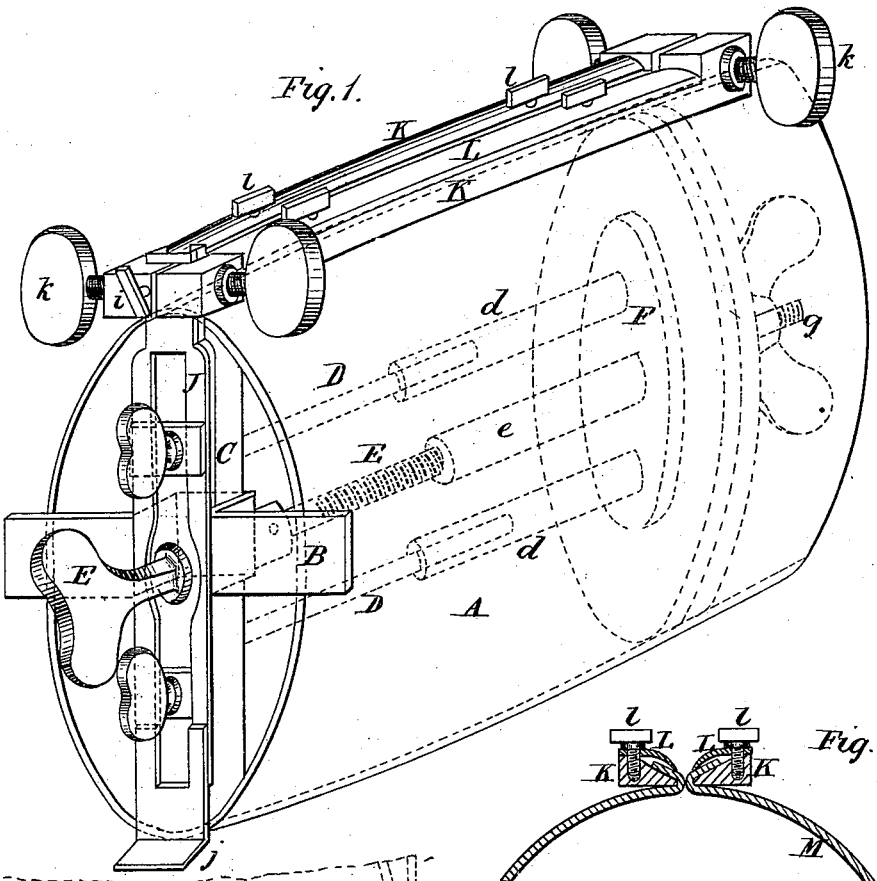
(No Model.)

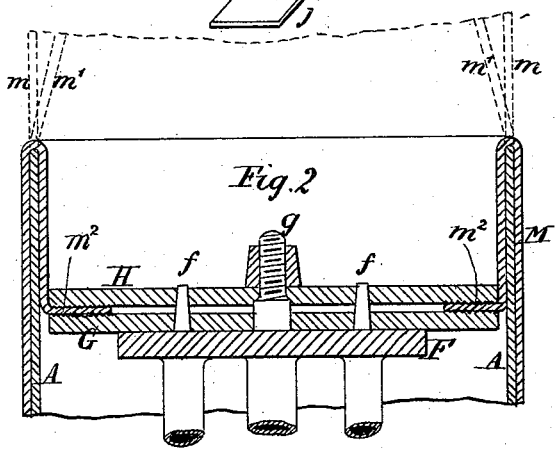
J. A. & A. L. THIERRY.

MANUFACTURE OF TOPS FOR BOOTS AND LEGS FOR LONG BOOTS.

No. 342,653. Patented May 25, 1886.

Fig. 1.





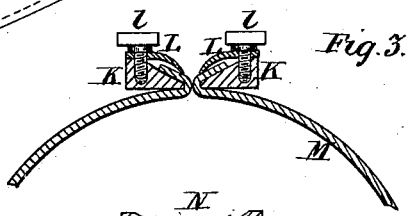


Fig. 3.

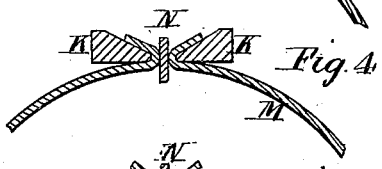


Fig. 4.

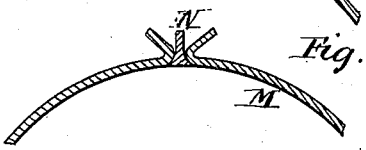


Fig. 5.

Fig. 6.

Witnesses.
Percy B. Hills.
Robert Everett.

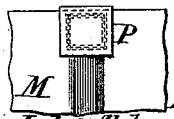


Fig. 7.

Inventor.
Jules Alphonse Thierry.
Alfred Leon Thierry
By James L. Norris Atty.

UNITED STATES PATENT OFFICE.

JULES A. THIERRY AND ALFRED L. THIERRY, OF REGENT STREET, COUNTY OF MIDDLESEX, ENGLAND.

MANUFACTURE OF TOPS FOR BOOTS AND LEGS FOR LONG BOOTS.

SPECIFICATION forming part of Letters Patent No. 342,653, dated May 25, 1886.

Application filed March 9, 1886. Serial No. 194,601. (No model.)

To all whom it may concern:

Be it known that we, JULES ALPHONSE THIERRY and ALFRED LEON THIERRY, citizens of England, both residing at Regent Street, in the county of Middlesex, England, have invented a new and useful Manufacture of Tops for Top-Boots and Legs for Long Boots, of which the following is a specification.

Our invention relates to the manufacture of tops for top-boots and legs for long boots of sheet-celluloid, instead of leather, which we effect in the manner and by the apparatus which we will describe, referring to the accompanying drawings.

Figure 1 is a perspective view of the mold and clamp which we employ. Fig. 2 is a longitudinal section of the upper part of the mold, showing the material folded over the edge. Fig. 3 is a part transverse section of the mold, showing the material clamped thereon. Figs. 4, 5, and 6 are part transverse sections showing, respectively, the cementing-strip inserted between the folds of the material, the folds cemented, and the junction dressed off. Fig. 7 shows a part of the upper edge, with a provision for flexibility.

The mold A is a metal tube of approximately elliptical section, having fixed to its base a cross-frame, B C. From C two pins, D, project up the tube and a central screw, E. The pins D enter tubes *d*, and the screw E enters a screwed tube, *e*, these tubes *d* and *e* being attached to a disk, F. From the disk F project steady-pins *f f* and a screwed stud, *g*. On these are placed a disk, G, somewhat smaller than the interior of the mold, and a second disk, H, that can be pressed down on G by a fly-nut on the screwed stud *g*. By turning the screw E the disks G and H can be adjusted nearer to or farther from the top end of the mold. On the frame C is fitted a sliding bolt, J, which can be slid by the fingers applied to its turned-up end *j*, and can be held by thumb-screws. This bolt J, when slid forward, enters a slot in the end parts of a clamp, and holds this clamp in position on the mold. The clamp consists of two cheeks, K K, on each of which is a jaw, consisting of a bent strip of metal, L, held by screws *l*. The cheeks K can be pressed together by means of screws *k*. Such being the apparatus which we use, we by its aid manufacture tops or legs of boots in the following manner:

We cut a piece of sheet-celluloid, M, of size somewhat less than will encircle the mold, but of greater depth, and we stretch this in boiling water until it is longer than is enough to encircle the mold, and we bend the two edges of the stretched sheet over the edges of the clamp-cheeks K, and secure them thereto by screwing down the jaws L upon them; also clamping the bends of the sheet together by screwing the screws *k*. We thus form a tube of the celluloid M, as partly shown in Fig. 2, and pass this, along with the clamp, onto the mold A, fixing the clamp by shooting into it the bolt J and turning a setting-screw, *i*. The tube of celluloid being longer than the mold, extends beyond it, as indicated by the dotted lines *m* in Fig. 2. The mold, with the clamp and celluloid on it, is now plunged into boiling water, which causes the celluloid to shrink, so as to embrace the mold firmly and take its shape.

Instead of first stretching the celluloid, as above described, before putting it on the mold, it may in the first place be made a little too small and stretched on the mold by means of the clamp while it is held in boiling water. The upper end, *m*, of the celluloid tube, extending beyond the mold, also shrinks, as indicated at *m'*, Fig. 2. This is folded inward. Its edge is turned as a flange, m^2, onto the disk G, and this edge is clamped down by the disk H, as shown in Fig. 2. The edge m^2 being thus held, the disks G and H are drawn down by turning the screw E, thus stretching the celluloid over the upper edge of the mold. When the celluloid is fully stretched, it is taken out of the boiling water and sets. The clamp-cheeks K are then opened a little apart, the disk H is removed, the bolt J is withdrawn from the clamp, and the celluloid, still held in the clamp, is taken off the mold. The clamp-cheeks K being a little opened, the edges of the folds of the celluloid are moistened with a solution of celluloid in acetic ether, and there is inserted between them a strip, N, of celluloid softened in alcohol. The folds are pinched up close by screwing up the clamp. This is done at a temperature of about 100° Fahrenheit, which temperature is then maintained

for about a quarter of an hour. The whole is then allowed to set at ordinary temperature for about two or three days. The clamp is then taken off, leaving the joint as shown in Fig. 5. This is trimmed off and preferably covered by a thin strip, O, of tape, cemented on the inside, as shown in Fig. 6. The flanged edge m^2 of the celluloid, which was folded inward, is trimmed off, and the top or leg, which may be lined with thin leather cemented on by a solution of button-lac in alcohol, is ready to be attached to the boot or to the lower part thereof.

As the celluloid is somewhat rigid, particularly at the joint at the upper edge where it is doubled by the inward fold, we prefer to cut out a portion of the material at that place and to cover the slit by a piece of leather, P, stitched on over it. This forms a joint giving the required flexibility at the upper lip.

Having thus described the nature of our invention and the best means we know of carrying it out in practice, we claim—

The process herein described of making the tops and legs of boots from celluloid, which consists in folding sheet-celluloid around a tubular mold, stretching the sheet in two directions—to wit, transversely around the mold and longitudinally along and around one end thereof—and uniting the meeting edges of the sheet, substantially as described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 16th day of February, A. D. 1886.

JULES A. THIERRY.
ALFRED L. THIERRY.

Witnesses:
OLIVER IMRAY,
Patent Agent, 28 Southampton Buildings, London, W. C.
JNO. P. M. MILLARD,
Clerk to Abel & Imray, Patent Agents, 28 Southampton Buildings, London, W. C.