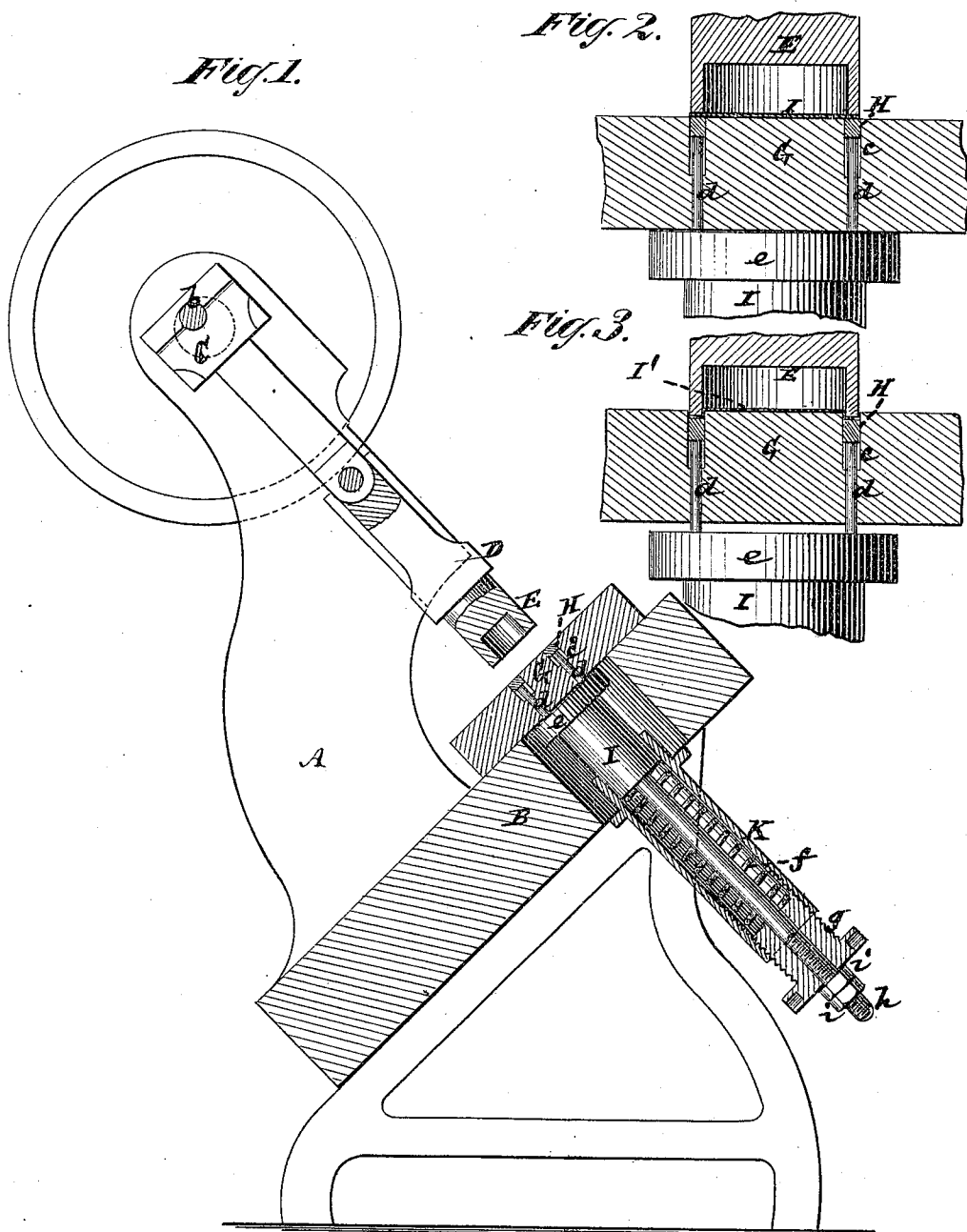


E. W. BLISS.
SHEET-METAL DIES.

No. 175,653.

Patented April 4, 1876.



Witnesses
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UNITED STATES PATENT OFFICE.

ELIPHALET W. BLISS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN SHEET-METAL DIES.

Specification forming part of Letters Patent No. **175,653**, dated April 4, 1876; application filed February 16, 1876.

To all whom it may concern:

Be it known that I, ELIPHALET W. BLISS, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Presses for Cupping Metal Blanks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to presses for cupping metal blanks of various kinds and for different purposes—as, for instance, for making the lids and ends of metal cans or boxes.

The invention consists in novel means or combinations of means connected with the male or that die of the press which has an inserted ring that yields to the action of the other die, and operates as a follower or discharger within it, whereby increased facilities are afforded for changing said ring to adapt the die to cupped work of different depths, and for substituting larger and smaller dies without changing the spring-pressure devices that act upon the ring.

Figure 1 represents a vertical section of a press having my invention applied. Figs. 2, 3, and 4 represent sectional views of the dies, upon a larger scale, at different stages in the prosecution of the work.

A represents the one side, and B the bed, of a press for cupping metal blanks. C is the driving-shaft, formed with a crank or eccentric pin, *b*, that serves, as the shaft is revolved, to give backward-and-forward, or up-and-down, motion to a die sliding holder, D, which contains the upper or female die E of the press. This die and the lower or male and stationary die G are constructed to make a sheet-metal cup, *I*², as shown in Fig. 4, said cup or cupped blank being made by the female or working die E first coming down on a plain blank, *I*, as in Fig. 2, and afterward bending or turning down the edges of said blank by the female die entering within or over the male die G against the resistance of a yielding ring, H, within the latter, thereby partially cupping the blank, as shown at *I*¹ in Fig. 3, and subsequently, by the continued like motion of the upper die, completing the cupping of the blank, as at *I*², Fig. 4.

The ring H forms a yielding base for the edges of the plain blank, and lies flush with the top surface of the lower die before the

upper die comes down to bend over the edges of the blank. Said ring freely fits a cavity, *c*, in the lower or stationary die G, and rests at its back on loose pins *d*, which pass through said die, and bear on or against an enlarged head or disk, *e*, of a spring-plunger, I, which is fitted to work freely through the bed B, and within a tube, K, containing a spring, *f*. This spring, which may be a spiral one, serves, when in its normal condition, to simply support the plunger, so that the ring H is flush with the top of the die G before the upper die commences to bend over the edges of the blank as against the resistance presented by the yielding ring. Different thicknesses of metal blanks, or different depths of cups produced from said blanks, require different degrees of resistance to be presented by said ring, which also acts as a discharge or follower after the work has been done. To meet this requirement the tube K is provided at its lower end with an adjustable screw-plug, *g*, upon which the one end of the spring *f* rests. Furthermore, the plunger I has a screw-shank, *h*, passing loosely down through the adjustable spring-support or screw-plug *g*, and capable of adjustment by nuts *i* from below said plug, whereby the support of the ring H in relation to the top of the die G may be regulated to suit different thicknesses of die, and different resistances of the ring, as controlled by the adjustment of the plug or support *g* on the spring *f*. Again, the plunger I or its head *e* is of such enlarged area relatively to the distance apart of the ring-supporting pins *d* that the same head or plunger will serve as a base for carrying rings H of different sizes or diameters, accordingly as smaller or larger dies E and G are used to make cupped blanks of varying area or size, and the changing of the die G in no way necessitates any removal of the plunger I, or the means by which said plunger is supported and adjusted.

I claim—

The combination, with the die G and its yielding ring H, of the pins *d*, the disconnected plunger I, the spring-tube K, the spring *f*, and the adjustable plug or spring support *g*, substantially as specified.

ELIPHALET W. BLISS.

Witnesses:

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