

COVERED STRAP FOR BOOTS OR SHOES AND METHOD OF PRODUCING SAME.

968,461.

Patented Aug. 23, 1910.

2 SHEETS--SHEET 1.

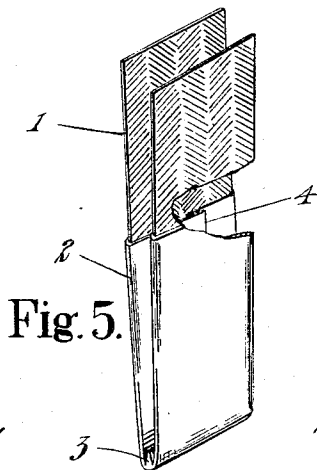


Fig. 5.

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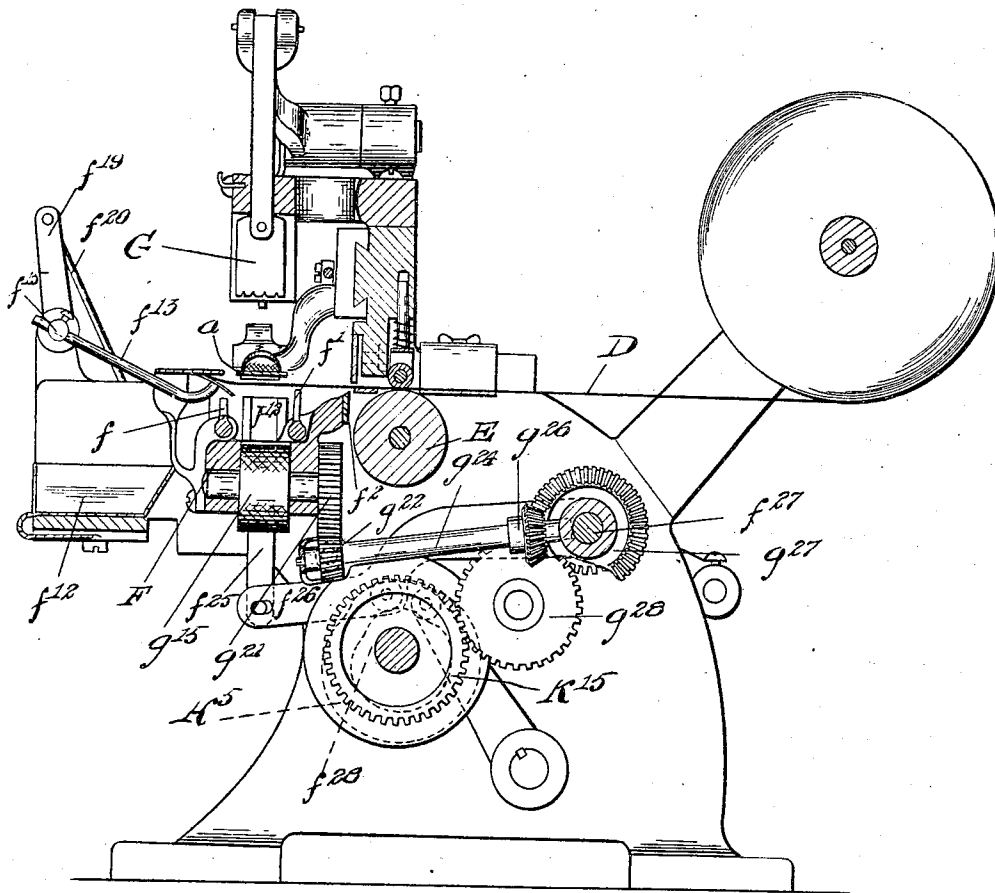


Fig. 6.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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COVERED STRAP FOR BOOTS OR SHOES AND METHOD OF PRODUCING SAME.

968,461.

Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed November 29, 1907. Serial No. 404,352.

To all whom it may concern:

Be it known that I, LABURTON A. GALE, a citizen of the United States, residing at Malden, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in Covered Straps for Boots or Shoes and Methods of Producing Same, 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 the manufacture of boots and shoes and particularly to covered straps or loops of the type with which shoe uppers are usually provided, the wrapper or cover upon each of these donning straps serving to protect the straps from being soiled during the manufacture of the shoe.

In applying the cover to the strap it is important to wrap the cover snugly about the strap and to flatten out permanently the wrinkles into which the excess of cover material within the loop gathers when the covered strap is folded transversely upon itself to form the loop. This is necessary because these wrinkles, if not properly compressed, tend to force the sides of the loop apart so that the cover is apt to be caught and torn in various stages of the manufacture of the shoe. The expanding effect of this excess of cover material is augmented by the presence within the loop of the lap joint connecting the longitudinal edges of the cover, and the paste used to secure these edges together, the joint side of the cover being usually turned within the loop to leave the exterior of the loop smooth.

Accordingly, this invention has for an important object a new article of manufacture consisting of a flattened loop, of especial utility for use as a shoe strap, being provided with a snugly fitting cover that will not become loosened and torn from the strap during manipulation of the loop, or of the shoe or other article in connection with which the loop may be used; and an equally important object is a method to obtain the more perfect fitting of a cover to the sides and bight of a shoe strap or loop than has previously been obtained, and to flatten completely and permanently the covered, doubled strap, thus producing the

flat shoe strap or loop sought as already set forth.

I have found that by forming into a re-entrant fold the excess of covering material within the loop, preferably at or near the bight of the loop, the inner sides of the loop will be left free from wrinkles and smooth, and also that when the covered, folded strap is compressed the re-entrant fold containing the excess of covering material can be flattened completely and permanently, so that there is no tendency to force apart the sides of the loop, which remains quite flat throughout the manipulation of the shoe. I also find that the formation of the re-entrant fold is facilitated by leaving free from paste the median portion of the contacting longitudinal edges of the cover, and so I preferably apply the paste, if desired, only at or near the outer ends of the longitudinal joint between the overlapping cover edges.

In its broadest aspects my invention comprises a method of so forming the covering material upon a strap or loop during its manufacture for use as a shoe strap or similar article, that when the covered strap is doubled and compressed the bight of the strap and its cover will be flattened completely and permanently; and likewise a novel product or article consisting of a doubled, and completely flattened, covered loop, constituting a shoe strap or similar article. In practicing this method the cover may be engaged at its median portion by a creasing device. This creasing device will preferably be forked at the end to receive the excess of cover material to be formed into the re-entrant fold and will be actuated transversely to the length of the covered strap to crease it and introduce it to a suitable doubling and compressing device which may take the form of the usual doubling rolls generally utilized in the manufacture of covered shoe straps to complete the doubling and compressing operation.

The invention will be more fully explained in the following description, reference being had to the accompanying drawings, in which is shown one form of apparatus by the aid of which the method of the invention may be practiced and the novel product may be produced. That apparatus is not herein claimed, as it forms the sub-

ject of Letters Patent No. 931,748, granted August 24, 1909.

Figure 1 is a vertical, central sectional view of the apparatus, showing in side elevation a shoe strap in position to be operated upon, the strip of covering material being shown in section directly under the strap. Figs. 2, 3 and 4 are detail sectional views on the middle vertical line $x-x$, Fig. 1, showing different phases of the folding operation; Fig. 5 is a view in perspective of the covered strap as it appears when completed, one side of the strap being partly broken away to show more clearly the inner fold of the wrapper; and Fig. 6 is a vertical, sectional view on the line $X-X$, Fig. 1, looking from right to left, parts being shown in elevation.

The apparatus herein shown for use in practicing my novel method and producing my novel article comprises reciprocating feeding devices B and C to receive the strip A of webbing or other strap stock, and a bearing j^4 in which the creasing device G is movable in a path transverse to the strap. The creasing device comprises a plurality of leaves slightly separated or forked at their free ends g^1 , and slides in a slot j^3 , being carried at the end of a plunger g^2 . This in turn is operated by a rocking beam g^3 mounted pivotally at g^4 upon the member j^{14} of the frame and has a slot and pin connection g^5 with the upper end of the plunger. The other end of the beam is connected pivotally at g^6 to a collar g^7 through which extends a pitman g^8 on which a plurality of collars g^9 , g^{10} are secured in adjusted position by set screws, the pitman being reciprocated by any suitable actuating means, as for example those illustrated in said Letters Patent No. 931,748.

The primary feeding device B is tubular, to pass the strip A, and is moved to and fro in the plane of Fig. 1 by the lever b^7 actuated by the cam k on the main actuating shaft K. The secondary feeding device C has jaws c , c^1 , held together by a spring c^2 , and is caused to traverse a slideway j^1 , parallel with the strap D, by the action of a link c^5 , crank c^6 and pitman c^{11} , connected operatively with a cam (not shown) on the main actuating shaft.

The above parts are constructed and arranged so that when the shaft K rotates, the primary feeding device B carries forward the strip A into position to be grasped by the jaws c , c^1 , which then draw the strip into the position illustrated in Fig. 1, where the portion of the strap indicated by the reference letters $a-a$ is sustained to receive the cover.

A feed roll E, (see Fig. 6) is mounted rotatively in position to feed the stock of cover stock D transversely to, and beneath, the strap $a-a$ as it is thus sustained.

A wrapping table or bed F is mounted on guides f^{25} sliding in vertical guideways j^{12} on the frame of the machine and actuated by arms f^{26} pivoted at f^{27} and having an antifriction roll f^{28} engaging a cam k^5 which serves to raise the bed into the position shown in Figs. 2, 3 and 4, carrying with it folders f , f^1 , a shear device f^2 , and doubling and compressing rolls g^{15} , g^{16} , in line with the creasing device G, the rolls being actuated from the main actuating shaft by connections including the gears k^{15} , g^{28} , g^{27} , g^{26} , the shaft g^{24} , and the gears g^{22} , g^{21} and g^{20} .

Pasting devices f^{13} , (see Fig. 6) are mounted in a rock shaft f^{15} operated from the main actuating shaft by suitable connections including the crank f^{19} and rod f^{20} , these devices dipping at times into the paste vat f^{12} and being so constructed as to apply a small quantity of paste (as at f^3 , Fig. 2) near each end of the longitudinal front edge d of the cover blank D, leaving the median portion free from paste.

In practicing the invention with the apparatus shown, the strip A of webbing or other suitable strap stock (from a roll or other source of stock not shown) is led, as indicated at the right hand of Fig. 1, through the tubular, reciprocating, feeding-beak B which positions the free end a of the strip at the right point to be grasped by the sliding gripper C, the jaws c , c^1 of which seize the strip and pull it along through the beak and across the strip of paper or other covering stock D which the roll E has fed above the table or bed F and transversely beneath the portion of the web to be covered. After this feeding operation, the bed F rises while the strip is still held between the beak and jaws, bringing into action the folders f , f^1 , which in their ascent (see Fig. 2) turn upward the sides of the covering blank of paper (the latter having first been severed from the stock strip D by the shear f^2) and the folders are then turned to fold the edges of the paper in overlapping relation through a sequence of operations shown in Figs. 2 to 4 inclusive, paste having been applied if desired at a suitable point in the operation at or near each of the ends of the forward edge d of the paper cover blank, as at f^3 (see Fig. 2), so that when folded the overlapping edges are secured together. The strip having thus been covered, the creasing blade or device G descends, carrying with it a plunger g which engages an extension c^3 of the movable jaw c of the gripper slide, opening the jaws and releasing the end a of the strap, the other end of which is at the same time severed from the stock by a knife H, acting at the proper region of the strip to give a strap of the desired length.

The creasing blade G continues its de-

scent, and pushes ahead of it the covered strap into the bight of the pair of rolls g^{15} and g^{16} which complete the doubling operation, compressing the doubled strap and discharging it toward the bottom of the machine, at which point it presents the appearance shown in Fig. 5, being ready for attachment to the shoe upper.

When the slightly separated free ends g^1 of the creasing leaves engage the paper cover at the middle of the strap to initiate the creasing and doubling operation the leaves receive between them the slight excess of double paper within the bight of the loop and form the same into a reëntrant fold which presents approximately the appearance illustrated at 3 in Fig. 5. This arrangement of the excess of cover material which is facilitated by the absence of paste along the middle portion of the lap 4, aids to cause the formation of a smooth, flat, interior surface within the bight of the cover, as shown in Fig. 5, when the strap is passed through the doubling and compressing rolls which fix the reëntrant fold 3 permanently, and completely flatten the bight and its cover giving it the neat appearance illustrated.

For the downward or creasing and doubling movement, the beam g^3 is actuated positively by the collar g^9 , but between the collars g^7 and g^{10} an intervening coil spring g^{11} is provided, in accordance with my invention, so that the downward draft of the pitman upon the beam and its upward draft on the blades g^1 will be of a yielding character until the rolls shall have cleared the bight of the strap from the blades, after which the spring will cause the beam to withdraw the doubling blades rapidly from between the folded portions of the strap as soon as the latter shall have been advanced far enough by the doubling rolls. During the doubling operation, the folders f, f^1 hold the covered strap yieldingly upon the bed F so that the strap can be withdrawn from beneath the folders by the action of the creasing blade which descends between the folders at their central cut-away portion.

It will be understood that my novel method is not limited to practice by means of the apparatus herein shown and described, as that apparatus is illustrated and its use is described merely for the purpose of showing one way in which the method may be practiced. The invention is, of course, not limited to any apparatus and the per-

formance of the succession of steps in which my improved method consists is within my invention in whatsoever manner or by whatsoever means those steps may be performed, nor is my novel article limited to use as a shoe strap, for I contemplate its utilization in any field to which it may be adapted by the nature of my improvements.

Having explained the nature of this invention and fully described how it may be practiced, I claim as new and desire to secure by Letters Patent of the United States:—

1. The method of making covered and doubled loops which consists in forming into a reëntrant fold the excess of cover material in the bight of said loop during the preliminary creasing operation, then doubling said covered loop and compressing said doubled loop to flatten said bight and fold.

2. A loop or strap provided with a cover comprising a wrapper of flexible material and having the excess of said cover material within said loop formed into a reëntrant fold.

3. A loop or strap provided with a cover of flexible material and having a reëntrant fold comprising the excess of cover material within the bight of said loop.

4. A loop or strap provided with a cover of flexible material and having a reëntrant fold comprising the excess of cover material within the bight of said loop, said bight and fold being permanently flattened.

5. A loop or strap provided with a cover comprising a strip of flexible material wrapped thereabout with its edges joined in a longitudinal joint, and having means to secure together the said wrapper edges near each end, the median portion of said joint being unconnected.

6. A loop or strap of the class described, comprising a fabric body provided with a cover of flexible material wrapped thereabout and having its longitudinal edges overlapping and pasted together near their ends with their median portions loose, said loop and cover being doubled transversely with said joint inward and with the excess of cover material in said loose portion formed into a reëntrant fold.

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

LABURTON A. GALE.

Witnesses:

BERNARD BARROWS,
ALLAN H. BARROWS.