

J. E. REID.
SOLE EDGE MOLDING MACHINE.
APPLICATION FILED JAN. 26, 1911.

1,059,394.

Patented Apr. 22, 1913.

Fig. 1.

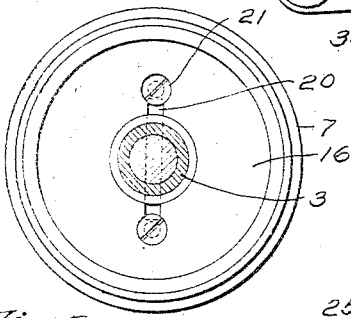
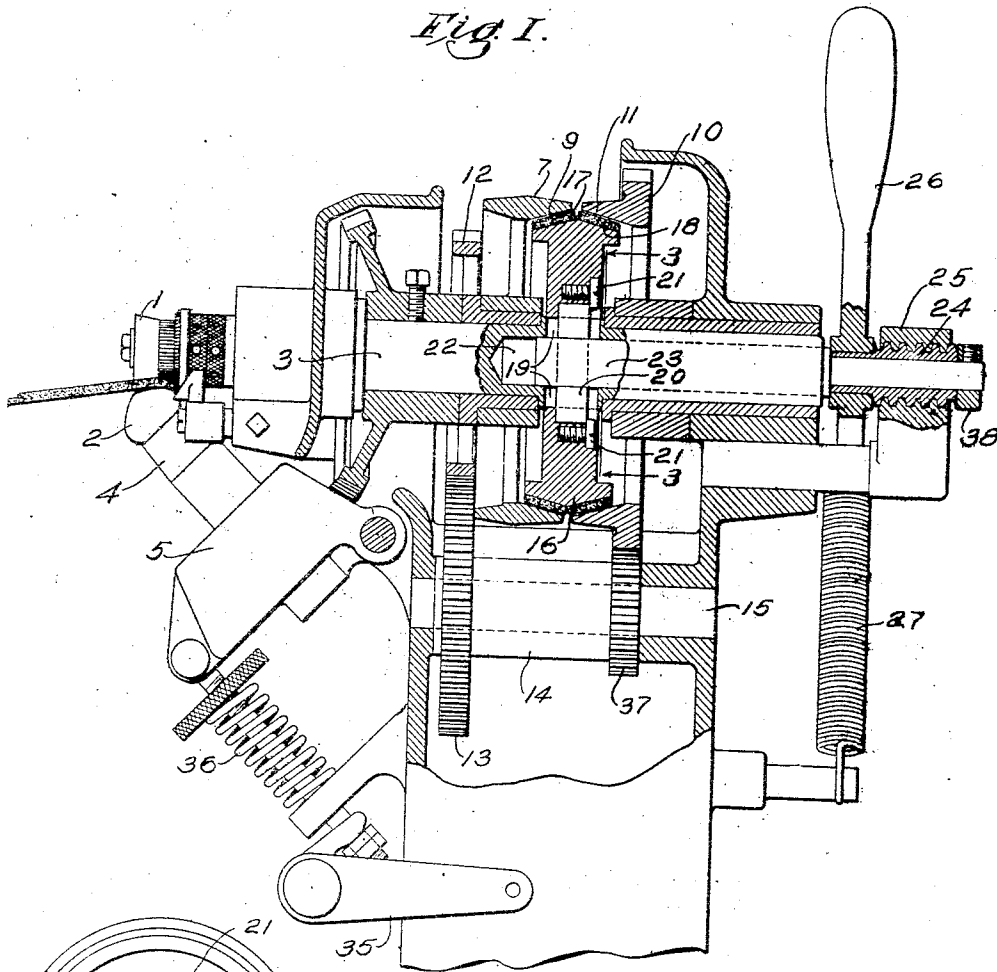


Fig. 3.

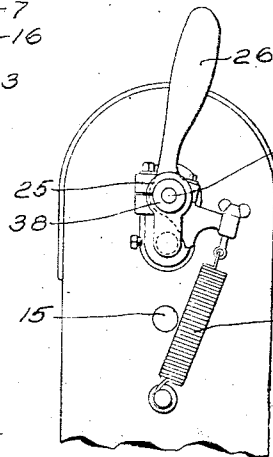


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SOLE-EDGE-MOLDING MACHINE.

1,059,394.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed January 26, 1911. Serial No. 604,881.

To all whom it may concern:

Be it known that I, JOSIAH E. REID, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Edge-Molding Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to sole edge molding machines, and especially to an improvement in the driving mechanism for such machines.

In molding the edge of the sole of a shoe, the molding machine may be run at high speed along comparatively straight portions of the sole. When, however, the machine is running at high speed, and the molding rolls are operating around the toe or any sharp curve in the contour of the sole, the rolls often run off the edge of the sole and it is necessary to stop the machine in order to again insert the sole between the rolls. This operation consumes considerable time. It is therefore desirable that the driving mechanism for such machines should be so constructed and arranged that the speed may be quickly changed from high to low when the rolls arrive at a sharp curve in the sole, and that the normal high speed may be resumed when the rolls again arrive at a comparatively straight portion of the sole.

The object of the present invention is to provide a sole edge molding machine comprising a change speed driving mechanism by which the speed may be quickly changed from high to low or from low to high at the will of the operator at any desired point of the work.

With the above object in view, my invention consists in general of a sole molding machine provided with a high speed driving member, a low speed driving member, and mechanism under the control of the operator for connecting either of said members alternatively with one of the molding roll shafts.

A feature of my invention contemplates the provision of mechanism by which the said shaft is normally held in connection with the high speed driving member.

Other features of the invention consist of certain improved constructions, combina-

tions and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

In the accompanying drawings; Figure 1 represents a side elevation of a sole molding machine embodying my invention in its preferred form, certain parts thereof being shown in vertical section; Fig. 2 is an end elevation thereof on a reduced scale; Fig. 3 is a sectional view taken on the line 3-3 of Fig. 1.

In the drawings, 1 and 2 indicate the sole edge molding rolls. The roll 1 is mounted on a shaft 3 journaled in the frame and connected by suitable gearing with the shaft 4, to which the edge molding roll 2 is secured. To permit the roll 2 to move toward and from the roll 1 to accommodate itself to variations in the thickness of the work, and to allow the work to be introduced between the rolls, the shaft 4 is mounted in a pivoted hanger 5 and the roll 2 is yieldingly pressed toward the roll 1 by a compression spring 36 acting on said hanger. Manually operable mechanism is provided to move the roll 2 away from the roll 1 consisting of a bell crank lever 35, one arm of which is connected with said hanger and the other arm is attached to a treadle, not shown.

The driving mechanism comprises a high speed driving pulley 7 loosely mounted on the shaft 3, said pulley being connected with any suitable source of power. This pulley has a clutch face 9 and is adapted to be directly connected with the shaft 3 by means of a clutch member hereinafter described, to operate the molding rolls at high speed.

10 indicates a low speed driving member loosely journaled on a sleeve surrounding the shaft 3, and said member is also provided with a clutch face 11 oppositely disposed to the clutch face of the pulley 7. The low speed member 10 is preferably driven from the driving pulley by means of a train of speed reducing gears consisting of a gear 12 rigidly attached to the pulley 7, a gear 13 meshing therewith and secured to a sleeve 14 journaled on a stud shaft 15, and a gear 37 also secured to said sleeve and meshing with radially projecting gear teeth on the member 10. The relative sizes of the gears 12, 13 and 37 and of the member 10 are such that the member 10 is rotated at a

speed considerably less than that of the pulley 7.

In order to connect the shaft 3 with either the high speed pulley 7 or with the low speed member 10, I provide a clutch member 16 mounted on an enlargement of the shaft 3 so as to rotate with said shaft. This clutch member is keyed to said shaft and is slidable axially thereon and is provided with clutch faces 17 and 18 that are adapted to cooperate alternatively with the clutch faces of pulley 7 and the member 10. The invention in its illustrated form comprises manually operable means to move the clutch member 16 axially of the shaft 3 to bring the clutch faces thereof alternatively into engagement with the clutch faces of the pulley 7 and the member 10. To this end, the shaft 3 is provided with a central bore 22, which receives a rod 23 in a slot in which is tightly fitted a key 20. The extremities of this key extend outwardly through oppositely disposed radial slots 19 in the shaft 3, are received in recesses in the clutch member 16 and are held therein by means of screws 21. The slots 19 are of greater width than the key 20 to permit movement of the clutch member axially of the shaft 3.

In order to move the rod 20 and the clutch member therewith axially of the shaft, a screw threaded sleeve 24 is loosely mounted on a reduced portion of the rod 23 and is held thereon by means of a collar 38. The threaded portion of this sleeve engages a fixed nut 25, and a hand lever 26 is secured to said sleeve to provide for manual rotation of the sleeve to move the rod 20 axially. In order to hold the clutch member 16 normally in contact with the high speed pulley 7, a spring 27 is adjustably attached at one end to a projection formed on the lever 26 and at the other to the frame of the machine.

In the operation of the sole molding machine above described, the clutch member is normally held in engagement with the high speed pulley 7 by the spring 27. The sole molding rolls are thereby rotated at high speed when operating upon comparatively straight portions of the sole. When the rolls arrive at the toe or any sharp turn in the contour of the sole, the operative grasps the hand lever and pulls the same forward against the action of the spring, thereby rotating the sleeve and shifting the clutch member into engagement with the low speed gear member. When the rolls pass the point of abrupt curvature, the hand lever is released and the spring acts to shift the clutch member again into engagement with the pulley 7 and the machine resumes its normal high speed.

In case it is desired to stop the operation of the machine, the hand lever is pulled forward a sufficient distance to throw the clutch member out of engagement with the pulley 7

but not far enough to shift said clutch member into engagement with the low speed member.

The above described speed changing mechanism is compact in its arrangement, convenient to operate, and is so constructed and arranged that it may be applied to a sole molding machine without necessitating radical changes in the fundamental structure of such machine.

While it is preferred to employ the specific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential except so far as specified in the claims, and may be changed or modified without departing from the invention.

Having explained the nature and object of the invention and specifically described one construction in which it may be embodied, what I claim is:—

1. A sole molding machine, having, in combination, a molding roll, a shaft upon which said roll is mounted, fixed bearings for the shaft, a second molding roll cooperating with the first roll, a second shaft upon which the second roll is mounted arranged at an angle to the first shaft, gearing connecting the shafts, change speed driving mechanism for said shafts comprising high and low speed friction clutch members mounted to rotate loosely about said first shaft and arranged between the bearings of the first shaft, a third friction clutch member mounted on the first shaft to rotate therewith and movable axially of the shaft, and means under control of the operator to move the third clutch member axially of the shaft into engagement alternatively with either the high speed or the low speed clutch member.

2. A sole molding machine, having, in combination, a molding roll, a shaft upon which said roll is mounted, fixed bearings for the shaft, a second molding roll cooperating with the first roll, a second shaft upon which the second roll is mounted arranged at an angle to the first shaft, gearing connecting the shafts, change speed driving mechanism for the shafts comprising high and low speed friction clutch members mounted to rotate loosely about said first shaft and arranged between the bearings of the first shaft, a third friction clutch member mounted on the first shaft to rotate therewith and movable axially of said shaft, means for normally maintaining the third clutch member in engagement with the high speed clutch member to operate the machine normally at high speed, and means for disengaging the third clutch member from the high speed clutch member and engaging it with the low speed clutch member to drive the machine at low speed when operating about sharply curved portions of the sole.

3. A sole molding machine having, in combination, a molding roll, a shaft upon which said molding roll is mounted, a second molding roll, a second shaft upon which said second roll is mounted, a high speed driving member loosely journaled on said first shaft, a low speed driving member also journaled on said first shaft, a member mounted on said first shaft to rotate therewith and movable axially thereof to engage alternatively said high speed or said low speed member, mechanism extending through the shaft and connected with said last member for moving said last member axially of the shaft.
- 15 4. A sole molding machine having, in combination, a molding roll, a shaft provided with a radial slot and a central bore, on which shaft said roll is mounted, a second molding roll, a second shaft upon which said second roll is mounted, a high speed driving member loosely journaled on said first shaft, a low speed driving member also loosely journaled on said first shaft, a member mounted on said first shaft to rotate therewith and movable axially thereof to engage alternatively said high speed member or said low speed member, means to move said last member axially of said shaft comprising a rod arranged in the central bore of said shaft, a key carried by said rod, passing through said slot and engaging said last member, a screw threaded sleeve mounted on said rod, a fixed nut with which said sleeve engages, and manually operable means to rotate said sleeve.
- 20 25 30

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."