Aug. 7, 1934. P. R. GLASS 1,968,886

DIE CLAMPING DEVICE

Original Filed July 13, 1927

Fig. 1.

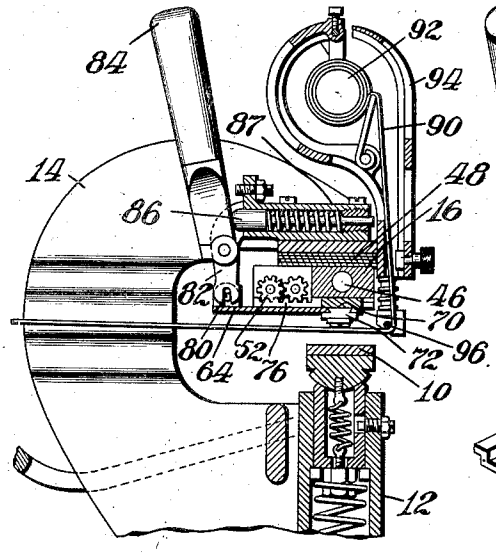


Fig. 2.

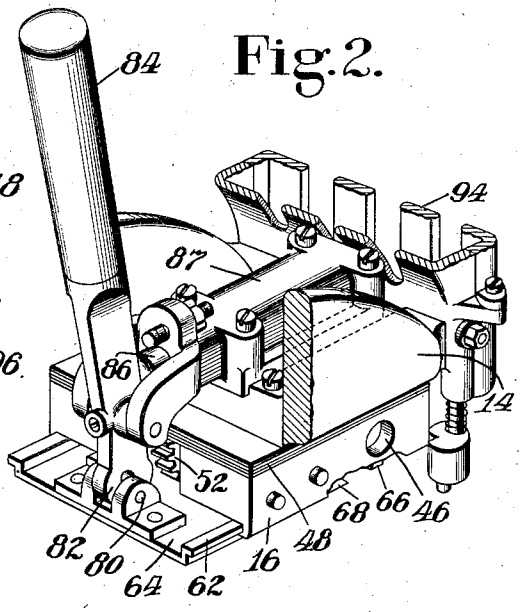
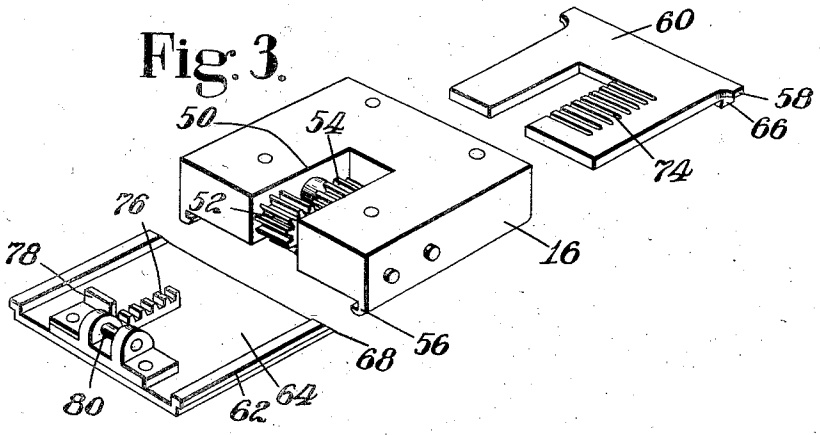


Fig. 3.



INVENTOR

Perley R. Glass

By his Attorney,

Harlow M. Davis

Patented Aug. 7, 1934 1,968,886

UNITED STATES PATENT OFFICE

1,968,886

DIE CLAMPING DEVICE

Perley R. Glass, Wayland, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Original application July 13, 1927, Serial No. 205,504. Divided and this application September 10, 1930, Serial No. 480,971

9 Claims. (Cl. 101—31)

This invention relates to machines for marking, stamping or embossing pieces of work, such as parts of boots and shoes, and is herein illustrated as embodied in a die-clamping device for a machine for marking by means of pigment carried by a ribbon or strip.

Marking machines of the types which are frequently termed "embossing machines" apply a heated die to the back side of a pigment-carrying ribbon, such as a paper strip, and, as the die forces the strip into contact with the work, the pigment is transferred to the work in the desired design. A machine of this type is disclosed in United States Letters Patent No. 1,779,091, granted October 21, 1930, upon an application, filed in my name, for Improvements in marking machines, of which this application is a division.

In the use of such embossing machines, shoe-factory practice frequently requires the use of a different die for each case of shoes which are to be embossed, thereby requiring the removal of a heated die and its replacement by another die having a different design and frequently of a different size. It is essential for the proper operation of the machine that such dies shall be centered above the work-supporting table in order that the pressure applied may be uniform and a clear impression made. With this in view, an object of the invention is to provide die-clamping means organized to facilitate the removal of a die and its speedy replacement by another in centered position without requiring the exercise of great care on the part of the operator and avoiding the danger of burning fingers. To this end the illustrated marking machine is provided with a die-clamping device arranged to center a die with respect to a work table. In the illustrated construction, slidably mounted die-clamping members are interconnected by meshing gears for equal and opposite movement upon actuation of an operating handle connected to one of the clamping members.

These and other features of the invention may best be understood by a consideration of the following description taken in connection with the accompanying drawing, in which

Fig. 1 is a vertical section through the head of an embossing machine taken from front to back and showing the die-clamping device as mounted in position in the machine;

Fig. 2 is a fragmentary perspective view of the device; and

Fig. 3 is an exploded view of the die-clamping device.

The invention is herein illustrated as embodied in a marking machine of the type disclosed in United States Letters Patent No. 1,695,582, granted December 18, 1928, upon the application of P. R. Glass and H. D. Elliott, to which reference may be had for descriptions of portions of the machine not fully set forth herein. As in that machine, the work is supported in the illustrated machine upon a tiltably mounted work table 10 (Fig. 1) which is resiliently supported in a frame 12 arranged to provide guides for a vertically movable gooseneck-shaped slidable die-carrying head 14, on the overhanging forward end of which a die-carrying block 16 is provided. The reciprocation of this die-carrying head is effected by any suitable means (not shown).

The die-carrying block 16 is provided with an opening 46 (Fig. 1) to receive a heating cartridge, and layers of heat-insulating material 48 are disposed between the block 16 and the head 14. The back side of the block 16 is recessed at 50 (Fig. 3) to receive overlapping meshing pinions 52 and 54 which are journaled therein. At the lower side of the block 16 recessed guideways 56 are provided which receive lateral ears 58 upon a forward clamping plate 60 and lateral ribs 62 upon a rear clamping plate 64, both of which plates are thereby slidably mounted in the block 16. It should be noted that the forward clamping plate 60 is provided with an underhanging flange 66, which coacts with the beveled forward edge 68 of the rear plate 64 to form a dovetailed recess 70 (Fig. 1) in which the stamping die 72 is clamped. From an inspection of the exploded view in Fig. 3, it will be seen that the rear plate 64 is recessed to receive and partly support the forward plate 60 and that said forward plate is provided with teeth 74 for engagement with the pinion 54. The rear clamping plate 64 is also provided with a rack 76 for engagement with its pinion 52. It is to be noted that the plates 60 and 64 are in close contact with each other and with the heated block 16. By this construction heat is easily and efficiently transferred from the block 16 to the stamping die 72. This plate also is provided with a stop member 78 and with a pin 80 adapted to be received in the forked lower end 82 (Fig. 6) of an operating handle 84. A spring-operated plunger 86 is suitably housed in a casing 87 attached to the slidable head 14 and is arranged to bear against the operating handle 84 which is pivoted in ears on said casing 87, thereby to force the handle to a position tending to close the die-clamping members 60 and 64 as far as allowed by the stop 78. Because of the meshing of the pinions 52 and 53 and through coaction with the clamp-

ing plates 60 and 64, the movement of one of these plates directly by means of the operating handle 84 is effective simultaneously to separate both of the plates to allow the die 72 to drop out and be removed by the operator. The construction and arrangement are such, also, that whenever a die is placed in position to be clamped by the plates 60 and 64, irrespective of the exact width of the die from front to back of the machine, as determined by the particular design carried on the die, the latter will be exactly centered in the die-carrying mechanism so that it will assume the desired position with respect to the work-supporting table 10 without need for care on the part of the operator, since movement of the handle 84 to effect clamping movement of the plates 60 and 64 moves said plates equally and oppositely.

As in the machine disclosed in the patent mentioned above, the pigment-carrying strip 90 is supplied from a roll 92 (Fig. 6) mounted in a casing 94 carried at the forward end of the die-carrying arm 14 and is guided downwardly and then rearwardly around a spring-pressed guide rod 96 between the laterally spaced members of the gooseneck-shaped die-carrying head 14 by feed rolls (not shown).

In the use of the machine the operator, after pulling forward on the handle 84 to separate the plates 60 and 64, will insert the desired die 72. Upon releasing the handle to bring the plates 60, 64 into clamping engagement with the die, the operator is assured that the die will be exactly centered in its holder by the clamping mechanism.

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

1. In a marking machine, a die-carrying block, a pair of die-clamping members movably attached to said block, means for interconnecting said members for opening movement to receive a die, said interconnecting means being constructed and arranged to center the die to be clamped with respect to a predetermined point irrespective of the width of the die as the clamping members move to closing position, and means for automatically moving the clamping members to closing position to clamp the die.

2. In a marking machine, a heated block, a die carrier comprising slidably mounted gripping plates interconnected by meshing gears constructed and arranged to cause a movement of one plate to be accompanied by an equal and opposite movement of the other plate, said plates being arranged for close contact with said block to permit easy transfer of heat through said plates to a die gripped by said plates.

3. In a marking machine, a die carrier, a heated block, relatively movable die-gripping members having portions overlying each other and interconnected by meshing gears constructed and arranged in such a manner that the movement of one member causes movement of the other member in a predetermined ratio, said overlying portions being arranged for close contact with each other and with the heated block to permit heat to be transferred readily from said block to a die carried by said members.

4. In a marking machine, a die carrier comprising a block, clamping plates slidably engaged with said block and arranged to grip a die to hold it on the block, a lever for sliding said clamping plates along the block, and gear connections for communicating sliding movement from said plate to the other plate.

5. In a marking machine, a die carrier comprising a carrier block, a die-gripping plate slidably engaging said block at its lateral edges and provided with a central recess, another die-gripping plate partially overlying said first plate and held in said recess between said plate and the block, and means for moving said plates into clamping relation to a die.

6. In a marking machine, a die carrier comprising a metal block provided with recesses along its bottom edges, die gripping plates having lateral ribs arranged to enter said recesses, said block being cut away to provide space for journaling a pair of meshing gears, and means for connecting said gears to said plates.

7. In a marking machine, a marking die, a die carrier for releasably supporting said marking die comprising a plurality of clamping members slidably mounted on said carrier and interconnected for opposite movement, said members being disposed normally in die-clamping position, means for separating said die-clamping members to permit the introduction of a die in the carrier, and means comprising a heavy spring for automatically returning said members to clamping position.

8. In a marking machine, a marking die, a die carrier for releasably supporting said marking die comprising relatively movable clamping members normally in die-clamping position, means for separating said die-clamping members to permit the introduction of a die in the carrier, and means for automatically returning said members to clamping position, said clamping members being interconnected so that they are movable to center the die to be clamped with respect to a predetermined point irrespective of the width of the die.

9. In a marking machine, a die-carrying head provided with a die-carrying block on the under side of which are mounted relatively movable clamping members constructed and arranged to receive and clamp a die on the under side of said block, said members being constructed and arranged for conjoint movement so that movement of one member is accompanied by opposite movement of the other member, an operating handle projecting upwardly from said head to a readily accessible position, said handle being connected to one of said clamping members, and resilient means urging said operating handle in a direction to close said clamping members on the die.

PERLEY R. GLASS.