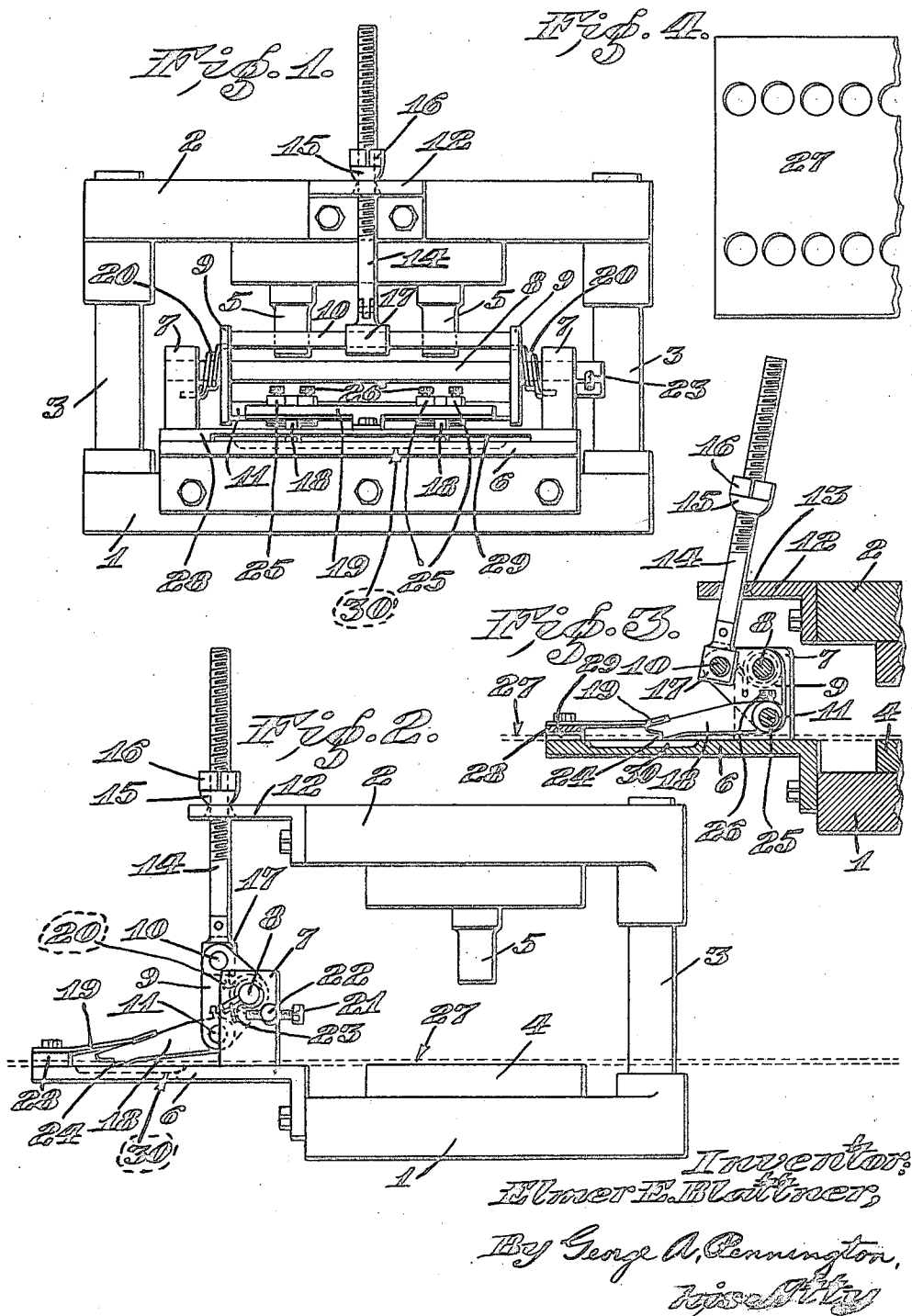


E. E. BLATTNER.
FEEDING DEVICE FOR PUNCH PRESSES.
APPLICATION FILED AUG. 16, 1920.

1,434,192.

Patented Oct. 31, 1922.



UNITED STATES PATENT OFFICE.

ELMER E. BLATTNER, OF ST. LOUIS, MISSOURI.

FEEDING DEVICE FOR PUNCH PRESSES.

Application filed August 16, 1920. Serial No. 403,738.

To all whom it may concern:

Be it known that I, ELMER E. BLATTNER, a citizen of the United States, residing in the city of St. Louis, and State of Missouri, have invented a new and useful Improvement in Feeding Devices for Punch Presses, of which the following is a specification.

This invention relates to punch-presses. It has for its objects to produce a simple and efficient attachment for feeding the work across the die on an ordinary punch-press; to provide for adjustment of the device to suit presses of different lengths of stroke, and for the accommodation of work of different widths and different lengths of feeding movement.

The invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawing forming part of this specification and illustrating a practical adaptation of the invention,—

Figure 1 is a front elevation of an ordinary sub-press with the feeding attachment applied;

Figure 2 is a side elevation;

Figure 3 is a fragmentary section showing the relative positions of the parts when the punch-carrier is down; and

Figure 4 is a fragmentary view of a strip punched out according to the arrangement of the punches shown in the drawing.

Referring now to the drawing, the numeral 1 designates the foot-plate or die-holder of an ordinary sub-press, which, in practice, is set upon the bed of the punch-press proper.

The punch-carrier 2 slides on upright studs or pins 3 secured to the foot-plate 1, and it is attached, in practice, to the plunger of the press proper (not shown).

A die 4 is shown conventionally on the foot-plate 1 and a pair of punches 5 are indicated on the punch-carrier 2.

At the front of the foot-plate 1 is an angle-bracket 6 at the ends of which are bearing blocks 7 in which a shaft 8 is journaled. Fixed on this shaft, near the bearing blocks are triangular plates 9 which have attached thereto upper and lower bars 10, 11, respectively, whereby to constitute a rocking frame.

On the punch-carrier 2 is an angle-bracket 12 having a downwardly flaring aperture 13 in its horizontal flange through which a rod

14 is slidably and rockably fitted. The upper portion of this rod 14 is screw-threaded to receive a bearing nut 15 and a jam nut 16. The lower end portion of the rod is provided with a bearing 17 which is sleeved on the upper frame bar 10.

Pivotally mounted on the lower frame bar 11, are a pair of pawls 18 to feed the work as will be presently described. These pawls are pressed by a substantially T-shaped leaf spring 19 which yieldably holds them normally down so as to engage the work.

Coiled about the shaft 8, between the bearing blocks 7 and frame plates 9, are springs 20. One end of each spring engages the adjacent frame plate 9 while the other end engages the bearing block 7. These springs 20 are always under tension and tend to rock the frame in the direction to draw the pawls 18 rearward. Consequently, as the punch-carrier descends, the pawls are drawn rearward by the springs 20; and, to regulate the distance of travel of the springs in this direction, an adjustable stop is provided. As shown, the stop comprises a set-screw 21 on an extension 22 of the bearing block and in the path of a pin or projection 23 on the shaft 8.

The pawls 18 are provided with shoulders 24 near their outer ends to engage the edges of notched or perforated portions of the work; and, to afford adjustment of said pawls to engage such notched or perforated portions at different distances apart, they are shiftable on the frame bar 11 toward and from each other, as the case may be, and they are held in adjusted relation by collars 25 which are provided with set-screws 26 to impinge said frame bar 11.

In setting the device for operation, the bearing nut 15 is adjusted to the proper position on the rod 14, so that, as the punch-carrier is in its uppermost position, the pawls 18 are in proper forward position corresponding to the desired limit of the feeding movement of the work. The set-screw 21 with which the pin 23 cooperates is then adjusted to limit the rearward travel of the pawls.

The strip of stock comprising the work, designated in the drawing by the numeral 27, is shown by dotted lines in Figures 2 and 3, and by full lines in Figure 4.

In the operation of the press, the strip of stock is fed at the start by hand and until

the first notch or perforation in the strip is brought into range of the pawl, after which the feeding becomes automatic.

On the down stroke of the punch-carrier the work, of course, remains stationary, and the pawls 18 travel rearward through the agency of the springs 20 until arrested by the stop 21 as above pointed out, and owing to the arrangement of the rod 14 slidably in the bracket member 12, the die-carrier may continue moving downward after the pawls have come to rest.

On the up stroke of the punch-carrier the pawls remain at their rear position until the bracket member 12 engages the nut 15, whereupon the rod 14 is lifted and the frame carrying the pawls is accordingly rocked to bring the pawls forward with positive action and effecting the feeding of the work.

Preferably, a guide for the work is provided on the bracket member 6. As shown, it comprises an inverted grooved plate 28 mounted on the upper face of the horizontal flange of the bracket member and affording a slot 29 through which the strip of stock is passed. This plate 28 serves to hold the strip down in place as well as guiding it laterally during the feeding movement thereof. It is also preferable to groove the bracket member, as at 30, to make sufficient clearance for the pawls and insure their engagement with the work.

Obviously, the device admits of considerable modification without departing from the spirit of the invention as defined by the appended claims. It is, therefore, not limited to the exact construction and arrangement shown in the drawing.

What is claimed is:

1. In a work feeding device for punch-presses, a stationary bracket member, a rocking frame thereon, a work engaging pawl mounted pivotally on said rocking frame

and having its work engaging portion slidably supported on said bracket member, a spring for moving said rocking frame in the direction to retract said pawl, an adjustable stop for limiting the travel of said rocking frame effected by said spring, a bracket member movable with the punch-carrier, an actuator rod pivotally attached to said rocking frame and having a slidable engagement with said movable bracket member, and an adjustable stop on said actuator rod and being engaged by said movable bracket member during the back stroke of said punch-carrier.

2. In a work feeding device for punch-presses, a rocking frame, work engaging pawls on said frame in adjustable relation laterally with respect to the travel of the work, a spring for moving said frame in the direction to retract said pawls, an adjustable stop for limiting the travel of the frame effected by said spring, a bracket member movable with the punch-carrier, an actuator rod pivotally attached to said rocking frame and having a slidable engagement with said bracket member, and an adjustable stop on said actuator rod and being engaged by said bracket member during the back stroke of the punch-carrier.

3. In a device of the character described, a punch-carrier, a die-holder, a bracket member on said die-holder, a rocking frame on said bracket member, a spring for rocking said frame towards said die-holder, an adjustable stop for limiting such movement of the frame, pawls adjustable on said frame laterally with respect to the travel of the work, a bracket member on said punch-carrier, a rod slidable through said last-mentioned bracket member and connected to said rocking frame, and an adjustable stop on said rod above said bracket member.

ELMER E. BLATTNER.