

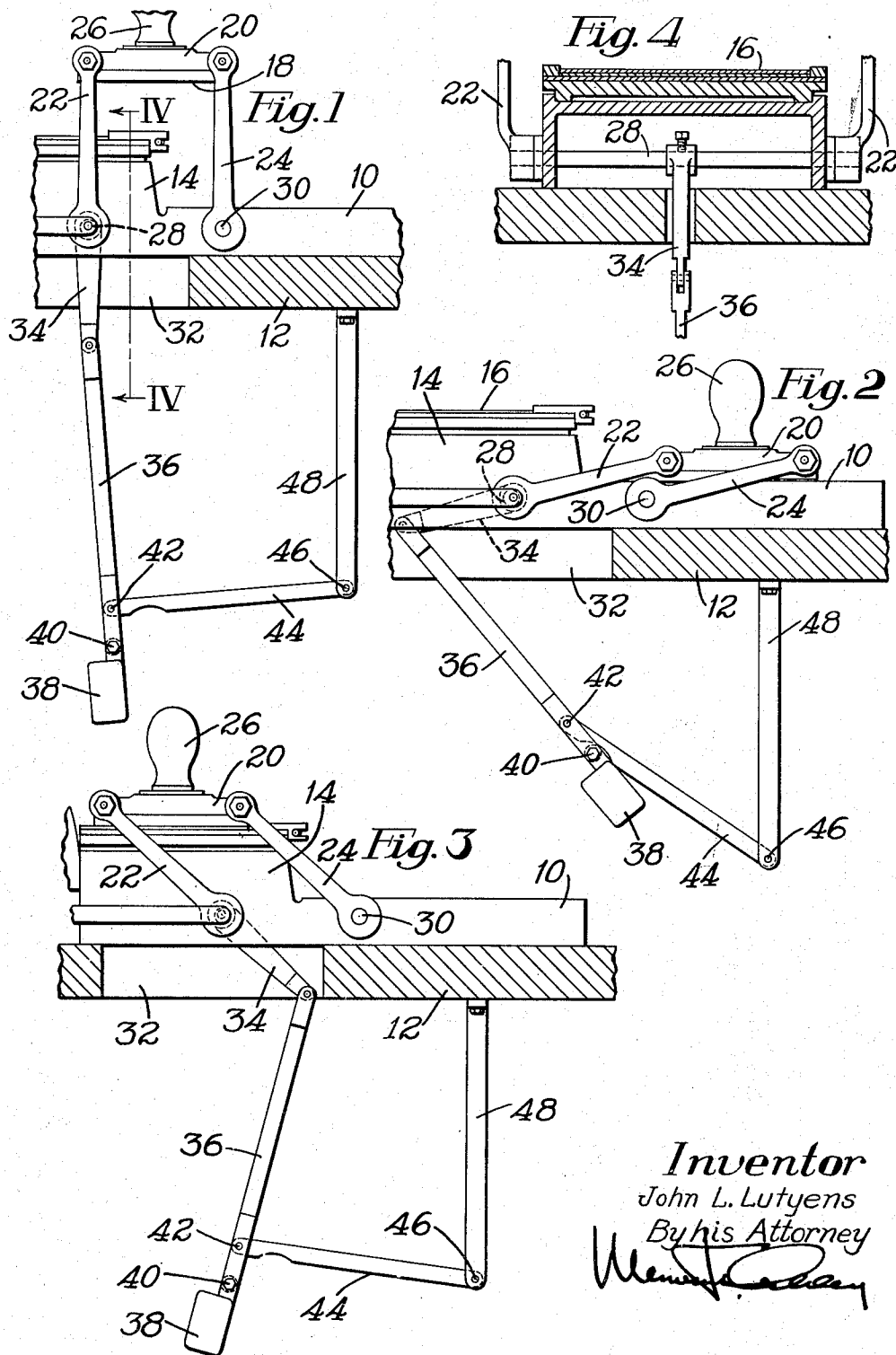
Nov. 24, 1953

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2,660,116

MARKING MACHINE

Filed Dec. 28, 1951



UNITED STATES PATENT OFFICE

2,660,116

MARKING MACHINE

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Application December 28, 1951, Serial No. 263,816

Claims priority, Great Britain May 4, 1951

7 Claims. (Cl. 101—301)

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This invention relates to marking machines, and more particularly to stitch marking machines of the type commonly used in shoe factories for marking leather articles such as shoe uppers with a pattern or with guide lines for subsequent ornamental stitching and the like, although it will be understood that the invention is not limited in its application to machines of this type. The invention is illustrated as embodied in a machine of the type shown and described in application for Letters Patent of the United States, Serial No. 256,420, filed November 15, 1951 in the names of Bagshaw and Ruddock.

The machine shown in the aforementioned application includes a carrier for a marking die, the carrier being supported by a parallel motion linkage for movements from a position in which the die is positioned intermediate an inking device and a work support to a marking position in which the die is in contact with a work piece on the support then back to a position in which the die is in contact with the inking device and finally back to its initial intermediate position. The die carrier is provided with a handle by which it is moved forwardly by the operator from the intermediate position to marking position and a counterweight is connected to the die carrier and is arranged to carry the die carrier through the remainder of the aforescribed cycle upon release of the carrier from marking position by the operator, thus minimizing the effort required by the operator in moving the die carrier and the die supported thereby. In order to bring the die carrier to rest in its intermediate position after the die has moved into contact with the inking device, thus preventing continuous swinging of the die carrier for an extended period due to oscillations of the counterweight, the aforementioned apparatus is provided with a suitable brake acting on the die carrier during its forward movement from ink receiving position to its intermediate position.

It is an object of the present invention to provide an improved manually-operated marking machine having the advantages of the aforementioned marking machine without the necessity of providing a brake for bringing the die carrier to rest at the conclusion of a marking cycle. To this end and in accordance with a feature of the invention, the counterweight is connected to the die carrier in such fashion that its path of movement during swinging movement of the die carrier between its extreme positions has a relatively small horizontal component compared to its vertical component.

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The above and other features of the invention including various novel details of construction and combinations of parts will now be described by reference to the drawings and pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of a portion of one form of machine embodying the invention, illustrating the die carrier in its intermediate position;

Fig. 2 is a view similar to Fig. 1, showing the positions of the parts with the die carrier moved forwardly to marking position;

Fig. 3 is a view similar to Fig. 1, showing the die carrier moved rearwardly into ink-receiving position; and

Fig. 4 is a section on the line IV—IV of Fig. 1.

The machine is illustrated as including a work support 10 carried by a table 12 and a support 14 for an inking ribbon 16 by which ink is applied to a die 18 mounted on the underside of a carrier 20. The die carrier 20 is supported by pairs of parallel links 22, 24 providing a parallel motion linkage whereby the carrier may be moved from an intermediate position, shown in Fig. 1, to marking position, as shown in Fig. 2, and then to an ink-receiving position, as shown in Fig. 3, and finally back to the intermediate position shown in Fig. 1, in which the die is conditioned to mark a new work piece to be placed on the work support 10. The die carrier is provided with a handle 26 to facilitate movement of the carrier by the operator from the position shown in Fig. 1 into the position of Fig. 2.

The links 22, 24 are secured to shafts 28, 30 journaled respectively in the lower portion of the support 14 and in the work support 10. The coated ribbon 16 is moved intermittently by any suitable mechanism during each marking cycle to present a fresh surface to the marking die each time that the die is moved into ink-receiving position as, for example, by mechanism of the type illustrated and described in the aforementioned application. In place of the marking ribbon on the support 14 it will be understood that an inking pad or any other suitable inking device may be provided.

Secured to the shaft 28 and arranged to extend downwardly through a slot 32 in the table 12 is an arm 34 to the lower end of which is pivoted an arm 36 carrying at its lower end a weight 38. This weight is detachably secured at 40 to the arm 36 so that it may readily be removed and a different weight substituted therefor if desired. Pivoted to the arm 36 near its

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lower end at 42 is an arm 44 which is in turn pivoted at 46 to a bracket 48 fixedly secured to and depending from the table 12. It will be understood that during movements of the die carrier 20 between its extreme positions the pivot 42 connecting the arms 36 and 44 will move in an arc, the center of which is at the pivot 46 connecting the arm 44 and the bracket 48. The weight 38 which is mounted on the lower end of the arm 36 not far below the pivot 42 will consequently move in a path not far removed from the arc through which the pivot 42 swings. It will thus be seen that the movement of the weight 38 is principally up and down although it has a small horizontal component.

At the beginning of a marking cycle the operator moves the die carrier and associated die forwardly into the marking position illustrated in Fig. 2. During this movement the weight 38 moves upwardly and, to a lesser degree, forwardly or toward the right, as viewed in the drawing. After the die has thus been moved into contact with the work, the operator releases his hold on the handle 26 whereupon the weight moves downwardly into the position shown in Fig. 1, moving the die carrier 20 back to its intermediate position. The momentum of the parts is such, however, that the die carrier will continue its movement until the die has moved into ink-receiving position, as shown in Fig. 3. At this time the weight 38 occupies a position higher than that shown in Fig. 1 but not as high as that shown in Fig. 2 inasmuch as the marking ribbon on the support 14 is in a higher plane than that of the work support 10. Immediately after the die carrier comes to rest in the position shown in Fig. 3 the counterweight 38 moves downwardly into the position shown in Fig. 1 to return the die carrier into the intermediate position shown in Fig. 1. The parts have by this time lost a substantial portion of their momentum inasmuch as the vertical distance through which the weight 38 moves from the position of Fig. 3 to the position of Fig. 1 is small and has very little horizontal movement, so that the die carrier quickly comes to rest in its intermediate position.

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

1. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, means supporting said carrier for movements into and out of operative relation with said work support and said inking means, a weight, means pivotally connecting said weight to said carrier supporting means, and means constraining said weight for substantially upward movement in response to movement of said carrier away from a position intermediate said work support and said inking means whereby the weight tends to return said carrier to said intermediate position.

2. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, a parallel linkage supporting said carrier for movement from a first position in which the die is in contact with the inking means into a second position in which the die is in contact with the work piece on the support, a weight pivotally connected to said linkage and acting thereon normally to hold said die carrier in a position intermediate said first and second positions, and means constraining the said weight for substan-

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tially vertical movement upon movement of said carrier away from said intermediate position.

3. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, a parallel linkage supporting said carrier for movement from a first position in which the die is in contact with the inking means into a second position in which the die is in contact with a work piece on the support, a weight pivotally connected to said linkage and acting thereon normally to hold said die carrier in a position intermediate said first and second positions, and means constraining said weight for movements in a curved path having a substantially greater vertical than horizontal component, upon movement of said carrier out of said intermediate position.

4. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, a parallel linkage supporting said carrier for movement from a first position in which the die is in contact with the inking means into a second position in which the die is in contact with a work piece on the support, and a weight pivotally connected to said linkage and arranged to be lifted thereby in response to movement of said die carrier in either direction from a position intermediate said first and second positions whereby the weight tends to return the carrier to said intermediate position with a minimum of oscillations of the die carrier.

5. A marking machine comprising a marking die carrier movable between a marking position and an ink-receiving position, two sets of parallel links supporting said carrier for movement between said positions, a shaft to which the lower ends of one of said pairs of links is secured, an arm connected to and depending from said shaft, a weight-supporting arm pivotally connected to the lower end of the first-named arm, a weight carried by the lower end of the weight-supporting arm, and means constraining the lower end of said weight-supporting arm for movement in an arcuate path, the center of which is displaced laterally from said weight-supporting arm whereby the weight moves in a path having a substantially greater vertical than horizontal component during movement of the carrier between said positions and whereby the weight normally holds the carrier in a position intermediate the inking and marking positions.

6. A marking machine comprising a marking die carrier movable between a marking position and an ink-receiving position, two sets of parallel links supporting said carrier for movement between said positions, a shaft to which the lower ends of one of said pairs of links is secured, an arm connected to and depending from said shaft, a weight-supporting arm pivotally connected to the lower end of the first-named arm, a weight carried by the lower end of the weight-supporting arm, means constraining the lower end of said weight-supporting arm for movement in an arcuate path, the center of which is displaced laterally from said weight-supporting arm whereby the weight moves in a path having a substantially greater vertical than horizontal component during movement of the carrier between said positions and whereby the weight normally holds the carrier in a position intermediate the inking and marking positions, said last-named means comprising a link pivotally secured to said weight-supporting arm near the lower end of the

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arm, said link normally extending substantially horizontally from said weight-supporting arm, and means pivotally supporting the other end of said link.

7. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier for said die, parallel linkage supporting said carrier for movement from a first position in which the die is in contact with said inking means into a second position in which the die is in contact with a work piece on said work support, a depending arm swingable in response to such movement of the carrier, a link pivotally connected to said arm, a weight secured to the lower end of said link and tending normally through said arm to hold the carriage in an intermediate position between its first and second-named positions, and a second arm pivotally

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connected to said link and mounted to swing about a fixed axis extending transversely of said carrier to cause the weight to be lifted from its lowermost position toward the carrier in response to the movement of the carrier in either direction from its intermediate position whereby the weight tends to return the carrier to said intermediate position with a minimum of oscillations of the carrier.

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