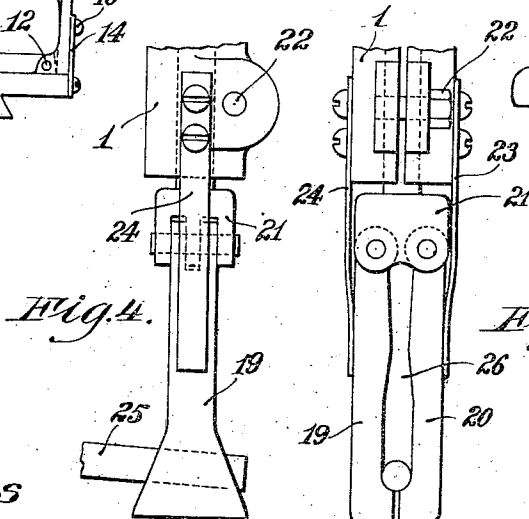
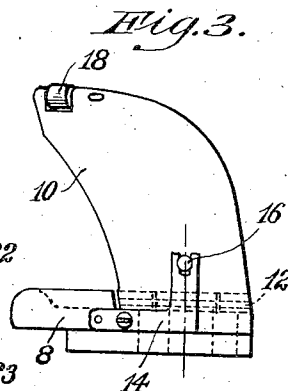
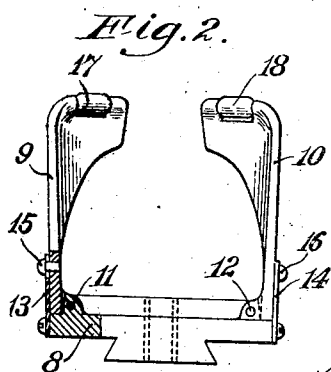
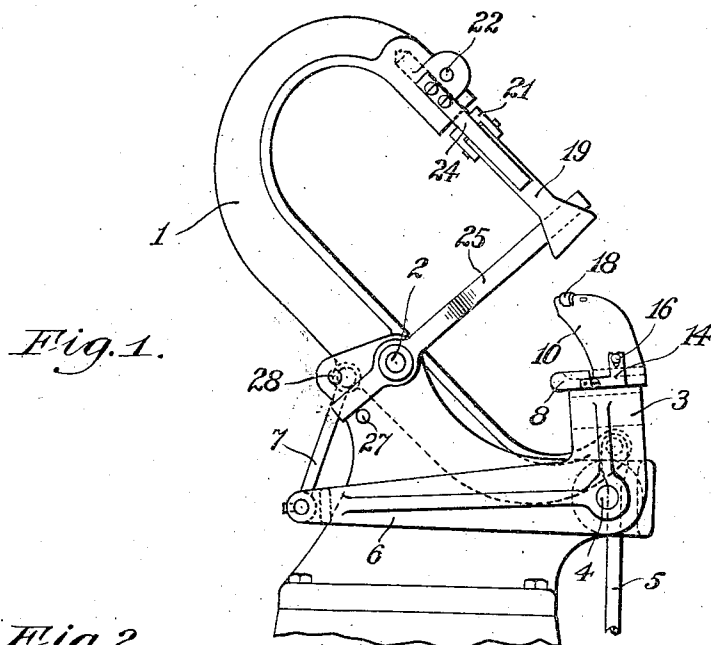


B. F. MAYO.  
SHOE TURNING MACHINE.  
APPLICATION FILED NOV. 30, 1906.

935,765.

Patented Oct. 5, 1909.



Witnesses

E. Wurdeman  
A. C. Richardson.

Inventor

Benjamin F. Mayo  
by his Attorneys  
Phillips Van Coven & Fish

# UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## SHOE-TURNING MACHINE.

935,765.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed November 30, 1906. Serial No. 345,681.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. MAYO, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Shoe-Turning 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.

The present invention relates to shoe turning machines and more particularly to machines, adapted to turn the rear or counter portion of a shoe, which comprise a cup-shaped form over which the shoe is turned and a plunger for forcing the shoe into the form.

The object of the present invention is to provide a shoe turning machine of the class above referred to which will subject the upper of the shoe to less strain during the turning operation than machines of this class which have heretofore been devised.

With the above object in view a feature of the present invention contemplates the provision, in a machine for turning the rear or counter portion of a shoe, of a form over which the shoe is turned having a portion of its wall movable with relation to the other portions during the turning operation so as to vary the size of the opening in the form through which the plunger operates.

Broadly considered the invention contemplates so constructing the form that any or all portions of the wall are movable with relation to the other portions so as to vary the size of the opening in the form during the turning operation. To distribute the strain equally upon the upper, however, it is preferred to so construct the form that the side walls are movable inwardly toward each other during the turning operation and in the best form of the invention which has yet been devised this is accomplished by pivotally mounting the side walls of the form upon the base of the form.

On account of the reduction in size of the form during the turning operation a plunger is necessarily used which is somewhat smaller than would otherwise be employed, in actual practice the plunger having a work engaging face of less width than the heel seat of the sole of the shoe being operated upon. It is desirable that the heel seat of the shoe sole

be pressed out flat at the completion of the turning operation, and to enable this to be done a plunger is preferably provided so constructed that it can be expanded during the turning operation. The combination of an expansible plunger with a form having a portion of its wall movable with relation to the other portion to reduce the size of the opening in the form is considered to constitute a feature of the present invention. An expansible plunger which forces the heel portion of a shoe into a form to turn the shoe is also considered to be new and to constitute a feature of the present invention whether or not the wall of the form is provided with movable portions.

In addition to the features above referred to the present invention also consists in certain devices, arrangements and combination of parts hereinafter described and claimed the advantages of which will be obvious to those skilled in the art from the following description.

The several features of the present invention will be clearly understood from an inspection of the accompanying drawing in which—

Figure 1 is a view in side elevation of a shoe turning machine embodying the same in their preferred form. Fig. 2 is a view in front elevation partly in section of the shoe turning form illustrated in Fig. 1. Fig. 3 is a view in side elevation of the form. Fig. 4 is a view in side elevation of the plunger together with a portion of its support and a portion of the mechanism for expanding the plunger; and Fig. 5 is a view in front elevation of the parts illustrated in Fig. 4.

In the machine illustrated in Fig. 1 the mechanisms for moving the plunger into and out of the form and for supporting and actuating the form are constructed and arranged to operate as in a well known shoe turning machine, the plunger being mounted in the overhanging arm of a lever 1 pivoted at 2 upon the frame of the machine and the form being mounted upon a carrier 3 pivotally mounted at 4 upon the frame of the machine. The lever 1 is connected by means of a rod 5 to a foot treadle, and the carrier 3 is provided with a rearwardly extending arm 6 which is connected by means of a link 7 to the lever 1, the construction being such that a depression of the treadle moves the plunger downwardly through the opening in the

upper portion of the form and simultaneously moves the form toward the plunger.

The improved form illustrated in the drawing comprises a base portion 8, of substantially the same shape as the base portion of the form which has heretofore been employed in this class of machines, and two side walls 9 and 10. These side walls, instead of being rigid with the base, as in prior constructions, are pivotally mounted at 11 and 12 upon the base so that they are capable of swinging inwardly toward each other. The base is recessed, as best shown in Fig. 2, to receive the lower ends of the side walls, and the outward movement of the walls is limited by the engagement of the lower ends of the walls with these recesses. The side walls are normally held in their extreme outward position by means of leaf springs 13 and 14, secured to the sides of the base and provided with slots engaging pins 15 and 16 projecting from the side walls. At their upper edges the side walls may be provided with small rolls 17 and 18 to reduce the friction upon the shoe upper during the turning operation.

In the operation of the machine the shoe is placed upon the form while the plunger is raised, the side walls of the form being in the position indicated in Fig. 2. As the plunger descends and forces the heel seat of the sole down into the form the pressure exerted by the upper upon the form swings the side walls of the form inwardly and thereby permits the shoe to be turned without bringing an injurious strain upon the upper as will be obvious without further explanation.

The improved plunger illustrated in the drawing comprises two portions 19 and 20, which are pivotally mounted at their upper ends to a block 21 so as to be capable of swinging toward and from each other in a direction transverse to the sole of the shoe being operated upon. The block 21 is secured by means of a split clamp and clamping bolt 22 in the overhanging arm of the lever 1. When the plunger is in its raised position the two parts of the plunger are in the position indicated in Fig. 5, being held in this position by leaf springs 23 and 24 secured to the lever 1 and bearing at their lower ends against the outer sides of the plunger. After the work-engaging surface of the plunger passes below the upper edge of the side walls of the form during the turning operation, the plunger is expanded laterally, that is, in a direction transverse of the sole of the shoe being operated upon, so that the heel seat of the sole is pressed out flat upon the base of the form. To accomplish this result a rod 25 is provided which is pivoted at 2 upon the frame of the machine and extends at its forward end through a slot 26 formed by cutting away the inner adjacent surfaces of the portions 19 and 20 of the plunger.

The side walls of this slot are so shaped, as indicated in Fig. 5, that the plunger is expanded during its downward stroke after it has entered the form, and is contracted during its upward movement before the work-engaging surface of the plunger is entirely removed from the form. To cause the form to be expanded and contracted at the proper times during the upward and downward movements of the plunger the rod 25 is permitted to move with the plunger during a portion of its movements in both directions. The movements of the rod 25 are stopped by pins 27 and 28 projecting from the machine frame on opposite sides of the rear end of the rod.

The nature and scope of the present invention having been indicated and a machine embodying the various features of the present invention in their preferred form having been specifically described, what is claimed is:—

1. A machine for turning the rear or counter portion of a shoe, having, in combination, a form over which the shoe is turned having a portion of its wall movable with relation to the other portions to vary the opening of the form during the turning operation, and a plunger cooperating with the form to turn the shoe.

2. A machine for turning the rear or counter portion of a shoe, having, in combination, a form over which the shoe is turned provided with side walls movable to reduce the opening of the form during the turning operation, and a plunger cooperating with the form to turn the shoe.

3. A machine for turning the rear or counter portion of a shoe, having, in combination, a form over which the shoe is turned comprising a base and side walls pivoted to the base so as to move inwardly and reduce the opening of the form during the turning operation, and a plunger cooperating with the form to turn the shoe.

4. A machine for turning the rear or counter portion of a shoe, having, in combination, a form over which the shoe is turned, having a portion of its wall movable with relation to the other portions to reduce the opening of the form during the turning operation, and an expansible plunger cooperating with the form to turn the shoe, and means for expanding the plunger during the turning operation.

5. A machine for turning the rear or counter portion of a shoe, having, in combination, a form over which the shoe is turned provided with side walls movable to reduce the opening of the form during the turning operation, a plunger cooperating with the form to turn the shoe expansible laterally in opposite directions, and means to expand the plunger during the turning operation.

6. A machine for turning the rear or counter portion of a shoe, having, in combination, a form over which the shoe is turned, having a portion of its wall movable  
5 with relation to the other portions to reduce the opening of the form during the turning operation, and an expansible plunger co-operating with the form to turn the shoe.

7. A machine for turning the rear or  
10 counter portion of a shoe having, in combination, a form over which the shoe is

turned, an expansible plunger to engage the heel portion of the shoe sole and force the shoe into the form to turn the shoe, and means for expanding the plunger during the  
15 turning operation.

In testimony whereof I affix my signature, in presence of two witnesses.

BENJAMIN F. MAYO.

Witnesses:

FRED O. FISH,  
FARNUM F. DORSEY.