J. Annear,

Sheet-Metal Die.

No. 84,670. Patented Dec. 8, 1868.

Fig. 2

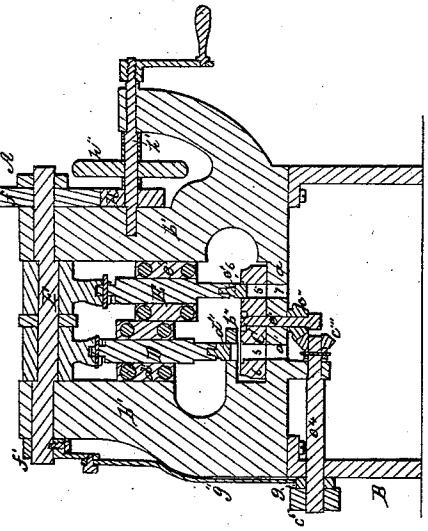


Fig. 3

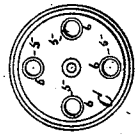
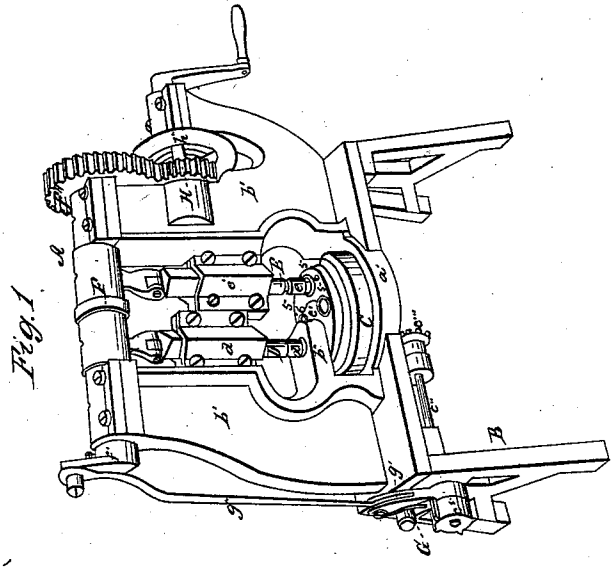


Fig. 1



Witnesses,
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JOHN ANNEAR, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 84,670, *dated December* 8, 1868.

IMPROVEMENT IN PUNCHING-MACHINE FOR TIN AND SHEET-METAL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN ANNEAR, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Machine for Punching Out and Turning the Edges of Sheet-Metal Disks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the said machine;

Figure 2, a vertical longitudinal section of the same; and

Figure 3, a plan view of the rotary bed or die-plate detached.

Like letters and numerals of reference indicate the same parts when in the different figures.

The object of this machine is to facilitate the production of the sheet-metal disks, having turned edges, which are required in the manufacture of blacking and other cylindrical boxes of sheet-metal.

My invention consists, substantially as hereinafter described, in the employment, in a suitable supporting-frame, of a horizontal rotary bed-plate for carrying and supporting the dies, with a punch and a "former," constructed and arranged to operate together, so as to punch out, "form up," or turn the edge of and discharge the finished disk of sheet-metal, during each rotary motion of the actuating-shaft of the said punch and "former" of the machine.

Referring to the drawings—

A B is the supporting-frame of the machine;

C, the rotary bed-plate;

D, the punch-bar;

E, the "former"-bar; and

F, their actuating-shaft.

The bed-plate C is supported, in a horizontal position, upon the solid horizontal portion, a', of the frame A B, and is rotated thereon by means of a central axis, c', fixed therein, and projecting downward perpendicularly, and through an appropriate hole in the frame A B, and having fixed on its lower end a bevelled pinion, c'', which gears with another bevelled pinion, c''', on a horizontal shaft, c^4, which is secured to the under side of the frame A B, so as to be rotated by means of a four-toothed ratchet-wheel, c^5, which is fixed rigidly on the projecting other end of the said shaft, c^4, and a pawl, G, attached to a lever-arm, g', which turns loosely on the shaft c^4, as its fulcrum, and is operated by means of a connecting-rod, g'', and a lever-arm, f', fixed on the shaft F, which projects on that side of the frame of the machine for the purpose.

The shaft F is supported, in suitable bearings, upon two uprights, b' b', and is made eccentric at the part which is between the uprights b' b', so as to give the requisite up-and-down motions to the punch-bar D and the "former"-bar E, which are supported in respective guides, d'' e', and articulated to the eccentric portion of their actuating-shaft F, in the usual well-known manner, shown in the drawings.

Motion is given to the shaft F, by means of a spur-wheel, f'', fixed thereon, and gearing with a pinion, H, on the main driving-shaft, h', which carries a balance-wheel, h'', and may be put in motion by means of a hand-crank or band-pulley, and any suitable power applied thereto.

The lower end of the punch-bar D has a socket, into which any suitable-sized punch, d'', can be adjusted; and, in like manner, the lower end of the "former"-bar E has a socket, into which any suitable-sized "forming"-plunger, e'', may be adjusted.

In the rotary bed-plate C there are four through holes, 5 5 5 5, each surrounded by a recess, 6, in the upper side of the bed-plate, for the reception and support of the different-sized dies that may alternately be required for receiving the sheet-metal disks, and, in conjunction with the "former," in turning their edges.

The die, for cutting out the disks of sheet-metal, is fixed over a suitable hole in the horizontally-projecting platform, b'', of one of the uprights, b', and is secured so as to be directly under the punch D.

The gearing is so constructed and adjusted, in relation to the punch D, "former" E, and the rotary bed-plate C, that at each rotation of the eccentric-shaft F, the said punch and the said "former" will descend and rise together, or simultaneously, so that shortly after commencing to rise, and during the rising, the bed-plate C will sufficiently rotate to bring one of its four dies, 5, directly under the punch D, and its diametrically-opposite die, 5, directly under the "former" E, and so remain stationary during the descent of the said punch and "former," and for a short time after they again commence to rise.

A clearing-hole, 7, is made directly under the "former" E, through the portion, a', of the frame A B, for the discharge of the turned or finished disks of sheet-metal.

In the operation of this machine it will be seen that the sheet of metal, from which the disks are to be punched and "formed up," is to be moved by hand, on the projection b'', under the punch d', when the latter is up, and that as the punch descends into the die, the required disk will be punched out and let fall into the die, 5, below it in the rotary bed-plate C, and that, as the latter is rotated at each upward motion of the punch D and "former" E, a quarter way around on its axis c', the said disk will eventually be brought directly under the "former" E, which, in its descent, will sink the said disk into the die 5, and thus turn up its edge, as required, and leave it therein, to be subsequently pushed downward, and out below, by the disks which will be subsequently sunk in the same die and in the same manner.

It will therefore be evident that at each descent of the punch and the "former," one disk will be punched out of the sheet of metal, and another "formed up,"

simultaneously at each full rotary motion of the eccentric or actuating-shaft F.

All the parts of the machine are intended to be made of iron, with the exception of the bearings of the shafts, and the punch and "former," with their dies, which latter should be made of steel, and hardened.

By means of this machine, the disks required for the bottoms and tops of blacking-boxes, and other cylindrical boxes of sheet-metal, can be produced with facility in the most rapid and perfect manner.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent is confined to the following, *i. e.:*

I claim the rotary bed-plate C, the punch D *d'*, and the "former" E *e'*, the same being constructed and arranged to be operated together, in any suitable frame, A B, substantially as and for the purpose described.

JOHN ANNEAR.

Witnesses:

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