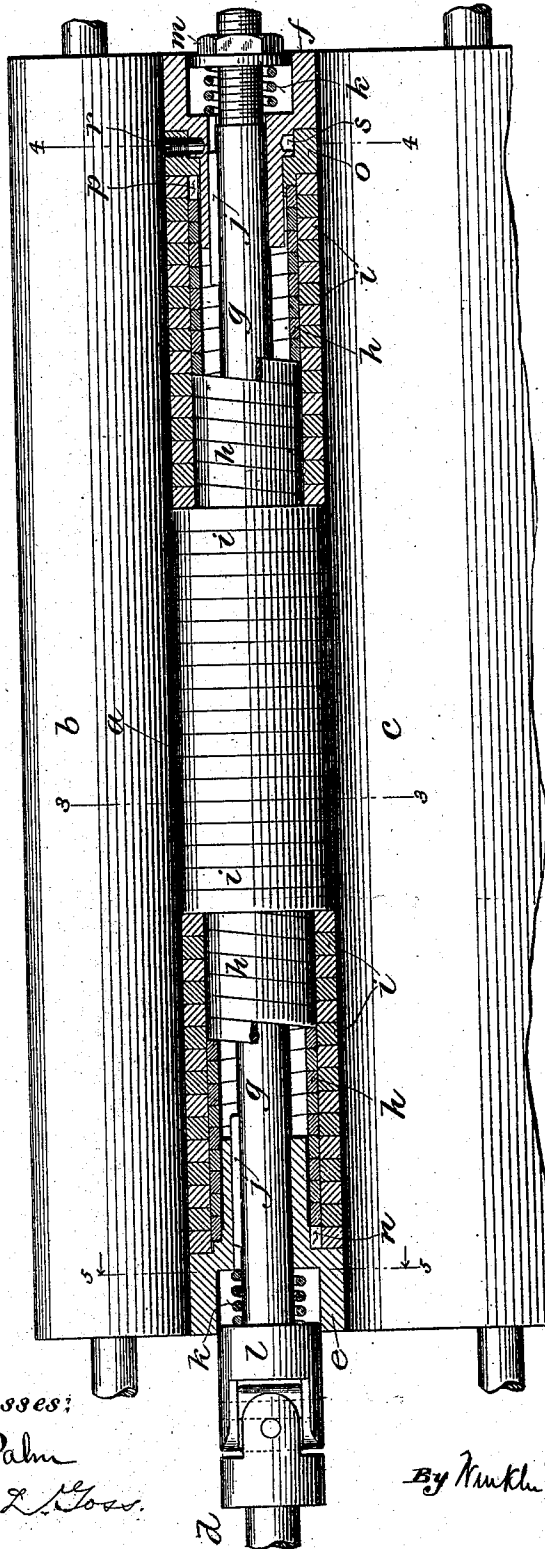


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FLEXIBLE ROLL FOR LEATHER SPLITTING MACHINES.  
APPLICATION FILED DEC. 23, 1907.

905,111.

Patented Nov. 24, 1908.

Fig. 1.



Witnesses:  
Fred Palm  
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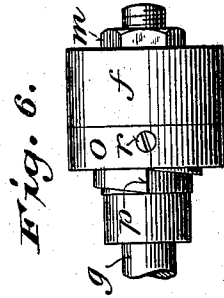


Fig. 6.

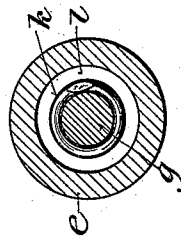


Fig. 5.

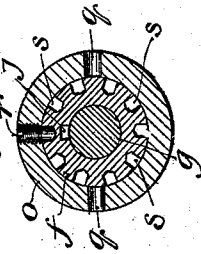


Fig. 4.

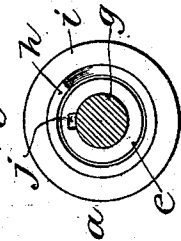


Fig. 3.

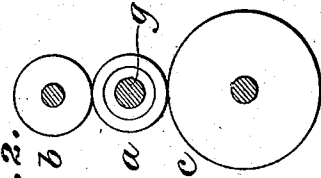


Fig. 2.

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# UNITED STATES PATENT OFFICE.

JOSEPH J. STEHLING AND FREDERICK BRENNER, OF MILWAUKEE, WISCONSIN.

## FLEXIBLE ROLL FOR LEATHER-SPLITTING MACHINES.

No. 905,111.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed December 23, 1907. Serial No. 407,735.

*To all whom it may concern:*

Be it known that we, JOSEPH J. STEHLING and FREDERICK BRENNER, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Flexible Rolls for Leather-Splitting Machines, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates to the construction of rolls used in leather splitting machines between the upper rolls called gage rolls and the lower elastic rolls for feeding or guiding hides to the splitting knives. Its main objects are to provide rolls of uniform flexibility throughout their working length, which will not mark or mar the surface of the leather, and which will retain their true circular form in cross section under all conditions; and generally to improve the construction and operation of rolls of this class.

It consists in certain novel features of construction and in the peculiar arrangement and combinations of parts as hereinafter particularly described and pointed out in the claims.

In the accompanying drawing like characters designate the same parts in the several figures.

Figure 1 is a view partly in axial section and partly in side elevation of a flexible roll embodying the present invention, as assembled in a leather splitting machine with a gage roll and an elastic roll; Fig. 2 is an end elevation on a reduced scale, showing the customary arrangement of such rolls; Figs. 3, 4 and 5 are cross sections on the lines 3-3, 4-4 and 5-5 respectively, Fig. 1; and Fig. 6 is a plan view of one of the end pieces and a portion of the central rod of the flexible roll.

The roll *a*, which is the subject matter of the present invention, is arranged as shown in Figs. 1 and 2, in the customary manner between an upper inelastic or solid gage roll *b*, and a lower elastic roll *c*, usually made of rubber.

According to the common practice, a hide or piece of leather to be split is fed or guided between the rolls *a* and *b* to the splitting knife (not shown), the roll *a* pressing and holding the hide or leather firmly against the gage roll *b* and bending away from it more or less at different points in its length according to irregularities or inequalities in

the thickness of the hide or leather. The elastic roll *c* on which the roll *a* bears throughout its entire length, permits more or less downward flexure thereof at any point, and holds it with substantially uniform pressure against the under side of the hide or leather directly below the gage roll *b* and adjacent to the edge of the splitting knife.

The flexible roll *a* may be driven by its contact with the elastic roll *c*, or may be independently driven by a jointed connection *d* at one end thereof, as shown in Fig. 1, this connection being constructed and arranged to permit free movement of the roll up and down transversely to its axis within the desired limits. This roll is composed of end pieces *e* and *f* mounted on a central rod *g*, a close coiled spring spiral *h* carried at the ends upon said end pieces, and a series of rings *i* mounted close together side by side upon the spiral. The outer faces of these rings form the working face of the roll, which normally has the shape of a true cylinder.

The rod *g* may be made round in cross section, as shown, and provided with keys or feathers *j* fitting grooves in the end pieces *e* and *f*, which are movable endwise thereon, but it may be made of any other shape which will prevent its turning in the end pieces but will permit their endwise movement thereon. The outer ends of the end pieces, which are preferably of the same diameter as the rings *i*, are recessed to receive springs *k*, which bear at their outer ends against a head *l* or shoulder on one end of the rod, and a washer held by a nut *m* on the other end of the rod. At their inner ends the end pieces are reduced to enter the ends of the spiral *h* and to slightly clear the same on the inside, as shown in Figs. 1 and 3. The end piece *e* is formed parallel with its axis on its reduced portion with a shoulder *n* to engage with one end of the spiral, and on the reduced portion of the other end piece *f* is fitted an angularly adjustable ring *o*, which is formed with a similar but oppositely directed shoulder *p* to engage with the other end of the spiral. This ring is formed as shown in Fig. 4, with wrench or pin holes *q* for adjusting it upon the end piece *f*, and is locked in adjusted position thereon by a screw *r* engaging with one of a circular series of holes or sockets *s* in the end piece. By the proper adjustment of

this ring the spring spiral *h* may be expanded more or less to take up any play or lost motion between it and the rings *i*, and to normally hold said rings exactly in alignment with each other.

By the adjustment of the nut *m* on the rod *g*, the pressure of the springs *k* against the end pieces *e* and *f* and against the interposed rings *i* may be varied as desired.

10 A roll constructed as herein shown and described, with a series of separate and independently movable rings supported upon a spiral, is uniformly flexible and will gradually yield or bend to accommodate irregularities or inequalities in the thickness of  
15 hides or leather without marking or marring the surface of the same, the rings being pressed and held snugly together on the side next to the gage roll *b*, and the lateral displacement of adjoining rings by any ordinary flexure being in practice inappreciable. Such a roll is not liable to become permanently distorted by usage, but will resume and retain its proper form.

25 The outer cylindrical faces of the rings *i* forming the working face of the roll may be made smooth or spirally corrugated.

Various modifications in the details of construction and arrangement of parts may  
30 be made without departing from the principle and scope of the invention.

We claim:

1. A flexible roll for leather splitting machines, comprising a supporting spiral and  
35 a series of independent rings mounted thereon side by side and forming the working face of the roll, substantially as described.

2. A flexible roll for leather splitting machines, comprising a rod, end pieces mounted  
40 thereon, a spiral carried at the ends by said end pieces, and a series of independent rings mounted on said spiral and forming the working face of the roll, substantially as described.

45 3. A flexible roll for leather splitting machines, comprising a rod, end pieces mounted thereon and provided with oppositely directed shoulders, a spiral mounted at the ends on said end pieces in engagement with  
50 said shoulders, and a series of rings mounted on said spiral and forming the working face of the roll, substantially as described.

4. A flexible roll for leather splitting machines, comprising a rod, end pieces mounted  
55 thereon and provided with oppositely directed shoulders, one of said pieces being capable of yielding axially on the rod, a spiral mounted on said end pieces and abutting at its ends against said shoulders; and  
60 a series of independent rings mounted on

said spiral and forming the working face of the roll, substantially as described.

5. A flexible roll for leather splitting machines, comprising a rod provided with a  
65 shoulder at one end and threaded and provided with a nut at the other end, end pieces mounted and movable axially on said rod and provided with oppositely directed shoulders approximately parallel with its axis, springs interposed between said end pieces  
70 and the shoulder and the nut on said rod, a spiral mounted on said end pieces and abutting at its ends against the shoulders thereon, and a series of separate and independently movable rings mounted on said spiral  
75 and forming the working face of the roll, substantially as described.

6. A flexible roll for leather splitting machines, comprising a rod having end pieces  
80 one of which is capable of yielding axially with relation to the other, a ring capable of angular adjustment on one of said end pieces and provided with a shoulder, the other end piece being provided with an oppositely directed  
85 shoulder, a spiral mounted at the ends upon said ring and the opposite end piece between the opposing shoulders thereon, and a series of rings mounted side by side on said spiral and forming the working face of  
90 the roll, substantially as described.

7. A flexible roll for leather splitting machines, comprising a rod having end pieces  
95 provided with opposing shoulders, one of the end pieces being capable of yielding axially with relation to the other, and one of the shoulders being angularly adjustable with relation to the other, a spiral mounted  
100 at the ends on said end pieces between said shoulders, and a series of rings mounted side by side on said spiral and forming the working face of the roll, substantially as described.

8. A flexible roll for leather splitting machines, comprising a rod having end pieces  
105 with opposing shoulders one of which is angularly adjustable relative to the other, a closely coiled spring spiral mounted at the ends on said end pieces between and in engagement with said shoulders, and a series  
110 of rings mounted side by side on said spiral and forming the working face of the roll, substantially as described.

In witness whereof we hereto affix our signatures in presence of two witnesses.

JOSEPH J. STEHLING.  
FRED. BRENNER.

Witnesses:

CHAS. L. Goss,  
ALICE E. Goss.