

J. E. THAYER.
CHANNELING MACHINE.
APPLICATION FILED APR. 11, 1910.

1,035,268.

Patented Aug. 13, 1912
2 SHEETS—SHEET 1.

Fig. 2.

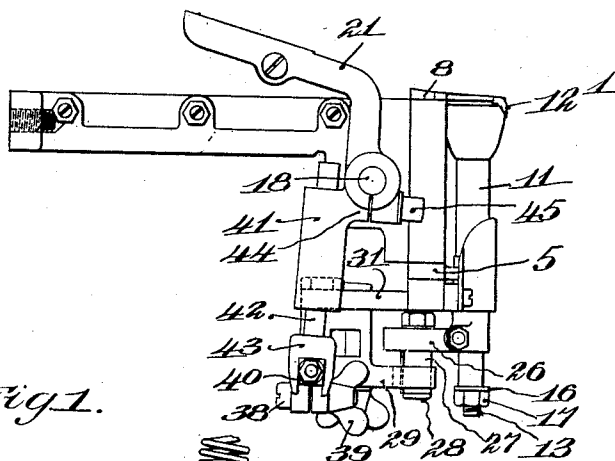
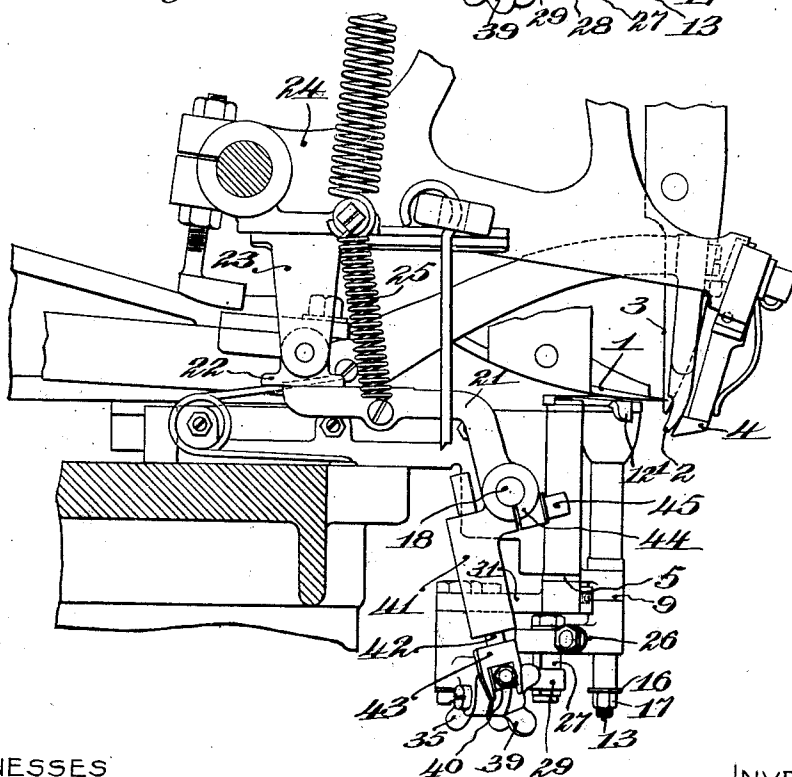


Fig. 1.



WITNESSES

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2 SHEETS-SHEET 2.

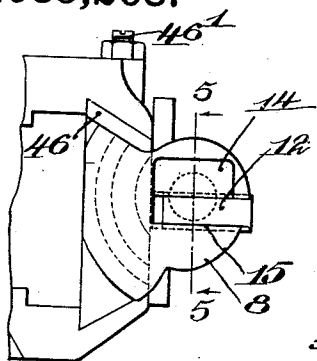


Fig. 4.

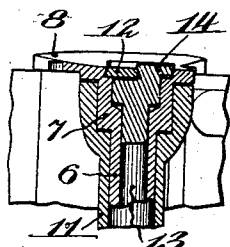


Fig. 5.

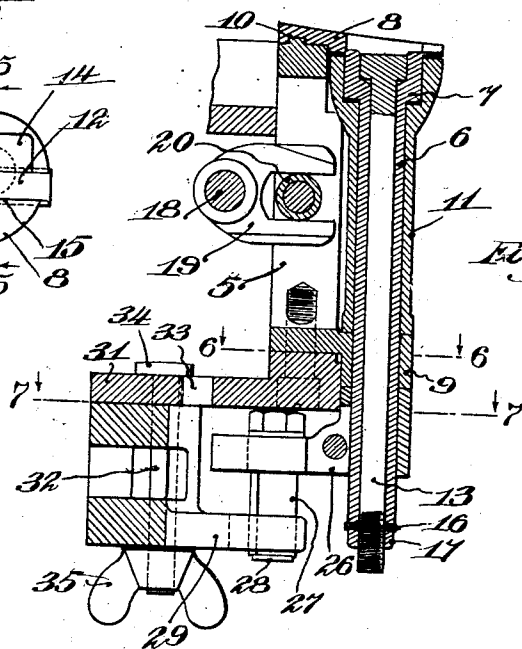


Fig. 3.

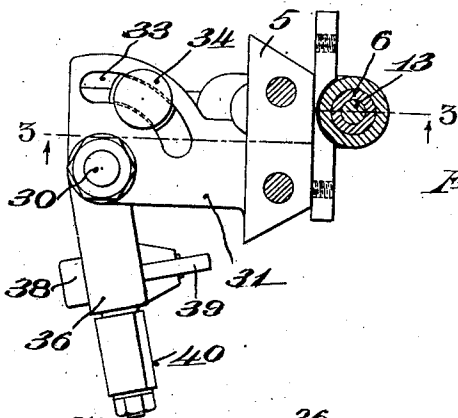


Fig. 6.

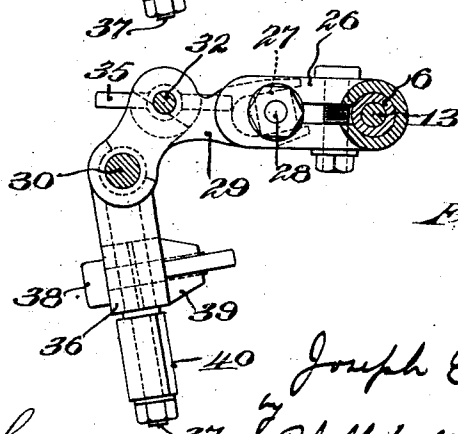


Fig. 1.

WITNESSES

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UNITED STATES PATENT OFFICE.

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CHANNELING-MACHINE.

1,035,268.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH E. THAYER, a citizen of the United States, residing at West Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Channeling-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 invention relates to channeling or to rounding and channeling machines such as are used in the manufacture of boots and shoes.

The invention is intended more especially as an improvement in the channeling mechanism of the Goodyear rough rounding and channeling machine shown and described in the patent to French and Meyer, No. 599,602, February 22, 1898, although it is not confined in its application to this machine, but may be embodied with advantage in other forms of channeling or rounding and channeling machines.

In the Goodyear machine as heretofore constructed the devices for securing the channeling knife in the knife carrier have been so constructed and arranged that it has been necessary to remove the rotary sleeve forming the sole support whenever the channeling knife is to be removed or adjusted. With this construction, therefore, the removal or adjustment of the channeling knife has been inconvenient and has involved considerable loss of time. It has also been difficult to secure the proper adjustment of the blade of the channeling knife with relation to the surface of the sole supporting sleeve, owing to the fact that the sleeve is removed or out of working relation to the blade when the adjustment is made.

It is accordingly one object of the present invention to provide improved means for securing the channeling knife in the knife carrier which will enable the knife to be removed or adjusted without removing or displacing the sole support.

To this end one feature of the invention contemplates the provision in a machine provided with a knife carrier and sole supporting sleeve, of knife clamping devices

extending longitudinally through the sleeve, so that the sleeve does not interfere with the manipulation of the knife holding devices. With this construction the sole supporting sleeve may be so arranged that its periphery underlies the blade of the channeling knife to firmly and accurately position the sole at the point of operation of the knife, without in any wise interfering with the manipulation of the knife holding devices. This enables the channeling knife to be quickly and conveniently removed or adjusted. It also enables an accurate adjustment of the knife blade with relation to the surface of the sole support to be readily secured, since the surface of the support remains in position during the adjustment of the knife blade relative to it. This feature of the invention in its broader aspects contemplates the provision of any suitable construction and arrangement of knife holding devices which extend through the sole supporting sleeve into position to be manipulated without the removal or displacement of the sleeve.

In the simplest and most efficient form of the invention which I have yet devised, the knife holding devices comprise a knife holding groove or socket in the knife carrier, one side of which is formed by a head or plate at the upper end of a bolt which passes through the sole supporting sleeve and is provided with a binding nut located below the sleeve where it may be conveniently manipulated by the operator.

Further features of the invention relate to an improved construction and arrangement of the channel knife carrier and its actuating devices whereby the channeling knife may either be thrown out of operation during the rounding of the forepart of a shoe, or may be securely held in position to channel the forepart in accordance with the character of the work to be performed upon the machine.

The various features of the invention will be readily understood from an inspection of the accompanying drawings, and the following detailed description of the construction shown therein.

In the drawings Figure 1 is a side elevation of so much of a rough rounding and channeling machine as is necessary to show the application of the present improvements

thereto, the parts being shown in position with the channeling knife thrown out of action; Fig. 2 is a partial elevation showing the channeling mechanism with the parts in position for the channeling knife to cut a channel in the sole; Fig. 3 is a vertical sectional view through the channeling mechanism, the section being taken on line 3—3, Fig. 6; Fig. 4 is a plan view of the parts shown in Fig. 3; Fig. 5 is a partial sectional view on line 5—5, Fig. 4; Fig. 6 is a sectional plan view on line 6—6, Fig. 3; and Fig. 7 is a sectional plan view on line 7—7, Fig. 3.

In the machine shown in the drawings, 1 indicates the trimming knife, 2 the work support or crease gage, 3 the feed plate, 4 the forepart gage, and 5 the vertically movable slide for the channeling knife, all of which parts have the same construction and mode of operation as the corresponding parts in the Goodyear machine above referred to.

In the present machine the channel knife carrier consists of a spindle 6 provided at its upper end with an enlargement or head 7 and with a thin plate or flange 8. The spindle is mounted in a bearing 9 on the slide 5, and the plate 8 is provided with a concentric groove 10 engaging a segmental rib on the upper face of the slide 5. The sole supporting sleeve 11 is mounted to turn freely on the spindle 6 of the knife carrier, and its upper end surrounds the head 7 of the carrier and lies close to the under side of the plate 8. The shank 12 of the channel knife fits in a groove in the upper face of the plate 8, and the blade 12' of the knife extends down over the upper end of the sleeve, so that the sole of the shoe held against the sleeve is firmly supported at the point of operation of the channeling knife. The knife is firmly clamped in the carrier by a clamping bolt 13 which extends through the spindle 6 and is provided at its upper end with a head 14 lying within a recess in the plate 8. The side 15 of the groove in the plate 8, and the opposing side of the bolt head 14, are undercut to form a dove-tail socket for the shank of the channeling knife, which is beveled on its opposite sides to fit the socket. The bolt 13 is provided at its lower end with a washer 16 and a clamping nut 17 for engaging the lower end of the spindle 6 and drawing the head of the bolt down against the shank of the channeling knife. When the nut is tightened the head of the bolt acts to force the shank of the knife laterally against the side 15 of the groove in the plate 8, and thus firmly clamps the knife in position in the carrier. When the knife is to be removed or adjusted the nut 17 may be readily loosened without disturbing the sole supporting sleeve 11, and the blade of the knife

may be accurately positioned with relation to the surface of the sleeve 11, to secure the desired depth of channel.

In case the sole of the shoe is to be channeled about the forepart as well as through the shank, it is desirable that the channel be nearer the edge of the sole around the forepart than it is in the shank. The variation in the position of the channel with relation to the edge of the sole is secured in the machine shown by raising and lowering the knife carrying slide 5 through devices corresponding in construction and operation to the devices for raising and lowering the channeling knife slide in the Goodyear machine above referred to. These devices comprise a rock shaft 18 mounted in the support for the slide 5 and connected with the slide by a slotted arm 19 which engages a roll 20 mounted on the slide. A lever 21 is secured to the end of the shaft 18, and is arranged to be engaged by a shoe 22 on the lower end of an arm 23 secured to the lever 24 which carries the forepart gage 4. The end of the lever 21 is held in engagement with the shoe 22 by a spring 25. When the forepart gage is brought down into position to engage the shoe the lever 21 is depressed to raise the knife carrying slide 5 so that the channeling knife is brought into position to cut the channel nearer to the edge of the sole during the time that the forepart gage is in operation. When the forepart gage is raised in passing from the forepart on to the shank, the lever 21 moves in the opposite direction to lower the knife carrying slide, so that the channel is cut at a greater distance from the edge of the sole in operating upon the shank.

In doing certain classes of work the channeling knife should be thrown out of action in passing from the shank on to the forepart, and should be again thrown into action in passing from the forepart on to the shank, so that the sole of the shoe operated upon will be channeled through the shank, but will not be channeled about the forepart. In the present construction the channeling knife is rendered inoperative when the forepart gage is brought into operation, and is rendered active when the forepart gage is thrown out of operation, through devices which have provision for rendering them inactive when the forepart is to be channeled, and means are provided for holding the channeling knife in fixed position when these devices are rendered inactive. In the construction shown these devices comprise an arm 26 secured to the spindle 6 of the knife carrier below the bearing 9 through which rocking movements may be imparted to the carrier to move the channeling knife into or out of position to act upon the sole of the shoe held against the sole supporting sleeve 11. The arm 26 carries a rectangular

block 27 which is mounted to turn freely upon a stud 28 secured in the arm. This rectangular block engages a slot in one end of a lever 29 which is pivotally supported upon a stud 30 secured in a plate 31 on the lower end of the slide 5. The lever 29 is provided with a locking bolt 32 which extends up through a segmental slot 33 in the plate 31, and is provided at its upper end with a head 34 overlying the plate. The lower end of the bolt carries a thumb nut 35 which may be tightened to firmly clamp the lever to the plate 31, or may be loosened to allow the lever to swing freely upon the pivot stud 30. The other end of the lever 29 is provided with a split socket 36 in which a stud 37 is removably held by a clamping bolt 38 and thumb nut 39. The stud 37 carries a rectangular block 40 which is free to turn on the stud. The lever 21 is provided with a bearing 41 extending below the shaft 18, and carrying a spindle 42 which is provided at its lower end with a slotted plate 43 which engages the block 40. The lever 21 is secured to the rock shaft 18 by means of a split bearing 44 which may be contracted by a clamping bolt 45 to secure the lever rigidly to the shaft. The clamping bolt may however be loosened so that the lever will turn idly on the shaft.

When the channeling knife is to be thrown out of operation in passing from the shank to the forepart, and into operation in passing from the forepart to the shank, the clamping bolt 45 is loosened so that the lever 21 may turn freely on the shaft 18. The slide 5 may also be firmly clamped against vertical movement at this time by tightening the gib screws 46'. The clamping bolt 32 will also be loosened. When the parts are thus adjusted the channeling knife will be held in the position indicated in Fig. 2, so that it will act to channel the sole while operating through the shank. When the forepart gage 4 is brought down against the shoe in passing from the shank to the forepart, the lever 21 will be rocked, and through the connections described will rock the knife carrier, thus moving the channeling knife into the position indicated in Fig. 1, where it will not act upon the sole held against the sole support. When the forepart gage is raised in passing from the forepart to the shank, the spring 25 will rock the lever 21 in the opposite direction, thus returning the channeling knife to operative position so that it will channel the sole through the shank.

In case the forepart of the shoe is to be channeled as well as the shank, the knife carrier will be moved into the position indicated in Fig. 2, and the thumb nut 35 will be tightened to clamp the lever 29 to the plate 31, so that the channeling knife will be firmly held against displacement. The

thumb nut 39 will be loosened, and the stud 37 and block 40 will be removed, thus rendering the connections through which the channeling knife is thrown into and out of action inactive. The clamping bolt 45 will also be tightened so that the lever 21 is firmly secured to the rock shaft 18, and the gib screws 46' will be loosened to enable the slide 5 to be moved vertically as the forepart gage is moved into and out of operation.

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 set forth in the claims, and may be varied and modified without departing from the invention.

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

1. A channeling machine, having, in combination, a channel-knife carrier, a rotary sole support arranged to underlie the knife blade, and knife clamping devices having provision for adjustment of the knife while the sole support is in operative position on the carrier, substantially as described.

2. A channeling machine, having, in combination, a channel-knife carrier provided with a spindle, a rotary sole support mounted on the spindle, a channel knife mounted in the carrier with its blade overlying the sole support, and knife clamping devices having provision for adjustment of the knife while the sole support is in operative position on the spindle, substantially as described.

3. A channeling machine, having, in combination, a channel-knife carrier, a rotary sole support, and knife clamping devices extending through the sole support into position to be operated while the support is in operative position, substantially as described.

4. A channeling machine, having, in combination, a channel-knife carrier provided with a spindle, a sole support mounted on the spindle, a channel knife mounted in the carrier with its blade overlying the sole support, a knife clamp, and means extending longitudinally through the spindle for operating the clamp, substantially as described.

5. A channeling machine, having, in combination, a channel-knife carrier provided with a spindle, a sole support mounted on the spindle, a groove in the carrier above the sole support for the shank of the knife, and a knife clamping bolt extending longitudinally through the spindle, substantially as described.

6. A channeling machine, having, in combination, a channel-knife carrier provided

with a spindle, a sole support mounted on the spindle, a dove-tail groove in the carrier above the sole support for the shank of the knife, a knife clamping plate forming one side of the groove, and a bolt extending longitudinally through the spindle for actuating the plate, substantially as described.

7. A rough rounding and channeling machine, having, in combination, a trimming knife, a channel knife, a forepart gage and connections through which the channel knife is moved to render it inactive when the forepart gage is thrown into operation having provision for rendering them inactive, and means for securing the channel knife in active position when the connections are rendered inactive, substantially as described.

8. A rough rounding and channeling machine, having, in combination, a trimming knife, a channel knife, a forepart gage, and devices having provision for adjustment to either throw the channel knife out of action or to shift it to vary the position of the channel when the forepart gage is thrown into operation, substantially as described.

9. A rough rounding and channeling machine, having, in combination, a trimming knife, a channel knife, a knife carrier for the channel knife, a forepart gage, connections for shifting the knife carrier to vary the position of the channel and to throw the channel knife out of operation when the forepart gage is thrown into operation, and means for adjusting the connections to either

vary the position of the channel while holding the knife in action or to throw the knife out of operation, substantially as described.

10. A rough rounding and channeling machine, having, in combination, a trimming knife, a channel knife, a rocking carrier for the channel knife, a forepart gage, and means acting to rock the carrier to render the knife inactive when the forepart gage is thrown into operation and to render the channel knife active when the forepart gage is thrown out of operation, substantially as described.

11. A rough rounding and channeling machine, having, in combination, a trimming knife, a channel knife slide, a knife carrier mounted to turn on the slide, a channel knife carried by the carrier, and connections acting to raise and lower the slide or to rock the carrier when the forepart gage is thrown into and out of operation, substantially as described.

12. A rough rounding and channeling machine, having, in combination, a trimming knife, a rocking channel-knife carrier, a channel knife mounted in the carrier, a forepart gage, and devices acting to throw the forepart gage into and out of operation and to rock the carrier to render the channel knife inactive and active, substantially as described.

JOSEPH E. THAYER.

Witnesses:

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EDITH C. HOLBROOK.

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