

(No Model.)

2 Sheets—Sheet 1.

W. A. SAWYER.

LEATHER DRYING AND PRESSING MACHINE.

No. 295,948.

Patented Apr. 1, 1884.

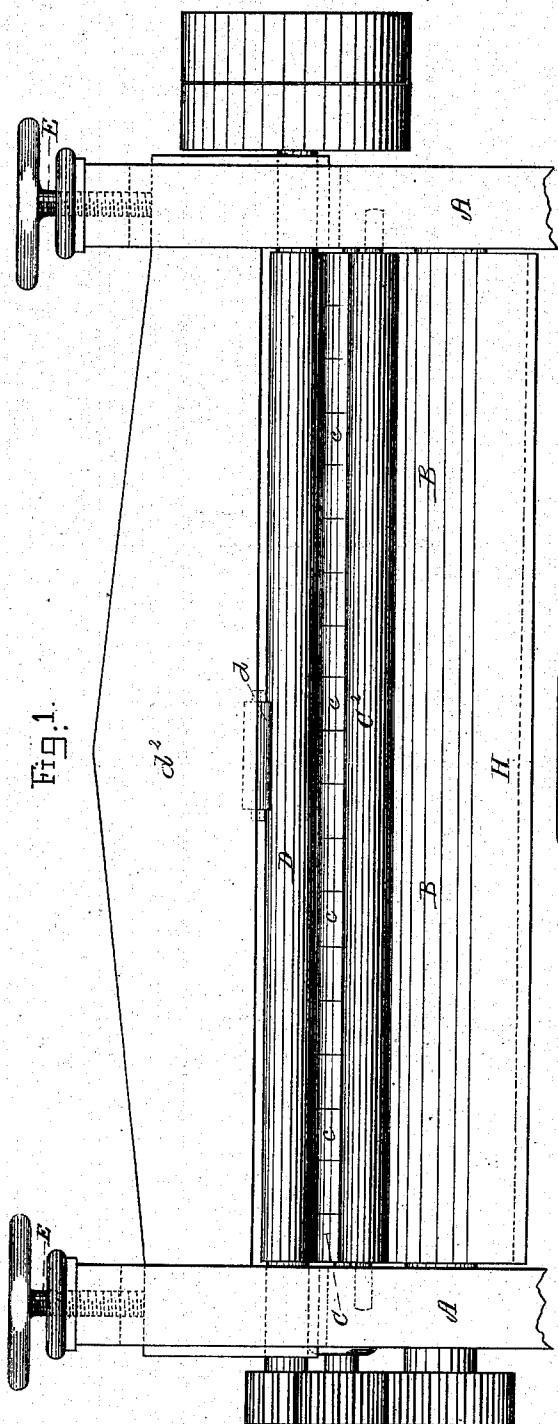


Fig. 1.

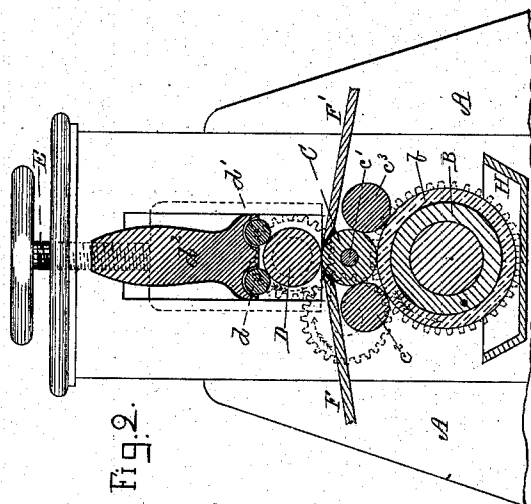


Fig. 2.

Witnesses.

L. W. Moore
John Brown

Inventor
William A. Sawyer
by *J. E. Magrader*
his atty

(No Model.)

2 Sheets—Sheet 2.

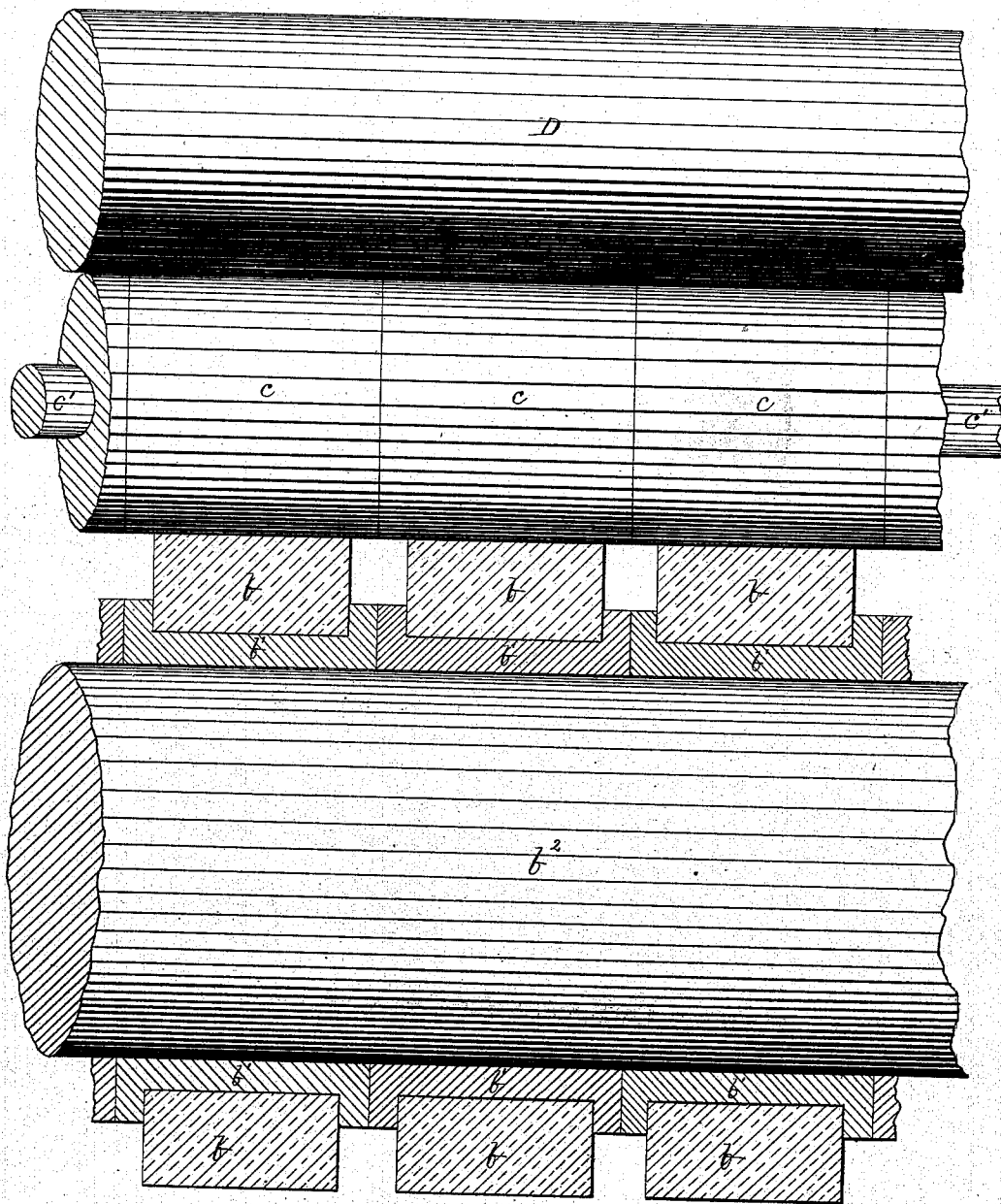
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Fig. 3.



Witnesses.

L. M. Holden.
John R. Snow.

Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM ARTHUR SAWYER, OF DANVERSPORT, MASSACHUSETTS.

LEATHER DRYING AND PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 295,948, dated April 1, 1884.

Application filed March 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. SAWYER, of Danversport, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Leather Drying and Pressing Machines, of which the following is a specification.

My invention consists of a novel combination of rollers for expressing the liquid from leather when taken out of the vats.

Hides, when tanned, are usually dried by being hung on frames. This requires time, and attempts have been made to dry them more quickly by passing them between solid rollers forced together by springs or weights. This, however, is impracticable, on account of the impossibility of preventing the wet hides from wrinkling or creasing. The folds caused by this wrinkling raise the roller from the flat parts, which therefore pass through without being dried, and the pressure on these folds creases and otherwise injures the leather. An upper roller composed of a series of rings loosely mounted on a shaft has also been used, and while this device enabled the creases to be taken out of the leather it was impracticable to make the rings heavy enough to give the desired pressure.

The object of my invention is to provide means for giving the requisite pressure to a roll composed of a series of rings loosely mounted on a shaft, and to prevent it from springing. To attain this object, the roll composed of rings is mounted between an elastic roll and a pressure-roll, and is provided with retaining-rolls, substantially as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the rollers and the upper part of their supporting-frame. Fig. 2 is a cross-section on line $x x$ of Fig. 1; and Fig. 3 is an elevation, full size, partly in section, of a portion of the rollers, showing the lower elastic roller made of rubber-tired rings mounted on a heavy shaft.

A is the frame or stand which supports the rolls and table. The rolls consist of a lower roll, B, the largest of the series, which is provided with an elastic tire, b , preferably of rubber, a middle roller, C, composed of a series of rings or disks, c , mounted on a rod or shaft,

c' , an upper roller, D, and retaining-rollers d d' for the roller D, and c^2 c^3 for the roller C. The rollers B, C, and D are supported by their journals, which rest in boxes in the sides of the frame A. The boxes of the rollers C and D are adapted to move up and down in ways in the frame. The desired pressure is given by means of the screws E E', which bear on the cross-piece d^2 , in the ends of which the boxes of the upper roller, D, are mounted. Tables F F', for supporting the hide as it is fed to and receiving it as it leaves the rollers, are attached to the frame A at a convenient distance, usually about four feet from the floor. Beneath the lower roller, B, is a trough, H, for containing water to keep its surface always wet, so as to allow it to slip over the rings of the middle roller, C, when the hide is held back to take out a kink or fold. The upper roller, D, is caused to revolve by suitable connection to the driving mechanism, and is geared with the lower roller, B, so as to cause it to revolve in the proper direction and at the right speed. The middle roller is driven by the friction of the lower and upper rollers.

It is evident that great pressure is requisite to properly express the liquid from a tanned hide, and that this pressure would injure the hide unless it passed through perfectly flat; but as the thickness varies and more or less puckering or wrinkling is unavoidable, it is necessary to provide means for preventing an undue increase of pressure upon the thicker and wrinkled parts and for straightening out the wrinkled places. For these reasons I have provided the elastic tire for the lower roll, and have made the middle roll so that it will readily yield by forming it of a number of disks or rings mounted on a flexible shaft. The stopping of any ring of the middle roll is facilitated by making the lower roll of independent rings b' , each having an elastic tire, b , mounted on a shaft, b^2 , as shown in Fig. 3. As the lower roll should be rigid, except as to its elastic tire, the shaft on which the rings are mounted is made heavy. The middle roll is prevented from yielding sidewise by the retaining-rolls c^2 c^3 , journaled in boxes secured to the frame A. To reduce the bearing-surface of the upper roll, it must be made small, and hence it becomes necessary to prevent it

springing upward and sidewise. To effect this, I locate the rollers *d d'* as shown in the drawings, and support them by the cross-piece *d²*, that carries the boxes of the roller D.

- 5 In operation, the rollers revolve continuously, as indicated by the arrows. The wet hide is fed in from the table on the left, and passes between the top and middle rollers, by the pressures of which the liquid is expressed.
- 10 The yielding of the rings on the flexible shaft compensates for any variation in thickness, while, should the hide kink or fold, it can be readily straightened by holding back the hide and causing one or more of the rings to slip
- 15 more or less on the wet tire of the lower roll until the hide again became straight. The

hide is received by the table on the right, from which it is taken sufficiently dried.

I claim as my invention—

In a leather drying and pressing machine, 20 the combination, with a pressing-roller and an elastic roller, of a roller consisting of a number of rings or disks, each adapted to operate independently of the others, and mounted between the pressure-roller and the elastic roller, 25 and provided with retaining-rolls, substantially as and for the purposes set forth.

WILLIAM ARTHUR SAWYER.

Witnesses:

J. E. MAYNADIER,
JOHN R. SNOW.