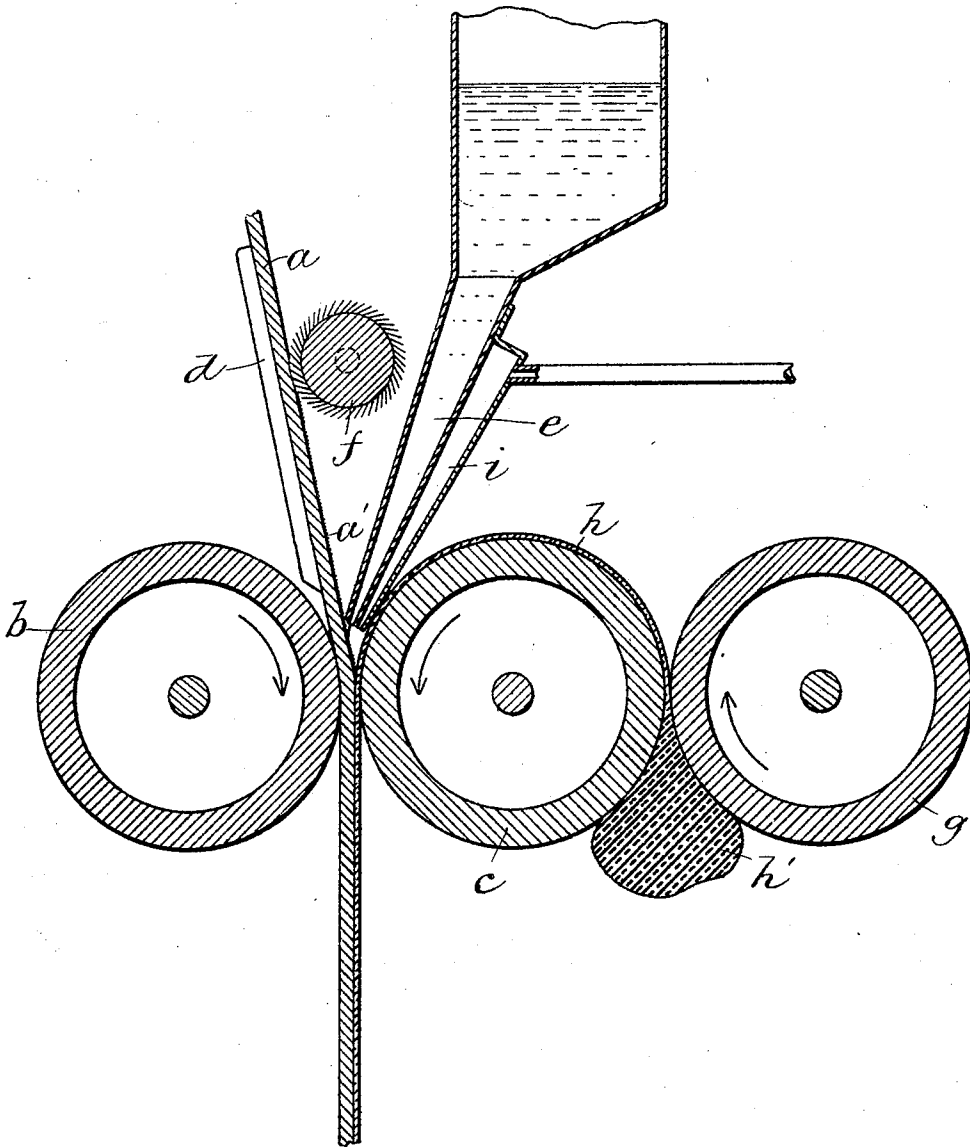


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PATENTED JULY 18, 1905.

J. J. STEINHARTER.  
APPARATUS FOR COATING LEATHER WITH RUBBER.  
APPLICATION FILED NOV. 28, 1904.



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# UNITED STATES PATENT OFFICE.

JOSEPH J. STEINHARTER, OF PHILADELPHIA, PENNSYLVANIA.

## APPARATUS FOR COATING LEATHER WITH RUBBER.

SPECIFICATION forming part of Letters Patent No. 795,076, dated July 18, 1905.

Application filed November 28, 1904. Serial No. 234,487.

*To all whom it may concern:*

Be it known that I, JOSEPH J. STEINHARTER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Coating Leather with Rubber, of which the following is a specification.

This invention has for its object to provide means for firmly and inseparably applying to a sheet of leather a layer or coating of vulcanized rubber; and it consists in the improvement which I will now proceed to describe and claim.

The accompanying drawing represents a sectional view of an apparatus embodying my invention.

In the drawing, *a* represents a sheet of leather to be coated with rubber. The said sheet is preferably composed of chrome-tanned leather free from oil or grease and having a nap *a'* on one of its surfaces, the nap being composed of fiber ends integral with the body of the sheet. This nap may be formed by splitting the sheet of leather, using a splitting-knife having a rough or serrated edge. My improved apparatus comprises a bed adapted to support the leather sheet *a* against the necessary pressure exerted in applying a rubber coating thereto, means for applying a liquid composition containing unvulcanized rubber to the napped side of the sheet, thus forming an inner coating or nap-filling of unvulcanized rubber, in which the fibers of the nap are embedded, and means for applying to the said inner coating and to the portions of the fibers that project through the same an outer coating of plastic unvulcanized rubber, the two coatings being subsequently permanently united and caused to adhere to each other and to the fibers of the leather by the process of vulcanization.

In the embodiment of my invention here shown the bed which supports the leather sheet is a bed-roll *b*. Opposed to this roll is a pressure-roll *c*, the axis of which is parallel with the axis of the roll *b*. The sheet *a* passes between the two rolls, the said rolls being arranged so that along the line of nip they will exert pressure simultaneously on the back

side of the sheet and on the rubber coating applied to the outer side of the sheet.

*d* represents a guide which is adjacent to the nip of the rolls and supports the sheet *a* on its way to the rolls.

*e* represents a nozzle formed to deliver a relatively wide and thin stream of rubber cement against the outer side of the sheet *a*, the cement coming in contact with the sheet at a point in close proximity to the nip of the rolls *b* and *c*, but at such distance from the nip as to enable the cement to fill the spaces between the fibers of the nap of the sheet before the fibers are subjected to the pressure of the rolls. I prefer to provide means for raising the nap or causing its fibers to stand out from the surface of the sheet *a* before the cement is applied, thus causing a more intimate engagement between the inner coating formed by the cement and the fibers than would occur if the fibers were matted down or flattened against the sheet. A suitable nap-raising device is a rotary wire brush *f*, which is arranged to act on the portion of the sheet that is backed by the guide *d*. The nozzle *e* delivers the cement to the sheet *a* at a point between the nap-raising device and the nip of the rolls.

*g* represents a roll which is in close proximity to the pressure-roll *c* and is adapted to cooperate with the latter in causing a film *h*, of plastic unvulcanized rubber, to be drawn from a rubber mass *h'*, placed adjacent to the nip of the rolls *c* and *g*. This coating of plastic rubber is carried by the rotation of the roll *c* to the nip of the rolls *b* and *c* and is pressed against the side of the sheet *a* which has received the inner coating of rubber cement, as above described. The coating *h* adheres firmly to the sheet *a* and passes with it between the rolls *b* *c*, the said coating separating from the roll *c* below the nip of the rolls.

The rolls *c* and *g* should be heated, preferably to a temperature of about 300° Fahrenheit. The roll *b* should also be heated; but as this roll comes in contact with the back of the leather sheet it is desirable to keep it at a lower temperature, preferably about 100° Fahrenheit. The cement is supplied to the

nozzle *e* in a heated condition from a suitable heated reservoir. To insure the delivery of the cement to the leather sheet at a sufficiently high temperature, I provide a nozzle *i*, through which a blast of hot air may be forced by any suitable means. The two rubber coatings—namely, the inner coating of cement and the outer coating of plastic vulcanized rubber—are caused by the heat and pressure to adhere firmly to each other, and they form a rubber layer which is subsequently rendered permanent by placing the coated sheet in a vulcanizing-chamber and applying a vulcanizing heat for a sufficient length of time. When the rubber coating is vulcanized, it is practically inseparable from the leather, owing to the fact that the fibers of the leather are firmly embedded in the vulcanized-rubber layer.

I claim—

1. An apparatus of the character stated, comprising means for raising the fibers on one side of a leather sheet, means for applying a rubber solution to the portion of the

sheet on which the fibers have been raised, the said solution surrounding the raised fibers and forming an inner coating or nap-filling, and means for applying to said inner coating or filling an outer coating of plastic unvulcanized rubber.

2. An apparatus of the character stated, comprising a bed-roll, a heated pressure-roll cooperating therewith, a nap-raising device adjacent to the nip of the rolls, means for applying a rubber solution to the raised nap of the sheet at a point between the nap-raising device and the nip of the rolls to form an inner coating or filling on said sheet, and means for applying to the pressure-roll a coating of plastic unvulcanized rubber, the latter being applied by the pressure-roll to the preliminarily-coated surface of the leather.

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

JOSEPH J. STEINHARTER.

Witnesses:

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