(No Model.)

# A. ALBIEN.

## PUNCHING MACHINE.

No. 283,740. Patented Aug. 28, 1883.

Fig. 1

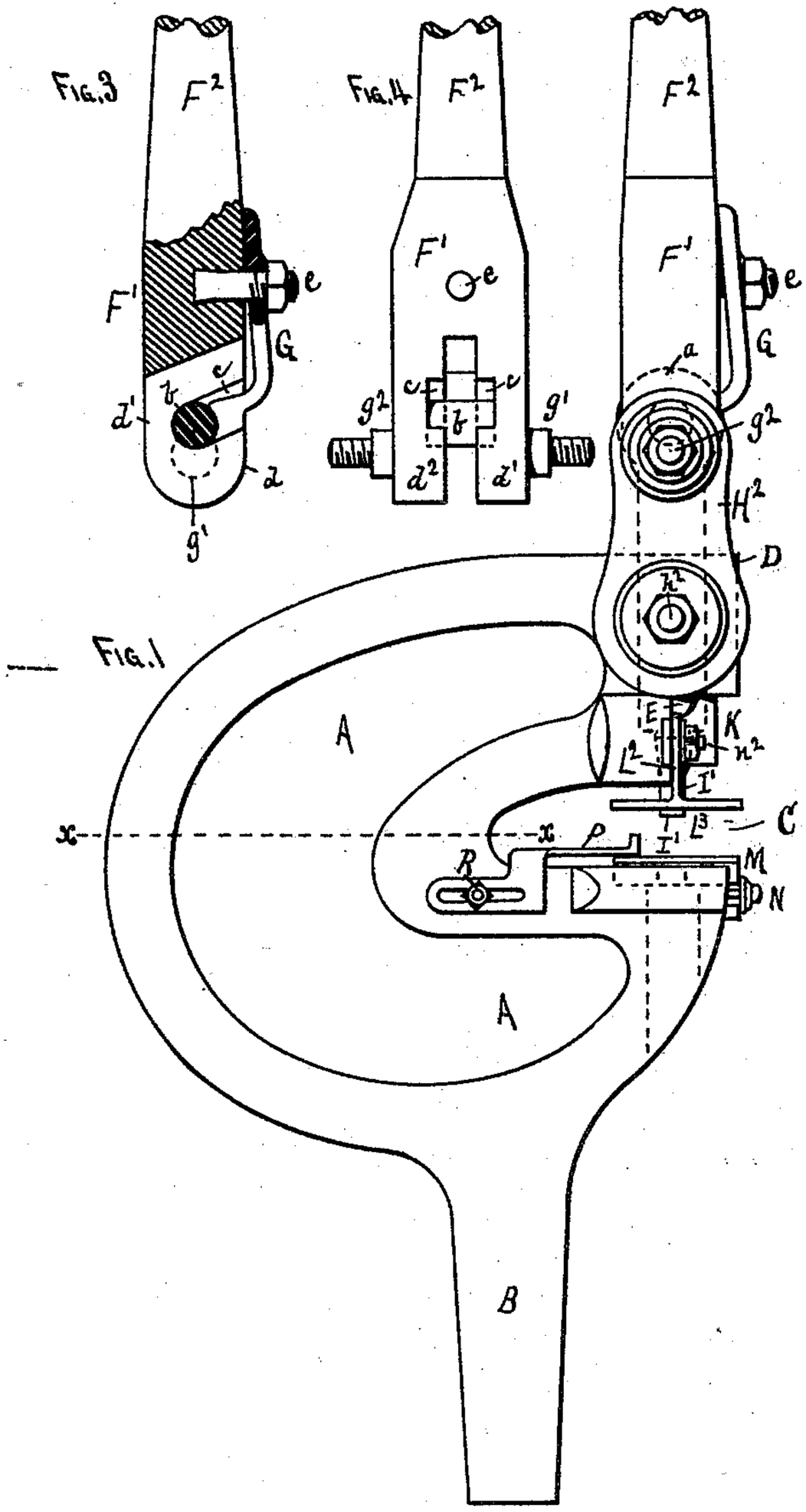



Fig. 2

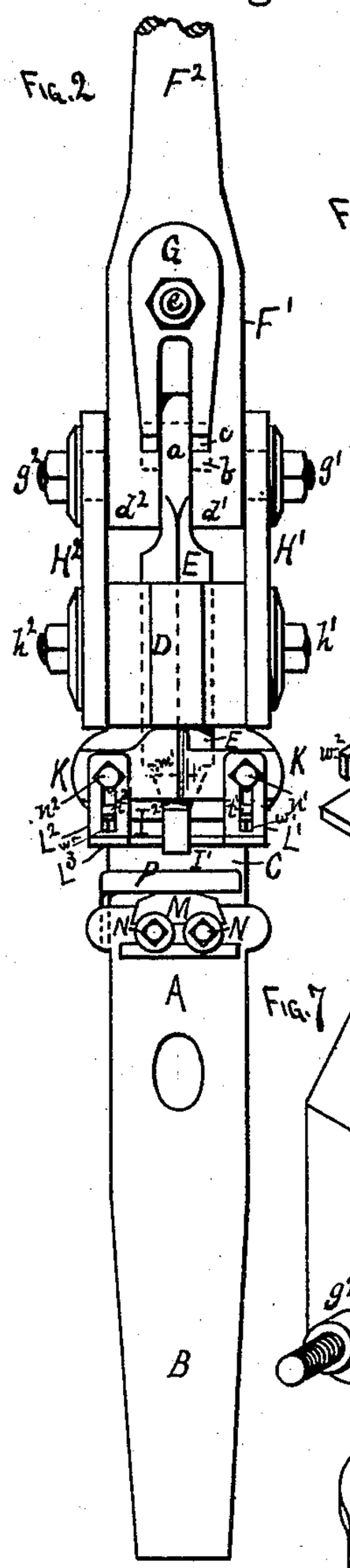



Fig. 3




Fig. 4




Fig. 5

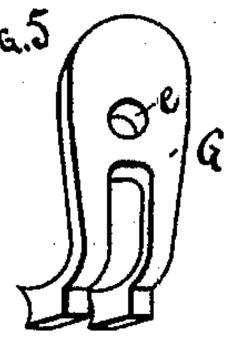



Fig. 6

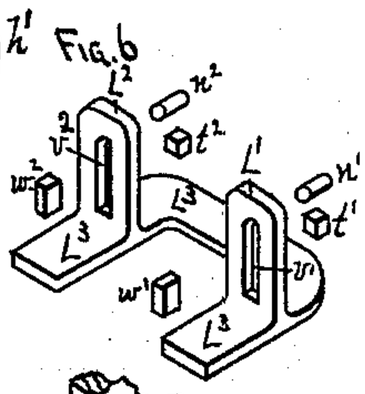



Fig. 7

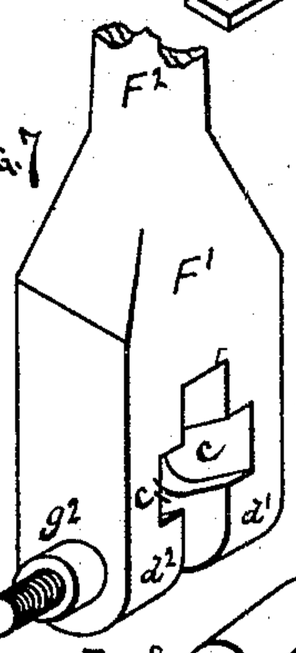



Fig. 8


Fig. 9

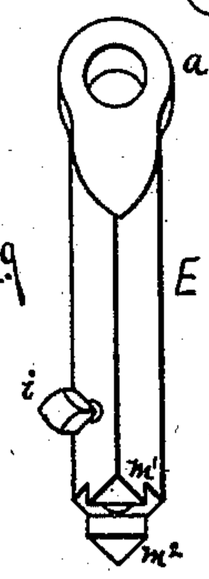



Fig. 10

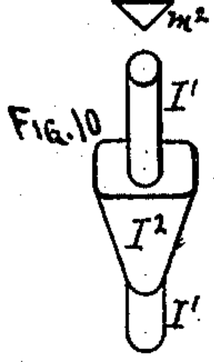



Fig. 11

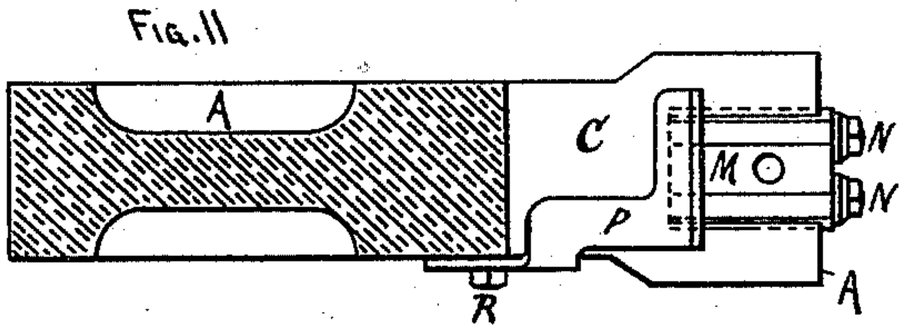
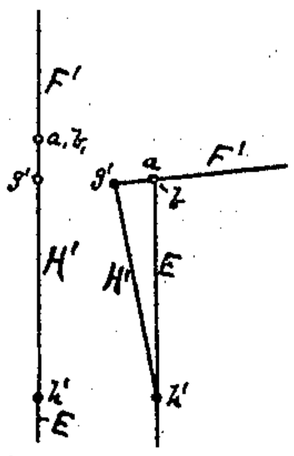



Fig. 12




WITNESSES.
Louis Feeser Jr.
Alfred A. Hall

Alexander Albien,
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# UNITED STATES PATENT OFFICE.

ALLEXANDER ALBIEN, OF MENDOTA, MINNESOTA.

## PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 283,740, dated August 28, 1883.

Application filed March 24, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ALLEXANDER ALBIEN, a subject of the Emperor of Germany, and a resident of Mendota, in the county of Dakota and State of Minnesota, have invented a certain new and useful Improvement in Punching-Machines, of which the following is a specification.

This invention relates to machines for punching metal; and it consists in the construction and arrangement of parts, as hereinafter described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a side view, and Fig. 2 is a front view, of the punching-machine complete. Fig. 3 is a sectional side view, and Fig. 4 is a front view, of the lever-head detached. Fig. 5 is a detached perspective view of the lever-head "keeper," detached. Fig. 6 is a detached perspective view of the stop. Figs. 7, 8, 9, and 10 are detached perspective views of the lever-head, plunger, and punch disconnected. Fig. 11 is a transverse section on the line *x* of Fig. 1. Fig. 12 is a diagram illustrating the operation of the lever-head and punch-plunger.

A is the frame or body of the punching-machine, having a tapering square shank, B, at lower end, by which the machine may be held in an upright position in square holes in tables or work-benches, and with an open throat, C, and head D, through the latter of which the square plunger E of the machine is adapted to be moved upward and downward. The upper part of the plunger E is provided with an eye, *a*, through which a steel pin or short shaft, *b*, is passed, and its projecting ends inserted into downwardly-trending slots *c* in the insides of the jaws $d'$ $d^2$ of a lever-head, F′, to which a handle, $F^2$, of any suitable length, is attached.

G is a keeper or holding-plate, the lower end of which is forked and the forks curving backward and adapted to rest by their lower points against the ends of the pin *b*, so that when bolted fast to the head F′ by the bolt *e* the pin *b* will be held in the slots *c*, while the forks, passing each side of the eye *a*, will not interfere with the operation of the plunger E.

Upon the outsides of the jaws $d'$ $d^2$, a little below the center line of the pin *b* when it is in place in the slots *c*, are two studs, $g'$ $g^2$, over which the upper ends of straps H′ $H^2$ are held by nuts or pins, while the lower ends of the straps are similarly attached to studs $h'$ $h^2$ on the sides of the head D of the frame A. By this arrangement of the straps, lever-head, pin *b*, and plunger a lever is formed for forcing the plunger downward the distance from the center of the eye *a* and pin *b* to the center of the studs $g'$ $g^2$, being the "nip," and the studs $g'$ $g^2$ being the fulcrum. This is more clearly illustrated by Fig. 12, which represents an outline diagram of the plunger, lever, and straps in their two extreme relative positions, the left-hand view representing the parts in an upright position, and in the right-hand view they are shown in the position they will assume when the plunger is depressed. Thus a very powerful leverage is secured to force the plunger downward, and none of the strain, when forcing the plunger downward, will come upon the keeper G, the only office of the latter being to hold the pin *b* in place.

By reversing the lever-head F′ the lever may be thrown over backward in operating the plunger.

The lower end of the plunger is provided with a hole, in which the shank of the punch I′ is secured by a set-screw, *i*, and the punch is provided with an enlargement, $I^2$, fitting between lugs or jaws $m'$ $m^2$ on the plunger to prevent the punch being turned.

K is a strap or cap embracing the lower part of the plunger to support it, and attached, by bolts $n'$ $n^2$, to the face of the head D, these same bolts also holding two downwardly-projecting plates, L′ $L^2$, connected at their lower ends to one common curved horizontal plate, $L^3$, (see Fig. 6,) these three plates forming a stop to force the metal off from the punch when it is raised upward.

Below the bolts $n'$ $n^2$, upon the head D, are small square studs $t'$ $t^2$, over which slots $v'$ $v^2$ in the plates L′ $L^2$ fit, and beneath said studs, within said slots, small metal blocks $w'$ $w^2$ are inserted to prevent the plates L′ $L^2$ from being raised upward, and by using blocks of different sizes the distance which the stop-plate $L^3$ will be above the die will be altered to suit different thicknesses of metal.

M is a bevel-edged steel block or die set into a dovetail groove in the face of the throat part C, with a hole through it corresponding to the punch I′, and held in place by set-screws N, as shown.

P is a guide-plate resting across the interior of the throat C, and secured upon the side of the frame A by a set-screw, R, passing through a slot in the guide-plate, as shown in Fig. 1, so that the guide-plate may be adjusted to adapt the latter to the width of the metal being punched.

The pin *b* may be made in one piece with the plunger, if desired.

What I claim as new is—

1. The combination of the frame having the head formed with an opening for the passage of a punch-supporting plunger, the lever-head provided with openings for the reception of the punch-supporting plunger and its connecting-pin, straps for connecting the frame-head and lever-head, the pin for connecting the punch-supporting plunger and lever-head, and means for holding said pin in place, substantially as and for the purpose set forth.

2. The frame A, having a head, D, formed in one piece therewith, a plunger, E, supporting and carrying a punch, I′, at the bottom, and a pin, *b*, at the top, and adapted to be raised and lowered through said head D, a lever-head, F′, with slots *c*, for supporting said pin *b* in its interior, and with studs $g'$ $g^2$ on its exterior, straps H′ H², for connecting said studs $g'$ $g^2$ with studs $h'$ $h^2$ upon said head D, and a keeper, G, substantially as set forth.

3. The combination of the plunger E, connecting-pin *b*, lever-head F′, provided with openings for the reception of the plunger and its pin, and means for holding said pin in place, substantially as and for the purpose set forth.

4. The combination of the head F′, having the slots *c*, and keeper G, and the plunger E, having the pin *b*, substantially as set forth.

5. The frame A, having head D, bolts $n'$ $n^2$, and studs $t'$ $t^2$, in combination with the stop L′ L² L³, having the slots $v'$ $v^2$, and the blocks $w'$ $w^2$, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALLEXANDER ALBIEN.

Witnesses:

JULIUS E. BETHKE,

C. N. WOODWARD.