(No Model.)

LA VERNE W. NOYES.

PRESS FOR RIVETING, &c., METAL.

No. 529,565. Patented Nov. 20, 1894.

Fig. 1.

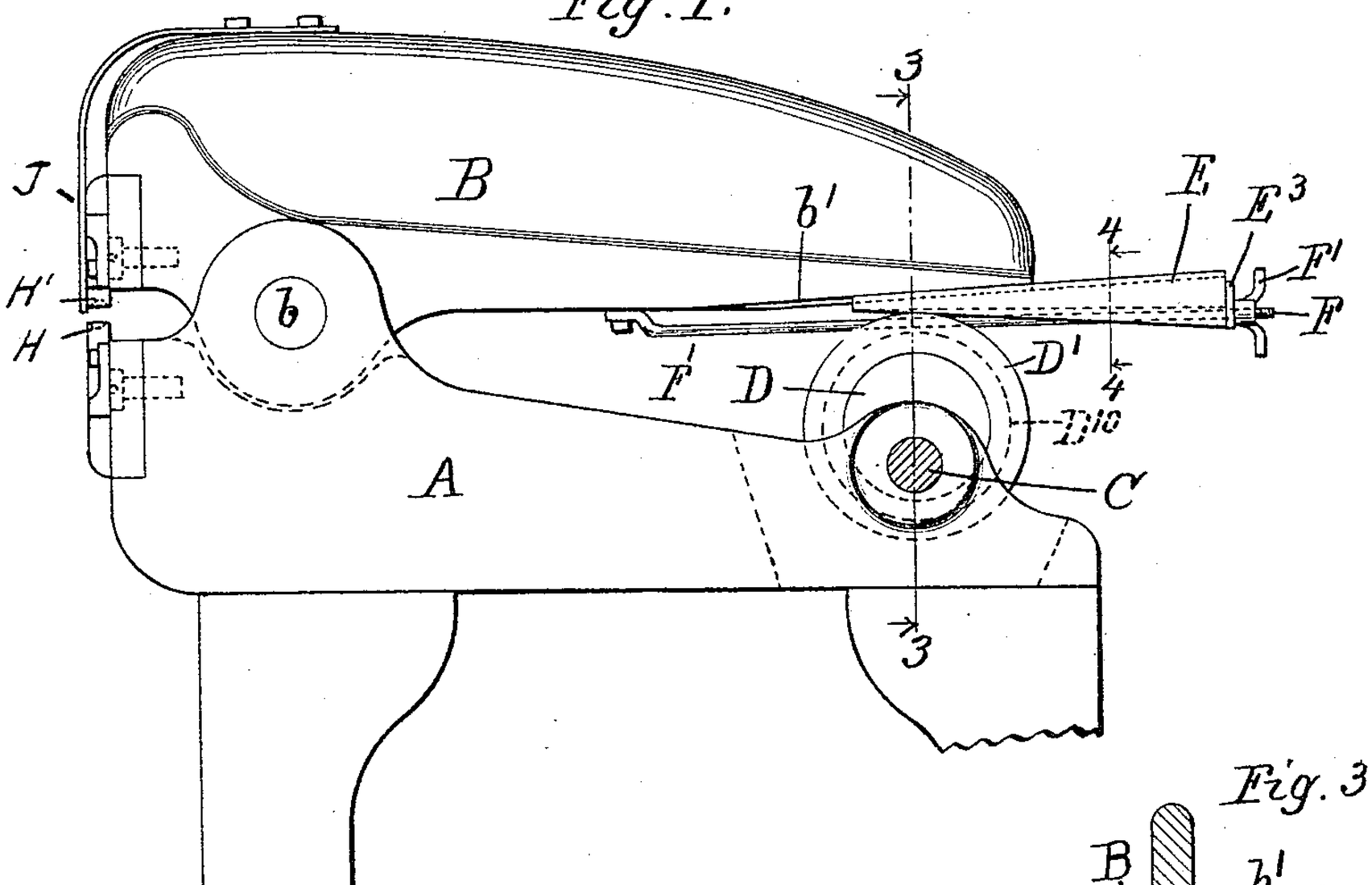


Fig. 3.

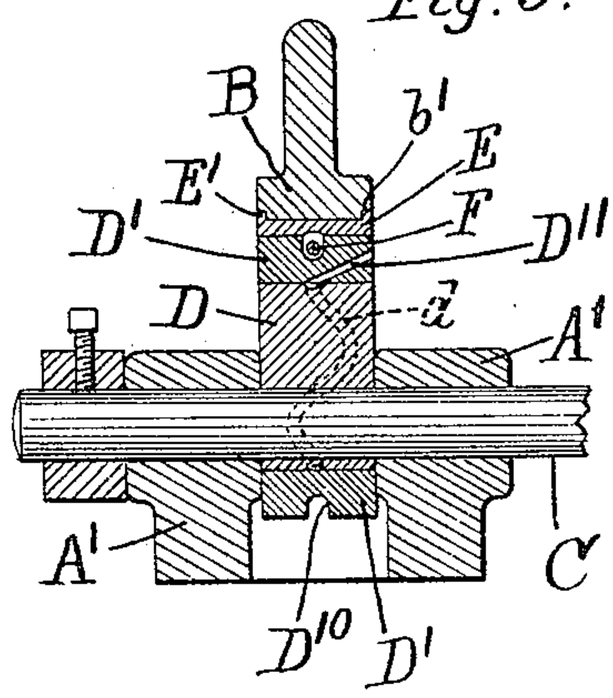
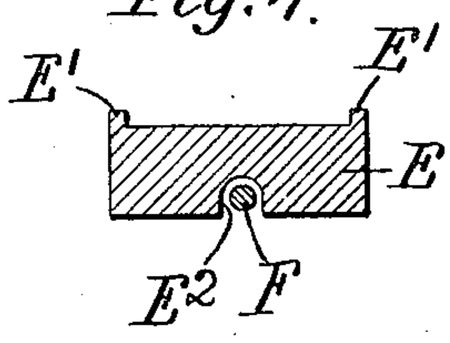


Fig. 4.



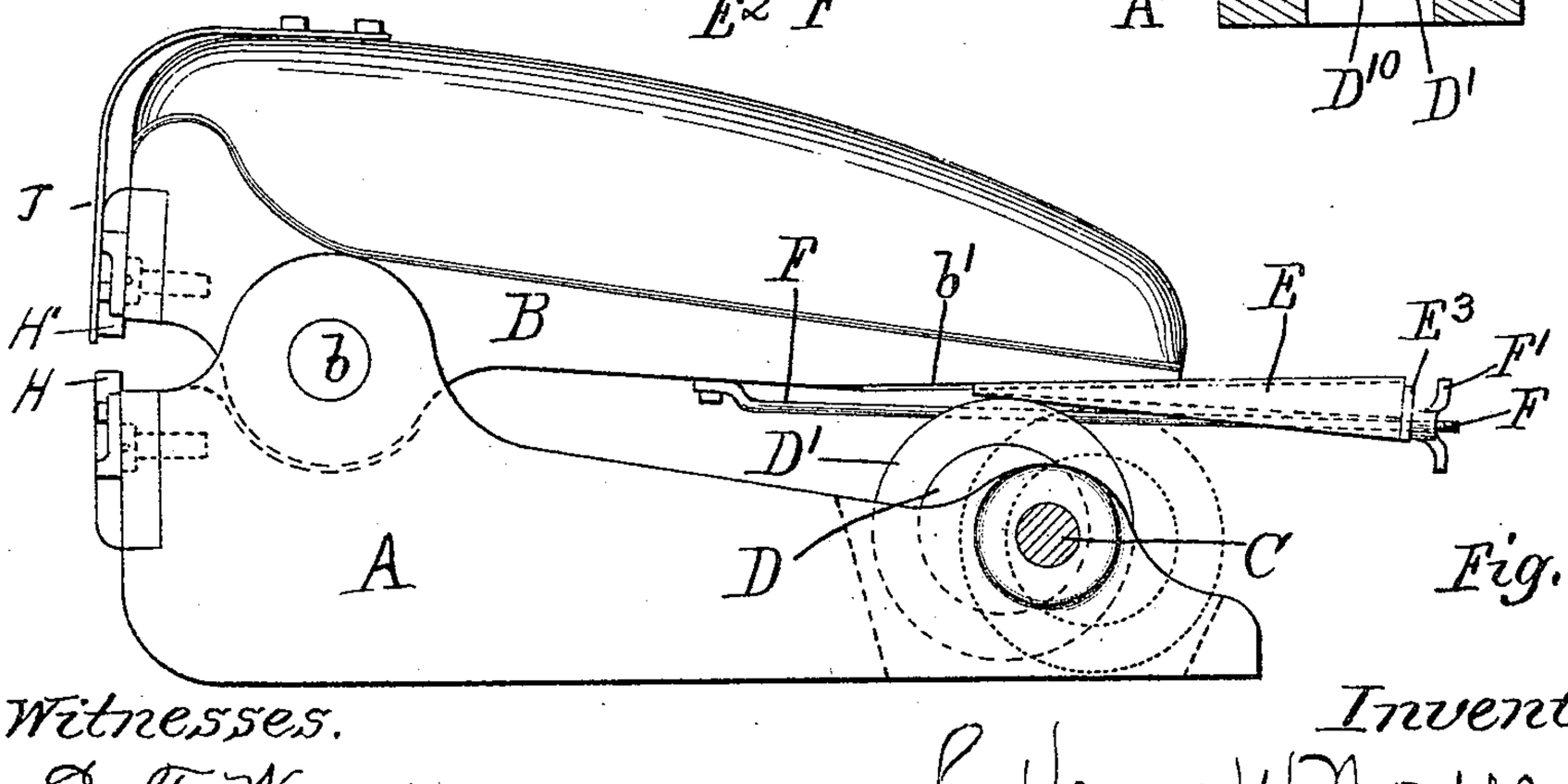


Fig. 2.

Witnesses.
E. T. Wray.
Jean Elliott.

Inventor.
La Verne W Noyes
by Burton and Burton
his attys.

UNITED STATES PATENT OFFICE.

LA VERNE W. NOYES, OF CHICAGO, ILLINOIS.

PRESS FOR RIVETING, &c., METAL.

SPECIFICATION forming part of Letters Patent No. 529,565, dated November 20, 1894.

Application filed April 2, 1894. Serial No. 506,034. (No model.)

To all whom it may concern:

Be it known that I, LA VERNE W. NOYES, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Lever-Presses, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to machines of the nature of power presses for cutting, punching, bending or riveting metal. As illustrated in the drawings, it is provided with riveting dies.

The particular form of power press to which I have shown the invention applied is a lever press, such as may be employed for shearing metal.

The invention consists in certain devices by which the friction between the eccentric which operates the movable member of the press and that member is diminished, and in devices for adjusting the moving member to determine the depth of its stroke with respect to the fixed member at the working point.

In the drawings,—Figure 1 is a side elevation of a press having my improvements, the position of the parts being at the limit of the operating stroke. Fig. 2 is a similar view, the standard of the machine being omitted, showing in full lines the parts in the position occupied midway in the operating stroke, and in dotted lines the position of the eccentric and its band midway in the return stroke. Fig. 3 is a section at the line 3—3 on Fig. 1. Fig. 4 is a section at the line 4—4 on Fig. 1.

A is the lower fixed jaw of the press.

B is the upper oscillating jaw.

The jaws are pivoted together near the operating end at *b*. The power shaft C is journaled in the fixed jaw near the end more remote from the pivot. The fixed jaw is apertured at this part to permit the eccentric D, which is rigid on the shaft C, and its annular band D′, to rotate between the two checks A′ A′. The lower side of the oscillating member B at the portion which overhangs the eccentric is rabbeted at *b′*, and a wedge E, having marginal flanges E′ E′ adapted to fit the rabbets *b′*, is thereby guided while sliding against the under side of the oscillating member. A groove E^2 is formed in the under side of this wedge at the middle part of its width extending through part of its length at the larger end, and a rod F, loosely bolted to the under side of the oscillating arm B at a distance from the end which overhangs the eccentric, extends from such fastening outward, being lodged in the groove E^2 and protruding beyond the wedge and threaded at such protruding part and provided with a thumb-nut F′, adapted to operate against the end of the wedge which has a guard plate E^3 on which the nut bears. The eccentric D is encircled by an annular band D′, which rolls against the under side of the wedge. This band has the peripheral groove D^{10} to accommodate the rod F. The bearing of the annular band D′ upon the eccentric D may be lubricated through any convenient oil apertures. I have provided for that purpose a groove *d* on the periphery of the eccentric and an oil duct D^{11} leading in from the side of the ring, terminating at the inner face thereof in position to register with the groove *d* at the position of rest of the parts. It will be seen that as the shaft C rotates, the annular band D′ operates upon the eccentric as an anti-friction roller upon its stud or axle, the annulus rolling against the under side of the wedge. In former constructions of this general class, the eccentric has been provided with a block in which it rotates, the block having a flat bearing against the surface of the member to be operated, and sliding at such bearing. In such constructions, there is great difficulty in retaining oil between the sliding surfaces, because, at the instant of greatest pressure the oil is forced out from between the surfaces, and the repetition of the movement eventually leaves them dry and causes them to "freeze" together. By substituting the annular band for the rectangular block, and thereby substituting rolling for sliding friction, the oil is constantly retained to lubricate even the surfaces which are in rolling contact, and the oil is as readily retained in the bearing between the eccentric and its annulus as in any bearing of a rotating shaft. By screwing up the thumb-nut F′ on the rod F, the wedge E may be forced toward the pivot of the two members of the press, and the depth of stroke of the operating jaw increased; and by withdraw-

ing the nut, the rotation of the eccentric immediately forces the wedge out to the limit permitted by such withdrawal, thereby lifting the opposite end of the operating jaw and diminishing the depth of its stroke.

I have designed this press especially for the purpose of riveting, and the dies shown in it are riveting dies, H and H′ being the lower and upper dies respectively. In the use of such dies it is necessary that the two parts to be secured together by the rivet shall be held in close contact before pressure necessary to hold the rivet is applied, since otherwise the head of the shoulder may be formed between the parts. I provide, therefore, a strong spring arm J, secured to the upper or movable jaw of the press, adapted to bear at its lower end on the work as the jaw descends, and before the dies are close enough to head the rivets. The particular form of the lower end of this spring arm will be adapted to the form of work for which it is particularly intended.

I claim—

1. In a power press, in combination with a fixed and movable member, the power shaft journaled on one of them; an eccentric rotated thereby and an annulus encircling the eccentric and at its outer periphery bearing and adapted to roll against the other member: substantially as set forth.

2. In combination with the pivoted member of a lever press, a power shaft journaled in the other member; an eccentric thereon and an annulus encircling such eccentric and at its outer periphery bearing and adapted to roll against the other member as the shaft revolves: substantially as set forth.

3. In combination with the fixed and the oscillating member of a lever press, the power shaft journaled in the fixed member, the eccentric thereon, the annular band encircling the eccentric; the wedge-shaped plate E having guide-bearings in which it is longitudinally movable on the oscillating member toward and from the pivot of the latter; the rod F secured at one end to the oscillating member and extending from such connection between the annulus and the plate E, the annulus having in its periphery, and the plate having in its under side, a groove to accommodate the rod, and a nut on the rod beyond the larger end of the plate adapted to bear against that end: substantially as set forth.

In testimony whereof I have hereunto set my hand, at Chicago, Illinois, in the presence of two witnesses, this 29th day of March, 1894.

LA VERNE W. NOYES.

Witnesses:
I. J. GIFFEN,
ISAAC R. WOOD.