Feb. 1, 1955 C. M. BAGSHAW ET AL 2,700,932

MARKING MACHINE

Filed Nov. 15, 1951. 2 Sheets-Sheet 1

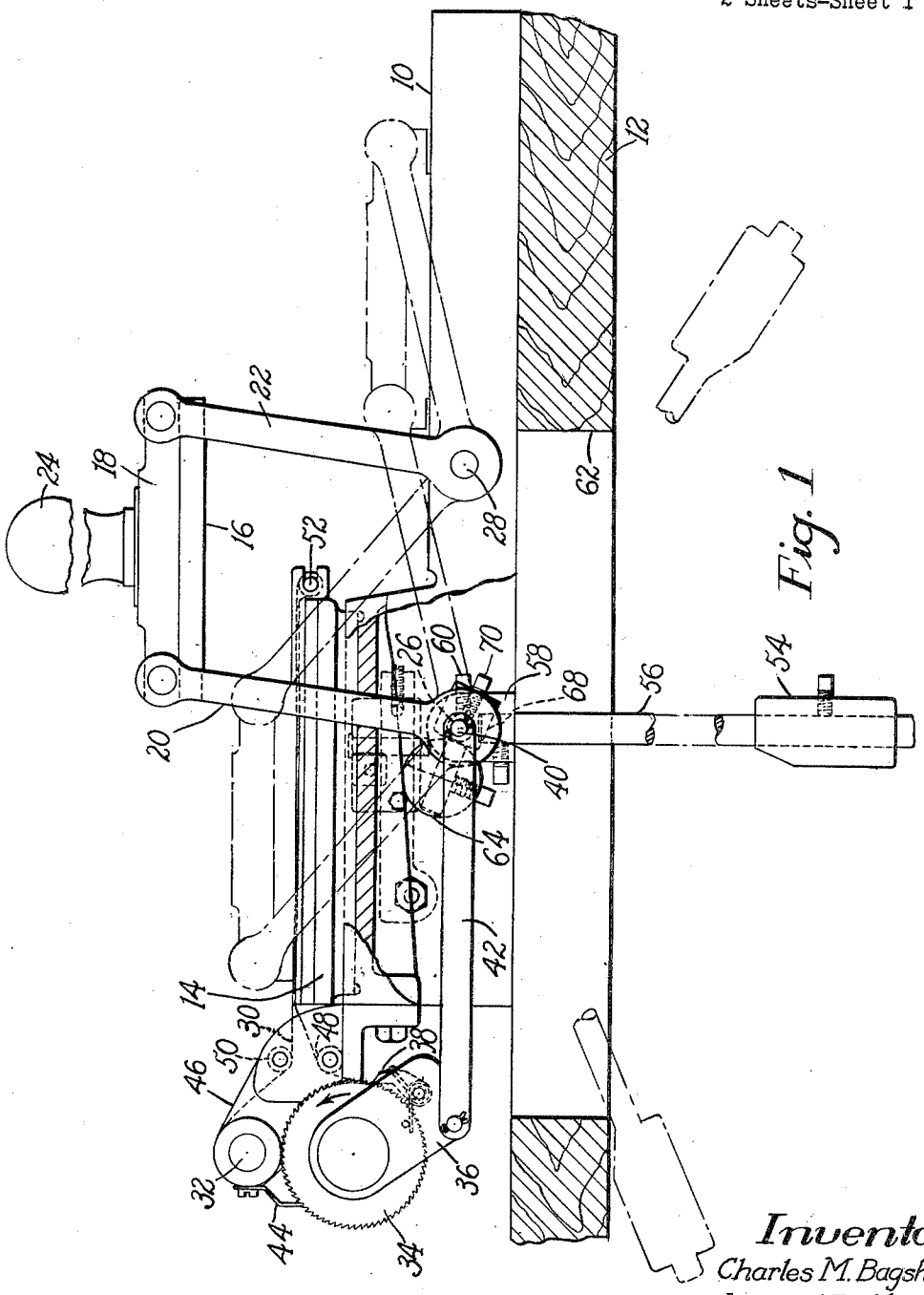


Fig. 1

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2 Sheets-Sheet 2

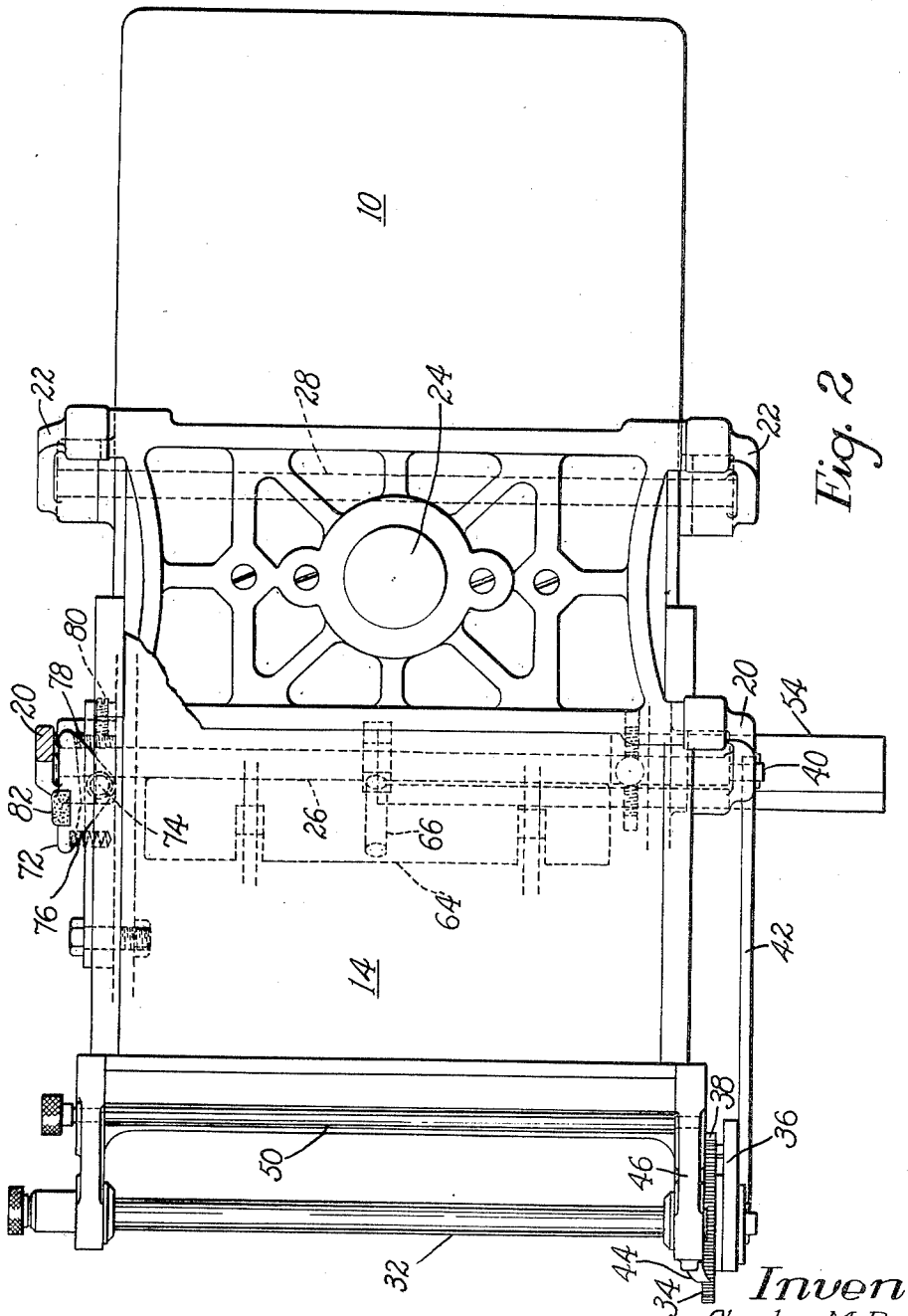


Fig. 2

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MARKING MACHINE

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6 Claims. (Cl. 101—301)

This invention relates to marking machines, and more particularly to hand operated machines of the type commonly used in shoe factories and known as stitch marking machines, although it will be understood that the invention is not limited in its application to machines of this type. Such machines are commonly employed in marking leather articles such as shoe uppers with a pattern or with guide lines for subsequent ornamental stitching and for other purposes.

Machines of the type referred to above are usually provided with 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 in contact with an inking device, to a position in which the die is in contact with a work piece on a support adjacent to the inking device, and back to an intermediate position. The die carrier is usually equipped with a handle by which it is moved in the manner aforesaid by the operator. During each cycle of operation of the machine it is necessary for the operator to move the marking die into position to receive a supply of ink and into position to mark the work and then back to the intermediate position while a marked work piece is removed from the machine and a new work piece is placed on the support. It is an object of the present invention to provide an improved, manually operated marking machine in which the effort expended by the operator is reduced while at the same time providing for an increase in the speed at which the machine may be operated, thus providing for an increased daily output of the machine.

To this end and in accordance with a feature of the invention, one or more weights are suitably connected to the parallel motion linkage and operate to move the marking die from marking position into inking position and then back to a position intermediate the work support and the inking means, there being means for automatically arresting the motion of the marking die when in this intermediate position. Accordingly it is necessary for the operator only to move the marking die during a marking operation from the intermediate position forwardly into contact with a work piece on the work support, the remaining movements of the marking die being effected by the action of the weight or weights.

The above and other features of the invention, including various details of construction and novel 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, partly in section, of one form of machine in which the invention is embodied; and

Fig. 2 is a plan view, partly in section, with certain parts omitted and others broken away, of the machine shown in Fig. 1.

The machine is illustrated as including a work support **10** which may be carried by a table **12**, and a support **14** for an inking ribbon by which ink is applied to a die **16** mounted on the underside of a carrier **18**. This carrier is supported by pairs of parallel links **20**, **22** providing a parallel motion linkage whereby the carrier may be moved, as illustrated in the broken lines in Fig. 1, from a position in which the die **16** is in a position to receive a coating of ink into a position in contact with a work piece on the support **10**. A handle

24 is connected to the carrier **18** to facilitate movement of the carrier by the operator.

The links **20**, **22** are secured to shafts **26**, **28** (Fig. 2) journaled respectively in the lower portion of the support **14** and in the work support **10**. Ink is applied to the die **16** by a coated ribbon **30** which passes around a pair of spindles one of which is illustrated at **32** (Fig. 2) and the other of which lies directly beneath it. The lower spindle has fixed to one end thereof a ratchet wheel **34**. An arm **36** is journaled on the lower spindle carrying the ratchet **34** and this arm carries a spring pressed pawl **38** arranged upon movement of the arm **36** in a counterclockwise direction to move the ratchet **34** and the spindle carried thereby in a counterclockwise direction as viewed in Fig. 1, thus moving the inking ribbon **30**. The arm **36** is oscillated by movement of the die carrier **18** so that during each marking cycle the spindle carrying the ratchet **34** is indexed a predetermined amount. For this purpose a pin **40** extends eccentrically from one end of the shaft **26** and is connected by a link **42** to the arm **36**. It will be understood that the shaft **26** oscillates during to-and-fro movements of the carrier **18** thus imparting a similar movement to the arm **36**. Retrograde movement of the ratchet wheel **34** is prevented by a spring finger **44** one end of which is secured to a bracket **46** carrying the spindle for the inking ribbon, the other end of the finger engaging the teeth of the ratchet wheel. The inking ribbon **30** is guided by pins **48**, **50** and **52** across the support **14**.

For moving the die carrier **18** from marking position to inking position upon release of the handle **24** by the operator, a weight **54** is provided. This weight is adjustably carried by a rod **56** secured to and depending from a block **58** which is in turn secured to the shaft **26** by a set screw **60**. The work table **12** is provided with an aperture **62** to accommodate swinging of the arm **56** as the die carrier **18** is moved. With the die **16** in marking position the weight **54** is swung in a clockwise direction, as viewed in Fig. 1, into the broken line position shown at the left. The energy thus stored in the weight will move the die carrier **18** into inking position upon release of the handle by the operator.

To assist the action of the weight **54** and also to maintain the die carrier in the desired position intermediate the work support and the inking ribbon support, a second weight **64** is provided. This weight is secured to a rod **66** (Fig. 2) which is carried by a block **68** (Fig. 1) secured to the shaft **26** by a set screw **70**. With the rod **56** carrying the weight **54** in a vertical position, as viewed in Fig. 1, the weight **64** maintains the die carrier **18** in the position illustrated. This position is readily adjusted by varying the position of the weight **64** along its supporting rod **66**, as well as by adjusting the angular position of the supporting block **68** about the shaft **26**.

It is desirable that the die carrier come to rest after swinging forwardly from the broken line position at the left in Fig. 1 to the full line position rather than being permitted to swing to and fro. Accordingly a one-way brake mechanism is provided which acts on one of the supporting links **20** during forward movement of the die carrier from its rearward position adjacent the support **14**, but does not interfere with rearward movement of the die carrier from its forward position adjacent to the support **10**. This brake mechanism is illustrated in Fig. 2 and comprises an arm **72** pivoted at **74** to the base **14**. The arm **72** is urged in a clockwise direction by a light spring **76** into engagement with an adjustable stop screw **78** which may be locked in adjusted position by a set screw **80**. The arm **72** carries a block **82** of rubber or other suitable material, the outer face of which is angularly disposed with respect to the path of movement of the adjacent link **20**. Upon movement of the link **20** to the left, as viewed in Fig. 1, during which time the die carrier is moving rearwardly toward the support **14**, the link **20** strikes the block **82** causing the arm **72** to move in a counterclockwise direction against the action of the spring **76** whereupon the link **20** passes beyond and out of engagement with the block **82**. However, upon forward movement of

the die carrier on movement of the link **20** to the right from its extreme left-hand position, the link engages the left end of the block **82** exerting a force tending to pivot the arm **72** in a clockwise direction. Such pivotal movement of the arm is prevented, however, by its engagement with the stop screw **78** so that the link **20** exerts a wedging action on the block **82** causing the die carrier to come to rest. The arrangement is such that after the die carrier has come to rest it can then move forwardly onto the support **10** without interference by the brake mechanism, just described, because the effectiveness of the brake mechanism depends upon the impact of the link **20** with the left end of the block **82**.

In the operation of the machine the operator grasps the handle **24**, having first placed a work piece on the support **10**, moving the die carrier and die forwardly or to the right, as viewed in Fig. 1, to impress a mark upon the work piece. During this movement the weight **54** moves upwardly toward the left and the weight **64** will move upwardly until it is substantially above the shaft **26**. By providing two weights disposed as illustrated less effort by the operator is required than if all the weight were disposed at the lower end of the rod **56**. At the beginning of the swinging of the die carrier forwardly the moment exerted by the weight **54** is at a minimum and that exerted by the weight **64** is nearly at its maximum, while at the end of the swing these conditions are reversed. Thus the force required of the operator throughout the swinging movement of the die carrier remains more nearly constant than if all the weight required to store up the necessary gravitational energy were concentrated at **54**.

After impressing the mark on the work piece the operator releases the handle **24** whereupon the die carrier is swung by the weights rearwardly with sufficient momentum to carry the die into engagement with the inking ribbon **30** after which the die again moves forwardly until the movement is arrested by the action of the brake mechanism **72, 82**. Thus it is necessary for the operator only to move the die carrier forwardly from the full line position of Fig. 1 into marking position, the remaining portion of the movement of the die carrier being effected by the action of the weights and controlled by the brake mechanism. The effort required to operate the machine is therefore minimized thereby permitting a higher production from the machine.

Having thus described our invention what we 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 mounting said carrier for movement from a position in which the die is in contact with the inking means into a position in which the die is in contact with a work piece on the support, means constantly acting on the carrier when in either one of said positions for moving it toward the other one of said positions, and means operative only in response to rapid movement of the carrier from the first-named position toward the second-named position for arresting movement of the carrier in an intermediate position.

2. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, means mounting said carrier for movement from a position in which the die is in contact with the inking means into a position in which the die is in contact with a work piece on the support, means constantly acting on the carrier when in either one of said positions for moving it toward the other one of said positions, and a one-way brake device acting on said carrier during its movement from the first-named position toward the second-named position for arresting movement of the carrier in an 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 motion linkage supporting said carrier for movement from a position in which the die is in contact with the inking means into a position in which the die is in contact with a work piece on the support, a weight connected to and depending from said parallel motion linkage, said weight being arranged to move the carrier from either of said positions toward the other, and means operative only in response to rapid movement of the carrier from the first-named position toward the second-named position for arresting movement of the carrier in an 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 motion linkage supporting said carrier for movement from a position in which the die is in contact with the inking means into a position in which the die is in contact with a work piece on the support, a weight connected to and depending from said parallel linkage, said weight being arranged to move the carrier from either of said positions toward the other, and a one-way brake device acting on said parallel motion linkage during movement of the carrier from the first-named position toward the second-named position for arresting movement of the carrier in an intermediate position.

5. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, a parallel motion linkage supporting said carrier for movement from a position in which the die is in contact with the inking means into a position in which the die is in contact with a work piece on the support, a weight connected to and depending from said parallel motion linkage, said weight being arranged to move the carrier from either of said positions toward the other, a brake acting on said parallel motion linkage during movement of the carrier, said brake comprising a block of friction material positioned for engagement by a link of said parallel motion linkage, and means mounting said block for movement away from said link during passage of the link therethrough when the carrier is moving toward the first-named position and opposing said movement during movement of the carrier toward the second-named position whereby the carrier upon moving from the first-named position toward the second-named position is stopped in an intermediate position.

6. A marking machine comprising a work support, inking means adjacent to said support, a marking die, a carrier supporting said die, a parallel motion linkage supporting said carrier for movement from a position in which the die is in contact with the inking means into a position in which the die is in contact with a work piece on the support, a weight connected to and depending from said parallel motion linkage, said weight being arranged to move the carrier from either of said positions toward the other, a brake acting on said parallel motion linkage during movement of the carrier, said brake comprising a block of friction material positioned in the path of movement of one of the links of said parallel motion linkage, said block being arranged to yield in response to engagement of said link therewith when the carrier is moving from the second-named position toward the first-named position but to act as a stop for the link in the reverse movement of the link when the carrier reaches an intermediate position between its first and second-named positions.

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