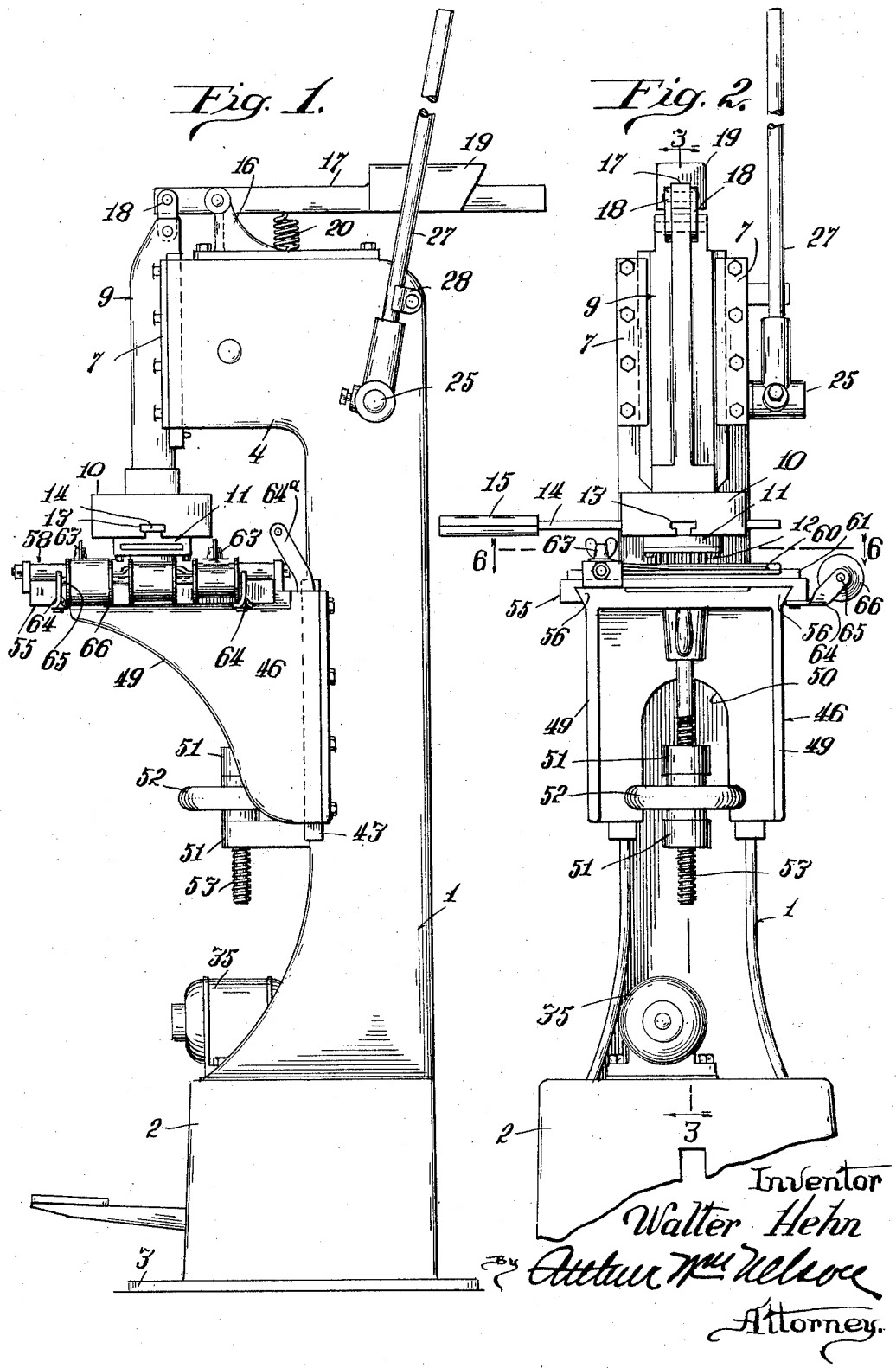
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STAMPING PRESS

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STAMPING PRESS

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Fig. 3.

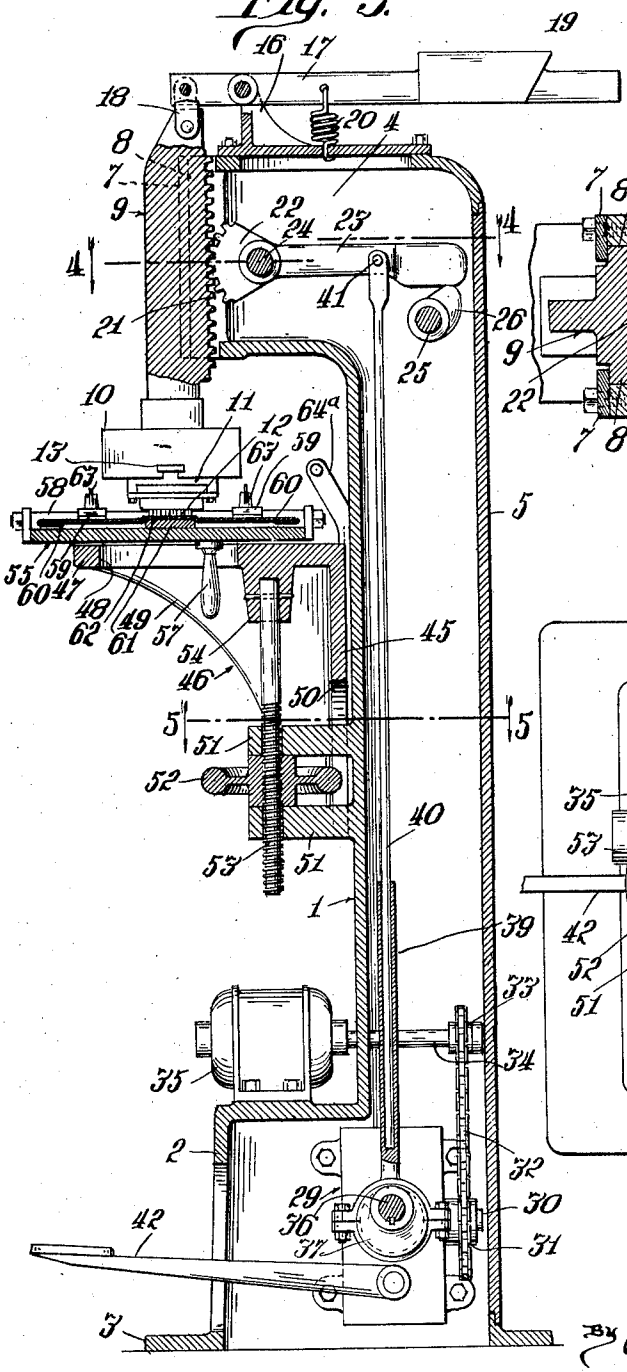


Fig. 4.

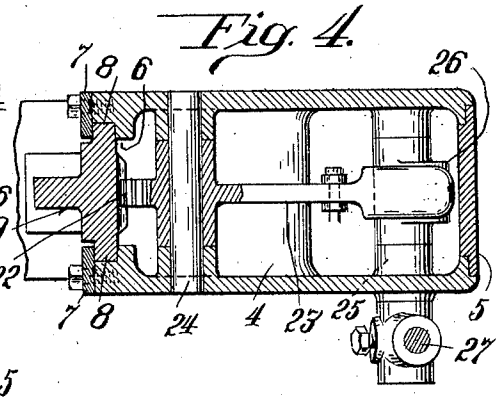
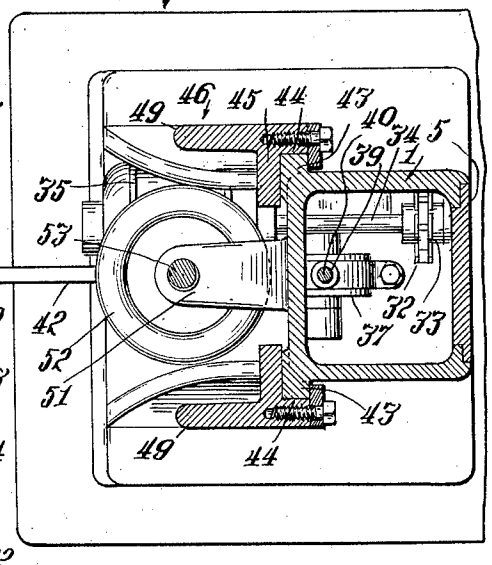


Fig. 5.



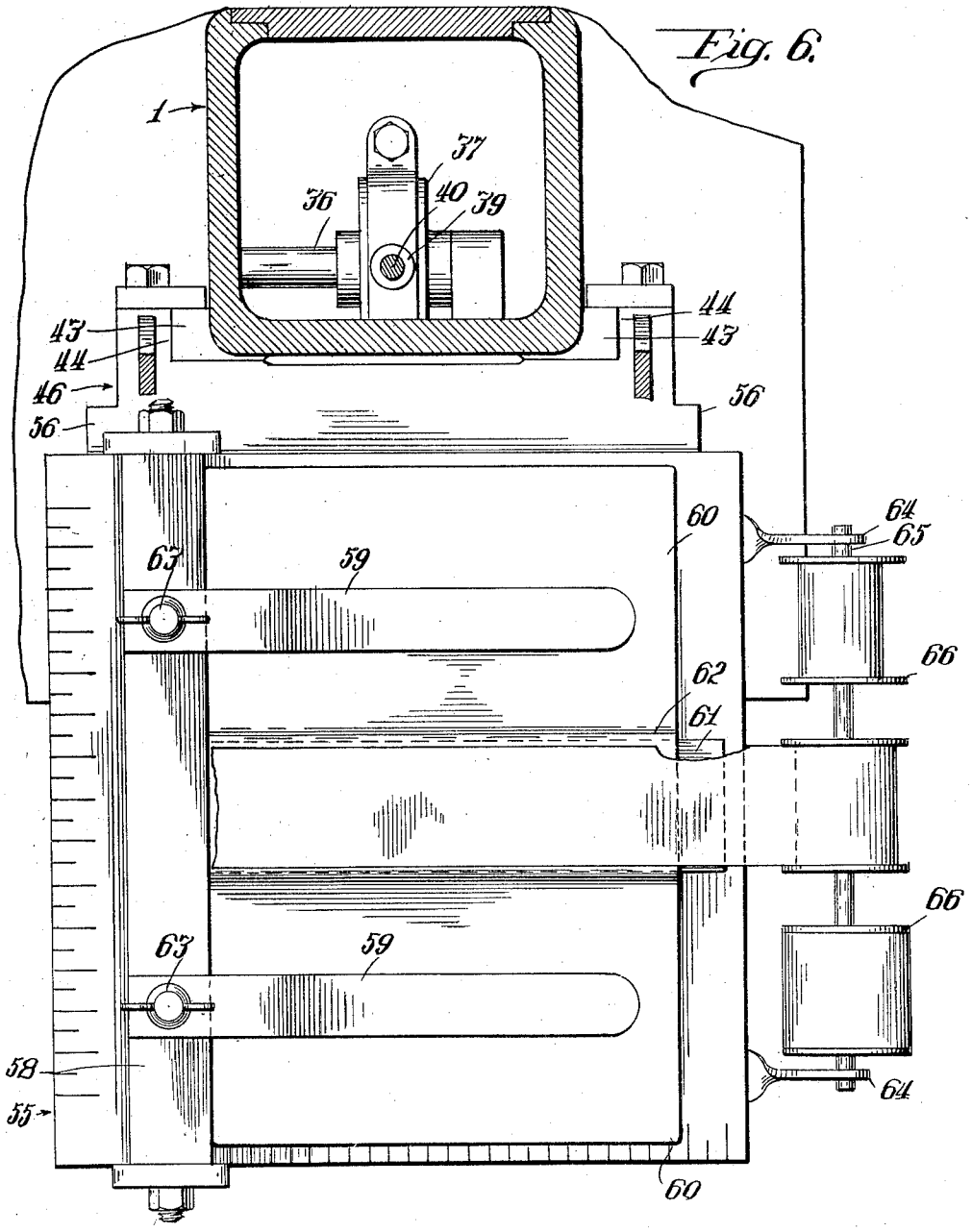
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Fig. 6.



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UNITED STATES PATENT OFFICE

WALTER HEHN, OF CHICAGO, ILLINOIS

STAMPING PRESS

Application filed May 22, 1931. Serial No. 539,275.

This invention relates to improvements in stamping presses and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The primary object of the invention is to provide a press especially adapted for use in book binding and similar establishments for stamping titles and the like in foil of the desired color upon either the back or sides of book covers.

A further object of the invention is to provide a press of this kind which is power actuated and which is adajustable to bring the cover to be stamped into proper relation with respect to the stamping or impression member that in itself is positioned adjacent a heating element carried by the ram of the press.

Another object of the invention is to provide a press of this kind wherein the book cover supporting table is mounted upon its adjustable support so that the table may be moved outwardly thereon for positioning the book cover thereon whereby the operator has an unobstructed view of the cover is so positioning it upon the table.

These objects of the invention, as well as others, together with the many advantages thereof, will more fully appear as I proceed with my specification.

In the drawings:—

Fig. 1 is a view in side elevation of a stamping press embodying my invention.

Fig. 2 is a view in front elevation of the same.

Fig. 3 is a longitudinal vertical sectional view through the same as taken on the line 3—3 of Fig. 2.

Figs. 4 and 5 are horizontal sectional views through the press, each on an enlarged scale, the planes of said sections being taken on the lines 4—4 and 5—5 respectively of Fig. 3.

Fig. 6 is another horizontal sectional view through the press on a further enlarged scale as taken on the line 6—6 of Fig. 2.

In general, my improved press includes an upright hollow standard having a forwardly extending enlargement at the front bottom end that provides a stable base for the press as a whole and on the top end of said standard is a forwardly extending arm that overhangs the enlargement at the bottom of the standard.

On the front face of the overhanging arm and mounted in suitable guides thereon, is a vertically movable head or ram that carries a stamping or impression die and an associated heating element at its bottom. In the overhanging arm is a lever like member having a rack and segment engagement at one end with said head and this lever is engaged by the top end of a rod disposed in the upright standard. The bottom end of said rod has a one way connection with an eccentric arrangement in the base and operatively driven from a speed reducing gear set therein, which in itself is motor driven and includes a tripping treadle.

On the front face of the upright standard between the base and overhanging arm there is mounted for vertical adjustment in suitable guides, a work table support, whereby the work table may be moved toward or away from the impression or stamping die to bring its book cover receiving surface into proper position for coacting with the stamping or impression die. Said work receiving table is mounted on said support for an inward and outward movement, and when in its outward position, gives a full unobstructed view of the cover holding devices thereon, whereby each book cover may be properly positioned so that when said table is moved inward, accurate registration between the die and book cover to be stamped is assured.

Referring now in detail to that embodiment of the invention, illustrated in the drawings:—1 indicates as a whole an upright hollow standard, provided at its bottom end with a forwardly extending enlargement 2 having an outwardly extending marginal flange 3 which provides a good stable base for the press. Said standard which is preferably of a rectangular cross section is open at the back and includes a forwardly extending hollow arm 4 at its top end that overhangs the enlargement 2. A removable cover 5 is associated with the open back of the standard whereby access may be had to

the interior of said standard for the inspection of the parts within the same and which will later be described.

The front face of the overhanging arm has an opening 6 therein and at opposite sides of said opening said face is rabbetted and has bolted thereto guide plates 7 to form guides for flanges or rails 8 carried on opposite sides of a ram member 9. The bottom end of said ram is formed to provide an enlarged rectangular head 10 containing electrical or other heating elements (not shown) and carried on the bottom surface of said head is the chase 11 that holds the impression members 12. The head has longitudinally, as well as transversely extending T-shaped or undercut grooves 13 in its bottom surface in either of which grooves the holder bar 14 of the chase 11 may be removably engaged. Such a holder bar is best shown in Fig. 2 and the same is provided with an insulated handle 15 whereby it may be withdrawn and replaced in the heating head 10 when necessary. Such a chase forms no particular part of the present invention so that it is only generally illustrated and mentioned herein.

On the top of the overhanging arm is an upstanding bracket 16 in which a lever 17 is pivoted near its front end and said end of said lever has a pivoted link connection 18 with the top end of said ram 9. A weight 19 is adjustably mounted on said lever whereby the weight of the ram is counterbalanced and a spring 20 connects said lever to said bracket 16 in a manner imparting a downward movement to the associated end of the lever to impart an upward movement to the ram.

On the rear face of said ram and disposed in the opening 6 in the front face of the overhanging arm is provided a vertically extending rack 21. Meshing therewith is a gear segment 22 formed as a part of a lever 23 disposed in the arm 4 and pivoted on a cross shaft 24 therein. In the top end of said standard, to the rear of and parallel with the shaft 24 and below the rear end of the lever 23 is a rock shaft 25. This rock shaft carries a cam 26 disposed in the plane of the rear end of the lever 23 so as to engage the same and on one end of said shaft and preferably the right hand end outside the standard is secured a normally upward and rearwardly extending hand lever 27. Said lever normally engages in a stop 28 secured to the associated side wall of the standard so as to be held in said upwardly and rearwardly extending position as best shown in Fig. 1 and the purpose of this lever and cam will appear later.

In the bottom end of the standard is located a speed reducing gear set 29 of any convenient kind. Said gear set includes a casing for enclosing the usual gearing and projecting rearwardly from said casing is the driven shaft 30 of the set. Said shaft carries a sprocket 31 which is driven by a chain 32 from a second sprocket 33 fixed to the armature shaft 34 of a motor 35 that is secured in position upon the top of the enlargement 2 of the standard.

The driving shaft 36 of said speed reducing gear set extends laterally from the casing and has secured thereto an eccentric 37. A strap 38 surrounds said eccentric and this strap includes an upwardly disposed tubular extension or guide 39. Said tubular extension receives with a sliding fit, the bottom end of an actuator or push rod 40 extending up through the hollow standard to have a pivotal connection 41 with the rear end portion of the lever 23. The speed reducing gearing is of the kind including a tripable clutch means whereby when said means has been tripped, the shaft 36 makes one revolution and then remains idle until said clutch means is again tripped.

To so trip said clutch means, a food treadle 42 is provided and said treadle extends out through a suitable slot in the front of the enlargement 2 so as to be conveniently disposed for actuation by the foot of the operator.

The front wall of the standard, is formed at a point between the overhanging arm 4 and the enlargement 2 with rails 43 which are received in guide channels 44 in the rear wall 45 of a work table supporting platform indicated as a whole at 46. Said platform also includes a forwardly projecting horizontal top or bed 47 in which is provided a centrally located longitudinal slot 48. The rear wall and bed of this platform are connected together at each side by webs 49 and centrally in said rear wall and opening through the bottom thereof is a slot 50.

Projecting forwardly from the front wall of the standard, in the plane of the slot 50 are vertically spaced, fixed apertured ears 51—51 and located between said ears is a hand wheel 52. Said hand wheel has threaded engagement with a post or shaft 53 which is fixed at its top end in a boss 54 on the bottom side of the bed 47. Thus when the hand wheel is turned in one direction or the other, the work table supporting platform is raised or lowered.

Associated with the bed of said platform is a work receiving table 55 that has a dove tail sliding guiding bearing engagement with rails 56 along the sides of the platform bed 47. Said table is provided on its bottom side with a handle 47 that extends down through the slot 48 in said bed. By means of said handle, the table may be moved forwardly and rearwardly upon said bed a distance equal to that of the slot 48 therein, the handle 57 engaging the ends of said slot to act as limiting stops for the movement

of said table. Secured to the top surface of said table along one side thereof is a guide bar 58 that carries lateral extending spring fingers 59 under which the sides 60 of a book cover may be engaged. An impression receiving bar 61 is disposed upon said table parallel with but midway between said fingers 59 to be positioned beneath the back bone 62 of the book cover being operated upon. The fingers 59 have a wing nut pivotal connection 63 with the guide bar 58 so that said fingers may be swung out of the way when it is desired to position or remove a book cover therefrom. It is also pointed out that the impression receiving bar 61 is one of a set of such bars that differ in width and thickness to accommodate book back bones of different widths and thicknesses. The guide bar 58 is adjustable laterally of the bed which is provided with suitable calibrations along its margins by which the various parts may be accurately arranged on the table.

At one side of the bed 47 of the platform, I provide a pair of laterally and upwardly extending brackets 64 to receive a shaft 65 upon which a number of spools of colored foil 66 may be engaged. If desired, similar brackets 64^a may be provided at the rear of the bed, to receive the shaft 65 and spools 66 when it is found more convenient to have said spools in that position as is necessary in working upon book covers of certain sizes.

The press structure described is one especially advantageous in book binderies wherein large numbers of books are to have titles and the like stamped upon the back bone or sides of the cover in foil colors contrasting to that of the cover itself. Heretofore, it has been the practice to provide the usual chase with its impression members and to heat the same in an oven or in an open flame and then place foil upon that part of the cover to bear the title. Thereafter the heated chase with its impression member was withdrawn from the oven placed in a suitable holder which was brought into operative position with the book cover and then pressed thereon by hand. This made such work slow, laborious and somewhat heavy with the result that the impressions made were not uniform. All of this work, of course, was performed upon the cover before it is bound to the body or arranged pages of the book so that the sides and back bone of the cover could be opened out flat.

In stamping titles on the backbone of book covers, with my improved press the operation is as follows: Assume that the title has been set up from proper impression members in the chase and that the heating head 10 is heated to the desired temperature by the heating element therein which is preferably of the electric current type. Also, assume that the chase has been positioned in said head by inserting the handle bar 14 thereof in the desired T-shaped slot in the bottom of said head. This faces the impression member 12 downwardly in the chase.

The work receiving table 55 is now moved forwardly to project beyond the bed of the platform and this movement is imparted to said table by grasping the handle 57 and pulling it forwardly. This positions the table out of the plane of the heating head 10 so that a full unobstructed view is had of the same.

A book cover in its flat condition is then laid, outside up, upon the table with one edge up against the guide bar 58 and with its back bone positioned over the flat bar 61 previously arranged in place in the plane of the impression members in the chase. In this positioning of the book cover, the spring fingers 59 may be swung to one side and after the cover has been positioned the spring fingers are swung back again to engage upon the sides of the cover to hold them in place. The handle 57 is then grasped and pushed rearwardly and this slides the table with the cover thereon rearwardly until the handle engages the rear of the slot 48 which limits the rearward movement of the table and brings the back bone of the cover in line with the impression members in the chase.

To determine the proper position of the book cover with respect to the die whereby the proper impression may be made, the hand lever 27 is grasped and swung forwardly, this will rock the shaft 25 and cause the cam 26 to swing upwardly and engage the rear end of the lever 23 to swing it about the shaft 24 so as to move the ram downwardly. Thereafter the hand wheel 52 is turned in the proper direction to impart a movement to the support with respect to the impression members whereby it may be properly positioned so that the impression to be made is not too light or too heavy.

After the table has been positioned as just above mentioned, the lever 27 is returned to its normal inoperative position against the stop 28 and the table is drawn forwardly, to again expose the book cover. The desired foil spool 66 is then moved along the shaft 65 to line up with the cover back bone and a length of foil is drawn from the spool sufficient to cover that area of the back bone upon which the title is to be stamped or impressed. The table is then returned to its rearward position.

With the motor 35 in operation, the operator now steps on the treadle 42 and this trips the clutch of the speed reducing gear set 29 which drives the shaft 36 one complete revolution and then stops. In a part of the revolution of said shaft, the eccentric 37 will through the strap 38 and tube 39

impart an upward lift to the rod 40. This will swing the lever 23 upwardly to move the ram 9 downwardly by reason of the segment 22 and rack 21 so that the impression members in the chase engage the foil strip and impress and offset a portion thereof into the back bone of the cover in accordance with the impression members employed. After the impression member has completed its work, the other part of the revolution of said shaft will return the tube 39 to its normal position and the spring 20 will act to swing the weighted end of the lever 17 downwardly and to return the ram to its normal uppermost position. In this movement of the ram, it swings the lever 23 downwardly so that the rod 40 again returns to its position in the tube 39 ready for the next operation.

The table 55 is then pulled forwardly to expose the book cover to full view and with a soft cloth or the like, the back bone is wiped over to remove all surplus foil from about the edges of the impressions thus made.

After the platform and table have once been adjusted with respect to the impression member as before mentioned, they need no further adjustment.

Another book cover is applied to the table, the color foil strip is positioned over the back bone, the table is moved inward and after the treadle has been stepped on, the ram again descends to make the stamping or impression and then returns to its normal position. The stamped book cover is removed and another one is applied to the table and the operations are carried on as before mentioned.

As the book covers are always positioned in register with the impression members and as the depth of each impression is always the same, it is apparent that uniformity both as to character and quality of the impression or stamping made is assured.

Where the titles or surface ornamentations are to be applied to the sides of the cover, the operation is substantially as described. By means of the improved press, not only is uniformity in impressions assured, but such impressions can be made at a greater speed than has heretofore been possible under the hand methods now used in the industry.

The machine has provisions for adjustments for all sizes and thickness of covers within reason, and consists of but a few parts which are strong and rigid, and which therefore cannot readily get out of order.

While in describing the invention, I have referred in detail to the form, arrangement and construction of the various parts thereof, the same is to be considered merely as illustrative so that I do not wish to be limited thereto except as may be specifically set forth in the appended claims.

I claim as my invention:—

1. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in a given plane, means engaged with said ram for moving the same in one direction, power operated means operatively engaged with said first mentioned means for actuating the same and manually operable means for actuating said first mentioned means independent of said power operated means.

2. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in a given plane, means engaged with said ram for moving the same in one direction, power actuated means operatively connected with said first mentioned means for actuating the same, manually operable means for actuating said first mentioned means independent of said power actuated, means and other means for imparting a movement to said ram in the other direction whether said ram has been moved in the first direction by either said power operated or said manually operable means.

3. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in the desired plane, a rocking lever member pivoted in said standard and operatively connected to said ram to move it in one direction, other means for moving the ram in the other direction, power actuated means also mounted on said standard and including a rotatable shaft, a member operatively engaged on the shaft so as to be reciprocated thereby, a push rod disposed between said last mentioned member and the other end of said lever member and so connected to one of said members as to transmit rocking movement to the rocking lever member as said rod moves in one direction only.

4. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in the desired plane, a rocking lever member pivoted in said standard and operatively connected to said ram to move it in one direction, other means for moving the ram in the other direction, power actuating means also mounted on said standard and including a rotatable shaft, a tubular member operatively engaged on the shaft so as to be reciprocated thereby and a push rod operatively connected at one end to the other end of the lever member and having its other end disposed for a one way power transmitting engagement in said tubular member.

5. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in the desired plane, a rocking lever member pivoted in said standard and operatively connected to said ram

to move it in one direction, other means for moving the ram in the other direction, power actuated means also mounted on said standard and including a rotatable shaft, a member operatively engaged on said shaft so as to be reciprocated thereby, a push rod between said last mentioned member and the other end of said lever member and so connected to one of said members that said push rod actuates the lever member when said rod moves in one direction only, and manually operable means for actuating said other end of said lever member independent of the push rod.

6. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in the desired plane, a rocking lever member pivoted in said standard and operatively connected to said ram to move it in one direction, other means for moving the ram in the other direction, power actuating means also mounted on said standard and including a rotatable shaft, a member operatively engaged on said shaft so as to be reciprocated thereby, a push rod between said last mentioned member and the other end of said lever member and so connected to one of said members that said push rod actuates the lever member when said rod moves in one direction only, and a manually operable rock shaft in said standard, and carrying a cam member movable into engagement with said other end of the lever member to actuate the same independent of said push rod.

7. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in the desired plane, a rocking lever member pivoted in said standard and operatively connected to said ram to move it in one direction, other means for moving the ram in the other direction, power actuating means also mounted on said standard and including a rotatable shaft, an eccentric on said rotatable shaft, a strap on said eccentric and carrying a tubular extension and a push rod pivotally connected at one end to said lever member, the other end of said push rod having a telescopic engagement in said tubular extension until limited by abutting a fixed part of the same.

8. In a stamping press, a standard, a ram mounted on the standard for reciprocating movement in the desired plane, a rocking lever member pivoted in said standard and operatively connected to said ram to move it in one direction, other means for moving the ram in the other direction, power actuating means also mounted on said standard and including a rotatable shaft, an eccentric on said rotatable shaft, a strap on said eccentric and carrying a tubular extension and a push rod pivotally connected at one end to said lever member, the other end of said push rod having a telescopic engagement in said tubular extension until limited by abutting a fixed part of the same.

In testimony whereof, I have hereunto set my hand, this 11th day of May, 1931.

WALTER HEHN.