

Feb. 25, 1936.

C. F. EATON

2,031,763

MARKING MACHINE

Filed Dec. 2, 1933

5 Sheets-Sheet 1

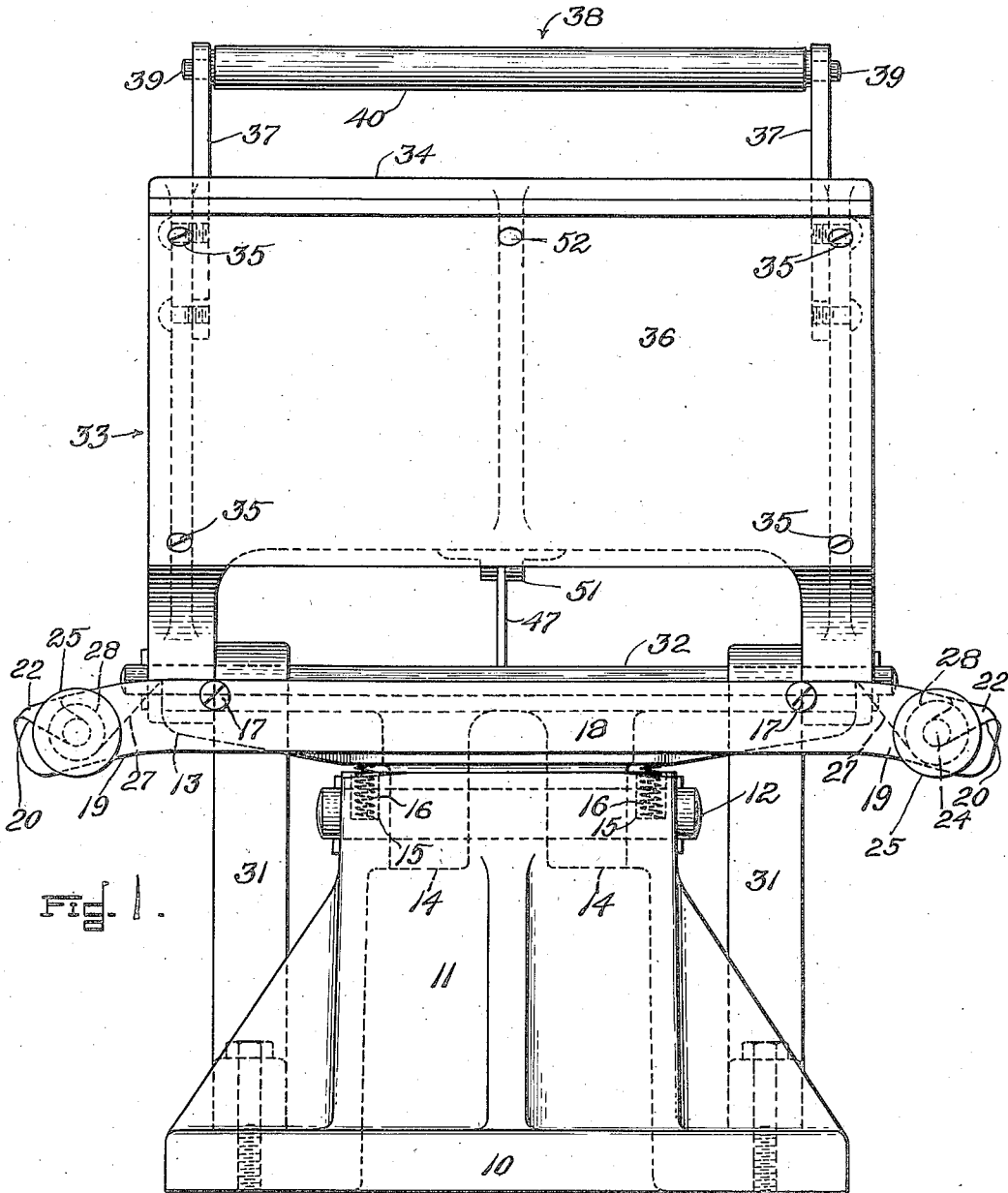


FIG. 1.

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5 Sheets-Sheet 2

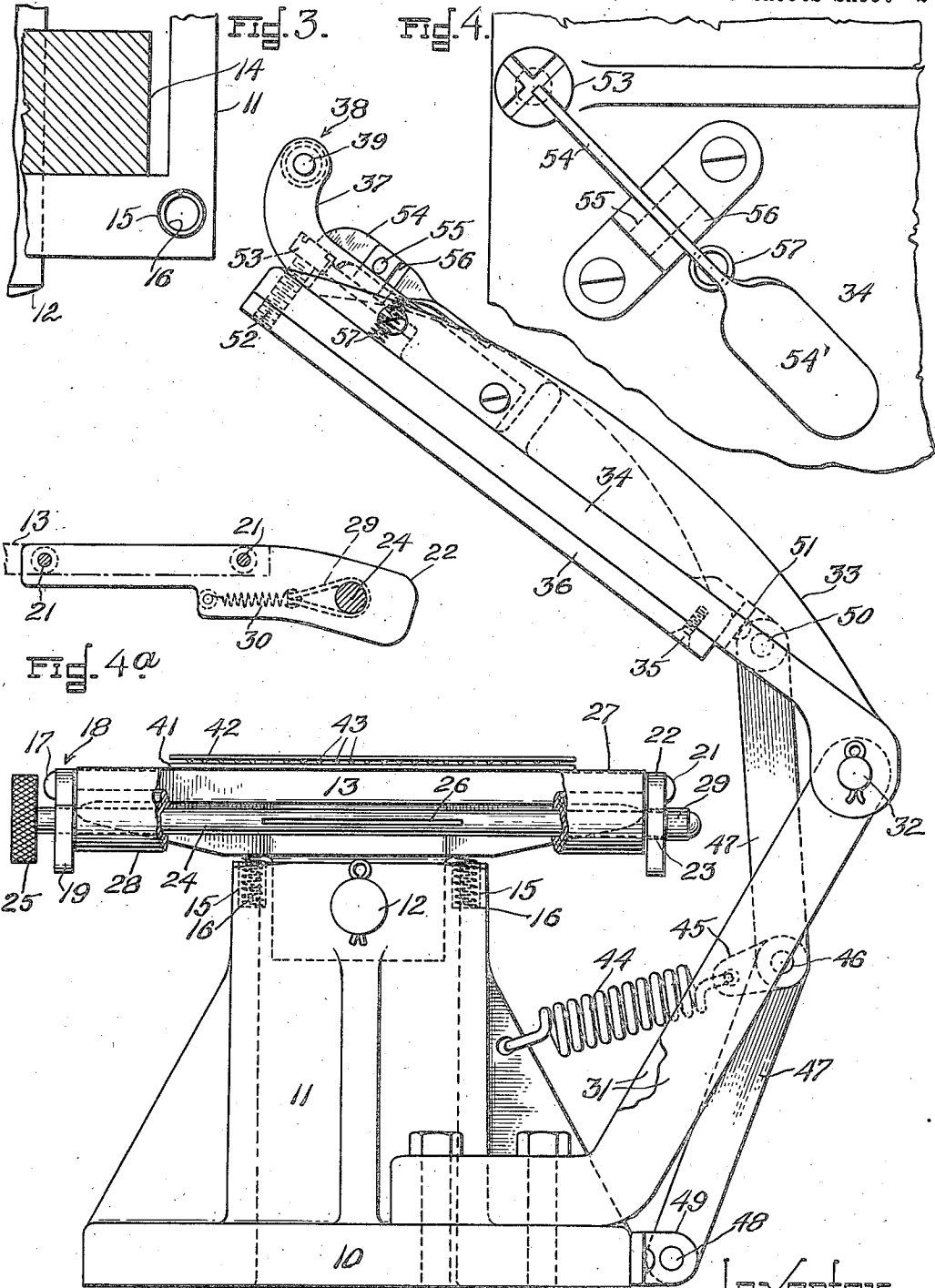


FIG. 2.

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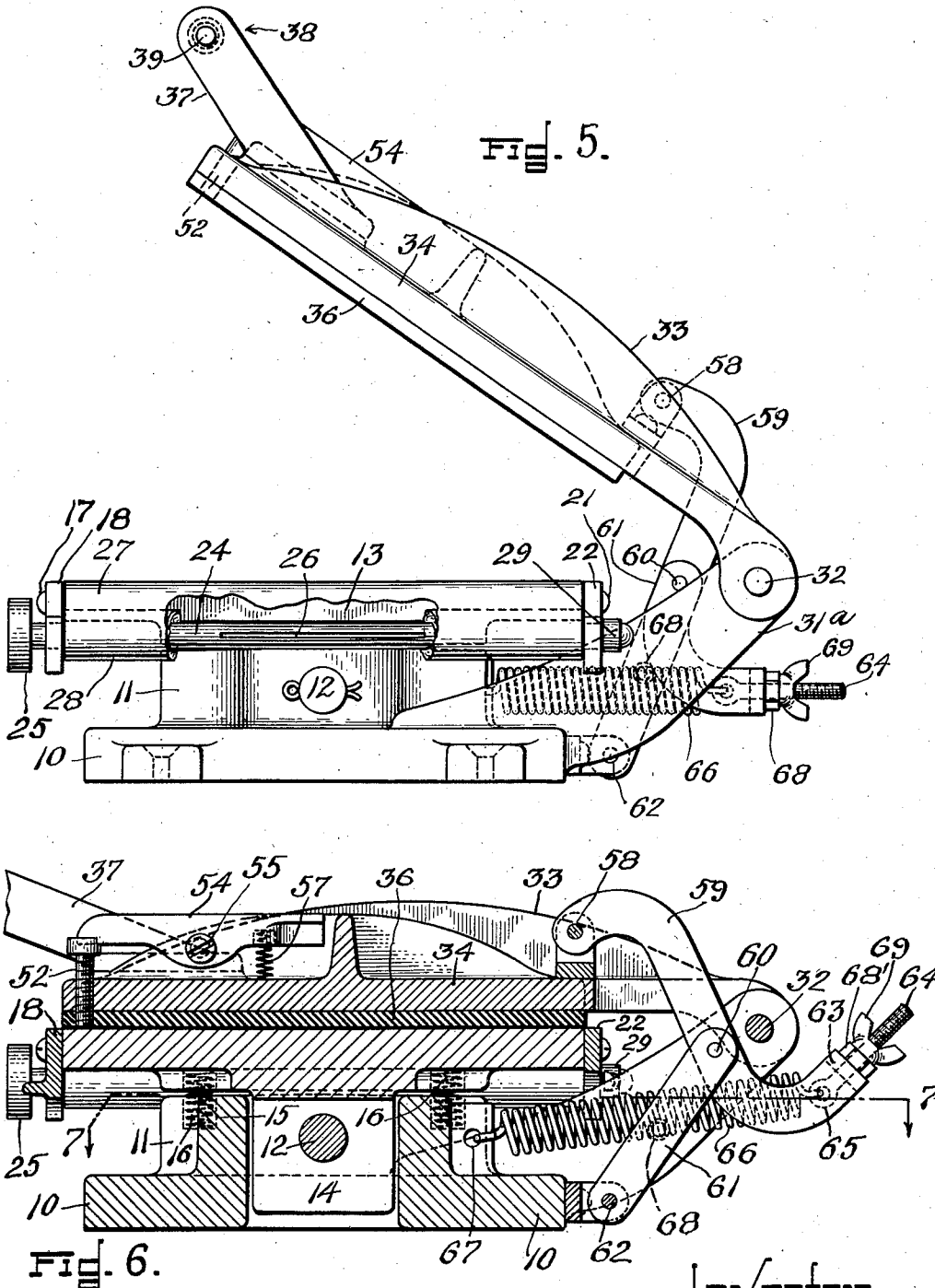
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5 Sheets-Sheet 3



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Fig. 7.

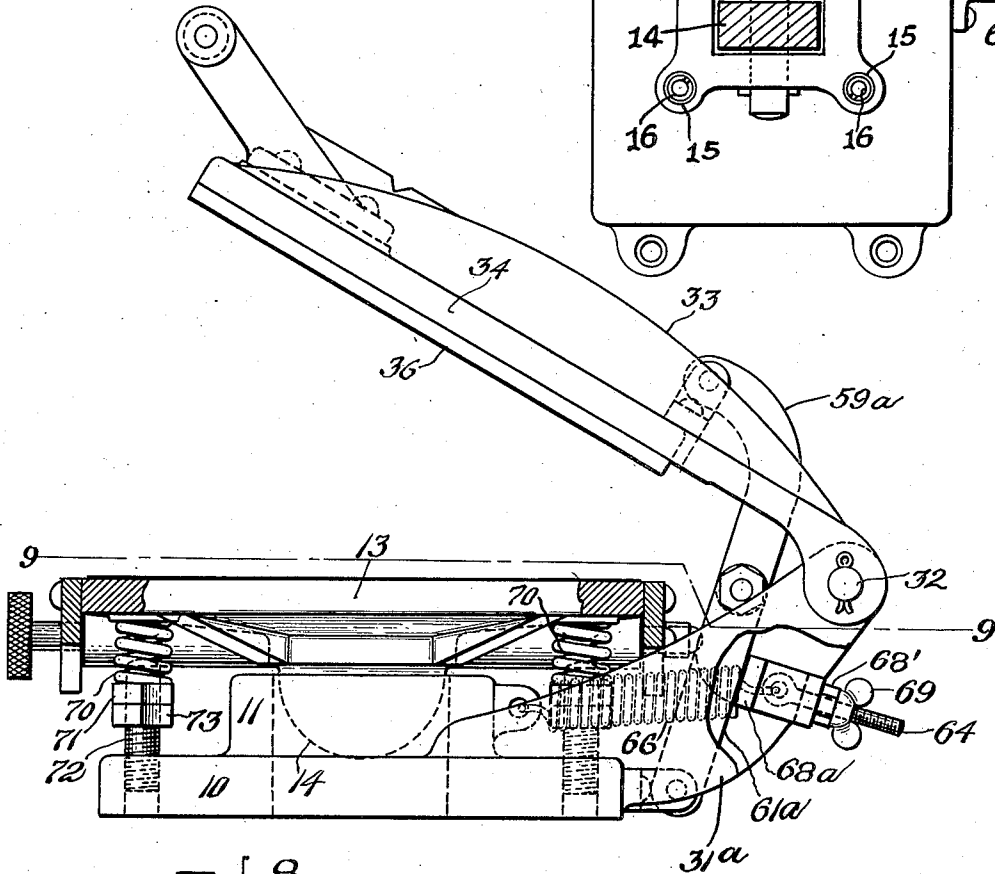
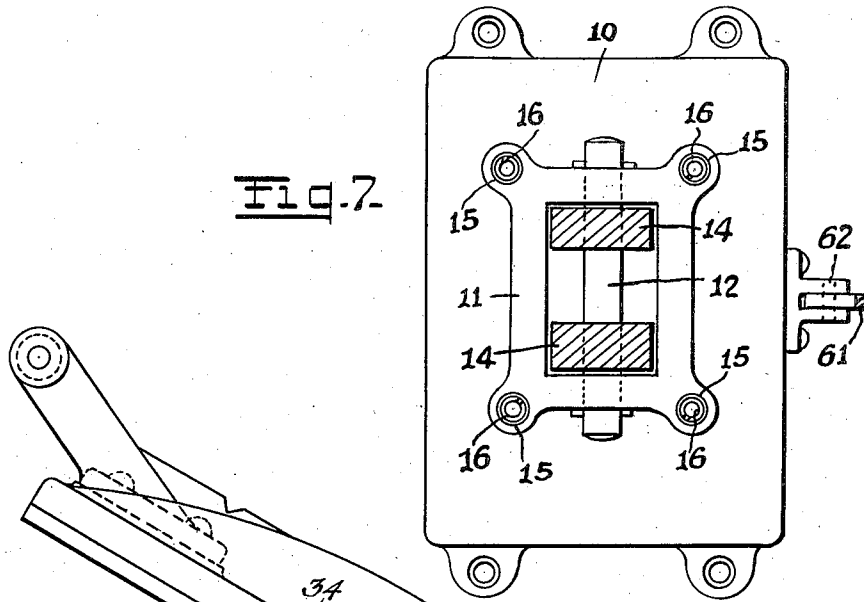


Fig. 8.

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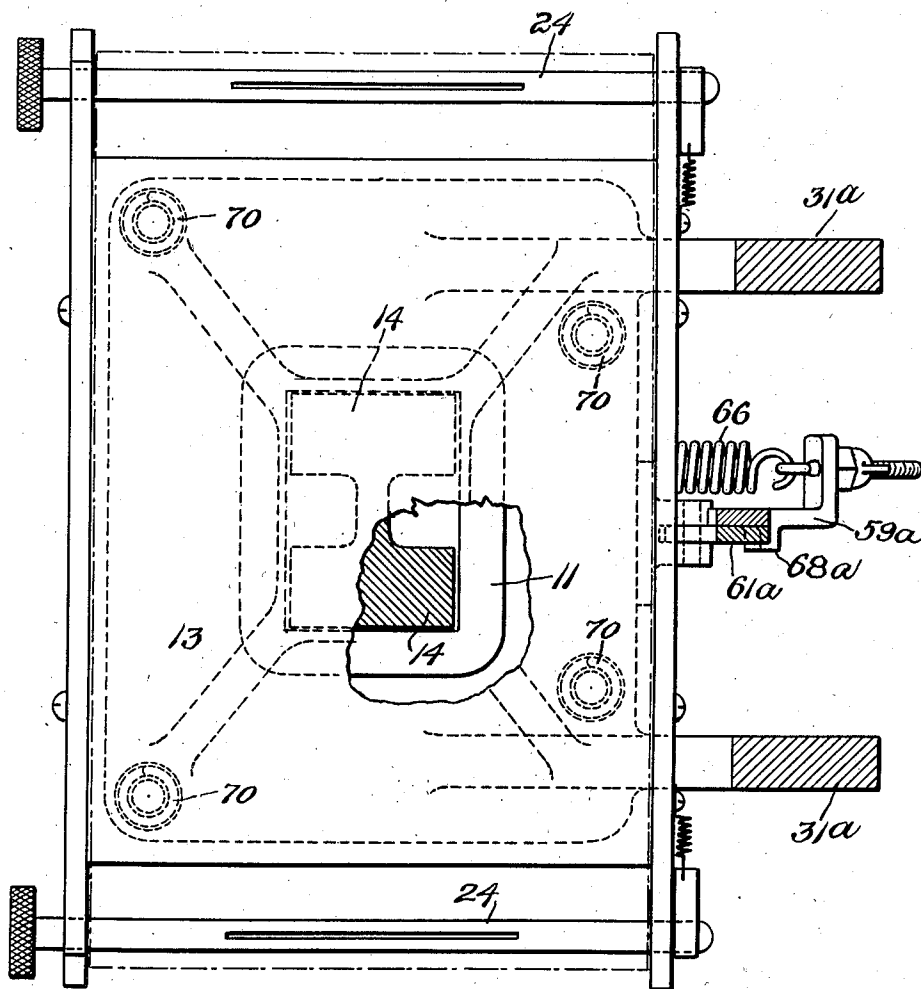


FIG. 9.

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# UNITED STATES PATENT OFFICE

2,031,763

## MARKING MACHINE

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by mesne assignments, of one-half to North  
American Holding Corporation, Syracuse,  
N. Y., a corporation of New York, and one-half  
to Parshad Holding Corporation, Syracuse,  
N. Y., a corporation of New York

Application December 2, 1933, Serial No. 700,665

6 Claims. (Cl. 101—297)

This invention relates to a machine and method for marking shoe upper sections and similar pieces or blanks of sheet material.

In the manufacture of shoes, particularly women's shoes, it is customary to apply ornamental designs to the shoe uppers, as by stitching. The ornamental designs are usually applied to the cut-out sections of the uppers before they are assembled in the shoe, and in the case of stitching the designs are first marked on the upper sections and the markings are then followed in the stitching. For marking the design on a shoe upper section or similar blank an embossing plate is commonly used, on which the desired design is formed by bosses or projections arranged in lines, rows or groups to delineate the design. Then by placing the embossing plate, the blank to be marked and a pigmented transfer sheet together and subjecting them to pressure the design corresponding to the arrangement of the projections on the embossing plate is printed or transferred from the transfer sheet to the blank. An example of this method of marking and of a press for performing it are described in the Edwards Patent No. 1,639,332 dated August 16, 1927.

The object of the present invention is to provide an improved, more rapid and more efficient machine and method for marking blanks. To this end the invention includes, among other features, a pivotally mounted platen or pressing member which can be swung upwardly and away from the work-bed to afford free and unobstructed access to the work-bed for arranging or adjusting the work thereon; a work-bed which at all times occupies a fixed station and which does not have to be shifted in and out of the machine for arranging the work and then for moving it into marking position; mechanism for yieldingly holding the platen in its open position away from the work-bed, but permitting it to be easily and rapidly manually operated to mark the blank; and a work-bed which is yieldingly mounted so as to be capable of a slight rocking movement either on a fixed pivot or on a wholly yielding support, in order to improve the transfer of the markings to the blank both in clearness and in emphasis. These and other features of improvement will be hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawings, which illustrate various embodiments of the invention,

Fig. 1 is a front elevation of one form of marking machine constructed in accordance with the invention;

Fig. 2 is a side elevation of the machine shown in Fig. 1;

Fig. 3, 4 and 4a are details hereinafter described;

Fig. 5 is a side elevation of a modified form of marking machine;

Fig. 6 is a vertical cross section of the machine shown in Fig. 5;

Fig. 7 is a partial section in plan on line 7—7 of Fig. 6;

Fig. 8 is a side elevation partly in section of another modification of the marking machine; and

Fig. 9 is a partial section in plan on line 9—9 of Fig. 8.

Referring first to Figs. 1 to 4a the pedestal or base on which all the working parts of the machine are mounted is indicated at 10. Rising from the base 10 and forming a part of it is an upstanding tubular column 11, generally rectangular in cross section as indicated in Fig. 3, which shows a plan view of the corner of the column. The column 11 is provided near its upper end with a pair of aligned circular holes within which is loosely mounted a pintle 12 carrying the work-bed 13. The work-bed 13 is a flat rectangular plate of metal provided with a smooth flat top surface. Upon the under side of the work-bed 13 are a pair of depending apertured lugs 14 which loosely fit in the opening in column 11, as shown in Figs. 2, 3, and 6 to 9 inclusive, and through which the pintle 12 extends. The work-bed 13 is thus supported by pintle 12 so that it can rock to a limited extent upon the axis of the pintle.

In the top of column 11 and near each corner are formed the vertical sockets 15, each holding a coil spring 16, the lower end of which is seated against the bottom of the socket and the upper end of which bears against the under side of the work-bed 13. There are two such springs at each side of the axis of pintle 12 and these springs normally and yieldingly hold the work-bed 13 against pivotal movement on the base and in a substantially horizontal position.

Attached to the front edge of the work-bed 13 by means of a pair of screws 17 is a bar 18 which extends at each end beyond the bed 13 so as to provide a projection 19 at each end of the front side of the bed. Each projection 19 is provided on its top side with an obliquely disposed socket 20.

Secured to the rear edge of the work-bed 13 by means of screws 21 are two bracket arms 22 (Figs. 4a and 2), one projecting beyond each end of the work-bed and each formed with circular hole 23

which is aligned with the bottom of the socket 20 in the corresponding projection at the front of the work-bed. Loosely mounted in the hole 23 and the socket 20 at each end of the bed is a spindle 5 24 provided at its front end with a knob or hand wheel 25 by means of which the spindle may be manually rotated.

Each spindle 24 is formed near its middle with a longitudinal slot 26, which extends entirely 10 through the spindle and into which the end of a transfer sheet may be inserted. The transfer sheet 27 may be of any suitable thin sheet material, such as paper or fabric, impregnated or coated with a pigment of a color which preferably 15 contrasts with the color of the piece of leather or other blank which is to be marked. Each end of the transfer sheet 27 is engaged with one of the spindles 24 and upon rotating one or the other of the spindles 24 the transfer sheet will be partially wound up thereon into a roll as indicated 20 at 28. The transfer sheet 27 extends from one roll 28 across the top of the work-bed 13 to the other roll 28 with its pigmented surface facing upwardly or exposed so that the smooth flat top surface 25 of the work-bed 13 serves as a rigid support or backing for the transfer sheet during the marking operation. Either spindle 24 may be manually rotated and adjusted from time to time by the operator during the continued use of the machine 30 to shift the transfer sheet back and forth across the work-bed 13 and present fresh areas of the pigmented surface to the work as required.

As the transfer sheet 27 is shifted back and forth across the bed-plate 13 the projecting arms 35 19 and 22 serve as guides for the edges of the sheet and prevent displacement of the sheet while it is being fed or adjusted.

In order to hold the spindles 24 against accidental rotative displacement during the use of 40 the machine a friction brake 29 is provided for each spindle (Figs. 4a and 2). Each friction brake, as herein shown, consists of a flexible band looped around the end of its spindle 24 having its opposite end fastened to the end of a spring 30 45 which is attached to the bracket arm 22. The spring 30 is under sufficient tension to apply a braking friction between the brake band 29 and the spindle.

When the transfer sheet 27 becomes worn out 50 or exhausted it is wound up entirely on one of the spindles 24. Then by lifting the front of the spindle from its socket 20 the rear end may be removed endwise from the brake band 29 and hole 23.

Bolted to the top of base 10 are two upwardly and rearwardly extending bracket arms 31, 31, which support a horizontal pivot pintle 32, the axis of which is parallel to the axis of the pintle 12 and in approximately the same horizontal 60 plane with the top of the work-bed 13. The platen 33 is pivoted on the pintle 32. The platen comprises a body portion 34 having a generally rectangular form of substantially the same size and shape as the working face of the work-bed 13 65 and a flat under surface to cooperate with the flat top surface of the work-bed. Secured to the under surface of the platen by means of screws 35 and cement is a layer 36 of slightly resilient rubber or other suitable cushioning material. Attached to the top of the body 34 of the platen are 70 two upwardly and forwardly curved bracket arms 37, the forward ends of which are made with circular holes within which are rotatably mounted trunnions projecting from the opposite ends of a handle 38. The handle 38 may consist of a

length of rubber tubing 40 covering a metal rod 39 whose projecting ends form the trunnions.

The position of the work is indicated in Fig. 2 wherein the blank 41 to be marked is shown resting 5 on the transfer sheet 27 which extends across the work-bed 13, and the embossing plate 42 having marking projections 43 on its face is resting on top of the blank with its projections against the surface of the blank.

The platen is normally and yieldingly held in 10 elevated or open position by means of a coil spring 44, one end of which is attached to the column 11 on the stationary base and the other end of which is attached at 46 by means of a link 45 to a middle joint of a pair of toggle links 47. 15 The lower end of the lower toggle link 47 is pivoted at 48 to a bracket 49 rigidly fastened on the base 10. The upper end of the upper toggle link 47 is pivotally connected at 50 to a bracket 51 rigidly fastened to the platen 33. The spring 44 is under 20 sufficient tension normally to support the platen in its open position as shown in Fig. 2. When the platen 33 is swung downwardly the toggle 47, 47 is buckled in a direction to stretch the spring 44 so that the spring will automatically return the 25 platen to its normal elevated position when the operator releases it after each marking operation.

In order to limit the movement of the platen 33 toward the work-bed 13 a stop screw 52 is provided near the free edge of the platen. The 30 stop screw 52 is threaded through the body portion 34 of the platen and extends loosely through a hole provided therefor in the pad 36. When the platen 33 is swung downwardly toward work-bed 13 the lower end of the stop screw 52 will 35 be arrested by the work-bed 13 and thereby limit the approach of the platen to the work-bed, thus assuring that the projections 43 of the embossing plate 42 will not be driven through or too deeply into the blank 41. The upper end of the 40 stop screw 52 is provided with a head 53 made with a number of radial slots adapted to receive the end of a latch 54 (Figs. 2 and 4). The latch 54 is pivoted at 55 on a bracket 56 fastened to the top of the platen. The latch is provided with 45 an operating arm 54' which extends from the opposite side of the pivot and constitutes a finger piece; and a coil spring 57 yieldingly presses the finger piece 54' upward so as to hold the latch 54 in one or another of the slots in screw head 50 53. When it is desired to adjust the stop screw 52 pressure on the finger piece will disengage the latch from the stop screw head permitting the desired adjustment, after which the latch may be released to engage one of the slots in screw 55 head 53 and hold the screw against displacement.

In operation the shoe upper section or other blank 41, which is to be marked, is laid on the transfer sheet 27 where the transfer sheet is supported by the bed-plate 13, with the grain side of the leather, or the finished side of the blank which it is desired to mark, in contact with the transfer sheet. Then the embossing plate 42, which is preferably of the same size and shape 65 as the blank to be marked, is laid on the blank with the embossing projections 43 against the surface of the blank opposite the surface contacting with the transfer sheet. It will be understood that the embossing plate may be of usual 70 construction in which the marking projections are arranged to delineate the design which is to be transferred to the blank, and that suitable guide or gauge means may be used, if desired, to assist in positioning the blank and the embossing 75

plate in accurate registry with each other according to known methods.

After the blank 41, the embossing plate 42 and the transfer sheet 27 have been relatively positioned and adjusted as described on top of the work-bed 13 the operator grasps the handle 38 and swings the platen 33 forcibly downward so as to strike upon the top side of the embossing plate 42, thereby forcing the projections 43 against and into the blank and forming indentations in the blank, with a result that the under side of the indentations are pressed against the pigmented surface of the transfer sheet causing the blank to be marked with the design outlined by the projections of the embossing plate.

It will be observed that by pivotally mounting the platen on the base so that it can be swung on its pivot upwardly and away from the work-bed and toward the rear of the machine, free and unobstructed access is afforded to the work-bed for adjusting and positioning the work thereon. Heretofore the press member used in marking machines has been a vertically reciprocating plunger positioned directly above the work-bed as illustrated in the Edwards Patent No. 1,639,332 dated August 16, 1927. In such machines the plunger constitutes an obstruction which makes it impossible satisfactorily to position and adjust the blank and the embossing plate underneath the plunger. To overcome this difficulty it has been necessary to make the work-bed in the form of a sliding carriage, as illustrated in said Edwards patent, so that it can be drawn out from beneath the plunger to permit the work to be arranged on it, after which it is shoved back under the plunger into position for the marking operation. This procedure not only takes time but is open to the further objection that the movement and jolting of the work-bed incident to shoving it back into marking position is liable to disarrange the relative position of the embossing plate and the blank carried by the work-bed, in which case imperfect marking will result. With the present invention wherein the platen is pivoted so as to be swung out of the way to afford free and unobstructed access to the work-bed for arranging the work, the work-bed, although capable of a slight yielding and rocking movement at the instant of the marking action, occupies at all times a fixed station on the base. There is no shifting of the work-bed in and out of marking position and no danger of disarranging the embossing plate and the blank after they have once been properly arranged on the work-bed.

Moreover, not only is the platen pivotally mounted so as to swing out of the way, but its pivot is spaced a substantial distance away from the rear edge of the work-bed so that the platen will open away from the work-bed farther and wider at all points than if it were pivoted close to the edge of the work-bed, thus affording ample room for arranging the work without interference by the platen. The platen is yieldingly held in open or elevated position by the spring 44 and toggle joint 47, 47 so that the operator may have both hands free for arranging or adjusting the work and may then manually swing the platen down to make the marking stroke against the yielding tension of spring 44.

It will also be observed that the pintle 12 and springs 16 permit the work-bed 13 to make a slightly yielding and rocking motion at the instant when the marking pressure is applied by the downward swing of the pivoted platen. This

not only permits the work-bed 13 carrying the blank 41 and embossing plate 42 to be automatically adjusted angularly so that the top surface of the embossing plate 42 will properly contact and fit throughout its extent with the pad 35 on the platen, but it also results in a slight lateral displacement between the blank and the transfer sheet during the application of the marking pressure, whereby a slight creeping action is caused between the blank and the transfer sheet which results in a better transfer of the pigment and a clearer marking than is possible to obtain where the marking pressure between the blank and the transfer sheet is strictly normal or perpendicular. Since the pivotal axis of the work-bed and the pivotal axis of the platen are parallel the slight yielding rocking movement of the work-bed will bring the working surface of the platen and the top surface of the embossing plate into parallelism.

Referring now to the modification shown in Figs. 5, 6 and 7, the base of the machine including the column 11 is much shorter or lower than in the machine shown in Figs. 1 and 2 so as to bring the work-bed and the operating parts of the machine down closer to the table or bench on which the machine rests. In certain situations this is more convenient for the operator. The platen is pivoted on bracket arms 31<sup>a</sup> fixed to the base. The work-bed and the parts carried by it and also the platen and the parts carried by it may be substantially the same as the corresponding parts of the other machine already described. There are, however, certain modifications in the mechanism for yieldingly holding the platen open, due to the changed form of the machine.

Pivotally connected to the platen 33 at 58 is a lever 59 which constitutes one member of a toggle joint. The other link 61 of the toggle joint is pivoted at its upper end at a point about midway of the length of the lever 59, as indicated at 60, and is pivoted at its lower end at 62 on a bracket fixed to the base of the machine.

The lower arm of lever 59 is made with a laterally projecting ear 63 formed with a hole through which loosely extends the shank of a screw or eye-bolt 64. A pull spring 66 is connected at one end to the eye 65 of the bolt 64 and at the opposite end to a hole 67 in the column 11 of the base. Spring 66 is normally under sufficient tension to hold the toggle members 59 and 61 in the position shown in Fig. 5, with the lower arm of lever 59 bearing against a stop lug 68 fixed on link 61, in which position of the parts the platen 33 will be held in elevated or open position. When the lower arm of lever 59 rests against the stop 68 the toggle joint is approximately straight. When the platen 33 is swung downwardly to perform the marking operation the spring 66 will be stretched, as shown in Fig. 6, and the instant the operator releases the platen the spring will return the platen to its open position as shown in Fig. 5. This form of spring and toggle mechanism makes it possible to use a base or standard very much shorter than is possible with that shown in Figs. 1 and 2, and also permits the use of a spring 66 considerably longer than the spring 44 shown in Fig. 2. The eye-bolt 64 is provided with a stop nut 68, the adjustment of which regulates the tension of spring 66. The stop nut 68 may be secured in its adjusted position by means of a wing lock-nut 69.

Referring now to the modification shown in Figs. 8 and 9, the work-bed 13, instead of being



pivoted on a transverse pintle, is yieldingly supported by four coil springs 70 upon which the work-bed rests by gravity. Each spring 70 is seated upon a nut 71 adjustably mounted on a vertical threaded stem 72, which is fixed in a socket in the base 10. A second nut 73 on stem 72 locks the supporting nut 71 in its adjusted position. The ears 14 on the bottom of the work-bed 13 loosely fit within the tubular column 11 of the base. The ears 14 are semicircular in form so as to permit the work-bed to rock on an axis parallel to the pivot 32 of the platen, and there is also preferably a slight clearance between the sides of the ears 14 and the walls of the column 11 to permit a slight rocking movement or displacement of the work-bed in any direction. The platen, as before, is pivoted on bracket arms 31<sup>a</sup> fixed to the base. The toggle structure connecting the platen and the base and the spring for holding the platen open are similar in principle to the corresponding parts shown in Figs. 5 and 6, except that the straightening movement of the toggle links under the influence of spring 66 is limited by the engagement of a stop lug 68<sup>a</sup> on the lower end of toggle lever 59<sup>a</sup> with the edge of the lower toggle link 61<sup>a</sup>. This modification also includes a low or short pedestal similar to that shown in Figs. 5 and 6. In other respects the machine is substantially similar to that shown in Figs. 1 and 2.

In all forms of the invention herein illustrated the work-bed is mounted on the base for a slight yielding movement at the instant of the marking operation, and this slight yielding movement in all cases is a rocking movement which results in a slight lateral displacement and a consequent creeping action between the blank and the transfer sheet. In the forms of machines shown in Figs. 1 to 7 the work-bed rocks on a fixed axis. In the form shown in Figs. 8 and 9 the work-bed is capable of a slight rocking movement in any direction and is not confined to a fixed axis, that is, the work-bed is yieldingly supported for a slight universal rocking movement and might be termed a floating work-bed. In all cases the same advantages of a slight yielding and rocking action of the work-bed are attained as have already been described in connection with the machine of Figs. 1 and 2.

I claim:

1. A marking machine comprising a base, a substantially horizontal work-bed mounted on the base and adapted to support an embossing plate and the blank to be marked, and a platen pivotally supported by the base on a horizontal axis adapted to be swung downwardly into marking relation to the work-bed and upwardly away from the work-bed to afford free access to the work-bed, unobstructed by the platen, for arranging the work thereon and an adjustable stop screw mounted on the platen near the free end thereof and adapted to cooperate with the work-bed to limit the movement of the platen toward the work-bed and a spring-passed latch mounted on the platen and arranged to engage the stop screw to lock it against accidental displacement.

2. A marking machine comprising a base, a work-bed loosely supported on the base, a transfer sheet on the work-bed on which the blank to be marked is laid, an embossing plate positioned above the transfer sheet and the blank, and a platen pivotally supported on the base to

swing toward and from the work-bed, the work-bed being yieldingly mounted on the base in substantially horizontal position so as to be capable of a slight lateral displacement with relation to the platen when the platen and the work-bed are pressed together with the transfer sheet, the blank and the embossing plate between them, whereby a slight creeping action is caused between the blank and the transfer sheet.

3. A marking machine comprising a base, a work-bed connected to the base, resilient means disposed about the connection between the work-bed and base for yieldingly supporting the work-bed for tipping movement relative to said base, said means normally holding the work-bed in substantially horizontal position and being operative to permit a slight lateral displacement of the work-bed relative to the base, and a movable platen mounted on the base to move downwardly into marking relation to the work-bed and upwardly away from the work-bed.

4. A marking machine comprising a base, a work-bed mounted to rock on said base, a plurality of springs interposed between the work-bed and base and spaced inwardly from their respective edges, said springs normally holding the work-bed in substantially horizontal position and being operative to permit a slight lateral displacement of the work-bed relative to said base, and a movable platen pivotally mounted on said base to swing downwardly against the work-bed.

5. A marking machine comprising a base having a central opening, a substantially flat work-bed having a depending lug member loosely fitting within said opening, a connection between said lug and base constructed and arranged to permit a slight lateral displacement of said work-bed relative to said base, a plurality of springs disposed above said connection, said springs being operative normally to support said work-bed in a substantially horizontal plane and yieldingly to oppose displacement movement of said work-bed, and a platen pivotally supported by the base on a horizontal axis, said platen being operative to be swung downwardly against said work-bed and upwardly away from the work-bed so as to afford a free access thereto for arranging work thereon.

6. A marking machine comprising a base having a central opening, a substantially flat work-bed having a depending lug member loosely fitting within said opening, a connection between said lug and base constructed and arranged to permit a slight lateral displacement of said work-bed relative to said base, a plurality of springs disposed above said connection, said springs being operative normally to support said work-bed in a substantially horizontal plane and yieldingly to oppose displacement movement of said work-bed, a platen pivotally supported by the base on a horizontal axis, said platen being operative to be swung downwardly against said work-bed and upwardly away from the work-bed so as to afford a free access thereto for arranging work thereon, a pair of toggle links one of which is pivotally connected to said platen and the other to said base, and a spring anchored to said base and acting on the toggle links yieldingly to urge the platen toward its open position away from the work-bed.

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