

H. W. WINTER.
STAMPING MACHINE.
APPLICATION FILED APR. 29, 1912.

1,128,209.

Patented Feb. 9, 1915.

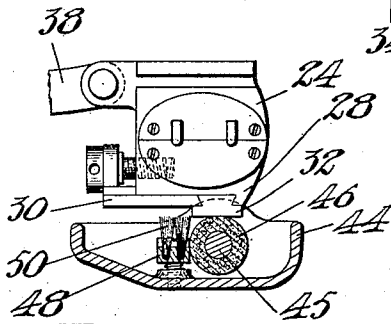
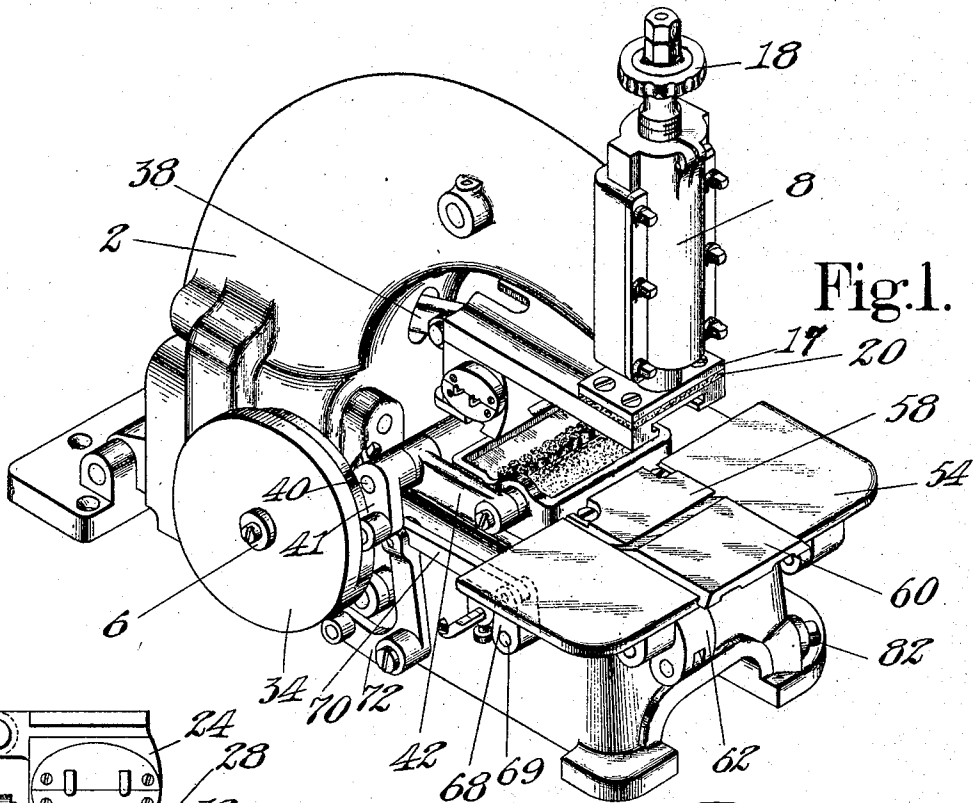


Fig. 3.

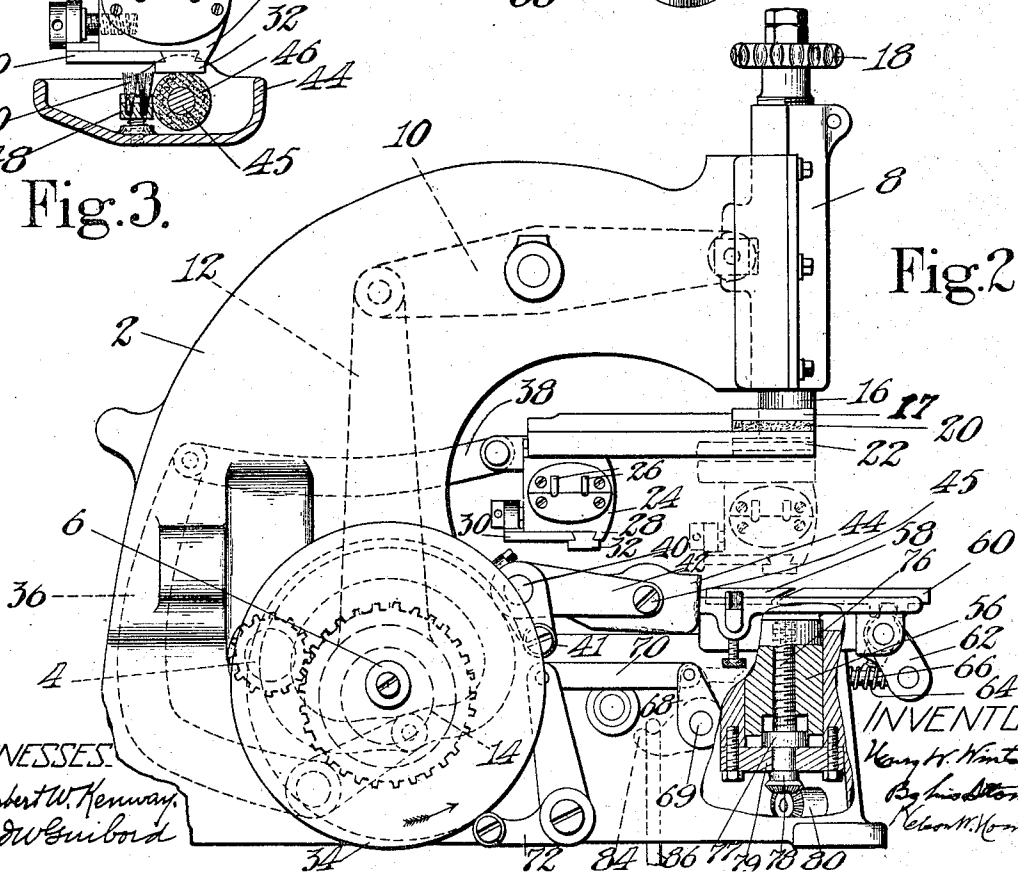


Fig. 2.

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UNITED STATES PATENT OFFICE.

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STAMPING-MACHINE.

1,128,209.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY W. WINTER, a citizen of the United States, residing at Methuen, in the county of Essex and State of Massachusetts, have invented certain Improvements in Stamping-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to improvements in machines for stamping, embossing or otherwise marking sheet material and more particularly to machines for embossing with metallic powder upon parts of boots and shoes, although many of its features may be embodied to good advantage in stamping machines of general utility.

In one of its aspects the invention consists in improvements in stamping machines of the character disclosed in my co-pending application Serial No. 599,495 filed December 27, 1910, while in another aspect the invention consists in improvements in the work supporting parts of the machine disclosed in the co-pending application of F. M. Wallace, Serial No. 686,517, filed March 27, 1912.

One object of the invention is to provide a stamping machine in which the stamping die and work support are arranged for a relative transverse movement in addition to the relative approaching movement in which the impression is effected. An important advantage resulting from this construction is that work placed upon the support preliminarily to the impression is more fully in view of the operator than in machines heretofore constructed and so may be located more accurately in stamping position. A machine having this characteristic may be arranged to operate with a shorter working stroke than one in which the die must be lifted sufficiently to permit the operator to see the work beneath it. Another advantage incident to this construction is that it permits the presentation of successive pieces of the work by turning flatwise like the leaves of a book, and this manner of presentation

is much more convenient for the operator when handling a pile of blanks placed in front of the machine than it would be to present the blanks by sliding them edgewise upon the work support. The withdrawal to one side of the die carrier also leaves sufficient space for the operator to place gold leaf upon the blank after the blank has been placed upon the work support in those cases where it is desired to utilize this medium for stamping.

In the machine herein shown the die is held in a carrier arranged to slide in ways upon a vertically reciprocating stamping head. An advantage incident to this construction is that it affords convenient opportunity for applying a stamping medium to the die between successive impressions.

To this end another important feature of the invention consists in the provision of a receptacle for containing a metallic stamping powder or the like arranged normally at one side of the path of the die carrier, together with means for moving the receptacle into applying position during the transverse movement of the die carrier. A further advantage also incident to this construction is that opportunity is afforded for cleaning the die after each impression of the work and with this end in view there is provided a wiping brush over which the die is drawn prior to the application of fresh stamping medium.

Other features of the invention relate to the construction of the work support, to provision for its adjustment and to means for clamping the work in stamping position.

In order that the machine may be utilized to mark top stays to which lining has been partially attached or to mark any work which comprises two or more partially attached layers, there is provided upon the work support a plate with an overhanging edge adapted to be inserted between two of the partially attached layers and serving to present one of them in a flat condition beneath the stamping die deflecting the other layer or layers out of range of the die. In order to reinforce the overhanging edge of this plate and to clamp the work in the

proper position there is provided a sliding member normally spaced slightly from the overhanging plate and arranged to be moved automatically toward the plate when the machine is set in operation. As herein shown, there is provided a spring which tends to move the clamping plate into operative position and suitable connections are provided with a cam which permits the spring to act when the machine is started.

A feature of the invention which relates to the adjustment of the work support consists in the provision of a standard having a downwardly projecting post and carrying upon its upper surface the supporting and clamping plates. A screw is disposed concentrically in the standard post and provided with a beveled gear meshing with another beveled gear on a short shaft extending outwardly through the machine casing. By turning this shaft the standard with the work supporting members may be bodily adjusted toward or from the stamping head and independently of the die carrier or its actuating mechanism.

The constructional features of the work support above discussed are of importance because they present one form of preferred and satisfactory mechanical means for effecting the desired adjustments, but it is believed that a stamping machine having a transversely movable die has never before been provided with a vertically adjustable work support and this combination broadly constitutes an important feature of the invention. One of the advantages incident to this combination is that the die may be adjusted properly to cooperate with the devices for supplying stamping medium and then the work support may be adjusted in accordance with the path of the die wherever that may be located.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof selected for purposes of illustration and shown in the accompanying drawings, in which—

Figure 1 is a view in perspective of the machine; Fig. 2 is a view in side elevation with portions of the work supporting standard in section, and Fig. 3 is a fragmentary view of the die carrier with the receptacle for the stamping medium shown in section.

The machine frame 2 is provided with bearings for a horizontal driving shaft 4 having operative connections with an intermediate shaft 6 by which the various elements of the machine are actuated. The frame has two branches and in the upper of these is provided a vertical guideway for the reciprocatory stamping head 8 which is actuated through the lever 10 and eccentric rod 12 by an eccentric 14 upon the inter-

mediate shaft 6. The stamping head 8 carries a spindle 16 adjustable within the head by means of the hand wheel 18 and carrying at its lower end a cross plate 17. Secured to the plate 17, but spaced from it by a layer of heat insulating material 20, is a bar 22 in which is formed a horizontal undercut guideway. The die carrier 24 is provided with laterally extending flanges which fit into the guideway and hold the carrier against movement vertically relatively to the head 8 while permitting it to be shifted transversely into and out of line with the axis of the head. The die carrier 24 is provided with a pair of electric heating coils 26 by which the die may be maintained at the temperature best suited for the class of work in hand. The layer of insulating material 20, above mentioned, prevents overheating of that portion of the stamping head which slides in the vertical guideway. On its lower face the die carrier has a stationary flange 28 and a movable undercut plate 30 which cooperates with the flange to retain the die 32 in place.

Transverse movement of the die carrier in the guideway is effected by a cam track cut in a disk 34 fast on one end of the shaft 6. In this track runs a roller mounted on the end of a bent lever 36 pivotally mounted within the machine frame near its base and connected by the link 38 to the rear side of the die carrier. The cam track is so laid out that when the machine comes to rest the die carrier occupies an initial position in the rear end of the guideway out of line with the axis of the stamping head and at one side of the work support. When the disk is rotated in the direction indicated by the arrow in Fig. 2, the die carrier is immediately advanced arriving at a position in alignment with the head or plunger 8 when the latter is approximately in mid position. The die carrier is then held against transverse movement during the impression and until the plunger has reached about the same point in its reverse stroke.

Journaled in lugs in the machine frame beneath the guideway bar 22 is a horizontal rock shaft 40 to which are secured a pair of arms 42 carrying at their forward ends a receptacle 44 for metallic stamping powder or the like. The receptacle 44 is mounted between the arms 42 upon a transverse pin 45 which carries a roller 46 of felt or other yielding and absorbent material. A bar 48 is yieldingly mounted within the receptacle in the rear of the roller 46 and in this bar are set the bristles of a brush 50. The brush and roller are so disposed that as the die carrier is moved forwardly the die 32 is first wiped across the brush 50 and cleaned of any residue remaining from the previous coating of stamping medium and is then

drawn over the upper surface of the roller 46 as a result of which a new coating of stamping medium is applied.

In its normal position the receptacle 44 with the roller and brush is disposed beneath the horizontal path of the die. Any suitable means may be employed for raising the receptacle into operative position and as herein shown the rock shaft 40 is provided with an arm 41 carrying a cam roller which runs against an edge cam cut in the periphery of the disk 34 as shown in Fig. 1. The edge cam is so proportioned as to raise the receptacle 44 immediately after the machine is set in operation and to allow the receptacle to be lowered by its own weight into initial position when the die has been moved over the roller 46.

The work supporting members are mounted in the lower branch of the machine frame 2 and are disposed in alinement with the axis of the stamping head. The work supporting members comprise a horizontal plate 54 provided with a downwardly projecting post 56 and carrying an undercut plate 58 and a clamping plate 60. The plate 54 has a guideway formed at its center and in the rear end of this guideway is adjustably mounted the plate 58 beveled at its lower front edge to form the overhanging portion shown in Fig. 2. The clamping plate 60 is slidably mounted in the front end of the guideway and has on its lower surface a pair of downwardly projecting lugs which afford connection with a lever 62 by which the clamping plate is moved forwardly and rearwardly. The lever 62 is pivotally connected at its lower end with a horizontal rod 64 encircling which is a compression spring 66 tending normally to swing the lower end of the lever 62 forwardly and move the clamping plate 60 toward the overhanging supporting plate 58. At its rear end the rod 64 is connected to a radius arm 68 which in turn is connected through the link 70 to one arm of a bell crank cam lever 72. The other arm of the bell crank lever 72 carries a cam roller arranged to be operated by the same edge cam which swings the arm 41 and controls the position of the receptacle 44. The cam roller on the lever 72 is so located that when the machine is at rest the rod 64 is pulled rearwardly and the clamping plate 60 moved to its inoperative position but immediately upon setting the machine in operation the edge cam permits the lever 72 to swing rearwardly and the clamping plate to move inwardly under the actuation of the spring 66 into engagement with the work.

In order to adjust the work supporting members vertically a screw 76 is threaded into the post 56 being itself held against vertical movement by a collar 77 and bevel

gear 78 disposed upon opposite sides of a stationary plate 79 secured to the machine frame. The beveled gear 78 meshes with a gear 80 upon the inner end of a short shaft 82 extending obliquely through the machine frame and provided at its outer end with a square head whereby it may be turned with a wrench in order to raise and lower the post 56 carrying the work supporting members.

It will be seen that by reason of the pivotal connection of the rod 64 and the link 70 to the radius arm 68, the vertical adjustment of the work supporting element does not interfere with the operative connection between the clamping plate 60 and the cam lever 72 by which its position is controlled.

In order that the clamping plate may be moved away from the work by the operator, should occasion arise, the radius arm 68 is pinned to a rock shaft 69 which in turn is provided with an arm 84 connected through a treadle rod 86 to a treadle not shown. When the treadle rod 86 is depressed the rod 64 will be pulled rearwardly and the clamping plate moved forwardly while the cam roller upon the lever 72 is temporarily forced away from its cam.

The initial position of various parts of the machine is indicated in Fig. 2 and the normal operation of the machine is as follows: Having made the necessary preliminary adjustments in the stamping head and in the vertical position of the work support, the operator places the work upon the overhanging plate 58 and, if there is any partially attached portion, such as a lining, the edge thereof is deflected by the beveled surface of the plate 58 so that the piece to be stamped lies flatly upon the upper surface of the plate. The machine is then set in operation whereupon the die carrier 24 is moved forwardly and simultaneously the receptacle 44 is elevated. The die is thus drawn across the brush 50 and over the surface of the roller 46, turning the latter so that a freshly coated face is brought into position to act upon the die in the subsequent operation. At the same time the clamping plate 60 is moved inwardly, supporting the overhanging edge of the plate 58 and engaging the work, holding it firmly in the position in which the operator has presented it. Immediately after the die has been coated the receptacle 44 descends to its initial position and the die carrier completes its forward movement into alinement with the axis of the stamping head 8 as indicated by the dotted lines in Fig. 2. The stamping head has meanwhile been descending and the work is encountered after the die carrier has reached the forward limit of its movement and come into alinement with the axis of the head. The die remains in contact with the work for an interval suffi-

cient to impart a perfect impression and is then elevated while the die carrier is moved rearwardly to its initial position. Meanwhile the clamping plate has been retracted, releasing the stamped work and the latter may be removed from the machine.

The machine herein shown may be equipped, if desired, with the automatic time controlling mechanism disclosed in my co-pending application Serial No. 599,495, above identified, by which the length of the impression is governed, but this mechanism is not illustrated herein as it forms no part of the present invention and would confuse the drawings.

An extended transverse movement of the die carrier is not necessary when the machine is to be used for stamping with gold leaf or by burning or branding the work and under these circumstances the throw of the shifting lever 36 will be decreased so that the die carrier will be moved rearwardly through a distance substantially equal only to its own width.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A machine of the class described having, in combination, a work support and stamping die movable relatively toward and from each other to effect the impression and also relatively in a transverse direction whereby work may be presented to the support while the latter is out of alinement with the die, and mechanism arranged to bring the die and support into line transversely prior to the completion of the relative movement in which the impression is effected and to leave the work support in stamping position and unobstructed when the machine is brought to rest.

2. A machine of the class described having, in combination, a normally stationary work support, a cooperating stamping die, means for relatively moving the support and die toward each other to effect the impression, and means for moving the die transversely after each impression so that it will occupy initial positions out of alinement with the support, said means including a cam and a connecting link disposed entirely in the rear of the die.

3. A machine of the class described having, in combination, a frame having a work support and guideways leading toward the support, a head mounted in the guideways for reciprocation toward and from the support, rearwardly extending ways carried by the head and a die automatically movable in said ways from an initial position at the rear into alinement with and between the head and support prior to the completion of the working stroke of the head.

4. A machine of the class described hav-

ing, in combination, a frame formed with an overhanging arm having vertical guideways therein, a work support beneath and in line with the guideways, a reciprocatory plunger mounted in said vertical guideways and carrying horizontally disposed guideways extending outwardly from one side of the plunger, and a die automatically movable in the horizontal guideways between successive reciprocations of the plunger and being held against horizontal movement and in alinement with the plunger during the latter part of its working stroke.

5. A machine of the class described having, in combination, a normally stationary work support and a stamping head relatively movable to impress the work, a die carrier transversely movable upon the stamping head from an initial position at one side of the work support into position in line with the work support, and means for effecting such movement of the die carrier prior to the termination of the relative approaching movement of the stamping head and work support and for holding the die carrier transversely stationary during the impression.

6. A machine of the class described having, in combination, a work support and an elongated stamping head guided for movement relatively to the support to impress the work, a die carried at all times by the head and transversely movable upon the head into and out of stamping position in alinement with the axis of the head, and means for applying a metallic powder to the die while it is out of stamping position.

7. A machine of the class described having, in combination, a work support and stamping head relatively movable to impress the work, a die movable in a transverse path upon the head, a device for applying metallic powder to the die located at one side of the path of the die, and automatically acting means for periodically moving said device into the path of the die.

8. A machine of the class described having, in combination, a work support, a stamping head movable toward and from the support and having a guideway disposed transversely to its path of movement, a die carrier mounted in the guideway, and means, having operative connection with the die carrier in all positions of the stamping head, for moving the die carrier transversely.

9. A machine of the class described having, in combination, a work support, a stamping head movable relatively thereto, a guideway bar connected to the head, heat insulating material interposed between the bar and the head, and a heated die carrier movably mounted in the guideway.

10. A machine of the class described hav-

ing, in combination, a stamping die movable toward and from position to impress the work, and means for applying stamping medium to the die during its movement in one direction including a roller arranged to be turned by engagement with the movable die so that a fresh surface of the roller is presented in position to be engaged by the die in its subsequent movement.

11. A machine of the class described having, in combination, a stamping die movable toward and from position to impress the work, a receptacle for stamping powder, and a roller arranged to be turned in the powder in the receptacle by contact with the movable die.

12. A machine of the class described having, in combination, a stamping die and receptacle relatively movable preliminarily to the impression, and a roller arranged to be turned by contact with the die during such relative movement to coat the die with stamping medium and to present a freshly coated surface for subsequent engagement by the die.

13. A machine of the class described having, in combination, a stamping die and receptacle relatively movable preliminarily to the impression, a roller for transferring a powdered stamping medium from the receptacle to the die during such relative movement, and a cleaning brush arranged to act upon the die before it is coated by the roller to return to the receptacle the powder remaining from the previous impression.

14. A machine of the class described having, in combination, a stamping die, means for applying stamping medium to the die, work clamping means, and a common actuating device for both of said means.

15. A machine of the class described having, in combination, a stamping die and support relatively movable to effect an impression, the die being also transversely movable and the work support including a clamping member movable in a transverse path and having an extended edge for engaging the work.

16. A machine of the class described having, in combination, a stamping die and support relatively movable to effect an impression, and automatically acting work clamping means timed to engage the work during such relative movement of the die and support.

17. A power operated machine having a stamping die and support relatively movable to effect an impression, work clamping means, and mechanism whereby the clamping means are rendered effective during the relative movement of the die and support prior to an impression and caused to release the work during the relative movement of the die and support after an impression.

18. A power operated machine having a stamping head and support relatively movable to effect an impression, and yieldingly acting clamping means constructed and arranged to be operated during such relative movement.

19. A power operated machine having a stamping head, a support including a plate with an overhanging edge, and means moved automatically and yieldingly into position to reinforce the overhanging edge of the plate and automatically and positively out of reinforcing position.

20. A machine of the class described having, in combination, a stationary frame, a die, a cooperating work support adjustable in the frame toward and from the die, a movable plate on the work support, and actuating means mounted in the frame, adapted for moving the plate and having operative connection with the plate in all adjusted positions of the support.

21. A machine of the class described having, in combination, a die, a cooperating work support, a movable plate on the support, automatic mechanism for shifting the plate on the support, and separate manually operated means for effecting the same result.

22. An organized machine having, in combination, a stamping die and support relatively movable to effect an impression, and a work clamping device arranged to be operated automatically prior to the impression of the work by the die.

23. A machine of the class described having, in combination, a reciprocatory stamping head carrying a die movable transversely to the path of the head, a device for applying a stamping medium to the die during its transverse movement, means for adjusting the location of the transverse path of the die, and a work support adjustable toward and from the head independently of the applying device.

24. A machine of the class described having, in combination, a reciprocatory head carrying a die movable transversely to the path of the head and adjustable in the direction of movement of the head, means for supplying a stamping medium to the die, and a work support adjustable in a direction substantially at right angles to the transverse path of the die.

25. A machine of the class described having, in combination, a reciprocatory stamping head, a work support located in alignment with the path of the head and having a post secured thereto, an adjusting screw arranged concentrically within the post, and means disposed at one side of the post for turning the adjusting screw.

26. A machine of the class described having, in combination, a driving shaft, an

intermediate shaft operatively connected thereto, a reciprocatory stamping head actuated by the intermediate shaft, and a die transversely movable upon the reciprocatory head and actuated in its transverse path by said intermediate shaft.

27. A machine of the class described having, in combination, a stamping head and support relatively movable to effect an impression, a movable work clamping device associated with the support, an actuating cam for said device, operating connections inter-

posed between the cam and clamping device, and a treadle rod arranged to act at a point in said operating connections between the cam and the clamping device. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY W. WINTER.

Witnesses:

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