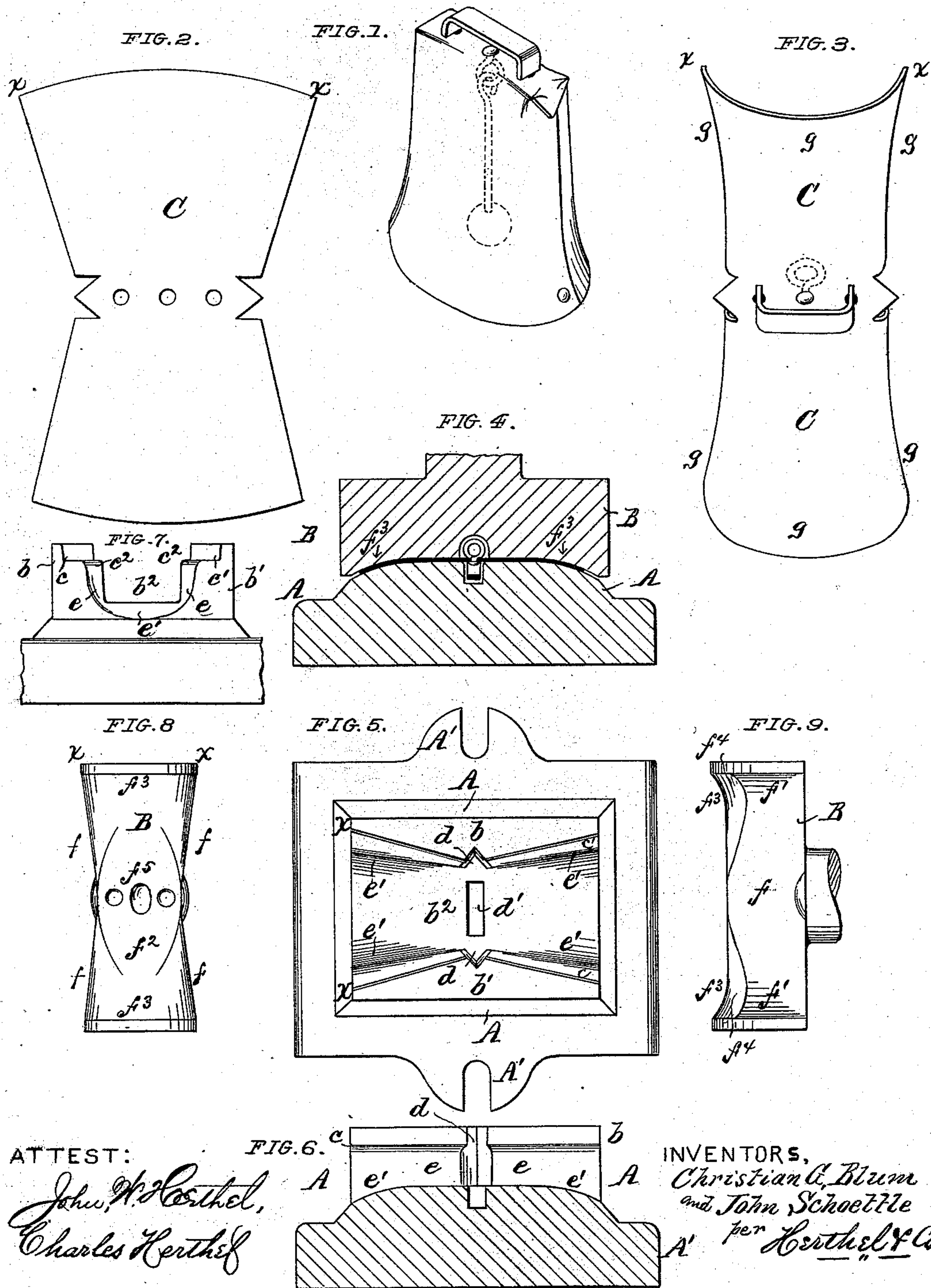


C. G. BLUM & J. SCHOETTLE.
Die and Former.

No. 225,047.

Patented Mar. 2, 1880.



ATTEST:

John W. Herthel,
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INVENTORS,

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UNITED STATES PATENT OFFICE.

CHRISTIAN G. BLUM AND JOHN SCHOETTLE, OF COLLINSVILLE, ILLINOIS.

DIE AND FORMER.

SPECIFICATION forming part of Letters Patent No. 225,047, dated March 2, 1880.

Application filed November 26, 1879.

To all whom it may concern:

Be it known that we, CHRISTIAN G. BLUM and JOHN SCHOETTLE, both of Collinsville, Madison county, and State of Illinois, have invented an Improved Die and Former, of which the following is a specification.

Our invention relates to an improved die and former to improve the swaging, shaping, or forming the metal blanks, plates, or patterns used in the manufacture of stock-bells.

Our die and former are such as to swage that part of the blank constituting the barrel of a completed bell to flare outward from the ear or shoulder to the sound-bow, and that part of the blank forming the mouth of the bell to be a true oval, and otherwise obtaining improved results and advantages, all of which will now more fully appear.

Of the drawings, Figure 1 is a perspective of a bell completed from the metal blank swaged by means of our die and former. Fig. 2 is a plan view of simply the blank prepared to suit our die and former. Fig. 3 is a perspective of the blank after being acted upon by our die and former. Fig. 4 is a longitudinal sectional elevation through die and former, with the blank swaged between said parts. Fig. 5 is a plan view of simply the die and its bed-plate. Fig. 6 is a part section and side view of the die. Fig. 7 is an end elevation of our die, Figs. 8 and 9 being, respectively, a bottom plan and side elevation of our former.

A represents our improved block or die. A' is the bed-plate. By means of bolts passing through the bed-piece the die-forming part of same can be secured stationary. B represents our improved swage or former. C represents the sheet-metal plate, blank, or pattern to suit the die.

Our improvements chiefly relate to the following constructive features: Our die consists of two similarly-shaped counterparts or blocks, $b b'$, leaving between them the open chamber b^2 , to receive the former. Each of the blocks $b b'$ has also the like shoulders at $c c'$, upon which the blank is first properly seated before using the former. These shoulders consist of right-angle faces made to splay from the center outward, the lower face or shoulder having its edge at c^2 rounded, all as shown in Figs. 5, 6, and 7.

In the center each block $b b'$ has an inverted V-aperture, d , extending from the top to the bottom face of the swage-chamber. (See Figs. 5, 6.) In these V-apertures the ears of the blank fit and remain during the swaging or shaping of said blank.

The chamber b^2 has at d' a rectangularly-shaped recess to receive the staple of the blank during the act of swaging the same. The constructive shape of the chamber b^2 is such as to suit or mold, with the former, the sheet metal into the form as illustrated in Fig. 3. We therefore flare the walls and bottom of the swage-chamber, as indicated in Figs. 4, 5, 6, and 7. More specifically stated, this chamber b^2 has its walls at $e e$ and bottom face, e' , made not only to splay from the center outward, but, further, to have its said faces, taken in cross-section, so shaped as to be a semi-ellipse or oval, the latter shape being the most prominent at the extreme ends of the said chamber. It is these points, at $e e e' e'$, so made flaring, when the former is used, that impart a corresponding flare at the same points to the blank. (See g in Fig. 3.)

B, our swage or former, has the following constructive features, which are related to those just described as belonging to the swage-chamber when said parts are operated: The opposite side faces, f , of the former we flare from the center outward, the flare being most prominent at f' , as shown in Fig. 9. The bottom face, f^2 , of the former likewise flares from the center outward to the extreme ends, which have the greatest curvature at f^3 . The edges of the side and bottom faces of the former are likewise made flaring from the center to the ends, as indicated at f^4 . (See Fig. 9.) At f^5 the former has a recess to suit the riveting of the hanger for the clapper-hook.

Lastly, we make the die A, at its end marked $x x$, to have the die-blocks $b b'$, swage-chamber b^2 , wider in cross-section than the opposite end. Also the former B has one end so made wider than the opposite ends. (See Figs. 5 and 8.) This feature of making the die and its former larger at one end is to suit the width at $x x$ of the blank. (See Fig. 2.) When the blank is swaged into the shape shown in Fig. 3, and in the act of bending it into the barrel or bell shape, the small end or width of the blank will

freely pass alongside the wider width or end, and thus both edges of the blank can be lapped together and riveted. Another result and advantage arising from this difference in the width of the ends of blank die and former is that the barrel of the bell has its mouth made a true oval and the operator can rivet the laps in the center.

The blank C' to be swaged is placed on the shoulders of the die-blocks. The former B is next operated by suitable means to descend and by a single blow or pressure to force the blank to the bottom of the die. In so doing the shape of the blank is fashioned as shown in Fig. 3. Finally, the blank so shaped is bent together in the bell shown complete in Fig. 1.

The blanks can thus be made to assume a new pattern or shape, and consequently the make of our bell is such as to have a more decided flare, its mouth a more perfect oval, and the sound of the bell have a more enhanced effect.

What we claim is—

The die A, consisting of the side die-blocks, $b b'$, having shoulders at $c c'$, made to splay from

the center outward, and having rounded-off edge at the extreme ends, one pair of said shoulders being made wider than the pair at the opposite end, the swage-chamber b^2 likewise made to splay from center outward, its opposite walls and bottom face and edges made to flare or curve outward at the points $e e'$, its chamber likewise having one end wider in cross-section than the opposite end, in combination with a swage or former, B, having its side and bottom faces and their edges made to have the flares or curvatures from center outward at the points $f f^3 f^4$, and also having its one extreme end wider in cross-section than its opposite end, by means whereof a sheet-metal blank can be shaped, formed, or swaged in the manner and for the purposes set forth.

In testimony whereof we have hereunto set our hands.

CHRISTIAN G. BLUM.
JOHN SCHOETTLE.

Witnesses:

WILLIAM W. HERTHEL,
JOHN W. HERTHEL.