

F. L. ALLEY.
PRESSURE ROLL FOR SKIVING MACHINES.
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948,031.

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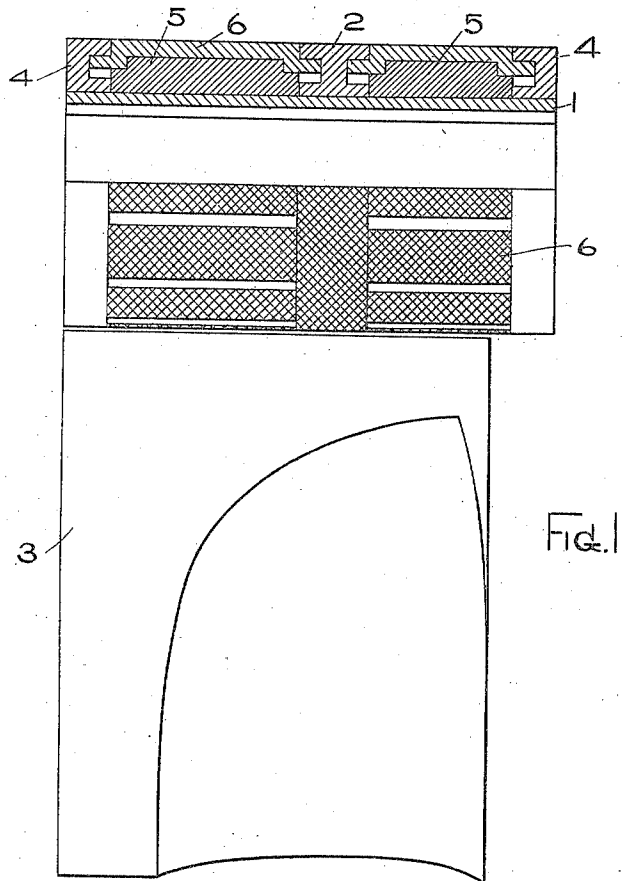


Fig. 1.

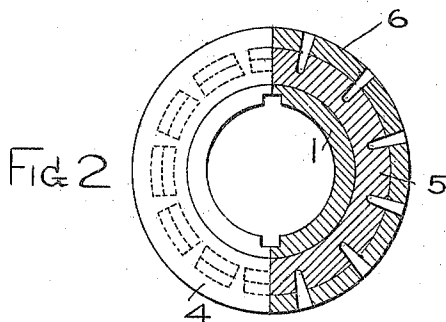


Fig. 2.

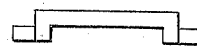


Fig. 3.



Fig. 4.

WITNESSES
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UNITED STATES PATENT OFFICE.

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PRESSURE-ROLL FOR SKIVING-MACHINES.

948,031.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed February 5, 1904. Serial No. 192,201.

To all whom it may concern:

Be it known that I, FREDERICK L. ALLEY, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Pressure-Rolls for Skiving-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 machines for skiving articles of leather, such as counters, box toe pieces, and the like. Skiving machines of this class usually comprise a die of the shape of the article to be skived and a pressure device coöperating therewith. A pressure device which is commonly used consists of a roll provided with a yielding surface of rubber. This roll is arranged to force the blank into the die and hold it against the bottom of the die during the action of the skiving knife, and also to coöperate with the die in feeding the blank to the knife. In actual practice this roll rapidly becomes disintegrated on account of the strains to which its rubber surface is subjected, so that frequent renewal of the roll is necessary.

In an application filed of even date herewith, Serial No. 192,202 I have disclosed a pressure roll which is adapted to coöperate with a die in as satisfactory a manner as a rubber covered roll, but which is much more durable so that renewal or replacement of the roll is necessary only at long intervals. This roll comprises a rigid portion of less width than the die with which the roll is to coöperate and a yielding portion on each side of the rigid portion, the rigid portion being composed entirely of metal and each yielding portion being composed of rubber mounted upon a metallic core. In using this roll, the rigid portion is arranged to bear upon the center of the blank, so that the yielding portions are relieved of the greater part of the strains incident to forcing the blank into the die and feeding it against the skiving knife.

The present invention is intended primarily as an improvement on the roll disclosed in the application above referred to and to this end contemplates the provision of yielding metallic surfaces in place of the rubber surfaces of said roll. In carrying

out the present invention, I have formed each of these metallic surfaces by means of a series of metallic plates arranged circumferentially around the roll. In order to allow the plates to yield they are mounted upon a rubber sleeve which is supported upon a metallic core. The ends of the plates are received in recesses in the rigid central portion of the roll and in rigid end pieces so that the plates are held from being displaced circumferentially of the roll and any strain put upon the plates by reason of their feeding action upon the blank is taken by the rigid central portion and the end pieces, and is not transmitted to the yielding rubber sleeves upon which the plates are mounted. In operation, the rigid center portion of the roll, which is of less width than the die with which the roll is used, is arranged to bear against the center of the blank and performs the greater part of the work of forcing the blank into the die and of feeding the blank against the skiving knife. The yielding surfaces formed by the yieldingly mounted metallic plates press upon the edges of the blank and allow the blank to conform to the die so as to be properly skived by the skiving knife. The yielding metallic surfaces are practically indestructible and the only strains to which the rubber sleeves are subjected are those due to radial movements of the plates, the torsional strains due to the feeding action of the plates upon the blank being taken by the rigid center portion and end pieces of the roll.

The present invention is embodied in its preferred form in a roll constructed as above described, in which a rigid central portion of less width than the width of the die is provided and a yielding portion on each side of the rigid portion provided with surfaces made up of a series of yieldingly mounted metallic plates. The present invention, however, is not limited to a roll having this construction but certain features of the invention may be embodied in other constructions broadly defined in the claims.

The present invention will be clearly understood from an inspection of the accompanying drawing, in which—

Figure 1 is a plan view, partly in section of a pressure roll embodying the invention in its preferred form, together with a die roll of a counter skiving machine with which the roll is adapted to coöperate, Fig. 110

2 is an end view of the roll illustrated in Fig. 1 with one-half of the roll shown in section, and Figs. 3 and 4 are views in side elevation and plan of one of the yieldingly mounted metallic plates.

The pressure roll illustrated in the drawing comprises a core 1, the central bore of which is provided with grooves to receive the splines of the pressure roll shaft of a skiving machine. Upon the core 1 is mounted a rigid metallic disk 2 which forms the center portion of the roll and which is of less width than the die of the die roll 3 with which the pressure roll is adapted to co-operate. Upon each end of the core 1 is mounted a metallic disk 4 and between the disks 4 and the center portion 2 of the roll are mounted rubber sleeves 5. These rubber sleeves are notched as indicated in Fig. 2 and upon the sleeves are mounted a series of metallic plates 6 which extend circumferentially around the roll, the surface of the roll which contacts with the blank being formed by the rigid portion 2 and the metallic plates 6. The ends of the plates are off-set as indicated in Figs. 1 and 3 and are received in slots formed in the faces of the rigid portion 2 and the end disks 4. The ends of the plates fit the slots as indicated in Fig. 2 so that they are rigidly held against displacement circumferentially of the roll, but are allowed to move radially. In operation the rigid center portion 2 bears against the center of the blank and acts to seat the blank firmly against the bottom of the die and feed the blank to the skiving knife. The yieldingly mounted metallic surfaces formed by the plates 6 engage the side edges of the blank and yield sufficiently to allow the blank to accurately conform to the die. The plates 6 take some part in the feeding action of the pressure roll but as they are held against displacement circumferentially of the roll, no torsional strains are brought upon the yielding sleeves 5. The entire surface of the roll being of metal is practically indestructible, and as the rubber sleeves 5 are fully protected and are subjected to slight compression strains only, the entire roll is extremely durable and does not need to be repaired or replaced more often than the other operating parts of the machine.

Having thus indicated the nature and scope of the present invention and having specifically described the preferred embodiment thereof, I claim as new and desire to secure by Letters Patent:

1. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith having a rigid surface of less width than said die cavity and a yielding metallic surface on each side of said rigid surface, substantially as described.

2. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith having a rigid surface of less width than said die cavity a surface on each side of said rigid surface made up of a series of metallic plates arranged circumferentially of the roll and a yielding support for said plates, substantially as described.

3. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith comprising a rigid center portion of less width than said die cavity, rigid end pieces, said center portion and end pieces being provided with radial slots, metallic plates mounted to move radially in said slots and held from circumferential displacement thereby, and yielding supports for said plates, substantially as described.

4. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith having a rigid surface of less width than said die cavity and a yielding metallic surface at one side of said rigid surface, substantially as described.

5. A skiving machine, having, in combination, a die carrier, provided with a die cavity, and a pressure roll coöperating therewith having a plurality of series of yieldingly mounted metallic plates arranged circumferentially of the roll and forming yielding metallic surfaces thereon, the plates of each series being mounted to yield independently of the plates of the other series, and each plate extending longitudinally of the roll over a portion only of the width of the die cavity, substantially as described.

6. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith having a plurality of series of metallic plates arranged circumferentially of the roll and forming metallic surfaces thereon and yielding supports for said plates arranged to permit the plates of each series to yield independently of the plates of the other series, each of said plates extending longitudinally of the roll over a portion only of the width of the die cavity, substantially as described.

7. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith having yieldingly mounted metallic plates forming metallic surfaces thereon, said surfaces being composed of a plurality of plates in the direction of the length of the roll and also circumferentially of the roll, each plate being mounted to yield independently of the other plates and arranged to extend longitudinally of the roll over a portion only of the width of the die cavity, substantially as described.

8. A skiving machine, having, in combination, a die carrier provided with a die cavity, and a pressure roll coöperating therewith having a rigid surface of less width than said die cavity and a yielding metallic surface at one side of said rigid surface, substantially as described.

tion, a die carrier provided with a die cavity,
and a pressure roll cooperating therewith
having a plurality of metallic surfaces ex-
tending circumferentially of the roll, each
5 of which is composed of a series of metallic
plates mounted to yield independently of
the plates of the other series and each plate
being arranged to extend longitudinally of
the roll over a portion only of the width of
10 the die cavity, substantially as described.

9. A skiving machine, having, in combina-
tion, a die carrier provided with a die cavity,
and a pressure roll cooperating therewith

having a series of metallic plates arranged
circumferentially of the roll and forming 15
metallic surfaces thereon, guides engaging
the ends of the plates and yielding supports
for the plates located between the guides,
substantially as described.

In testimony whereof I affix my signature, 20
in presence of two witnesses.

FREDERICK L. ALLEY.

Witnesses:

FRED O. FISH,
HORACE VAN EVEREN.