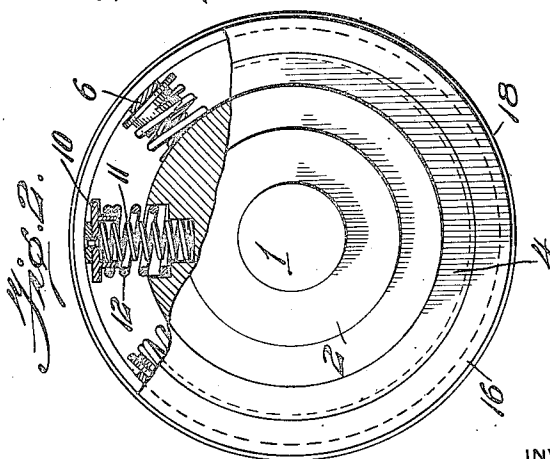
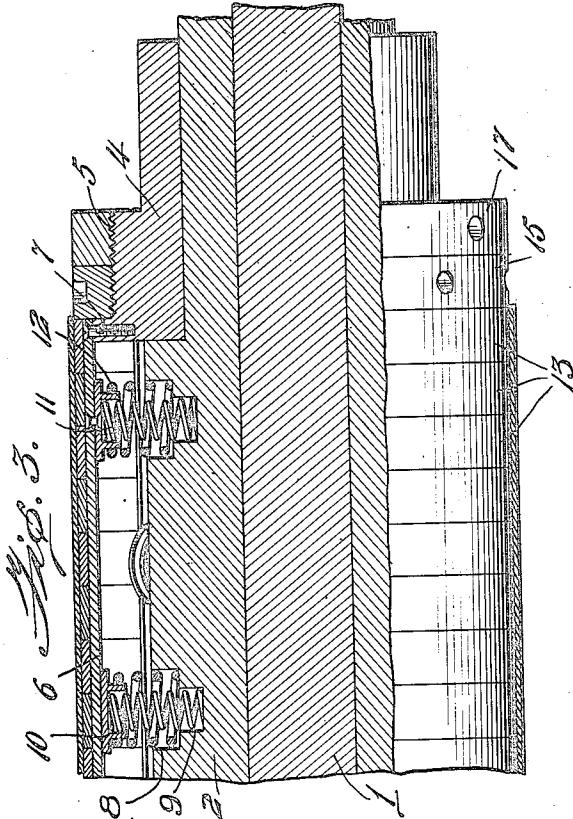
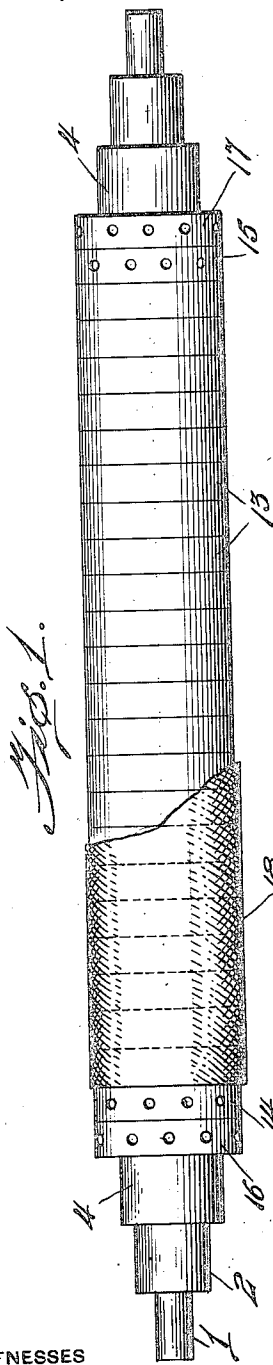


E. N. BERGSTROM.
 SPRING ROLL FOR LEATHER WORKING MACHINES.
 APPLICATION FILED AUG. 8, 1916.

Patented Jan. 2, 1917.

1,210,401.



WITNESSES

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EDWIN N. BERGSTROM, OF EAST LYNN, MASSACHUSETTS.

SPRING-ROLL FOR LEATHER-WORKING MACHINES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN N. BERGSTROM, citizen of the United States, residing at East Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Spring-Rolls for Leather-Working Machines, of which the following is a specification.

This invention relates to an improvement in spring rolls, and more particularly to devices of this sort such as are applicable for use in conjunction with leather working machines. Heretofore it has been customary to use rubber rolls or brass sectional bars upon machines constructed to accomplish unhairing and fleshing operations on hides; however, it has been found that where rubber or similar cushioning materials are used, the rolls are readily destroyed by the tanning acid solutions, and on the other hand, where the brass sectional bars are used the free passage of the hides through the machine is somewhat impeded, therefore it is a purpose of my invention to provide a roll which may be mounted to work against the revolving cylinder as usually embodied in machines of the type set forth, and is so constructed that it will give way and have a degree of elasticity to permit working upon skins with lumps caused by pieces of meat adhering to the hides or by foreign matter, to pass the skins between the cylinder and roll without exerting sufficient pressure upon the hide to cause the same to be cut through or torn by the cylinder, and which roll will have a better action and greater durability than the brass sectional bars.

A further object is to so construct the bearing surface of the roll that every portion thereof will be possessed of a certain degree of elasticity independent of the remaining portions and that upon passage over any lumps or foreign matter which may cause depression or springing of the parts, the parts thus moved or swung will be immediately returned to the normal position to restore the roll to an even and smooth surface.

Yet another object is to so arrange the roll that upon any part thereof becoming worn or broken new parts may be readily substituted therefor, and to provide a covering or surface for the roll which will eliminate the possibility of the various portions of

the bearing surface bearing unevenly upon the hides and leaving an impression or marking upon the same.

With the above and other objects in view, my invention consists in certain novel features of construction and combinations of parts which will be hereinafter set forth in connection with the drawings and then more particularly pointed out in the claims.

In the drawings, Figure 1 is a view in elevation of a completed roll with a portion of the surface covering removed to better show the mechanical construction of the roll, Fig. 2 is a view in end elevation with portions shown in transverse section, Fig. 3 is a fragmentary detail view of one end of the roll with parts shown in longitudinal vertical section.

The main supporting structure of the roll is the shaft 1 which has a sleeve-like supporting member 2 mounted thereon to extend throughout substantially the entire length of this shaft 1 and secured in place to leave end extensions or bearings.

The sleeve 2 has collars 4 mounted on each end thereof and these collars are provided with the externally screw-threaded portions as shown at 5. A plurality of thin spring metal strips 6 are secured by means of screws 7 or other suitable fastening means to extend between the collars 4 at opposite ends of the sleeve 2, these spring strips being arranged to extend parallel with the turning axis of the shaft 1. The sleeve 2 is provided with the bores 8 and the centrally located counter-bores 9 which are arranged in pairs radially beneath the mounting of the spring strips 6, and the washers 10 which have cups formed on the outer faces thereof are secured on the inner sides of the spring strips 6, by being riveted or mounted in any other suitable manner in such relation that they are radially alined with the bores and counter-bores 8 and 9. A compression spring 11 is mounted with one of its ends in the counter-bore 9 and the remaining end received in the cup of the washer 10, it being, of course, understood that like springs are provided for each of the various sets of counter-bores and washers, and the supplemental compression springs 12 are mounted around the pressure springs 11 to bear within the bores 8 and against the washers 10.

By mounting the spring strips 6 upon the collar portions 4 and then disposing the

bearing and tension springs 11 and 12 as set forth, a frame-work structure is provided with the spring strips 6 extending as ribs between the collar portions 4 and longitudinally of the roll structure. To give a surface structure for this frame-work, the ring bands 13 are placed upon the spring strips by being fitted endwise over this frame structure, and these ring bands are placed upon the frame structure until a sufficient number is provided to form a bearing surface or bearing structure entirely along the length of the roll. Ring nuts 14 and 15 are turned onto the screw-threaded portions of the collars 4 to bind against the end ring bands 13 and hold the multiplicity of rings against endwise shifting and lock nuts 16 and 17 are screwed onto the collars 4 to come to bearing against the ring nuts 14 and 15 and to thus secure the same rigidly against displacement which will hold the entire number of ring bands against shifting and will form a completely assembled roll. In the use of the roll as set forth above, the various ring bands will be independently depressed and the depression of any one band will leave the edges of the adjacent bands exposed, thus presenting portions which might mark or perhaps score the hides, and to eliminate the possibility of the edges leaving an impression on the hides, I provide a canvas covering or a covering made of some other such material as shown at 18, to give a smooth and even surface to the roll structure and to prevent the possibility of the edges of the ring bands coming in contact with the hides or leaving an impression or marking upon the same.

It will be understood that the rolls in the completed form as above set forth will be fitted in a machine in place of the usual rubber rolls or will be substituted for the brass sectional bars and the operation of the remaining portions of the machine will not be in any way destroyed or altered. As a hide is passed through the machine in contact with the roll, any unevenness or irregularity in the thickness of the hide will be taken up by depression of the ring bands against the outwardly extending action exerted by the spring strips 6, and by the bearing springs 11 and the tension springs 12, and then when the uneven portion has been passed over, the ring bands will be again restored to the normal relation. From the above it will be seen that all slight irregularities in the hide will be taken care of by the spring strips 6 and the bearing springs 11, and then when large lumps or other unevenness is encountered which exerts an extremely depressing effect against the ring bands, these bands will be sufficiently displaced that the washers 10 will be brought to bear against the tension springs 12 and a greater stiffness of movement will be con-

sequently imparted to the ring bands. By arranging the structure as set forth, a device is provided in which any slight irregularities are readily compensated for and at the same time provision is made to permit passage over lumps or other irregularities of considerable proportions and it is insured that the hide will at all times be held in the proper relation to receive the most efficient treating action, and that upon passage of the unevenness from beneath the spring roll, the displaced parts will be again substantially instantly replaced to insure proper action upon the continued extent of the hide, and further, it will be noted that the provision of the fabric or other covering at 18 insures a smooth bearing surface at all times and a cover surface which will prevent scoring or marking of the hides by the edges of the various ring bands.

While I have herein shown and described only one specific form of the device, it will be understood that the shaft, the sleeve and the collars might be constructed to constitute a single member, that the ring bands might be secured against displacement by means other than that shown and that still other changes and modifications might be resorted to in the construction and arrangement of the parts without departing from the spirit and scope of my invention, and hence I do not wish to be limited to the exact disclosure but rather only to such points as may be set forth in the claims.

I claim:

1. A roll for leather working machinery comprising a central bearing and supporting structure having outstanding flange like portions adjacent to the ends thereof, spring strips mounted longitudinally of said supporting structure to be connected on the flange like portions and thus provide a resilient frame structure, a plurality of ring bands mounted on said frame structure to form a bearing portion for the roll and to be capable of independent movement through the resiliency of the spring strips, and a flexible covering mounted over said ring bands to form a surface bearing portion for the roll.

2. A roll for leather working machinery comprising a central bearing and supporting structure, spring strips mounted longitudinally of said supporting structure to provide a resilient frame structure, a plurality of ring bands mounted on said frame structure to form a bearing portion for the roll and through the resiliency of the spring strips to be capable of independent movement, and springs mounted between the supporting structure and the spring strips to give increased flexibility to the entire structure.

3. A roll for leather working machinery comprising a central bearing and support-

ing structure, spring strips mounted longitudinally of said supporting structure to provide a resilient frame structure, a plurality of ring bands mounted on said frame structure to form a bearing portion for the roll and through the resiliency of the spring strips to be capable of independent movement, springs mounted between the supporting structure and the spring strips to give increased flexibility to the entire structure, and a covering over the ring bands to hold the edges thereof from cutting into and leaving an impression on the hides being treated.

4. A roll for leather working machinery comprising a supporting and bearing structure, spring strips mounted longitudinally of said supporting structure to form a resilient frame work, ring bands mounted around the resilient frame work thus formed, means to hold the ring bands against displacement, said supporting structure being provided with bores and counter-bores, washers carried by the spring strips at points corresponding to the positioning of the bores and counter-bores, and bearing and compression springs mounted in said counter-bores and bores to bear against the

washers to give added spring action to the spring strips.

5. A roll for leather working machinery comprising a supporting and bearing structure, spring strips mounted longitudinally of said supporting structure to form a resilient frame work, ring bands mounted around the resilient frame work thus formed, means to hold the ring bands against displacement, said supporting structure being provided with bores and counter-bores, washers carried by the spring strips at points corresponding to the positioning of the bores and counter-bores, bearing and compression springs mounted in said bores and counter-bores to bear against the washers to give added spring action to the spring strips, and a covering mounted over the ring bands to prevent scoring and marking of the hides being treated through shifting of the ring bands to expose the edges thereof.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN N. BERGSTROM.

Witnesses:

ERNEST A. HODGDON,

CHAS. G. WOODBRIDGE.