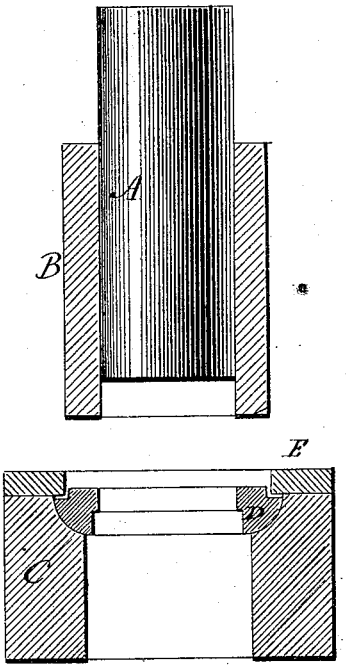
N. C. STILES.

Dies for Raising Articles of Sheet-Metal.

No. 161,572. Patented March 30, 1875.



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NORMAN C. STILES, OF MIDDLETOWN, CONNECTICUT.

IMPROVEMENT IN DIES FOR RAISING ARTICLES OF SHEET METAL.

Specification forming part of Letters Patent No. **161,572**, dated March 30, 1875; application filed February 18, 1875.

To all whom it may concern:

Be it known that I, NORMAN C. STILES, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new Improvement in Dies for Striking Articles from Sheet Metal; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent a vertical central section of the die and follower.

This invention relates to an improvement in dies, such as used for striking or drawing up articles from sheet-metal blanks.

In the usual method of doing this class of work a double-action press is employed—one follower or punch, A, within another, B. The outer follower B bears upon the surface of the metal blank, while the punch A forces the central part of the blank down into or through the die, gradually drawing it from beneath the outside follower or holder B, so as to prevent the wrinkling of the metal at the edges. In some cases the outside follower is a punch to cut the blank from the sheet, and there hold it, as before described.

In this operation of drawing it is essential that the blank be held alike, or with equal pressure at all points around its edge. This is found difficult to do, as there will be slight variations in the thickness of the blank.

To overcome this difficulty is the object of my invention; and it consists in making the drawing part of the die self-adjusting relative to the face or plane of the external follower or punch.

C is the body of the die, on which the drawing or external shaping part D of the die is placed. This part D is made spherical upon its under side, and the body correspondingly concave, as seen in the drawing. The interior of the part D is of the form of the exterior of the thing to be drawn. Over or above this is the cutting-die E, or, may be, a guide, corresponding substantially to the external follower or punch B, the punch A less in dimension than the part D of the die—that is, corresponding to the interior of the thing to be drawn—substantially as in the usual construction.

A slight play is allowed to the part D, so that, if the pressure be greater at one point than at another, the said part D will be depressed at that point, and raised at the opposite point; hence, if the blank to be struck is slightly thicker at one point than at the opposite, the follower B will force the part D to turn or tip until the pressure is alike at all points. The variation is so slight that it will not materially change the relative positions of the punch A and the part D.

While I prefer the spherical form for the part D, any form or arrangement which will allow a universal self-adjustment relative to the plane of the follower B will accomplish the same result. I therefore do not confine myself to the said spherical form.

I have described the part D as of the die; but it will be evident that it may be in like manner attached to the follower with precisely the same result.

I claim—

In combination with a central punch, A, and external follower or punch B, the part D, arranged substantially as described, so as to be universally self-adjusting relatively to the plane of the follower B, substantially as specified.

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Witnesses:

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