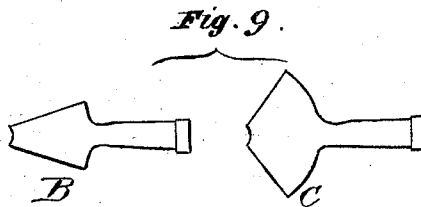
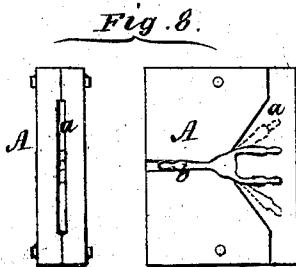
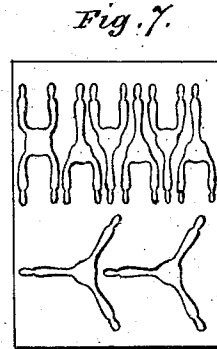
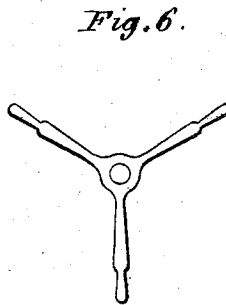
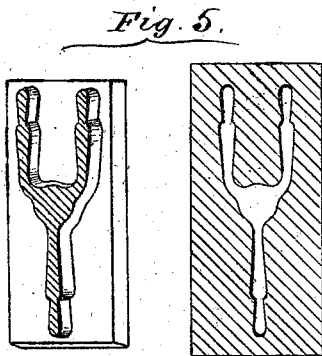
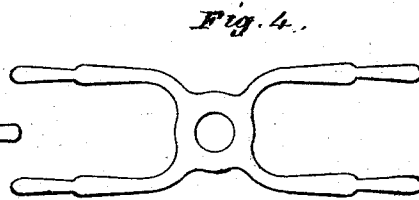
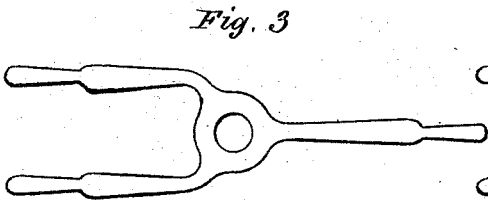
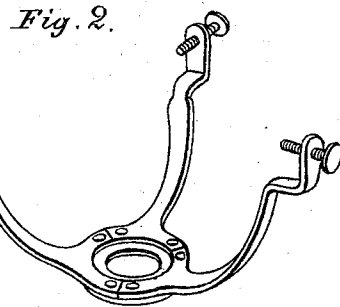
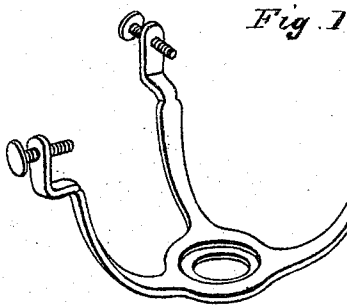


C. H. BARNEY.

Manufacture of Globe-Holders.

No. 143,656.

Patented Oct. 14, 1873.



Witnesses.

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UNITED STATES PATENT OFFICE.

C. HENRY BARNEY, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO GEORGE MOONEY AND JAMES SHAW, JR., OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF GLOBE-HOLDERS.

Specification forming part of Letters Patent No. 143,656, dated October 14, 1873; application filed June 23, 1873.

To all whom it may concern:

Be it known that I, C. HENRY BARNEY, of the city and county of Providence and State of Rhode Island, have invented certain Improvements in the Manufacture of Sheet-Metal Radial-Armed Chimney and Globe Holders for Gas-Fixtures, &c.; and I do hereby declare that the following is a true description thereof.

My improvements relate to that class of holders which are composed of three or more radial arms, and a central plate which is provided with an eye for attachment to the fixture beneath a burner which secures the holder to the fixture.

Such holders prior to my invention have either been made of cast metal in the proper form, or each of the arms with a segmental portion of the plate has been cut singly from sheet metal in dies, and connected together by means of rivets and a flat ring at the center. Holders for a similar purpose, but of a somewhat different form, have also been cut from thin sheet metal, and then struck up in shaping-dies into a form approximating to a bowl shape. This style of holder in order to have as much strength as it is possible to attain with the thin metal, is not only composed of the central plate with its eye and the several radial arms, but also with a ring at the outer ends of the arms, and said ring constitutes the receptacle for the neck of the globe which it is intended to support. Owing to the fact that the thin sheet metal becomes attenuated and weakened to a marked degree in causing it to assume the bowl shape, and also owing to the fact that the metal must be originally quite thin to admit of its being practically worked in this manner, it is difficult to give to the arms sufficient length to maintain the globe at a desired height above the base of the burner. Moreover, unless the large circumferential ring be employed therewith, the thin metal cannot practically be made available, as the ring serves as a brace for the arms, and it is also essential, if the thin sheet metal be used, that considerable width be given to the arms in order that they may be sufficiently strong. The downward rays of light should, however, be obstructed as little as possible, and certain classes of globe or shade—the

"opal," for instance—should be set with their bases nearly as high as the top of the burner.

In casting holders having only the central plate and the radial arms excessive waste is incurred from imperfect flowing of the metal, and, requiring, as they do, considerable subsequent finishing to render them acceptable to the trade, are produced only at objectionable cost. Economy is even attained in making them of sheet metal with the several arms separate and riveted to a central flattened ring; and my invention has for its object the production of such holders, with great economy in labor and metal, by cutting them in one piece from heavy sheet metal; and it consists in cutting the same from the sheet in blanks of a peculiar shape, which, while they approximate when cut but slightly to their ultimate form, can readily, by simple bending, be made into perfect holders. But more particularly to describe my invention I will refer to the accompanying drawings, in which—

Figure 1 represents one of my improved holders. Fig. 2 represents a holder composed of a central flat ring and three radial arms, which are riveted to the ring. Fig. 3 represents a blank for making a three-armed holder. Fig. 4 represents a blank for making a four-armed holder. Fig. 5 represents dies for cutting the three-armed blanks. Fig. 6 represents a three-armed holder-blank straightened out. Fig. 7 illustrates the advantages which accrue from cutting the blank of my novel form, as compared with cutting them in the form as shown in Fig. 6. Fig. 8 represents bending-dies for giving to the parallel arms of the blank the proper radiation at the hands of the unskilled operator. Fig. 9 represents formers for bending the arms radially.

It will be readily comprehended that the scrap-waste, resulting from the cutting of blanks in the form represented in Fig. 6, would render the holders so made quite as expensive as those which were cast, and it will also be as readily comprehended that by cutting the blanks with the several arms on parallel lines, as illustrated in Fig. 7, that all objectionable waste in scrap is practically obviated, or at least that the said waste is reduced to a minimum. A fair comparison of the economy in

metal can be made by placing three flattened holders, like the one shown in Fig. 6, in as close proximity as would be practicable on a sheet of metal, and then marking a circumferential line around them as large as the space they occupy will permit. The unused metal would constitute by far the greater proportion thereof. On the other hand, by applying my method, at least nine holders could be cut from the same piece, and if the metal be in straight wide strips as it comes from the rolls, the ratio will be increased still further to nearly as eleven is to three.

In Fig. 7 it will be seen that should four-armed holders be desired the same novel principle is involved, and approximately economical results attained.

In order to place the outward bending of the two parallel arms of the blanks within the power of an unskilled operative, I can employ a holding and shaping die and formers, as illustrated in Figs. 8 and 9, in which A denotes the holding and shaping die. It is composed of two sections, which have corresponding recesses, as shown at *a*, for receiving the blank with the single arm, occupying the rectangular recess at *b*.

The operator drops the blank into the die, as indicated in Fig. 8, and, with the former B and a mallet, at one light blow makes the preliminary radiation, and with the former C completes the operation.

The width of the recess *a* is so near the thickness of the metal used that the arms cannot leave the plane they originally occupied.

Being made in two sections or halves, as shown, the bending-dies can be adjusted to any desired thickness of metal by inserting between their coincident faces thin strips of metal, and turning the connecting-bolts so as to firmly bind the two sections together. The subsequent bending into the cup-like form is readily accomplished by the employment of cup-shaped dies in a manner well known. In bending the blanks into the desired cup form it will be advisable to employ a cup-shaped die with a vertical spindle projecting from its center. The eye in the central portion of the plate, having been previously cut, may be made to embrace the spindle. The follower or male die should be of a form corresponding to the cup-die, but of such lesser dimensions as will admit of the presence of the metal blank between them when brought into proper relative position. A central recess therein will receive the vertical spindle, and thus each arm will be bent to a uniform degree, and with the same curve.

The bending of the arms near their ends, for providing a seat for the globe, may be accomplished simultaneously with the cup-bending, afterward or prior thereto, as may be desired. It is practicable to bend them in the original blank by dies suited to the purpose; when so bent, however, it is obvious that the

bending-die A must be provided with recesses fitted to receive them.

In some cases it will be advisable to anneal the blanks prior to the subsequent bendings, as these latter will generally render them sufficiently hard to secure a desirable degree of rigidity, and by being annealed the several bendings may be more easily accomplished.

It will be observed that the arms on the fork side of the blank are apparently somewhat shorter than the single arm. In fact, however, all of the arms are of the same length, as will appear from the figure illustrating a blank, the arms of which have been bent into proper position.

The degree of curve at the bases of the pair of arms in the blank may be somewhat varied, but it is desirable that the proportion of the curve to the straight line be substantially as shown.

Jointless holders made by this method can readily be distinguished from the cast-metal holders by the character of the metal, and can also be distinguished from holders which might be made by cutting the blank with arms radiating at the outset, from the fact that the straightening or bending of the parallel-armed blank results in a certain peculiar, but unobjectionable, displacement of the metal adjacent to the junction of the arms with the central plate, which is readily observable. This peculiarity can, of course, be concealed or removed by special working, as with files or hammering, but the additional expense attendant thereon would render it mainly impracticable so to do.

It will, of course, be mechanically practicable to construct jointless holders from blanks which, at the outset, have radiating arms, and which would not exhibit the peculiarities named, although such holders have never, to my knowledge, been made; and as the excessive scrap-waste resulting therefrom would render it impracticable when viewed from a mercantile point of view it is scarcely probable that such a method will ever be adopted to any considerable extent.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The method, substantially as described, of constructing radial-armed globe-holders, which consists in cutting them in one piece from sheet metal, with the several arms occupying parallel lines, and then bending them so as to occupy the requisite radial lines, as and for the purposes specified.

2. The cutting-die, substantially as described, for cutting blanks for radial-armed holders, with which the several arms can be cut on lines which are parallel, as and for the purposes specified.

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