

H. S. WILLIAMS.
 PROCESS OF PRODUCING CONICAL CLUTCH FACINGS.
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1,019,396.

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Fig. 1.

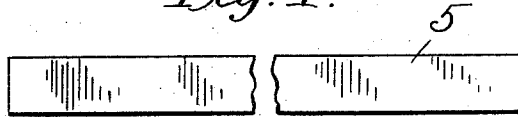


Fig. 2.

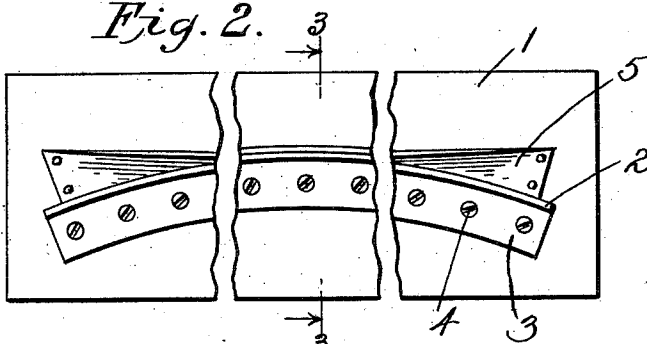


Fig. 3.

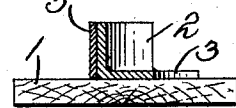


Fig. 4.

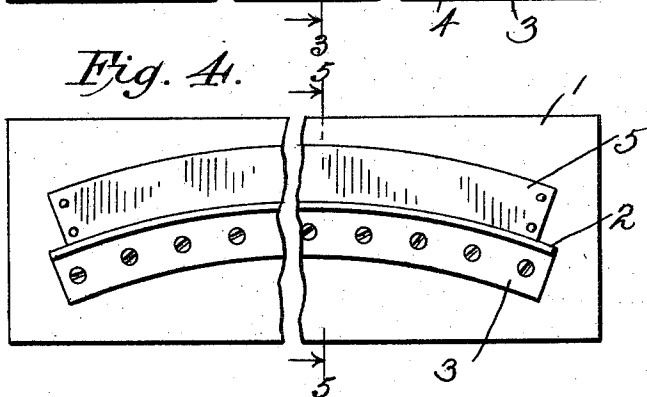


Fig. 5.

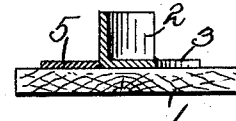


Fig. 6.

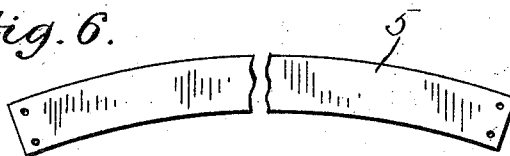
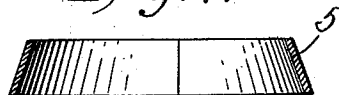


Fig. 7.



Witnesses:

A. L. Lord.
 C. H. Tresch.

Inventor.

Howard S. Williams,
 by B. W. Brockett
 Atty.

UNITED STATES PATENT OFFICE.

HOWARD S. WILLIAMS, OF CLEVELAND, OHIO.

PROCESS OF PRODUCING CONICAL CLUTCH-FACINGS.

1,019,396.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HOWARD S. WILLIAMS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Processes of Producing Conical Clutch-Facings, of which the following is a specification.

In applying clutch faces generally and particularly applying faces for clutches used in motor vehicles and the like, it has been customary to cut an arc-shaped strip from a leather hide and to connect this strip at its ends in a well-known manner thus producing a clutch leather or face which is in the form of a truncated cone whereby it will conform to the tapered or conical configuration of the clutch cone. It is undesirable to produce clutch faces in this way for several reasons. In the first place there is a great deal of waste from the hide due to the arc shape of the facing leather or strip and in the second place the leather forming the strip is not of a homogeneous character by reason of the fact that the leather extends to points in the hide which vary in toughness and strength; for example, the portion of the hide corresponding to the back or nearest the spinal column of the animal is tougher and possesses greater strength than the leather around toward the belly. Therefore, an arc-shaped piece would probably contain a portion of the leather at the belly and a portion of leather near the back bone. Hence it would not be of even toughness or strength and the clutch leather would not be homogeneous. Still further different portions of the hide, speaking with respect to its transverse dimension, possess greater or less elasticity as the case may be, and the clutch leather formed in the usual arc shape would have varying degrees of elasticity at different points throughout its length. This would cause the clutch leather to be thinner or thicker at different points and would require leveling. Further when applying the clutch leather, if too small, it would stretch at the weaker points and become thinner, bringing greater strain and wear upon the thicker portions producing an uneven clutch face. It has also been a practice to form clutch faces of straight leather strips which are first connected at their ends to form a cylindrical ring of a size equal to the small diameter of the clutch cone. This cylindrical ring is then forced over the clutch

cone until it is in the proper position when it is secured in place by rivets or any other suitable means. This method, however, possesses an undesirable feature by reason of the fact that the edge of the cylindrical ring which is to be forced onto the larger diameter of the clutch cone is stretched to an extent such that it becomes uneven and is less in thickness than the edge which is to engage the end of the clutch cone having the smaller diameter. This causes the clutch members to engage at their smaller diameter points and to be free at the larger diameters, so that the smaller diameter of the clutch face must wear before the entire clutch faces are in engagement.

The object of the present invention, therefore, is to overcome the disadvantages and difficulties above enumerated and to produce a clutch facing which is formed from a straight homogeneous strip of leather and at the same time is formed prior to being applied to the clutch member in a manner such that it will naturally assume, when its ends are secured together, a conical shape so that there is no undue stretching or expanding necessary when applied to the clutch face.

In carrying out the invention a strip of straight leather is cut from substantially the same general longitudinal portion of the hide and after being moistened is applied to a forming apparatus comprising an arc-shaped flange extending upward from a flat surface, preferably a board, in exactly the curve or shape the facing should assume in the flat. In applying the strip to the apparatus or former the ends of the strip are secured flat upon the board with one edge close against the base of the flange adjacent to the board, the strip between the ends assuming a rolled position against the side face of the flange. The strip is then worked down against the flat board with one edge conforming to the side face of the flange, and allowed to dry over night or for a suitable length of time, when it will remain in a curved or arc shape after which the ends may be secured together and it is ready for application to the clutch cone without stretching or further fitting. It has been found in practice that the clutch faces formed in this way come out of even thickness and form a homogeneous uniform clutch face. If the leather should be stretched thinner at one point by reason of working it into shape as referred to, the leather in the flat, and before

having its ends connected, may be leveled in a suitable leveling machine so that it will be of absolutely one thickness throughout.

The invention will be more fully and more specifically set forth in the following description, drawings and claim.

Referring to the drawings, Figure 1 is a top plan view of a strip of leather such as is used in forming the clutch face; Fig. 2 is a top plan view of the apparatus with a moistened strip applied thereto but before it has been formed down in place; Fig. 3 is a sectional view on the line 3—3 of Fig. 2 showing the clutch leather along the forming flange where it is rolled up against the side face thereof; Fig. 4 is a top plan view showing the apparatus with the strip formed down in place; Fig. 5 is a section upon the line 5—5 of Fig. 4; Fig. 6 is a top plan view of the formed and finished facing strip after it has been dried; and Fig. 7 shows the conical facing ready for use.

The apparatus comprises a base 1, preferably of wood or any other suitable material but of the proper size to receive the length of the facing strip. To this is secured one or more flanges 2 which are arranged at right-angles to the board and are in the form of an arc or curve corresponding to the curve which the facing strip should assume when finished. This flange 2 is held by a base flange 3 secured to the board by suitable screws 4 or in any other preferred manner.

In conducting the process a straight strip 5 of leather is moistened and is tacked or otherwise secured at its ends to the board 1 with one edge against the base of the strip or flange 2 adjacent the board. When in this

position the intervening portion of the strip rolls up so that it bears flatly against the side face of the flange or strip 2. The operator then forms the leather until it is rolled down flat against the upper face of the board and allows it to remain in this position for a suitable length of time sufficient for drying out the moisture. After this drying operation has been completed the clutch leather is then removed and its ends may be skived ready for forming into the conical shape when it will be in the proper form for application to the clutch cone. If, during the forming operation, the leather should be thinned out in spots or should be unduly stretched so that it is thinner at one point than another, the entire strip may be leveled in a suitable leveling machine (not shown) common in the art, when the clutch facing will be uniform in thickness and of the proper shape to be formed into a clutch face.

Having described my invention, I claim:—

The herein described process of producing a curved leather strip for a conical clutch facing which consists in moistening a straight flat leather strip, forming such moist strip into a flat curved strip with its side edges describing substantially concentric arcs, and holding said strip in such position until set.

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

HOWARD S. WILLIAMS.

Witnesses:

E. C. WARNELINK,
C. H. TRESCH.