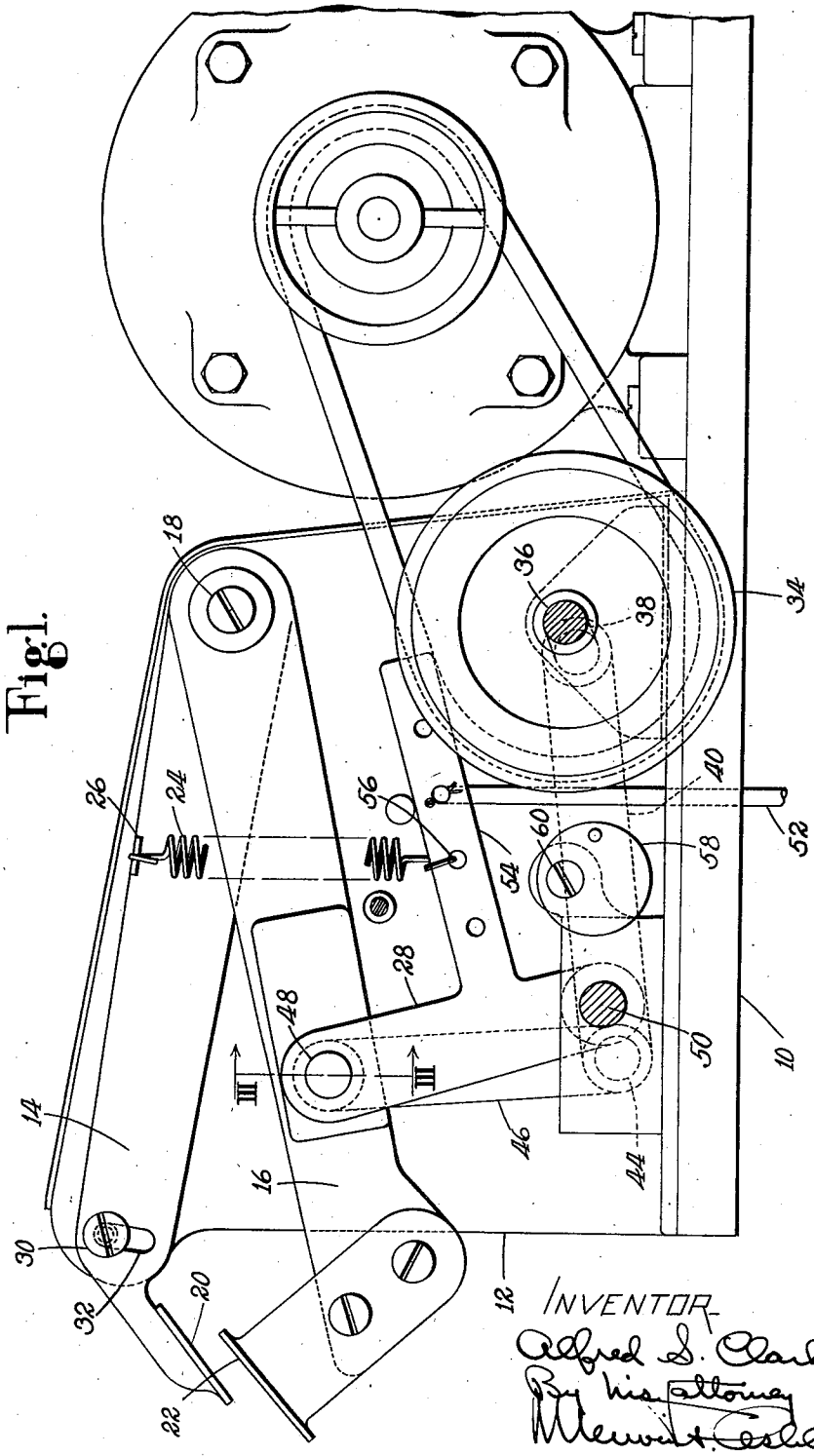
July 28, 1942. A. S. CLARK 2,290,941

SHOE MACHINE

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Fig. 1.



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Fig. 2.

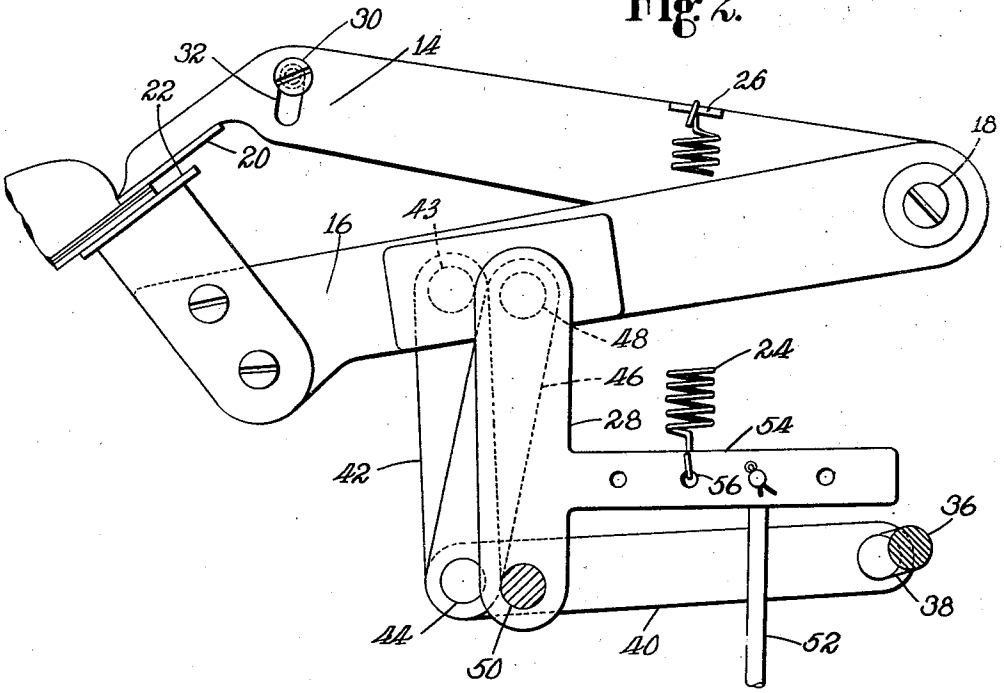
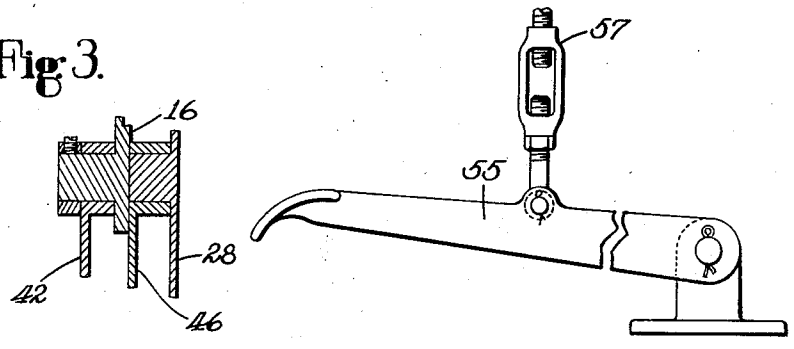


Fig. 3.



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SHOE MACHINE

Alfred S. Clark, Beverly, Mass., assignor to United Shoe Machinery Corporation, Flemington, N. J., a corporation of New Jersey

Application February 10, 1941, Serial No. 378,146

14 Claims. (Cl. 12—7)

This invention relates to shoe machines and is herein illustrated in its application to machines for lasting stitchdown shoes the uppers of which are to be secured in lasted position by cement. It is to be understood, however, that the invention is not limited in its scope to stitchdown lasting machines but is applicable to many other types of shoe machines, for example, machines for lasting prewelt shoes.

Objects of this invention are to provide a machine which will perform the operation indicated above without the use of cams or complicated clutch mechanisms and which will be simple and inexpensive to make. It is a further object of the invention to provide a machine which is quiet in operation.

With the above objects in view, the invention consists in the provision in a shoe machine of a work-engaging member and mechanism for actuating said member comprising a link pivoted thereto, a second link pivoted to the first-mentioned link, driving means for oscillating the second link, and means for moving the second link into or out of alinement with the first-mentioned link, whereby motion is imparted to the work-engaging member only when said links are out of register with each other.

Invention is also to be recognized in the provision of means for varying the amount of motion imparted to the movable work-engaging member by varying the extent to which the aforementioned links are moved away from register with each other.

The above and other features of the invention will be described with reference to the accompanying drawings and defined in the claims.

In the drawings,

Fig. 1 is a side elevation of a machine comprising the present invention;

Fig. 2 is a side elevation of the jaws and their operating mechanism, showing the jaws in operation on the toe end of a stitchdown shoe; and

Fig. 3 is a section taken on the line III—III of Fig. 1.

The illustrated machine comprises a base 10 upon which is secured a frame 12 which supports the work-engaging members and the driving mechanism hereinafter described. The work-engaging members are herein illustrated as upper and lower jaws 14 and 16 which are fulcrumed at 18 on the frame 12 and have smooth and flat work-engaging surfaces 20 and 22 arranged at a forward and downward inclination and parallel when in their work-engaging position as illustrated in Fig. 2. In the operation of the machine, the work-engaging surface 20 engages the outturned lasting margin of an upper while the work-engaging surface 22 acts on the bottom of the sole to press the latter upwardly against the upper. A system of links hereinafter described, operates to oscillate the lower jaw 16 toward and away from the upper jaw 14. Since the lower jaw 16 is positively driven, it will be understood that if a fixed upper jaw were used, the pressure applied to the upper might well be injurious. To obviate the application of undue pressure to the upper and to enable the machine to operate, without adjustment, on work of varying thickness, the upper jaw 14 is mounted to swing about its fulcrum 18. To insure that a definite and adequate amount of pressure will be applied to the work, a spring 24 of suitable strength is secured to an ear 26 on the upper jaw and anchored to a treadle-operated lever 28. To limit the downward motion of the upper jaw 14 under the action of the spring 24 so that the jaws may be maintained at a spaced relation for the introduction of a shoe when the lower jaw 16 is at the lower limit of its travel, a pin 30 on the frame 12 is arranged to extend through a slot 32 in the upper jaw 14.

For operating the lower jaw 16 a motor driven pulley 34 is mounted on a shaft 36 having at one end a crank 38 which is connected by a pitman 40 to the lower end of a link 42 the upper end of which is pivoted to said jaw at 43. The link 42 is reciprocated vertically by the combined action of the pitman 40 and a second link 46 which is oscillated by the pitman 40 about a movable fulcrum 48 at its free end, said oscillating link having a common fulcrum 44 on the pitman with the reciprocating link 42. As herein illustrated, the movable fulcrum of the oscillating link is its pivotal connection to the lever 28 which is pivoted to the frame at 50. A treadle rod 52 pivoted to a horizontal extension 54 of the lever 28 is actuated by the treadle 55 and provides a means for swinging the lever toward and away from a position in which the upper ends of the reciprocating and oscillating links are in register with each other, the movable fulcrum 48 and the pivotal connection of the reciprocating link and the work-engaging member being in alinement with each other at this time. It will be understood that when the reciprocating link 42 and the oscillating link 46 are in register, as shown in Fig. 1, they will be swung idly about the fulcrum 48 by the pitman and no motion will be imparted thereby to the

lower jaw 16. When the fulcrum 48 is swung by the lever 28 into a position such that the free end of the oscillating link 46 is out of register with the upper end of the reciprocating link 42, the first-mentioned link will be oscillated by the pitman about the fulcrum point 48 and the reciprocating link 42 will thereby be caused to operate the lower jaw 16. Thus, the lever 28 functions as a starting-and-stopping member since it operates to move the oscillating link 44 into or out of register with the reciprocating link thus putting the jaw 16 into or out of operation. It will also be understood that the magnitude of the motion imparted to the lower jaw 16 by the pitman 40 depends upon the extent of the displacement of the upper ends of the reciprocating and oscillating links away from each other. Thus the magnitude of such motion may be regulated to compensate to some extent for varying thicknesses of shoe parts by varying the extent of movement of the lever 28. Inasmuch as it is difficult for an operator to regulate the extent of downward motion of the treadle 55 by the motion of his foot, it has been found convenient to provide means, herein illustrated as a turnbuckle 57, for varying the length of the treadle rod 52 thereby to vary the movement of the lever 28 produced when the treadle is pressed all the way down.

Since the motor is preferably run continuously and the jaws must be stopped for the purpose of introducing a shoe to be operated upon, it is necessary to provide means for normally holding the upper ends of the reciprocating and oscillating links in register with each other. Accordingly, the lower end of the spring 24 is secured to the horizontal extension 54 of the lever 28 at 56 and thus acts not only to hold the upper jaw 14 at the lower limit of its travel as defined by the pin 30 and the slot 32 but also to hold the lever 28 in such a position that the upper ends of the reciprocating and oscillating links are in register with each other. It will be understood that the jaws 14 and 16 are normally inoperative and that motion is imparted to the lower jaw 16 only when the lever 28 is moved away from its normal position. To insure against accidental operation of the jaws when no work is being done but while the motor is running, a stop 58 pivoted to the frame on the screw 60 is constructed and arranged to be swung into place with its edge surface in contact with the horizontal extension 54 of the lever 28 thereby to lock the latter in such a position that the upper ends of the reciprocating and oscillating links are in register with each other and no motion is imparted to the work-engaging members.

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

1. In a shoe machine, a work-engaging member, a link pivoted to said work-engaging member, a second link pivoted to the first-mentioned link, driving means for oscillating said second link, and means for moving said second link into or out of register with the first-mentioned link.

2. In a shoe machine, a work-engaging member, a link pivoted to said work-engaging member, a second link pivoted to the first-mentioned link and having a free end, driving means for oscillating said second link about its free end, and means for moving the free end of said second link into or out of register with the first-mentioned link.

3. In a shoe machine, a work-engaging member movable in a fixed path, a link pivoted at one end to said work-engaging member, a second link pivoted at one end to the other end of said first link, driving means for oscillating said second link about its other end, and means for moving said other end of said second link into or out of register with said one end of said first link.

4. In a shoe machine, a work-engaging member movable in a fixed path, a reciprocating member, a pair of links having a common fulcrum on said reciprocating member, one of said links being swung by the reciprocating member about a pivot on said work-engaging member while the other is swung by said reciprocating member about a movable fulcrum point which is in alinement with the pivotal connection of the first-mentioned link when the work-engaging member is at rest.

5. In a machine for operating upon shoes, a work-engaging member movable in a fixed path, a reciprocating member, a pair of links pivoted at a common point to said reciprocating member, both of said links being swung by the reciprocating member, one about a fulcrum point on said work-engaging member and the other about a movable fulcrum point, and means for swinging said movable fulcrum point into or out of alinement with the pivotal connection of the first-mentioned link to said work-engaging member.

6. In a machine for operating upon shoes, a frame, a lever pivoted to said frame, a work-engaging member, a pitman, a reciprocating link, and an oscillating link, said links having a common fulcrum on said pitman, said reciprocating link being swung by the pitman about a fulcrum point on said work-engaging member while the oscillating link is swung by the pitman about a fulcrum point on said lever, and means for moving the lever whereby the last-mentioned fulcrum point is moved into or out of alinement with the pivotal connection of the reciprocating link to the work-engaging member.

7. In a machine for operating upon shoes, a frame, a movable work-engaging member pivoted to said frame, a link pivoted at one end to said work-engaging member, a second link pivoted at one end to the other end of said first link, driving means for oscillating said second link about its other end, means for moving said other end of said second link into or out of register with said one end of said first link, and means normally operating to maintain said ends of said links in register with each other.

8. In a machine for operating upon shoes, a work-engaging member movable in a fixed path, a reciprocating member, a pair of links pivoted at a common point to said reciprocating member, one of said links being swung by the reciprocating member about a fulcrum point on said work-engaging member and the other of said links being swung by the reciprocating member about a movable fulcrum point, and means normally operating to hold said movable fulcrum point in alinement with the pivotal connection of the first-mentioned link to said work-engaging member.

9. In a shoe machine, a work-engaging member movable in a fixed path, a pitman, a reciprocating link, an oscillating link, said links having a common fulcrum on said pitman, the reciprocating link being swung about a pivot on said work-engaging member while the oscillating link is swung by the pitman about a movable fulcrum point which is in alinement with the pivotal connection of the reciprocating link to

the work-engaging member when said member is at rest, and means for swinging said oscillating link about its pivotal connection with the pitman to move said movable fulcrum point in a fixed path from its position of alinement with the pivotal connection of the reciprocating link to the work-engaging member thereby to cause the pitman to impart movement to said work-engaging member.

10. In a shoe machine, a work-engaging member movable in a fixed path, a pitman, a reciprocating link, an oscillating link, said links having a common fulcrum on said pitman, both said links being swung by said pitman, the reciprocating link about a pivot on said work-engaging member, the oscillating link about a movable fulcrum point which is in alinement with the pivotal connection of the reciprocating link to the work-engaging member when the work-engaging member is at rest, means for swinging said oscillating link about its pivotal connection with the pitman to move said movable fulcrum point in a fixed path from its position of alinement with the pivotal connection of the reciprocating link to the work-engaging member whereby the pitman is caused to impart motion to said work-engaging member, and means for locking said movable fulcrum point in alinement with said pivotal connection thereby to cause the work-engaging member to remain stationary.

11. In a machine for operating upon shoes, a frame, a pair of work-engaging members constructed and arranged to cooperate with each other, one of said work-engaging members being yieldably mounted on said frame, the other of said work-engaging members being pivoted to said frame, a link pivoted at one end to said other work-engaging member, a second link pivoted at one end to the other end of said first link, means for oscillating said second link about its other end, and means for moving said other end of said second link into or out of register with said one end of said first link whereby motion is imparted to said work-engaging member only when said ends of said links are out of register with each other.

12. In a machine for lasting stitchdown shoes, a frame, a continuously reciprocated driven member, an upper jaw yieldably mounted upon said frame, a lower jaw pivoted to said frame and constructed and arranged to cooperate with said upper jaw and means for urging said lower jaw toward and away from said upper jaw comprising a pair of links pivoted on a common fulcrum on said driven member, one of said links being pivoted at its other end to said lower jaw, and means pivoted to the other end of the other of said links for moving said links into or out of register with each other whereby motion is transmitted to said lower jaw from said driven member only when said links are out of alinement with each other.

13. In a shoe machine, a work-engaging member movable in a fixed path, a pitman, a pair of links having a common fulcrum on said pitman, one of said links being swung about a pivot on said work-engaging member while the other is swung by said pitman about a movable fulcrum point, and means for swinging the last-mentioned link to move said movable fulcrum point to a variable extent along a fixed path from a position in which said movable fulcrum is in alinement with the pivotal connection of the first-mentioned link with the work-engaging member.

14. In a shoe machine, a work-engaging member movable in a fixed path, a link pivoted at one end to said work-engaging member, a second link one end of which is pivoted to said first link and the other end of which is free, means for oscillating said second link about its free end, means comprising a treadle-operated lever connected to the free end of said second link for moving the latter into or out of register with said first link, and means for varying the extent of the motion produced by said treadle-operated lever.

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