Oct. 23, 1934. M. GUETT 1,978,303

FEED ROLL FOR PRESSES

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Fig. 2.

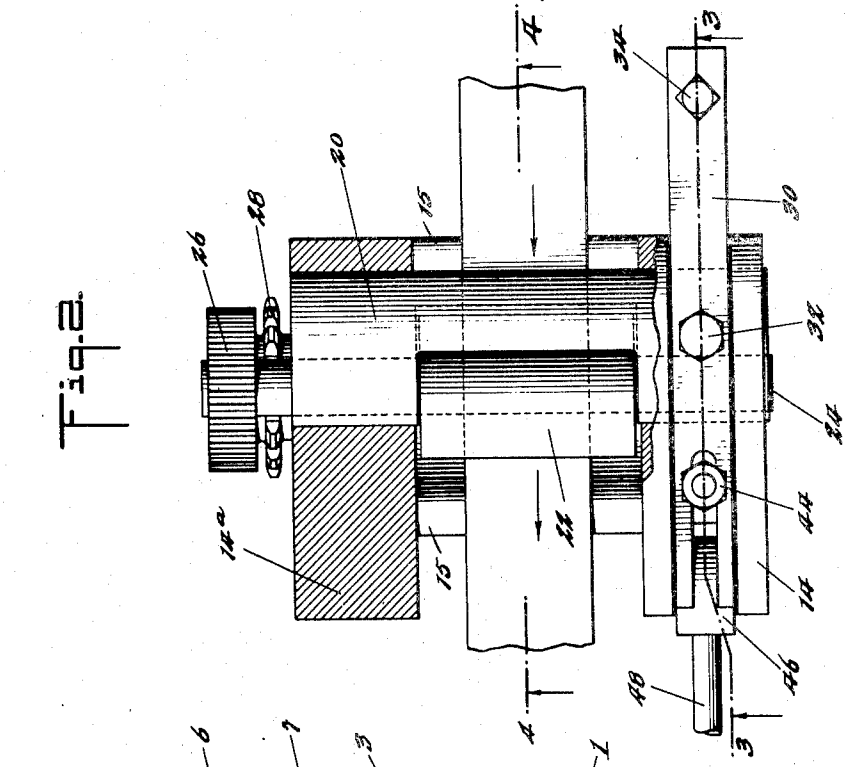
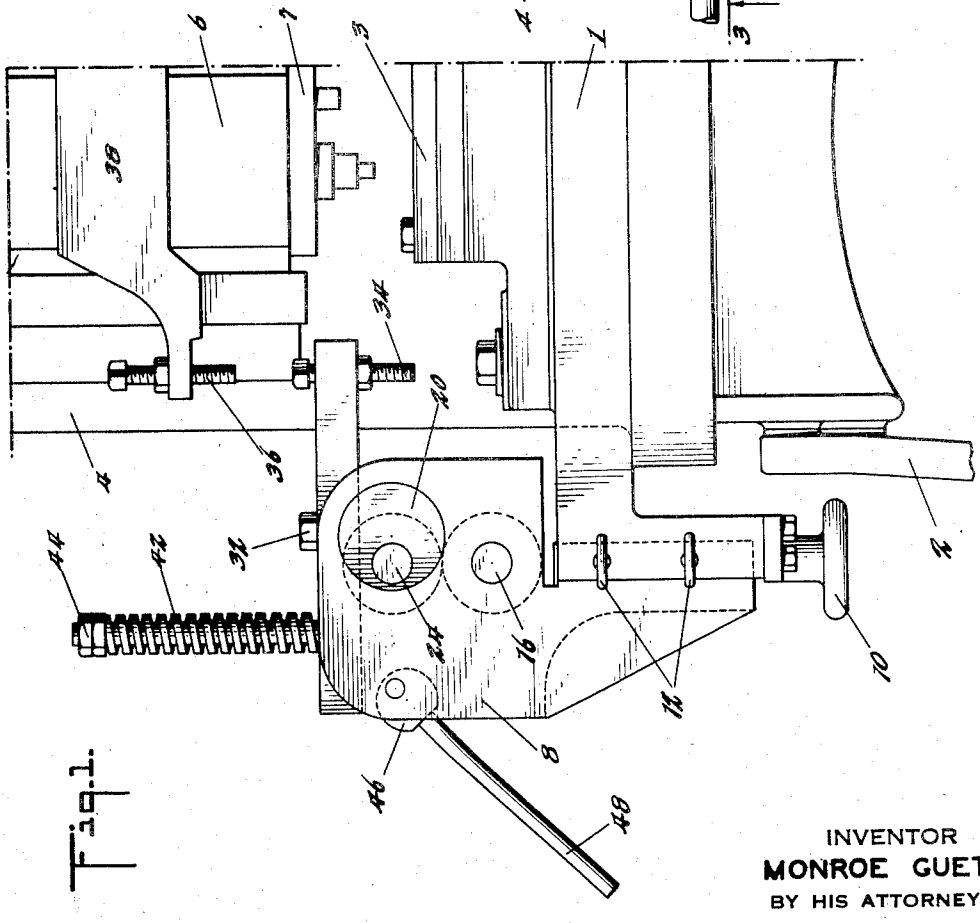


Fig. 1.



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Fig. 4.

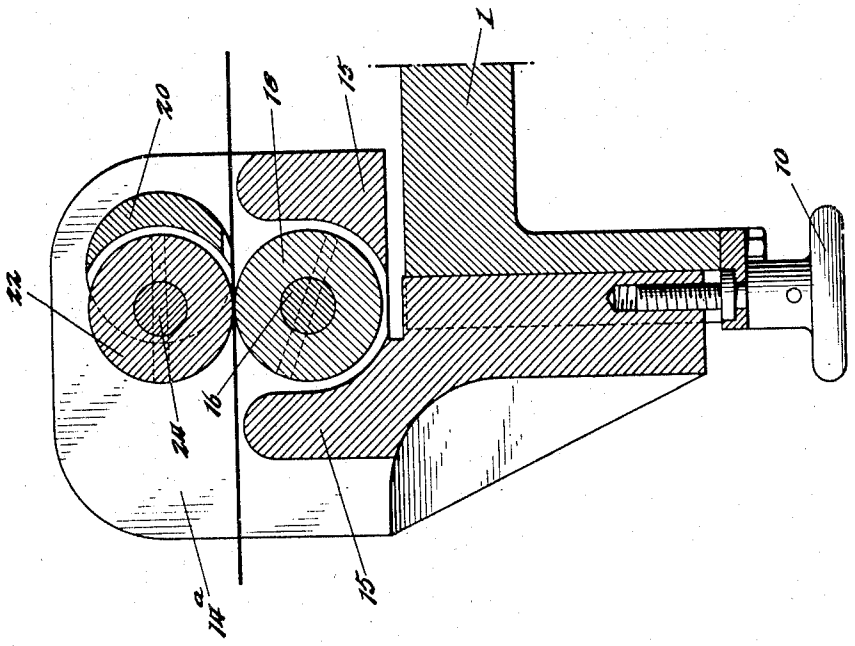
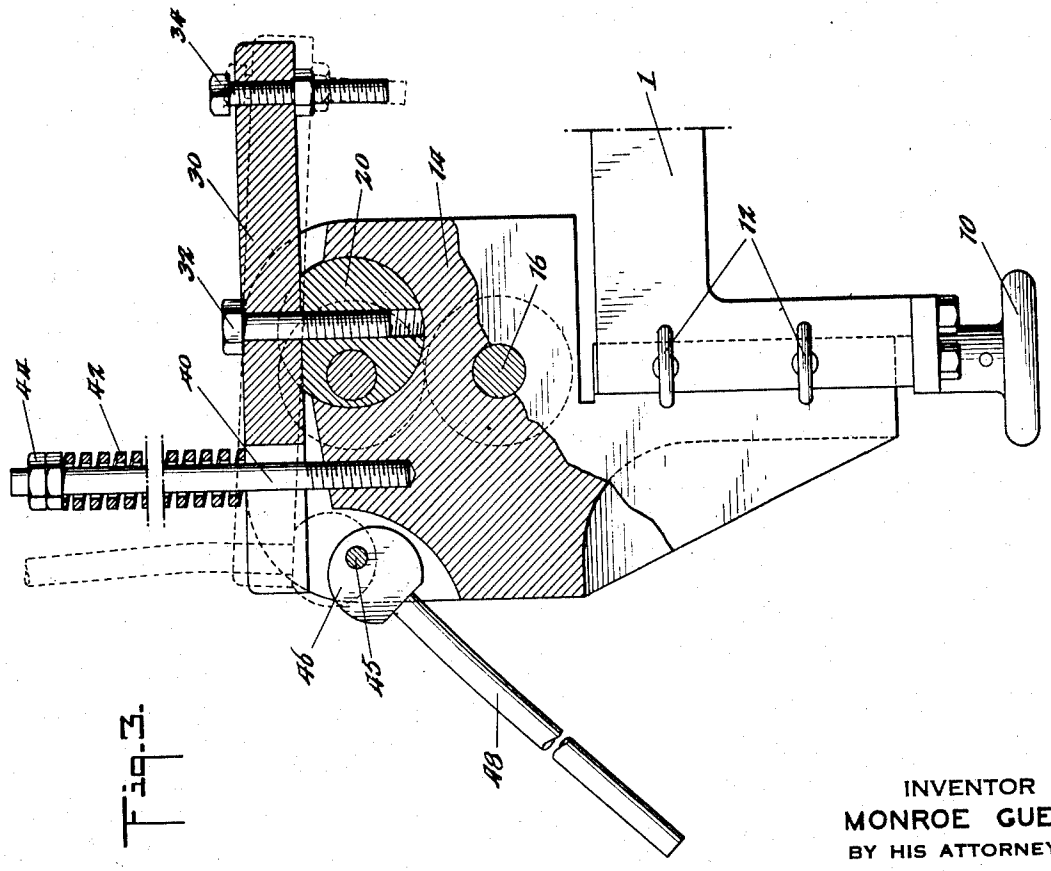


Fig. 3.



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UNITED STATES PATENT OFFICE

1,978,303

FEED ROLL FOR PRESSES

Monroe Guett, Hartford, Conn., assignor to The Arrow-Hart & Hegeman Electric Company, Hartford, Conn., a corporation of Connecticut

Application March 31, 1934, Serial No. 718,526

5 Claims. (Cl. 164—116)

The invention relates to feed rolls for presses and more particularly to the manner in which such feed rolls are mounted and it is an object of this invention to provide an improved means for mounting feed rolls of such a nature that the pressure of the rolls on the work piece or strip will be uniform throughout the width of the strip and that such uniformity of pressure may be obtained by means of a single spring.

In the drawings—

Fig. 1 is a view in elevation of feed rolls constructed in accordance with this invention applied to a press, a part only of the press being shown;

Fig. 2 is a view partly in plan and partly in section of the feed rolls shown in Fig. 1;

Fig. 3 is a view of the feed rolls shown in Fig. 1 partly in side elevation and partly in vertical section as on line 3—3 of Fig. 2; and

Fig. 4 is a vertical section as on line 4—4 of Fig. 2.

In the drawings the invention is shown in connection with a press having a bed plate 1 supported from a frame 2 and supporting the usual lower die 3. Projecting from the bed plate 1 are the usual guides 4 in which a head 6 carrying the upper die 7 is mounted for reciprocation in the usual manner. Secured to the bed plate at opposite sides of the press are housings 8 supporting the feed rolls which move the strip or work piece past the dies. In the drawings the feed rolls at one side of the press only are shown as the feed rolls at the other side of the press are substantially identical. The housing 8 is mounted in suitable guides at an end of the bed plate 1, adjusted vertically by means of the hand-wheel 10 and secured in adjusted position by the set screws 12. The upper portion of each housing 8 is formed of spaced side members 14, 14*a* joined by transverse portions 15 of less height and mounted in the side portions 14, 14*a* between the transverse portions 15 is a shaft 16 having pinned thereon a roller 18, the shaft 16 projecting beyond the side member 14*a* of the housing 8 to receive a drive gear. Journalled in the side members 14 and 14*a* above the shaft 16 and having its axis of rotation offset from the vertical plane through the axis of the shaft 16 is a bearing sleeve 20 which is cut away to substantially a crescent shape between the side portions 14, 14*a* to receive a roll 22 pinned to a shaft 24 which is journalled in the end portions of the sleeve 20 eccentrically of the axis of rotation of the sleeve 20.

As shown in Figure 4, the relative positions of the sleeve 20 and the shaft 24 are such that the axis of rotation of the shaft 24 is substantially in the vertical plane in which lies the axis of rotation of the shaft 16. The shaft 24 also projects beyond the side portion 14*a* of the housing 8 to receive a gear 26 which at all times meshes with the gear on the shaft 16. A sprocket 28 on the shaft 16, driven by a chain from the corresponding shaft of the other set of feed rolls causes both sets of feed rolls attached to the press to operate simultaneously. The feed rolls at the opposite side of the press are driven in the usual or any suitable manner by the movements of the press. The side portion 14 of the housing 8, and the end portion of the sleeve 20 at that side of the housing 8 are slotted to receive a lever 30 which rests upon the flat seat formed by the slot in the end of the sleeve 20 and is secured thereto by a bolt 32. The lever 30 is freely movable in the slot formed in the side member 14.

At one end the lever 30 is provided with an adjustable abutment 34 arranged to be engaged by an adjustable abutment 36 mounted in a cross-piece 38 attached to the head 6 of the press, the relation of the abutments 36 and 34 being such that upon each downward movement of the head 6 the abutments engage and the lever 30 is operated to rotate the sleeve 20 and separate the rolls 18 and 22 so that the work piece is not held by the rolls while it is being operated upon by the press. Both abutments 34 and 36 are made adjustable to facilitate the setting thereof to release the work piece from the rolls at the desired point in the operation of the press. The rolls 18 and 22 are held separated until the abutments 34 and 36 are separated by the upward movement of the head 6 of the press. At its opposite end the lever 30 is bifurcated and extending through the slot thus formed is a bolt 40 secured in the side portion 14 of the housing 8 and having a spring 42 thereon confined between the nuts 44 and the end of the lever 30, the spring 42 thus bearing on the lever 30 and tending to rotate the sleeve 20 in a direction opposite to the motion imparted to the sleeve by the head 6 of the press. Pivotally mounted, as at 45, in the slot formed in the side member 14 is a cam 46 having an operating handle 48, the cam being so positioned relatively to the lever 30 that upward movement of the handle 48 engages the cam 46 beneath the lever 30 and shifts the lever 30 and sleeve 20 in the same direction as does the head 6 of the press.

As shown in Figure 4 the shaft 24 has its axis of rotation substantially on the horizontal diam-

eter of the sleeve 20 so that rotation of the sleeve 20 either raises or lowers the shaft 24 and the roll 22 with respect to the horizontal diameter and moves the roll 22 either further away or closer to the roll 18. The lever 30 attached to the sleeve 20 is so arranged with respect to the sleeve 20, as shown in Figures 1 and 3, that operation of the lever 30 by the head 6 of the press rotates the sleeve 20 in a direction to move the roll 22 from the roll 18 against the action of the spring 42 which tends to rotate the sleeve 20 in the opposite direction and bring the roll 22 into engagement with the roll 18. Thus upon each operation of the press the downward movement of the head 6 causes the rolls 18 and 22 to be moved apart, freeing the work piece or strip from the influence of the rolls while the strip is being punched and the upward movement of the head 6 permits the spring 42 to operate the lever 30 and the sleeve 20 to bring the roll 22 into engagement with the strip so that rotation of the rolls causes the strip to be advanced the proper distance for the next operation of the press.

It will be noted that the rotation of the sleeve 20 shifts both ends of the shaft 24 so that movement of the lever 30 by either the head 6 or the spring 42 causes the shaft 24 and roll 22 to move the same amount at each end thereof, thus ensuring that the rolls 22 and 18 constantly remain parallel and that the pressure of the rolls upon the work piece or strip is uniform throughout. It will also be noted that such uniform pressure is obtained by means of a single spring 42 so that the pressure of the rolls upon the strip may be readily adjusted without danger of unbalancing the pressures at opposite ends of the rolls. Where it is desired to separate the rolls, as for feeding in a new strip, the cam 46 is operated by the handle 48 to the dotted line position shown in Figure 3 whereby the lever 30 and sleeve 20 are operated to move the roll 22 to a position in which it is spaced from the roll 18.

What is claimed is:—

1. In feed rolls for presses, a housing, a roll rotatably mounted in fixed bearings in said housing, a bearing sleeve rotatably mounted in said housing, a roll eccentrically mounted in said sleeve, a lever secured to said sleeve and means engaging said lever to yieldingly hold said sleeve rotated to a position effecting cooperation of said rolls in feeding a work piece, said lever being operated upon each operation of the press to rotate said sleeve against the action of said holding means to shift the roll carried thereby to a position in which the work piece is freed from restraint by said rolls.

2. In feed rolls for presses, a housing, a roll rotatably mounted in fixed bearings in said housing, a bearing sleeve rotatably mounted in said housing, a roll eccentrically mounted in said sleeve, a lever secured to said sleeve and means engaging said lever to yieldingly hold said sleeve rotated to a position effecting cooperation of said rolls in feeding a work piece, said lever being operated upon each operation of the press to rotate said sleeve against the action of said holding means to shift the roll carried thereby to a position in which the work piece is freed from restraint by said rolls and means in said lever adjustable to vary the point at which the press initiates operation of said lever.

3. In feed rolls for presses, a housing, a roll rotatably mounted in fixed bearings in said housing, a bearing sleeve rotatably mounted in said housing, a roll eccentrically mounted in said sleeve, a lever secured to said sleeve, a spring engaging said lever to hold said sleeve rotated to a position effecting cooperation of said rolls in feeding a work piece and means to vary the pressure of said rolls on the work piece, said lever being operated upon each operation of the press to rotate said sleeve against the action of said spring to shift the roll carried thereby to a position freeing the work piece.

4. In feed rolls for presses, a housing, a roll rotatably mounted in fixed bearings in said housing, a bearing sleeve rotatably mounted in said housing, a roll eccentrically mounted in said sleeve, a lever secured to said sleeve, a spring engaging said lever to hold said sleeve rotated to a position effecting cooperation of said rolls in feeding a work piece and means to adjust said spring to vary the pressure of said rolls on the work piece, said lever being operated upon each operation of the press to rotate said sleeve against the action of said spring to shift the roll carried thereby to a position freeing the work piece.

5. In feed rolls for presses, a housing, a roll rotatably mounted in fixed bearings in said housing, a bearing sleeve rotatably mounted in said housing, a roll eccentrically mounted in said sleeve, a lever secured to said sleeve, a spring engaging said lever to hold said sleeve rotated to a position effecting cooperation of said rolls in feeding a work piece and means to adjust said spring to vary the pressure of said rolls on the work piece, said lever being operated upon each operation of the press to rotate said sleeve against the action of said spring to shift the roll carried thereby to a position freeing the work piece and means to hold said sleeve in a position with the rolls separated.

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