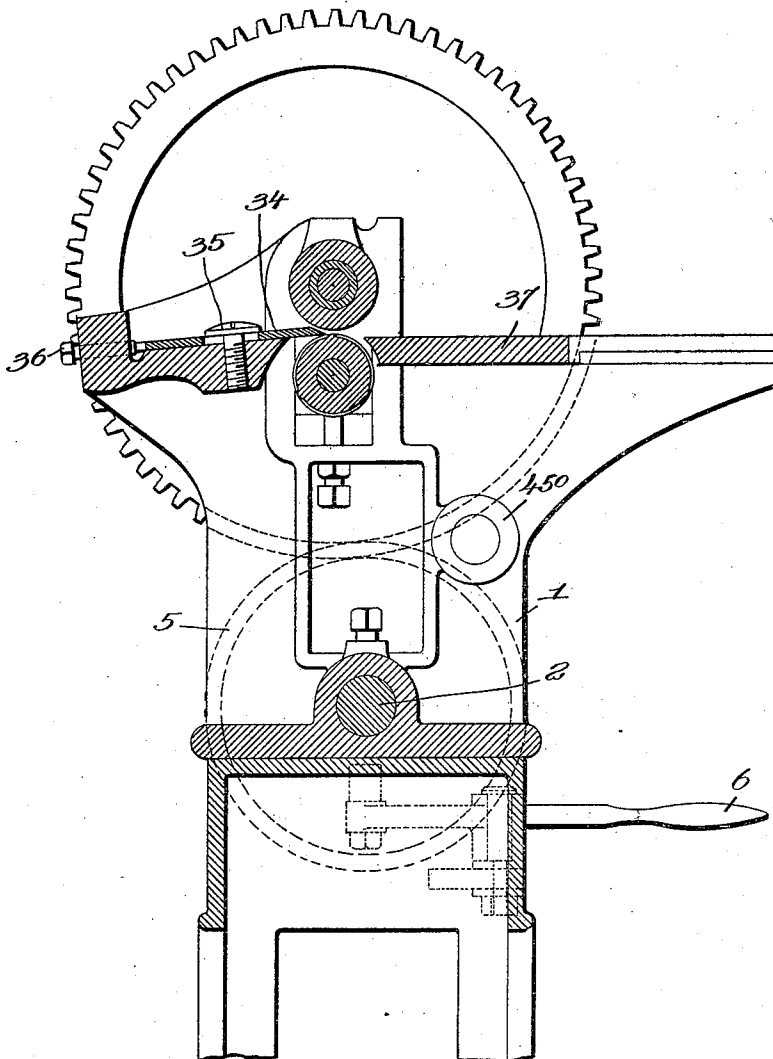


M. CANTY.
COUNTER SKIVING MACHINE.
APPLICATION FILED OCT. 9, 1908.

934,039.

Patented Sept. 14, 1909.
3 SHEETS—SHEET 1.

Fig. 1.



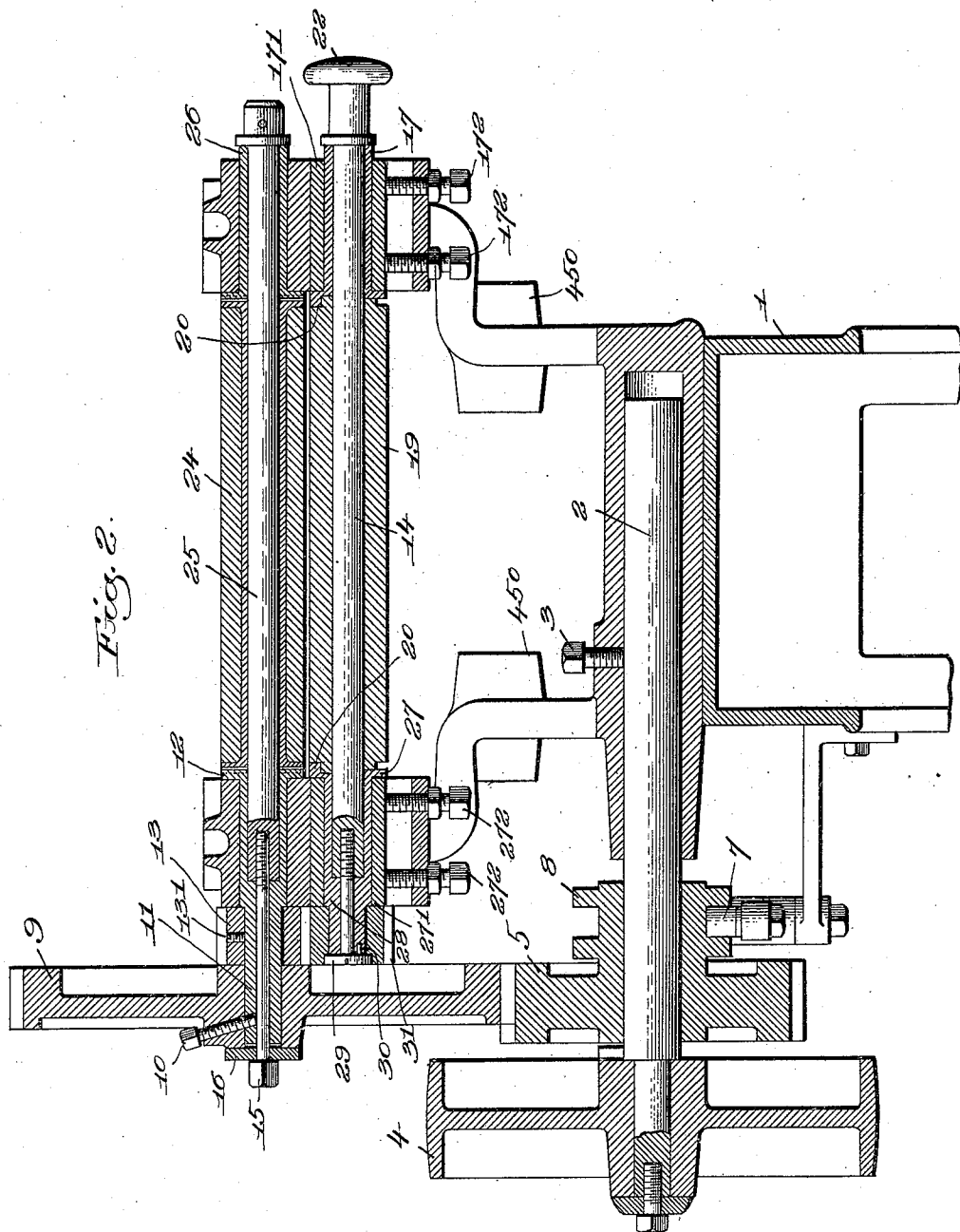
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 3 SHEETS—SHEET 3.

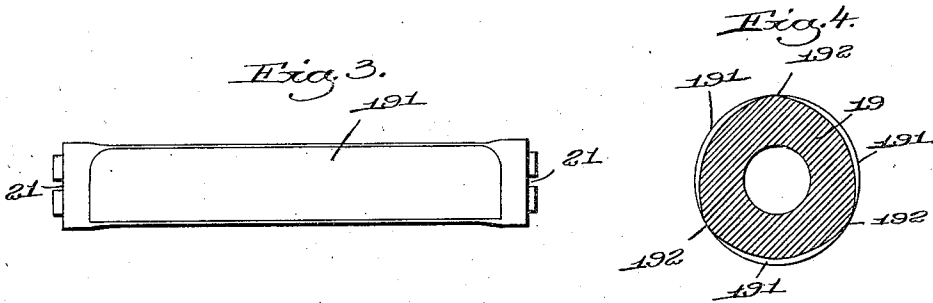


Fig. 5.

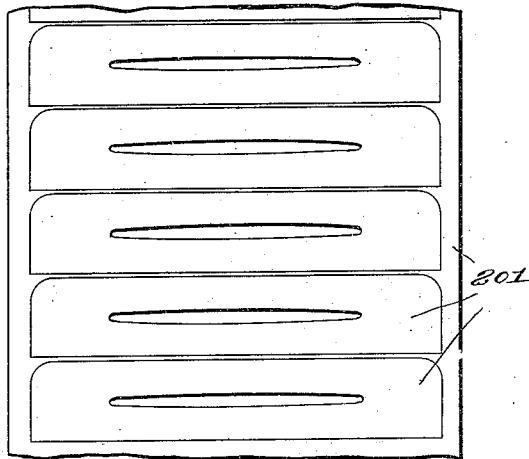
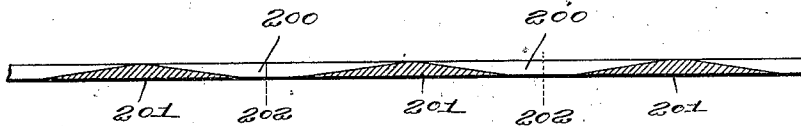


Fig. 6.



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UNITED STATES PATENT OFFICE.

MICHAEL CANTY, OF DORCHESTER, MASSACHUSETTS.

COUNTER-SKIVING MACHINE.

Specification of Letters Patent. Patented Sept. 14, 1909.

934,039.

Application filed October 9, 1908. Serial No. 456,897.

To all whom it may concern:

Be it known that I, MICHAEL CANTY, a citizen of the United States, residing at Dorchester, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Counter-Skiving Machines, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawing representing like parts.

This invention relates to a machine for skiving leather, and more particularly to a machine for skiving the counters which are used in the manufacture of boots and shoes.

This invention is, in a general way, an improvement upon the invention made the subject of Patents 703,617, granted July 1, 1902, and 760,025, granted May 17, 1904, for a counter skiving machine, and the preferred form in which this invention is embodied contains a number of the features of the machine illustrated in the said patent.

In the manufacture of counters by the machine and invention of the said patent the leather is first cut up into blanks, from each of which a counter is to be cut. These blanks are successively fed between a pressure roll and a die roll presenting a concavity having the shape of the counter. The blanks pass from the bight of these rolls against the edge of the skiving knife, and thus the counter is formed. At each revolution of the die roll one of the blanks passes through the machine and a counter is cut therefrom. This operation necessarily results in the waste of a large portion of the leather, which waste includes not only the full thickness of the leather contained in the regular figure between the outline of the blank and the outline of the counter, but also the skived or beveled portion extending over the counter and complementary to the skived portion of the counter.

The present invention provides a machine in which this waste is very largely eliminated by means of which nearly twice as many counters may be cut from the same stock as by the use of the machine of the said patent. This result is obtained by constructing the machine to receive and operate upon a strip of leather, the width of which equals the length of the counter, and the length of which depends solely upon the length ob-

tainable: Also by constructing the die roll to present a plurality of cavities, each having the shape of the skived face of a shoe counter arranged longitudinally of the roll and spaced equally and slightly apart: Also preferably by arranging the machine to provide for the substitution of die rolls having the aforesaid cavities of various sizes to correspond with various sized counters it is desired to produce: Also in other particulars that will appear hereafter.

In the machine of the present invention the cavities are so arranged in the face of the die roll that, when the strip of leather is fed through the machine, a continuous series of counters will be skived from the strip, leaving the strip intact, with the intermediate portions each of sufficient dimensions to have formed therefrom another counter either of the same or of a slightly different size. The second series of counters will be formed from the leather strip with their flat or plane faces cut from the opposite side of the strip to that from which the first series were cut.

In the best form of counter the skiving extends from the edge of the counter nearly to the central portion, so that there is a very limited area of the counter which is formed of the full thickness of the leather. Hence, it is possible to utilize the beveled portion removed in skiving a counter to form the skived edge of another inversely arranged counter.

It may often be found best, after forming the first series of counters in the machine of the present invention, to cut up the remainder of the strip into sections along lines running transversely through the center of the openings thereunder, and then to use the pieces resulting as blanks from which the second series of counters are cut. The size of the second series of counters will depend largely upon the distance at which the die counters are spaced in the die roll cutting the first series of counters.

By providing die rolls of different diameters, so as to contain die cavities of varying sizes, and by constructing the machine so that one die roll may be substituted for another, the same machine may be utilized to form all sizes of counters.

The invention will more fully appear in

the accompanying description and drawing, and will be particularly pointed out in the appended claims.

The drawings represent so much of a machine containing the present embodiment of this invention as it is necessary to show in view of the disclosure of the aforesaid Patent No. 703,617, to which reference may be made for fuller details of parts of the machine not herein shown.

In the drawings Figure 1 is a central longitudinal sectional view of the machine. Fig. 2 is a transverse sectional view of the machine on a plane passing through the die and pressure rolls. Fig. 3 is an elevation of a pressure roll showing the die cavity formed therein. Fig. 4 is a central cross-section, enlarged, of the rolls as shown in Fig. 3. Fig. 5 is a plan view of a portion of the strip of leather after the first series of counters have been skived therefrom. Fig. 6 is a central longitudinal section, enlarged, of the strip shown in Fig. 5.

Referring to the drawings, 1 indicates the frame of the machine of construction generally similar to that of the said patent for supporting the operating parts, and 2 a shaft or stud rigidly secured in a hole in the frame by means of the set-screw 3 and extending horizontally therefrom.

A driving pulley 4 is loosely mounted upon the outward end of the shaft 2, and a pinion 5 is loosely mounted thereon between the driving pulley and the frame.

As in said patent, the pulley 4 and the pinion 5 are provided with clutching projections so that the pinion may be clutched and unclutched to the pulley by operating the hand-lever 6, which at one end carries the roller-stud 7 engaging the grooved collar 8 integrally with the pinion.

The pinion 5 meshes with a large gear-wheel 9 secured to the outer end of a short shaft 11 mounted in a bearing in the upper portion of the machine frame. The shaft 11 is provided with a flange 12 at its inner end. A pinion 13 is mounted on the shaft 11 between the gear wheel 9 and the frame and is removably secured to said shaft to rotate therewith by a set-screw 131, or other suitable means.

The inner end of the shaft 11 is bored axially so that the inner end of the shaft forms a sleeve, and into this sleeve extends the inner end of the shaft 25 of the pressure roll 24 of a construction similar to that shown in the said patent wherein the exterior surface is formed of rubber or flexible yielding material. The inner end of the shaft 25 has a screw-threaded engagement with the sleeve formed by the inner end of the shaft 11, consisting, as shown, of a screw-threaded rod 15; a washer 16 between the head of the rod 15 and the gear hub, and a screw 10 passing through the hub of the

gear and the shaft 11 and bearing against the rod 15 are provided as in said patent. The outer end of the shaft 25 is supported in a sleeve 26 journaled in the opposite side of the frame.

From the foregoing description it will be seen that the driving gear 9 operates directly the shaft carrying the pressure roll; whereas, in the aforesaid patent it is mounted upon the shaft carrying the die roll. This change in the construction has been made as one means for providing for the use of die rolls of various diameters. In order to preserve the driving connection through the pinion 5 and the gear 9 it is necessary to maintain the shaft of the gear 9 equidistance from the shaft 2.

The die roll shaft has been made vertically adjustable by mounting it in vertically adjustable bearings, and a construction has been provided by means of which the intermeshing pinions carried by the shafts of the die and pressure rolls may be changed.

The die roll 19 is carried by the shaft 14, which is mounted in the sleeves 27 and 17 carried by the bearing blocks 271 and 171, respectively. These bearing blocks are mounted to slide vertically in the frame of the machine and held up by means of the set-screws 272 and 172.

The sleeve 27 is extended to constitute a short shaft 28 journaled in the bearing block 271. The inner end of the shaft 14 has a screw-threaded engagement with the sleeve 27 herein shown as a screw-threaded rod 29 locked in position by means of a pin 30, as in the aforesaid patent. The pinion is removably mounted on the shaft 28 and intermeshes with the pinion 13, so that the shaft 14 is driven from the shaft 25.

The die roll 19 is connected with the shaft 14 to the sleeve 17 so that these parts will rotate together by a construction similar to that described in the said patent, the flanges of the sleeves 27 and 17 being provided with suitable projecting lugs 20 adapted to engage notches 21 in the end of the die roll.

In order to allow of the removal and replacing of the die roll, and the use of die rolls of different sizes, the shaft 14 is provided with a knob 22. By means of this knob after the pinion 31 has been removed the shaft 14 may be rotated to disconnect the screw connection 29 at the inner end of the shaft 28, and the shaft 14 may then be withdrawn and the die roll 19 removed. The pinion 31 will also be removed from the end of the shaft 28. When it is desired to form counters of a different size a die roll of proper diameter will be placed upon the shaft 14 and a pinion of a size to correspond therewith. The bearing blocks 271 and 171 will be adjusted into proper vertical position and the parts reassembled.

It is unnecessary to describe further de-

tails of the construction of the shafts for the die and pressure rolls and the means for operating them and for operating the die and pressure rolls therefrom, in view of the disclosures of the aforesaid patent. This is also true of the construction and arrangement of the skiving knife herein shown at 34 held in its seat on the frame by screws 35 and adjustable by means of screws 36 so as to bring its cutting edge as close as possible to the line of contact of the rolls.

The table 37 is also arranged as in said patent so that the material may be slid there along and presented to the bite of the rolls. In the aforesaid patent mechanism is shown including a blank receiving hopper, a reciprocating feed plate and means for operating the same whereby the individual counter blanks are fed one by one successively between the die and pressure rolls. This mechanism is not shown herein for the reason that it forms no part of the present invention; but such a mechanism may be employed in connection with a machine of this invention, and the frame of the machine is herein shown as provided with bearings 450 to receive the shaft 45 shown in the said patent, so that, when desired, single blanks may be fed to the machine.

The die roll is shown detached from the machine in Figs. 3 and 4, and is of the same general construction as shown in said patent except as to the arrangement of the die cavities. In the present invention the die roll is provided with a plurality of die cavities each arranged in the said patent with its greatest length extending longitudinally of the roll. As herein shown the roll is provided with three such cavities, each of the same size, and therefore adapted to form counters of the same size. These cavities 191 are so formed in the die roll as to leave a slight space at 192 between them.

It will be seen that, when a strip of leather is passed through the machine, the leather will be pressed by the pressure roll into the cavities of the die roll one after the other, and while so pressed into the cavities will come against the skiving knife. The result of this operation will be that each die 191 will form a complete skived counter, as in the aforesaid patent, and the strip of leather will remain intact and of a form such as shown in Fig. 5. By properly arranging the diameter of the die roll and the size of the space 192 between the die cavities sufficient material will be left between the successive counters removed by the die roll to form another counter. This will be seen from Figs. 5 and 6 of the drawing. In these figures 200 represents the counters removed or cut out from the strip in its passage through the machine, while 201 represents the material remaining. The strip can now be cut up along the lines 202 to form a series of counter

blanks, from each of which a counter may be cut facing in the opposite direction to that from which the original counters faced. In some cases the strip as it appears in 5 and 6 may be turned over and fed to the machine 70 and a series of counters cut therefrom without first forming the strip into separate blanks.

The counters formed the second time from the intermediate positions of the strips may be, and usually will be, of a smaller size than those formed at first in order to make the most economical use of the material.

By means of this invention it will be seen that the leather is used to the best advantage 80 possible and that the actual waste is very slight. In fact, nearly twice as many counters can be cut from a given piece of leather as can be obtained when the leather is first cut into blanks and then a single counter 85 cut from each of the said blanks.

Counters of various sizes are provided for by having the rolls 19 of various diameters and by having pinions 31 of various diameters to correspond therewith. The pinions 90 and die rolls are readily interchanged in the machine in the construction already described.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A counter skiving machine comprising in combination a die roll provided with a plurality of die cavities having the shape of the skived face of a shoe counter, the said cavities being slightly spaced in an endless series about the roll periphery with their greatest length extending longitudinally of the roll; a pressure roll, a skiving knife mounted with its cutting edge close 105 to the periphery of the die roll near its line of contact with the pressure roll, and means for causing said rolls to cooperate to bring said cavities into action successively and continuously whereby when a strip of leather 110 is presented to said rolls a series of skived counters will be cut therefrom and the intermediate portions of the strip remaining will be suitable for other counters.

2. A counter skiving machine comprising 115 in combination a die roll provided with a plurality of die cavities having the shape of the skived face of a shoe counter, the said cavities being slightly spaced in an endless series about the roll periphery with their greatest length extending longitudinally of the roll; a pressure roll, a skiving knife mounted with its cutting edge close 120 to the periphery of the die roll near its line of contact with the pressure roll, and means for causing said rolls to cooperate to bring said cavities into action successively and continuously whereby when a strip of leather 125 is presented to said rolls a series of skived counters will be cut therefrom and the inter- 130

mediate portions of the strip remaining will be suitable for other counters; and means for adjusting the axis of one of said rolls toward and from the other to enable die rolls of different diameters to be used.

3. A counter skiving machine comprising in combination a frame, a shaft, a pressure roll carried by said shaft, a second shaft, a die roll carried by said second shaft and provided with a plurality of die cavities having the shape of the skived face of a shoe counter, the said cavities being slightly spaced in an endless series about the roll periphery with their greatest length extending longitudinally of the roll, bearings for said shafts in said frame, means for adjusting the bearings for said second shaft toward and from the pressure roll, intermeshing pinions on the ends of said shafts for securing the simultaneous rotation of

said die and pressure rolls and means whereby said second shaft may be removed from its bearings to enable die rolls and pinions of different diameters to be used.

4. A die roll for a counter skiving machine provided with a plurality of die cavities each with its greatest length extending longitudinally of the roll and each having the shape of the skived face of a shoe counter, the said cavities presenting an endless series with just sufficient space between adjacent cavities to provide for the thick or unskived portion of a shoe counter.

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

MICHAEL CANTY.

Witnesses:

MABEL PARTELOW,
FREDERICK S. GREENLEAF.