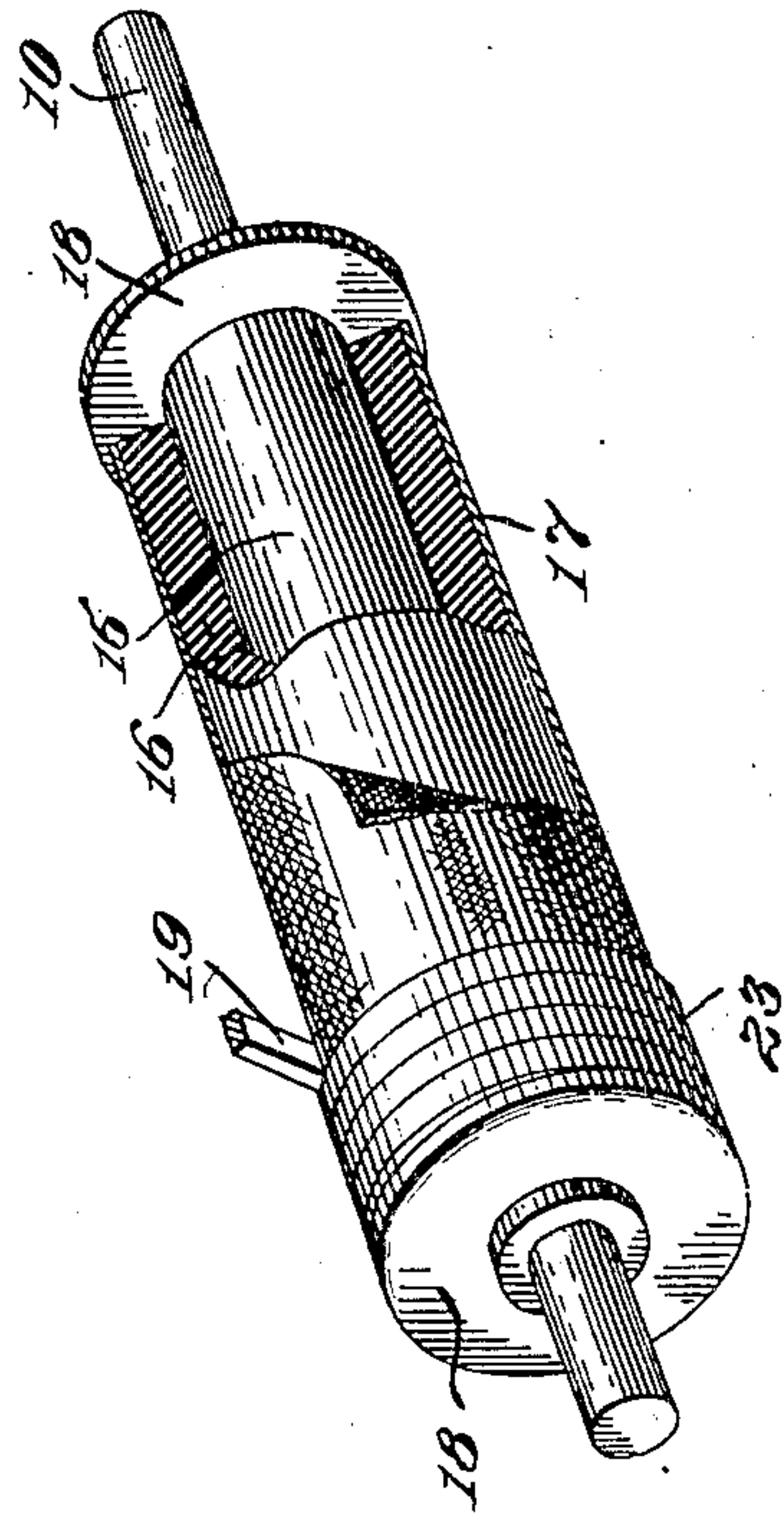
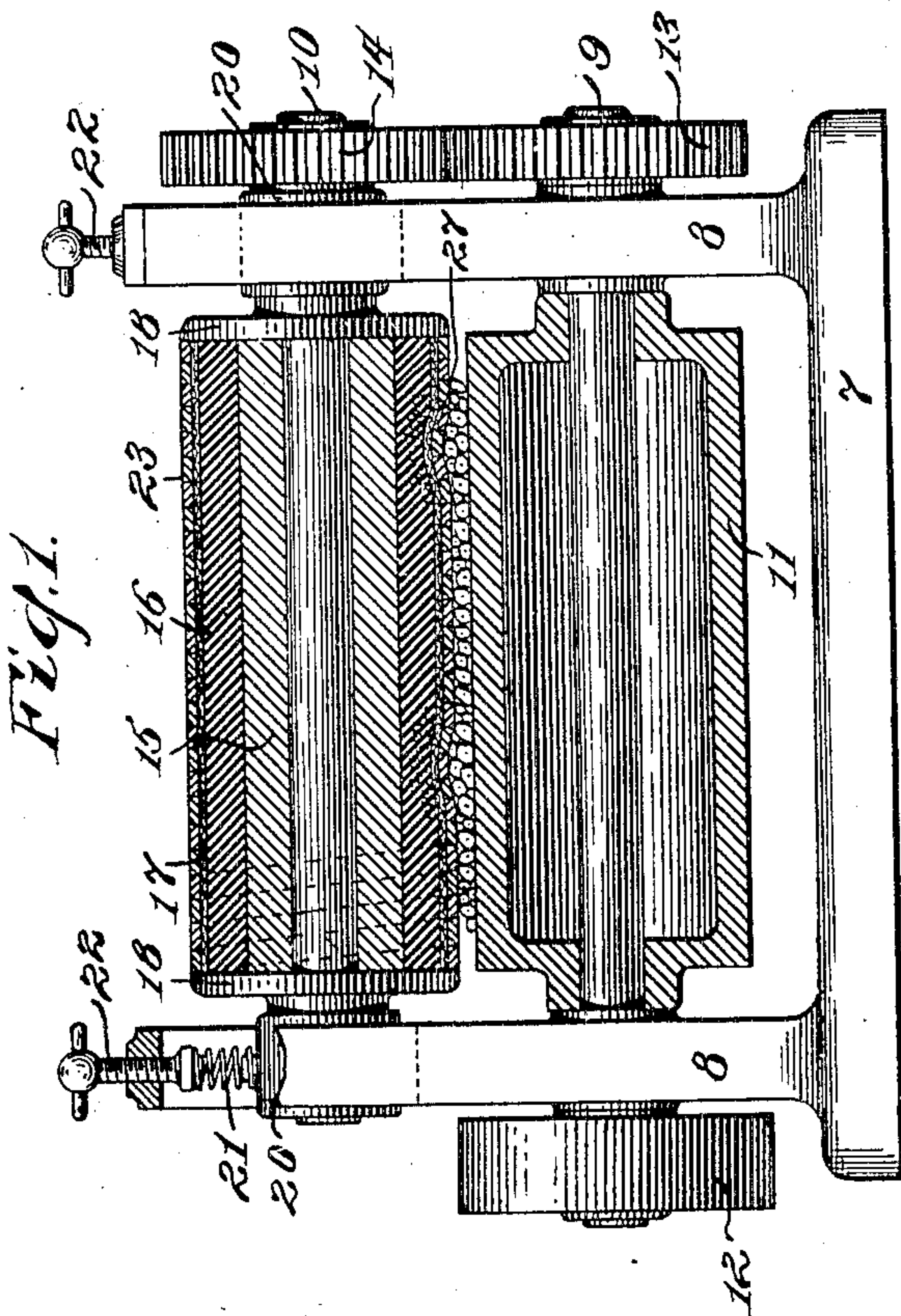
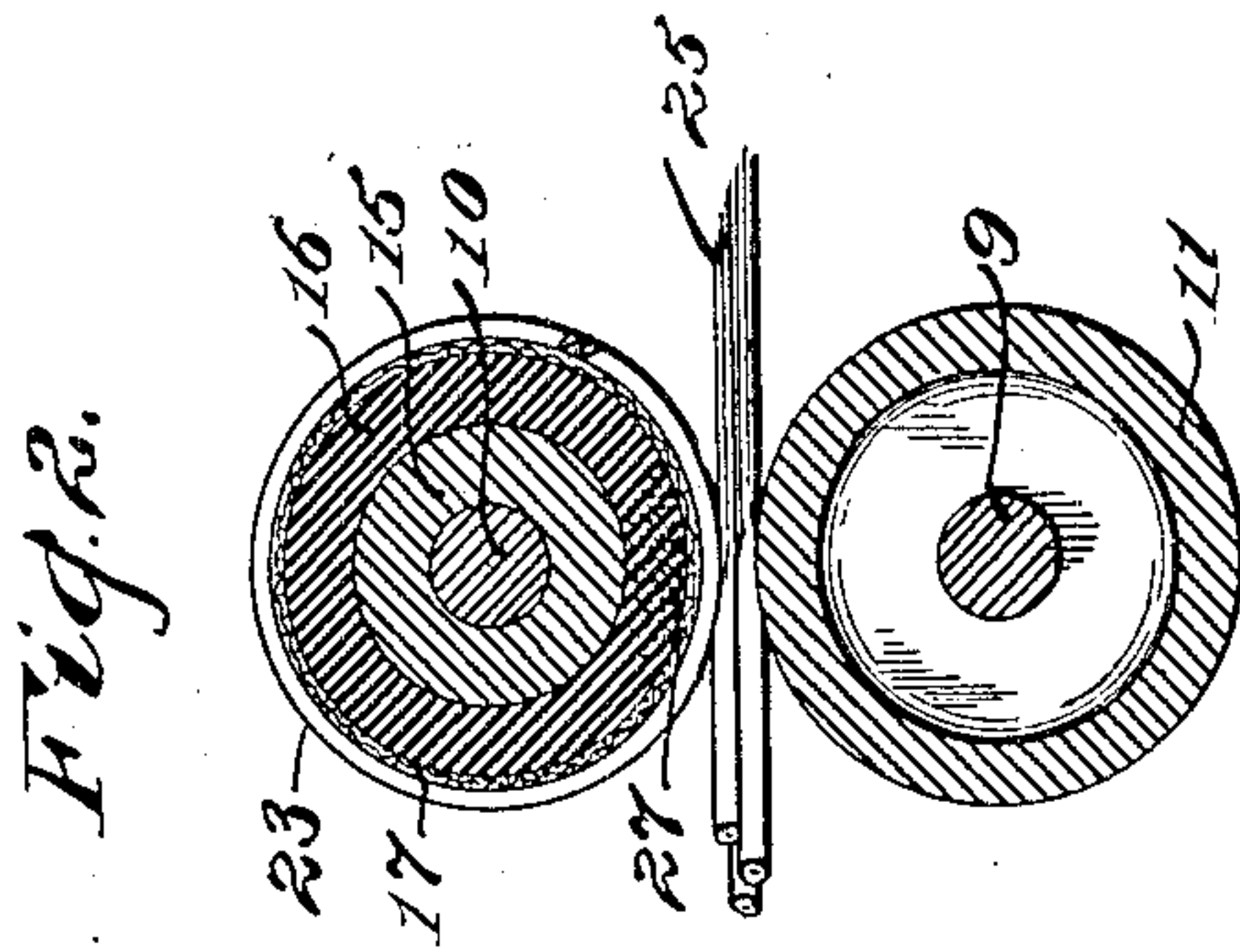


No. 852,399.

PATENTED APR. 30, 1907.

F. H. RICHARDS.
APPARATUS FOR TREATING FLAX.
APPLICATION FILED MAY 8, 1905.



Witnesses:
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APPARATUS FOR TREATING FLAX.

No. 852,399.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed May 8, 1905. Serial No. 259,298.

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Apparatus for Treating Flax, of which the following is a specification.

This invention relates to apparatus for treating flax and other fiber plants and has for an object to provide an improved roll for use in such apparatus, and which roll will elastically yield to inequalities of flax passing under it, but which will present to the flax a surface which is relatively hard and unyielding. The roll comprises an elastically yieldable body covered with an elastic armor preferably in the form of a strip of resilient metal helically wound on said body.

In the drawings accompanying and forming a part of this specification Figure 1 is a side elevation of a flax breaking apparatus embodying a form of my present invention, the rolls being shown in longitudinal section. Fig. 2 is a cross section through the rolls illustrated in Fig. 1; and Fig. 3 is a perspective view of a form of my improved roll, it being shown as broken away and partly disassembled for the purpose of revealing its structure.

In Fig. 1 a base plate 7 is illustrated having a pair of standards 8 rising therefrom, in which are provided bearings for the shafts 9 and 10 of the rolls. The lower roll 11 may be of any suitable formation, in the present instance, it is represented as being a hollow metal roll. Its shaft 9 has a pulley 12 upon it, which may be driven by a belt (not shown). The roll shafts carry meshing gear wheels 13, 14 respectively, whereby the rolls may be driven at proper relative surface speed. One of the rolls, in the present instance the upper roll, is shown as having a wooden core 15 surrounding its shaft 10, which core is covered by a cushion 16 of some elastic material, which may be rubber, over which cushion is placed a fabric 17. The ends of the cushion and other parts may be held in place against longitudinal displacement by suitable plates 18. Upon the fabric

is a helical armor 23, in the present instance the strip 19 from which the armor is wound is comparatively narrow relative to its thickness radially of the roll. It will be borne in mind, however, that the armor strip must not be so stiff as to resist the yielding of the cushion to inequalities in the layer of flax passing under the roll, nor so as to lose its resiliency. In Figs. 1 and 2 flax stalks 25 are shown passing between the rolls, and at two places between the rolls in Fig. 1 a thickening of the flax stalks is shown, which will produce a compression of the armor and cushion as at 27.

The journals of the shaft 10 may be carried by suitable boxes 20 in guideways in the standards 8. Springs 21 are shown as bearing upon such boxes, and the tension of the spring may be adjusted by suitable set screws 22.

It will be seen that the joints formed by the abutting edges of the strip entering into the helix will be at an angle to the line of advance of the flax through the rolls. This will prevent fibers finding ready entrance between such abutting edges.

Not only does the cushion serve to bring the armor to its normal position and maintain the surface of the roll cylindrical, after it has yielded away from its normal, but the helical disposition of the resilient armor also assists in such maintenance of a cylindrical contour upon the roll. The metal which is resilient will be substantially unyielding so far as its surface is concerned, but will be elastically yieldable away from the large portions of the stalks, and when the machine is unevenly fed the surface will yield away from the portions where too great a quantity of material for treatment has been fed in. The springs 21 will normally press the roll toward the surface against which it is crushing the stalks, in the present illustration the surface of the roll 11, the springs 21 serve to hold the center of the roll in its normal position, and inequalities of material being treated are compensated for by the elasticity of the armor and cushion.

The present drawings are for the purpose of illustration, and it will be apparent to

those skilled in the art, that, in practice, various changes may be made without departing from the spirit of my invention.

Having described my invention, I claim:

5 1. A crushing roll for fibrous plants comprising a metal shaft, a wooden core on said shaft, a rubber cushion on the core, a helically disposed metal strip on said cushion, and a fabric layer between said metal strip and
10 the cushion.

2. In a crushing roll for fibrous plants, the combination of an elastic body portion, an armor of resilient material upon said body portion, and a protecting layer between the
15 body portion and the armor.

3. In a crushing roll for fibrous plants, the combination with a rubber body portion, of

an armor of resilient material helically disposed thereon, and a protecting layer between the said body portion and helically
20 disposed armor.

4. In a crushing roll for fibrous plants, the combination of a body portion, an elastic cushion thereon, a helically disposed elastic strip of metal upon said cushion, and a fab-
25 ric layer between said strip of metal and the cushion.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 4th day of May, 1905.

FRANCIS H. RICHARDS.

Witnesses:

CHAS. LYON RUSSELL,
JOHN O. SEIFERT.