To all whom it may concern:

Be it known that I, WILLIAM A. TURNER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Sheet-Metal Knob, of which the following is a specification.

This invention relates to that class of sheet-metal knobs which are intended to be used upon stoves for similar purposes. The especial object of this invention is to provide a strong, simple, and inexpensive form of stove-knob which may be manufactured from a thinner grade of stock than it has heretofore been practicable to use for knobs of this class and which will withstand a greater degree of heat and roughage than other stove-knobs without becoming loosened or fastened.

To these ends this invention consists of the sheet-metal knob as an article of manufacture and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a side view of a sheet-metal knob constructed according to my invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a perspective view of the flaring base-section with its reinforcing-plate. Fig. 4 is a plan view of the same. Fig. 5 is an inverted perspective view of the reinforcing-plate, and Fig. 6 is a detail view of the blank from which a base-section is formed.

Sheet-metal knobs of that class to which this invention relates have heretofore been formed by two sheet-metal parts or pieces—that is, each of such knobs has ordinarily comprised a flaring base-section and a top or crown section. The top or crown section is provided with a bead. The parts of such knob are held together by inserting the base-section into the open bead of the crown-section, which bead is then crimped over by suitable dies to bite firmly underneath the flaring portion of the base-section. The pressure employed for crimping on the tops of these sheet-metal knobs is comparatively heavy, in some instances running as high as seven hundred pounds. In the actual manufacture of such sheet-metal knobs it results from the use of this heavy pressure that the base-section must be made strong enough to withstand this crimping pressure without crippling or crushing.

In the earlier forms of sheet-metal knobs of the class to which this invention relates it was deemed necessary to draw up the flaring base-section from a circular blank, although the solid base-sections drawn up in this manner required a number of distinct operations in their production, and hence were comparatively expensive. To cheapen the cost of the base-sections of these sheet-metal knobs and to provide a construction which can be stamped up at one operation, I have already devised a sheet-metal knob in which the base-section is stamped up from a blank having prongs or projections which abut at their edges above the ventilating-holes to form a continuous edge for receiving the cap or top section. This construction is covered by United States Letters Patent No. 432,588, granted to me July 22, 1890. In manufacturing sheet-metal knobs under this prior patent the tools for cutting the blanks and stamping the same up have to be designed with the utmost nicety in order that the comparatively thin edges of sheet metal may be brought accurately into allinement, and to insure a sufficient contact to support the crimping-on pressure before referred to it is necessary to use a comparatively heavy grade of sheet metal.

One especial object of my present invention is to combine the base-section with a reinforcing-plate having fingers projecting down between the prongs of said base-section, so that said prongs will be supported and held from crushing even when not brought accurately into allinement, and so that thinner grades of stock may be employed and less accuracy of workmanship required.

A further object of my invention is to utilize the reinforcing-plate to furnish an additional fastening for holding a knob in place.

In the class of sheet-metal knobs to which this invention relates each knob is ordinarily fastened in place by a screw, which is tapped into that part of the base-section which rests directly against the stove. If the stove to
which the knob is fastened becomes highly heated, the end of the base-section is liable to warp or spring, causing the knob to work loose, so that such knob may come off. To avoid this objection, the fastening-screw of a knob constructed according to this invention is preferably threaded into the reinforcing-plate, so that such knob is fastened by two threaded connections, and as the reinforcing-plate is located far enough from the stove so that it will not become overheated a knob constructed according to my invention is not liable to work loose even when used on a highly-heated stove.

Referring to the accompanying drawings for a detail description of a sheet-metal knob constructed according to my invention, A designates the flaring base-section, and B designates the cap or crown. The base-section A is stamped up from a sheet-metal blank of substantially the form shown in Fig. 6. As illustrated in this figure, the blank is provided with four leaves or prongs. These leaves or prongs are provided with notches 10, which form ventilating-holes in the completed knob, with gore-shaped openings 11 extending in the center of the blank from the notches 10, the sides of which gore-shaped openings close together to form the seams 12 in the completed knob, and with end sections 13, which are not brought together in the completed knob, but which are left far enough apart to form open slots for receiving projections extending downward from the reinforcing-plate C. The reinforcing-plate C which I employ, as most clearly illustrated in Fig. 5, consists, essentially, of a circular plate or blank with integral spurs or projections 14 bent down therefrom. The face of the spurs or projections 14 are of sufficient width so that they will form square end bearings for the prongs of the flaring base-section, even when said prongs are not in accurate alignment with each other or are more or less sprung out from exactly true circular form.

Considering now the flaring base-section with its reinforcing-plate C combined therewith, as shown in Fig. 3, it will be seen that the prongs of the base-section and the projections 14, which extend down between said prongs from the reinforcing-plate, constitute, in effect, a self-sustaining circle, which will be strong enough to support the pressure required in crimping on the cap-section B even when said parts are made from extremely-light material. In addition to this the circular outline of the reinforcing-plate will insure a true outline for the completed knob.

To fasten the completed knob in place upon a stove or other place where it is to be used, I preferably employ a fastening-screw D and washer E, which fastening-screw D is not only tapped into the base of the knob, as at 15, but is also provided with a threaded bearing 16 in the reinforcing-plate C, and I regard this as an additional feature of advantage in a sheet-metal knob constructed according to my invention, because the fastening-screw will not only have two bearing-points 15 and 16, but the joint 16 will be far enough removed from the stove and will have a sufficient circulation of air about the same, so that it will not become overheated.

I am aware that changes may be made in practicing my invention by those who are skilled in the art—for example, the number of prongs on the base-section blank or the shape of the ventilating-openings may be changed as desired. I do not wish, therefore, to be limited to the special design I have herein illustrated; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. As an article of manufacture, a sheet-metal knob comprising a flaring base-section formed from a blank having a number of prongs or projections, a reinforcing-plate having fingers extending down between the prongs of the base-section, and a top or crown section.

2. As an article of manufacture, a sheet-metal knob comprising a flaring base-section having a number of prongs or projections, a circular reinforcing-plate having fingers extending down between the prongs or projections, said fingers having wide bearing-faces cooperating with the prongs of the base-section to form a self-supporting circle without requiring accurate alignment of said prongs, and a cap-section crimped onto the base.

3. As an article of manufacture, a sheet-metal knob comprising a flaring base-section having a number of prongs or projections, a circular reinforcing-plate having gore-shaped openings, the sides of which are bent down to form fingers fitting between the prongs of the base-section, and a cap-section.

4. The combination of a sheet-metal knob comprising a flaring base-section having prongs or projections, a circular reinforcing-plate having gore-shaped openings, the sides of which are bent down to form fingers which fit between the prongs of the base-section, and a cap-section crimped onto the base-section, and a fastening-screw having threaded bearings both in the base of the knob and in its reinforcing-plate.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 120 witnesses.

WILLIAM A. TURNER.

Witnesses:
WILLIAM COAKLEY,
JOS. C. HARTWELL.