(No Model.)

C. A. ANDERSON.

COMBINED PUNCHING AND SHEARING MACHINE.

No. 432,108. Patented July 15, 1890.

Fig. 2.

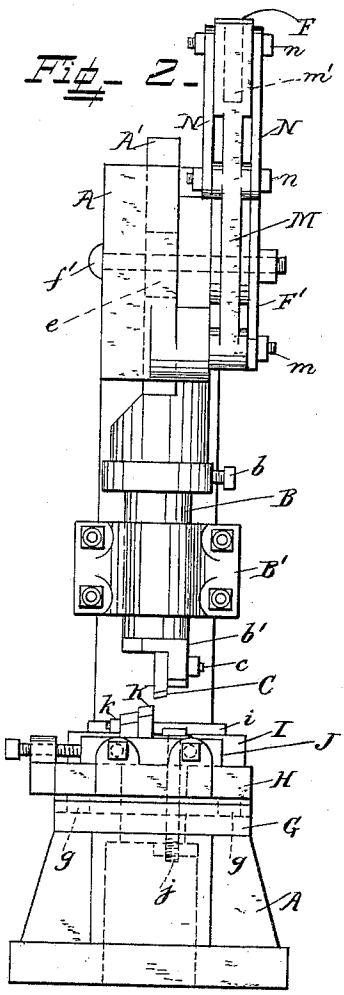


Fig. 1.

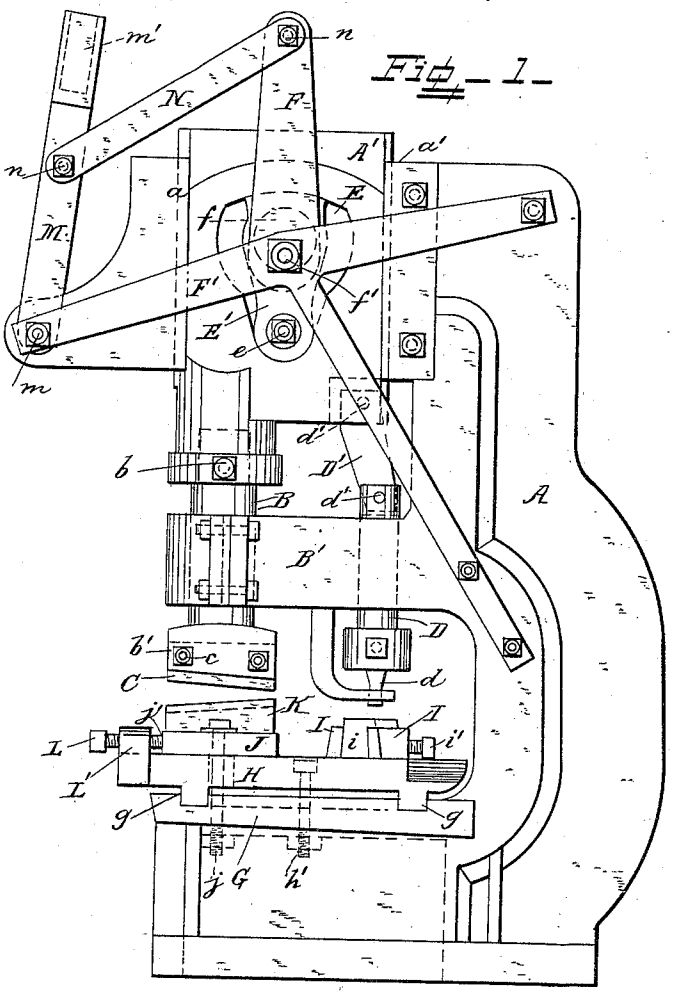


Fig. 3.

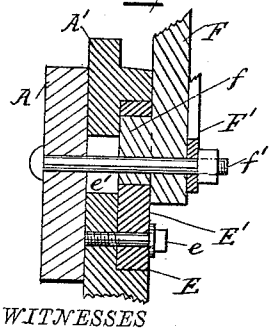
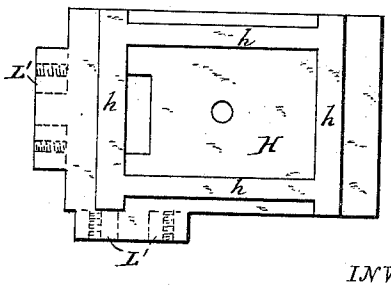


Fig. 4.



WITNESSES

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CHARLES ALEXANDER ANDERSON, OF SYMCO, WISCONSIN.

COMBINED PUNCHING AND SHEARING MACHINE.

SPECIFICATION forming part of Letters Patent No. 432,108, dated July 15, 1890.

Application filed May 19, 1890. Serial No. 352,312. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALEXANDER ANDERSON, a citizen of Sweden, residing at Symco, in the county of Waupaca and State of Wisconsin, have invented certain new and useful Improvements in Punching and Shearing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to punching and shearing machines; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the machine. Fig. 2 is a front view of the same. Fig. 3 is a detail sectional view of the actuating-eccentric and the parts coacting therewith. Fig. 4 is a detail plan view from below of the removable platen.

A is the main frame of the machine, and A′ is a cross-head sliding vertically in the dovetailed guides *a a′*, of which the guide *a′* is removably secured to the frame, so as to be adjustable to the cross-head when the parts become worn.

B is a revoluble stem secured in a circular socket in the cross-head by the set-screw *b* and provided with the head *b′* at its lower end, to which head the movable blade C of the shears is attached by bolts *c*. The stem B slides up and down in the guide B′, which forms a portion of the frame of the machine.

D is a stem which carries the punch *d* at its lower end and slides up and down in the said guide B′.

D′ is a connecting-rod provided with pins *d′* and pivotally connecting the stem D to the cross-head A′. The cross-head operates both shear-blade and punch simultaneously, and the use of the connecting-rod is to obviate the necessity of a perfect parallelism of the two stems B and D and to prevent friction.

The cross-head A′ is provided with a cavity E, and E′ is a plate pivoted on the pin *e* in the lower part of the said cavity. The plate fills the cavity in a vertical direction, and the upper and lower parts of the plate and cavity, which are in contact with each other, are formed radial to the center of the pin *e*. The cavity is larger than the plate sidewise, so that the plate may oscillate to a limited extent upon its pivot-pin.

F is a lever, and *f* is an eccentric projecting from the side of the lever and working in a corresponding hole in the plate E′.

F′ is an outer frame bolted to the main frame A, and *f′* is a pivot-pin for the said eccentric to turn on, having its ends carried by the said frames. The cross-head is provided with a vertical slot *e′* for the pin *f′* to pass through.

G is the stationary platen, forming a portion of the lower part of the main frame and provided with four grooves *g*.

H is the removable platen, provided with four tongues *h*, arranged in the form of a parallelogram and adapted to drop into the grooves *g*. The upper surface of the platen H is machined, so as to be smooth and flat, and the tongues are bedded and fitted into the grooves, so that the flat upper surface of the platen H is perfectly level. A bolt *h′* passes through the platen H and secures it to the lower part of the frame.

I are guides upon the upper surface of the platen, and *i* is the die-block, provided with die-holes for different sizes of punches and adapted to be slid between the guides secured by the set-screw *i′* under the punch.

J is a plate pivoted to the platen H by the bolt *j*, and K is the stationary shear-blade secured to the said plate by the bolts *k*. The plate J is provided with a flat side *j′*, and L are adjusting-screws which engage with screw-threaded bosses L′ on the side and end of the platen H. The two shear-blades may be turned around to the most convenient position for shearing or splitting, according to the nature of the work, by first loosening the set-screw *b* and bolt *j*.

The combined punching and shearing machine is adapted to be worked by hand, and the power may be applied to the lever F direct; but in order to make the machine more handy to operate a second lever M is preferably provided. This lever is pivoted on the pin *m* at the front part of the frame and is provided with a socket *m′*, in which a handle-bar may be inserted, if desired, to increase its length.

N are links, and *n* are pivot-pins for connecting the two levers M and F together.

What I claim is—

1. The combination, with the frame and the vertical guides, of the cross-head adapted to be slid up and down therein, a stem for the shear-blade, and a stem for the punch, arranged substantially parallel with each other, and a connecting-rod pivoted to one of the said stems and to the cross-head, the other stem being rigidly connected to the cross-head, substantially as set forth.

2. The combination, with the sliding cross-head provided with a cavity and a slot behind the cavity, of the oscillatory plate pivoted in the lower part of said cavity and bearing against it at the top and bottom, the eccentric journaled in said plate, the lever secured to said eccentric, and the stationary pivot-pin passing through the said slot and secured to the frame for the said lever and eccentric to turn on, substantially as and for the purpose set forth.

3. The combination, with the main frame provided with vertical guides, of the cross-head sliding in said guides and provided with a cavity and a slot behind the cavity, the outer frame, the pin secured in the main and outer frames and passing through the slot in the cross-head, the eccentric journaled in the said plate and on the said pin, the lever secured to the eccentric, the hand-lever pivoted to the front of the frame, and the links pivotally connecting the two levers, substantially as and for the purpose set forth.

4. The combination, with the platen and the revoluble plate supporting the shear-blade and pivoted on said platen, of the sliding cross-head, the revoluble stem carrying the upper shear-blade and connected to the said cross-head, and the circular guide for the said stem to slide in, substantially as and for the purpose set forth.

5. The combination, with the main frame and the stationary platen provided with crossed grooves, of the removable platen provided with a smooth flat upper surface and with projecting adjusting-tongues upon its lower side engaging with said grooves, a bolt for securing the removable platen, and an adjustable tool or tool-holder secured upon the flat surface of the platen, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES ALEXANDER ANDERSON.

Witnesses:
M. S. STRAND,
C. W. HAMILTON.