

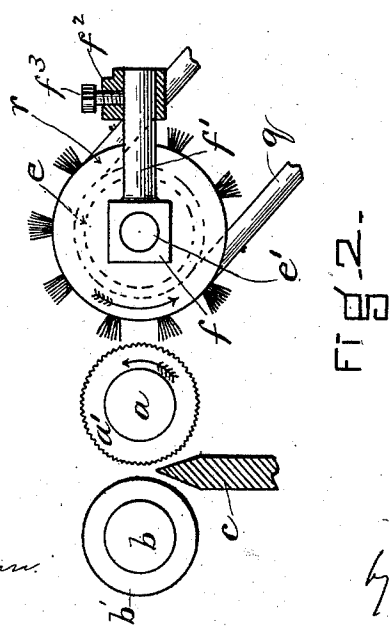
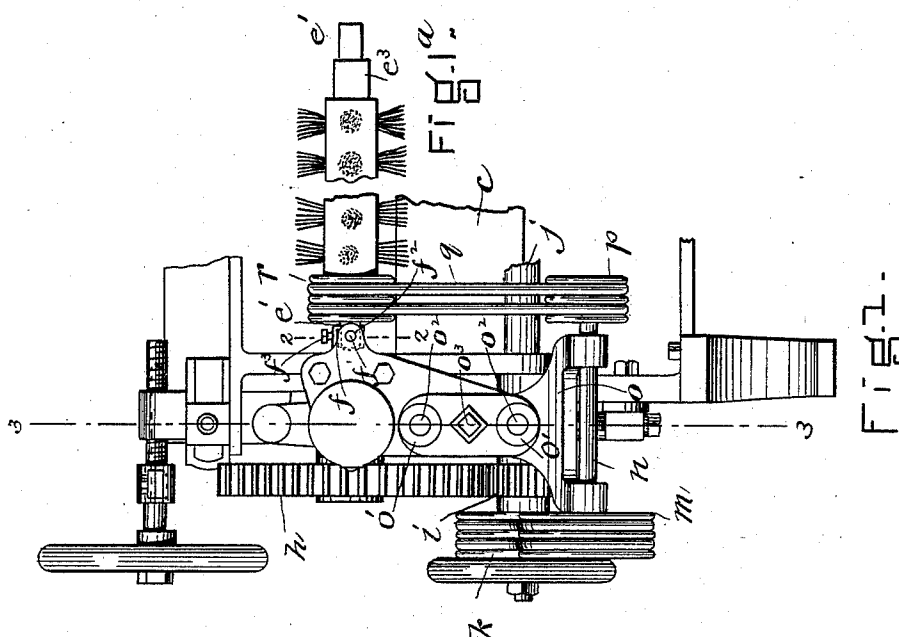
(No Model.)

2 Sheets—Sheet 1.

J. A. SAFFORD.
LEATHER SPLITTING MACHINE.

No. 477,461.

Patented June 21, 1892.



WITNESSES.

A. J. Harrison.
Katharine E. Brown.

INVENTOR.
J. A. Safford
by Wright & Brewster
Attys.

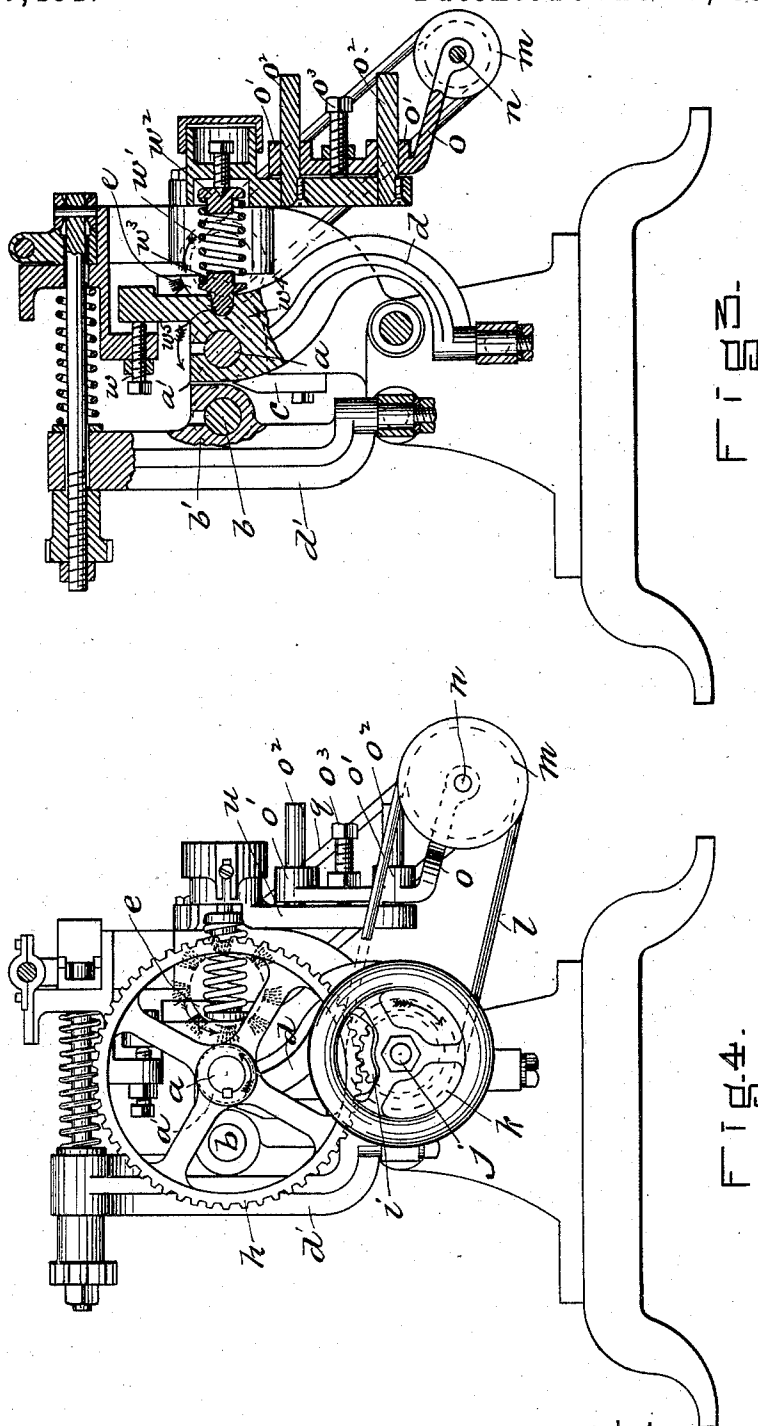
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UNITED STATES PATENT OFFICE.

JOSEPH A. SAFFORD, OF MALDEN, MASSACHUSETTS.

LEATHER-SPLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,461, dated June 21, 1892.

Application filed August 14, 1891. Serial No. 402,654. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. SAFFORD, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Feed-Roll Brushing or Cleaning Mechanism for Leather-Splitting Machines, of which the following is a specification.

This invention relates to leather-splitting machines in which a piece of leather is moved edgewise by a positively-rotated feed-roll and a loose gage or guide roll co-operating therewith, said rolls presenting a piece of leather to a fixed splitting-knife. The feed-roll, which is positively rotated, is longitudinally fluted or corrugated to give it a firm hold upon the leather. In the operation of the machine the grooves which form the corrugations of the feed-roll become filled with the grease, blacking, and other matter on the leather, so that unless means are taken to clean said grooves the roll eventually becomes gummed or clogged to such an extent that it does not feed the leather with the desired positiveness.

My invention has for its object to enable a rotary brush to be operated by the power of the machine in such manner as to keep the grooves of the feed-roll clear from the obstructions above mentioned, thus maintaining the feed-roll in a uniformly operative condition.

To this end the invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a portion of a leather-splitting machine provided with my improvements. Fig. 1^a represents a side view of the other end of the brush from that shown in Fig. 1. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a section on line 3 3 of Fig. 1. Fig. 4 represents an end elevation of the machine.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the shaft upon which the feed-roll *a'* is mounted. *b* represents the shaft which carries the gage-roll *b'*, and *c* represents the fixed splitting-knife. The shafts *a* and *b* are mounted, re-

spectively, in bearings formed in arms *d d'*, which are adapted to swing, so as to permit the adjustment of said rolls toward and from the cutting-edge of the knife *c*, substantially as shown in Letters Patent No. 305,240, granted to me September 16, 1884.

e represents a rotary brush composed of a cylindrical hub or body and tufts of bristles or brush material radiating from the periphery thereof. The shaft *e'* of the brush is journaled in bearings *f*, which are adjustable, so that the brush can be moved toward the feed-roll *a'*, on the surface of which the bristles or brush material of the brush act when the machine is in operation. The means here shown for adjusting the brush are rods or studs *f'*, attached to the bearing *f*, sockets *f²*, affixed to the supporting-frame and receiving the studs *f'*, and set-screws *f³*, entering said sockets and holding the studs *f'* at any position to which they may be adjusted.

The brush *e* is rotated in such direction that the acting side of the brush moves in a direction opposite the direction of movement of the adjacent side of the feed-roll, so that the bristles of the brush will enter the grooves of the feed-roll and dislodge the accumulations of foreign matter therein. The rotation of the brush in the direction described is a matter of considerable importance, and I have found by experiment and observation that the feed-roll is much more thoroughly cleaned by the brush when rotating as described than when the meeting sides of the brush and roll move in the same direction.

The means here shown by me for rotating the brush in the described direction are as follows: The shaft *a* of the feed-roll is provided with a gear *h*, meshing with a pinion *i* on a shaft *j*, journaled in bearings on the frame of the machine below the feed-roll. The shaft *j* is provided with a pulley *k*, which is connected by one or more belts *l* with a pulley *m* on a short shaft *n*, journaled in bearings in a bracket *o*, which is adjustably mounted on the frame of the machine and is provided with means, hereinafter described, for adjusting it to tighten the belts which rotate the brush. The shaft *n* is provided with another pulley *p*, which is connected by one or more belts *q* with a pulley *r*, affixed to the

body of the brush *e*. The arrangement of the gears, pulleys, and belts last described is such that the feed-roll and brush rotate in opposite directions, as indicated by the arrows in Figs. 3 and 4. The bracket *o*, supporting the pulley-carrying shaft *n*, is provided with sockets *o'* *o'*, fitted to slide upon guide-rods *o² o²*, which are affixed to the supporting-frame of the machine, said rods permitting the bracket *o* to move toward and from the shaft *j*, so that the shaft *n* and its pulleys *mp* may be adjusted to increase the tension of the belts *l* and *q*. The bracket *o* is provided with an adjusting-screw *o³*, which bears upon the fixed arm *u*, which supports the guide-rods *o² o²*, said arm being affixed in any suitable way to the supporting-frame of the machine. It will be seen that by rotating the adjusting-screw *o³* in the proper direction the bracket *o* will be moved outwardly, so that the tension of the belts *l* and *q* will be increased.

It is practically impossible to keep the belts in a uniform condition of tension for any considerable length of time without means for taking up the slack caused by continuous strain on the belt and by variations in the condition of the atmosphere, and as it is important that the belts be always under an operative state of tension the importance of the tightening devices will be readily seen.

The arms *d*, which support the feed-roll *a'*, are pressed inwardly against adjustable stops *w* by means of springs *w'*, interposed between bearing-pieces *w²*, rigidly supported by a fixed part of the frame of the machine, and bearing-pieces *w³*, engaged with the arms *d*, as shown in Fig. 3.

One feature of my improvement relates to the form of the bearing-pieces or seats *w³* and their engagements with the arms *d*, said bearing-pieces or seats being provided with spherical projections *w⁴*, which enter correspondingly-shaped sockets *w⁵*, formed in the arms *d*. Said projections and sockets constitute the equivalents of ball-and-socket joints, which prevent the pressure of the spring from interfering with the free movement of the arms, as will be readily seen.

I do not limit myself to the described means for rotating the brush and may rotate the same in the described direction relatively to the direction of rotation of the feed-roll by gears or any other suitable mechanical contrivances.

The brush is made of the same form at both ends, its construction being such that it can be removed from its bearings and reversed or turned end to end, so that when the tufts

of bristles have been worn off at one side by the continued rotation of the brush the unworn sides of the bristles may be brought into action by reversing the brush. The end of the brush opposite that shown in Fig. 1 is shown in Fig. 1^a as provided with a seat *e³* to support the pulley *r* when the brush is reversed, the shaft *e'* projecting from said seat. In this case the pulley is detachably secured; but it is obvious that the brush may have a permanently-secured pulley at each end. It is obvious that two adjustable bearings *f* will be provided, one for each end of the brush-shaft.

I claim—

1. In a leather-splitting machine, the combination, with an adjustable feed-roll, of an adjustable rotary brush for cleaning said roll and having its axis parallel with that of the said roll and means for rotating said brush, said means being adjustable to compensate for changes in the relative positions of the parts mentioned.

2. In a leather-splitting machine, the combination, with a grooved or fluted feed-roll, of a rotary brush in contact with the feed-roll and having its axis parallel with that of said roll, belts arranged to communicate motion to said brush from a driving-shaft on the machine, and means for tightening said belts, as set forth.

3. In a leather-splitting machine, the combination, with a grooved or fluted feed-roll, of a rotary brush, a movable bracket mounted on fixed guides on the frame of the machine, a shaft supported by said brackets and provided with pulleys connected by belts with pulleys on the brush-shaft and on a driving-shaft, and means for adjusting said bracket to vary the tension of said belts, as set forth.

4. In a leather-splitting machine, the combination, with a grooved or fluted feed-roll, of a rotary brush, fixed guides on the frame of the machine, a bracket mounted to slide on said guides and provided with an adjusting-screw, a shaft supported by said bracket and provided with belt-supporting pulleys, and belts connecting said pulleys with a driving-shaft and with the rotary brush, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 3d day of August, A. D. 1891.

JOSEPH A. SAFFORD.

Witnesses:

C. F. BROWN,
A. D. HARRISON.