

W. J. GORDON.
Machines for Cutting out and Stamping up Sheet
Metal Boxes.

No. 145,412.

Patented Dec. 9, 1873.

Fig. 1.

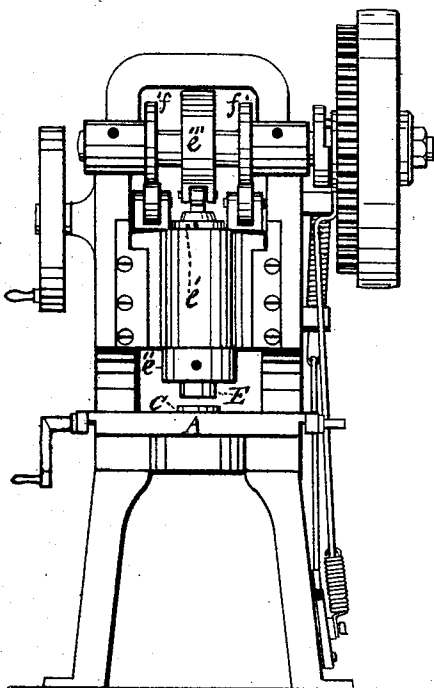


Fig. 2.

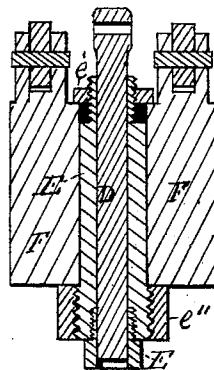


Fig. 3.

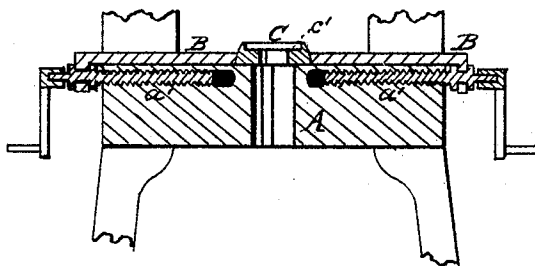
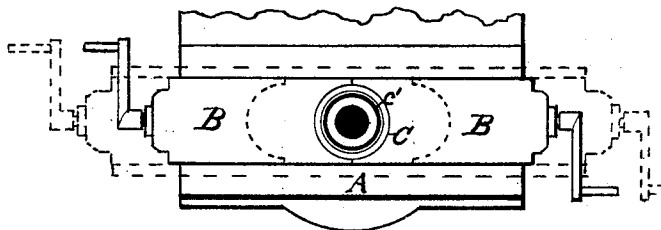


Fig. 4.



Witnesses.

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WILLIAM J. GORDON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR CUTTING OUT AND STAMPING UP SHEET-METAL BOXES

Specification forming part of Letters Patent No. **145,412**, dated December 9, 1873; application filed June 30, 1873.

To all whom it may concern:

Be it known that I, WILLIAM J. GORDON, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Presses for "Blanking" and "Forming up" Sheet Metal, of which the following is a specification:

My improvements relate more especially to the press for which Letters Patent No. 96,535 were granted to JOHN ANNEAR and myself for certain improvements therein, dated November 9, 1869. The object of my present invention is to provide for a more simple and accurate adjustment of the cutter in relation to the sliding carrier thereof and the forming-die, and so as to adapt the same to suit different thicknesses of the sheet metal and the shortening of the cutter by wear.

Figure 1 is a front elevation of a press embodying my invention. Fig. 2 is a central vertical section of the sleeve, cutter, and plunger detached from the frame of the press. Fig. 3 is a vertical longitudinal section of the base-plate and one of the changeable dies, with the improved devices for adjusting and securing the latter in position to suit the sliding cutter and plunger. Fig. 4 is a plan or top view of a section of the bed-plate, having a die secured therein by means of a pair of adjusting-slides.

A is the bed-plate; B B, the adjustable slides for securing the die C; D, the plunger; E, the cutter, and F the sleeve, within which the cutter is adjusted by means of two screw-nuts, e' e'' . The sleeve F receives its downward motions from two like cams, $f f'$, on the main shaft of the machine, and its upward motions from the elevating action of two levers, one end of each of which is connected to the rear side of the said sleeve F, and the other ends to respective spiral springs, in the usual manner, neither of which elevating devices being shown in the drawings. The cutter E is adjusted in the bore of the sleeve F by means of the screw-nuts e' and e'' , so that its lower or cutting end may be either raised or lowered to suit the thickness of the sheet metal which is to be operated upon in the die C, and to compensate for wearing off its sharp corner edge in use. If the upper nut, e' , be screwed

upward, and then the lower nut, e'' , screwed upward, the cutter will be accordingly lowered in the sleeve F; but if the lower nut be screwed downward, and then the upper nut screwed downward, the cutter will be accordingly raised in the said sleeve. Motion up and down alternately is given to the plunger D within the cutter E by means of a cam between the two cams $f f'$ on the main shaft, the said cam being inclosed or surrounded by a close-fitting ring, e''' , which is articulated to the upper end of the said plunger. (See Fig. 1.) The arrangement of the plunger-cam in relation to the sleeve-cams $f f'$ is such that the sleeve F, and consequently the cutter E, will first be forced downward, so as to cut a disk out of the sheet metal resting upon the die C, and force the said disk down upon the inner shoulder c' , and immediately afterward the plunger D is forced downward upon the center of the disk of sheet metal in the die, so as, by a continuation of its downward motion, to press the said disk into the central hole in the die, and thus cause the surrounding shoulder c' of the die at the same time to "form up" or turn the edge of the disk upward to a right angle with the part which is directly under the plunger D, and thus form the disk into either a lid or body for a blanking-box, or other use, as may be desired. Immediately after the disk has been formed up, as described, the plunger D begins to rise, the cutter E at the same time remaining stationary until the formed-up disk is being released from the plunger, when the said cutter also rises with the plunger—both into their original elevated positions—and so on, operating together as described, and the formed-up disks falling down through the die-opening into any suitable receiver, complete for use, as lids or boxes. The slides B B for adjusting and holding the die C firmly in the bed-plate A are "let in" a groove having under-cut or dovetail sides to correspond with the bevel edges of the slides. The outer end of each slide projects downward sufficiently to receive a screw-shaft, a' , which screws into the bed-plate, and, by means of a hand-crank on the outer end of the shaft, the operator can readily move the slides backward and forward

in the bed-plate A, and thus secure the die C between the recessed inner ends of the two slides *a' a'*, so as to be exactly in its proper position under the center of the lower end of the plunger D, as shown in the drawings.

It will be readily seen that the cutter E can be readily and accurately adjusted in its relation to the sliding carrier or sleeve F, and the die C, so as to adapt the same to different thicknesses of the sheet metal to be operated upon, and to shortening of the cutter consequent from wearing away in use; and that, by means of the two meeting-slides B B, the dies of different diameters can be readily and accurately adjusted, and firmly secured directly under the said cutter and plunger without the use of a hammer.

I claim as my invention—

The construction and arrangement of the parts D, E, F, *e'*, and *e''*, in relation to the cams *e'''* and *f' f'*, and to the die C, constructed as set forth, whereby the cutter or part E is caused to hold the separated blank firmly down upon the shoulder *e'* of the die C while the plunger or part D is forcing the said blank down through the central opening in the said die C, and afterward causing the formed-up blank to be released from the rising plunger or part D, that it may drop down into any suitable receiver, substantially as and for the purpose set forth and described hereinbefore.

WILLIAM J. GORDON.

Witnesses:

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