

(No Model.)

M. FRANK.

PROCESS OF MANUFACTURING ARTICLES OF SOLE LEATHER.

No. 534,146.

Patented Feb. 12, 1895.

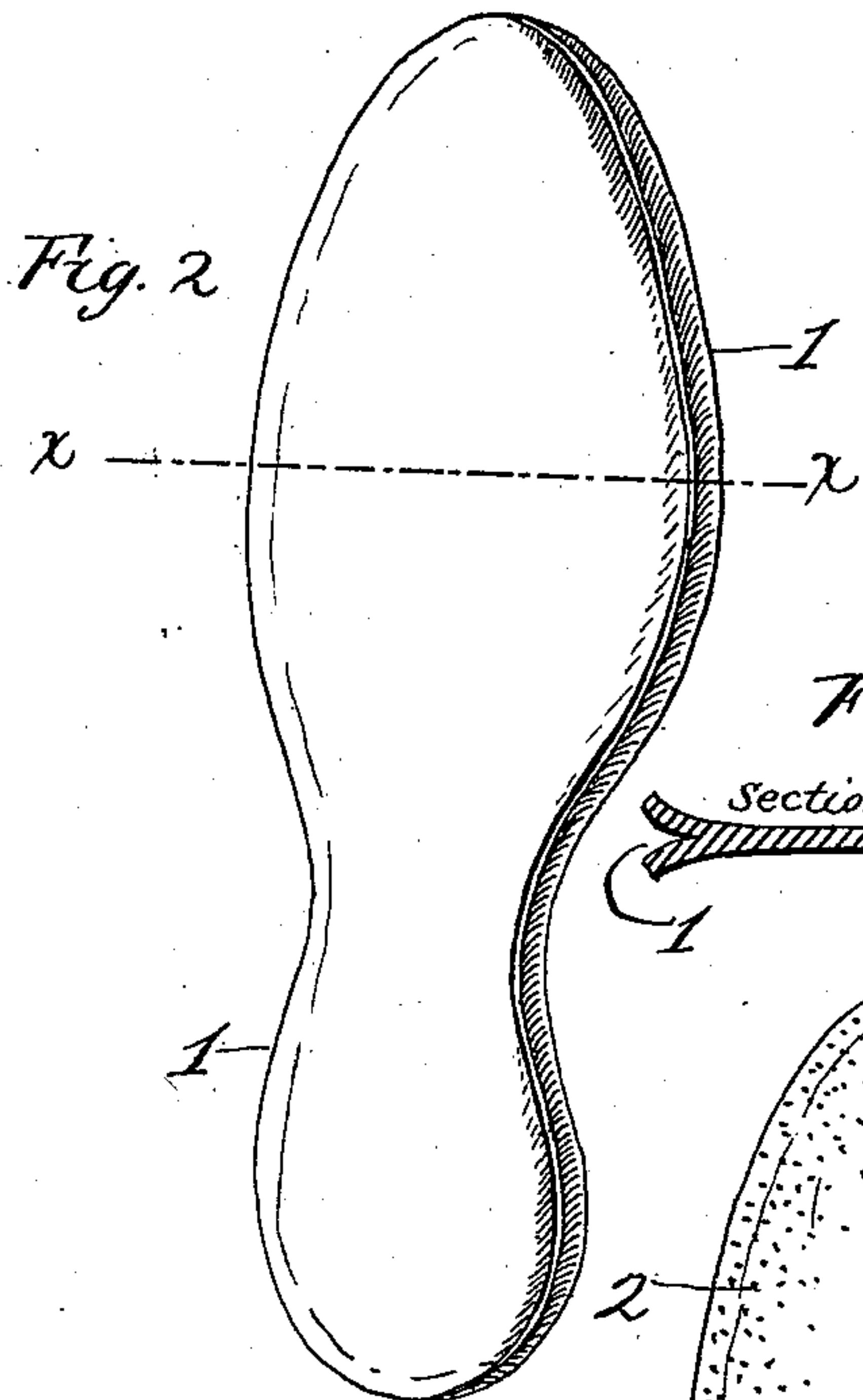
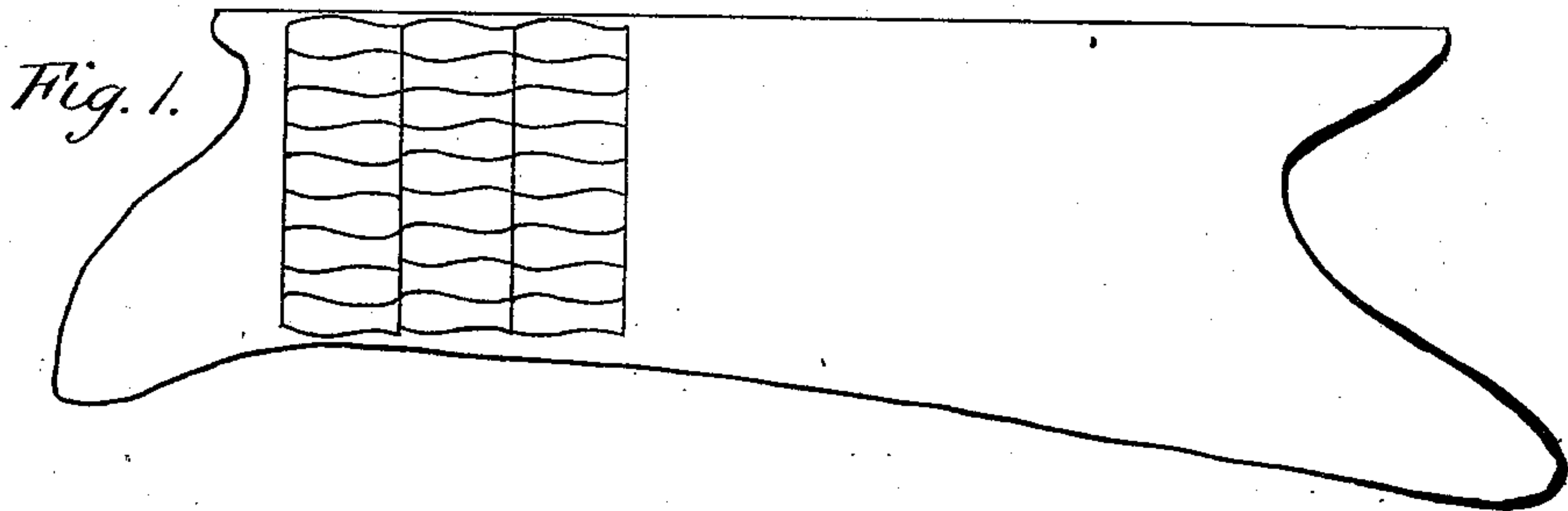


Fig. 3.

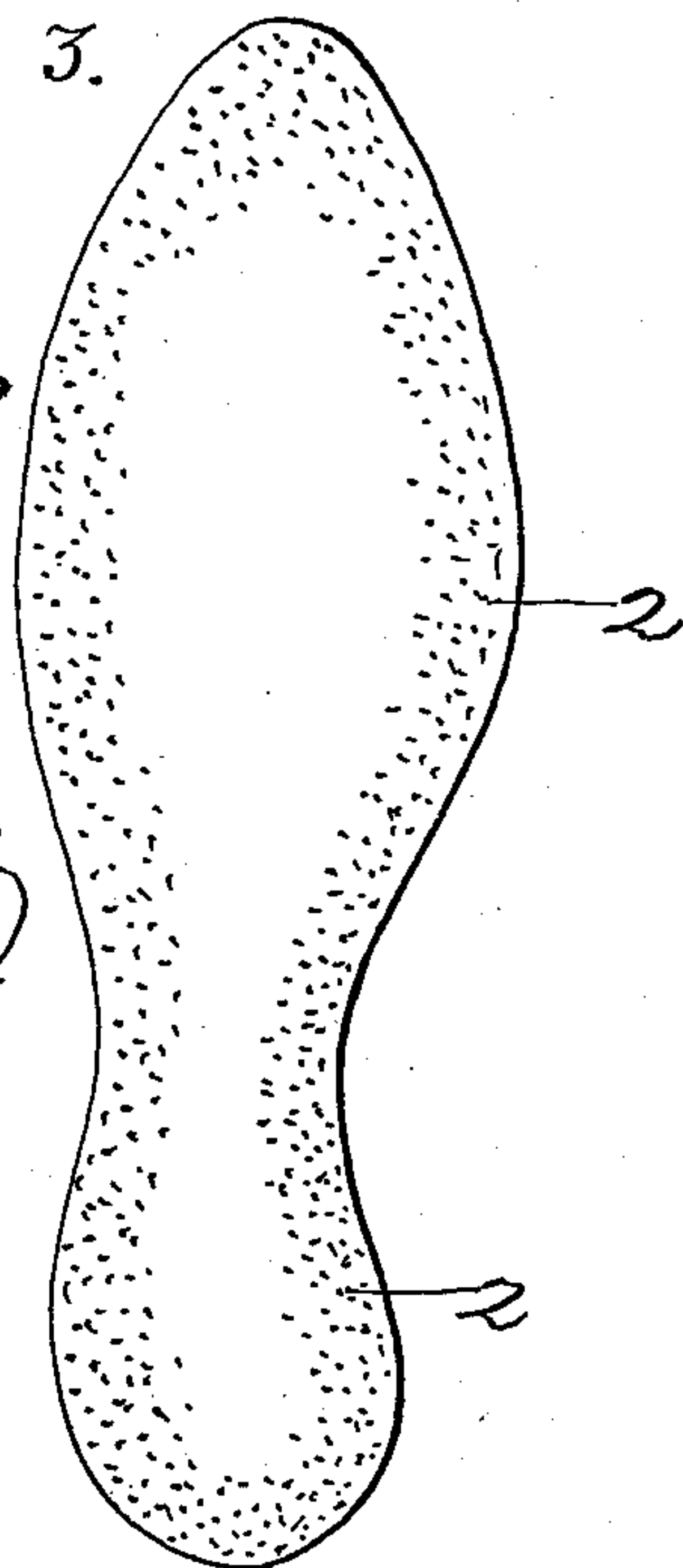


Fig. 5.

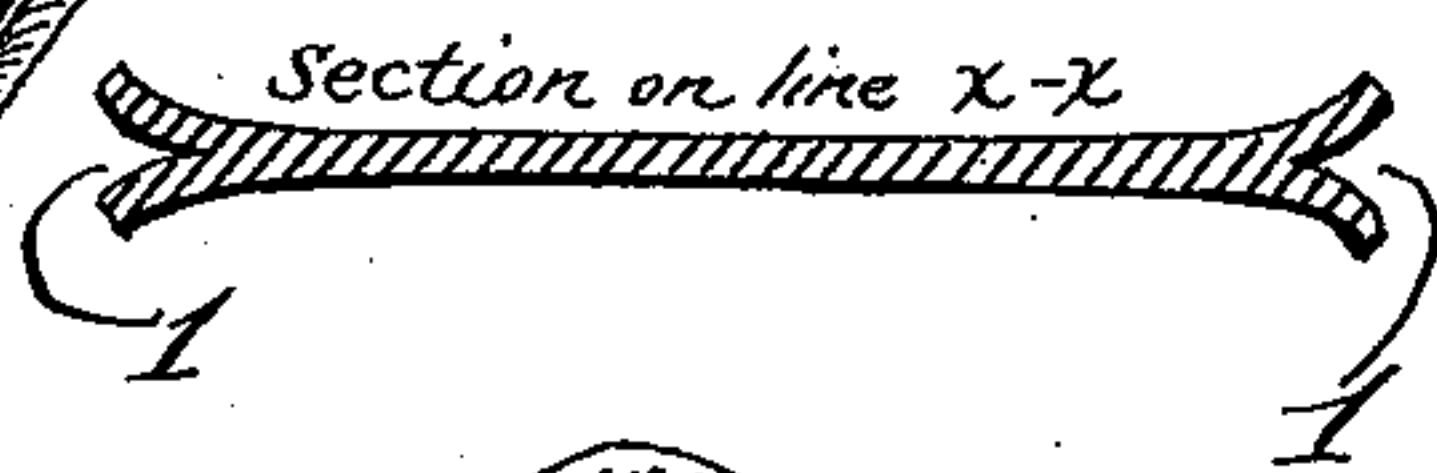
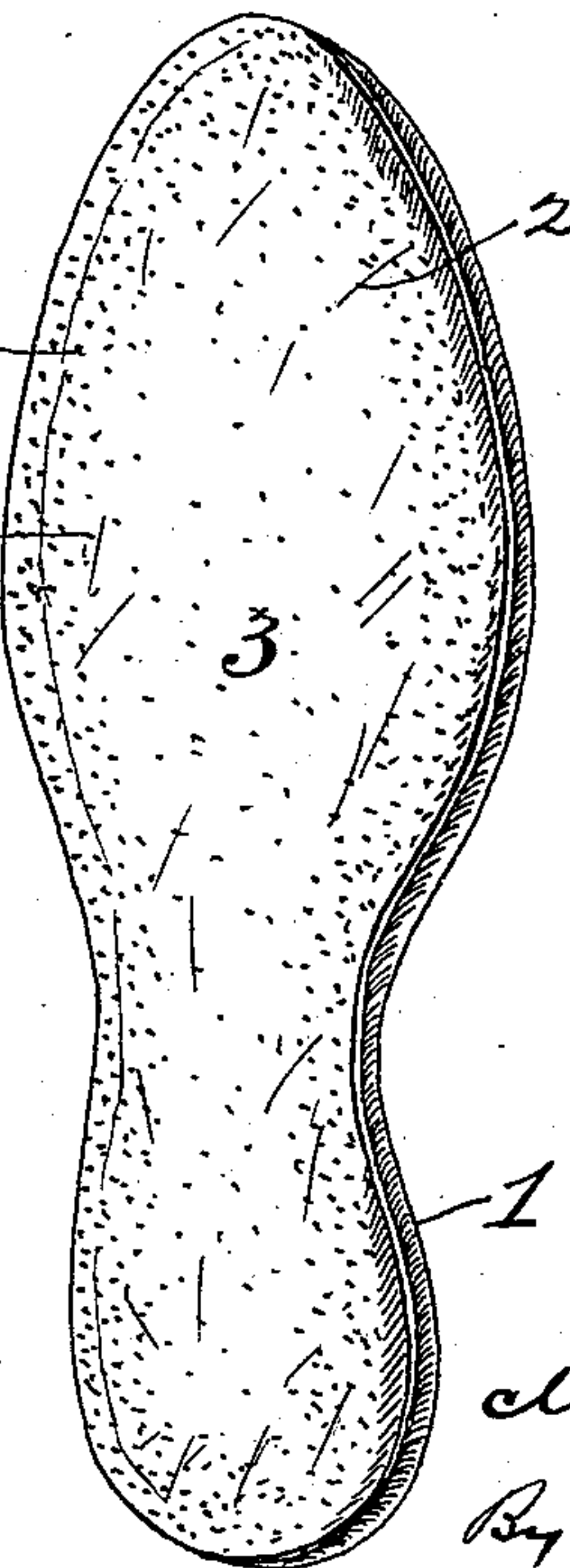


Fig. 4.



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MARTIN FRANK, OF NEW YORK, N. Y.

PROCESS OF MANUFACTURING ARTICLES OF SOLE-LEATHER.

SPECIFICATION forming part of Letters Patent No. 534,146, dated February 12, 1895.

Application filed March 3, 1894. Serial No. 502,213. (No model.)

To all whom it may concern:

Be it known that I, MARTIN FRANK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Process of Manufacturing Articles of Sole-Leather; 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.

My invention relates to improvements in the process of manufacturing soles for boots and shoes, stiffenings, heel-stock belting and all other articles which are usually cut from sole or rough leather.

The object of my invention is to provide a suitable process by means of which all articles made from sole leather, or rough leather, may be more cheaply and expeditiously made and tanned than under the usual processes, and a considerable saving effected in time as well as labor, and in the cost of machinery and plant. This will be more fully pointed out hereinafter.

Briefly stated, the dry or green salted and de-haired hide or side is treated to harden the grain and color the hide. The articles—be they shoe soles or other articles—are then cut from the hide and pricked, punctured, scored, cut or split at suitable portions of their structure to facilitate the action of the tannin at such points. The articles are then subjected to the tanning operation and finally finished.

By my process I produce the formed articles directly from the dry or green salted hide and by then subjecting such articles to a preliminary preparation, to be presently described, and then tanning the formed articles they can be more thoroughly tanned in sixty days than a hide ordinarily can be tanned in from six to eight months, besides dispensing with the vats and other expensive machinery, labor and expense involved, and necessary, in tanning whole hides. The complete articles can be readily and cheaply produced by a single crew of men in a single establishment by simple appliances. The necessity of having separate expensive plants for each tanning process is avoided. The necessity of having expensive

tanneries and plants in the bark regions is avoided. The tanning liquor can be brought to the place where the soles are cut and the soles expeditiously and completely tanned by the sole cutters and small consumers, a better article produced from sole leather and a more economical and complete use of the hide attained.

In the accompanying drawings Figure 1, represents a side of leather, which has been de-haired and dry or green salted, in process of being cut up into shoe soles. Fig. 2, represents a shoe sole grooved or split around its edges to facilitate the action of the tanning around the edge portion of the sole. Fig. 3, represents a sole as punctured, pricked or perforated in that portion of its body which it is desired to thoroughly tan. Fig. 4, represents a sole which has been both split or grooved at its edge and pricked or perforated in its body portion. Fig. 5 is a section on the line *xx* of Fig. 2.

It is well known that raw hide possesses extreme tenacity, strength and wear-resisting qualities, it being almost impossible to destroy it, or articles formed thereof, by constant use. Raw hide has never yet been employed in the bottoms of shoes for the reason that heretofore no method has been devised by which the necessary finish could be imparted thereto to render it capable of use in such connection. The advantages derivable from the employment of raw, or partly raw, hide in the construction of the bottom soles of boots and shoes will be manifest. Such soles will wear much longer, can be produced more cheaply and will result in the production of a longer-wearing shoe at a cheaper cost to the consumer.

In carrying out my process the hide, which may be either dry or green salted, is treated in the usual manner to remove the hair, and the hide is then put in a weak liquor, strong enough to merely harden the grain and color the hide. After the hide has been in the liquor for ten or twelve days it is taken out, and by means of suitable machinery, such as is usually employed for cutting sole leather, it is cut into soles or other articles to be made from leather. When the hide has been thus

cut into soles, said soles are then, when it is desired to leave the central or body portion in a raw or partly raw condition, and by a suitable appliance or appliances, either split
 5 or grooved around their edges, as shown at Fig. 1, or scored or pricked, or punctured on either side of or through the sole at the portions adjacent to the edges, as shown at Fig. 2, it being understood that, when desired, the soles may
 10 be subjected to both the edge grooving or splitting and also to the side pricking, puncturing or scoring operations or to either one of them alone as found most desirable according to special requirement. By thus treating
 15 the soles it is found that on subjection to the tanning process, to be presently described, those portions of the soles so scored, pricked, punctured, split or grooved will become very much more speedily and effectually tanned
 20 than those portions not so prepared and, necessarily, much more speedily tanned than it is possible to tan whole hides or articles cut therefrom and not so prepared for the action of the tannin. When, however, it is desired
 25 to subject the sole or other articles formed from the hide, to speedy action of the tannin throughout its surface or body I score, prick, or puncture, either or both faces of the article over its surface, as shown at Fig. 3, or over any
 30 desired portion thereof according to requirement. The puncturings in either case, may extend entirely through the article in which case I, after tanning, fill the interstices with any suitable filling and then pass the same between
 35 compressing and finishing rollers. Similarly, the split edges, after the sole is tanned, are treated with a suitable adhesive and the split edges pressed together by the passage between compressing rollers or otherwise.
 40 When thus compressed the sole is as durable, in every respect, as before being pricked or split and such preliminary treatment will scarcely be noticeable. After the formed articles have been thus prepared for the tan-
 45 ning process they are then placed in barrels, or other water-tight receptacles which may be conveniently handled, the barrels or receptacles are filled up with tan liquor, and said receptacles are then slowly revolved by means
 50 of any suitable machinery. This revolving keeps the tan liquor active and enables the articles in the revolving barrel to be very quickly and thoroughly tanned.

When the hides are tanned whole, only two
 55 sides are exposed to the action of the tan liquor, and the process is necessarily slow, but where the articles are cut from the raw or partially tanned hide and then subjected to the action of the tan liquor they will be
 60 quickly tanned, for the reason that owing to their small size, the liquor will have a quick tanning action on the edges, as well as on the sides. Moreover, it is a well known fact that
 65 where the articles that are being tanned can be revolved as described, the tanning action

is greatly promoted, but it is practically impossible to tan whole hides or sides in this manner, as the machinery is so heavy and bulky.

It will be understood that it is only necessary to keep the receptacle containing the cut articles in constant motion, and this motion need not necessarily be a rotating one, and to facilitate tanning it is necessary to draw
 off the liquor and supply new and stronger
 75 liquor often. After the soles or other articles are tanned, they are taken out, dried, rolled and finished in the usual manner.

By splitting or grooving the edges of shoe soles, or pricking or puncturing the soles adjacent to their edges as described, the tannin immediately acts upon the edge portion and insures the rapid tanning thereof the result
 being that the edge tanning is more quickly
 85 accomplished than is the unpricked center of the sole which can then be left in a partly raw state in which condition it subserves every purpose that a thoroughly tanned sole can besides possessing, by reason of its partly raw
 condition, greater toughness and durability
 90 than a sole tanned throughout in the ordinary way. It is necessary to tan the edges and grain (hair side) of the sole in order that they may take the final ink dressing, and burnishing on edge, buffing for bottom, staining and
 95 finishing.

Where it is desired to thoroughly tan the soles or other articles throughout their entire structure I either prick, puncture or
 score either or both sides, or else perforate
 100 them entirely through their body and then subject them to the tannin. In this way I am enabled to tan the articles more thoroughly and in less than one-half the time it takes to
 ordinarily tan hides and in this way more ex-
 105 peditiously and cheaply produce soles and other articles of equally good quality to that produced when the hides are tanned whole and the articles then cut therefrom.

Better and plumper leather is produced by
 110 my process than is possible where the whole hide is tanned, as each piece or article, is subjected, throughout, to the action of the tannin and receives the same handling and treatment. Therefore, under my process, soles
 115 formed from the flank or belly, the poorest part of the hide, are about equal to that taken from the back of a hide tanned in the old way, while the soles cut from the flanks or bellies of whole hides after they are tanned, are of
 120 such inferior quality that they are hardly fit to wear and bring a very small price in the market.

Having thus fully described my invention, I claim as new and desire to secure by Letters
 125 Patent—

1. A sole for boots and shoes having a raw, or partly raw, body portion and tanned edges, substantially as and for the purpose set forth.
2. The herein described method of produc-
 130

ing sole leather articles, as soles and heel lifts,
consisting in cutting said articles from a
green or dry-salted hide, then puncturing,
scoring, or slitting those portions thereof it
5 is desired to tan, then subjecting said article
to a tanning operation, then closing the punct-
ures, scores, or slits with a suitable filling or
adhesive and, finally, subjecting the articles
to a compressing operation to equalize their

thickness, substantially as and for the pur- 10
pose set forth.

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

MARTIN FRANK.

Witnesses:

W. E. F. SMITH,
FREDERICK HECKING.