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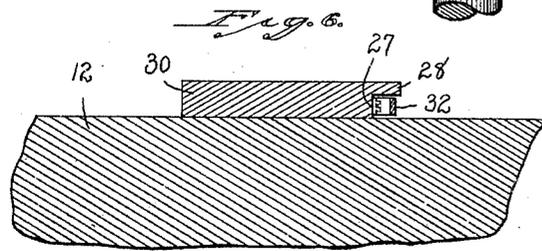
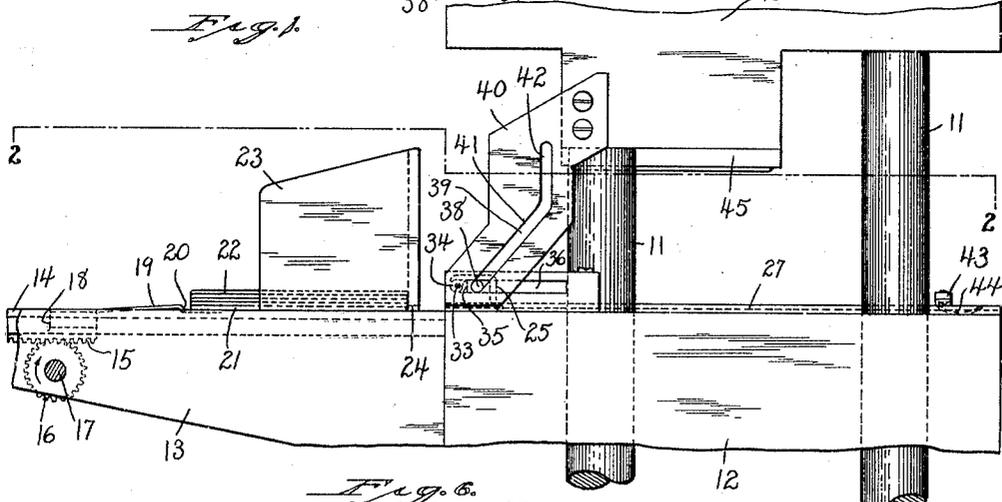
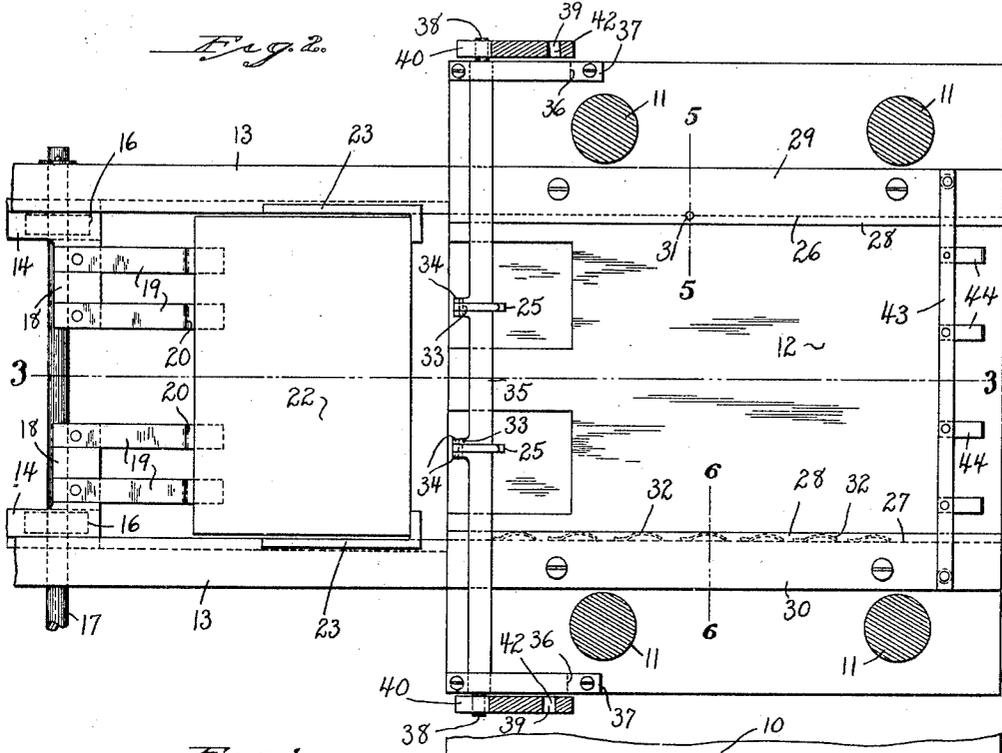
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1,731,834

FEED MECHANISM FOR EMBOSsing PRESSES AND THE LIKE

Filed June 13, 1928

2 Sheets-Sheet 1



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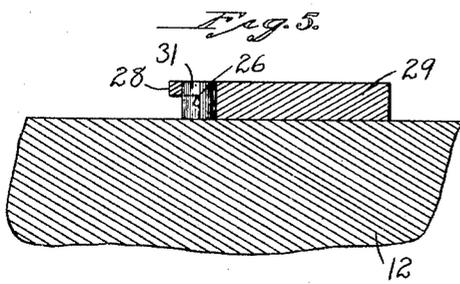
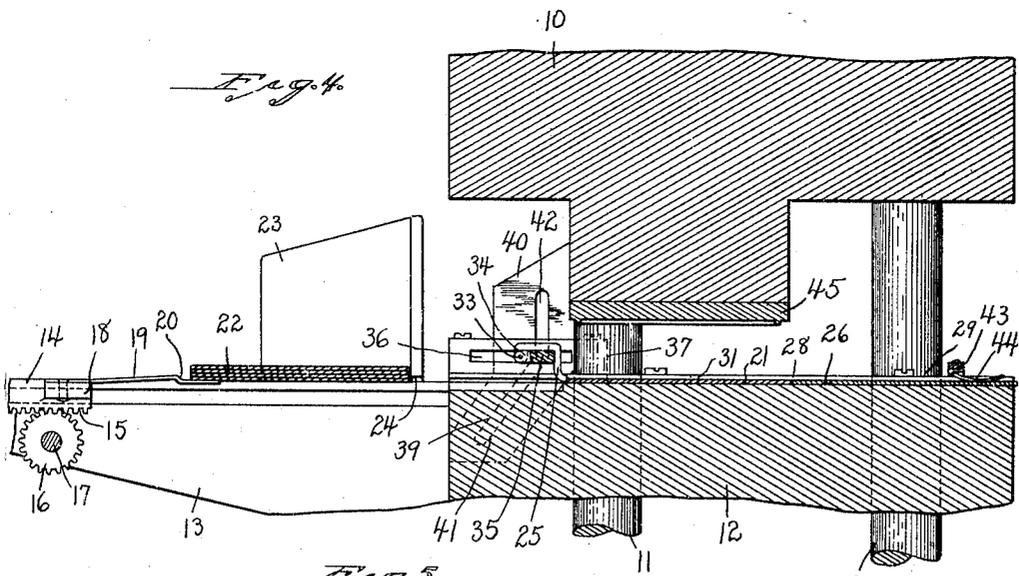
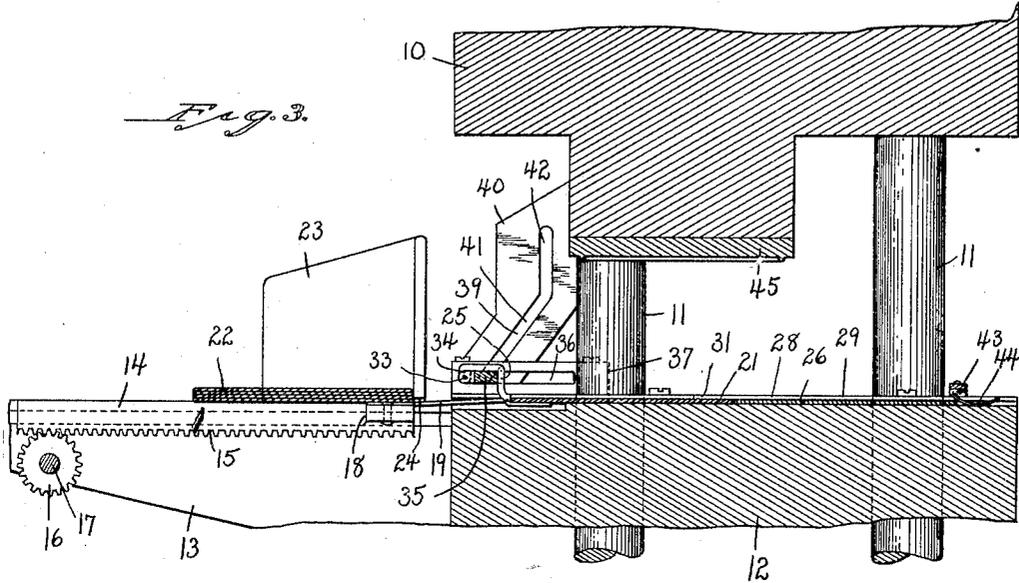
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FEED MECHANISM FOR EMBOSsing PRESSES AND THE LIKE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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FEED MECHANISM FOR EMBOSsing PRESSES AND THE LIKE

Application filed June 13, 1923. Serial No. 235,149.

This invention relates to an improvement in feed-mechanisms for embossing presses and the like and particularly to feed-mechanisms of the pusher type.

5 In the process of embossing or impressing book-covers and the like it is often necessary, for well-understood reasons, to run a given cover or other blank through a press two or more times. One of the main problems has
10 been to feed the blank to exactly the same position each time it is introduced into the same or a different machine.

The object of this invention is to produce a reliable and effective feed-mechanism constructed with particular reference to secur-
15 ing the accurate registration of the blanks to be embossed or otherwise impressed.

With this object in view my invention consists in a feed-mechanism having certain details of construction and combinations of
20 parts as will be hereinafter described and particularly recited in the claims.

In the accompanying drawings:

Fig. 1 is a broken schematic view in side
25 elevation of an embossing press equipped with my improved feed-mechanism;

Fig. 2 is a horizontal sectional view thereof taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view taken
30 on the line 3—3 of Fig. 2 but showing the parts in the positions due to them just after the delivery-fingers have completed their task of moving the book-cover blank forward onto the press-bed;

Fig. 4 is a view corresponding to Fig. 3
35 but showing the parts in the positions due to them after the bed has been moved upward to cause the pusher-fingers to finally position the blank beneath the embossing-die;

Fig. 5 is an enlarged-scale broken sectional
40 view on the line 5—5 of Fig. 2; and

Fig. 6 is a corresponding view on the line
45 6—6 of Fig. 2.

The embossing press herein chosen for the
45 illustration of my invention consists of an upper press-member or head 10 mounted upon the upper ends of four vertically-arranged tie-rods 11 upon which is mounted for vertical reciprocation a complementary
50 press-member or bed 12 which may be moved

toward and away from the head 10 by any of the well-known mechanisms employed in embossing presses and requiring no illustration herein.

The bed 12 has projecting from its rear
55 face near the opposite sides thereof a pair of complementary brackets 13, each of which is grooved for the reception and guidance of one of a pair of corresponding reciprocating rack-bars 14 having its under face
60 formed with teeth 15 meshed into by a driving-pinion 16 mounted upon a transverse-shaft 17 periodically driven from any convenient source to advance and retire the rack-bars 14 as will hereinafter appear. 65

Each of the two rack-bars 14 above described is provided with an inwardly-projecting arm 18 which mounts a pair of downwardly-yielding spring-like delivery-fingers 19, the forward end of each of which is
70 downwardly offset to form a shoulder 20 which, together with the corresponding shoulders of the other delivery-fingers, is adapted to engage the rear edge of the lowermost book-cover 21 of a stack of covers 22
75 resting upon the brackets 13 and positioned between two complementary L-shaped guides 23, the lower edge 24 of the front-wall of which is spaced above the surface of the brackets 13 a distance substantially corre-
80 sponding to the thickness of one of the book-covers.

When the transverse-shaft 17 is actuated from any suitable source the rack-bars 14
85 will be moved forward toward the bed 12 and the respective shoulders 20 of the delivery-fingers 19 carried thereby will engage the lowermost cover 21 of the stack 22 and move the same forward onto the upper face of the
90 bed 12 a distance sufficiently far onto the bed 12 to permit a pair of complementary pivotal pusher-fingers 25 to drop down by gravity back of the rear edge of the said book-cover. As the book-cover is delivered onto
95 the upper face of the bed 12 as just described, its opposite side edges are respectively positioned in guide-grooves 26 and 27 formed between the upper face of the bed 12 and the respective flanges 28 of parallel
100 guide-plates 29 and 30 secured to the upper

face of the said bed 12 on opposite sides of the path of travel of the book-cover.

Positioned so as to have its rounded outer end project into the guide-groove 26 of the plate 29 is an abutment-pin 31 against which the adjacent side edge of the book-cover is forced by a series of bowed springs 32 mounted in the groove 27 of the oppositely-located complementary guide-plate 30.

The pusher-fingers 25 above mentioned are pivotally mounted upon pins 33 extending between ears 34 offsetting from a transversely-arranged pusher-bar 35, the respective opposite ends of which are guided for reciprocating movement in the slots 36 of fixtures 37 secured to the bed 12 near the opposite side edges thereof. The extreme outer ends of the said pusher-bar are formed with cylindrical terminals 38, each of which is entered into a cam-slot 39, one of which is formed in each of two corresponding plate-like cams 40 respectively secured to the head 11 at the opposite sides thereof. The cam-slots 39 of each of the two cams 40 consist of a relatively-long inclined reach 41 and a short vertical reach 42.

Extending laterally across the outer end of the bed 12, opposite to the pusher-bar 35, I mount a bar 43 to the under face of which are secured four upwardly-bowed spring-fingers 44 which are adapted to bear upon the upper face of a previously-impressed blank as the same is pushed across the upper face of the bed 12 by an on-coming fresh blank being positioned by the pusher-fingers 25, so that the rear edge of the new blank is firmly held against the front edge of the said pusher-fingers by the resistance offered to the movement of the previously-impressed blank by the spring-fingers 44.

In the operation of my improved feed-mechanism the turning of the shaft 17 in the direction indicated by the arrow in Fig. 1 will cause the rack-bars 14 to move inward toward the bed 12, with the effect of causing the delivery-fingers 19 to pick out the lowermost blank 21 from the pile 22 and move the same from the position in which it is shown in Fig. 1 to the position in which it is shown in Fig. 3, in which position its rear edge is just forward of the forward faces of the pusher-fingers 25. During the initial forwarding movement of the said blank, the pusher-fingers swing upward upon their pivots 33 and ride upon the upper face of the blank until, as above described, the said blank has been moved sufficiently far to permit them to drop by gravity back of its rear edge.

The rack-bars 14 now retire and the bed 12 is moved upward by any suitable mechanism which causes the pusher-fingers 25 to advance the blank 21 centrally beneath a die 45 carried by the head 10. This advance movement of the pusher-fingers during the rising movement of the bed 12 is effected by

the inclined-reaches 41 of the plate-like cams 40 into which the cylindrical terminals of the said pusher-bar are entered. The inclined-reaches 41 are so proportioned as to complete the positioning of the blank under the die 45 just before the latter makes contact with the blank. During the continued upward movement of the bed 12 to force the blank into engagement with the die 45, the cylindrical terminals 38 of the pusher-bar 35 ride idly in the vertical reaches 42 of the respective slots 39.

During the operation of advancing the new and unimpressed blank by means of the pusher-fingers 25 as just above described, the new blank forces a previously-impressed blank forward upon the bed 12 and beneath the spring-fingers 44, so that the blank now being positioned is maintained against the forward faces of the pusher-fingers 25 and prevented from being canted or kicked clear by the rapid movement of the said fingers. Meanwhile, also, the bowed springs 32 in the groove 27 of the guide-plate 30 act to maintain the left-hand edge of the new blank in engagement with the abutment-pin 31.

As soon as the blank has been impressed, the bed 12 retires downward and the cam-slots 39 of the respective cams 40 act to retire the pusher-bar 35, together with its fingers 25, into the position in which the parts are shown in Figs. 1, 2 and 3.

From the foregoing it will be seen that the blank throughout its final positioning beneath the die 45 will on one hand be firmly held in engagement with both of the pusher-fingers 25 by the resistance offered by the spring-fingers 44 and, on the other hand, its side edge will be held in contact with the abutment-pin 31 by the bowed springs 32.

By means of a feed-mechanism above described, I am enabled to run the blanks through the embossing press, or through another machine having three points of contact for the edge of the blank, and secure each time the exact positioning of the blank required for properly locating the successive impressions with respect to each other.

I claim:

1. In a feed-mechanism for embossing presses and the like, the combination with two complementary press-members adapted to receive between them a blank and one of which is movable toward and away from the other; of two spaced-apart pusher-fingers adapted to engage the rear edge of a blank and advance the same between the said press-members; actuating-means brought into play by the movement of one of the said press-members toward the other for moving the said pusher-fingers; a registering-abutment located to one side of the path of the blank in position to be engaged by one edge thereof; spring-means located on the opposite side of the path of the blank in position to be engaged

by the adjacent edge of the blank and to maintain the opposite edge of the same in engagement with the said registering-abutment; and friction-means for resisting the advance of the blank to maintain the same in engagement with the pusher-fingers during the feeding movement of the latter; whereby the said blank is definitely positioned at three points between the two press-members by the said registering-abutment and the said pusher-fingers.

2. In a feed-mechanism for embossing presses and the like, the combination with an upper press-member and a complementary lower press-member adapted to receive between them a blank and one of which is movable toward and away from the other; of two guide-plates positioned over the lower press-member on the opposite sides respectively of the path of travel of a blank and each provided with a flange overhanging the upper face of the lower press-member, whereby guide-grooves are formed for the reception and guidance of the opposite side edges of the blank; two spaced-apart pusher-fingers adapted to engage the rear edge of a blank and advance the same into the said guide-grooves; a registering-abutment projecting into one of the said guide-grooves in position to be engaged by one edge of the blank; spring-means located in the other guide-groove on the opposite side of the path of the blank in position to be engaged by the adjacent edge of the blank and to maintain the same in engagement with the said registering-abutment; and friction-means for resisting the advance of the blank to maintain the same in engagement with the pusher-fingers during the feeding movement of the latter; whereby the said blank is definitely positioned at three points between the two press-members by the said registering-abutment and the said pusher-fingers.

3. In a feed-mechanism for embossing presses and the like, the combination with two complementary press-members adapted to receive between them a blank and one of which is movable toward and away from the other; of a reciprocating pusher-bar provided with two spaced-apart pusher-fingers adapted to engage the rear edge of a blank and advance the same between the said press-members; a pair of cams respectively engaging the opposite ends of the said pusher-bar for actuating the same; a registering-abutment located to one side of the path of the blank in position to be engaged by one edge thereof; spring-means located on the opposite side of the path of the blank in position to be engaged by the adjacent edge of the blank and to maintain the opposite edge of the same in engagement with the said registering-abutment; and friction means for resisting the advance of the blank to maintain the same in engagement with the pusher-fingers during

the feeding movement of the latter; whereby the said blank is definitely positioned at three points between the two press-members by the said registering-abutment and the said pusher-fingers.

4. In a two-stage feed-mechanism for embossing presses and the like, the combination with two complementary press-members adapted to receive between them a blank and one of which is movable toward and away from the other; of two spaced-apart pusher-fingers adapted to engage the rear edge of a blank and advance the same between the said press-members; actuating-means operable by the movement of one of the said press-members toward the other for moving the said pusher-fingers; and a delivery-mechanism for picking out a blank from a stack and pushing the same forward of the said pusher-fingers in position to be further advanced thereby.

5. In a feed-mechanism for embossing presses and the like, the combination with two complementary press-members adapted to receive between them a blank and one of which is movable toward and away from the other; of two spaced-apart pusher-fingers having perpendicularly-narrow blank-engaging surfaces adapted to engage the rear edge of a blank to be acted upon and advance the same between the said press-members and to expel a blank previously acted upon through the intermediary of the said blank to be acted upon; a registering-abutment having a perpendicularly-narrow blank-engaging surface and located to one side of the path of the blank in position to be engaged by one side-edge thereof; spring-means located on the opposite side of the path of the blank in position to be engaged by the adjacent side-edge of the blank and to maintain the opposite edge of the same in engagement with the said registering-abutment; and friction-means positioned to engage the face of a blank previously acted upon to resist the advance of the first-mentioned blank and to maintain the same against the pusher-fingers during the feeding movement of the latter.

6. A feed-mechanism as defined in the preceding claim and having the pusher-fingers pivotally mounted and adapted to yield in the direction of their feeding movement.

In testimony whereof, I have signed this specification.

JOHN R. WHEELER.