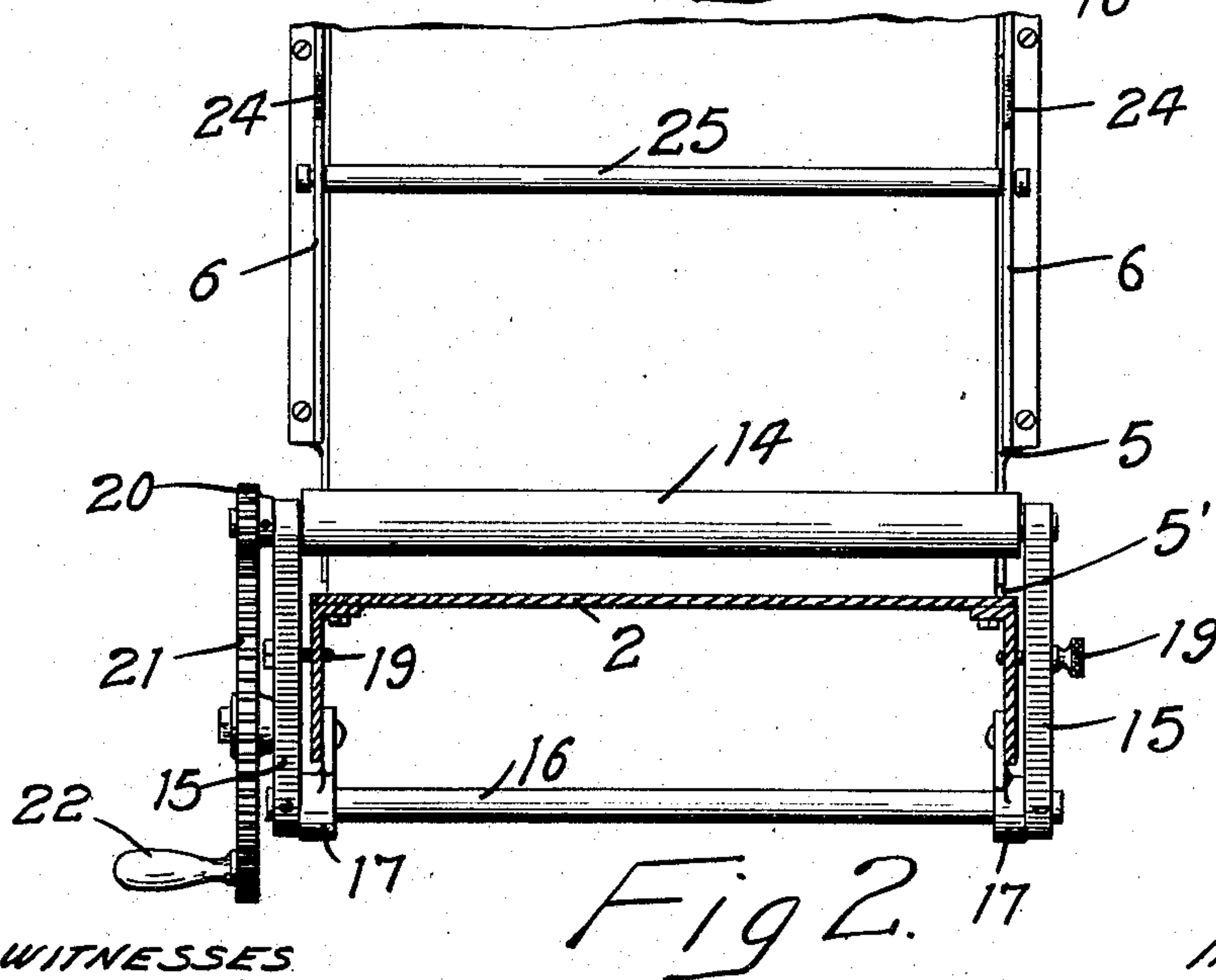
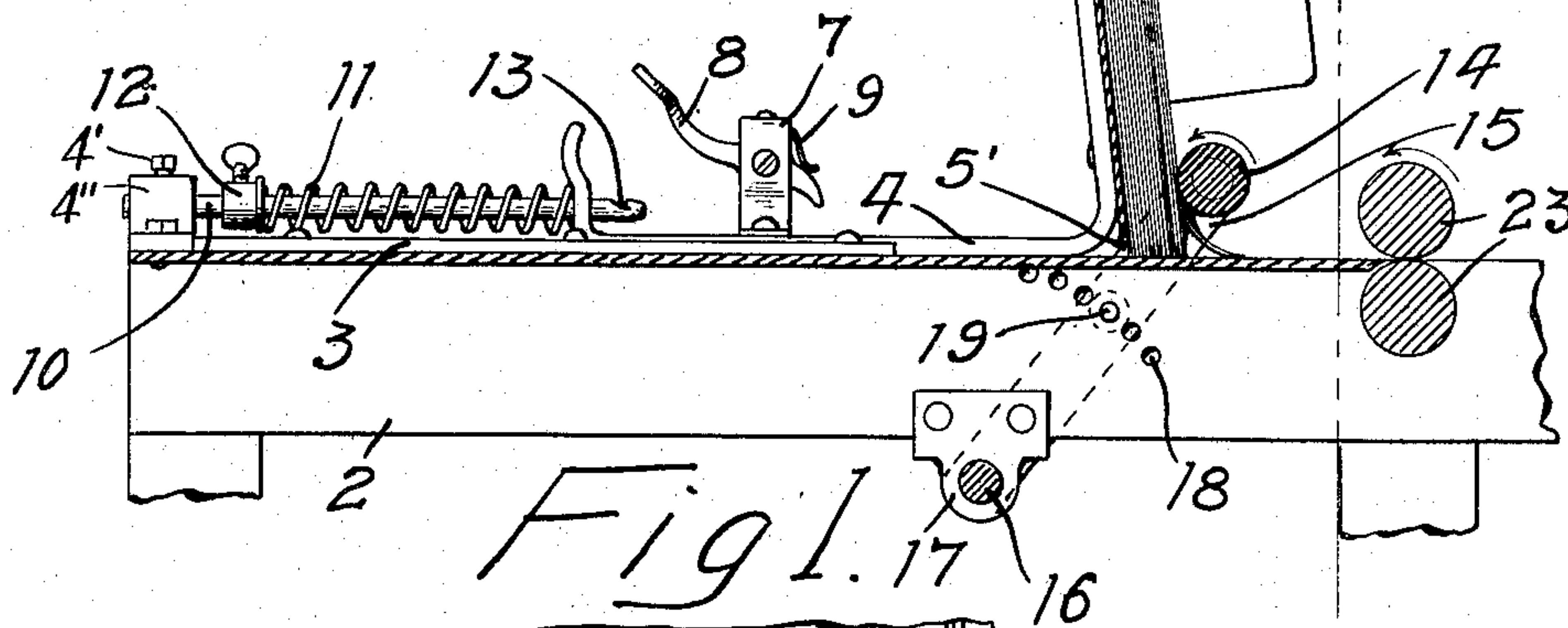
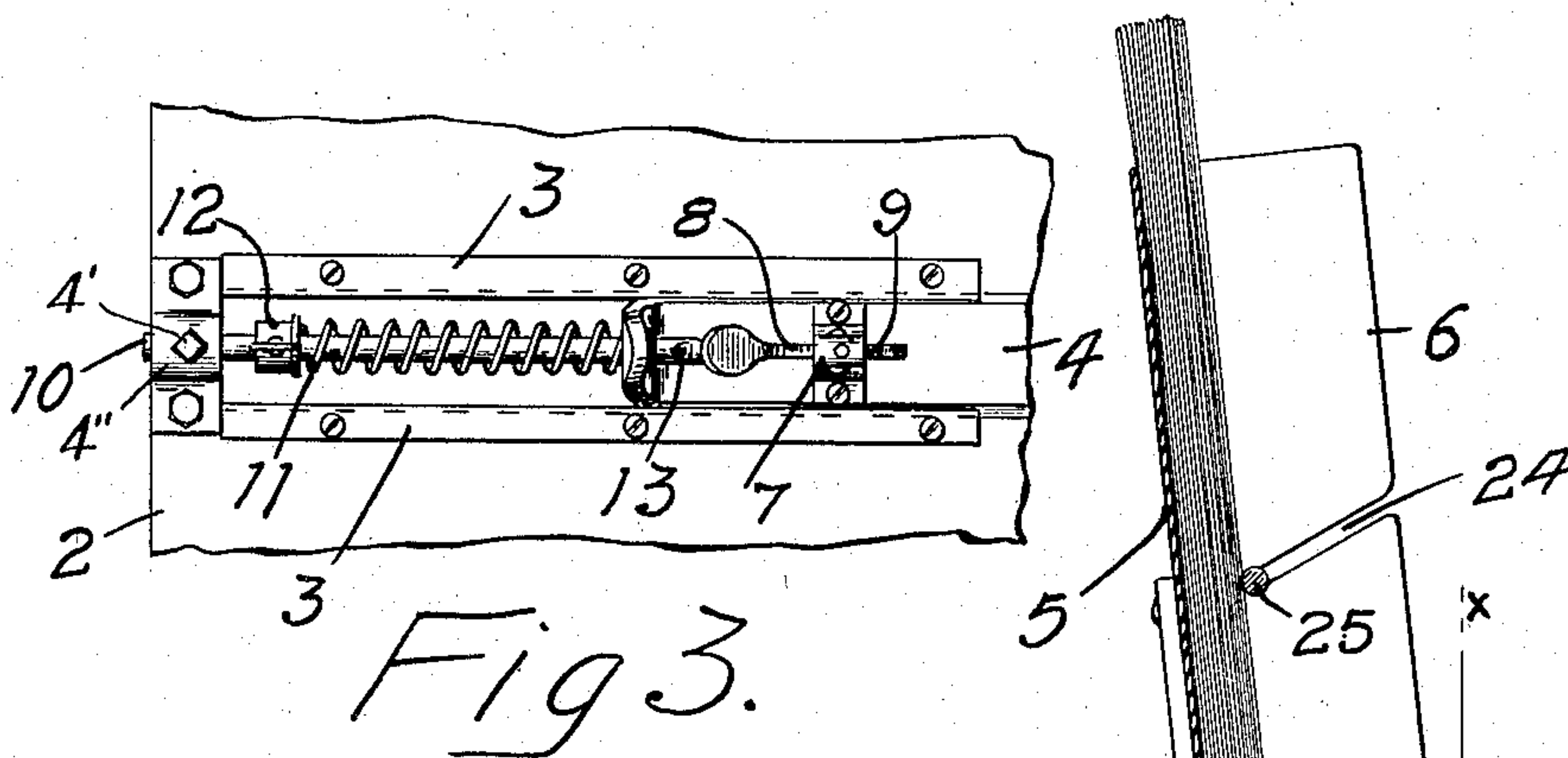


FEED DEVICE.

937,017.

Patented Oct. 12, 1909.



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PORATION OF ILLINOIS.

FEED DEVICE.

937,017.

Specification of Letters Patent.

Patented Oct. 12, 1909.

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To all whom it may concern:

Be it known that I, JOHN H. ADAMS, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Im-

provements in Feed Devices, of which the following is a specification.

My invention relates to feeding mechanisms and particularly to a mechanism for feeding paper or other flexible material.

The object of my invention is to provide a machine for positively and rapidly feeding sheets of paper or similar material one at a time and without danger of the sheets clinging or sticking together.

A further object is to provide a machine that is capable of adjustment for feeding paper of different degrees of stiffness.

A further object is to provide a feed device in which the tendency of the sheets to stick together through the weight of one sheet lying upon another, is entirely avoided.

The invention consists generally in means for supporting a number of sheets of paper on end, and means having a frictional contact with the paper for feeding the sheets one at a time.

Further, the invention consists in means whereby the feed device is rendered adjustable to increase or decrease the friction between it and the paper.

Further, the invention consists in means whereby the friction feed device is rendered vertically adjustable to permit its position with respect to the paper to be changed according to the character of the paper that is being fed.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal sectional view of the feeding device embodying my invention. Fig. 2 is a sectional view on the line $x-x$ of Fig. 1. Fig. 3 is a partial plan view showing the spring device for holding the feed plate away from the feed roll.

In the drawings, 2 represents a feed table having a flat upper surface on which parallel guides 3 are mounted for a sliding bar 4 that has an upwardly turned end to which a feed plate 5 is secured, having side flanges 6. An open space 5' may be provided between the lower edge of the feed plate and feed table to insure the unobstructed backward inclination or trend of the sheets which lie in the rear of the one that is being removed. This open space may, however, be omitted if pre-

ferred and the feed plate extended down into contact with the table. A bracket 7 is mounted on the bar 4 carrying a dog 8 that is engaged by a spring 9 which normally tends to hold the dog in the position indicated in Fig. 1. A rod 10 is mounted on the feed table at one end thereof and the opposite end of said rod extends through a hole in the upwardly turned end of the bar 4. A set screw 4' is mounted in a bearing 4'' for said rod and by the adjustment of this screw, the position of the rod may be regulated. A spring 11 coiled on said rod bears at one end on the said upwardly turned end, and at its other on an adjustable collar 12 by means of which the tension of the spring may be regulated. A notch 13 is provided in the end of the rod to receive the dog 8 and lock the said bar and feed plate in a retracted position. A feed roll 14 is provided, mounted on arms 15 that are secured to a rod 16 having bearings in brackets 17 on the feed table. This construction allows the feed roll to be oscillated up and down to change its position with respect to the paper that is being fed.

The stack of paper is held against the feed roll with a yielding pressure and the lower portion of the stack will be forced against the upright feed plate by the pressure of the roll with the lower end of the stack in contact with the table, and the revolution of the roll will feed the sheets one at a time from the stack and without any tendency to feed more than one of the sheets. I have found that the pressure of the roll on the lower portion of the stack tends to hold the lower ends of the sheets in place and prevent them from slipping on the feed table except as they are drawn forward one at a time as they come in contact with the surface of the feed roll. I have found this manner of feeding to be entirely successful in actual practice and I regard it as one of the most important features of the invention.

For the purpose of adjusting the roll I provide a series of holes 18 in the feed table and pins 19 adapted to fit into said holes, and whereby the roll may be held in its adjusted position. This adjustment allows the position of the roll to be changed according to the character of the paper that is being fed, being raised for a stiff paper and lowered for a thin one. The roll is provided with a pinion 20 which meshes with a large

gear 21 having an operating handle 22 and mounted on one of the arms 15 to swing therewith. Rollers 23 are provided at the end of the feed table to which the paper is delivered by the operation of the roll 14. The flanges 6 are preferably provided with diagonal slots 24 into which a rod 25 is loosely inserted and adapted to bear by gravity on the sheets of paper.

As will be noted from Fig. 1 the sheets of paper are placed on end so that the air will pass between the sheets and tend to separate them and prevent them from sticking or clinging together, as would be the case if the sheets were placed in a pile one upon another. The ends of the sheets contacting with the feed table produce sufficient friction to prevent more than one sheet from being fed at one time by the revolution of the feed roll.

To place the paper in the feeding device the plate 5 is pushed back against the tension of the spring until the dog engages the notch in the end of the rod. A quantity of paper can then be placed on the feed table against the plate 5 and upon tripping the dog the pressure of the spring will hold the paper with a yielding pressure against the feed roll. The rod 25 resting against the middle portion of the paper stack when sheets of full size are being fed, will prevent them from bending or buckling. In feeding half sheets or note size this gravity rod will not be necessary.

I claim as my invention:—

1. The combination, with a feed table, of an upright feed plate mounted thereon, and against which a stack of paper is placed with the ends of the sheets resting on said table, a feed roll arranged above said table and the lower ends of said sheets and adapted to engage the sheets and bend them outwardly one at a time and feed them forward horizontally on said table and said feed roll having a swinging movement on its support and being capable of adjustment toward and from said table to vary its distance from the lower ends of said sheets according to the character of the paper that is being fed.

2. The combination, with a feed table, of arms pivoted at one end below said table, a

roll carried by the other ends of said arms and adapted to swing therewith toward and from the surface of said feed table, means for locking said arms, a feed plate supported on said table and between which plate and roll the sheets of paper to be fed are held, the lower ends of the paper contacting with said table, and said roll being a sufficient distance above said table and the lower end of said plate to allow the lower ends of the sheets to be bent outwardly and fed forward horizontally on said table.

3. The combination, with a feed table, of a feed plate mounted thereon and having a horizontal movement, a feed roll supported above said table at the lower end of said plate and between which roll and plate the sheets of paper to be fed are held with their lower ends in contact with the surface of said table, a pair of rolls provided near one end of said table said feed roll being adjustable toward and from said pair of rolls and said feed table whereby its position with respect to the lower end of said feed plate can be changed, and said feed roll being arranged to engage the lower portions of the sheets and bend their lower ends outwardly and feed them forward horizontally to said pair of rolls, substantially as described.

4. The combination, with a feed table, of a pair of rolls arranged one above another near one end of said table, a backwardly inclined feed plate slidably mounted on said table, a feed roll, arms pivoted at one end below said table and having bearings at their other ends for said feed roll, said table having a series of holes and pins passing through said holes and other holes in said arms and whereby said feed roll may be adjusted and locked to vary its position with respect to said table, and said feed roll being adapted to engage the lower portions of the sheets and bend them outwardly and feed them forwardly to said pair of rolls.

In witness whereof, I have hereunto set my hand this 2nd day of July 1907.

JOHN H. ADAMS.

Witnesses:

J. B. ERA,

J. H. BALDWIN.