C. VOSS.

LEATHER ROLLING AND EMBOSSING MACHINE.

APPLICATION FILED JULY 5, 1913.

1,090,433.

Patented Mar. 17, 1914.

3 SHEETS—SHEET 1.

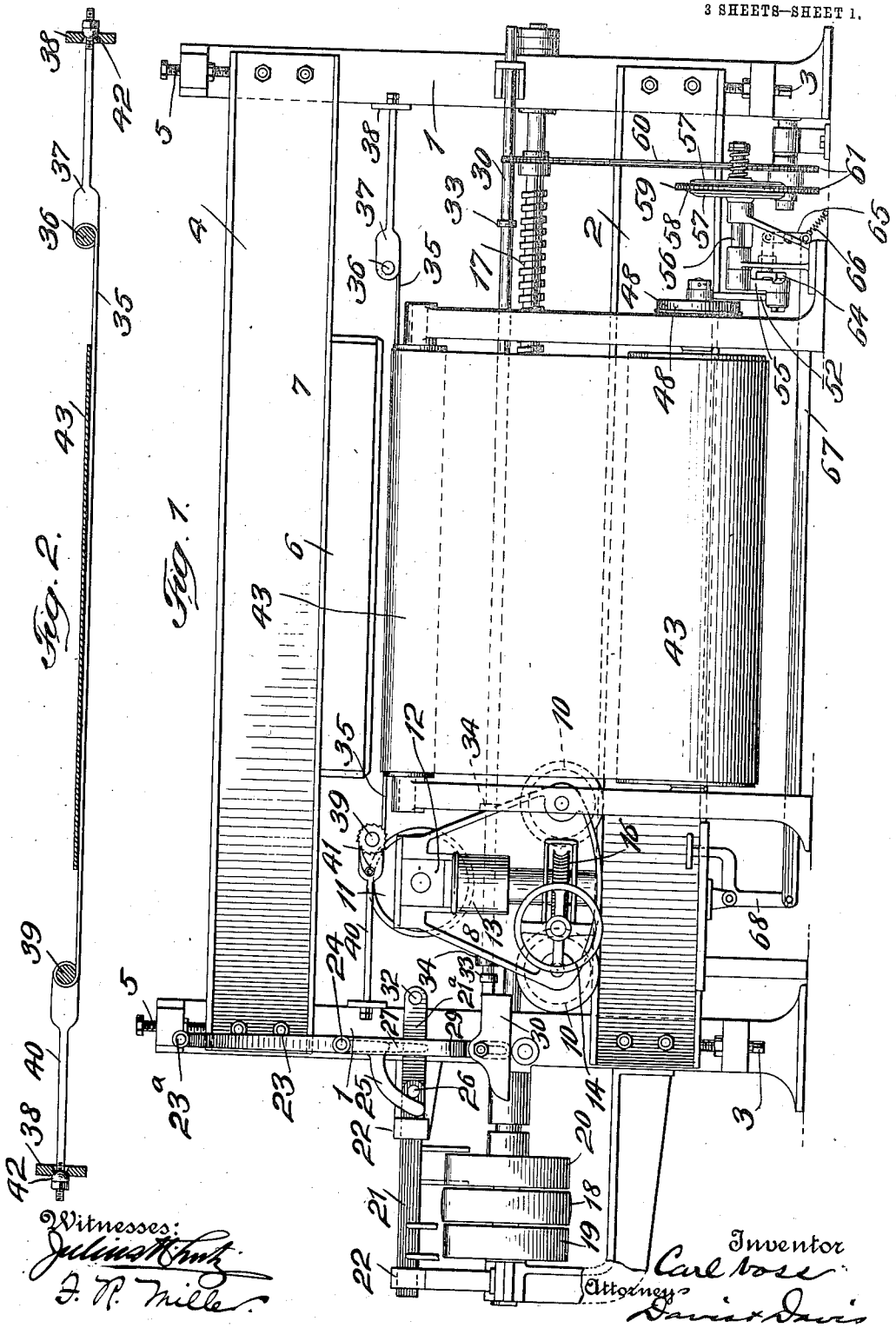


Fig. 1.

Fig. 2.

Witnesses:

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3 SHEETS—SHEET 2.

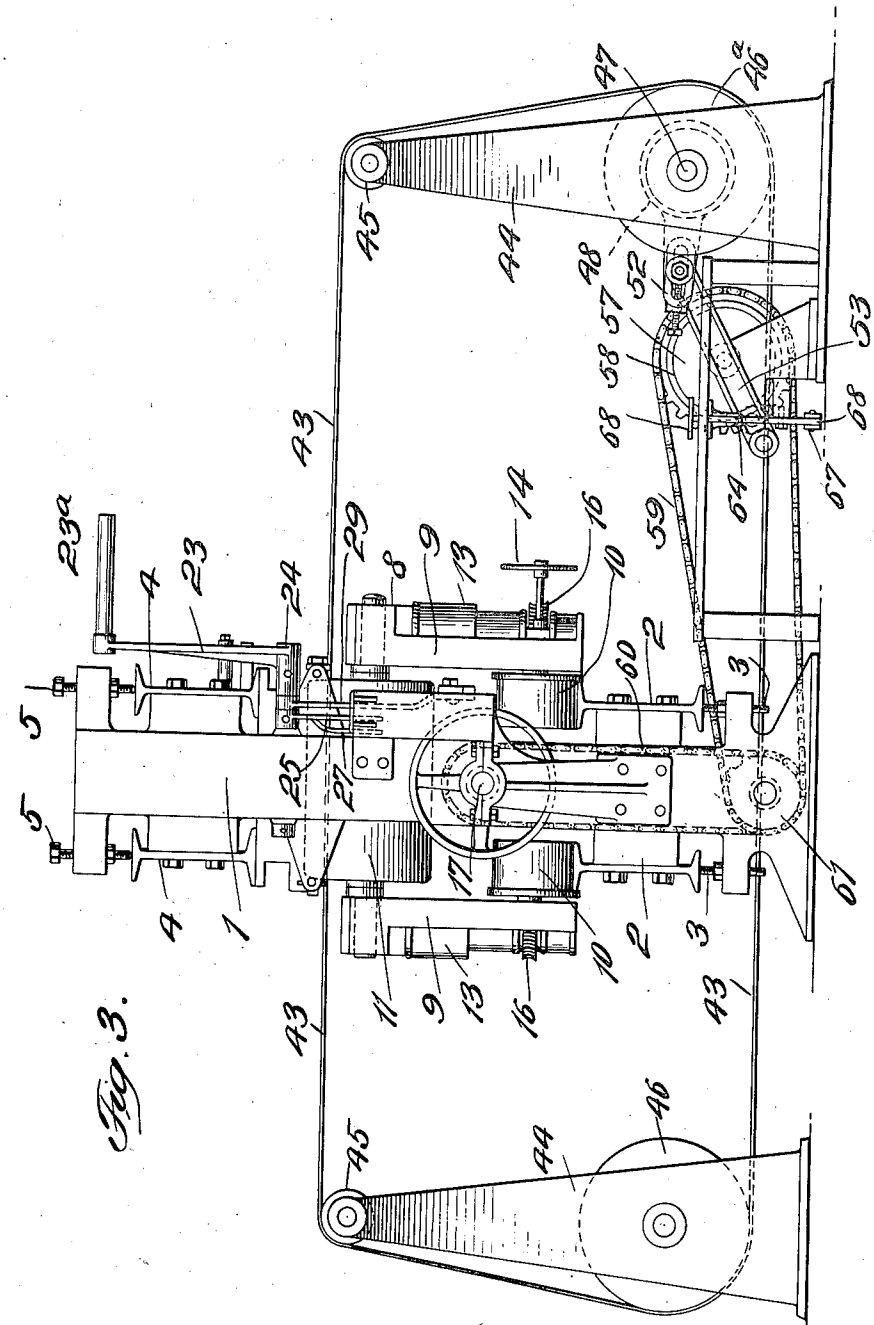


Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

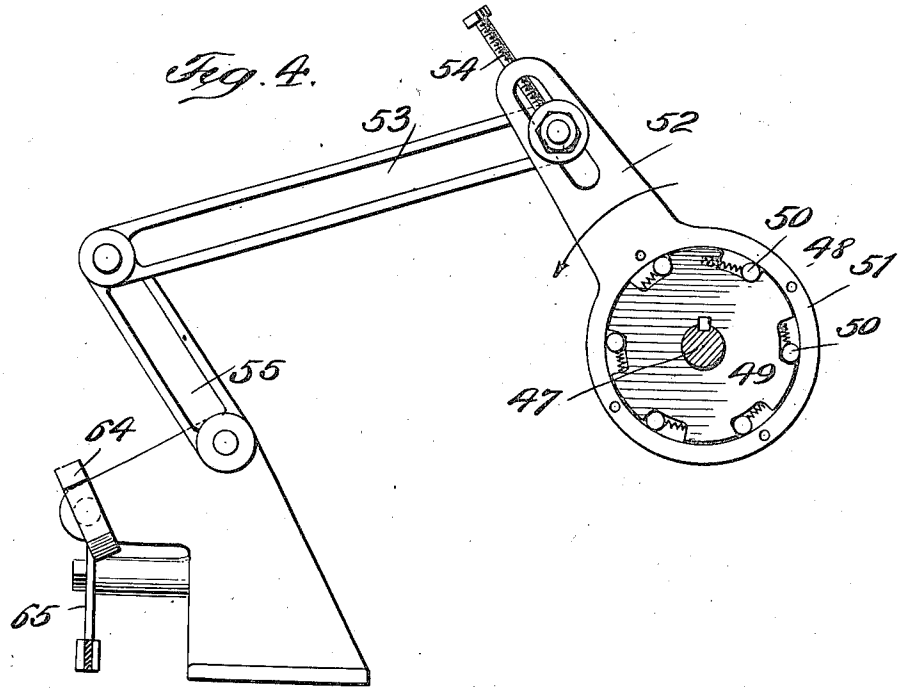


Fig. 5.

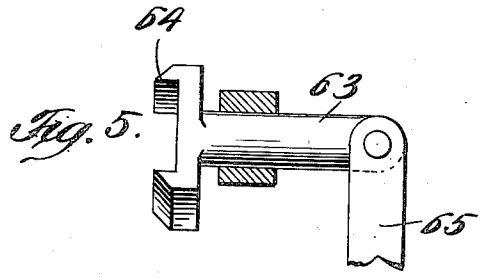


Fig. 6.

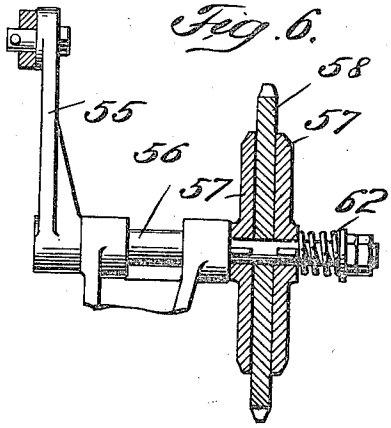
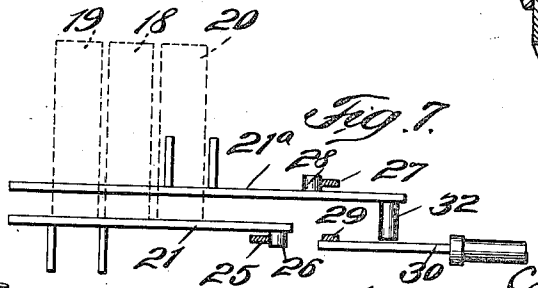


Fig. 7.



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UNITED STATES PATENT OFFICE.

CARL VOSS, OF NEWARK, NEW JERSEY.

LEATHER ROLLING AND EMBOSSING MACHINE.

1,090,433. Specification of Letters Patent. Patented Mar. 17, 1914.

Application filed July 5, 1913. Serial No. 777,453.

To all whom it may concern:

Be it known that I, CARL VOSS, a subject of the Emperor of Germany, and resident of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Leather Rolling and Embossing Machines, of which the following is a specification.

The invention relates to that class of leather rolling and embossing machines in which is provided a reciprocating carriage carrying a pressing roller or cylinder which forces the leather upwardly against a die secured to the under side of a steam box. Between each movement of the carriage the leather is shifted in order to bring a fresh surface under the die.

One of the important objects of this invention is to provide improved means for supporting the leather during the pressing operation.

A further object of the invention is to provide a vertically yieldable means for supporting the leather during the pressing operation and to arrange such means so that it will be lifted by the pressing roller, thereby dispensing with the vertically shiftable table usually employed in this type of press.

Another object of the invention is to provide means for giving to the leather supporting means a step-by-step movement through the machine transversely to the line of movement of the pressing roller, thereby dispensing with the hand manipulation of the leather on the embossing table.

There are other important objects and advantages of the invention which will appear hereinafter.

In the drawings, Figure 1 is a side elevation of the machine; Fig. 2 a detail sectional view of the carrying belt and flexible support therefor; Fig. 3 an end elevation of the machine; Fig. 4 a detail view of a portion of the carrier shifting means; Fig. 5 a detail view of the automatic stop for the carrier shifting means; Fig. 6 a detail view of the friction clutch of the carrier shifting means; and Fig. 7 a detail horizontal sectional view of a portion of the belt shifting means.

Referring to the various parts by numerals, 1 designates the end frames of the machine, said frames being connected near their lower ends by the horizontal track irons 2, one of said irons being secured to the end frames on each side thereof, as shown clearly in Fig. 2. These irons form tracks or ways on which the carriage reciprocates. At each of their ends these track irons are provided with adjusting or leveling screws 3. The end frames are also connected together near their upper ends by the longitudinally extending beams 4, these beams being also provided with adjusting screws 5 in order to properly adjust the steam box 6 which is secured to the under side of said beams. To the under side of this steam box is secured the die or plate 7 against which the leather is forced by the pressing roller, as will be hereinafter described.

Mounted to travel back and forth on the track irons is a carriage 8 which consists of the side frames 9 which carry the transporting wheels 10, said wheels running on the track irons as shown. In the upper ends of the carriage frames is mounted a pressing roller 11, the shaft of said roller being mounted in journal boxes 12, said boxes being supported and pressed upwardly by springs arranged in boxes 13, said springs being not shown. The upward pressure of these springs may be regulated by means of the hand wheel 14 on the shaft of which are worms (not shown) which engage the worm wheels 16. The rotation of the worm wheels serves to force upwardly the springs in the boxes 13 and thereby increase the upward pressure on the journal boxes. This arrangement is common in this type of press and for that reason is not illustrated in detail in the drawings. The pressing roller 11 is so positioned that when it is reciprocated under the steam box it will force the leather directly against the die plate with sufficient pressure to secure the results desired.

In the end frames of the machine is mounted a longitudinally extending screw shaft 17, said shaft extending through an internally threaded block (not shown) rigidly secured to the carriage so that upon the rotation of the said shaft the carriage will be moved longitudinally of the machine, means being provided to rotate said shaft first in one direction and then in the

opposite direction in order to reciprocate the carriage. The screw shaft is provided at one end beyond the end frame of the machine with a fast pulley 18 and two loose pulleys 19 and 20. The loose pulleys are designed to receive belts which move in opposite directions. Belt shifter bars 21 and 21ª are mounted to slide in suitable bearings 22 carried by the end frame of the machine, and means are provided to reciprocate said belt shifter bars in order to move first one belt to the fast pulley and then the other to drive the screw shaft first in one direction and then in the opposite direction. This belt shifting means is designed to be operated manually, to shift the belts to the fast pulley, and to be operated by the carriage when it reaches the limit of its movement in either direction to shift the belts back to their loose pulleys, to thereby stop the machine. The manually operable means consists of the crank arm 23 rigidly secured to a horizontal rock shaft 24 provided at its upper end with a handle 23ª. To the rock shaft is rigidly secured an arm 25 which is adapted to engage a pin 26 on the belt shifter bar 21. It is manifest that by throwing the handle 23ª to the left in Fig. 1, the bar 21 will be moved through arm 25 to shift one of the belts to the fast pulley. Rigidly secured to the arm 25 is a vertical bar 27 which is adapted to engage a pin 28 on the bar 21ª, shown clearly in Fig. 7. It is manifest that by moving the handle 23ª to the right as shown in Fig. 1, bar 21ª will be shifted by arm 27, moving one of the belts to the fast pulley. Loosely mounted on the rock shaft 24 is an arm 29, the lower end of said arm being connected by a pin and slot connection with the horizontal belt shifting rod 30. The bar 29 lies in the path of a pin 26 on bar 21. Bar 21ª carries a pin 32, said bar 29 lying between said pins 26 and 32, as shown clearly in Figs. 1 and 7. Belt shifting rod 30 is provided near its ends with collars 33 which are adapted to be engaged by stops 34 secured to the carriage. When the crank arm 23 is moved toward the left, as shown in Fig. 1, the pin 26 is moved close to the bar 29 and one belt is shifted to the fast pulley to rotate the screw shaft in the proper direction to move the carriage toward the left hand end of the machine. When stop 34 engages collar 33 the rod 30 will be moved toward the left and bar 29 will engage pin 26 thereby moving belt shifter bar 21 to return the belt to the loose pulley. By moving the crank arm 23 to the right, arm 27 engaging pin 28 will slide bar 21ª and shift one of the belts to the fast pulley. The movement of the bar 21ª will place pin 32 close to the bar 29. When the carriage reaches the limit of its movement toward the right the rod 30 will be shifted, thereby causing bar 29 to engage pin 32 and thereby return belt shifter bar 21ª to its normal position.

The foregoing is a well known form of belt shifting means and it is to be understood that any other suitable means for automatically shifting the belt may be employed.

To form a vertically yieldable pressing table a flexible strip 35 of leather or other suitable material, is stretched longitudinally of the machine directly under the steam box. At one end this flexible table or support is secured to a rod 36 supported by studs 37 mounted in cross bar 38 connected to the adjoining end frame of the machine. The other end of this flexible table is secured to a shaft 39 carried by studs 40. This shaft is adapted to be rotated to stretch or tighten the flexible support, and is held against rotation in one direction by means of a ratchet and pawl 41. The supporting studs are so mounted that they may yield vertically slightly at their inner free ends to permit the pressing roller to pass under them and also to permit the flexible supporting table to move upwardly slightly toward the embossing die.

To facilitate the upward swinging movement of the studs 37 and 40 convex washers 42 are provided which fit concave recesses formed in the ends of the cross bars 38, said cross bars being secured to the end frames of the machine. The upward swinging movement of the studs and the belt is very slight and the stretch of the belt is sufficient to permit the pressing roller to pass under the rods 36 and 39.

To support the entire hide or sheet of leather to be embossed I provide a transversely extending endless carrier 43. This carrier is of sufficient width to support the complete hide, if that be desired, and passes in between the die 7 and the flexible table 35; the return ply passing under the lower track irons, as shown clearly in Figs. 1 and 3. This endless carrier is supported by means of frames 44 which carry rollers 45 in their upper ends and large drums 46 and 46ª at their lower ends. Of course, any suitable means may be provided to keep this carrier at a proper tension. The table 35 not only supports the carrier under the steam box and die but it holds said carrier against lateral or sidewise distortion under the action of the pressing roller. It is obvious that the pressing roller will bear directly on the flexible table 35 and that, therefore, there will be no tendency to shift the carrier. The end frames 44 are placed a suitable distance from the main frame of the machine so that the entire hide or sheet of leather may be adjusted on the flexible carrier between the supporting frame 44 and

the steam box. The purpose of this is to enable the operator to arrange the leather properly on the carrier so that after the pressing operation is once begun it will not be necessary for him to again touch the leather until it is removed from the carrier after it has passed under the die.

In order to shift the carrier a uniform distance after each pressing operation I provide shaft 47 of feed drum 46ª with a ratchet clutch 48. This clutch consists of a notched disk 49 rigidly secured to the shaft and provided with the gripping balls 50; and a gripping member 51 which incloses the disk and operates to bind on the gripping balls when moved in the direction of the arrow in Fig. 4 to thereby turn the shaft 47; and to be released from said disk when the gripping member 51 is moved in the opposite direction. The gripping member is provided with a radially slotted arm 52 in which is adjustably mounted a link 53, the pivotal end of said link being adjusted toward and from the shaft 47 by a screw 54, for a purpose which will be hereinafter set forth. Connected to the free end of the link 53 is a crank arm 55 which is mounted on the end of a clutch shaft 56. Secured to this shaft is a friction clutch 57 between the members of which is mounted a sprocket wheel 58, said wheel turning loosely on the clutch shaft. The sprocket wheel 58 is driven by chains 59 and 60 and intermediate chain wheels 61 from the screw shaft 17. It is obvious, therefore, that the chain wheel 58 rotates constantly. The clutch members 57 are brought into a frictional engagement with the gear 58 by means of spring 62 which may be suitably adjusted to secure the proper frictional engagement between the parts.

To lock the clutch shaft 56 against movement I provide a locking rod 63 carrying the locking jaw 64 adapted to engage the crank arm 55 when the said arm has reached a certain point in its rotation. The locking rod 63 is connected to the upper end of a pivoted lever 65; the lower end of said lever being connected to a spring 66 which normally holds the locking jaw projecting into the path of the crank arm 55. It is to be noted that the members of the locking jaw are beveled on their outer surface so that when they are engaged by the crank arm 55 the locking jaw will be forced outwardly to permit the crank arm to enter between the members of said jaw. To release the locking jaw the lever 65 is connected to an operating rod 67, said rod being provided with a releasing lever 68. This releasing lever is preferably located in a position to be readily reached by the operator. As shown in Fig. 1 it is placed at the same end of the machine with the operating lever 23 so that the operator may readily reach the means for starting the pressing roller carriage and also the means for releasing the clutch to permit the carrier to be shifted.

In operation the pressing roller carriage comes to a stop at each end of its travel. When the carriage is at rest the operator releases the locking jaw 64 thereby permitting the friction clutch to cause the rotation of shaft 56. The rotation of the shaft 56, through crank 55 and link 53, operates the ratchet clutch 48 and gives the feed drum 46ª a partial rotation thereby shifting the carrier belt. The friction between the plate 57 and the gear 58 is sufficient to cause the movement of the carrier belt when locking jaw 64 is released, the gear 58 at other times slipping between the disks 57. It is manifest that when the locking jaw 64 is released the carrier belt will be shifted a fixed distance and that the crank arm 65 will be again locked by the jaw 64 when said arm has made one revolution. By means of this feed mechanism the hide to be embossed is shifted accurately for each impression and the operator is relieved of the necessity of carefully adjusting the hide with respect to the embossing die. The hide is supported on both sides of the embossing mechanism so that there is no tendency for it to be dragged out of position by its own weight either before it is embossed or after it has partly passed through the machine.

What I claim is:

1. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a die plate, a flexible table or support above the carriage and below the die plate, said table extending in the direction of the travel of the carriage and beyond the ends of the die plate, means for supporting said table at the ends thereof, means for placing a tension on said flexible table, a transversely movable endless carrier belt having one ply thereof only between the flexible table and the die plate, means for moving said endless carrier in one direction, and means for supporting said carrier at a tension throughout its entire length, said means being located at a distance from the main frame whereby the upper ply of the carrier belt will form a table to support the leather before and after it is embossed.

2. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a die plate, a flexible table or support above the carriage and below the die plate, said table extending in the direction of the travel of the carriage and beyond the ends of the die plate, means for supporting said table at the ends thereof, means for placing a tension on said flexi-

ble table, a transversely movable endless carrier belt having one ply thereof only between the flexible table and the die plate, a pair of standards located on opposite sides of the machine frame, rollers carried by said standards near the upper and lower ends thereof, said rollers supporting the carrier belt at the proper tension throughout its length, the upper ply of the carrier belt between the standards forming a broad flat table or support for the leather, means for intermittently rotating one of the rolls in one of the standards to thereby intermittently move the carrier belt, said intermittently operating means feeding the carrier belt a predetermined distance during each step or movement.

3. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a die plate, a flexible table or support above the carriage and below the die plate, said table extending in the direction of the travel of the carriage and beyond the ends of the die plate, means for supporting said table at the ends thereof, a transversely movable endless carrier belt having one ply thereof only between the flexible table and the die plate, a pair of standards located on opposite sides of the machine frame, rollers carried by said standards near the upper and lower ends thereof, said rollers supporting the carrier belt at the proper tension throughout its length, the upper ply of the carrier belt between the standards forming a broad flat table or support for the leather, a constantly driven clutch member, an intermittently operating clutch member, means for locking the intermittently operating clutch member, means for releasing said clutch member, and means for connecting the intermittently operating clutch member to one of the carrier belt supporting rolls to intermittently move said roll in one direction, whereby the carrier belt will be given a step-by-step motion in one direction.

4. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a die plate, a flexible table or support above the carriage and below the die plate, said table extending in the direction of the travel of the carriage and beyond the ends of the die plate, means for supporting said table at the ends thereof, a transversely movable endless carrier belt having one ply thereof only between the flexible table and the die plate, a pair of standards located on opposite sides of the machine frame, rollers carried by said standards near the upper and lower ends thereof, said rollers supporting the carrier belt at the proper tension throughout its length the upper ply of the carrier belt between the standards forming a broad flat table or support for the leather, a constantly driven clutch member, a friction clutch member constantly engaging the driven clutch member, means for locking the friction clutch member, means for releasing said locking means, means for connecting the friction clutch member to one of the carrier belt supporting rolls to intermittently rotate said roll in one direction.

5. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a die plate, a flexible table or support above the carriage and below the die plate, said table extending in the direction of the travel of the carriage and beyond the ends of the die plate, means for supporting said table at the ends thereof, a transversely movable endless carrier belt having one ply thereof only between the flexible table and the die plate, a pair of standards located on opposite sides of the machine frame, rollers carried by said standards near the upper and lower ends thereof, said rollers supporting the carrier belt at the proper tension throughout its length, the upper ply of the carrier belt between the standards forming a broad flat table or support for the leather, a constantly driven clutch member, a friction clutch member constantly engaging the driven clutch member, means for automatically locking the friction clutch member, means for releasing said locking means to permit the friction clutch member to make one revolution, means for connecting the friction clutch member to one of the carrier belt supporting rolls to intermittently rotate said roll in one direction.

6. A leather rolling press comprising a frame, a carriage, a pressing roller mounted in said carriage, means for reciprocating said carriage, a flexible table or support above the carriage, a presser plate above said table, and a transversely movable flexible carrier between the flexible table and the presser plate.

7. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a presser plate, a flexible table or support above the carriage, a transversely movable endless carrier belt adapted to move in one direction between the flexible table and the presser plate, means for moving said flexible carrier a fixed distance and means for automatically stopping the flexible carrier.

8. A leather rolling press comprising a frame, a carriage, a presser roller mounted in the upper end of said carriage, a die plate, a flexible table or support above the carriage and below the die plate, a transversely movable endless carrier belt adapted to move in one direction between the flexible table and the die plate, means for moving

said flexible carrier, means for locking the carrier moving means, means for releasing said carrier moving means and means for automatically locking said moving means after the carrier belt is moved a predetermined distance.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CARL VOSS.

Witnesses:

MELCHIOR I. C. WALTER,

F. D. MACFADDEN.