To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Shank- ing-Out 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 that class of leather-skiving machines which are commonly known as "shanking-out" machines and which are used in the manufacture of boots and shoes for skiving the lower outer edge of the welt or the upper outer edge of the outsole at the Shank portion of the shoe in order to reduce the thickness of the projecting edge of the Shank portion of the sole of the completed shoe formed by the welt and outsole.

Shanking-out machines which have heretofore been devised have been adapted to act upon the welt after attachment to the shoe before the outsole is laid thereon or to act upon the outsole either before or after the outsole is laid upon the shoe. So far as I am advised as to the state of the art no shanking-out machine has ever been devised which is adapted to act upon both the welt and the outsole after the outsole has been laid; and my invention has for one of its objects the production of such a machine whereby the welt and outsole can be skived at one operation.

Other objects of my invention are to provide a shanking-out machine of improved construction and operation.

With these objects in view my invention consists in a shanking-out machine provided with means for skiving the lower outer edge of the welt and means for skiving the upper outer edge of the outsole so arranged that both the welt and outsole can be skived at one operation.

My invention also consists in the devices, combinations, 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, certain of which devices, combinations, and arrangements are not limited to a machine adapted to skive both the welt and the outsole, but are also capable of embodiment in other forms of shanking-out machines.

My invention will be readily understood from the drawings accompanying this application, in which is illustrated a shanking-out machine embodying the several features thereof in their preferred form.

Referring to the drawings, Figure 1 is a view in side elevation of the machine. Fig. 2 is a view in front elevation. Fig. 3 is a plan view. Fig. 4 is a face view of the support for the outsole removed from the machine. Fig. 5 is a sectional view of a portion of the machine and of a shoe in position to be acted upon by the skiving-cutters, illustrating the positions which the various parts of the machine and of the shoe assume during the shanking-out operation. Fig. 6 is a face view of a disk which is located between the skiving-cutters. Fig. 7 is an edge view of the cutter for skiving the welt. Fig. 8 is a face view of the cutter illustrated in Fig. 7 looking from the left of the figure. Fig. 9 is an edge view of the cutter for skiving the outsole, and Fig. 10 is a face view of the cutter illustrated in Fig. 9 looking from the left of the figure.

The machine illustrated in the drawings comprises two rotary skiving-cutters secured side by side to a rotating shaft in such position as to enable them to enter between the outsole and welt of a shoe. A disk is located between the two cutters and projects radially beyond the same, so as to form a guard for both cutters which determines the amount of material removed from the welt and outsole.

The machine also comprises two spring-pressed supports arranged to support the welt and outsole, respectively, and hold them in contact with the skiving-cutters. The support for the welt is arranged to enter the crease between the welt and the upper of the
shoe and serve as a guide for the shoe during the shanking-out operation. The projecting edge of the disk which is located between the cutters is provided with a shoulder which is arranged to bear against the stitches of the inseam during the shanking-out operation and prevent the welt-skiving cutter from coming into contact therewith. This shoulder may be utilized as a guide for guiding the shoe during the shanking-out operation, in addition to the welt-support. When the machine is to be used for operating upon shoes the outsoles of which have been trimmed, it is also provided with a gage arranged to bear against the edge of the outsole, and thereby serves as a means for guiding the shoe during the shanking-out operation either in combination with or independently of the welt-support. To enable the welt and outsole to receive the skiving-cutters between them when the shoe is inserted in the machine, the machine is provided with means under the control of the operator by which the welt-support and sole-support can be separated. Both the welt-support and the sole-support are mounted so as to move toward and from the skiving-cutters to accommodate welts and soles of different thicknesses and are pressed toward the cutters by means of springs. When welts of the same thickness are to be operated upon, it is unnecessary to have the welt-support pressed yieldingly toward the welt-skiving cutter, and accordingly the machine illustrated in the drawings is provided with means for locking the welt-support rigidly in position.

Referring now to the drawings, the frame of the machine consists of a head 1, which can be secured upon any suitable support, and an overhanging portion 2, secured to the head. A shaft 3, provided with a driving-pulley 3', is journaled in the head 1 and projects therefrom beneath the overhanging portion 2; any endwise movement of the shaft being prevented by a tapered portion 3'' and a collar 3', adjustably secured upon the rear end of the shaft, as clearly illustrated in Fig. 1. Upon the projecting front end of the shaft 3 are rigidly secured cutting-disks 4 and 5. These cutters are arranged side by side and are separated by a perforated disk 6, clamped between the cutting-disks and projecting beyond the periphery thereof. The adjacent faces of the cutting-disks 4 and 5 are flat, while the other faces of the disks are beveled from the hubs toward the peripheries of the disks as is clearly shown in Fig. 5. Each cutting-disk is provided with radial slots or notches 7 and with cutting-blades 8, formed by beveling one side of each radial slot or notch, the cutting edges being located upon the beveled faces of the disks. The arrangement of the cutting-disks 4 and 5 and the disk 6 is such that when entered between the welt and outsole of a shoe the cutting-blades of the disk 5 act to skive the lower outer edge of the welt, and the cutting-blades of the disk 4 act to skive the upper outer edge of the outsole, the depth of the cut on both the welt and the outsole being controlled by the projecting edge of the disk 6, which serves as a guard for both cutting-disks, as is clearly illustrated in Fig. 5. In order to prevent the cutting-disks from entering between the welt and the outsole far enough to bring the cutting-blades of the welt-cutting disk 5 into contact with the stitches of the inseam, the projecting edge of the disk 6 is provided with a shoulder 6'. This shoulder is arranged to bear against the stitches of the inseam and prevents the cutting edges of the welt-cutting disk from being brought into contact therewith regardless of the manner in which the shoe is manipulated. In addition to forming a guard for the welt-skiving cutter this shoulder may also serve as a means for guiding the shoe during the shinking operation.

The welt and outsole of the shoe being operated upon are held against the cutting-disks 4 and 5 during the skiving operation by means of a welt-support 9 and a sole-support 10. The Welt-support and the sole-support are secured, respectively, to heads 11 and 12, mounted so as to be capable of moving toward and from each other upon horizontal guide-rods 13 and 14, secured in lugs projecting downwardly from the overhanging portion 2 of the machine-frame. The heads 11 and 12 are pressed toward each other by means of springs 15 and 16, coiled around the guide-rods 13 and interposed between the lugs projecting from the overhanging portion 2 of the machine-frame and the heads. These springs hold the supports 9 and 10 yieldingly in contact with the welt and outsole of the shoe being operated upon and allow the supports to move toward and from the cutting-disks to accommodate welts and soles of different thicknesses. The movement of the heads 11 and 12 under the force of the springs 15 and 16 is limited by means of stops consisting of the blocks 17 and 18, adjustably secured to the guide-rods 13 and 14, respectively. The head 11 is provided with a set-screw 19, by means of which the head and the Welt-support 9, carried thereby, can be rigidly secured in position, if desired, when a number of shoes provided with welts of the same thickness are to be operated upon.

In order to allow the cutting-disks to enter between the welt and outsole of a shoe when the shoe is placed in position in the machine, a plunger 20, provided with a wedge-shaped lower end, is pivotally mounted upon the forward end of a lever 21 and is arranged to engage and separate the blocks 11 and 12 and the supports 9 and 10 when the lever 21 is actuated to depress the plunger. The rear end of the lever 21 is connected, by means of a rod 22, to a treadle, by which it can be actuated by the operator to depress the plunger.
The welt-support 9 and the shoe-support 10 are secured to the heads 11 and 12 by means of bolts 23 and 24, passing through slots in the heads, by which means the supports can be adjusted vertically to bring them into the desired positions to support the sole and welt. In order to allow the sole-support 10 to be located in proper position with relation to the cutting-disk 4, it is provided with a slot through which the shaft 3 passes, this construction also allowing a portion of the sole-support to be located upon each side of the shaft, so that the sole is supported on both sides of the shaft and is firmly held against the cutting-disk. As shown in the drawings, the welt-support 9 is shaped to enter the crease between the upper and the welt of a shoe, so as to serve as a guide for the shoe during the skiving operation. When shoes are to be operated upon the soles of which have been trimmed, an edge gage may be provided arranged to engage the edge of the outsole and serve as means independent of or additional to the welt-support for guiding the shoe.

Such an edge gage is indicated at 25 in the drawings and, as shown, consists of a disk rotatably mounted upon the shaft 3 beside the cutting-disk 4.

The operation of the various parts illustrated in the drawings has been sufficiently indicated in the preceding description of their construction and arrangement to be readily understood by those skilled in the art without a separate description thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A shanking-out machine, having, in combination, a welt-support, a sole-support and two skiving-cutters located between the supports arranged to act upon the lower outer edge of the welt and upon the upper outer edge of the sole, respectively, substantially as described.

2. A shanking-out machine, having, in combination, means for skiving the lower outer edge of the welt and means for skiving the upper outer edge of the sole, substantially as described.

3. A shanking-out machine, having, in combination, a rotary shaft and two cutters mounted thereon side by side arranged to enter between the welt and outsole of a shoe and to skive the lower outer edge of the welt and the upper outer edge of the sole, respectively, substantially as described.

4. A shanking-out machine, having, in combination, a welt-support arranged to enter the crease between the upper and welt of a shoe and a rotary cutter arranged to skive the lower outer edge of the welt, substantially as described.

5. A shanking-out machine, having, in combination, a welt-support arranged to enter the crease between the upper and welt of a shoe, a rotary cutter arranged to skive the lower outer edge of the welt and a guard for preventing the cutter from cutting the stitches of the insole, substantially as described.

6. A shanking-out machine, having, in combination, a welt-support arranged to enter the crease between the upper and welt of a shoe, a rotary cutter arranged to skive the lower outer edge of the welt, and a guard surrounding the cutter provided with a shoulder to bear against the stitches of the insole and hold the cutter out of contact therewith, substantially as described.

7. A shanking-out machine, having, in combination, a welt-support, a sole-support, a skiving-cutter located between said supports, and means for separating said supports to allow the cutter to enter between the welt and outsole of a shoe, substantially as described.

8. A shanking-out machine, having, in combination, a welt-support, a sole-support, a skiving-cutter located between said supports, and means for yieldingly pressing the supports toward the cutter, substantially as described.

9. A shanking-out machine, having, in combination, a welt-support arranged to enter the crease between the upper and welt of a shoe, a skiving-cutter arranged to act upon the lower outer edge of the welt, and a spring for pressing the sole-support toward the cutters, and means for locking the welt-support in fixed position, substantially as described.

10. A shanking-out machine, having, in combination, two rotary skiving-cutters arranged to enter between the welt and outsole of a shoe and to skive the lower outer edge of the welt and the upper outer edge of the sole, respectively, and a disk located between said cutters forming a guard for both cutters, substantially as described.

11. A shanking-out machine, having, in combination, a welt-support arranged to enter the crease between the upper and welt of a shoe, an edge guide arranged to engage the edge of the outsole and a skiving-cutter arranged to enter between the welt and outsole, substantially as described.

12. A shanking-out machine, having, in combination, a welt-support arranged to enter between the welt and outsole of a shoe, a guide arranged to enter the crease between the upper and welt and a guide arranged to bear against the insole below the welt, substantially as described.

13. A shanking-out machine, having, in combination, a rotary cutter arranged to enter between the welt and outsole of a shoe, a guide arranged to enter the crease between the upper and welt and a guide arranged to bear against the insole below the welt, substantially as described.

14. A shanking-out machine, having, in
combination, a cutter arranged to enter between the welt and outsole of a shoe, a guide arranged to bear against the inseam below the welt and a guide arranged to bear against the edge of the outsole, substantially as described.

15. A shanking-out machine, having, in combination, a rotary shaft, a skiving-cutter secured thereto arranged to enter between the welt and outsole of a shoe, and a sole-support arranged to support the sole upon both sides of the shaft, substantially as described.

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

JOHN B. HADAWAY.

Witnesses:

FRED O. FISH,
ALFRED H. HILDRETH.