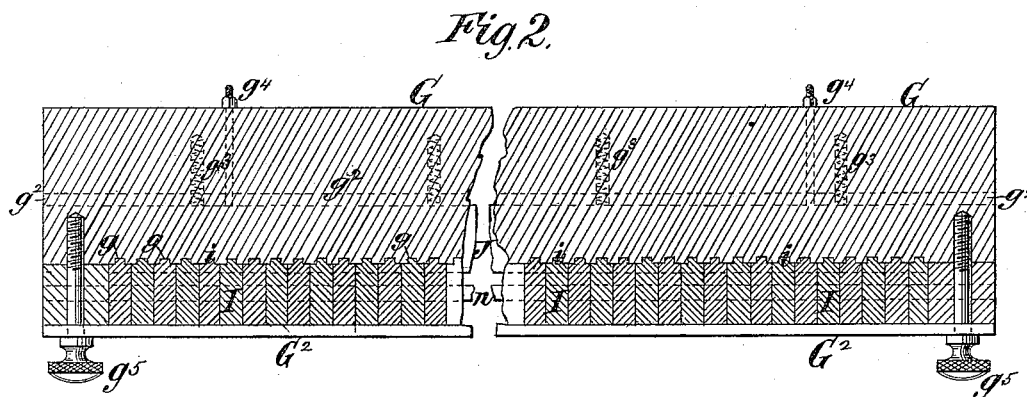
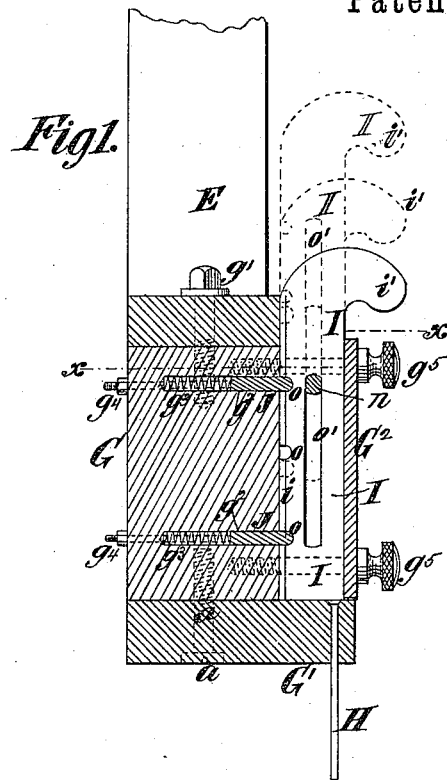


(No Model.)

E. B. STIMPSON & E. B. STIMPSON, Jr.
PERFORATING MACHINE.

No. 345,190.

Patented July 6, 1886.



Witnesses.
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UNITED STATES PATENT OFFICE.

EDWIN B. STIMPSON AND EDWIN B. STIMPSON, JR., OF BROOKLYN, N. Y.

PERFORATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,190, dated July 6, 1886.

Application filed January 20, 1886. Serial No. 189,203. (No model.)

To all whom it may concern:

Be it known that we, EDWIN B. STIMPSON and EDWIN B. STIMPSON, Jr., both of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Perforating-Machines, of which the following is a specification.

Our invention relates to that class of machines for perforating paper, leather, sheet metal, or other material in which a line or row of punches are carried by a reciprocating punch-holder operating in connection with a die having a corresponding row or line of perforations. In the operation of such a machine it is often desirable to render one or more of the punches at different points in the line or row inoperative without removing such punches from the machine; and the object of our invention is to provide means for holding the punches down which are capable of adjustment, so as to enable any one or more of the punches to lift on striking the paper or other material, and to be thus rendered inoperative.

In carrying out our invention we employ, in connection with a punch-holder carrying a line or row of punches, a series of keys, which are fitted to the punch-holder side by side above the punches, and which are individually capable of vertical adjustment. The machines will preferably have a key for each punch, and when any one of the punches is to be rendered inoperative the corresponding key is to be raised, so that the punch may rise on striking the paper or other material, and therefore fail to perforate. In order to hold the keys in their elevated and depressed positions, we employ one or more locking bars or plates, which are movable laterally in the punch-holder, and which engage with notches in the rear edges of the keys. Such locking bars or plates are preferably pressed outward into engagement with the notched keys by means of springs, and their ends or outer edges are or may be rounded and engage with concaved or rounded recesses or notches in the keys. We also employ in front of the keys an adjustable cap-plate, which may, by means of screws, be pressed firmly against the keys, so as to hold them in strong engagement with the locking bar or plate; but when the screws which secure the cap-

plate to the punch-holder are slackened, the cap-plate will permit the keys to yield outward sufficiently to clear the rounded edge of the locking bar or plate.

The invention consists in novel combinations of parts, which are hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of a punch-holder and appurtenances embodying our invention, and a portion of the reciprocating cross-head to which the punch-holder is secured; and Fig. 2 is a horizontal section upon the plane of the dotted line *x x*, Fig. 1.

Similar letters of reference designate corresponding parts in both figures.

G designates a punch-holder, which consists of a long bar of sufficient length to sustain the row or line of punches H, and which is here represented as secured by screws *g'* to a cross-head, E. The punches H are fitted in a flange or portion, G', projecting forward from the punch-holder G, and, as here represented, formed in a separate piece secured to the punch-holder by screws *a*.

The punches H are held down by a series of keys, I, which are fitted side by side in the punch-holder above the punches and are vertically movable. In the example of the invention here represented each punch is supposed to be held down by a separate key; but the keys might be of such width and the punches arranged at such distance apart that each key will overlap the heads of two or more punches. As here represented, the keys I have at their rear edges ribs or tongues *i*, which enter vertical grooves *g* in the front of the punch-holder G, and which guide the keys in their vertically-sliding movements.

When the keys I are held down in the position shown in full lines in Fig. 1, they bear upon the heads of the punches and prevent the rising of the punches when they strike the material to be perforated. If the keys I be raised to the position indicated by dotted lines next above the full lines in Fig. 1, the lower ends of the keys will be raised from the punch-heads, so that when the punches strike the material they will lift or remain stationary, while the punch-holder continues its downward movement, and so will be rendered inoperative. When the keys are

raised into the position indicated by the highest dotted line in Fig. 1, their lower ends will be sufficiently far above the heads of the punches to enable any one or more of the punches to be lifted out from the punch-plate or portion G' to be sharpened, repaired, or renewed, as may be desired.

In order to hold the keys I in the several positions to which they may be adjusted, as described, we have represented them as having in their rear edges notches *o*, which are rounded or concaved in shape, and with which engage locking bars or plates J, fitted to slide horizontally in the punch-holder G and having their outer edges rounded, so as to fit the concave notches *o* of the keys. We have here represented two such locking bars or plates, which are fitted in slideways *g*² in the punch-holder G, and which are pressed outward or into engagement with the notches *o* by springs *g*³. The outward movement of such locking bars or plates J is, however, limited by pins or bolts *g*⁴, which extend from them rearward through the punch-holder G, and are provided with nuts, as best shown in Fig. 2, to limit the extent of protrusion which the front edges of the bars or plates J have from the punch-holder G. In order to guide the keys and hold them in proper position we have represented a guiding rod or bar, *n*, shown in Fig. 1, as extending parallel with the punch-holder G, and the keys I are provided with slots *o'*, which fit this rod or bar *n* and enable the keys to slide vertically upon it. We have also represented a cap-plate, G², as applied to the punch-holder G in front of the keys I and secured to the punch-holder by screws *g*⁵. When the screws *g*⁵ are tightened, the cap-plate will hold all the keys I strongly in engagement with the locking bars or plates J, and will prevent the keys from rising, and so then they will effectively hold down the punches. When the screws *g*⁵ are slackened, the cap-plate G² is eased away from the keys I, and as the locking-bars J cannot spring any farther forward, owing to the stop-rod *g*⁴, sufficient freedom of movement is allowed the keys I to enable them to be raised vertically or slid downward, as may be desired, the concave notches *o* in their rear edges springing over or pushing back the locking-bars J as they pass out of engagement with them.

When the keys I are in their lowermost position, as shown in Fig. 1 by full lines, both the locking-bars J will be in engagement with the notches *o*, and when the keys are raised in either of their elevated positions, but one locking-bar will be in engagement with them. This, however, is unimportant, because when the keys are in their elevated position no strain comes upon them, which would tend to raise them, and therefore one locking-bar is sufficient to hold the keys in either of their elevated positions.

When it is desired to render one or more punches, H, at any point in the line inoper-

ative, all that is necessary is to slacken the cap-screws *g*⁵, raise the keys I, which correspond to those punches which it is desired to render inoperative, and again tighten the cap-screws *g*⁵ to hold all the keys in position.

We have represented the keys as provided at their upper portion with a horn or hand-piece, *i'*, whereby they may be lifted.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with a punch-holder carrying a line or row of punches, of a series of keys fitted side by side in the holder above the punches and adjustable vertically, so that they may be brought down over the punches to make them operative, or raised to allow any one or more of the punches to rise on striking the material operated on, substantially as herein described.

2. The combination, with a punch-holder carrying a line or row of punches, of vertically-sliding keys fitted side by side in the punch-holder above the punches and having locking-notches, one above another, in their rear edges, and a locking bar or plate movable in the holder to engage with one or other of the notches in the keys to hold them in their elevated or depressed positions, substantially as herein described.

3. The combination, with a punch-holder carrying a line or row of punches, of vertically-sliding keys fitted side by side in the punch-holder above the punches, and having in their rear edges three notches, which correspond to three positions of the keys necessary to hold the keys down on the punches to permit the punches to rise on striking the material and to permit the removal of the punches, and a locking bar or plate movable in the holder to engage one or other of the notches in the keys to hold them in the desired position, substantially as herein described.

4. The combination, with a punch-holder carrying a row or line of punches, of the vertically-adjustable keys arranged above the punches and notched at their rear edges, a spring-actuated locking bar or plate, movable in the holder, to engage the notches in the keys, and an adjustable cap-plate at the front of the keys for holding them in strong engagement with the locking bar or plate, substantially as herein described.

5. The combination, with the punch-holder carrying a row of punches and provided with the guiding rod or bar *n*, of the vertically-sliding keys I, slotted to receive the guiding rod or bar *n*, and notched at their rear edges, and a locking bar or plate movable in the holder to engage the notches in the keys, substantially as herein described.

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