

O. NICHOLS.
PREPARING-LEATHER.

No. 170,962.

Patented Dec. 14, 1875.

Fig. 1.

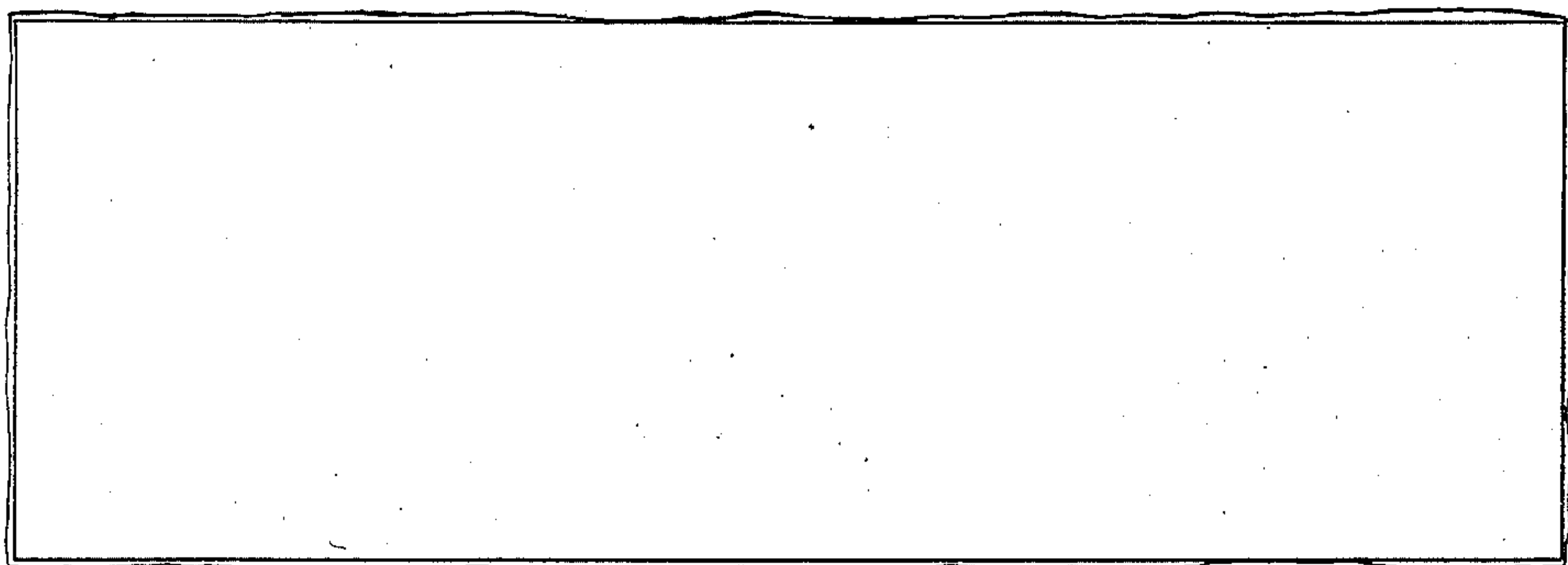


Fig. 2.

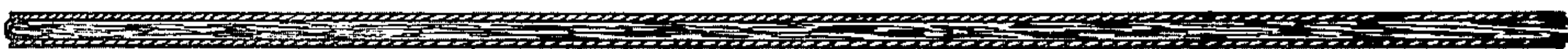


Fig. 3.

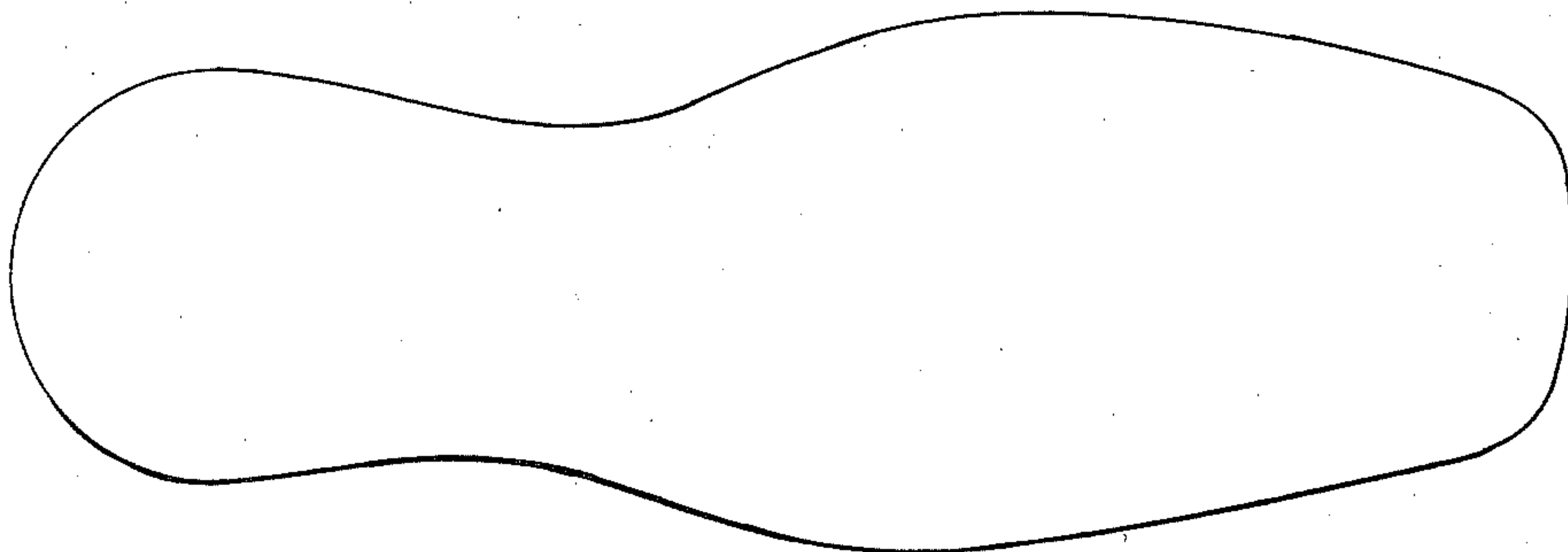
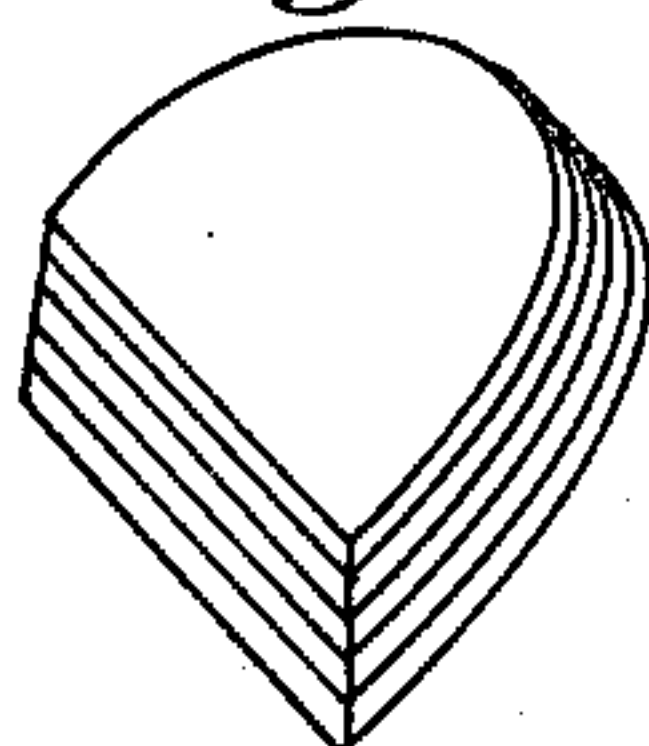


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE

OLDIN NICHOLS, OF MEDFORD, MASSACHUSETTS.

IMPROVEMENT IN PREPARED LEATHER.

Specification forming part of Letters Patent No. **170,962**, dated December 14, 1875; application filed November 11, 1875.

To all whom it may concern:

Be it known that I, OLDIN NICHOLS, of Medford, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Prepared Leather, of which the following is a specification:

This invention relates to a prepared leather for insoles, heels, stiffeners, trunks, and for other purposes for which it may be adapted.

Figure 1 shows a top view of a piece of this prepared leather; Fig. 2, a section thereof; Fig. 3, an insole cut therefrom, and Fig. 4 a built-up heel.

The object of my invention is to produce a cheap yet serviceable prepared leather for insoles, heels, &c., as a substitute for all leather, or for leather-board.

Leather insoles, at the present high price of leather, cannot be used except in the very best work; therefore it is common to employ leather-board, a material containing but a very small percentage of leather, and into which the pegs and other fastenings do not stick and hold as in leather, for the material has not the elasticity of leather, or its powers of cohesion, and it is harder and more rigid.

This prepared leather is composed almost entirely of leather, and of a refuse leather heretofore considered of no value whatever—viz., sheepskin and other skivings. The skivings made in the tanning and treatment of sheepskins are thin, and, when removed, roll up, and are considered of no value. I take these and other skivings, and pass them into and through a picker composed of a rapidly-revolving cylinder set with teeth, that tear up or shred the skivings, and the torn or shredded skivings are then, in a dry state, kept until ready for use. I place about four parts of rosin and one of sal-soda or potash, or other article that will cut the rosin, in a vat or vessel containing a proper quantity of water—usually about two hundred gallons—and, by means of steam, so as to get an excessive heat, I boil the rosin and sal-soda for three or four hours, or until the rosin is cut or dissolved, or substantially so, leaving a strong solution of alkaline rosin. I employ this alkaline-rosin solution as the liquid to form a paste, mixing the same with flour to the consistency of ordinary paste; and to about one hundred pounds of the torn or

shredded skivings or leather in a dry state I add about thirty-three pounds of the prepared paste, stirring or mixing the same thoroughly, until the leather and paste form a substantially homogeneous mass, this mixing being usually performed in a mill or rotating cylinder, provided internally with teeth or pegs. This mixture is then ready for being molded into sheets, provided the same is to be used for an inner sole for sewed work, and it may be used for any other work; but for pegged work I prefer to first saturate the leather with alkaline rosin, adding to the mill substantially all the alkaline rosin the leather will take up, and then I add the rosin paste, mixing the same thoroughly; and this preparation gives to the sole more rigidity, and the increased amount of rosin also gives body to the mixture, and serves to make a holding-surface, against which the sides of the pegs driven into the sole hold closely, substantially as closely, and, in my judgment, fully as firmly, if not more firmly, than in real leather. The alkaline in the rosin acts on the oil and grease in the leather or skivings, and dissolves and destroys it, and leaves the rosin thoroughly incorporated with the skivings, but in a pasty state. The leather, torn and mixed substantially in this manner, is then placed in a mold between what is known as splits, or pieces of split leather, the split leather covering the same at bottom and top, and the pulpy mass of mixed leather may be prevented from escaping as the material is being molded in slabs or compressed by placing on the upper side of the under piece of split leather, or near its edge, pieces of skivings opened out, or pieces of fibrous cloth, the pieces being folded over on the mass of torn leather fitted into the mold just before the top piece of split leather is placed in position. These edging-pieces, pasted to the splits by the rosin paste, prevent the torn and pulpy leather from escaping as the top piece of split leather is being pressed down. After being removed from the mold the slabs or pieces so formed are placed in a drying-room, or allowed to partially dry, and then the slabs are run between powerful compressing-rollers, thoroughly compressing the material together, making a slab of an even thickness, and producing a prepared-leather slab of substantially uni-

form solidity, and an excellent substitute for leather. During the process I may add shellac to the paste, using it with or instead of rosin to add to the water-proof qualities of the prepared leather; but the rosin is preferred.

I find in practice that the rosin in the paste, or mixed with the torn leather in either of the ways described, forms a prepared leather to which the pegs cling closely; and the prepared leather, when cut, presents a surface or edge which easily takes a polish, the rosin incorporated throughout the mass when the rosin was in a dissolved state assisting in the polishing, and therefore the prepared leather is specially adapted for heels; but in the manufacture of heels I prefer to make the outer or top lift of real leather.

This process of making a prepared leather by incorporating with waste leather an alkaline solution of rosin and paste to give the substance rigidity and great power of adhesion to the pegs or stitches, and to easily take a polish, may be carried out to great advantage by using between the splits forming the inner and outer sides of the prepared leather, instead of the torn and mixed leather, ordinary skivings, the same being laid and pasted, one over the other, *en masse*, in a mold, and subjected to pressure, and subsequently dried and subjected to the action of rollers or equivalent, to compress and consolidate the slab or form. These slabs or forms may be formed by hand in molds, preferably a foot or more in length, and of a width to permit soles or heels to be died out; or I may make the slabs in longer or wider pieces in a machine provided with molds, and in which a follower is arranged to work within the mold. Then I may dispense with the enveloping pieces of leather or cloth, the sides of the mold preventing the escape of the leather from between the splits, and the mold may be of sole or other form.

The quantity of alkali added to the water in which the rosin is boiled is sufficient to cut and permit the rosin to dissolve and mix with the water, and the quantity of water employed depends on the strength it is required the alkaline-rosin solution to have. Usually, to one hundred pounds rosin and twenty-five pounds sal-soda I employ two hundred gallons of water, and the strength of the alkaline solution.

I do not limit myself to the exact proportions named, as they may be varied, and glue might be added to give stiffness. This torn leather might be applied between canvas or cloth, and be made in indefinite length, and of suitable width. This paste will form the subject-matter of another application. An article of prepared leather might be made by using torn or shredded leather, as described, with other paste than that described; but the paste described by me is the best that can, in my judgment, be used.

I claim—

1. As an article of manufacture, prepared leather composed of pieces or splits of real leather or fibrous material, with an intermediate filling of torn or shredded leather, and an alkaline-rosin paste, substantially as described.

2. The process of manufacturing prepared leather, consisting in mixing, with torn or shredded leather or skivings, an alkaline-rosin paste, then the application of such mixed leather and paste between layers of leather or cloth, and molding, drying, and compressing the same into a uniform layer, substantially as described.

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

OLDIN NICHOLS.

Witnesses:

G. W. GREGORY,
S. B. KIDDER.