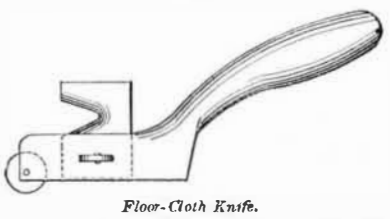
Beginning on the left, the first is simply a pair of brushes attached to the end of bent wire springs, which hold the brushes out against the interior of the chimney. The second device is essentially the same, a handle being added and pads substituted for brushes. The third is a single pad without springs. The fourth has brushes of different shapes adapted to the straight and curved portions of the chimney. The brushes in this case are pressed outward against the chimney by bringing the handles of the implement together. In the fifth device, curved pads replace the brushes, and there is a modification in the shape of the handles.

In order to facilitate the somewhat difficult operation of cutting oil cloth, a

FLOOR CLOTH KNIFE,

represented in Fig. 2, has been devised. In this the blade is

Fig. 2.



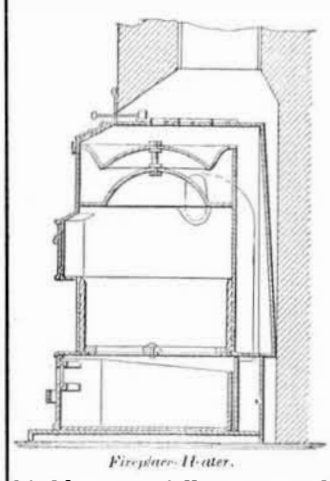
*Floor-Cloth Knife.*

notched and secured vertically in the lower portion of the handle; the latter is held above the floor by a caster. The edge of the cloth being placed in the notch, and its adjacent portion held, the knife, when pushed forward, makes a neat division, much more easily and accurately than it is possible to perform the same by hand, knife, or shears. The

FIREPLACE HEATER

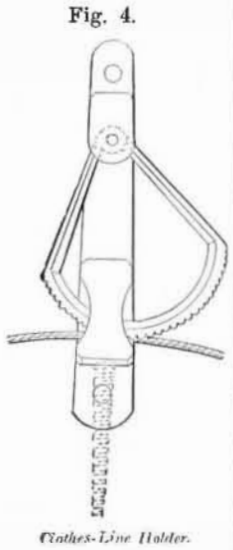
shown in Fig. 3, is set within the fireplace, and serves to warm the room, the pipes discharging into the chimney. The

Fig. 3.



*Fireplace-Heater.*

Fig. 4.



*Clothes-Line Holder.*

kind here especially represented is known as the Latrobe, and is base-burning. The pipe passes up the brick flue to heat the air which circulates between pipe and flue to the rooms above, into which it escapes through suitable registers.

Fig. 4 is a simple form of

CLOTHES LINE HOLDER,

designed to secure the line without necessitating the tying of the latter about its supports. It consists of a hook cast upon the main plate, and in a lug of the latter a serrated swing-sng segment is pivoted. The line is jammed between the ierrated portion of the segment and the hook. The

GATES,

shown in Figs. 5 and 6, are as follows: *a* is a gate with adjustable hinges operating on rings on the post, the fastening consisting of a movable latch and staple. *b* shows a mode of setting up the gate, when the outer end sags, by means of the diagonal strut. *c* is another form of setting up the outer end, by means of a tie slat. *d* is a gate, whose top bar is pivoted on the post, the whole device being counterweighted by a box of stone on the extended bar. *e* slides longitudinally, its slats traversing on rollers. *f* is also a sliding gate, which has rollers to keep it level, whether open or shut. *g* is a gate which slides half its length and then rotates on a bar at its mid-length. *h* is a gate of pivoted bars, on the principle of the lazy tongs. *i* is a gate having a set of pivoted slats which assume a vertical position when the counterweighted top slat is allowed to oscillate. *j* is a suspended gate which swings upward, broadside, in a vertical plane. *k* is a gate suspended from pulleys and counterweighted. *l* and *m* are gates operated by equestrians or persons in vehicles by means of ropes.

The ancient Egyptian

HINGES,

which are probably the oldest devices of the kind now known, were crude affairs, and were very similar in construction to those made in our early Western log cabins. A pin projecting from the upper edge of the door was socketed in a vertical hole made in a bracket attached to the wall, and a similar pin on the lower edge of the door was stepped into a socket in the floor or threshold. The illustration, *a*, Fig. 7, is from a model house, found in Egypt by Mr. Salt, and now in the British Museum. The doors of Egypt were either single or double, and were secured by bars and bolts, as seen in the figure. The hinge pieces were usually made of bronze. *b* and *c* show the upper and lower door pins and the sockets, in which the edge of the door is received and in which it is secured by bronze pins. The projection on the upper piece was to keep the door from striking against the wall. *o* shows the general form of a door in remains of stone, marble, wood, and bronze. *p* is a bronze hinge in the Egyptian collection of the British Museum. *q* is the plan of the threshold of an ancient temple with the arrangement of the folding doors. *r* and *s* are four Roman hinges of bronze now in the British Museum.

Fig. 5.

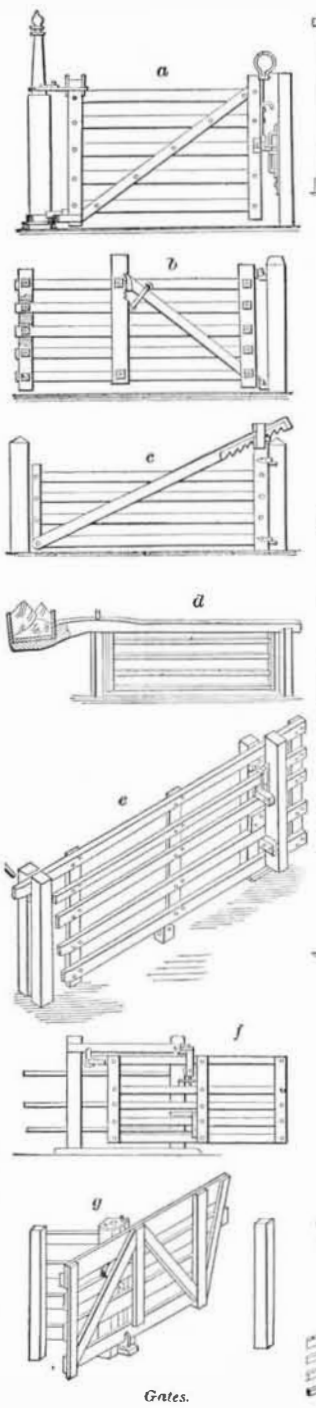
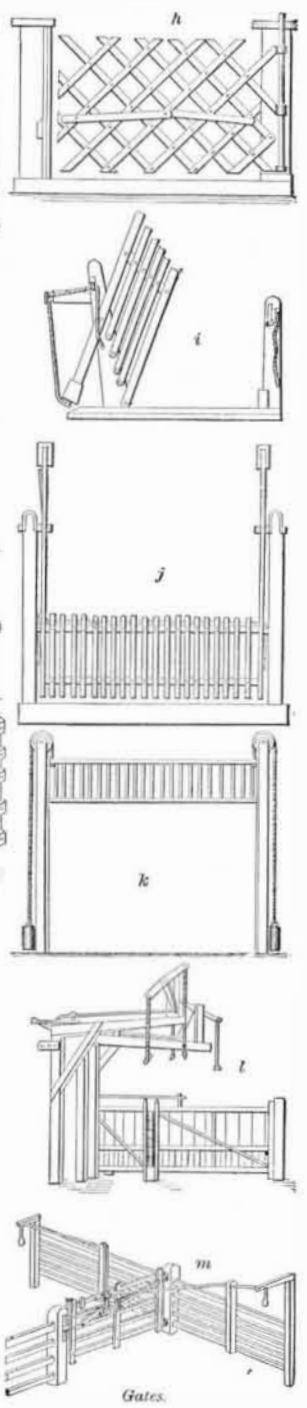


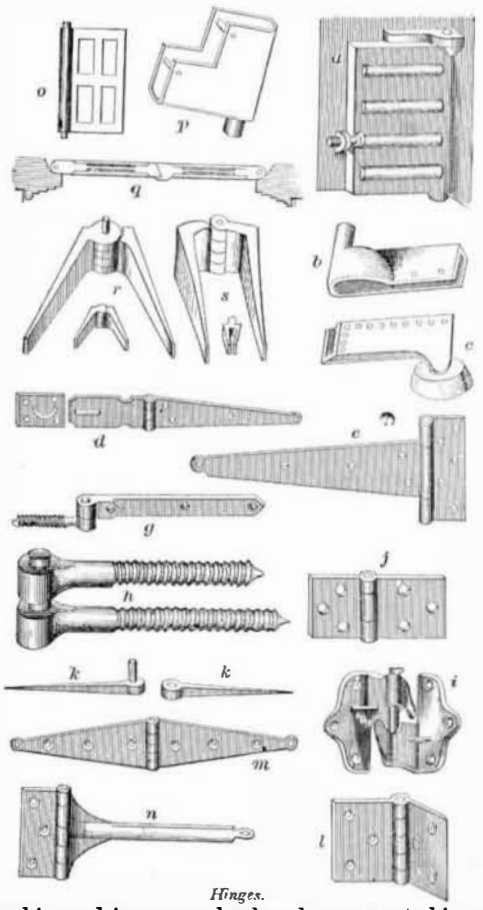

Fig. 6.




*Gates.* *Gates.*

The other hinges shown in Fig. 7 are designated according to the purposes to which they are applied, or with reference to some structural peculiarity of shape. Thus *i* is a loose joint or self-shutting or blind hinge; *g* is a screw and strap

Fig. 7.




*Hinges.*

or gate hinge; *h* is a screw hook and eye or gate hinge; *k* is simply a hook and eye; *l* is a butt hinge; *d*, a hasp hinge; *e*, a T hinge; *j*, a table hinge; *m*, a strap hinge; and *n*, cross garnet hinge.

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