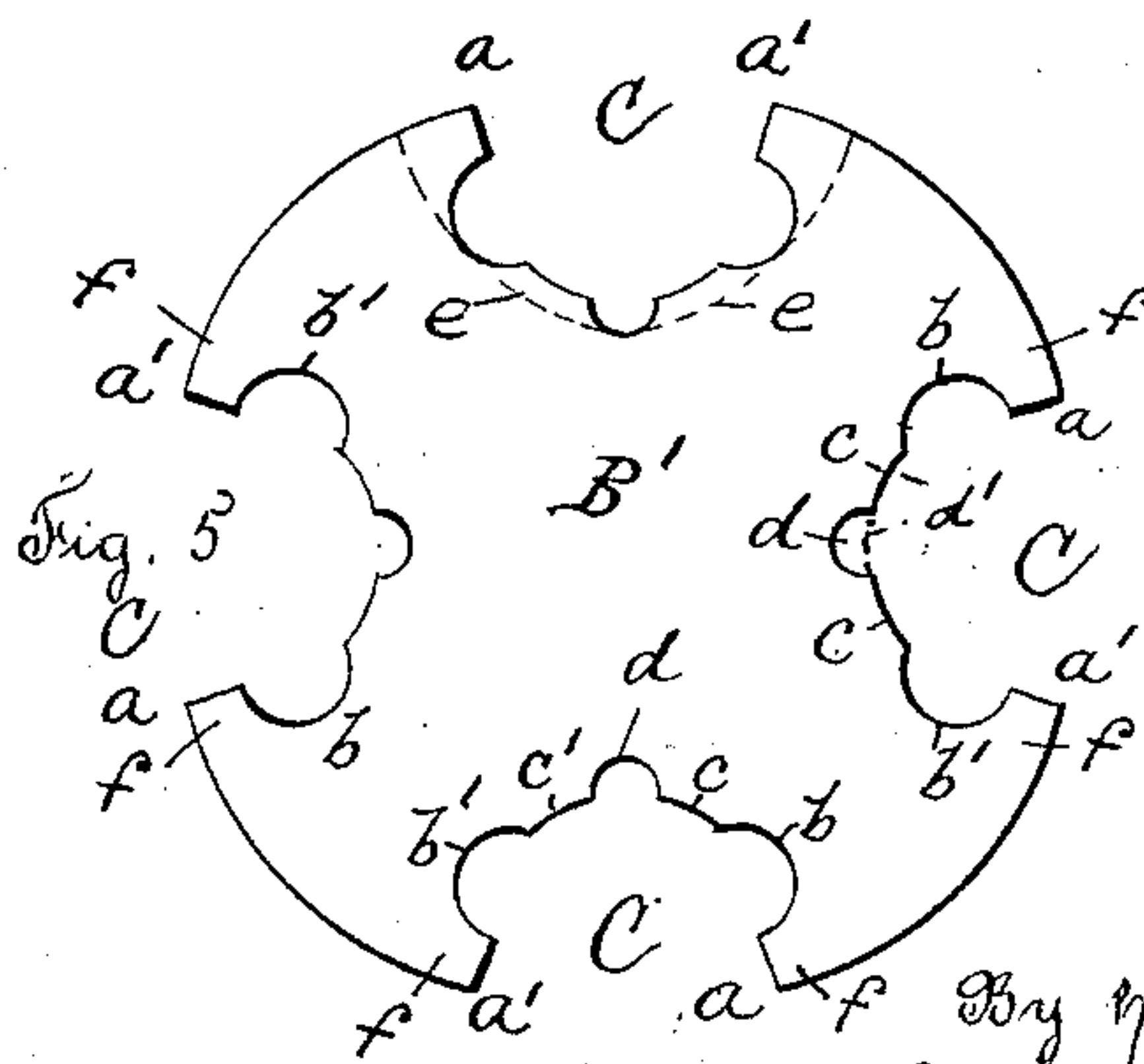
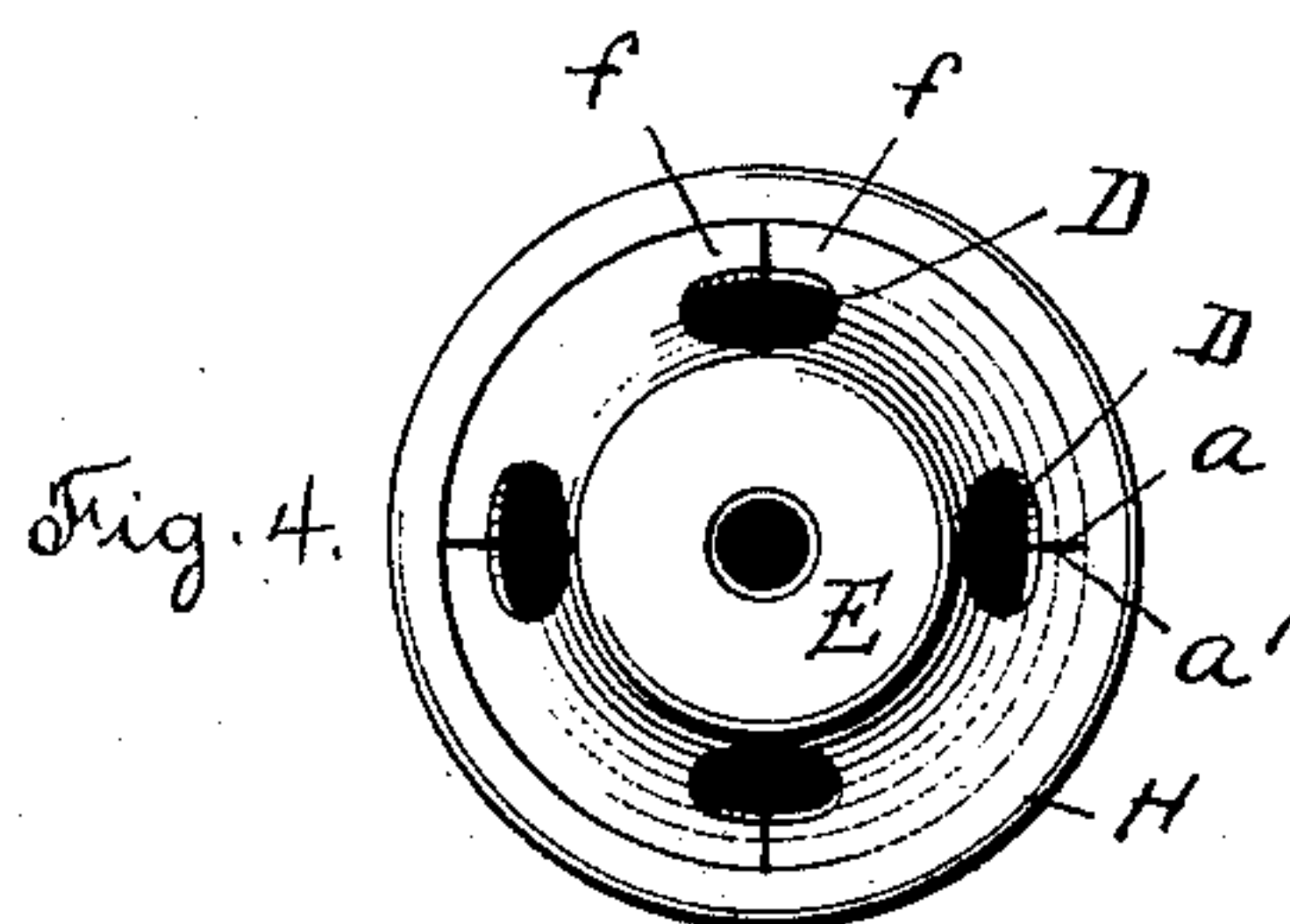
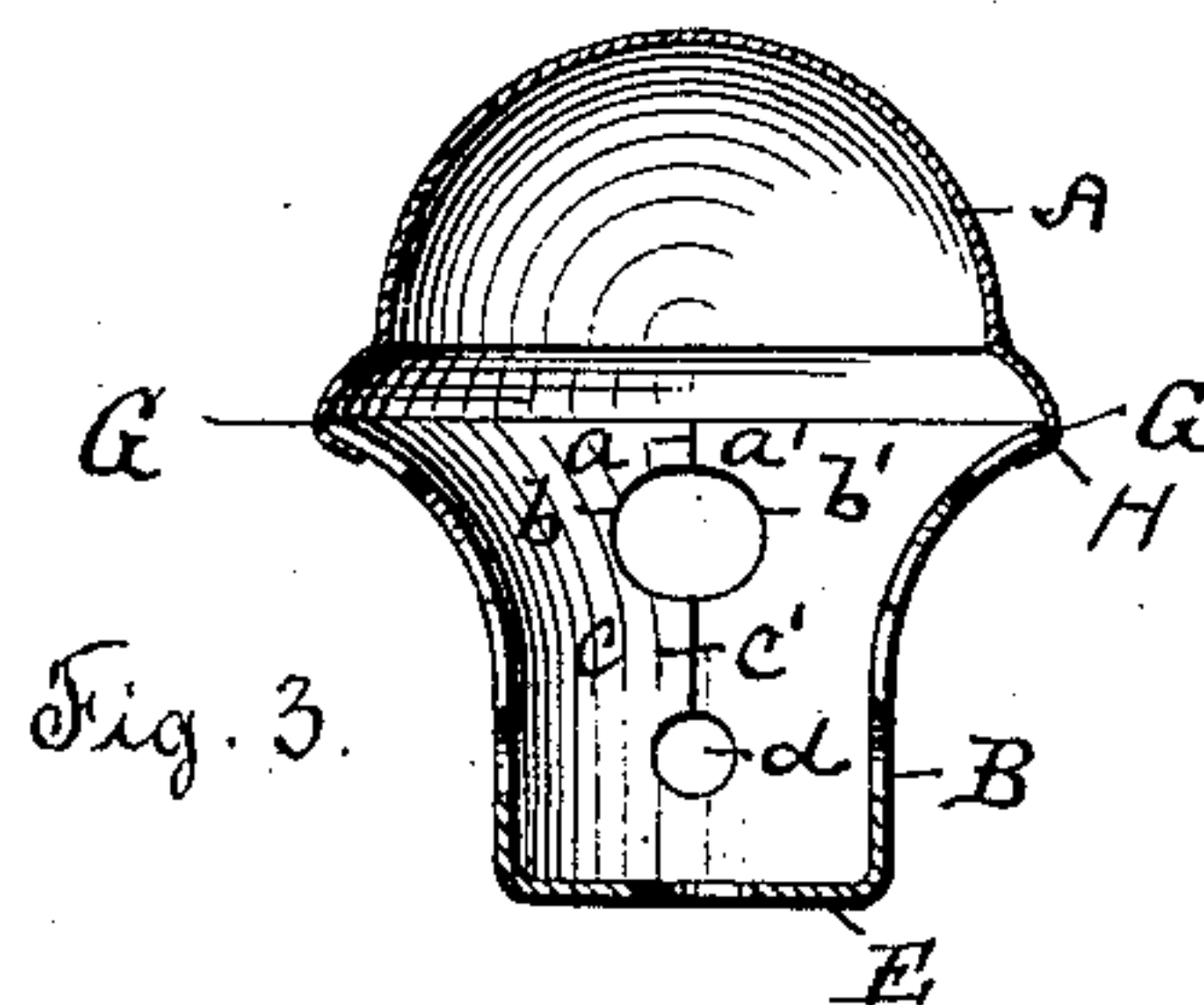
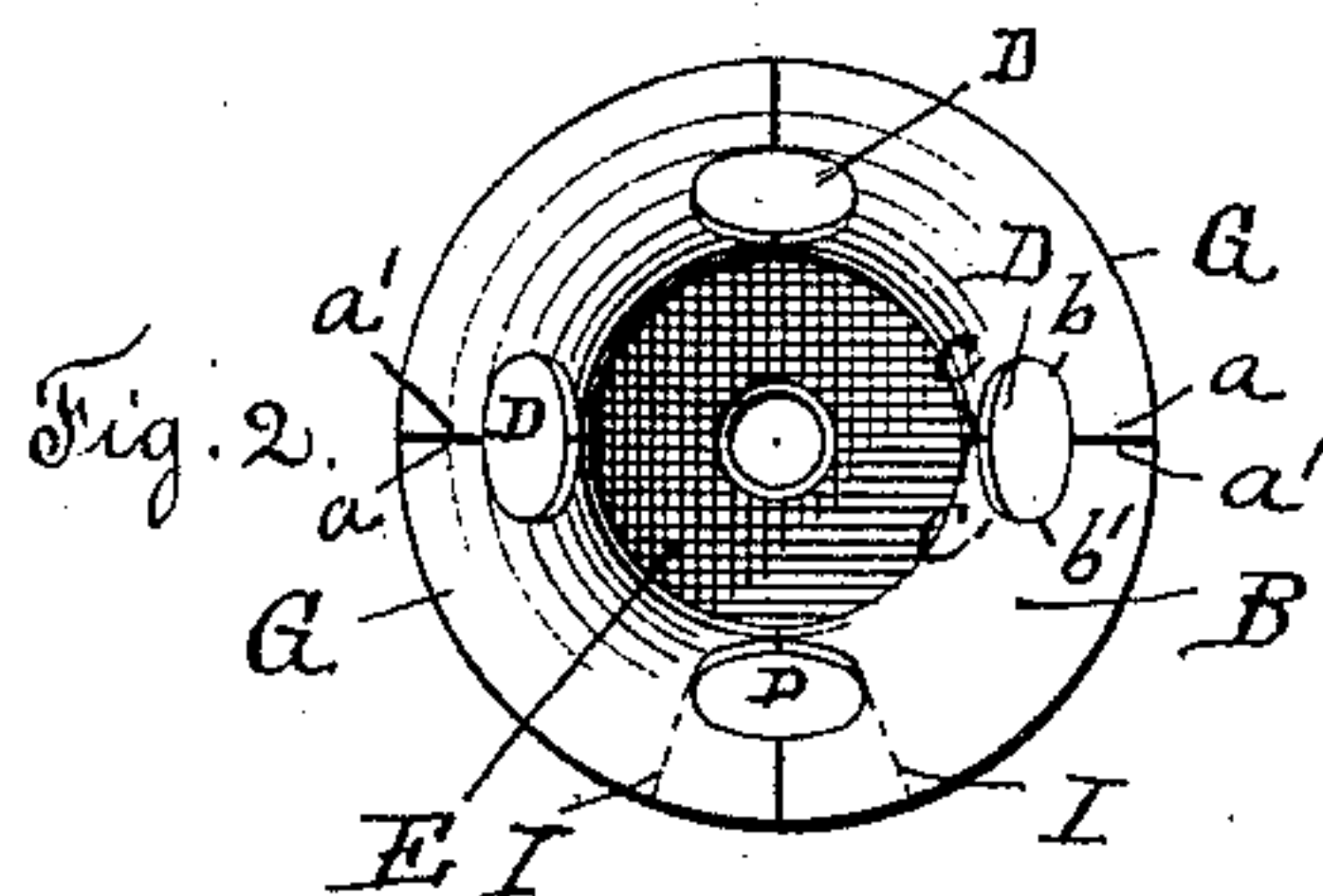
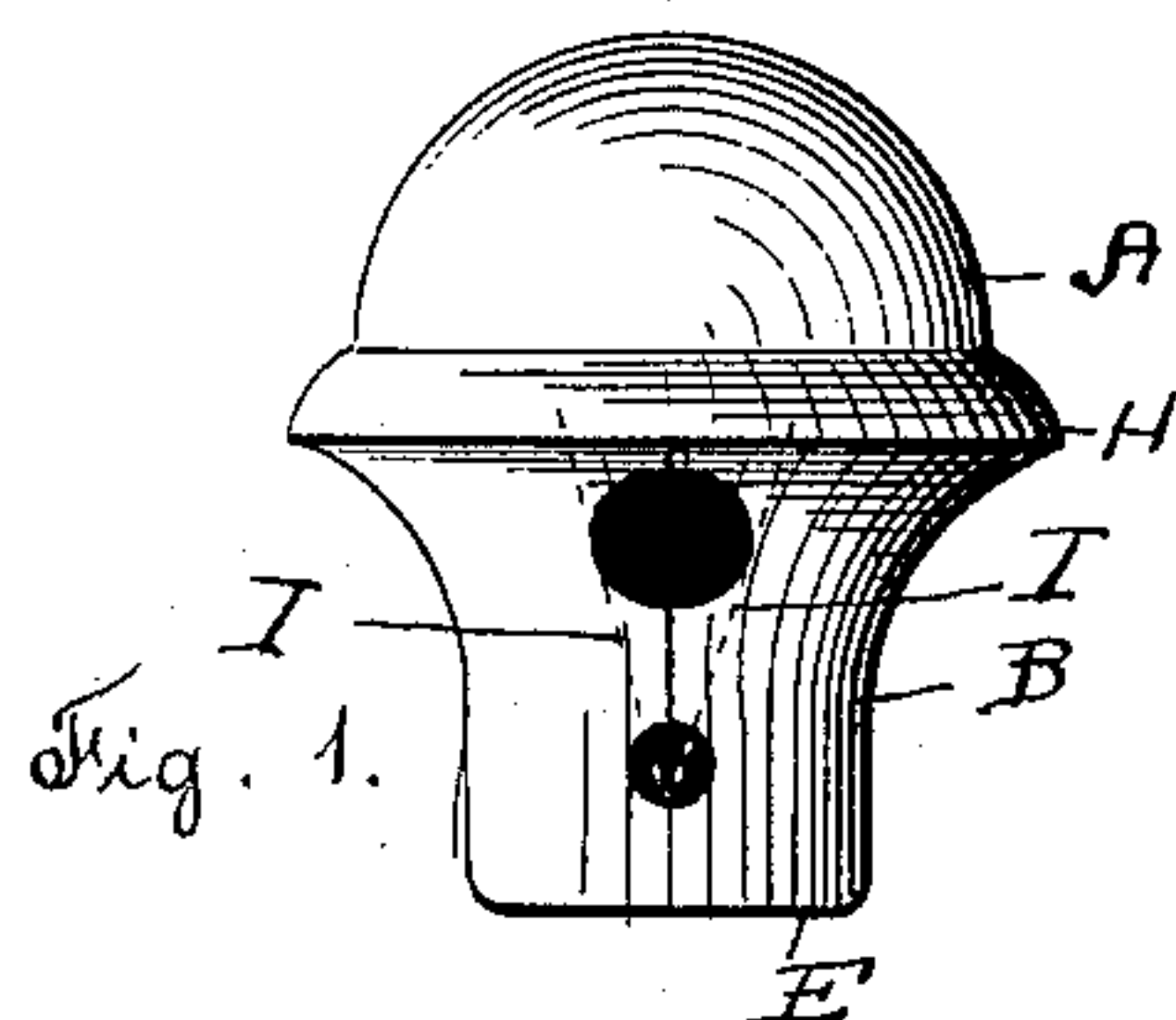


(No Model.)

W. A. TURNER.  
SHEET METAL KNOB.

No. 432,583.

Patented July 22, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. TURNER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO  
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## SHEET-METAL KNOB.

SPECIFICATION forming part of Letters Patent No. 432,583, dated July 22, 1890.

Application filed March 20, 1890. Serial No. 344,682. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. TURNER, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Sheet-Metal Knobs, of which the following is a specification, accompanied by drawings forming a part of the same and representing a sheet-metal knob and such details as illustrate the nature and essential features of my invention.

Figure 1 represents a view of a knob embodying my invention. Fig. 2 represents a top view of the base of the knob, shown as detached from the crown. Fig. 3 is a central vertical sectional view of the knob, shown in elevation in Fig. 1. Fig. 4 represents a bottom view of the knob; and Fig. 5 is a view of the blank from which the base of the knob represented in detached view in Fig. 2 is formed.

Similar letters refer to similar parts in the different figures.

The knob forming the subject of my invention is composed of two parts, each being made in a single piece, united at their edges. The part A is known as the "top" or "crown," and the part B as the "base." My invention relates especially to the latter portion or base; and it consists in forming the base of a peculiarly-shaped piece of sheet metal or blank, whereby I attain certain beneficial results in the completed base, as hereinafter described.

In making knobs of this class it is customary to form the base of a blank of circular form, the circular disk-shaped blank being formed into a bell-shaped base by the action of appropriate dies and punches. The base-sections of sheet-metal knobs have also been made with gore-shaped pieces removed from the circular disks, the edges formed by the removal of the gore-shaped pieces being brought into contact by the formation of the base, forming a bell-shaped base with slits extending from the edge of the base. The bases of sheet-metal knobs have also been made in which the gore-shaped pieces so removed from the circular blank have been sufficiently large to leave gore-shaped openings in the side of the base.

In preparing the blanks for the base forming the subject of my invention I take a cir-

cular piece of sheet metal of the requisite size and remove therefrom several pieces—preferably four—leaving the openings C, Fig. 5. The sides of the openings C, instead of being a continuous line, are irregular, consisting of the straight sections *a a'* at the periphery of the blank, the curved sections *b b'*, entering the body of the blank, the slightly-curved sections *c c'*, and at the apex of the openings C the opening *d*. The pieces removed from the blank B' to form the openings C are of such size that when the blank is drawn into the shape assumed in the completed base B the edge *a* will meet the edge *a'* and the curved edge *c* will meet the edge *c'*, forming a straight line lying in a plane including the axis of the base B, the curved lines *b b'* forming a circular opening D. The action of the die and punch in bringing the edges *c c'* together will tend to form a fold or wrinkle at the apex in case the lines meet, as represented at *d'*, Fig. 5. This wrinkling of the sheet metal at the angle formed at *d'* will be pressed out by the action of the die, leaving a smooth surface. To obviate the strain thus brought upon the die, I form the circular openings *d* at the apex of the openings C, allowing for the expansion of the metal at that point, as will be readily understood by those conversant with the art of stamping sheet metal. The holes formed in the base at D D by means of the curved lines *b b'* serve to ventilate the knob and adapt it for use upon stoves and for all purposes where it is to be subjected to heat.

The especial design of the knob herein described is for use upon stoves, and the ventilation secured by means of the holes D D, which admit a free circulation of air within the interior of the knob, prevents the heating of the knob by its contact with the heated stove and allows it to be grasped by the bare hand for the purpose of opening or closing the stove-doors.

The base when completed from the blank (shown in Fig. 5) is represented in elevation in Fig. 1 and in central vertical sectional view in Fig. 3, and consists of the circular bottom E and flaring sides F, having an edge G, which is inclosed within the beaded edge H of the crown A, the edge of the crown being turned over the edge of the base.



In order to prevent the flaring sides of the base from being sprung in by a pressure applied to the outside in the direction of the arrow 1, Fig. 3, it is necessary that the edge G of the base should be continuous, which would not be the case if the triangular pieces removed from the base-blank B' were in the form indicated by the broken line *e e*, Fig. 5, which would form an opening I, Figs. 1 and 2.

10 The essential feature of my invention consists in removing from the circular disk of sheet metal which is to form the blank pieces of metal between the central section of the blank which is to form the bottom E of the

15 base and the periphery of the disk, so as to form openings in the flaring sides of the base when completed, and leaving the wings *f f f*, Fig. 5, to form abutting edges *a a'*, so as to make a continuous edge G, inclosed within the

20 beaded edge H of the crown A, and resist a pressure applied to crowd the sides in toward the center of the base.

I am aware that it is not new to remove gore-shaped pieces from a sheet-metal blank forming radially-projecting prongs, which are much more readily pressed into the flaring shape of the base of a knob, as this expedient in pressing or stamping sheet metal has long been practiced. Neither do I claim, broadly,

30 a ventilated knob having holes or apertures in its base; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. A sheet-metal knob having a flaring or bell-shaped base provided with holes or apertures in its sides to allow a circulation of air within the knob, and having the abutting edges *a a'*, forming a continuous edge G, substantially as set forth.

2. A sheet-metal knob having a base formed from a sheet-metal blank substantially circular in form, but having pieces removed therefrom, forming openings in the edge of the blank, and provided with the projections *f f*, having the edges *a a'* arranged to form in the completed base a continuous edge G, substantially as described.

3. A sheet-metal knob having a base formed from a sheet-metal blank substantially circular in form, but having pieces removed therefrom, forming openings in the edge of the blank, said openings being bounded by the right lines *a a'*, the curved lines *b b'*, the curved lines *c c'*, and the curved line forming the opening *d*, arranged to form in the completed base the slits formed by the abutting edges *a a'* and *c c'*, and the holes or openings D *d*, substantially as described.

Dated the 15th day of March, 1890.

WILLIAM A. TURNER.

Witnesses:

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