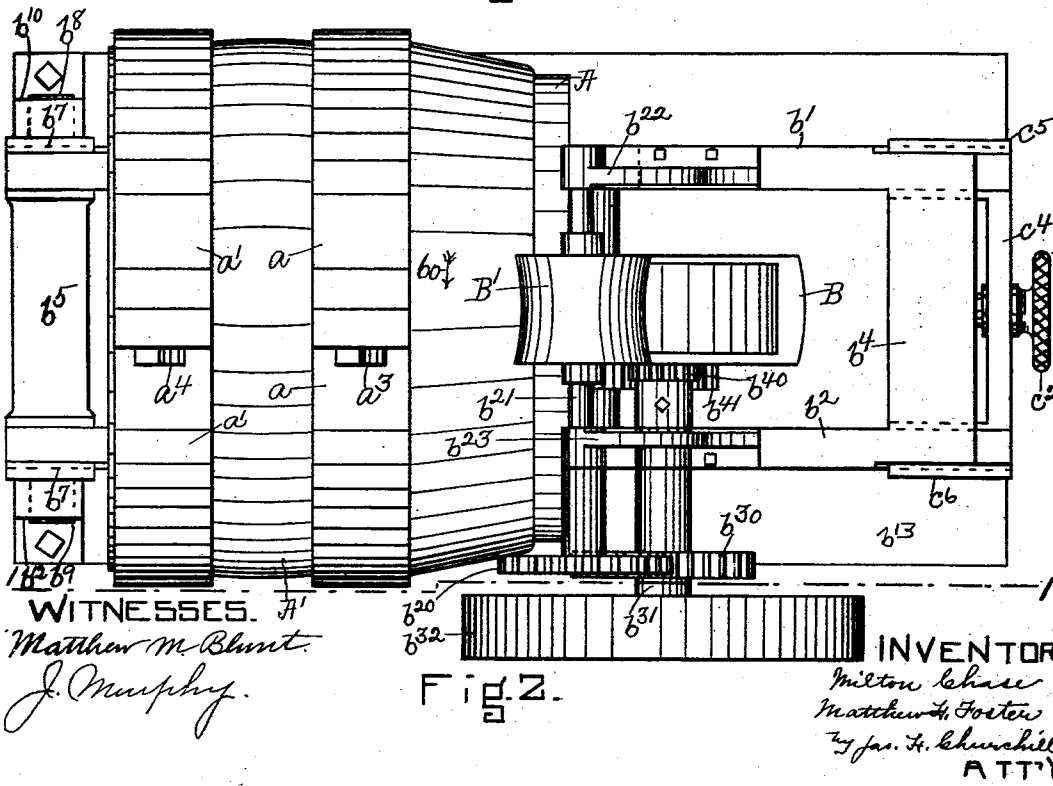
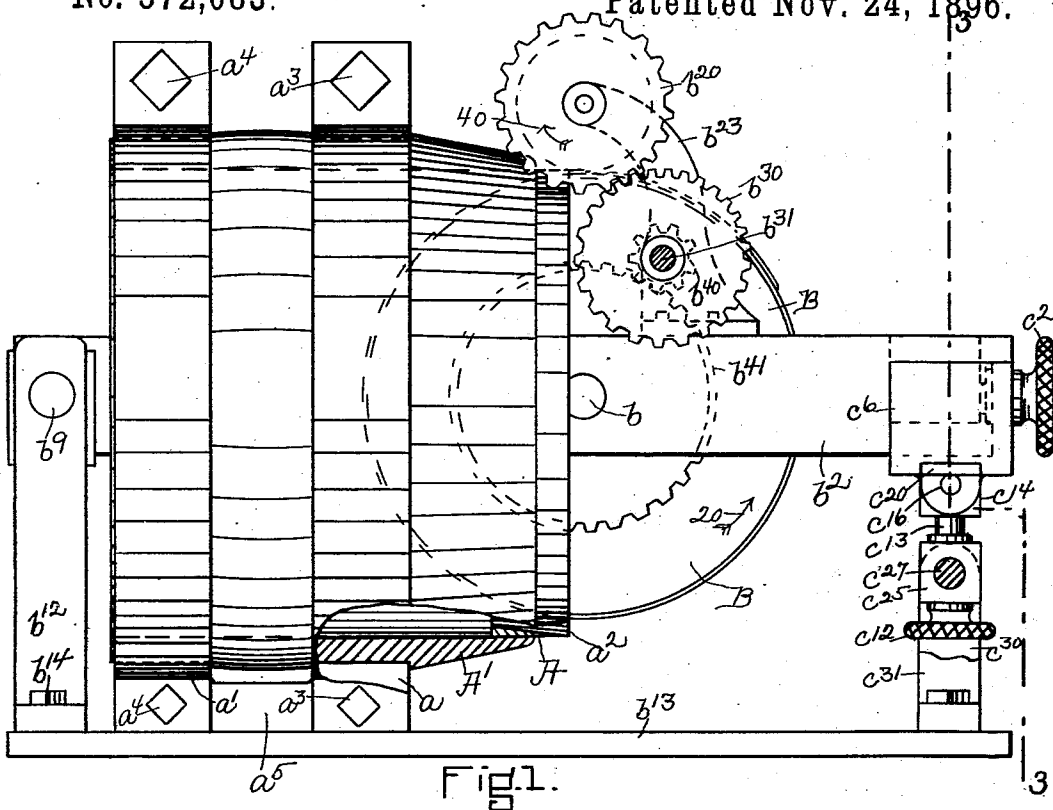


M. CHASE & M. H. FOSTER.
SKIVING MACHINE.

No. 572,083.

Patented Nov. 24, 1896.



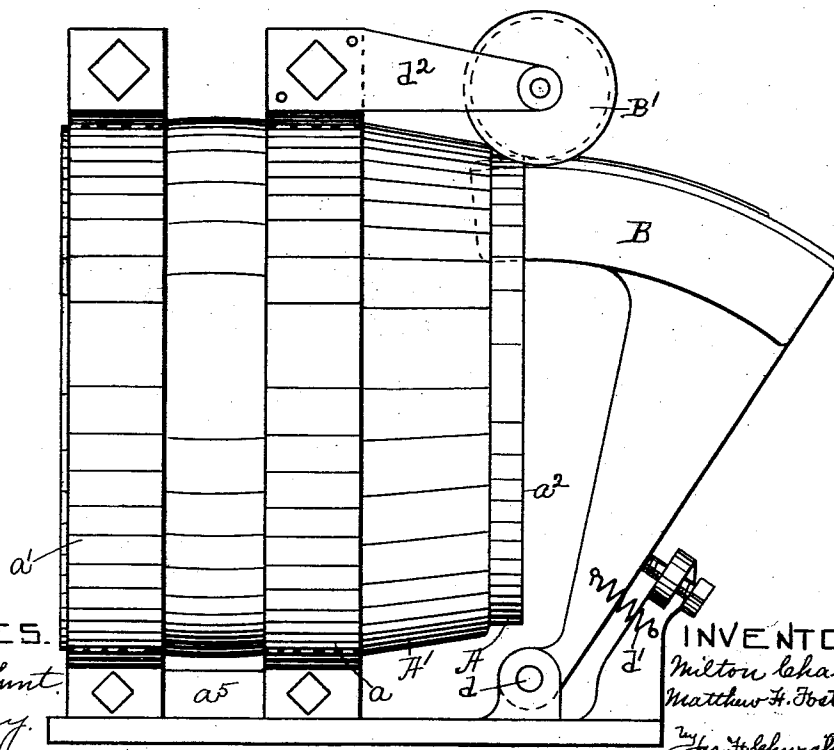
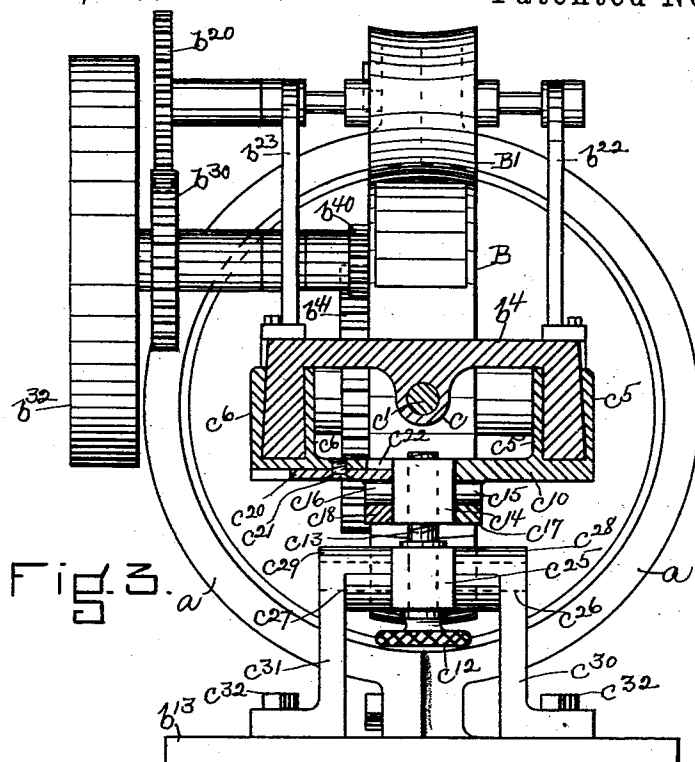
(No Model.)

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WITNESSES.

Matthew M. Blunt.
J. Murphy. ☐

INVENTORS
Milton Chase
Matthew H. Foster
By Jas. H. Churchill

ATTY

UNITED STATES PATENT OFFICE.

MILTON CHASE AND MATTHEW H. FOSTER, OF HAVERHILL, MASSACHUSETTS,
ASSIGNORS TO AMBROSE S. VOSE, OF BOSTON, AND CHARLES E. KEN-
NARD, OF LONGWOOD, MASSACHUSETTS.

SKIVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,083, dated November 24, 1896.

Application filed February 27, 1896. Serial No. 580,989. (No model.)

To all whom it may concern:

Be it known that we, MILTON CHASE and MATTHEW H. FOSTER, citizens of the United States, and residents of Haverhill, in the county of Essex and State of Massachusetts, have invented an Improvement in Skiving-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to a machine or apparatus of that class known as "skiving-machines," and is herein shown as embodied in a machine for skiving counters of boots and shoes.

The invention has for its object to provide a simple and efficient machine for the purpose described, and one with which a substantially wide scarf may be obtained on the sides and ends of the counter, whereby the scarfs on the sides of the counter may be made so as to extend from substantially the center of the counter to its opposite longitudinal edges, and thereby leave the finished counter substantially oval or curved in cross-section, so that increased flexibility is imparted to the counter. The scarfs at the ends of the counter are also made substantially deep or wide, so as to increase the flexibility of the counter at its ends. The end and side scarfs are made in one operation, as will be described.

In accordance with this invention the machine is provided with a traveling endless knife or cutter, a movable support for the counter or blank, and a guide cooperating with the said support and with the endless cutter, whereby the said counter or blank is fed to the knife and is firmly held at the point acted upon by the endless knife or cutter, as will be described. The traveling endless cutter or knife may and preferably will be made as a circular or hoop knife, which is secured to or forms part of a revolving carrier or head, and the support may be made in the form of a wheel or segment thereof and may be given a continuous rotary movement or a reciprocating rotary movement, as will be described, and the said support has its periphery normally of circular cross-section, which is preferably flattened off at one or more points for a length substantially equal to the length of the counter, to form one or more matrices, the

flattened portion being made deeper at its center than at its edges, so that when brought in contact with the knife or cutter moving transversely with relation to the support and the counter thereon the latter will be cut or skived transversely across the counter from side to side; but owing to the fact that the center portion of the counter is in substantially the same plane as the cutting edge of the traveling knife very little, if any, of the center portion of the counter will be removed by the knife, while a substantially wide scarf will be cut from the sides of the counter, which scarfs may and preferably will be of a width substantially equal to one-half of the width of the counter and of a thickness varying from a fine edge at the center of the counter to substantial thickness at the sides of the counter. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of one form of counter-skiving machine embodying this invention; Fig. 2, a top or plan view of the machine shown in Fig. 1; Fig. 3, a sectional view of the machine shown in Fig. 1 on the line 3 3, looking toward the left; and Fig. 4, a side elevation of a modification to be referred to.

Referring to the drawings, A represents an endless knife or cutter, which is preferably made in the form of a circular or hoop blade and is secured to or forms part of a carrier A', which may be made as herein shown, it consisting of a rotatable drum or cylinder supported in bearings a a'. The knife or cutter A is provided with a sharp or fine continuous cutting edge a², and the bearings a a' are herein shown as made in the form of semi-circular bands secured together, as by bolts a³ a⁴, and preferably connected together by a tie-bar a⁵. The knife-carrier A' may be revolved in any suitable or desired manner, as, for instance, by means of a belt. (Not shown, but which may be passed about the carrier between its bearings a a'.) The endless knife A has cooperating with it a rotatable support B, which may be made in the form of a complete wheel, as shown in Fig. 1, which is designed to have a rotary movement in one direction, or which may be made in the form of a segment of a wheel having a reciprocating movement, as shown in Fig. 4. In either case the periphery of the support is prefer-

ably made rounding or curved transversely, in the first instance, in the arc of substantially the same circle as the knife A, and then a portion of the said periphery at one or more points may be cut away or flattened off substantially equal in length and width to the counter to be skived, to form one or more matrices, the central portion of the wheel being removed to a greater depth or amount than near the sides, for a purpose as will be described.

The rotatable support B is located axially with relation to the rotatable endless knife, so that the said knife may cut transversely across and over the support and the counter thereon.

As shown in Fig. 1, the rotatable support B is provided with a shaft or arbor b , having bearings in the side bars b' b^2 of a supporting-frame provided at its front end with a cross-bar b^4 and at its opposite end with a bar or rod b^5 , to which the side bars b' b^2 are connected, so as to be fastened thereto, which may be effected by providing the bar or rod b^5 with dovetailed slots (indicated by the dotted lines b^7) into which the side bars b' b^2 extend. The bar or rod b^5 is provided at its opposite ends with journals b^8 b^9 , having bearings in suitable uprights b^{10} b^{12} , secured to a suitable foundation b^{13} by bolts b^{14} , the purpose of which construction will be hereinafter explained.

The support B has coöperating with it a feed-roll B', located above it and in close proximity to the cutting edge of the knife A and separated from the surface of the support a distance sufficient to permit the counter to pass below it. The feed-roll B' is adapted to be revolved in a direction to assist in feeding the counter forward toward the knife by suitable gearing, herein shown as consisting of a gear b^{20} on the shaft b^{21} of the feed-roll, which latter is supported, as shown, in uprights or arms b^{22} b^{23} , secured to the side bars b' b^2 , and a gear b^{30} on a shaft b^{31} , also supported in the arm b^{23} , and having fast on it, as shown, a pulley b^{32} , driven in any suitable manner. The support B may be driven by suitable gearing, (shown as a pinion b^{40} on the shaft b^{41} , in mesh with a gear b^{44} on the shaft or arbor b of the support,) which gearing rotates the support B toward the cutting edge a^2 of the knife and in the direction indicated by arrow 20, Fig. 1, which is in a direction opposite to the rotation of the feed-roll, the latter rotating in the direction indicated by the arrow 40. The position of the support B with relation to the cutting edge of the knife A may be adjusted or varied to enable counters of varying thickness to be skived, and this adjustment may be effected after the manner herein shown and as will now be described.

The cross-bar b^4 of the matrix-supporting frame is provided, as herein shown, with a depending ear c , (see Fig. 3,) having a threaded opening, through which is extended the threaded shank c' of an adjusting-screw c^2 ,

the latter being also extended through a cross-bar c^4 , provided at its opposite ends with the upright walls c^5 c^6 , forming dovetailed guideways, into which are fitted the front ends of the side bars b' b^2 . By means of the adjusting-screw c^2 the side bars b' b^2 may be moved longitudinally in their guideways, so as to move the support B toward and from the cutting edge a^2 of the knife A. The cross-bar c^4 has secured to or forming part of it a bottom bar c^{10} , (see Fig. 3,) from which the side bars c^5 c^6 are erected, and the cross-bar c^{10} is adapted to be raised and lowered, so as to turn the side bars b' b^2 on the journals b^8 b^9 as a center, and thereby raise and lower the support B with relation to the upper portion of the cutting edge a^2 of the circular or hoop knife. This vertical adjustment of the matrix-supporting frame may be accomplished by mechanism preferably of a construction as herein shown, and which consists of an adjusting-screw c^{12} , having its shank c^{13} extended through a threaded hole in a block c^{14} , extended up into a suitable slot or opening in the bottom plate c^{10} and provided with journals c^{15} c^{16} , having bearings in ears c^{17} c^{18} on opposite sides of the block c^{14} , the ear c^{17} being secured to or forming part of the bottom plate c^{10} and the ear c^{18} being secured to or forming part of a removable plate c^{20} , which is secured to the bottom plate c^{10} by a set-screw c^{21} , whereby the plate c^{20} and its ear c^{18} may be removed from the bottom plate c^{10} , so as to permit of the removal of the block c^{14} when desired, the bottom plate c^{10} having a slot or opening c^{22} of a width substantially equal to the length of the journal c^{15} , so as to permit the block c^{14} to be moved laterally after the shank of the adjusting-screw c^{12} has been removed from said block. The shank c^{13} of the adjusting-screw is also extended through a suitable block c^{23} , having journals c^{26} c^{27} , supported in suitable bearings c^{28} c^{29} , secured to or forming part of the uprights c^{30} c^{31} , which latter are fastened, as by bolts c^{32} , to the supporting-base b^{13} . By means of the adjusting devices for the matrix-supporting frame shown in Figs. 1 to 3, inclusive, the support B may be accurately positioned with relation to the cutting edge a^2 and the feed-roller B', so that the knife will act more efficiently upon the blank or counter to be skived. In practice the knife A may be made to travel or revolve at a substantially high speed and the support B may be revolved at a speed sufficiently slow to permit an operator to readily apply the counters or blanks to its periphery.

The operation of the apparatus or machine shown in Figs. 1 to 3, inclusive, may be briefly described as follows: Let it be supposed that the circular or hoop knife is revolved in the direction indicated by arrow 60, Fig. 2, and that a counter has been applied to a matrix on the support in the proper position and has been grasped between the feed-roller and the matrix. As soon as one end, which may

be termed the "front end," of the counter has passed beyond the feed-roller it is carried by the support B into contact with the knife, which cuts across the upper surface of the counter or blank transversely, and the latter, being continuously fed in the direction of its length toward the cutting edge a^2 , by the movement of the support B within the hoop or circular knife A, in the direction indicated by the arrow 20, is being continuously and progressively cut transversely until the entire counter has passed by the cutting edge a^2 and within the hoop or circular knife. The scarf produced passes up over the knife, while the counter continues on with the support and passes beyond the knife and within the knife-carrier, as described, and if it is desired the knife-carrier may be provided with suitable openings, (not herein shown,) through which the finished counters may drop onto the floor or into a suitable receptacle.

It will readily be seen that when the support B has been adjusted so as to produce a counter of the desired thickness it remains in this adjusted position, and any desired number of counters may then be skived, with the result that all of the skived counters will be of uniform thickness. By forming the periphery of the support with flattened or depressed portions, constituting matrices, which flattened or depressed portions practically form molds for the counter-blank integral with the support B, the counter may be skived to any desired degree of thickness, and the skiving may be such that a portion of the leather will be cut continuously from one side to the other, or the cutting action may be stopped short of the transverse center of the counter-blank at any desired or required point, and as a result a less amount may be skived on one side of the counter than on the other, so as to leave the finished or skived counter of greater thickness at what would be the bottom edge of the counter.

In the modified form of apparatus shown in Fig. 4 the support B is shown as a segment of a wheel pivoted at d and normally drawn back from the knife by a spring d' . In this form of apparatus the feed or presser roll B' is mounted in arms d^2 , only one of which is shown, which arms are fastened, as herein represented, to the bearing a for the knife-carrier.

We have herein shown one form of cutter-carrier, but we do not desire to limit our invention to the particular form shown.

We claim—

1. In a skiving-machine, the combination of the following instrumentalities, viz: a rotatable circular knife or cutter, a support for the material to be skived movable bodily toward, beyond and within the cutting edge of the said circular knife, a supporting-frame for the counter-support adjustable axially into and out of the said circular knife, and means to hold the material on the support

while it is acted upon by the rotatable circular knife, substantially as described.

2. In a skiving-machine, the combination of the following instrumentalities, viz: a rotatable circular knife or cutter, a rotatable matrix or support for the material to be skived having its periphery movable toward and within the cutting edge of the said circular knife, a supporting-frame adjustable within the said knife axially and radially, and in which the said matrix is mounted, and means to hold the material on its matrix or support, substantially as described.

3. In a leather-skiving machine, the combination of the following instrumentalities, viz: a rotatable circular or hoop knife or cutter, a matrix or support for the material movable bodily axially and radially within the rotatable circular or hoop knife, a support for said matrix extended into said circular knife and adjustable axially and radially therein to effect the axial and radial movements of the matrix within the said circular knife, and means to hold the material on its support while it is being acted upon by the circular knife, substantially as described.

4. In a counter-skiving machine, the combination of the following instrumentalities, viz: a rotatable circular or hoop knife or cutter, a support for the counters movable bodily axially within the rotatable circular or hoop knife and provided with a transversely-curved surface of substantially the same curvature as the circular knife, having a portion thereof intermediate of the sides of the support removed to form a matrix of greater depth at its center than at its sides, whereby the counter may be skived or cut on both sides on the passage of the knife in one direction over the said support, and means to hold the counters in the matrix of the said support, substantially as described.

5. In a skiving-machine, the combination of the following instrumentalities, viz: a rotatable circular knife or cutter, a support movable bodily within and across the path of movement of the said knife and beyond its cutting edge and provided with a transversely-curved surface of substantially the same curvature as the circular knife and having a portion thereof intermediate of its sides removed to form a matrix of greater depth at its center than at its sides, and means to hold the counter on its matrix while it is being acted upon by said knife, and a supporting-frame for the said matrix-support adjustable axially and radially within the said circular knife, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

MILTON CHASE.

MATTHEW H. FOSTER.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.