(No Model.) 2 Sheets—Sheet 1.

E. B. STIMPSON & E. B. STIMPSON, Jr.

PERFORATING MACHINE.

No. 345,189. Patented July 6, 1886.

Fig. 1

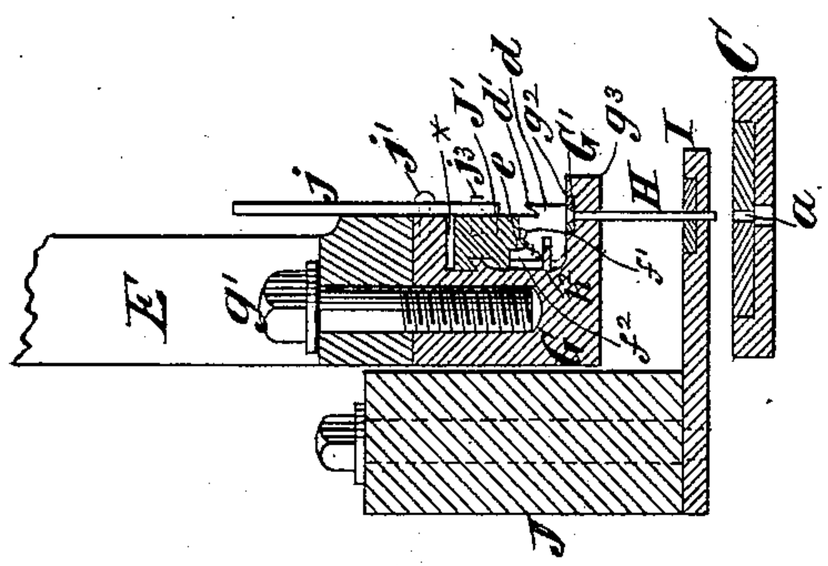


Fig. 4

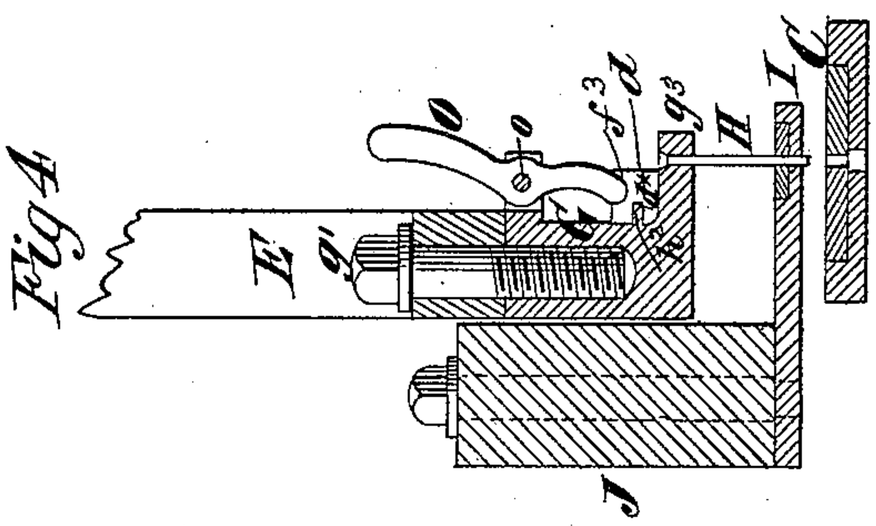
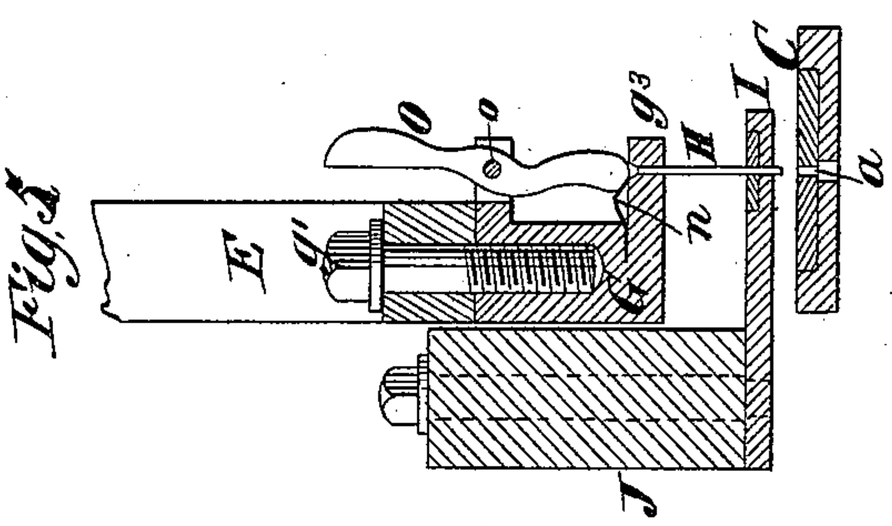


Fig. 3



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(No Model.) 2 Sheets—Sheet 2.

E. B. STIMPSON & E. B. STIMPSON, Jr.

PERFORATING MACHINE.

No. 345,189. Patented July 6, 1886.

Fig. 2.

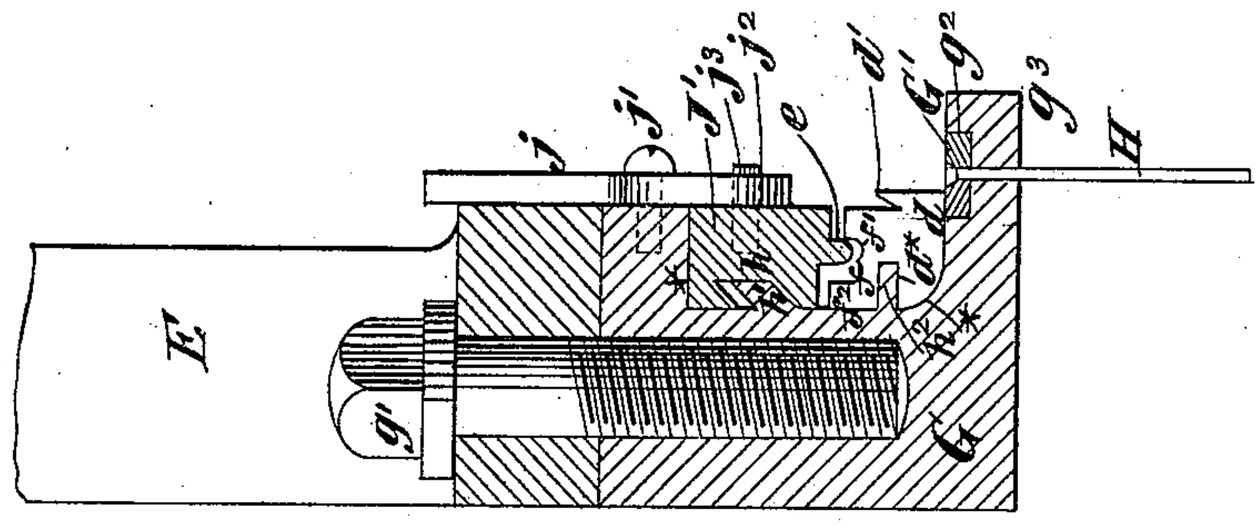
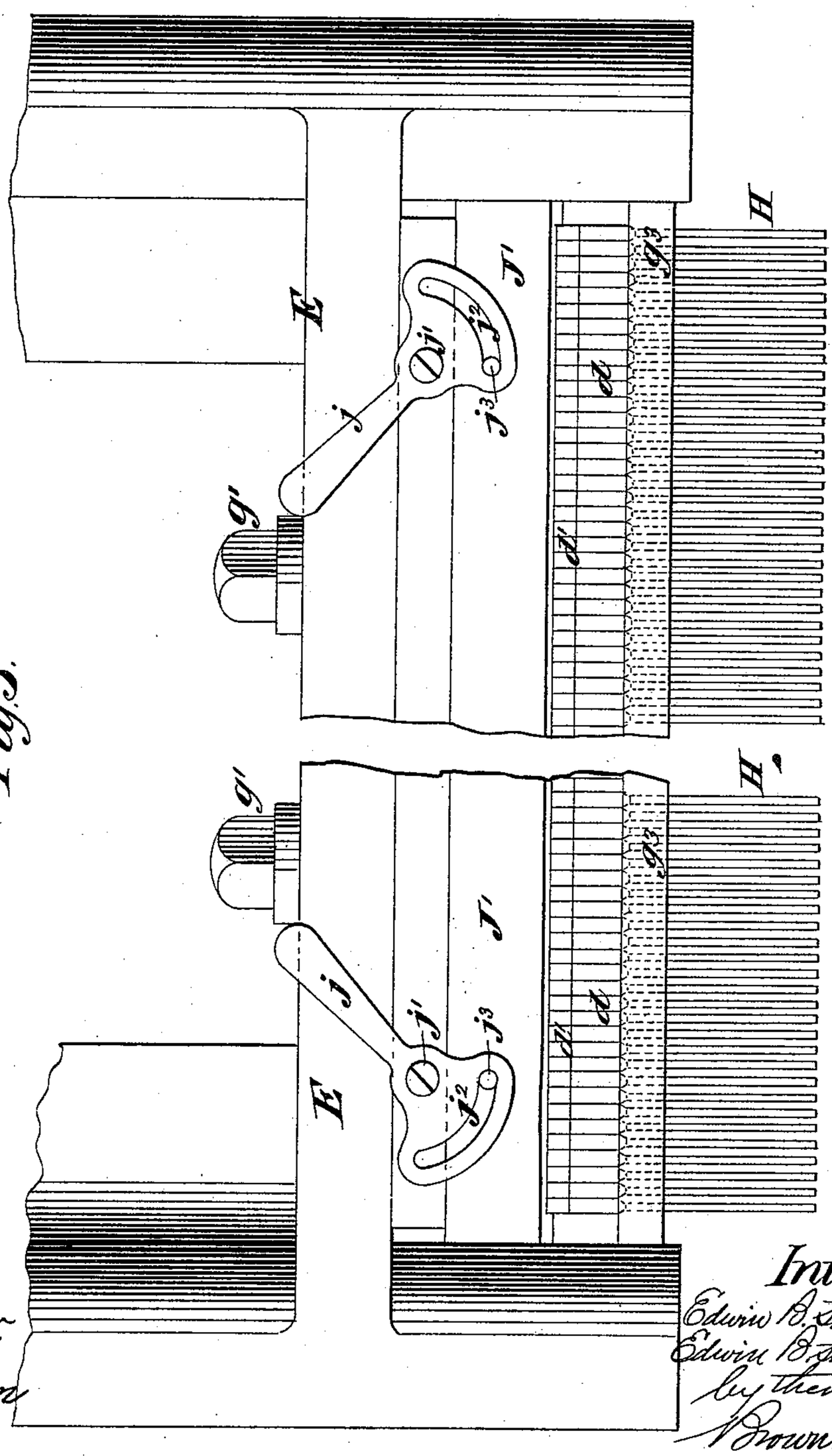


Fig. 3.



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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. 345,189, dated July 6, 1886.

Application filed January 12, 1886. Serial No. 188,380. (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.

In machines for perforating paper, leather, metal, and other materials, there are usually employed a die and a vertically-reciprocating punch head or holder carrying a row or line of punches, and a stripper-plate or stripper through which these punches work. In such machines it is often desirable to render certain of the punches inoperative by enabling them to rise in the punch-holder when they strike the material, so that such punches will not perforate the material.

Our invention relates to the means whereby the punches may be held so that all will perforate the material presented to them, or so that any one or any group or groups of punches may be released so as to rise and be inoperative when it or they strike the material.

The object of our invention is to provide means for holding down and rendering the punches operative, which are carried by and movable relatively to the punch-holder, and are of such nature that by simple adjustment any single punch or group of punches at any point in the row or line may be released and allowed to rise so as to be inoperative.

Our invention consists in the combination, with a vertically-reciprocating punch-holder having a flange or punch-plate projecting at its front and perforated for the reception of punches, of keys or blocks which are fitted to and carried by the punch-holder above the punch-plate, and which are accessible at the front of the punch-holder, and may be moved laterally backward, so as to bring them out of range of the punch-heads to permit any one or more of the punches to rise, or forward, to bring them over the punch-heads, to hold the punches fast in the holder and render them operative. The keys themselves may be connected with the punch-holder, so that they will be prevented from rising; or we may employ locking devices, hereinafter described, which are carried by and adjustable relatively to the punch-holder for preventing the rising of the keys.

The invention also consists in the combination, with the punch-holder and keys or blocks adjustable as above described, of a vertically-movable locking-bar above the keys or blocks, serving to hold them in either of the two positions to which they may be adjusted.

Our invention also includes other minor combinations of parts, hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a transverse vertical section of a punch-holder embodying our invention, and a stripper-beam, and a stripper and die, in connection with which the punches operate. Fig. 2 is a sectional view similar to Fig. 1 of the punch-holder and appurtenances alone, and upon a larger scale. Fig. 3 is a front view of the punch-holder and appurtenances upon the same scale as Fig. 2; and Figs. 4 and 5 are sectional views of punch-holders and appurtenances showing modifications of our invention.

Similar letters of reference designate corresponding parts in all the figures.

In order to illustrate our invention, we have in the drawings represented parts of such a machine as is shown in United States Patent No. 313,383, granted March 3, 1885, to Edwin B. Stimpson, and we have employed the same letters of reference as those used in the said patent to indicate corresponding parts.

E designates the cross-head, which is reciprocated in the usual way upon upright guides, (not here shown,) and to which the punch-holder G is secured by screws g' or otherwise. The punch-plate G′ is secured in a channel, g^2, in a flange or projecting portion, g^3, of the punch-holder, and has projecting downward from it a row or line of punches, H, which work through a stripper or stripper-plate, I, attached to a stripper-beam, J.

C designates the die over which the material to be perforated is fed, and which is provided with holes or openings *a* to receive the punches H.

As our invention relates only to the construction of the punch-holder and its appurtenances, we will now particularly describe these parts. The front of the punch-holder G is channeled or recessed at *, and in such channel or recess above the punch-plate G′ are arranged the means whereby the punches

H are held down and made operative. These means consist of a number of keys or blocks, *d*, arranged side by side, and the form of which is shown in Figs. 1 and 2, and a locking-bar, J′, arranged above the keys or blocks. These parts are all carried by the reciprocating punch-holder. The channel or recess * in the punch-holder G is deep enough, and the keys or blocks *d* are of such length that they may be slid laterally backward, as shown in Fig. 2, so that they will not overlap the punch-heads, and will permit the punches to rise when they come down on the paper or material, or forward, so that they will overlap the punch-heads, as shown in Fig. 1, and prevent the punches from so rising. The locking-bar J′ has on the under side a tooth or rib, *e*, extending lengthwise thereof, and the keys or blocks *d* have each two notches, *f f′*, with one or the other of which the tooth *e* will engage when the bar J′ is pressed down. The bar J′ is carried in the punch-holder and is moved relatively thereto by means of cam-levers *j*, (shown in Fig. 3,) which are fulcrumed at *j′* to the punch-holder G, and have each a cam-shaped slot, j^2, engaging a stud, j^3, on the bar J′. The locking-bar J′ has at the back a dovetailed groove, *h*, engaging a tongue, *h′*, on the punch-holder, and which prevents the locking-bar from being freed from the punch-holder by a lateral movement, as the bar J′ must be slid lengthwise into engagement with the tongue *h′* on the locking-bar.

We have shown the keys or blocks *d* as provided with notches *d′*, with which a hooked wire or other implement may be engaged for pulling them forward over the punches, or they may be be pulled forward by the fingers. They have each an upward projection, f^2, at the back, which, by engaging the bar J′, as shown in Fig. 1, prevents them from being drawn too far forward. The keys or blocks *d* also have notches or grooves *d**, engaging a tongue or rib, h^2, on the punch-holder G, and which prevent the keys or blocks *d* from being tilted upward when an attempt is made to draw them forward. When all the punches are operative, the locking-bar J′ is down, with its tooth or rib *e* in engagement with the notches *f* in the keys *d*, as shown in Fig. 1. When it is desirable to render any punches inoperative, the bar J′ is released and rises, and the keys *d*, overlapping such punches, are then pushed in, as shown in Fig. 2, the bar J′ being there raised, and the bar J′ is then brought down. The tooth or rib *e* of the locking-bar J′ then engages the notches *f′* of all the keys *d* thus pushed in, and the notches *f* of all which are left in their normal or outermost position, thereby locking all the keys in place.

We have in Fig. 3 represented the keys *d* as very narrow, one serving for each punch; but obviously they might be each broad enough to cover two, three, or more punches.

In lieu of the vertically-movable locking-bar J′, above described, we may employ for locking the keys or blocks *d* a series of levers, O, fulcrumed at *o* in the punch-holder G, as shown in Fig. 4. The lower ends of the levers O engage notches or recesses f^3 in the keys or blocks *d*, and the parts may be so fitted that a slight force must be exerted on the levers O to bring the keys *d* forward over the punches H. The bearing-point of the levers on the keys will then be directly below the fulcrum *o*, and the keys will be locked to prevent their rising.

Instead of employing the sliding keys *d*, the levers O themselves may be arranged to bear on the heads of the punches H, and themselves form the keys, as shown in Fig. 5. The levers O may swing inward to release the punches H and allow them to rise, and in order to prevent the levers from swinging inward accidentally we may provide springs *n*, which offer slight resistance to such inward movement of the levers.

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

1. The combination, with a vertically-reciprocating punch-holder having at the front a projecting flange or punch-plate perforated for the reception of punches, of keys or blocks which are fitted to and carried by the punch-holder above the flange or plate, and which are accessible at the front of the punch-holder, and may be moved laterally backward so as to bring them out of range of the punch-heads to permit the punches to rise in the holder, or forward over the punch-heads so as to hold the punches fast in the holder and render them operative, substantially as herein described.

2. The combination, with a vertically-reciprocating punch-holder having at the front a projecting flange or punch-plate perforated for the reception of punches, of keys or blocks which are fitted to and carried by the punch-holder above the flange or plate, and which are accessible at the front of the punch-holder, and may be moved laterally backward or forward, so as to bring them out of range with or over the punch-heads, and locking devices, substantially as described, movable relatively to and carried by the punch-holder, for preventing the rising of the keys or blocks in the punch-holder when they are adjusted over the punches, substantially as herein described.

3. The combination, with a punch-holder having a punch-plate projecting from its lower portion and perforated for the reception of punches, of keys or blocks above the punch-plate, which may be slid laterally backward or forward to bring them out of range of the punch-heads to permit any one or more punches to rise, or over the punch-heads to hold them all in operative positions, and a vertically-movable locking-bar carried by the punch-holder above the keys or blocks, and serving to hold the keys or blocks in either of the two positions to which they may be adjusted, substantially as herein described.

4. The combination, with a punch-holder and its row of punches, of keys or blocks above

the punches, and each having two notches, *f f'*, and a vertically-movable locking-bar provided with a tongue or rib for engaging said notches in either position of the keys or blocks, substantially as herein described.

5. The combination, with the punch-holder and its row of punches, of the keys or blocks above the punches, adapted to be shifted forward or backward to cover or uncover the punch-heads, and each having a notch in its front portion, whereby it may be pulled forward, and a vertically-movable locking-bar above the keys or blocks, and serving to hold them in either of their two positions, substantially as herein described.

6. The combination, with a punch-holder and its row of punches, of the keys or blocks above the punches, adapted to be shifted forward or backward to cover or uncover the punch-heads, and having a tongue-and-groove connection at their back ends with the punch-holder, whereby they are prevented from tilting forward, and a vertically-movable locking-bar above the keys and serving to hold them in either of their two positions, substantially as herein described.

7. The combination, with a punch-holder and its row of punches, of the keys or blocks *d*, above the punches, each having an upward projection, f^2, at the back, and adapted to be shifted forward or backward to cover or uncover the punch-heads, and a vertically-movable locking-bar above the keys or blocks, depending downward in front of the projections f^2, and serving to lock the keys or blocks in either of their two positions, and to prevent their withdrawal from the punch-holder, substantially as herein described.

8. The combination, with a punch-holder and its row of punches, of keys or blocks above the punches, and adapted to be shifted forward or backward to cover and uncover the punch-heads, and a vertically-movable locking-bar above the keys or blocks, serving to lock them in either of their two positions, and having a tongue-and-groove connection at its back with the punch-holder, whereby it is held against lateral displacement therefrom, substantially as herein described.

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Witnesses:
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MINERT LINDEMAN.