(No Model.)

W. A. TURNER.

SHEET METAL KNOB.

No. 558,862. Patented Apr. 21, 1896.

Fig. 1.

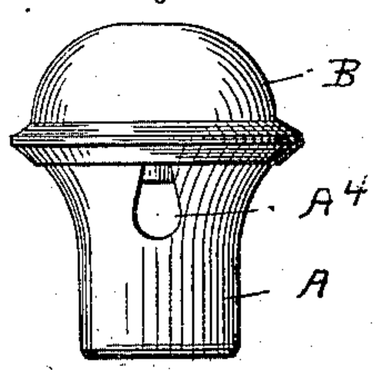


Fig. 2.

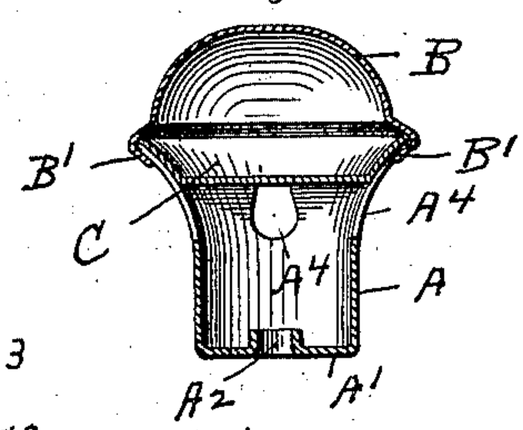


Fig. 3.

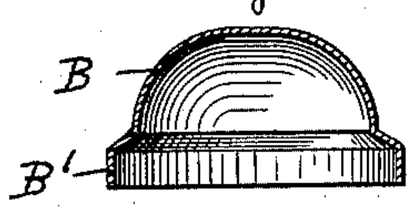


Fig. 5.

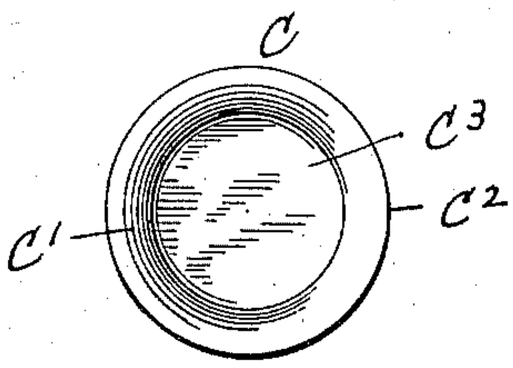


Fig. 7.

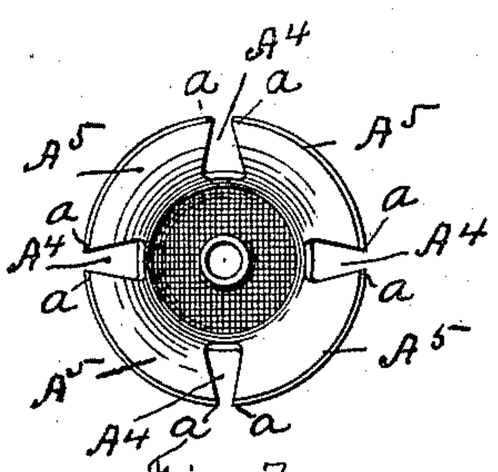


Fig. 4.

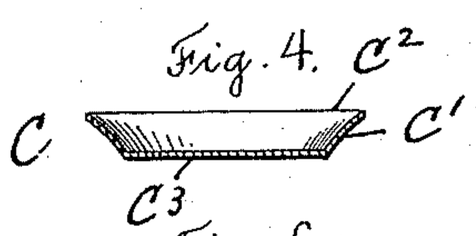
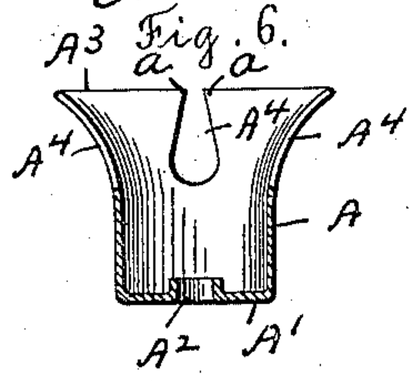


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM A. TURNER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO EDMUND CONVERSE, OF SAME PLACE.

SHEET-METAL KNOB.

SPECIFICATION forming part of Letters Patent No. 558,862, dated April 21, 1896.

Application filed December 12, 1891. Serial No. 414,889. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. TURNER, a citizen of the United States, residing at 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, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 represents a side elevation of a completed knob embodying my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detached and sectional view of the piece forming the crown before it is applied to the base in the completed knob. Fig. 4 is a detached and sectional view of the expanding plate by which the wings of the base-section are held from collapse. Fig. 5 is a top view of the same. Fig. 6 is a detached sectional view of the base. Fig. 7 is a top view of the same.

Similar letters refer to similar parts in the different figures.

Referring to the accompanying drawings, A denotes the base-section of the knob, and B the crown-section. The base-section A is stamped or pressed into the desired form or shape from a piece of sheet metal by means of suitable dies and punches in the usual and well-known manner, the base-section shown in the accompanying drawings being flaring or bell-shaped, the smaller end A′ being closed and provided with a hole A^2 to receive an attaching-bolt. The larger end A^3 is open and is closed by the crown-section B, the edge B′ being turned over the flaring or open end A^3 of the base-section A, as represented in sectional view in Fig. 2. The base-section A is provided with openings A^4, extending from the edge A^3 downward into the body of the base-section, the flaring end of the base-section being divided by the openings A^4 into a series of wings A^5, a sufficient amount of stock being removed to form the openings A^4 to enable the wings A^5 to be pressed into the flaring or bell shape without requiring excessive drawing or upsetting of the metal forming the wings, and in order to accomplish this result without multiplying the number of openings A^4 the wings A^5 are left separate at the edge A^3, or with a space or opening between the points *a a*. In order to prevent the wings A^5 from being collapsed, I insert a dish-shaped plate C within the open or flared end of the base-section A prior to the application of the crown-section B. The plate C is provided with flaring sides C′, the outer surface of which is made to fit the inner surface of the edge A^3 of the base-section, so that the edge C^2 will substantially correspond with the edge A^3 of the base-section. After the plate C is inserted within the flaring end of the base-section A the crown-section B is attached by turning the edge B′ over the edge A^3 of the base-section, the crown-section being drawn over and brought in contact with the edge C^2 of the plate C, so as to hold the plate C in position firmly pressed against the inner side of the edge A^3. The plate C is thus held from longitudinal movement within the knob by means of the flared side C′ resting against the flared edge A^3 of the base and the edge C^2 bearing against the crown-section B, the disk-shaped bottom C^3 forming a brace within the wings A^5 to resist outward pressure upon the wings, enabling the base-section A to be made of thin sheet metal, thereby effecting a great saving in lightness, cost of material, and a corresponding decrease in the cost of shaping the base into the desired form.

The employment of a plate C, provided with a flaring side C′ resting against the flaring edge of the base, facilitates the construction of the knob in uniting the base and crown sections. When the base-section is formed, the diameter of its open end is liable to vary, owing to the elasticity of the wings and the amount of "set" given to the metal in the operation of shaping the base, so that when the base-section is removed from the shaping-dies the diameter of its open end may correspond closely to the diameter of the dies, or it may be larger, owing to the springing apart of the wings. Whatever the diameter of the base-section may be when the plate C is placed within it the flaring sides of the plate will rest against the flaring ends of the wings, thereby properly centering the plate and holding it in a plane at right angles with the axis of the base-section.

If the diameter of the open end of the base-

section be smaller than the diameter of the flaring sides of the plate, the vertical pressure applied upon the crown-section will force the plate into the base-section, pushing its flaring sides over the inner surface of the wings and crowding the wings apart; but in case the diameter of the open end be greater than the diameter of the flaring sides of the plate the horizontal pressure applied in turning the edge B′ of the crown-section over the edge A^3 of the base-section will compress the wings and crowd the plates C upward until the edge of its flaring sides is brought into contact with the crown-section B.

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

In a sheet-metal knob, the combination with a base-section having wings, and a crown-section inclosing the free ends of said wings, of a dish-shaped plate bearing against the inside of said wings, by which they are held against outside pressure, said dish-shaped plate being provided with sides extending over the free ends of the wings and in contact with the inner surface of the crown-section, said dish-shaped plate being held from longitudinal movement in one direction by the conformation of the base-section, and in the opposite direction by the contact of its sides with the inner surface of the crown-section, substantially as described.

Dated the 10th day of December, 1891.

WILLIAM A. TURNER.

Witnesses:

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