H. Cunningham.

Dressing Leather.

No. 95,779. Patented Oct. 12, 1869.

Fig. 1.

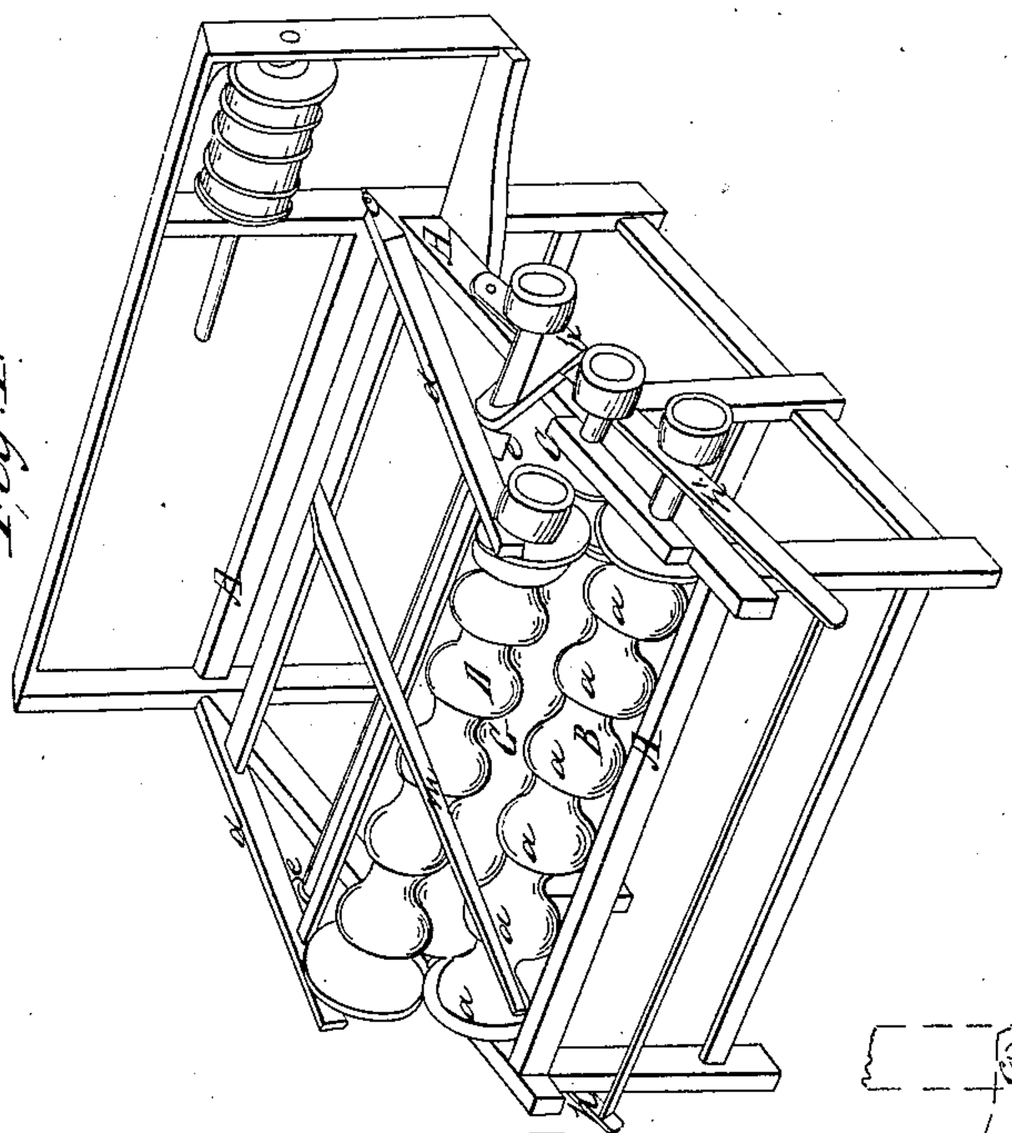


Fig. 2

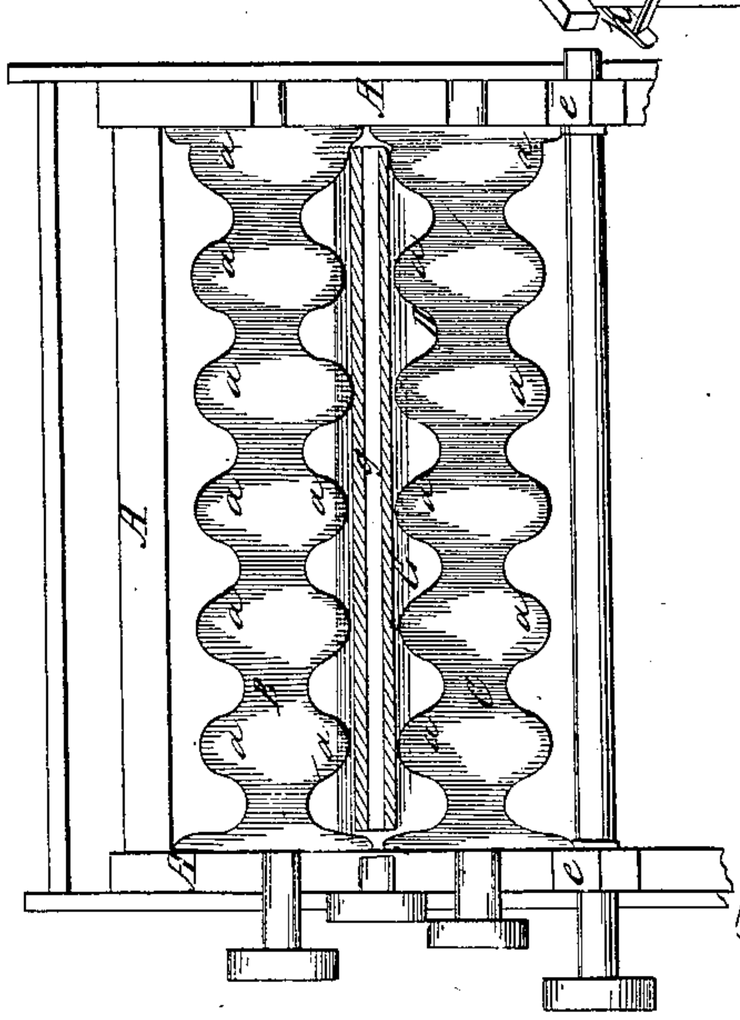
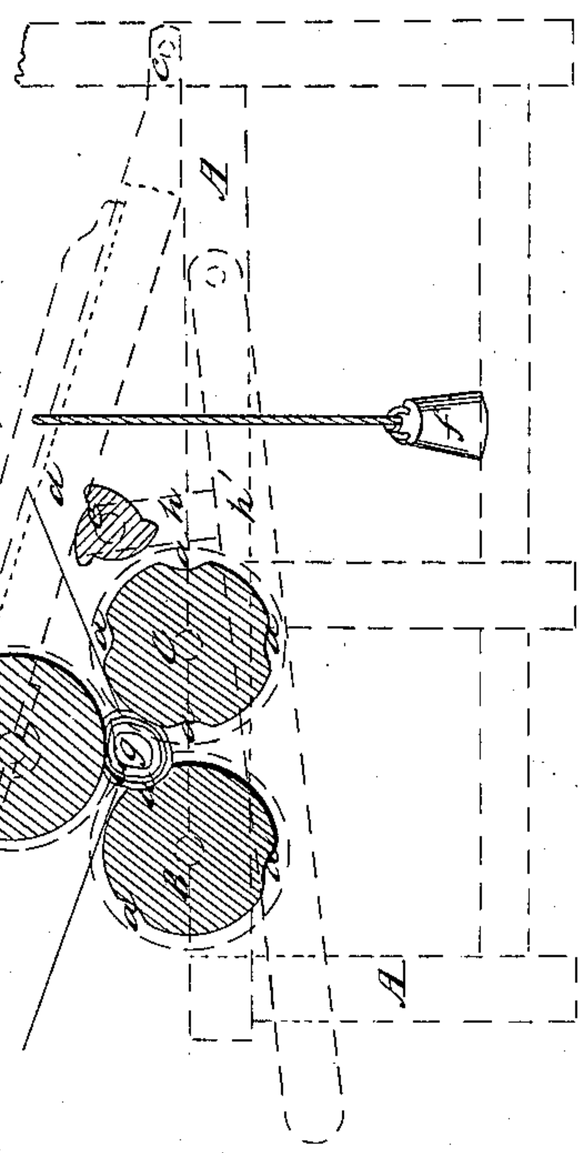


Fig. 3.



Witnesses.

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HENRY CUNNINGHAM, OF ALBANY, NEW YORK.

Letters Patent No. 95,779, *dated October* 12, 1869.

IMPROVED MODE OF SOFTENING LEATHER.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, HENRY CUNNINGHAM, of the city and county of Albany, State of New York, have invented a new and improved Mode of Softening Leather; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of a machine operated by my method.

Figure 2 is a vertical view, through blue line in fig. 3, with upper roller removed

Figure 3 is a side elevation of the machine.

Most kinds of leather used for boots, shoes, gloves, &c., require, after what is termed finishing, to be softened.

The usual mode of softening leather has been by rubbing, or rolling with a buffer, on a board, or by beating, all of which modes require considerable time.

My invention consists in softening leather by a sort of kneading-process, by the means of three or more rollers, furnished with corrugations running circularly around the said rollers. One or more of the said rollers have the raised portions of the corrugations furnished with flattened or scalloped points or places. One of the said rollers is so arranged and operated that it will have a circular and a reciprocating motion to and from the other rollers.

A piece of rubber, of proper size, is also used, and placed in the centre of the roll of leather to be operated upon, which rubber acts in such a manner as to distend or throw back the compressed portion of the roll to its original form.

The roll of leather, with its central rubber piece, is placed between the rollers, which revolve in one and the same direction, and cause the roll between them to revolve.

The flattened or scalloped place on the rollers, in their revolutions, and the reciprocating action of the one roller acting on the roll of leather between, press, bend, rub, and knéad the roll as it revolves around, thus softening the leather, as is desired.

To enable others skilled in the art to make and use my invention, I will proceed to describe it, in reference to the accompanying drawings, and the letters of reference marked thereon, the same letters indicating like parts.

A, figs. 1, 2, and 3, represents any suitable frame to support the several parts of the machine.

B and C are two rollers, running in proper bearings, by band-wheels or by gears.

The said rollers are furnished with corrugations, and the said corrugations are furnished with several flattened or scalloped points or places, *a*, fig. 3.

When the corrugated rollers B and C are run with bands, the said flattened or scalloped places *a* should be placed in number unequal on the said rollers, as shown in fig. 3, but when run by gears they may be equal in number, and be so placed and geared as will bring them alternate and not opposite.

D is a third roller, having its bearings in a vibrating frame, *d*, pivoted at some distance, *c*, from the rollers B and C.

The said roller D is furnished with plain corrugations, as shown in figs. 1 and 3, and is run with a belt by a band-wheel.

The corrugations of the said roller are so formed, and the roller is so placed, that the raised portions of the corrugations will be directly over the sunken portions of B and C, as shown in fig. 1, and by red lines in fig. 2.

A reciprocating motion, to and from the rollers B and C, is imparted to the roller D by means of cams or wiper-wheels, *e*, figs. 1 and 2, which wiper-wheels act upon the under side of the frame-pieces *d*, to throw it up and with the roller D, while a weight, *f*, fig. 3, brings it down.

The shaft of the wiper-wheels *e* has its bearings in the standard *h*, attached to the bars *h'*, figs. 1 and 3, which bars *h'* are pivoted to the main frame A, and can be raised or lowered, and thus affect the capacity of the space for the leather E to be softened between the rolls, by raising or lowering the frame *d* carrying the roller D, as shown in figs. 1 and 3.

g, figs. 2 and 3, is a piece of rubber of any suitable form.

The said rubber piece is placed within the centre of the roll of leather G, to be operated upon, and by its elasticity throws back the compressed portion of the roll immediately after the compressions have been made by the operation of the machine.

To operate this invention, the leather G is rolled around the central rollers B and C, and, when properly placed, the roller D is suffered to drop down upon the said roller G, as shown in fig. 3.

The rollers B, C, and D, are then made to revolve in the same direction, either by band or gear-wheels, or both, which will cause the roll of leather G to revolve between the said rollers, and in a contrary direction.

The wiper-wheels *e e* are also made to operate at the same time, the frame *d*, of the roller D, causing the said roller to pound the roll G, and break it down in several places into the sunken portions of the corrugations of the rollers B and C.

The flattened or scalloped portions *a*, on the projecting portions of the corrugations of the rollers B and C, also act on the roll (in the several places in

contact) in such a way as to give a kind of pinch to the leather.

The central rubber piece *g*, in all the operation, alternately yields to the several pressures given to the leather by the rollers, and throws them back. This operation is continued for a sufficient length of time, until the whole roll is softened, when it is taken out from between the rollers, which may be effected by throwing up the upper roller D, by lifting on the handled lever *m*, figs. 1 and 3.

Leather may by this mode be softened in far less time than by the usual process now used.

As the corrugated rollers, B, C, and D, would operate well by having flattened or scalloped places *a* placed alternate of the raised portions of the corrugations, I would not decline using them thus placed; neither do I confine myself to the number to be made on a roller, as they can be made to work well with one line of the same, if the rollers are made to run at a higher speed; neither does the proper operation of this mode of softening leather demand that the rollers D should not be furnished with flattened places *a*, as such flattened places would not substantially effect the desired result; neither do I confine myself to the number of rollers used. Any numbers which would work in contact with the roll G, would materially effect the same.

Having described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. In a leather-softening machine, the elastic rubber piece *g* within the roll of leather G, as an internal reacting power, substantially as set forth.

2. Softening leather between three or more corrugated rollers B, C, and D, constructed, arranged, and operated substantially as set forth, for the purpose specified.

3. In a leather-softening machine, operated by corrugated rollers, the roller D, hung in the vibrating frame *d*, in combination with the cams or wiper-wheels *e*, substantially as and for the purpose set forth.

4. The hinged bars *h'*, and wiper-wheels *e*, in combination with the roller D, substantially as and for the purpose set forth.

HENRY CUNNINGHAM.

Witnesses:

ALEX. SELKIRK,

CHAS. SELKIRK.