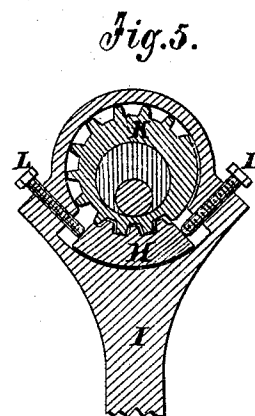
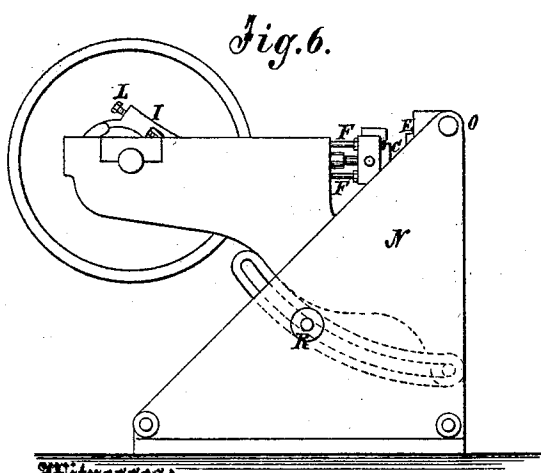
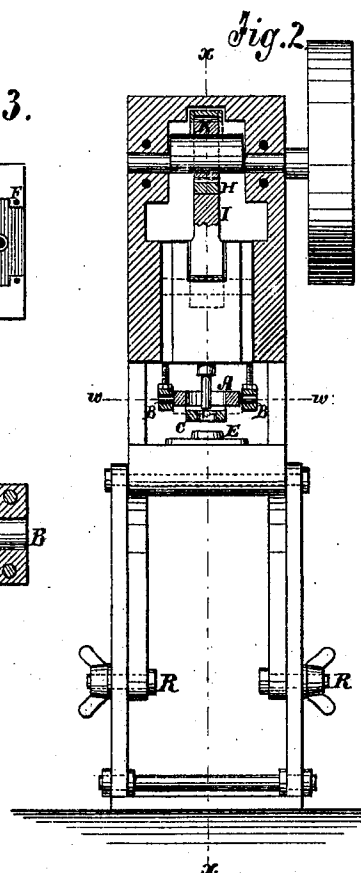
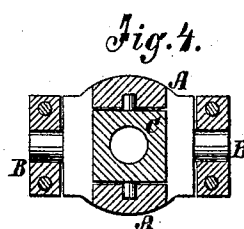
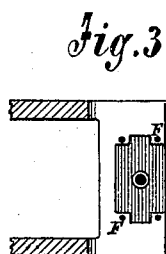
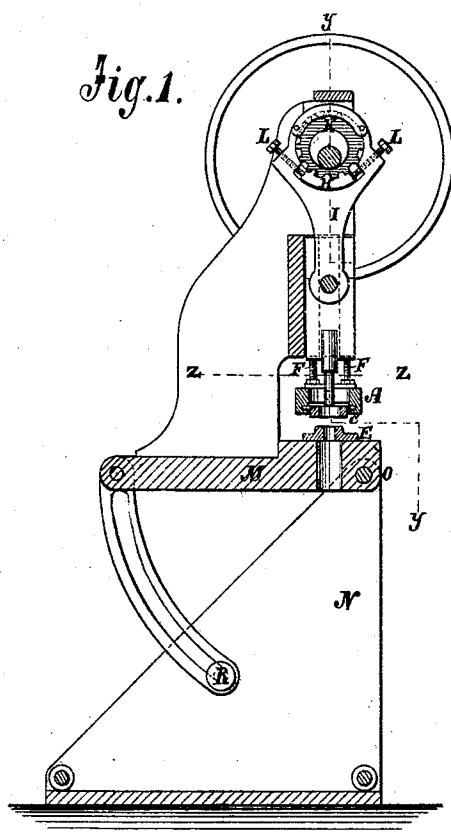


N. C. STILES.
Improvement in Machines for Punching Metal.
No. 130,878. Patented Aug. 27, 1872.



Witnesses:

A. Bennekenhoff.
N. A. Graham

Inventor:

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Attorneys.

UNITED STATES PATENT OFFICE.

NORMAN C. STILES, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO "THE STILES AND PARKER PRESS COMPANY," OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR PUNCHING METAL.

Specification forming part of Letters Patent No. 130,878, dated August 27, 1872.

Specification describing a new and useful Improvement in Punching-Machines, invented by NORMAN C. STILES, of Middletown, in the county of Middlesex and State of Connecticut.

My invention consists, first, of a stripper for holding the bar of metal for the withdrawal of the punch after punching the hole, so arranged that it will oscillate when the bar is drawn against it and take any position or inclination that the upper surface of the bar may have, so as to bear alike on opposite sides of the punch and thus prevent the bar from tilting, as it will if the upper surface is not perpendicular to the punch and parallel with the surface of a stripper rigidly fixed, and thus prevent the frequent breaking of punches. Secondly, my invention consists in having the stripper suspended from the upper portion of the frame, so as to leave a clear space above the bed-die to allow of turning the bar or plate to be punched in any direction, and to facilitate the presenting of wide plates to the punch. Thirdly, my invention consists of an arrangement for adjusting the eccentric-toothed ring, by which the punch is shifted higher or lower, whereby a nicer or finer adjustment can be made than with the arrangements heretofore used; and, fourthly, my invention consists of a punching-machine with the plate or table, whereon the bed-die and the upper portion of the frame and the operating gear are mounted, so pivoted to a stand and provided with braces that the table can be tilted backward to the extent of ninety degrees or less to facilitate the discharging of the punched or stamped articles; the object being to have the table stand at an angle of forty-five degrees, or thereabout, so that the work will slide or fall away from the die as soon as it is stripped from the punch.

Figure 1 is a sectional elevation of my improved machine taken on the line *xx* of Fig. 2. Fig. 2 is a sectional elevation taken on the line *yy* of Fig. 1. Fig. 3 is a section on the line *zz* of Fig. 1. Fig. 4 is a section on the line *ww* of Fig. 2. Fig. 5 is a partial section on the line *xx* of Fig. 2, enlarged; and Fig. 6 is a side elevation of a press, showing the upper portion turned down to a horizontal plane with the table in a vertical plane.

Similar letters of reference indicate corresponding parts.

Punches are very often broken when being withdrawn from the metal in consequence of the upper surface of the iron not being exactly parallel with the stripper, or having bunches or the like at one side of the punch, which, coming against the stripper before the part of the bar at the other side of the punch, cause the bar to tilt till it bears on the stripper at both sides, which so bends and cramps the punch that it breaks before the metal will strip off. For this reason I propose to have a ring or plate, A, for one part of the stripper journaled to supports B, as shown, and another plate, C, journaled to A, with the axes at right angles to each other, or thereabout, so that the lower one will have a kind of universal oscillatory movement, by which it will readily come to any incline to suit the upper surface of the metal before any stripping action takes place, and so that the stripping force will be applied on opposite sides of the punch alike, and thus avoid any bending or cramping of the punch whatever, and thereby wholly avoid the breaking of the punches in stripping the work from them. I propose to suspend these strippers from the frame above the bed-die E, as shown in the drawing, by rods F, or other suitable means, to have as clear a space all around as the capacity of the frame will afford, to facilitate the presenting of the work; and I will make them adjustable on said rods by nuts and screw-threads, or other means, to shift them readily for bars varying in thickness. I also propose to make that part H of the eccentric yoke, or the connecting-bar I, with which the shifting toothed eccentric ring K gears, so as to be held adjustable in a circle, as shown, and to provide adjusting-screws L, or other suitable means, for adjusting it in the manner indicated in the drawing, so that I can adjust the ring to the smallest degree. As heretofore arranged, these adjusting-rings could not be shifted less than the pitch of one tooth, which is more than is often required. I also propose to construct punching-presses, of the character represented in the drawing, with the plate or table M supporting the operative parts, pivoted to a stand, N, at the front, as shown, and with curved slotted braces P,

or any equivalent thereof, for adjusting the table to any angle required for facilitating the discharge of the work, and I make it fast by clamp-screws R. I will so connect these braces to the table that they may be adjusted to extend downward from it, as shown in Fig. 1, or upward, as in Fig. 6, so that braces of about an eighth of a circle will serve to shift the table a quarter of a circle, the clamp-screws being placed half way between the uppermost and lowermost positions of the free or swinging edge of the table.

Presses have been made with the table fixed on an inclination, but such presses are not useful for work requiring the table to be horizontal. By having them adjustable, as I propose, they are adapted to either condition, and therefore much more desirable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The stripper C, ring A, and support B, combined and arranged substantially as and for the purpose described.

2. An adjustable and notched arc-piece H, eccentric cogged-ring K, and bar I, combined and arranged substantially as and for the purpose set forth.

3. A stand, N, combined with a punching-table, M, adjustable in the arc of a circle from the connecting-hinge, as described, for the purpose of facilitating the discharge of work.

NORMAN C. STILES.

Witnesses:

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