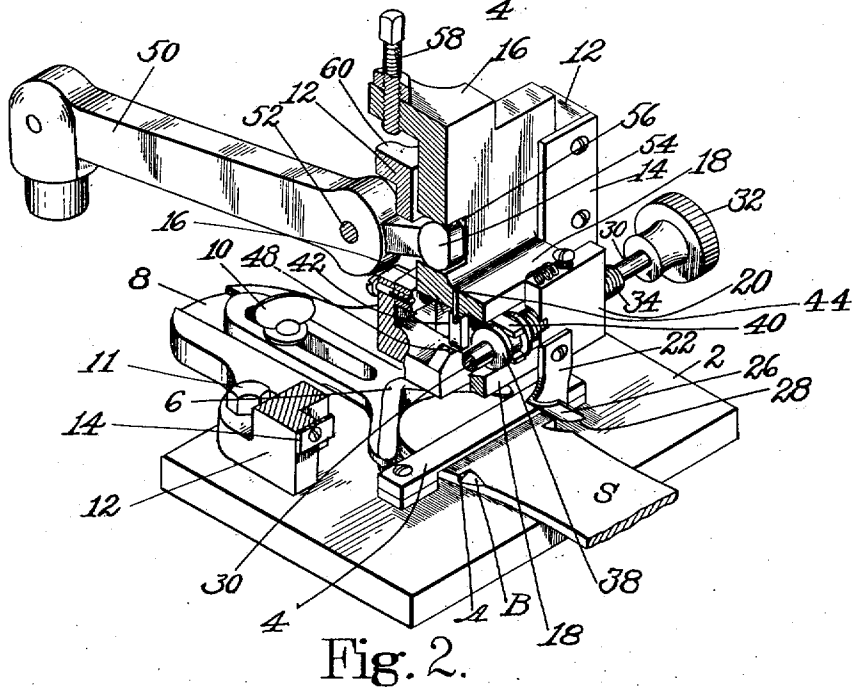
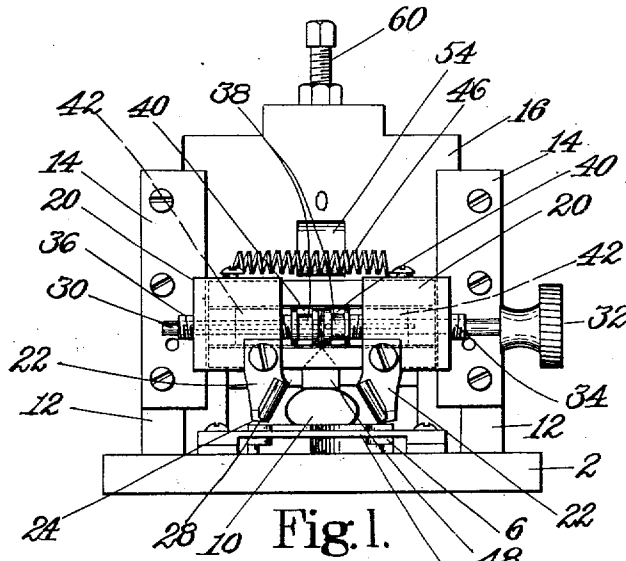


P. FUNCK.
SOLE CUTTING MACHINE.
APPLICATION FILED MAY 5, 1908.

1,017,744.

Patented Feb. 20, 1912.



WITNESSES.

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SOLE-CUTTING MACHINE.

1,017,744.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PHILIPP FUNCK, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Sole-Cutting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

The present invention relates to machines for cutting soles and is intended primarily for use in operating upon soles for turn shoes although the machine illustrated is capable of performing other work.

In some turn shoes, especially in small sizes, no separate heel is attached to the shoe, but the face of the sole constitutes the tread surface of the shoe not only at the forepart but also at the rear part. It is the practice in the manufacture of such shoes to prepare the sole for the sewing of the upper thereto by cutting an inclined slit or channel along that surface of the sole which is to be uppermost in the finished shoe at a distance from its edge and also by cutting out material at the upper portion of the edge of the sole to form a rabbet or shoulder into which the upper is drawn as it is being sewn to the shoe. Frequently it is preferred to form this shoulder around the forepart and shank of the sole but not around the heel. When this shoulder is cut or formed upon the usual "channeling" machine, however, it is not possible to produce a square shoulder at the ends of the cut transverse to the line of cut and therefore the cut commonly tapers outwardly at its ends to the edge of the sole with the result that the ends of the cut at opposite edges of the sole do not usually correspond with each other, being at different distances from the heel end of the sole. By cutting out, before the "channeling" operation, a small piece of material, preferably approximately pyramidal in shape, from opposite edges of the sole, the pieces being cut out from the upper side of the sole and being located with their bases at about the distance from the rear end of the sole at which the breast of the heel would come, if a heel were used, a "heel effect" may be given to the shoe

since the edge of the sole will be considerably thicker in the rear of the base of the cut than forward of it. The preliminary cuts thus made will serve, moreover, as guides for the operator of the channeling machine so that the shoulder knife may be caused to commence and to cease cutting at the proper points. Before the upper has been sewed to the sole, or preferably after such sewing and after the shoe has been turned, the edge of the sole may be forced upward just forward of the base of these cuts so that the shoe will appear to be provided with a low heel.

A principal object of the present invention is to produce a machine which can be operated to cut out pieces of material, preferably approximately pyramidal in shape, rapidly and accurately from opposite edges of a sole. In order to make a clean cut it is considered desirable to provide cutters each of which has cutting edges acting along the entire surfaces which separate the piece to be cut out from the remainder of the sole.

Accordingly, the present invention comprises a machine provided with means for supporting a sole and cutting mechanism which is constructed and arranged when suitably actuated to cut out pieces of material from opposite edges of the sole. Preferably the cutting mechanism includes a pair of cutters each having angularly disposed cutting edges, one of which acts transversely of the sole to form the base of a pyramidal piece cut out while the other edge is located approximately at right angles to the first edge and separates the side of the pyramidal piece from the remainder of the sole. In the particular embodiment of the invention illustrated, means is provided for separating said cutters from each other while they are moving through the sole so that the cutters move obliquely with reference to the sole and, if the machine is properly adjusted, they may be caused first to engage the sole at some distance inside of its opposite edges and then, as the cutting proceeds, to travel outwardly so that the line of cut passes through the edge of the sole before the cutters reach the surface opposite to that which they first entered.

The invention comprises also novel means by which the cutters may be supported and adjusted so as not only to be capable of moving as above described but also so as to be adjustable for soles of different widths. According to this feature of the invention the cutters may be carried by separate supports or blocks which in turn are mounted to move toward and from each other upon a reciprocable carrier, through which the cutters are moved toward and from the sole, and means is provided for adjusting said cutter supports simultaneously, this adjusting means being so constructed that it does not interfere with the automatic separation of the cutters as they pass into the sole. In the form of construction shown, the cutter supports are threaded to receive co-axial members provided respectively with right and left screw threads and means is provided whereby the said members may be rotated together to adjust the cutters toward or from each other but the members are so supported that they can be moved independently in an axial direction to produce the oblique movement above described.

In addition to the features already specifically referred to the invention comprises also certain other combinations, arrangements of parts and details of construction hereinafter described and claimed.

Referring to the accompanying drawings,—Figure 1 is a view in front elevation of a machine embodying the invention in its preferred form, and Fig. 2 is a view in perspective and partly in central vertical section of a machine shown in Fig. 1 with a sole illustrating the work done shown in place in the machine.

As illustrated, 2 represents a suitable base or supporting plate which may be conveniently secured to a bench or to any other suitable support. A bridge piece 4 screwed to plate 2 provides a slot or recess through which the sole may be inserted. While this piece 4 is not necessary it may be useful in accurately locating the sole which, however, is positioned upon the base plate 2 principally by an approximately V-shaped gage 6 which is adjustable longitudinally in a groove 8 in the base plate and which may be clamped in adjusted position by a thumb screw 10. Secured to the base plate 2 by bolts, such as 11, is an upright 12 recessed upon its front side and provided with guide plates 14 overlapping the recess to provide a guideway for a reciprocating head or slide 16 which serves as a carrier for the cutters and their adjusting devices. The slide 16 is provided upon its forward side with ribs 18 between which is a guideway in the forward part of which the cutter supports 20 are dove-tailed to provide for transverse movement. The cutters 22, rigidly but removably secured to supports 20, each com-

prise a vertical blade having a cutting edge 24 at its lower end and an inclined blade 26 with cutting edge 28. As shown in the drawings, the two blades are substantially at right angles to each other but the blade 26 is somewhat curved, being shaped approximately as part of a cylinder.

The devices through which the cutters 22 with their supports 20 may be moved and adjusted with reference to each other include a shaft 30 provided with a head 32 and near the head with a threaded member 34 which may be integral with shaft 30 and which is threaded into the support 20 shown at the right in the drawings. At the left end of shaft 30 is a threaded sleeve 36 splined to shaft 30 so as to rotate with it but so as to be capable of axial movement relatively thereto. The two threaded members 34 and 36 are provided with oppositely disposed threads. As shown, the threads upon member 34 are left-handed and those upon member 36 right-handed. The adjacent inner ends of these thread members are provided with grooved collars 38 which are engaged respectively by forks 40 projecting forwardly from sliding blocks 42 movable horizontally in the rear portion of the guideway formed by the ribs 18 of carrier 16. A spring 46 connecting blocks 20 tends constantly to maintain collars 38 in their innermost positions with the blocks 42 in engagement with a centering pin 44 projecting downwardly between them from the upper rib 18. A wedge block 48 secured to plate 12 projects forwardly so that the upper edge of the wedge is located in a vertical plane passing between blocks 42. In the downward movement of the cutters with the carrier 16 the wedge will act to separate blocks 42 and therefore cutters 22 will be moved in an inclined direction.

Any suitable means may be provided for reciprocating carrier 16. As shown, a lever 50 pivoted at 52 in ears extending backwardly from upright 12 and actuated, for example, by a spring and treadle (not shown) is provided at its forward end with an enlarged head 54 engaging the walls of a recess 56 in carrier 16. The downward movement of carrier 16 may be limited by an adjustable screw 58 mounted at the upper end of the carrier and located in position to engage a rearwardly extending lug 60 upon the upright 12.

The operation of the machine illustrated will be obvious from the foregoing description. It may be stated, however, that the sole S will be laid upon the support 2 with its flesh side up and with its heel end resting against the gage 6 which has been adjusted so that the cuts to be made in the sole will be at the desired distance from its heel end. The cross head 16 is then depressed to carry the cutters 22 into the sole. At about

the moment that the cutters engage the upper surface of the sole the wedge on block 48, which may be made adjustable vertically if desired, will act to separate blocks 42 so that the cutters will move outward along the surfaces A and B and will emerge from the edge of the sole so as to cut out an approximately pyramidal piece of material with a base substantially triangular in shape.

While the machine illustrated has been described with particular reference to its function of cutting a turn sole to give it a "heel effect" it will be obvious that either with or without slight changes in construction it can readily be adapted for other work. As already noted, this machine is intended for use in cutting a sole prior to the channeling operation and therefore the cuts may be utilized by the operator in channeling the sole as guides to indicate where the channeling should begin and end whether or not a "heel effect" is desired. Therefore the invention is not limited to the specific structure or use described and illustrated but covers modifications which will occur to one skilled in the art and which are within the scope and spirit of the invention as defined in the claims.

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

1. In a machine of the class described, a sole support and cutting mechanism relatively movable in a direction transverse to the plane of the sole support, said mechanism comprising separated cutting members, a portion of each of which extends substantially longitudinally of the sole whereby pieces of material may be cut out from opposite edges of the sole.

2. In a machine of the class described, a sole support and cutting mechanism relatively movable in a direction transverse to the plane of the sole support and comprising two portions constructed and arranged to cut approximately pyramidal pieces of material from opposite edges of a sole sustained on said support, and thus to form shoulders upon the sole where the bases of the pyramids originally lay.

3. In a machine of the class described, a sole support and cutting mechanism relatively movable toward the sole support, said mechanism comprising two separated portions, each of which includes a transverse blade, and being constructed and arranged to cut out pieces of material having plane bases at their rear ends from opposite edges of a sole sustained on said support.

4. In a machine of the class described, means for supporting and positioning a sole in combination with a cutter comprising one blade substantially perpendicular and another blade inclined to the surface of said supporting means, the edges of the blades

meeting approximately at right angles and the cutter being movable with relation to the sole supporting means in a plurality of directions in order to make an angular cut in the sole edge.

5. In a machine of the class described, a sole support and a pair of cutters each having angularly disposed cutting edges, said cutters being movable relatively to the sole support in a direction at an angle to its supporting surface and being constructed and arranged to cut a sole at opposite edges.

6. In a machine of the class described, means for supporting and positioning a sole, a pair of cutters each having angularly disposed cutting edges, said cutters being movable relatively to the sole support and being constructed and arranged to cut into a sole at opposite edges and at a predetermined distance from its heel end, one edge of each cutter moving in a plane transverse to the faces of the sole.

7. In a machine of the class described, a sole support and a pair of cutters each comprising an inclined blade and a blade perpendicular to the sole support the edges of which meet approximately at right angles, said cutters being movable normally with relation to the sole support and being constructed and arranged to cut a sole at opposite edges.

8. In a machine of the class described, a sole support, a pair of cutters each having angularly disposed cutting edges, and cooperating means for moving said cutters toward or from the sole support and simultaneously toward or from each other.

9. In a machine of the class described, a sole support, a pair of cutters each having angularly disposed cutting edges, cooperating means for moving said cutters toward said sole support, and a relatively stationary wedge acting simultaneously to separate the cutters.

10. In a machine of the class described, a sole support, a pair of cutters, separate supports for said cutters, a reciprocable carrier upon which said cutter supports are movably mounted, means for adjusting said cutter supports simultaneously upon said carrier, and means for moving said cutters simultaneously toward said sole support and away from each other.

11. In a machine of the class described, a sole support, a pair of cutters, separate supports for said cutters, and means for moving said cutter supports with relation to each other including co-axial rotatable members provided respectively with right and left screw-threads, said members being constructed and arranged to move axially with reference to each other.

12. In a machine of the class described, a pair of sole cutters and means for supporting and adjusting said cutters comprising

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a pair of blocks to which the cutters are secured, a carrier upon which said blocks are slidably mounted, co-axial members constructed to rotate together and provided
5 respectively with right and left screw-threads coöperating with threads in the blocks, and a second pair of blocks slidably mounted in said carrier and connected to the threaded members respectively whereby

the latter may be moved axially with relation to each other. 10

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PHILIPP FUNCK.

Witnesses:

JACOB FUNCK.

IRVING E. BOOTH.

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