

(No Model.)

2 Sheets—Sheet 1.

E. JORDAN.

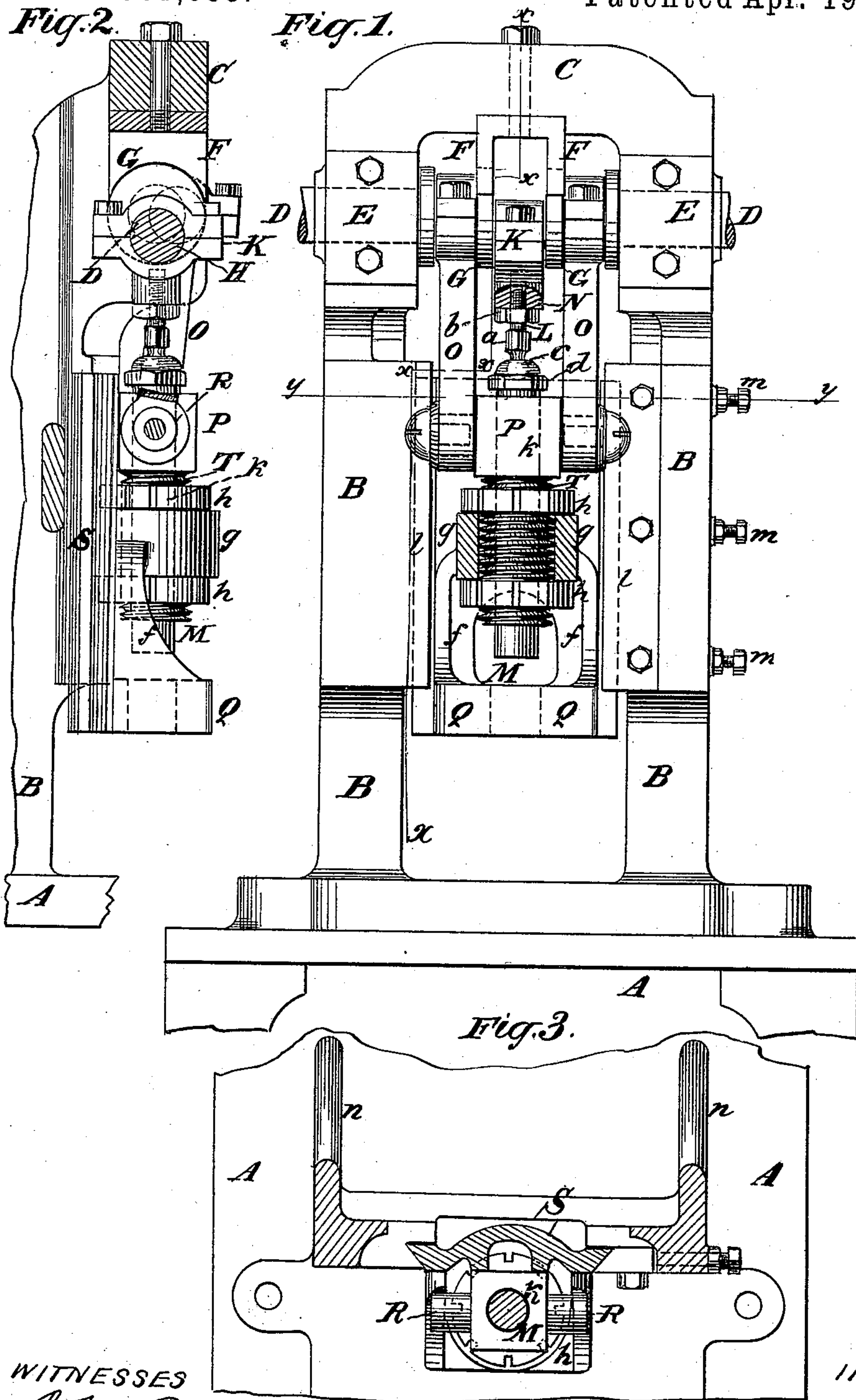
DIE PRESS.

No. 361,633.

Patented Apr. 19, 1887.

Fig. 2.

Fig. 1.



WITNESSES
John Becker
Jno. E. Gavin

INVENTOR
Edmund Jordan
by Chas. M. Higgins
attorney.

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2 Sheets—Sheet 2.

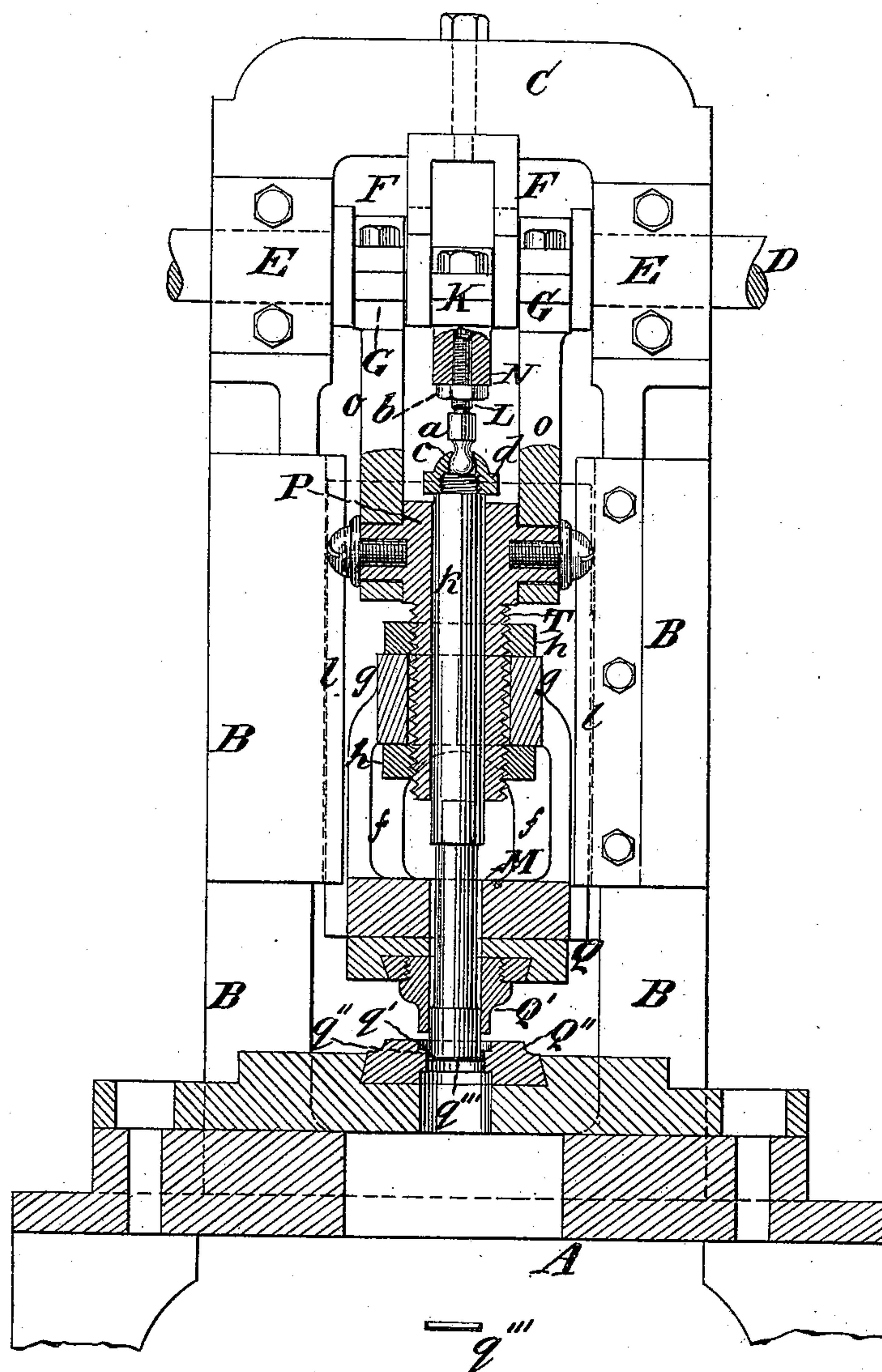
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Fig. 4.



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John Becker
Jno. E. Gavin

INVENTOR

Edmund Jordan
by Chas. M. Higgins,
Attorney,

UNITED STATES PATENT OFFICE.

EDMUND JORDAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE STILES & PARKER PRESS COMPANY, OF MIDDLETOWN, CONNECTICUT.

DIE-PRESS.

SPECIFICATION forming part of Letters Patent No. 361,633, dated April 19, 1887.

Application filed April 28, 1886. Serial No. 200,410. (No model.)

To all whom it may concern:

Be it known that I, EDMUND JORDAN, a citizen of the United States, residing in Brooklyn, Kings county, New York, have invented an Improvement in Double-Action Crank-Presses, commonly used in the manufacture of buttons and similar light wares from sheet metal; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The object of the invention is to secure an easier and simpler adjustment of the cutting-punch than has hitherto been attained, and also to obtain a simpler, lighter, and better construction of the machine.

The invention consists, partly, in the guiding of the drawing-punch by the cross-head, which carries the cutting-punch slide of the press, a guide being formed through the center of this cross-head and the body of a screw projecting downwardly therefrom for the attachment of the cutting-punch slide.

The invention further consists in a novel adjustment of the cutting-punch slide, which consists in an arrangement of nuts relatively to said cutting-punch slide for attaching it on the downwardly-projecting screw of the cross-head which carries it.

The invention further consists in the combination, with the drawing-punch, of a screw having a ball upon the end thereof fitted into a socket in the top of the drawing-punch, thus forming a ball-joint, and the threaded part of said screw fitting into a nut on the rod end which connects said screw with the crank-wrist that drives the drawing-punch for the adjustment of the same, as hereinafter fully described. By this arrangement the turning of a single screw is sufficient to set the drawing-punch to any point of adjustment, and when so seated the screw is held by a jam-nut, so that it cannot alter the adjustment.

In the drawings, Figure 1 is a front view of the machine; Fig. 2, a vertical section on line *x x* in Fig. 1. Fig. 3 is a section on the line *y y* of Fig. 1. Fig. 4 is partly a front elevation and partly a sectional view showing construction of details.

A represents the bed of the machine; B, the

uprights rising from the bed and terminating in an arch, C, at the top.

D is the shaft of the machine, which runs in boxes or bearings E, formed on or attached to the front faces of the upper parts of the uprights. The arch C is made to re-enforce the shaft D and strengthen it during the act of punching or pressing by the adjustable steadying device F, which bears upon wheels G, formed on or attached to the shaft D centrally and symmetrically at such distance from each other that the crank-pin H, Fig. 2, which drives the cutting-punch, and which extends from one of the wheels G to the other, is of sufficient length to give ample bearing for the rod end K of the rod which drives said punch.

L is the screw which connects the rod end K with the drawing-punch M, and which, together with the rod end K, may be considered as a short connecting-rod, the rod end K being formed in any suitable manner for embracing the crank-wrist H and connecting said punch with the crank-wrist. From the lower part of the rod end K projects a nut, N, into which the screw L is fitted, as shown sectionally in Fig. 1. The body of the screw L has on it a boss, *a*, shaped to receive a suitable wrench for turning the screw L, and upon said screw is also fitted a jam-nut, *b*, for holding the screw L in fixed adjustment after it has been adjusted in proper relation with the cutting-punch slide. At the lower part of the screw L is a ball, *c*, which is fitted into a socket in the upper end of the drawing-punch M, and is held to its place by means of a nut, *d*, screwed down over said ball upon a thread formed on the upper end of the punch M.

O O are two connecting-rods, which connect cranks exteriorly adjacent to the wheels G with the cross-head P, which carries the cutting-punch slide Q. There is nothing peculiar in the construction of these rods, and therefore they need not be further described. Their lower ends are connected to trunnions R, formed on the cross-head P. The central part of the cross-head is rectangular in horizontal cross-section, as shown in Fig. 3, and during the act of punching or pressing it presses against a guide, S, which has a vertical bearing-surface, against which the rear of said rectangular

lar part of the cross-head bears when the cutting-punch slide descends, the relation of the connecting-rods O and the cranks which drive them to said cross-head being such that during such descent the tendency of the cross-head is to press toward said guide.

Projecting downward from the rectangular body of the cross-head P, which has been described, is a hollow screw, T, Figs. 1 and 2. The cutting-punch slide Q is provided with two upright extensions, *f*, Figs. 1 and 2, connecting the body of the cutting-punch slide Q with a collar, *g*, at the upper part of said extension. The collar *g* is fitted to pass easily but accurately over the exterior margins of the screw-threads on the screw T, and is held in relation with the screw T by means of nuts *h*, one above said collar and the other below the same. By means of these nuts said collar may be adjusted to any proper relation with the screw T.

Through the cross-head P and its downwardly-projecting-screw T is formed a cylindrical guideway, *k*, in which guideway the drawing-punch M is nicely fitted to slide vertically. The cutting-punch slide Q runs in the lateral guides *l*, which, together with the guide-plate S, accurately guides it in its vertical motion; and it is evident that, when it is so guided, the motion of the drawing-punch M must be also accurately guided in its vertical motion.

m m are set-screws for setting up a gib to take up the wear in the guides of the cutting-punch slide Q.

n n are strengthening-ribs which help to support and strengthen the supports B.

Besides providing means for very simple adjustment of the drawing-punch, (only one screw having to be manipulated instead of two, as heretofore, and hence only half the time being required to perform the adjustment,) it will be seen that the construction described results in a very simple and effective machine.

The cutting-punch is shown at Q' in Fig. 4.

In its descent it coacts with the cutting-edge *q'* of the die Q'' to cut from the metal to be punched the blank which is to be shaped by the action of the drawing-punch and the lower part, *q''*, of the die Q'' in a manner (shown at *q'''*) well known to those skilled in the art, and which need not, therefore, be more fully described.

Having thus described my invention, what I consider new, and desire to secure by Letters Patent, is as follows:

1. The combination, with the cutting-punch slide of a double-acting crank-press and the cross-head carrying said cutting-punch slide, and having a central vertical guideway formed therein, of a drawing-punch working in said guideway and guided thereby in relation to said cutting-punch slide, substantially as and for the purpose specified.

2. The combination, with the cross-head of a double-acting crank-press having formed thereon the downwardly-projecting hollow screw T, upon which is clamped or fastened a cutting-punch slide, Q, and having a central guideway, *k*, passing through the body of said cross-head and through the barrel of said screw, of a drawing-punch, M, guided in due relation with the said cross-head, screw, and cutting-punch slide by said guideway, substantially as and for the purposes described.

3. The combination of the cross-head P, carrying the cutting-punch slide Q and having formed therein a central vertical guideway, *k*, the drawing-punch M, the screw L, connected with the upper end of said punch by a ball-and-socket joint, and the rod end K, having formed therein a female screw for the reception of the male threaded portion of the screw L, for adjusting said punch, substantially as and for the purpose specified.

EDMUND JORDAN.

Witnesses:

JNO. E. GAVIN,
JOHN BECKER.