

(No Model.)

E. JORDAN.

PRESS FOR WORKING SHEET METAL.

No. 250,255.

Patented Nov. 29, 1881.

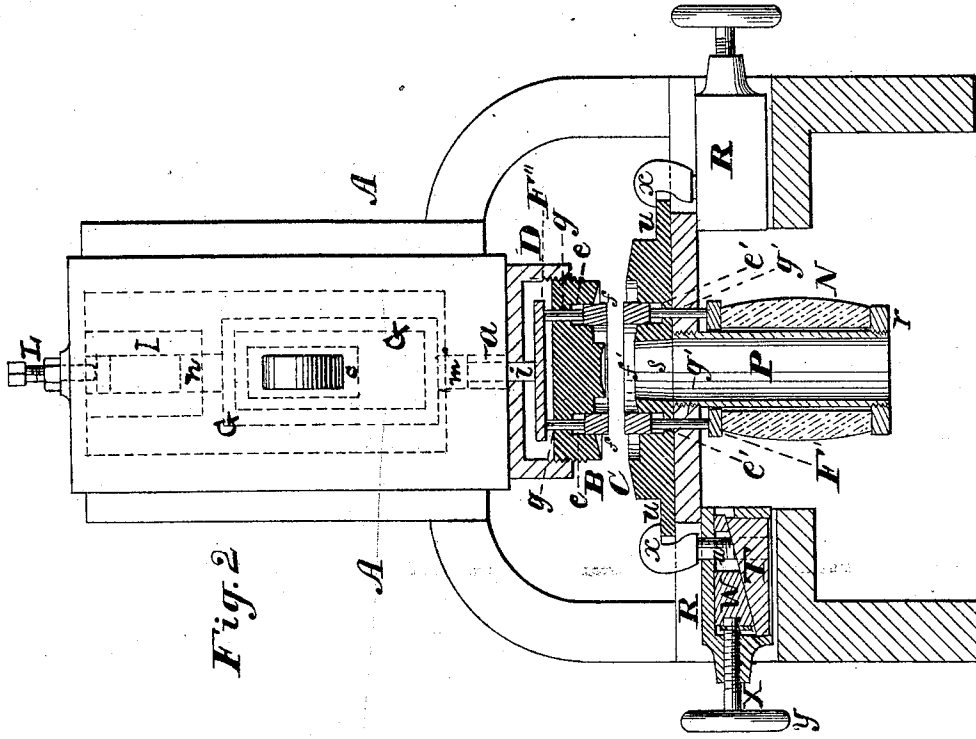


Fig. 2

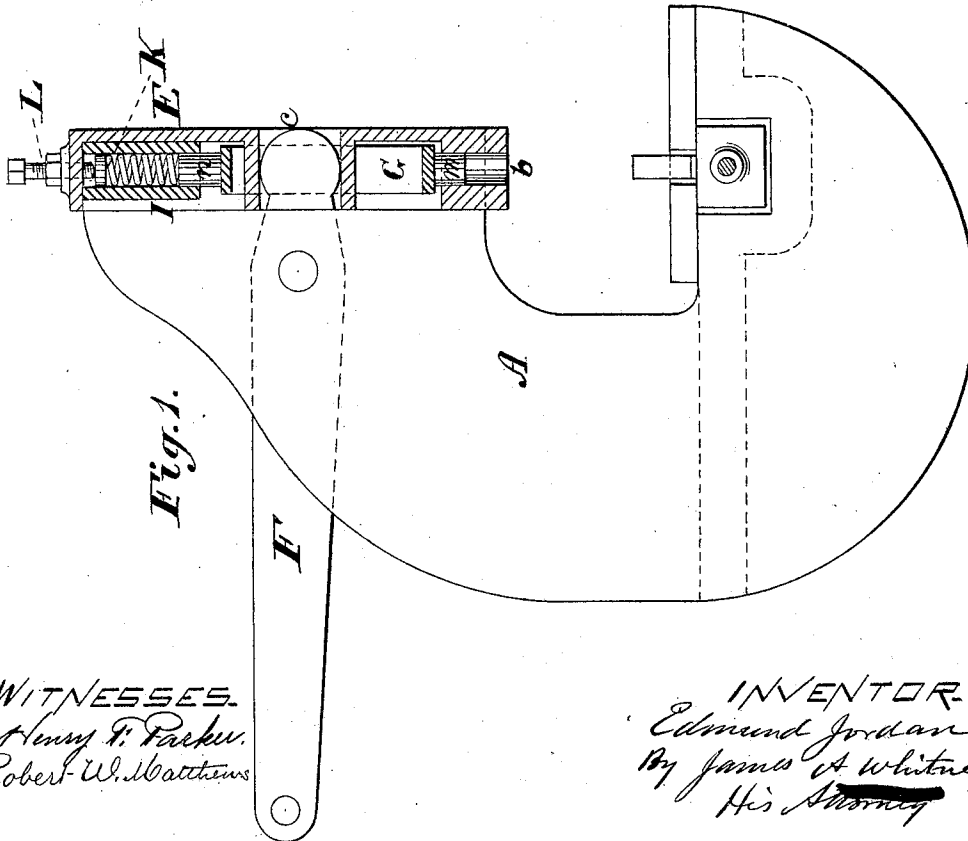


Fig. 1

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EDMUND JORDAN, OF BROOKLYN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ELIPHALET W. BLISS, OF NEW YORK, N. Y.

PRESS FOR WORKING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 250,255, dated November 29, 1881.

Application filed December 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDMUND JORDAN, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Presses for Working Sheet Metal, of which the following is a specification.

This invention relates to that class of presses designed for pressing or stamping sheet metal; and its object is to provide for the disengagement of the stamped article from the dies in a more positive and effective manner than is attainable with the ordinary appliances used for that purpose, and also less liable to derangement of the apparatus itself.

The invention comprises certain novel combinations of parts, whereby the aforesaid object is effectually secured.

Figure 1 is a side elevation and partial longitudinal sectional view of an apparatus embracing my said invention, and Fig. 2 is a front elevation and partial vertical transverse sectional view of the same.

A is the frame of the apparatus, which, being substantially of the ordinary construction, needs no special description here.

B and C are the upper and lower dies, which have, of course, a configuration and construction suitable to the particular variety of work for which they may be designed. The upper die, B, is provided with the circumferential screw-thread, as represented in Fig. 2, by which it is screwed into a shell, D, the said shell being, of course, provided with an internal screw-thread for the purpose. Extending upward from the center or axis of this shell D is a tubular sleeve, (indicated at dotted outline at *a* in Fig. 2,) which fits into a socket, (shown at *b* in Fig. 1,) this socket being provided in the lower end of the vertically-moving head E of the apparatus, this head being placed in guides provided to the frame A in the usual way, and therefore requiring no specific description, and the said head receiving its vertical movement through a lever, F, the short arm of which works in a socket, *c*, as represented in Fig. 1. The die B has formed in its under side an annular groove, *e*, (represented in Fig. 1,) into which is fitted an annulus, *f*, which, when forced upward into the groove *e*, forms practically part of the die, the lower surface of the said annu-

lus being coincident with the adjacent end surface of the other portions of the die.

F' is a plate, from which extend downward short rods *g*, the short rods passing through suitable holes in the upper part of the die B, and having their lower ends attached to the top of the annulus *f*. Extending upward from the center of the plate F is a stem, *i*, which passes through the sleeves *a* of the shell D, with its upper end bearing against a stud, *m*, which projects downward from a slide, G, the space between the die B and the top of the shell D being sufficient to permit a vertical movement of the said plate, and consequently of the short rods *g* and the annulus *f*. The slide G is yoke-shaped, as indicated in section in Fig. 1 and in dotted outline in Fig. 2, in order that it may be placed astride and outside of the socket *c* of the head E, and yet within the said head.

It is to be observed that the stud *m* fits into the upper part of the bore, the lower part of which constitutes the socket *b*, for the reception of the sleeve *a*. A similar stud, *n*, extends upward from the top of the slide G into a cylindrical chamber, I, in the upper part of the head E. The lower part of the chamber I serves as a guide for the stud *n*, while its main position constitutes a receptacle for a spiral spring, K, which presses downward upon the stud *n*, and consequently upon the slide G. This spring may be compressed to any desired extent by means of a screw, L, which works through a suitable nut in the top of the head E, and bears against a washer placed upon the upper end of the spring K. The die B, being screwed into the shell D, as hereinbefore explained, has a much more solid attachment to its actuating mechanism than is obtained by the usual devices for that purpose. In the operation of the press the downward movement of the die B in shaping the metal to the required form forces upward the annulus *f*, with reference to the said die, during the operation of compressing or shaping the metal; but when the die B moves upward, the yoke G is forced downward by the spring K, and thereby throws downward the annulus *f* and detaches the stamped metal or completed article from the die, and thereby discharges the same from the latter.

It is, of course, to be understood that the annulus *f* is so attached to the lower extremities of the short rods *g* as to follow the movement up or down of the said studs with reference to the die B.

The die C has formed in its upper side an annular groove, *e'*, in which is placed an annulus, *f'*, which is connected by rods *g'* with the annular plate *F'*, which is forced upward by a spring, N, which may be of india-rubber, and which may be placed around the tube P, as represented in Fig. 2.

A nut, *r*, may be screwed upon the lower end of the said tube P, to afford a support for the bottom of the spring N.

It may be remarked that the tube P is a continuation of the central opening, *s*, of the lower die, through which a portion cut from the sheet-metal blank is allowed to fall during the stamping or pressing operation by which the blank is brought into the shape desired. During the stamping operation the ring *f'* is depressed flush with the other portions of the die C in substantially the same manner that the annulus *f* is brought flush with the other portions of the die B; but when the die B is lifted, thereby releasing the sheet metal, the latter, in case it adheres to the die C, is forced out therefrom and discharged by the upward movement of the annulus *f'*, acted upon by the spring N.

The die C is attached in place as follows: The said die is provided with the circumferential flange, or, as the equivalent thereof, with flat radially-projecting lugs *u*, which rest upon the adjacent portions of the frame A, as more clearly represented in Fig. 2. Provided in the horizontal portion of the frame A are fixed boxes R, one of which, with its contents, is shown in section at the left-hand side of Fig. 2. In each of these boxes is placed a block, T, the upper surface of which forms an inclined plane, as represented in the said Fig. 2, and which has extending up from it through a suitable opening in the top of the box a stem, *w*, upon the upper end of which is a hook, *x*. Placed above each block T is another block, W, the under side of which is inclined oppo-

site to the contiguous surface of the block T, so that when the block W is moved inward the block T will be forced downward within the box. The block W, it must be mentioned, has in it a vertical elongated slot, which permits the passage through it of the stem *w*. The block W is moved in or out, as occasion requires, by means of a screw, X, which works in a suitable nut formed in the outer end of the box, the said screw being provided at its outer extremity with a suitable means of turning—as, for example, a hand-wheel, *y*. The hooks *x* being placed over the lugs *u*, and the screws X being turned to force the blocks W inward, the blocks T are crowded downward, and thereby cause the hooks *x* to firmly gripe the lugs *u* against the supporting portions underneath the frame A. The die C is by this means firmly attached in place, and yet capable, on occasion, of being very readily detached or replaced, as circumstances may require.

What I claim as my invention is—

1. The combination of the upper die, having the annular groove *e*, the annulus *f*, and plate *F''*, connected by the rod *g*, the slide G, spring K, and sliding head E, the said parts being constructed and arranged for joint use and operation substantially as and for the purpose herein set forth.

2. The combination of the lower die, having the annular groove *e'*, the annulus *f'*, and plate *F'*, connected by the rods *g'*, the spring N, and the nut *r*, supported by the tube P, the whole constructed and arranged for joint use and operation substantially as and for the purpose herein set forth.

3. The combination of the boxes R, the blocks T and W, having inclined and coincident faces, the hooks *x*, attached to the blocks T, and the die C, the whole constructed and arranged for joint use and operation substantially as and for the purpose herein set forth.

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Witnesses:

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