No. 680,579. Patented Aug. 13, 1901.

A. R. FOSS & L. W. LITCH.

PROCESS OF MAKING ARTIFICIAL LEATHER.

(Application filed Dec. 16, 1899.)

(No Model.)

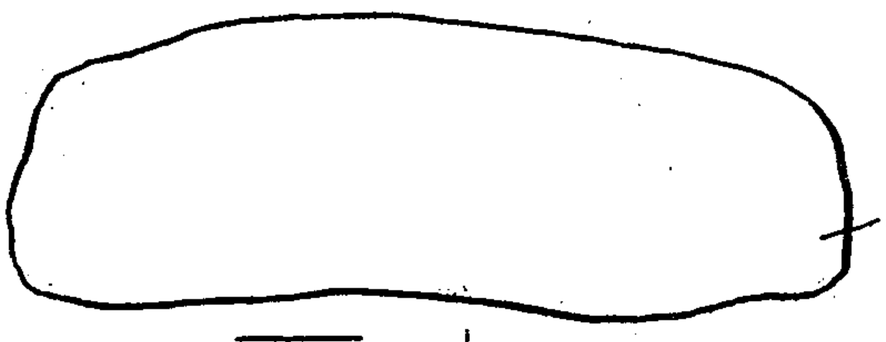

Fig. 1.

Fig. 3.

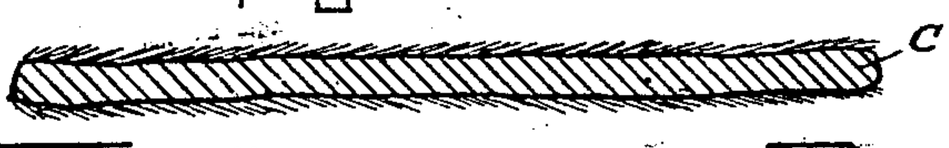

Fig. 4.

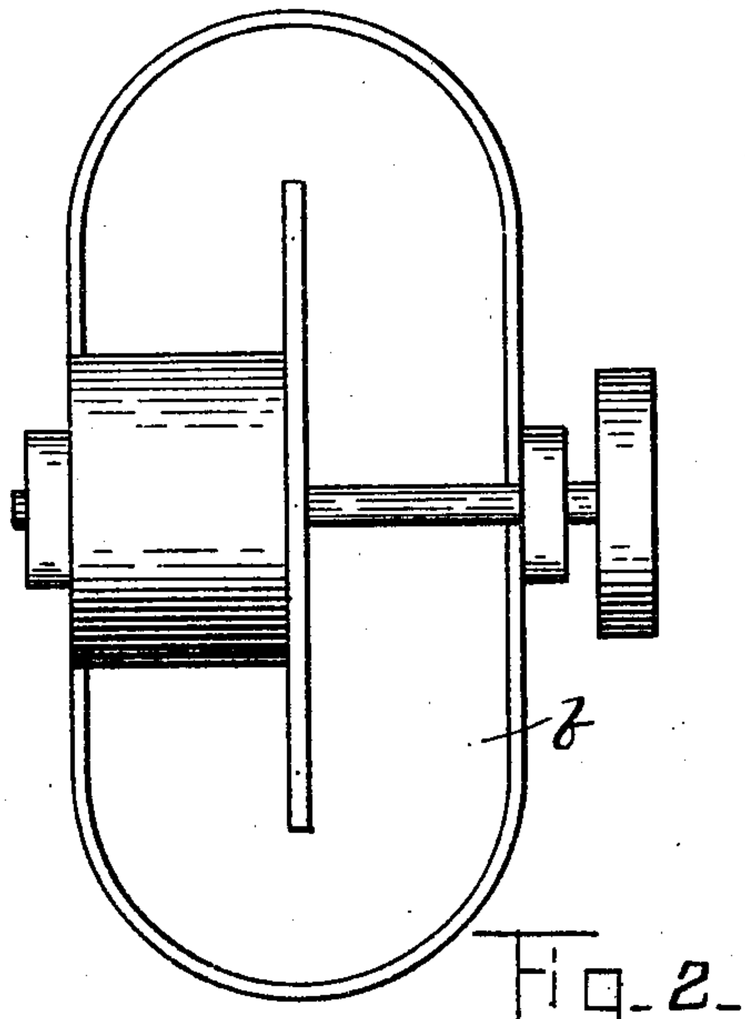

Fig. 2.

Fig. 5.

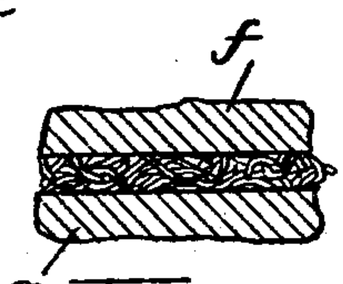

Fig. 7.

Fig. 6.

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UNITED STATES PATENT OFFICE.

ALBERT R. FOSS AND LEMUEL W. LITCH, OF LYNN, MASSACHUSETTS, ASSIGNORS TO THE FOSSLITCH LEATHER CO., OF SAME PLACE.

PROCESS OF MAKING ARTIFICIAL LEATHER.

SPECIFICATION forming part of Letters Patent No. 680,579, dated August 13, 1901.

Application filed December 16, 1899. Serial No. 740,534. (No specimens.)

To all whom it may concern:

Be it known that we, ALBERT R. FOSS and LEMUEL W. LITCH, of 145 Commercial street, Lynn, county of Essex, and State of Massachusetts, have invented an Improvement in Processes of Making Artificial Leather, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In another application filed by us, Serial No. 740,533, a new and improved form of artificial leather is described and claimed, it consisting, essentially, of a number of pieces of fibrous leather—such, for instance, as the fibrous portion of sole-leather removed from the grain portion—secured together by the interlocking of the surface fibers of the promiscuously-arranged pieces; and this invention relates to a process by which said artificial leather is made.

The process consists, essentially, in softening pieces of fibrous leather and raising or opening out their surface fibers and then pressing together the pieces so prepared; also, in "beating" pieces of leather sufficiently to soften the same and lift or open out the surface fibers, yet substantially conserving their structure, and then pressing together the pieces so prepared.

Figure 1 shows a piece of leather to be used in carrying out our process. Fig. 2 shows a diagram of an ordinary beating-engine by which the pieces of leather are beaten sufficiently to soften them and raise or open out their surface fibers, yet substantially conserving their structure. Fig. 3 represents a plan view of one of the beaten pieces of leather taken from the beating-engine. Fig. 4 is a sectional view of the beaten piece of leather shown in Fig. 3. Fig. 5 represents a mold containing a promiscuously-arranged mass of beaten pieces of leather and also a press; Fig. 6, an edge view of one of the completed sheets, and Fig. 7 a sectional detail showing two of the beaten pieces separated after having been pressed together to illustrate the interlocking of the surface fibers of the pieces.

Pieces of fibrous leather *a* (see Fig. 1)—as, for instance, the fibrous portion of sole-leather removed from the grain portion—of any suitable size and shape are placed in a beating-engine *b* (see Fig. 2) and beaten for a short time, the beating action being so regulated that the pieces of leather are softened and have their surface fibers raised or opened out, yet the structure of the pieces is substantially conserved. Our invention, however, is not limited to softening the pieces of leather and lifting or opening out their surface fibers by the action of a beating engine. The beaten pieces of leather—that is, the softened pieces of leather having their surface fibers raised or opened out—are then removed from the beating-engine and at such time are arranged promiscuously in a mass. *c* (see Figs. 3 and 4) represents one of the pieces of leather taken from the beating-engine laid out flat. Then a quantity of sizing or binding material is added, which is thoroughly mixed with the pieces, yet in some instances the sizing or binding material may be added to the mass before it is removed from the beating-engine, and in other instances the sizing or binding material may be omitted. The beaten pieces are then placed in molds, as represented in Fig. 5, which are of suitable size and shape for the production of sheets of suitable size and thickness, and the same subjected to a heavy pressure. *d* represents one of the molds containing a mass of the material ready to be pressed, and *e* a press of ordinary description. When the pressure is applied, the surface fibers of the beaten pieces become interlocked, and the pieces are thereby very firmly secured together. Such interlocking of the fibers is illustrated in Fig. 7, where it will be seen that two of the pieces, as *f* and *g*, are separated a short distance or pulled apart. The molded sheets are dried and rolled and are then ready for use in the manufacture of heels, &c., and in Fig. 6 an edge view of one of the completed sheets is shown.

We claim—

1. The herein-described process of making artificial leather which consists in softening pieces of fibrous leather and raising or opening out the fibers on their surfaces, and then pressing together the pieces so prepared.

2. The herein-described process of making artificial leather which consists in "beating" pieces of leather sufficiently to soften the same and lift or open out the surface fibers yet substantially conserving their structure, and then pressing together the pieces so prepared.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALBERT R. FOSS.
LEMUEL W. LITCH.

Witnesses:
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B. J. NOYES.