Jan. 13, 1948. S. E. ANDERSON 2,434,381

STAMPING MACHINE

Filed May 28, 1942 2 Sheets-Sheet 1

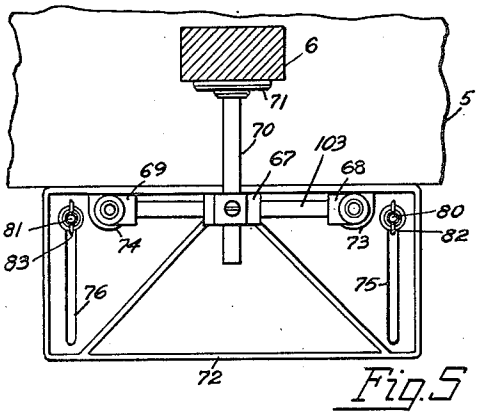


Fig. 5

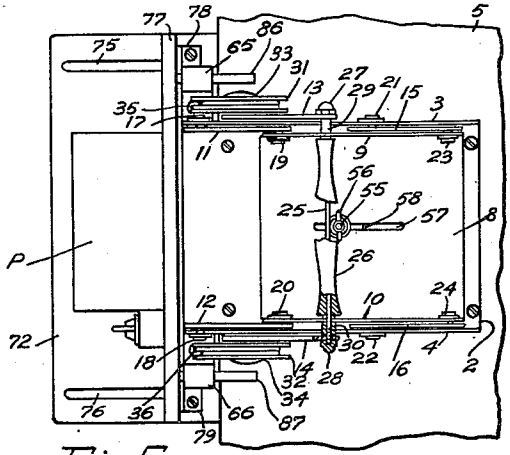


Fig. 6

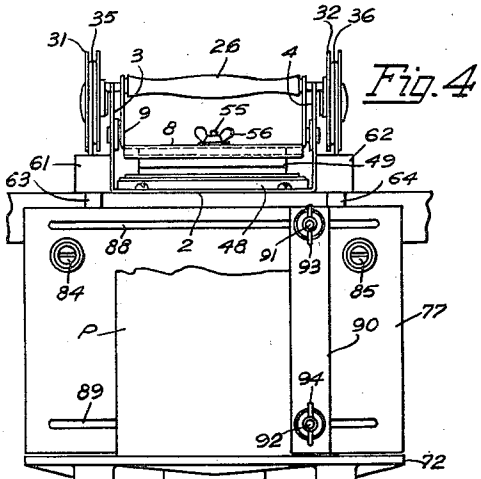


Fig. 4

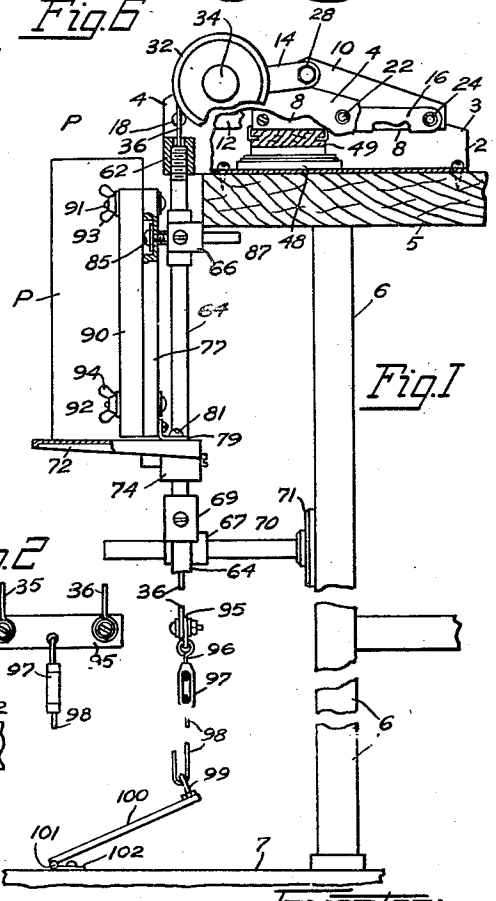


Fig. 1

Fig. 2

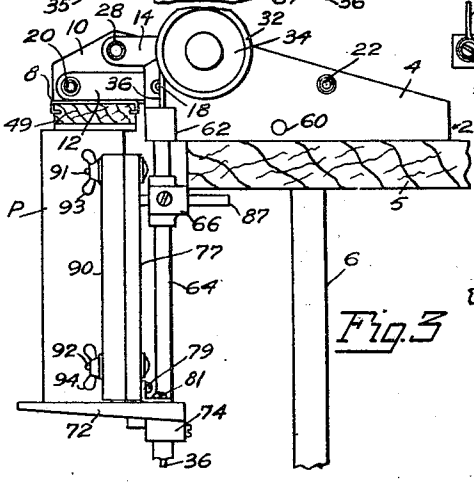


Fig. 3

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Fig. 7

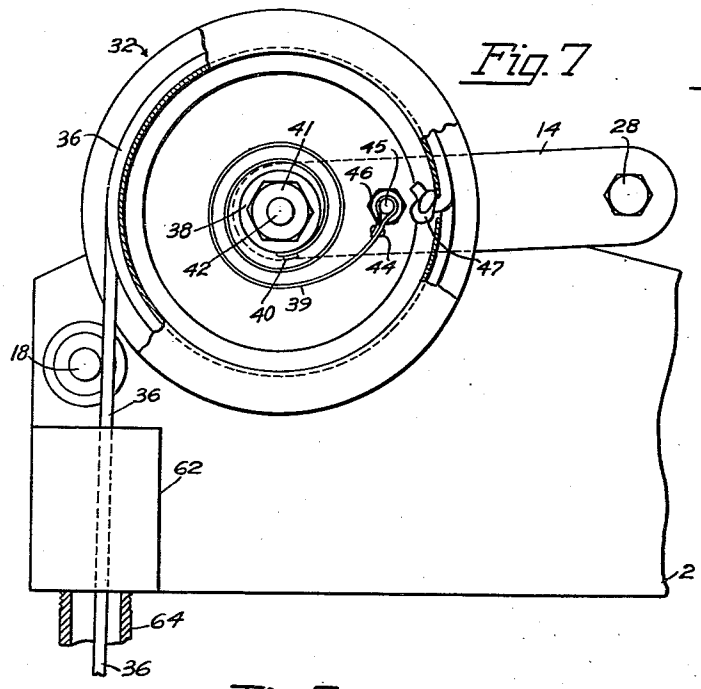


Fig. 8

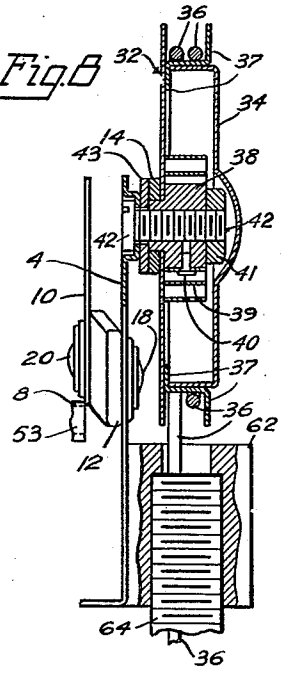


Fig. 9

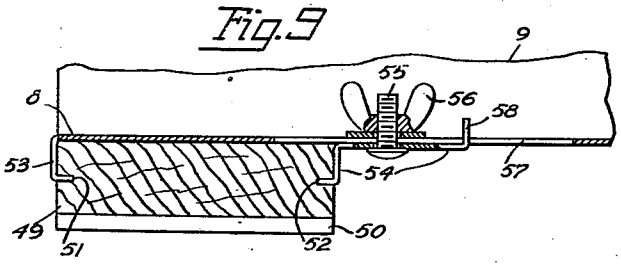


Fig. 11

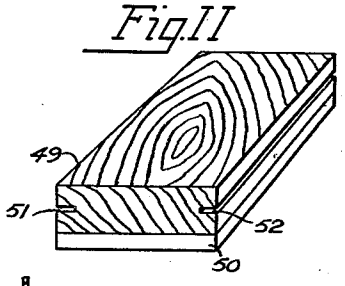
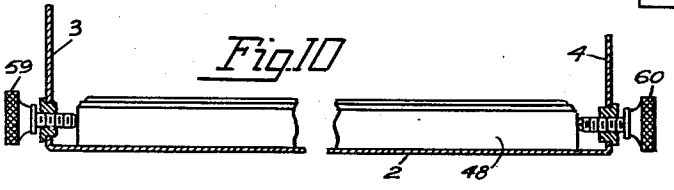


Fig. 10



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UNITED STATES PATENT OFFICE

2,434,381

STAMPING MACHINE

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Application May 28, 1942, Serial No. 444,801

13 Claims. (Cl. 101—41)

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This invention relates to stamping machines. Its principal object is the production of a stamping machine capable of use by manufacturers, dealers, and others to stamp desired information or indications on packages, cartons, and other objects.

A further object is to provide a stamping machine of the above character which may be mounted on a work bench; is adjustable to accommodate different sizes of packages or other objects; is pedal-actuated; readily receives stamps of different sizes; and detachably receives ink pads of standard construction.

A still further object is to provide a stamping machine which is of sturdy construction; is reliable in operation; and may be manufactured in quantity by a minimum of simple manufacturing operations.

A feature of the invention is that the stamps of simple construction may be firmly attached to the stamp carriage, yet are readily removable when it is desired to change the stamp in use for one adapted to stamp other information.

Other objects and features will appear as the description progresses.

The accompanying drawings, comprising Figures 1 to 11, show sufficient views of a stamping machine constructed according to the principles of the invention to enable the invention to be understood:

Figure 1 is a right-side general view of the machine in normal position, with certain parts broken away;

Figure 2 is a front-view detail of the interconnection between the machine and the operating pedal;

Figure 3 is a right-side view of the machine in operated position;

Figure 4 is a front view;

Figure 5 is a bottom view of the machine, showing the construction of the object-supporting base 72;

Figure 6 is a top view of the machine of normal position;

Figure 7 is a partial right-side view showing the construction of the right-side pulley 32;

Figure 8 is a front view showing a section through the pulley 32;

Figure 9 is a right-side sectional view of the stamp-holding portion of the stamp carriage 8;

Figure 10 is a fragmentary front sectional view of the main body portion of the machine, showing how the ink pad is held in place; and

Figure 11 is a perspective view of a stamp adapted for use in the machine.

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The machine is shown attached to the work bench 5 and to the leg 6 thereof, supported on floor 7.

The main body portion 2 of the machine, with its upstanding left-side portion 3 and right-side portion 4, may be constructed of any suitable sheet material, steel, for example. The body portion 2 may be secured to the top of table 5 by wood screws as indicated in Figures 1 and 6.

The stamp carriage 8 is normally supported partially between the sides 3 and 4 of the main body portion on three equal-length pairs of arms pivoted between the sides 3 and 4 of the main body portion and sides 9 and 10 of stamp carriage 8. The three pairs of arms comprises a front pair 11 and 12, an intermediate pair 13 and 14, and a rear pair 15 and 16, as seen in top view in Figure 6. A cut-away portion of the front right arm 12 is shown in Figure 1; and a more complete view of arm 12 is shown in Figure 3, wherein the arm is largely exposed because of the operated position of the device.

Arms 11 and 12 are pivotally secured to the main side portions 3 and 4, as by rivets 17 and 18 passing outwardly through arms 11 and 12, with their heads counter-sunk therein, and riveted over washers on the outside of the side portions 3 and 4 of the main body 2. Front arms 11 and 12 are similarly pivotally secured at their other ends to side portions 9 and 10 of the stamp carriage by rivets 19 and 20, riveted over washers on the inside of the side walls 9 and 10 of the stamp carriage.

The front ends of the intermediate arms 13 and 14 are pivoted to the main side portions 3 and 4 by construction detailed in Figures 7 and 8. Screw 42 in Figure 8 passes outwardly through the outwardly off-set annular portion of the right side 4 of the frame, through the front end of arm 14, and through the main portion of pulley 32, and is secured in place by nut 41.

The rear ends of arms 13 and 14 are pivotally secured to the side portions 9 and 10 of stamp carriage 8 by handle rod 25, which passes through matched openings in arm 13, side members 9 and 10 of the stamp carriage, and arm 14. Handle rod 25 is secured against endwise movement by cap nuts 27 and 28. Handle 26 surrounds the portion of rod 25 lying inside the upstanding stamp-carriage wall portions 9 and 10. Spacing thimbles 29 and 30 surround handle rod 25 between the side walls of the stamp carriage and the rear ends of levers 13 and 14.

The front ends of rear arms 15 and 16 are secured to the main side walls 3 and 4 at pivot points 21 and 22, and are secured to sides 9 and 10 of the stamp carriage at pivot points 23 and 24. The six arms 11 to 16 are of substantially equal length between pivot points, and each is pivoted at one end to a portion of the main body of the machine, and at the other end to a portion of the stamp carriage of similar height. The result is that the stamp carriage can be brought upwardly from its normal position in Figure 1, and then rearwardly, and downwardly to the position shown in Figure 3, in an arcuate motion, during which the stamp carriage is so guided by the three pairs of arms that it does not rotate, but moves bodily. It is maintained substantially level in all positions thereof.

As shown best in Figures 1 and 9, the front end of the flat main portion 8 of the stamp carriage is formed downwardly and rearwardly at 53 to form a front retaining bracket for stamp 49. The rearwardly extending outstanding portion of bracket 53 enters side groove 51 in stamp 49. The configuration of stamp 49, with its front and rear side-grooves 51 and 52, is seen best in Figure 11.

The adjustable rear retaining bracket 54 for stamp 49 is seen best in Figure 9. This bracket includes a level portion lying beneath stamp carriage 8 and held in contact therewith by screw 55 and wing nut 56. The screw 55 passes upwardly through the slot 57, seen in plan view in Figure 6. Bracket 54 is maintained in alignment against rotation about screw 59 as a pivot by the upstanding portion 58 thereof, lying rearwardly of the bracket and extending up into slot 57.

The front portion of bracket 54 is bent downwardly and forwardly to provide a horizontal forwardly extending portion which enters the rear retaining groove 52 in stamp 49.

Besides its main body portion, which may be made of wood, for example (high grade ply wood is well suited), stamp 49 has a yielding face portion 50, usually made of rubber. On the lower face of portion 50, the usual type characters (not shown) are provided according to the text and amount of the information to be stamped.

In the normal position of the stamp carriage, as shown in Figures 1, 4, and 6, the type characters on the under face of stamp 49 and 50 are in contact with the upper, ink-applying face of ink pad 48. Ink pad 48 may be of the construction ordinarily supplied for inking hand stamps. It is held in place between the main side walls 3 and 4 by screws 59 and 60, as shown best in Figure 10, the right-hand pad-retaining screw 60 being shown also in Figure 3.

Movement of stamp carriage 8, from its normal stamp-inking position of Figure 1 arcately to its stamping position of Figure 3, is accomplished by rotation of pulleys 31 and 32, best seen generally in Figures 1, 3, 4, and 6. Pulley 31 is rigidly attached to the left intermediate arm 13, and pulley 32 is rigidly attached to the right intermediate arm 14.

Each of the pulleys is of hollow construction, inclosing a restoring spring, normally concealed and protected by the cup-like spring covers 33 and 34. The right-side view Figure 7 is taken with spring cover 34 of pulley 32 removed to show the spring 39 lying within the pulley.

The inner flat side portion of pulley 32 is secured to an intermediate point on arm 14 by screw 45, Figure 7. This screw may have a head

portion (not shown) countersunk in the inside surface of arm 14. Arm 14 and pulley 32 are retained tightly in contact by nut 46, threaded on screw 45.

As seen in section in Figure 8, a stationary hub 38 lies within pulley 32. This hub is internally threaded and is held firmly against rotation by screw 42, locked in position by lock nut 41.

The groove formed by the reduced end portion of hub 38 provides a bearing around which arm 14 and pulley 32 freely turn.

The inner end of restoring spring 39 is secured to the periphery of hub 38 by pin 40, Figures 7 and 8. The outer end of spring 39 is looped and riveted at 44, Figure 7, the loop passing over and being retained by the portion of screw 45 extending outwardly through nut 46.

The spring 39, along with the similar spring (not shown) contained within pulley 31, is tensioned to urge the stamp carriage downwardly in its normal position to secure a firm contact between stamp 49 and ink pad 48.

Forward rotation of the pulleys 31 and 32 to bring the stamp carriage arcuately forward to the stamping position shown in Figure 3, through the consequent rotation of the intermediate, driving levers 13 and 14, is accomplished by cables 35 and 36. Cables 35 and 36 are attached to the pulleys as shown for cable 36 in Figure 7. As shown in Figure 7, cable 35 passes upwardly in front of pulley 32; extends rearwardly about once and a half around the pulley; and passes in to the interior thereof through the illustrated opening; and is secured in place by being knotted at 47.

The cylindrical cable-supporting surface of pulley 32 is formed by annular member 37, which may be spot welded to the main portion of the pulley, and is turned outwardly to form one of the flanges.

The cables 35 and 36 extend downwardly, as seen in Figures 1 and 2, and are interconnected with pedal 100, hinged at 101 to floor piece 102. The lower ends of cables 35 and 36 are secured to the outer ends of equalizing bar 95, Figures 1 and 2.

The upper end of rod 96 is looped through the central opening in bar 95, and the lower end of this rod is adjustably connected by turnbuckle 97 with the upper end of pedal rod 98; the lower end of rod 98 is looped through the eye portion of rod 99, secured to the free end of pedal 100. In practice the rod 98 is furnished straight, and the user is expected to bend the lower end thereof at about the proper point, depending upon the height of the work bench on which the stamp is installed. After that, the necessary adjustments in pedal height may be made by turnbuckle 97.

When the pedal is depressed, equalizing bar 99 is drawn downwardly, drawing cables 35 and 36 downwardly. This causes counter-clockwise rotation (as seen in Figure 1) of the pulleys 31 and 32, with resulting counter-clockwise rotation of the driving arms 13 and 14. The stamp carriage 8 is thereby brought forward to the stamping position shown in Figure 3, the level position of the stamp carriage being maintained throughout by the front pair of arms 11 and 12, and the rear pair of arms 15 and 16, in cooperation with the intermediate driving arms 13 and 14. This backward rotation of the pulleys 31 and 32 is accomplished against tension of spring 39, Figures 7 and 8, in pulley 32, and against the tension of the corresponding spring (not shown) in pulley 31.

When pedal 100 is released, the pulley springs return the stamp carriage arcuately rearwardly to the normal position illustrated in Figure 1, raising the pedal 100 to normal position through cables 35 and 36.

As shown at P in Figures 1, 3, 4, and 6 a package or other object is arranged to be supported, with the top surface thereof substantially on a level with the surface of ink pad 48, in such a position as to properly receive the impression from the inked characters on the under surface of stamp 49, when the stamp carriage is operated as above described to bring it into the stamping position shown in Figure 3. The arrangement for supporting and locating the package P or other object in position to receive the stamp will now be described.

Attachment blocks 61 and 62 are secured to the rear lower outside portions of the side walls 3 and 4 of the main body portion 2, as by machine screws or by welding. The blocks 61 and 62 are drilled and tapped from below to threadedly receive the vertically extending tubes 63 and 64. These tubes are preferably hollow as indicated to permit the operating cables 35 and 36 to pass longitudinally therethrough. In the construction shown, the tubes 63 and 64 are lengths of standard galvanized pipe of nominal inside diameter of one-quarter inch.

Supporting base or platform 72 is provided. It may be conveniently composed of cast iron. This platform has a pair of hollow depending bosses 73 and 74 which freely receive the tubes 63 and 64. The platform is retained in a desired position on tubes 63 and 64 by set screws in the rear walls of bosses 73 and 74, as shown in Figure 1. Platform 72 has a pair of mounting slots 75 and 76, seen in Figures 5 and 6, to enable the back board 77 to be mounted thereon and adjusted forwardly or rearwardly thereof as desired.

Back board 77 has a pair of angle brackets 78 and 79 secured on the back side thereof, near the lower outer corners. The back board may be conveniently made of plywood, and the brackets 78 and 79 may be attached thereto by wood screws. Screws 80 and 81 are secured in the horizontal portions of the brackets 78 and 79, and extend downwardly through the slots 75 and 76 as seen best in Figure 5. Wing nuts 82 and 83 are provided to hold the brackets and the lower portion of back board 77 adjustably in place in any desired front-to-rear position within the slots 75 and 76.

The upper portion of back board 77 is held in place by countersunk screws 84 and 85, Figures 4 and 1. These screws are threaded into the front ends of horizontally adjustable rods 86 and 87. These rods are assembled with tubes 63 and 64 by means of offset cross blocks 65 and 66. Each of these blocks has a vertical opening for freely receiving the associated one of the tubes 63 and 64, and a laterally offset horizontal opening to receive the associated one of the horizontal adjustment rods 86 and 87. The indicated set screws enable backboard rods 86 and 87, to be tightened in any desired front-to-rear position of adjustment within the blocks 65 and 66.

Backboard 77 has upper and lower horizontal slots 88 and 89 therein. Vertical locating bar 90 is adjustably held in any desired left-to-right position by screws 91 and 92, passed forwardly through slots 88 and 89 and through holes in bar 90. The bar 90 is tightened in any desired position by wing nuts 93 and 94.

The vertical position of package P or any other object to be stamped is determined by the adjusted height of base or platform 72 on tubes 63 and 64; the front-to-rear position of the object is determined by the front-to-rear adjustment of back board 77; and left-to-right position of the package or object P is determined by the adjusted position along the front face of back board 77 of the vertical positioning bar 90, the object P being urged by hand downwardly, rearwardly, and to the right during the stamping operation.

When a package P of a different height is to be accommodated, the vertical height of the holding and locating assembly is adjusted by loosening the set screws in the bosses 73 and 74 of the supporting base 72 to permit the assembly to be raised or lowered as desired on the tubes 63 and 64. The set screws are then tightened to retain the assembly in the new location.

The front-to-rear position of back board 77 may be readily adjusted to permit the stamp to engage the package or object P at a different position by loosening the wing nuts 82 and 83, Figure 5, as well as the set screws in offset blocks 65 and 66, which hold the horizontal rods 86 and 87. Back board 77 may then be brought into and vertically aligned in its new position after which the concerned wing nuts and set screws may be retightened to retain the back board in the new position.

Finally, as previously noted, the vertical positioning bar 90 may be brought to the left or to the right to a new position to accommodate a different size of package or to cause the stamp to be applied to a different position to the left or right on the object, by loosening wing nuts 93 and 94; sliding the bar horizontally to the new position; and retightening wing nuts 93 and 94.

A brace for the object-supporting portion of the machine is provided below platform 72, between the vertical tubes 63 and 64 and leg 6 of the work bench. For this purpose, a pair of pipe T's 68 and 69, Figure 4, are provided. The vertical opening through each of the T's is drilled out sufficiently large that the tubes 63 and 64 are freely received therein. Cross brace 103 (which may be a length of standard pipe of the size of tubes 63 and 64) interconnects T's 68 and 69. Offset cross block 67 has a left-to-right opening through which cross brace 103 is passed, and a front-to-rear opening in which supporting brace 70 is secured. Supporting brace 70 may be a length of standard pipe threaded into pipe flange 71, secured to leg 6 by the usual screws. When the device is installed, the set screw shown in Figure 4, in the lower offset portion of block 67, is tightened to hold the block in its desired position on the rod 70. This construction enables the installer of the machine to make a ready adjustment according to the location of leg 6 rearwardly from the edge of bench 5.

Among the many advantages which the improved stamping machine herein disclosed possesses over the hand stamping method heretofore employed are: (1) uniformity of position of the matter stamped on the packages or objects; (2) uniformity of impression; and (3) speed of operation resulting from the operator being freed of the necessity of pausing on each stamping operation to judge the location of the stamp with respect to the object to be stamped.

A special advantage is that, when a stamped imprint is too light or otherwise imperfect, the concerned object may be replaced on the sup-

porting portion of the stamping machine and restamped. The second imprint will be made exactly on top of the first because of the supporting and locating arrangements (base 72, back board 77, and guide bar 90) herein disclosed. On the other hand, when a hand stamp is used and a faulty imprint is made, it is a practical impossibility to put the hand stamp down again exactly in the same position, for which reason it is necessary to erase the first imprint stamp before restamping, in order to avoid confusion and obscuration.

I claim:

1. In a stamping machine, a fixed base portion having upstanding opposed walls, a stamp carriage adapted to be moved with respect to said base portion bodily in an arcuate path, six guide arms of substantially equal length, said arms comprising a front pair, an intermediate pair, and a rear pair, one end of each arm being pivotally attached to one of said walls, the pivot axes being perpendicular to said walls, the other end of each of said arms being similarly pivotally attached to points of said carriage so spaced as to maintain all said arms substantially parallel in all positions of the carriage in its arcuate path.

2. In a stamping machine as set forth in claim 1, two of said pairs of arms lying within said side walls, the other pair outside thereof.

3. In a stamping machine as set forth in claim 1, the front and rear pairs of said arms lying within said side walls, the intermediate pair lying outside thereof, two pulleys attached respectively to the arms of the intermediate pair with their centers along the common fixed-pivot axis of the pair, and a pair of carriage-actuating cables operatively attached respectively to said pulleys.

4. In a stamping machine, a base portion having an upstanding wall, a stamp carriage; front, intermediate, and rear levers of substantially equal length between pivot points thereon; the front and rear ones of said levers being attached at one pivot point of each to the first side of said wall, the intermediate lever being attached at one pivot point thereof to the second side of said wall, each of said levers being arranged for rotation about said attachment points in substantially the plane of said wall, a stamp carriage located on the first side of said wall, the other end of each lever being pivotally attached to said stamp carriage at such points thereon that the said arms are maintained substantially parallel to each other.

5. In a stamping machine, a main body portion and a stamp carriage, said body portion having opposed side walls, said stamp carriage being so supported between said side walls as to be movable parallel thereto between an inking position and a stamping position, a pair of opposed pulleys located on opposite sides of said carriage outside said walls, said pulleys being operatively attached to said carriage to move it from one of said positions to the other, downwardly extending operating cables attached respectively to said pulleys, and a pedal linked to said cables.

6. In combination, a stamping machine adapted to be mounted on a work bench, with the front portion of the machine overhanging the front edge of the bench; a pair of opposed operating pulleys located on said machine along a line above and to the rear of the front edge of said bench, with the front portion of said pulleys overhanging said front edge; a pair of tubes attached to said machine below, and in vertical alignment with, the respective overhanging front portions of said pulleys; means mounted on said tubes for supporting objects in position to be stamped, a pair of operating cables attached to said pulleys and extending downwardly therefrom through said tubes, respectively; and pedal means operatively attached to said cables below said tubes.

7. In a stamping machine including a main body portion and a stamp carriage operatively mounted thereon, a vertically adjustable base plate for holding objects in position to be stamped, a vertically disposed back plate mounted on said adjustable base plate and adjustable back and forth thereon.

8. In a stamping machine including a main body portion and a stamp carriage operatively mounted thereon, a vertically adjustable base plate for holding objects in position to be stamped, a vertically disposed back plate mounted on said adjustable base plate and adjustable back and forth thereon, and a vertically disposed side bar mounted on said back plate and adjustable from side to side thereon.

9. In a stamping machine, a support, a stamp carriage, means linking the carriage to the support for movement along an arc between a stamp-inking position and a stamping position, said linking means including three arms of substantially equal length between a pair of pivot points on each, means pivotally locating one pivot point of each arm for a turning movement about a separate pivot axis fixed with the support, means pivotally locating the other pivot point of each arm for a turning movement about a separate pivot axis fixed with the carriage, all said pivot axes being generally parallel to each other.

10. In a stamping machine as set forth in claim 9, one of the pivot axes, in both the support and the carriage, being displaced from the plane defined by the other two axes therein.

11. In a stamping machine as set forth in claim 9, one arm lying generally between the other two and having its pivot axes located generally between the pivot axes of the other two arms, means for applying turning force to said one arm to cause the carriage to move between the said positions, while permitting the other two arms to follow idly the resulting movement of the carriage.

12. In a stamping machine, a support, a stamp carriage, means linking the stamp carriage to the support for movement along an arc between a stamp-inking position and a stamping position, said linking means including six guide arms comprising a separate set of three arms for each of two opposed sides of the carriage, all said arms being of substantially equal length between a pair of pivot points on each; considered longitudinally of the carriage, said arms comprising a first pair, an intermediate pair, and a third pair, one end of each arm being pivotally attached to the support, the pivot axes being parallel to one another, the other end of each of the arms being similarly pivotally attached to points of the carriage so placed as to maintain all said arms substantially parallel in all positions of the carriage in its arcuate path.

13. A stamping machine including a support and a stamp carriage operatively mounted thereon, a base for holding objects to be stamped, a

vertically disposed back plate adjustable back and forth with respect to said base, and a vertically disposed side bar mounted on said back plate and adjustable from side to side thereon.

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