

H. W. WINTER.
CHANNELING MACHINE.
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1,002,892.

Patented Sept. 12, 1911.

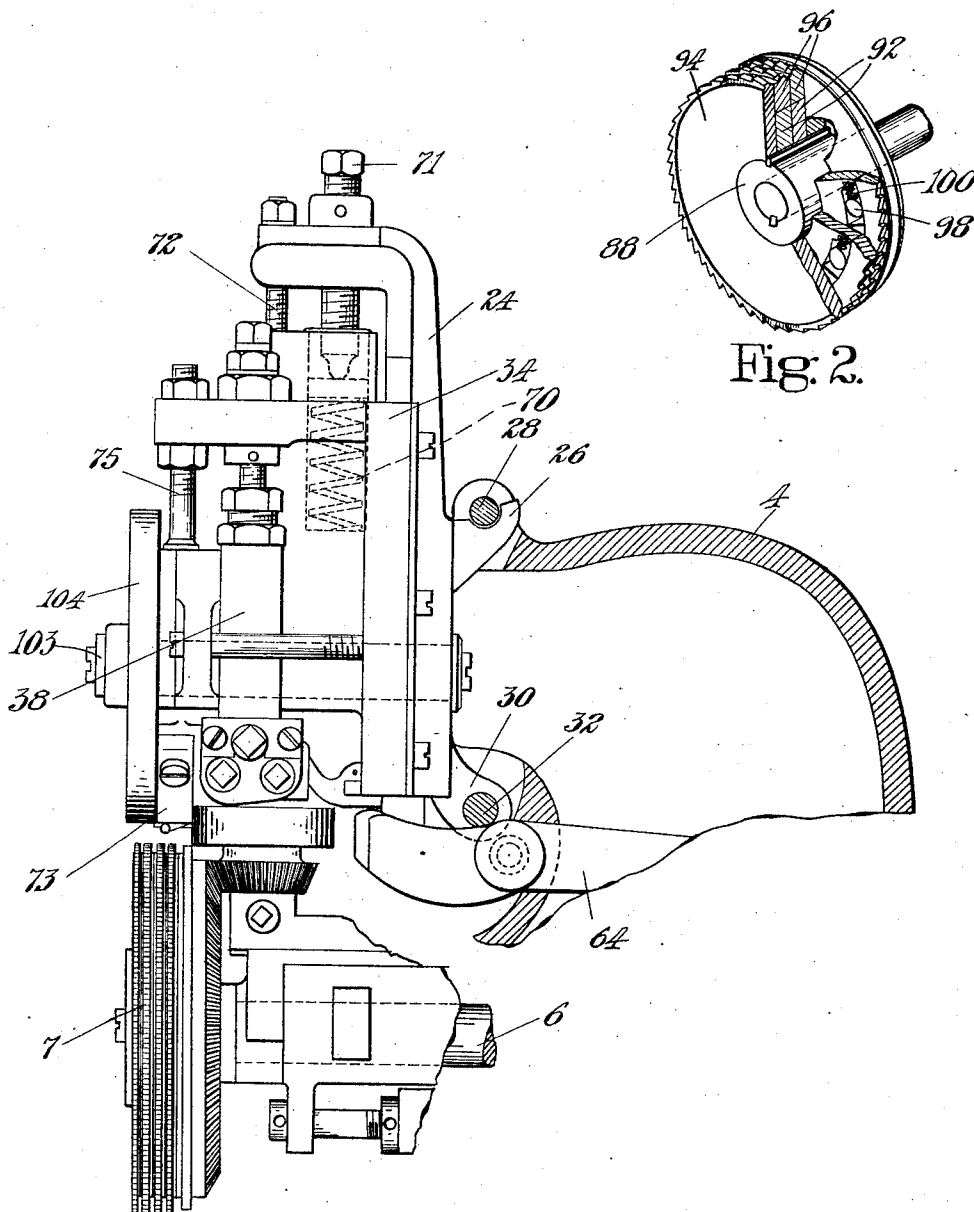


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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CHANNELING-MACHINE.

1,002,892.

Specification of Letters Patent.

Patented Sept. 12, 1911.

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To all whom it may concern:

Be it known that I, HENRY W. WINTER, a citizen of the United States, residing at Methuen, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Channeling-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.

This invention relates to channeling machines and more particularly to machines in which the sole to be channeled is advanced against an operating knife by mechanism which grips the marginal portion of the sole.

Machines for channeling soles are in common use in which the sole is advanced against a channeling knife by a toothed or corrugated feed wheel having engagement with the flesh side at the marginal portion thereof. The sole is held in engagement with this wheel by a presser foot arranged in advance of the channeling knife and a presser wheel arranged at the outer side of the channeling knife. The presser foot and presser wheel are pressed yieldingly upon the grain side of the sole. In the use of prior machines of this type difficulty has at all times been experienced in channeling along a curved line, such for example, as the abrupt curvature at the toe of a sole.

The primary object of the present invention is to improve machines of this type to the end that the channeling operation may be effected more readily along a curved line than has heretofore been possible.

In machines as heretofore constructed, the presser wheel and feed wheel have been rotated in unison by a suitable driving mechanism to advance the sole against the channeling knife. The peripheral speed of the two wheels has been substantially the same in the prior machines referred to. An important feature of the present invention consists in arranging the two wheels so that their peripheral speed may differ where the contour of the work is such that the best results are secured by a difference in speed. In channeling along a substantially straight part of the sole it is desirable that the two wheels travel at substantially the same peripheral speed. In turning about the toe, however, the presser wheel should move at a somewhat reduced speed for if it travels

with the speed of the feed wheel it causes some resistance to the swinging movement of the sole necessary in channeling about the toe. In the machine herein illustrated the presser wheel is sustained to be freely rotatable upon its supporting head so that it may accommodate itself to the movement of the sole whether that movement be substantially rectilinear or a swinging movement such as occurs in channeling about the toe.

While the feature of the present invention above referred to is of advantage when used in connection with feed wheels of ordinary construction, the feed wheel herein shown and described is of a particular form covered by a separate application for Letters Patent filed contemporaneously herewith. This feed wheel comprises a plurality of toothed feeding sections and means for moving said sections in the direction of feed, constructed to permit relative movement of the sections in the line of feed under the action of the work. This form of feed wheel is particularly of advantage in channeling along a curved line, inasmuch as it accommodates a swinging movement of the sole. The presser wheel herein illustrated coöperates with this form of feed wheel to reduce to a small amount the resistance to swinging movement of the sole and is preferably used with this form of feed wheel.

Other features of the invention will be hereinafter described and thereafter defined in the claims.

In the drawings which illustrate a portion of a channeling machine embodying the present invention,—Figure 1 is a view in side elevation of the machine, and Fig. 2 is a perspective view showing the detailed construction of the feed wheel illustrated in Fig. 1.

Referring to the drawings, the reference character 4 indicates the frame of the channeling machine in which is journaled a shaft 6 provided with a feed wheel 7 upon its forward end. A head 24 is secured upon the frame 4 by devices permitting it to be readily detached. These comprise a hook 26 upon the head 24, said hook passing beneath and having engagement with a rod 28 upon the frame 4. The head 24 has at its lower end a lug 30 formed with an eye arranged to be entered by a removable pin 32 carried by the frame 4. It will be understood that by removing the pin 32 the head 24 may be

swung laterally to disengage the hook 26 and rod 28 and thus free the head 24 from the frame of the machine.

The head 24 constitutes a guide for a vertically movable carrier 34, said carrier being provided with vertical guide-ways for a groover knife block, not shown, and a channel knife block 38. The carrier 34 is pressed yieldingly downwardly by a spring 70 arranged in a socket formed in the carrier the upward pressure of said spring being resisted by a screw 71. Downward movement of the carrier 34 is limited by engagement of a vertical stop 72 with the head 24. The carrier 34 is raised by a lever 64 actuated from a suitable treadle. A presser 73 is mounted upon the carrier 34, said presser being secured to the lower end of a vertically adjustable rod 75. The presser 73 bears upon the work directly in advance of the channel knife and maintains the surface of the work in proper relation to said knife. The carrier 34 also sustains a presser wheel 104 which is supported to rotate freely in a vertical plane upon a stud 103. The presser wheel is arranged upon the outer side of the channeling knife, or on the side lying toward the interior portion of the sole, and its axis is substantially in line with the edge of the channeling knife. The presser wheel holds that part of the sole in contact with the feed wheel which lies outside of the presser foot.

The feed wheel mounted upon the shaft 6 and shown in detail in Fig. 2 is provided with a hub 88 keyed to said shaft and a series of disks secured to the hub and arranged side by side. The innermost disk which is directly adjacent to the edge roll of the machine has a smooth periphery and supports the extreme marginal portion of the sole. Two intermediate disks 92 are arranged next to the innermost smooth disk, said disk 92 being of less diameter than the outermost disk 94 or said innermost disk. Each disk 92 has sustained rotatably thereon a peripherally toothed ring 96. The rings 96 are free to move forwardly upon their supporting disks but movement in a rearward direction is prevented. To this end each disk 92 is provided at a plurality of points in its periphery with recesses in which are arranged cylindrical rolls 98. The bottom of each recess is inclined slightly forwardly toward the axis of the wheel and in each recess is arranged a spring 100 pressing rearwardly the roll therein. It will be seen that this arrangement permits forward movement of the rings 96 upon their supporting disks and positively prevents rearward movement thereof, any rearward movement causing the rolls 98 to be wedged into locking engagement with the rings and said disks.

In the use of the machine shown, a sole

having been inserted between the presser wheel and the feed wheel is advanced against the channeling knife and groover knife by the rotation of the feed wheel which is effected either by hand or by power, according to the particular construction of the machine to which the mechanism shown is applied. The sole being advanced against the operating knives by the feed wheel and the edge roll which, as shown, is turned in unison therewith, the presser wheel which presses the sole into firm engagement with the feed wheel turns freely to accommodate the movement of that portion of the sole with which it has contact. In going about the toe, the sole is swung about a fulcrum adjacent the outer section of the feed wheel, the inner sections 96 being moved forwardly to accommodate this movement of the sole. The presser wheel which is illustrated as having engagement with the portion of the sole lying above the two outer sections of the feed wheel moves at a speed adapted to accommodate the swinging movement of the sole. Since the carrier which sustains the presser wheel is arranged for vertical movement the presser wheel bears at all times evenly upon the face of the sole.

The arrangement of the presser wheel for free rotation is not only of advantage in that it permits a sole to be channeled more readily but is also desirable in that it simplifies the construction of the machine. Since the presser wheel has no connection with the driving mechanism of the machine the head 24 may be detached from the machine more readily than would be possible if the presser wheel were connected to the driving mechanism.

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

1. A channeling machine, having in combination, a feed wheel, comprising a plurality of sections movable variably under the action of the work, a carrier arranged above the feed wheel for movement toward and from said feed wheel, a channeling knife mounted upon the carrier, a presser foot mounted upon the carrier in line with the channeling knife and a freely rotatable presser wheel mounted upon the carrier upon the outer side of said knife and presser foot in position to press the work against the feed wheel and to be rotated by the work as the latter is advanced by said feed wheel.

2. A channeling machine, having in combination, a work supporting and feeding device arranged to advance the work in a horizontal path, a vertical guideway, a carrier arranged for vertical movement upon said guideway, a channeling knife, a grooving knife and a presser foot mounted upon the carrier in position to act upon the margin of a sole sustained by said device, a freely

rotatable presser wheel mounted upon the carrier in position to bear upon the sole upon the outer side of said knives and presser foot, and means for raising and
5 lowering the carrier.

3. A machine for operating upon soles, having in combination, a tool, a plurality of toothed feeding sections for advancing a sole against the tool, means for moving said
10 sections in the direction of feed constructed to permit relative movement of the sections in the line of feed under the action of the work, and a freely rotatable presser wheel arranged to hold the work in operative en-
15 gagement with said sections.

4. A machine for operating upon soles, having in combination, a feed wheel, a carrier arranged above the feed wheel for

movement toward and from said feed wheel, a knife mounted upon the carrier and a
20 freely rotatable presser wheel mounted upon the carrier upon the outer side of said knife in position to press the work against the feed wheel and to be rotated by the work as the latter is advanced by said feed wheel,
25 the latter having a plurality of sections respectively movable positively to feed said work and capable of variable relative movement under the action thereof.

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

HENRY W. WINTER.

Witnesses:

BERNARD BARROWS,
ALLAN H. BARROWS.

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