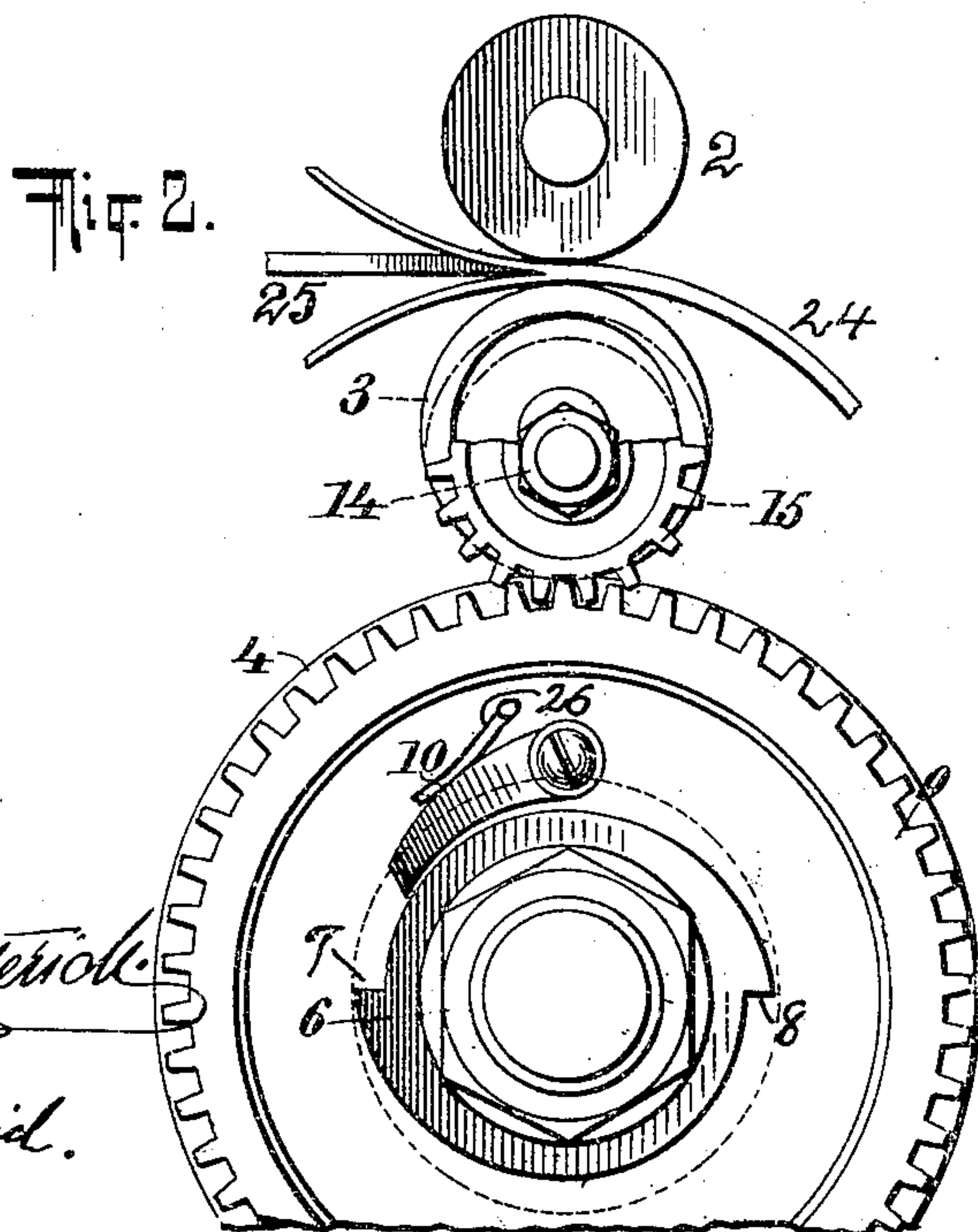
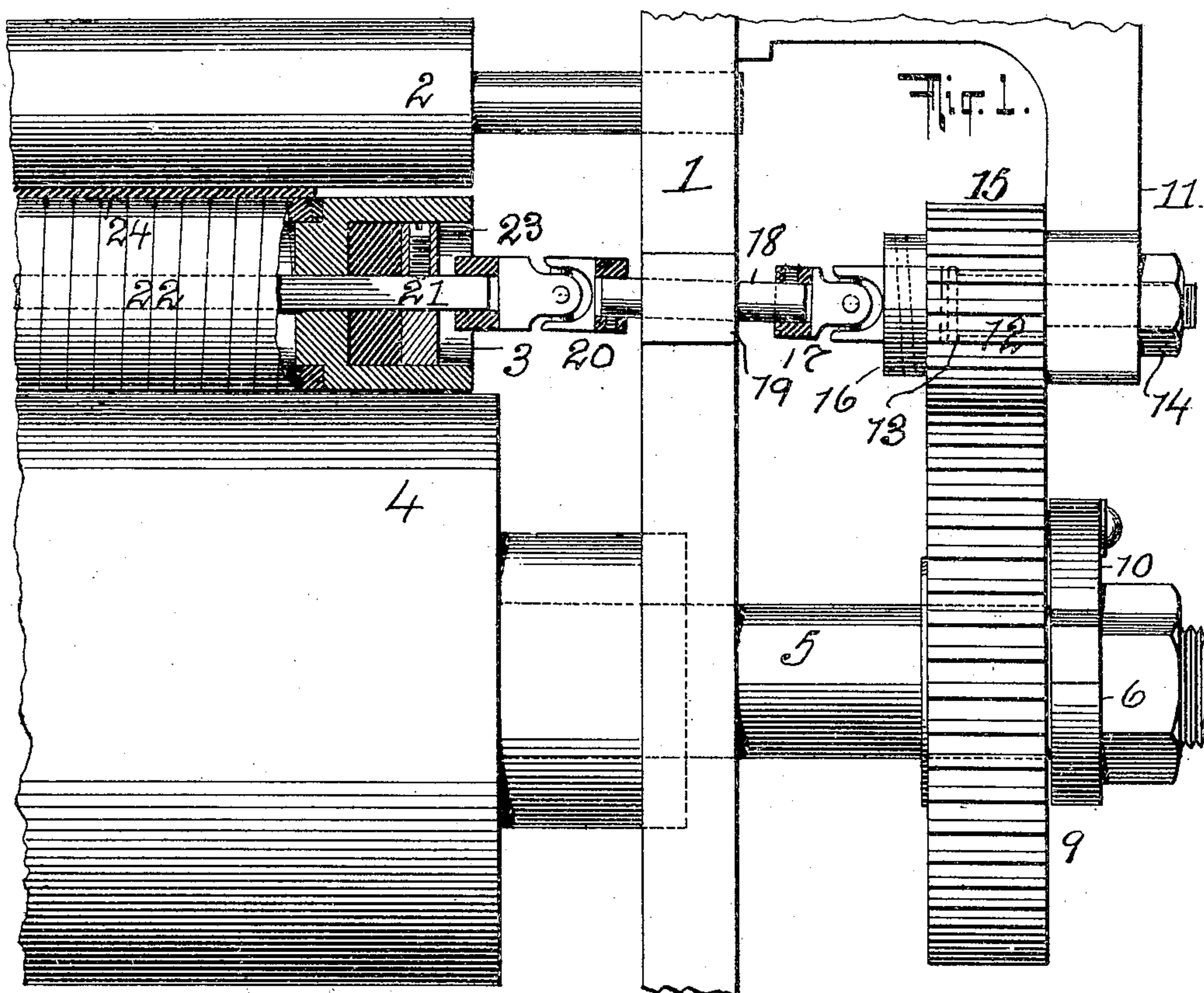


No. 792,164.

PATENTED JUNE 13, 1905.

W. D. QUIGLEY & J. H. GAY.  
LEATHER SPLITTING MACHINE.

APPLICATION FILED APR. 25, 1904.



WITNESSES:

*Charles Dietrich*

*Edwin H. Dietrich*

INVENTORS

*William D. Quigley*  
*Joseph H. Gay*

BY *Carb. Benjamin*  
their ATTORNEY



# UNITED STATES PATENT OFFICE.

WILLIAM D. QUIGLEY AND JOSEPH H. GAY, OF NEWARK, NEW JERSEY.

## LEATHER-SPLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 792,164, dated June 13, 1905.

Application filed April 25, 1904. Serial No. 204,869.

*To all whom it may concern:*

Be it known that we, WILLIAM D. QUIGLEY and JOSEPH H. GAY, of Newark, Essex county, New Jersey, have invented a new and useful  
5 Improvement in Leather-Splitting Machines, of which the following is a specification.

The invention relates to leather-splitting machinery and to that type of machine in which the hide enters between a rotating spring-roll  
10 and is so fed edgewise to the splitting-knife.

The invention consists, broadly, in a spring-roll, means for driving said roll by frictional contact, and means controlled by said frictional driving means for positively driving  
15 said roll, in a spring-roll and mechanism combined therewith whereby said roll, while normally driven by frictional contact, becomes automatically driven whenever its frictional driving-roll slips, and in the various combinations  
20 more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a part of one end of a leather-splitting machine, showing the gage-roll, spring-roll, friction driving-roll for said  
25 spring-roll, and the positive gearing between the spring-roll and the driving-roll. Fig. 2 is an end view of the same parts with the upper portion of the spring-roll gear and of the frame of the machine broken away.

30 A portion of the side frame of the machine is shown at 1.

2 is the gage-roll, 3 the spring-roll, and 4 a driving-roll having an elastic surface in frictional contact with said spring-roll. The roll  
35 4 is rotated by any suitable means. Its shaft 5 extends beyond the frame 1 and carries a ratchet 6, having teeth 7 and 8. Loose on shaft 5 is a gear 9, on the side of which is the pivoted pawl 10 in position to engage with said  
40 ratchet and held against the periphery thereof by leaf-spring 26, secured on gear 9.

Supported on frame 1 is a bracket 11, in an arm of which is secured the stud 12, (dotted lines.) Said stud is shouldered, as shown at  
45 13, and is secured by a nut 14. On the stud 12 and suitably shouldered to receive it is a toothed gear 15, which engages with the toothed gear 9. Integral with gear 15 is a sleeve 16, which is keyed to the universal-joint  
50 coupling 17. Said coupling is connected to a

short link 18, which passes through an opening 19 in frame 1 and is attached to another universal-joint coupling 20, which is connected to the end of the central supporting-rod 21 of spring-roll 3.

The construction of the specific spring-roll  
55 herein illustrated is fully described and claimed in our pending application, Serial No. 204,867, filed simultaneously herewith. It is formed of a plurality of spirals, one of which  
60 is partly shown at 22, each spiral being a coil of wire of rectangular cross-section closely wound and presenting a smooth exterior surface. The spirals are retained upon the rod by end pieces, one of which is shown at 23,  
65 and by intermediate supports. (Not shown.) As set forth in our aforesaid application, this is a spring-roll which can be rotated by power applied to its central rod 21.

The operation of the device is as follows:  
70 The hide 24 to be split is fed in the usual way between the gage-roll 2 and spring-roll 3 and by reason of the rotation of the spring-roll is carried between said rolls so that its edge is presented to the splitting-knife 25. Under  
75 normal conditions the spring-roll is rotated in the ordinary way by the frictional contact of the elastic-surfaced driving-roll 4. The motion imparted to the spring-roll is transmitted to gear 15, and so to the loose gear 9. Gear  
80 15 is of the same diameter as spring-roll 3. Gear 9 is of less diameter than driving-roll 4. Thus spring-roll 3 and gear 15 may be each two inches, driving-roll 4 seven inches, and gear 9 six inches in diameter. The engage-  
85 ment of the gears under these conditions is provided for by the universal-joint couplings 17 and 20 and the link connection 18. Consequently the gear 9 travels at a higher rate of speed than does the ratchet 6 on the shaft  
90 of roll 4, and hence the pawl 10 on said gear runs ahead of its adjacent tooth 7 and there is no engagement of ratchet-tooth and pawl. It happens, however, that hides under treatment are often slippery either because wet or  
95 because of the animal grease in them, and this moisture or grease being transferred to the friction-roll 4 causes it to slip under the spring-roll, or, in other words, its speed of rotation will be relatively greater than that of the  
100



spring-roll. The ratchet-tooth 7 will then move ahead and toward the pawl 10 and finally engage that pawl. As soon as this happens the power is positively communicated to the  
 5 spring-roll from the shaft of roll 4, through the pawl and ratchet to gear 9, and so to gear 15 and the central rod of the spring-roll. Hence the spring-roll will be driven positively as long as the slipping continues. When slip-  
 10 ping ceases, the pawl 10, as already explained, will again run ahead of the ratchet-tooth, and the frictional driving of the spring-roll by the driving-roll 4 will be resumed. It will be seen, therefore, that we have here produced  
 15 a spring-roll and mechanism connected therewith which, while normally driving said roll by frictional contact, automatically substitutes a positive drive whenever occasion requires it.

20 We claim—

1. In a leather-splitting machine, a spring-roll, means for driving said roll by frictional contact and means for positively driving said roll.

25 2. In a leather-splitting machine, a spring-roll, means for driving said roll by frictional contact and means controlled by said first-named means for positively driving said roll.

30 3. In a leather-splitting machine, a spring-roll, means for driving said roll by frictional contact and means controlled by the slipping of the contact-surfaces for positively driving said roll.

35 4. In a leather-splitting machine, a spring-roll, a driving-roll in frictional contact therewith, and positive driving mechanism for said spring-roll interposed between said spring-roll and said driving-roll.

40 5. In a leather-splitting machine, a spring-roll, a driving-roll in frictional contact therewith, a positive driving mechanism for said spring-roll interposed between said spring-roll and said driving-roll, and a ratchet mechan-

ism for causing the intermittent engagement of said positive driving mechanism and consequent operation of said spring-roll thereby. 45

6. In a leather-splitting machine, a spring-roll, a roll for driving said spring-roll by frictional contact, and means for positively driving said spring-roll by said driving-roll; the  
 50 said positive driving means being constructed and arranged to operate positively to drive said spring-roll upon the reduction of speed of rotation of said spring-roll below that normally imparted to it by the friction of said  
 55 driving-roll.

7. In a leather-splitting machine, the combination of a spring-roll, a driving-roll in frictional contact therewith, a ratchet on the driving-roll shaft, a loose gear on said shaft of less  
 60 diameter than said driving-roll, a pawl engaging with said ratchet and carried by said loose gear an independently-supported gear engaging with said first-named gear and a universal-  
 65 joint connection between said last-named gear and said spring-roll.

8. In a leather-splitting machine, the combination of a spring-roll, a driving-roll in frictional contact therewith, a ratchet on the driving-roll shaft, a loose gear on said shaft of less  
 70 diameter than said driving-roll, a pawl engaging with said ratchet and carried by said loose gear an independently-supported gear of the same diameter as said spring-roll and engaging  
 75 with said first-named gear, and a universal joint connection between said last-named gear and said spring-roll.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM D. QUIGLEY.  
 JOSEPH H. GAY.

Witnesses:

WM. H. SIEGMAN,  
 I. A. VAN WART.