J. R. LINDSAY.

Metal-Punching Machine.

No. 166,707. Patented Aug. 17, 1875.

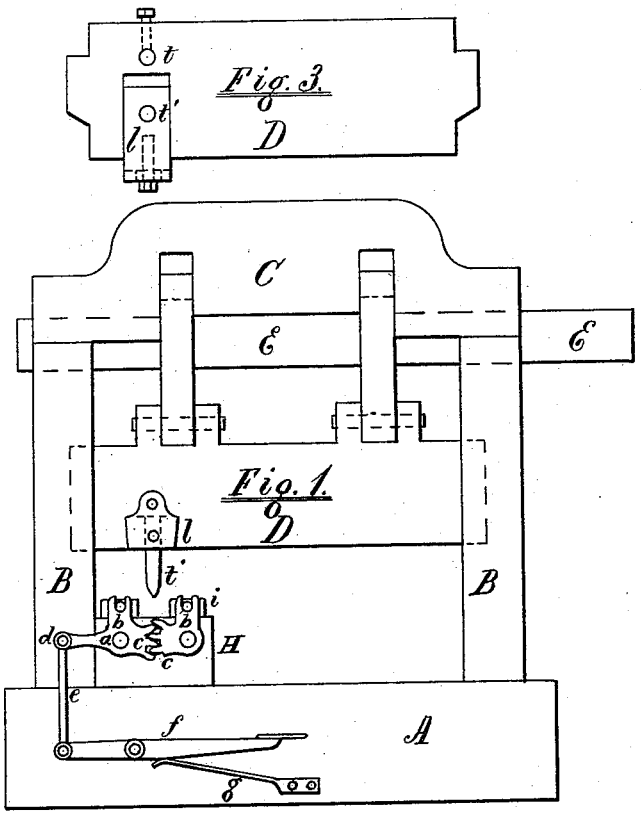

Fig. 3.

Fig. 1.

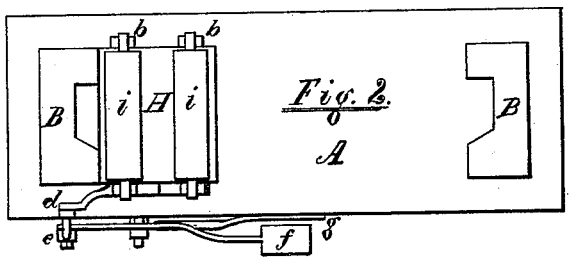

Fig. 2.

A

Witnesses.

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JAMES R. LINDSAY, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN METAL-PUNCHING MACHINES.

Specification forming part of Letters Patent No. **166,707**, dated August 17, 1875; application filed June 16, 1875.

To all whom it may concern:

Be it known that I, JAMES R. LINDSAY, of Newark, Essex county, New Jersey, have invented an Improvement in Punching-Machines of the kind used for making tools, as hammers, swages, &c., of which the following is a description:

Figure 1 is a side elevation of a press of the usual form, consisting of bed A, standards B B, cap C, cross-head D, and eccentric shaft E, actuated in any suitable manner. Upon the bed A it is customary to place a die or seat, as at H, upon which the bar of steel is laid when it is punched, and having patented certain dies for forming the bodies of two hammers, or similar tools, at once, I have been led to devise the following arrangements for holding the steel centrally on the seat and punching two holes in the bar at once, at any desired distance apart. In Fig. 1, in connection with the die-seat, is shown a couple of shafts, *a a*, provided with crank-arms *b b*, and rotating in opposite directions through the agency of two segments of gear, *c c*. A lever, *d*, is further attached to one of the shafts, and connected by a link, *e*, to a treadle, *f*. The shafts *a* extend from end to end of the die-seat, and are provided with similar arms *b b* at each end, all of which receive at their extremities the ends of certain jaws *i i*, which lie upon the seat H, and can be moved toward or from each other by pressure upon the treadle *f*. A spring, *g*, lifts the treadle to open the jaws *i i*. In the plan, Fig. 3, is shown another view of the cross-head D, shown inverted to display the arrangement of the two punches *t t'*. The one at *t* is shown secured in the cross-head, while the other, *t'*, is secured in a slide, *l*, provided with any suitable means for adjusting the punch *t'* toward or from the other, *t*. This arrangement makes it possible to set the punches at any desired distance apart, although, to keep each punch at an equal distance from the edge of the cross-head, it would be necessary to provide both *t* and *t'* with a slide, *l*. I do not, however, find this necessary in practice.

The above arrangements greatly increase the ability of a press to operate upon the material, for it will be seen that when the seat H is so adjusted beneath the punches that a hole is punched centrally in the width of an inch bar, it is adjusted for bars of all widths or thickness, as the jaws *i i* infallibly bring the center of the steel under the punch, whatever its width. And as steel is seldom made perfectly uniform, the liability to punch the hole out of center, which occurs with the use of a stationary gage, is entirely removed.

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

1. The self-centering clamp for holding bars, constructed with jaws *i i*, in combination with cranks or arms *b b*, gears *c c*, and treadle or lever, substantially as herein shown and described.

2. The combination, with the cross-head D, of the adjustable slide *l* and punches *t t'*, substantially as herein shown and described.

3. The combination of the reciprocating cross-head, adjustable slide, punches, clamping devices, and lever, substantially as herein shown and described.

JAMES R. LINDSAY.

Witnesses:

THOS. S. CRANE,

ALBERT C. TRUE.