

J. O. HUNT.  
ATTACHMENT FOR PULP PRESSES.  
APPLICATION FILED MAR. 11, 1910.

978,587.

Patented Dec. 13, 1910.

3 SHEETS—SHEET 1.

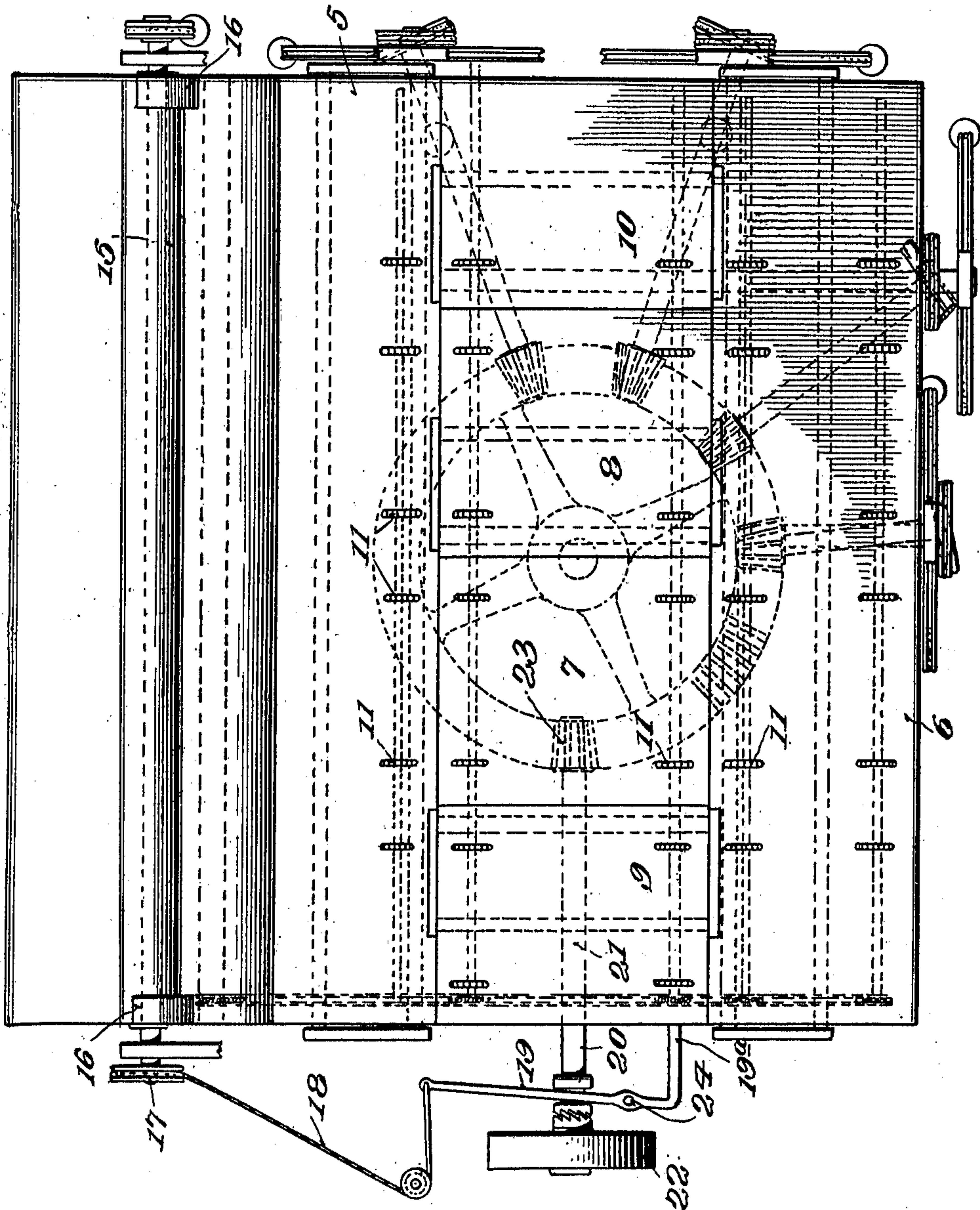


Fig. 1.

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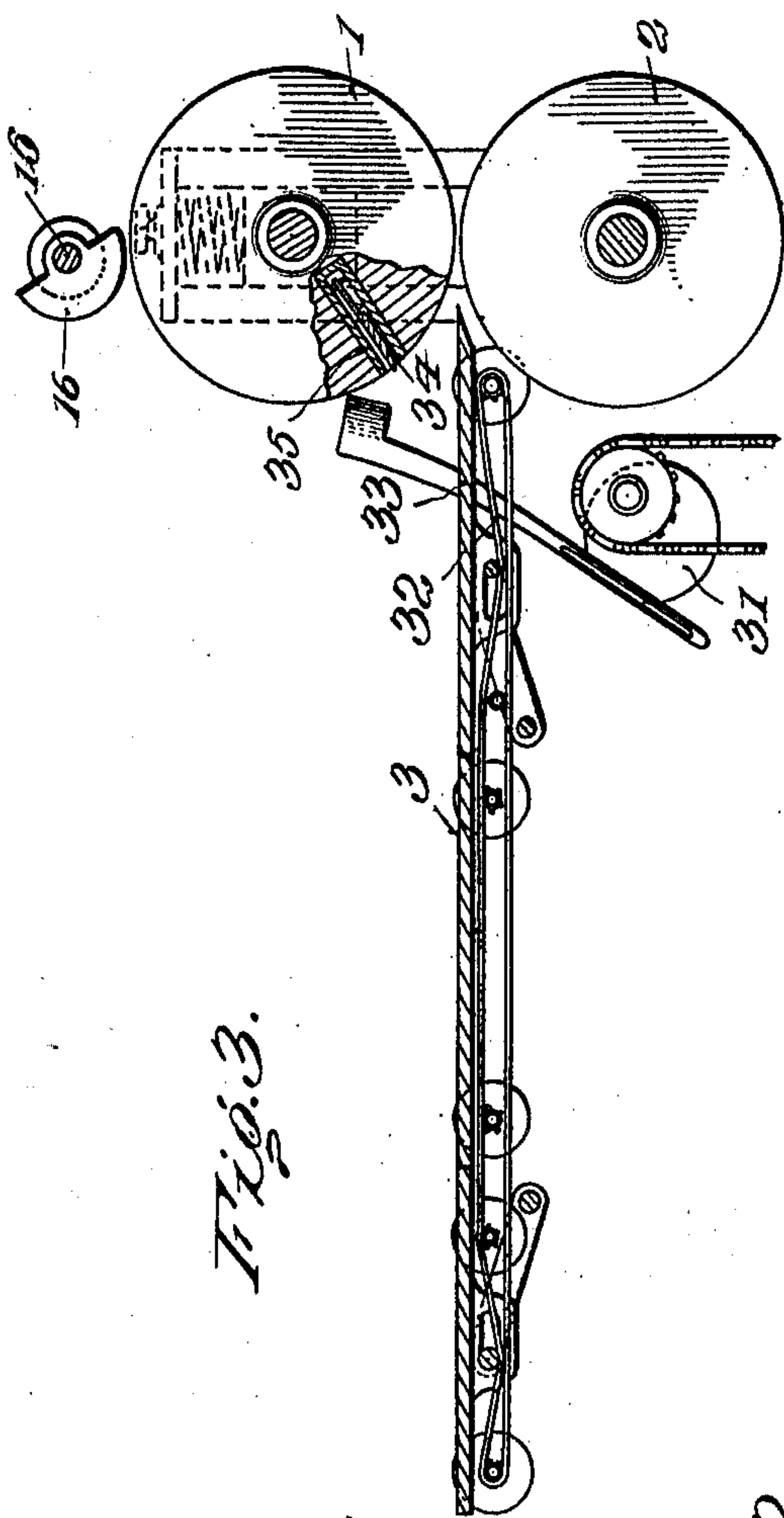


Fig. 3.

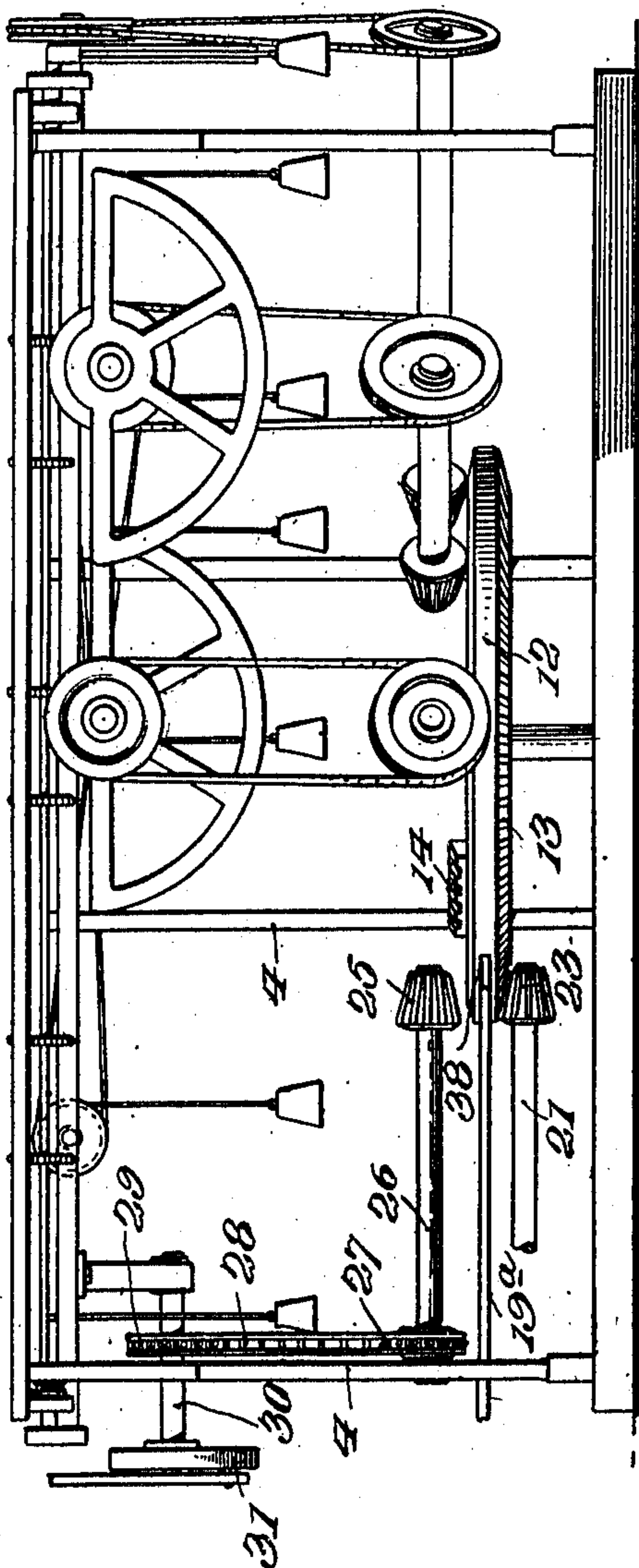


Fig. 2.

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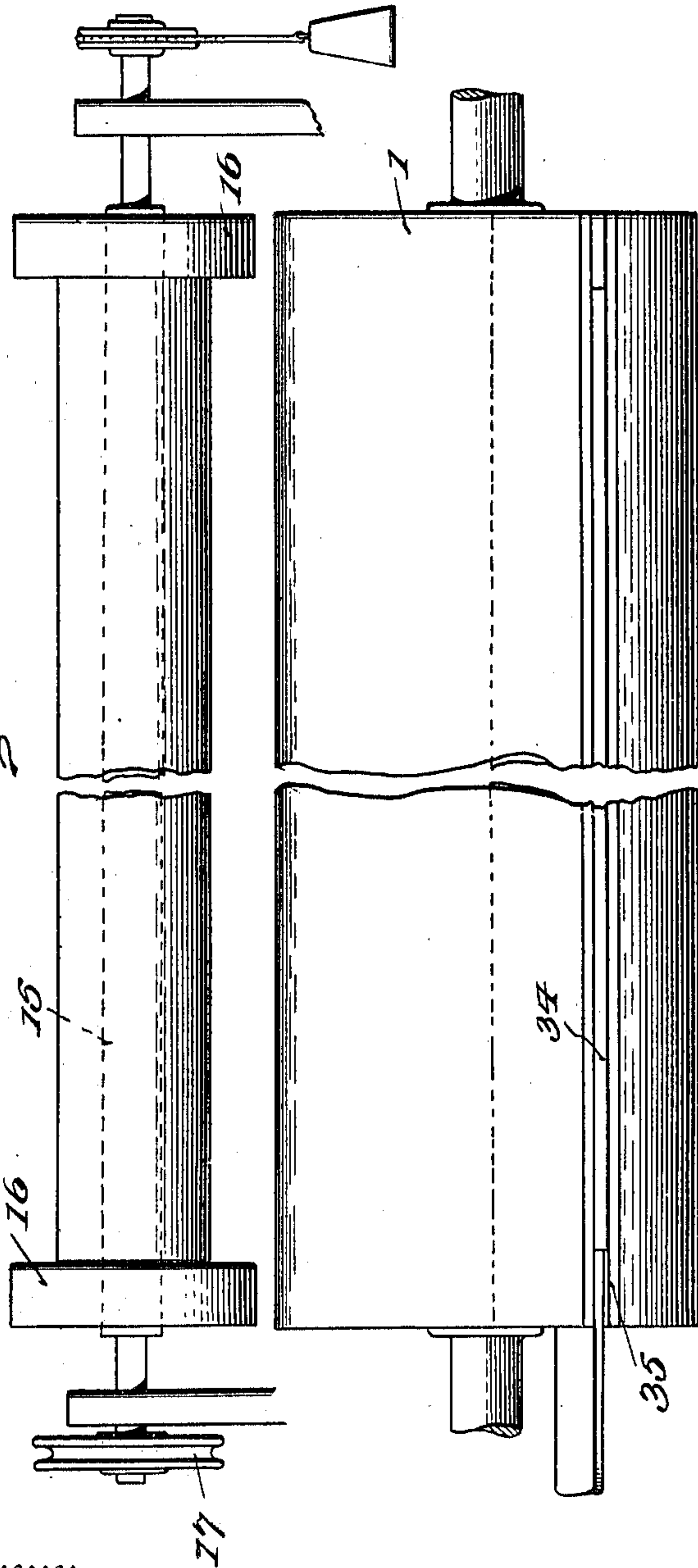
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3 SHEETS—SHEET 3.

Fig. 4.



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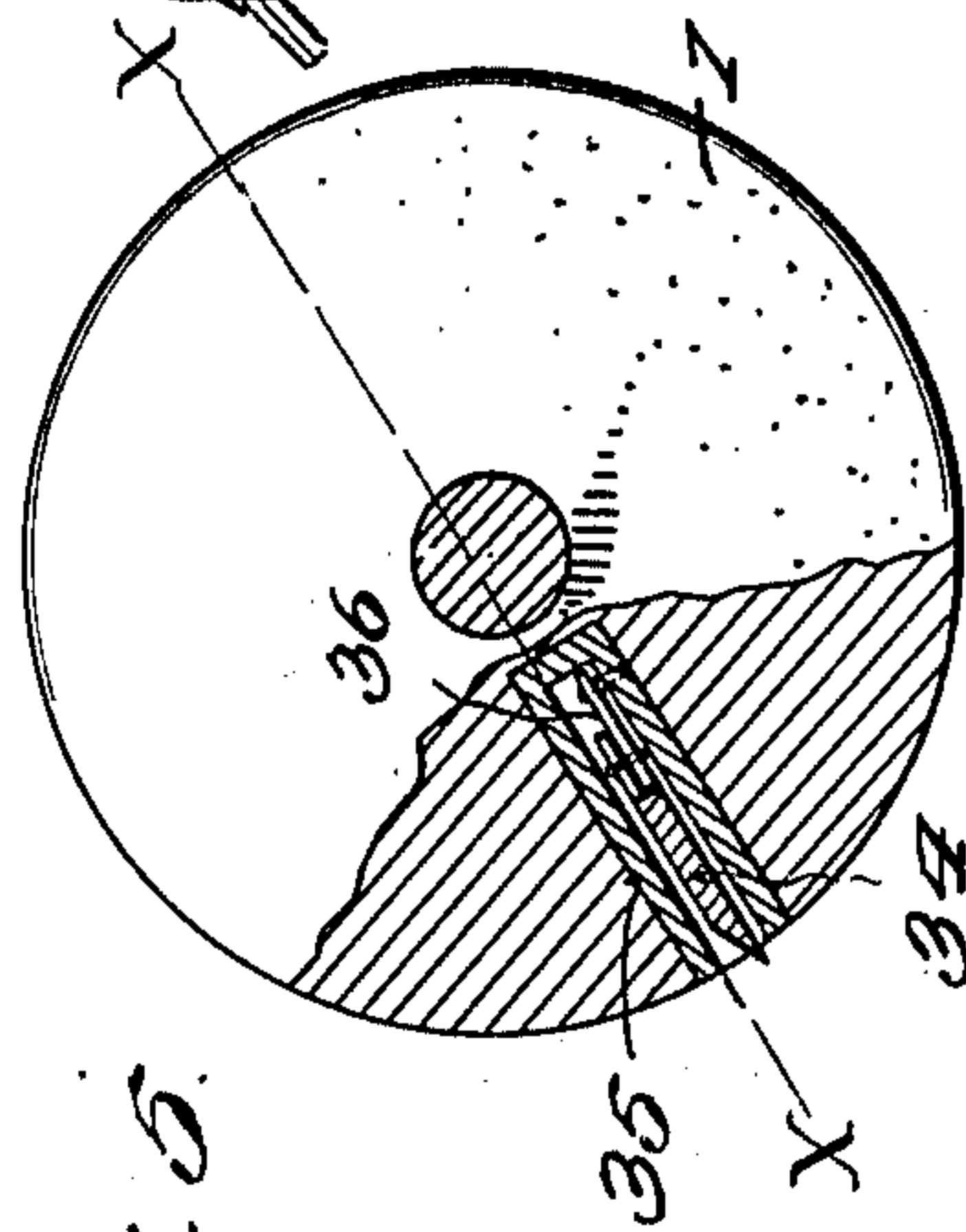
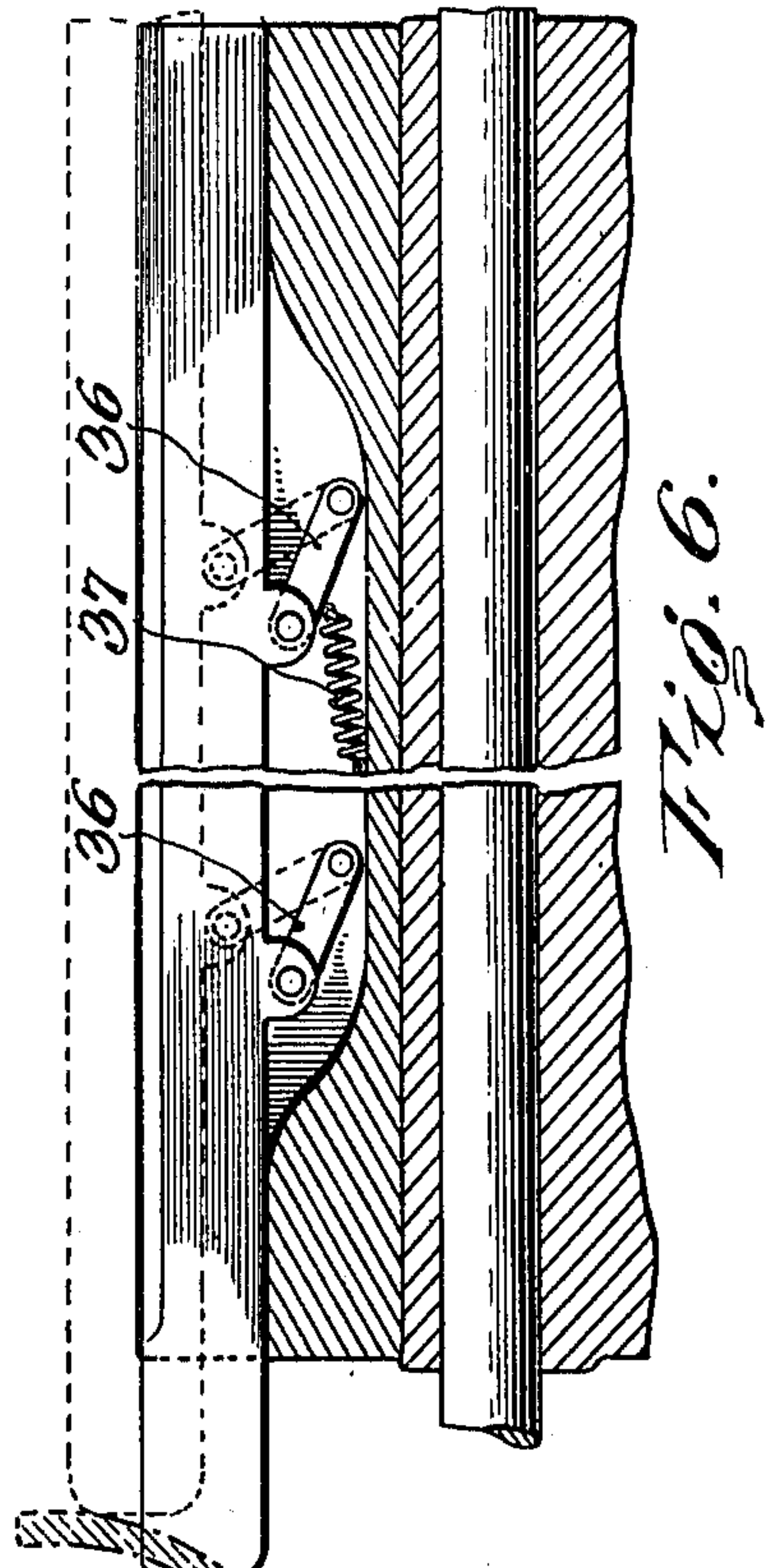


Fig. 5.

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# UNITED STATES PATENT OFFICE.

JOHN O. HUNT, OF GLENS FALLS, NEW YORK.

## ATTACHMENT FOR PULP-PRESSES.

978,587.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed March 11, 1910. Serial No. 548,731.

*To all whom it may concern:*

Be it known that I, JOHN O. HUNT, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented certain new and useful Improvements in Attachments for Pulp-Presses, of which the following is a specification.

This invention relates to the art of paper making and particularly to improvements in attachments for pulp presses of the character disclosed in my prior Letters Patent of the United States No. 927,856, issued to me July 13, 1909.

Generally stated, my patent above mentioned discloses means for automatically stripping stock from the press cylinder, and for automatically forming the pulp sheet into a bundle, thereby dispensing with the attendants that are usually employed for this purpose at the press and consequently effecting economies in the trade.

The present invention has to do particularly with the means for automatically stripping the stock from the pulp cylinder or roller of a pulp press, that is, the means for automatically cutting the sheet so as to permit it to strip itself from the cylinder and pass onto the table which constitutes the main part of my invention disclosed in my prior patent, and the invention has for its primary object an improved cutting apparatus which will act automatically when the accumulations of pulp upon the press cylinder shall have reached a predetermined thickness.

The invention also has for its object a simple, durable and efficient construction of mechanism of this character, and the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a top plan view of a stock folding machine equipped with the improvements of the present invention; Fig. 2 is a side elevation thereof, parts being omitted, and other parts broken away; Fig. 3 is a transverse sectional view through the bed or table of the apparatus; Fig. 4 is an enlarged elevation of a portion of the cutting mechanism;

Fig. 5 is an end view of the pulp cylinder of a press; a part of the cylinder being shown in section; and, Fig. 6 is a longitudinal sectional view on the line  $x-x$  of Fig. 5.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

In carrying out my invention, the pulp is accumulated in the usual manner upon the preferably wooden cylinder 1 of a pulp press, before it is finally cut and discharged from the press, said cylinder 1 being mounted over the bed in close proximity to the sub-jacent cylinder 2, the pulp passing between the cylinders 1 and 2 and accumulating on the periphery of the former as just stated. At a predetermined time, as will be hereinafter fully described, the pulp is cut as it encircles the cylinder 1 and falls upon a table 3 which is constructed as disclosed more fully and completely in my prior Patent No. 927,856 above mentioned. This table 3 is supported upon a framework 4 of any desired construction or design and embodies a leaf 5 extending longitudinally thereof next to the press, an opposite leaf 6, a preferably stationary middle section 7, a hinged middle section 8, and hinged end leaves 9 and 10 located between the side leaves 5 and 6 at the ends of the latter. The leaves 5, 6, 9 and 10 as well as the middle section 8 are all freely mounted upon the supporting framework 4 in such a manner as to permit said leaves and sections to be swung upwardly and inwardly in order to fold the sheet into a bundle. In this operation, the leaf 5 is swung upwardly and inwardly upon the middle stationary section 7 and its adjoining section 8 and upon the end leaves 9 and 10, to form the first fold in the sheet. After the leaf 5 has been swung outwardly again and has assumed its normal position, this being accomplished in any desired way, as by the weighted cords disclosed in my prior patent, the opposite leaf 6 will be swung inwardly to form the next fold, and after the leaf 6 is swung out again to its normal position, the leaves 9 and 10 will both be folded inwardly with their free edges meeting so as to make two more folds in the sheet; finally after the leaves 9 and 10 have been swung back to an inoperative position, the



middle section 8 will be swung upwardly and upon the stationary section 7 to complete the folded sheet or bundle.

In order to feed the sheet upon the table, and to pass it therefrom after the folding operations have been completed, spur wheels 11 are provided, sundry of said spur wheels acting to discharge the folded sheet or bundle from the side leaf 6 so as to discharge the bundle from the table 3 and make way for the next sheet to be folded. The actuating mechanism for swinging said leaves and sections inwardly to make the folds include a master or actuating wheel 12 which is journaled in the framework in any desired way and which, as shown, is formed on its lower face with gear teeth 13 and on its upper face with a toothed segment 14.

For a further detailed description of the folding mechanism *per se*, reference is to be had to the specification and drawings of my prior patent aforesaid.

The present invention as has been before stated, relates particularly to means for automatically severing the sheet upon the periphery of the cylinder 1 at a predetermined thickness of the sheet and the construction and arrangement of parts to accomplish this end will now be described.

Mounted above the cylinder 1 is a shaft 15, said shaft carrying one or more cams 16 which are two in number in the present instance located near the ends of the shaft as best illustrated in Fig. 1. The pulp sheet which accumulates on the periphery of the cylinder 1, it is to be understood is of less width than the length of the cylinder, and of less width than the distance between the cams 16, the latter being designed at the proper time to engage with the periphery of the continuously rotating cylinder 1 whereby the latter will impart a rocking movement to the cams 16 and a partial rotary movement to the shaft 15. To this end the cylinder 1 is mounted in vertically movable bearings which are so formed that at the predetermined time, the said cylinder will be raised by the accumulations of pulp between the cylinder and the subjacent cylinder 2, until finally the periphery of the cylinder 1 will engage with the cams 16 and rock the shaft in an evident manner.

Upon one end of the shaft, it is to be particularly noted that there is a disk 17, and a cable 18 is secured to the disk to wind thereon. The other end of the cable 18 is connected to one arm of a shipper lever 19 which controls a clutch 20, said clutch being mounted upon a driving shaft 21 and being designed to couple with or uncouple from said shaft, the wheel 22 which may receive its motion from any suitable source of power. The shaft 21 is the drive shaft for the master wheel 12 so as to set in operation

the folding mechanism above mentioned, and for this purpose is provided at its inner end with a spur pinion 23 which meshes with gear teeth 13 on the master or drive wheel 12 of the folding apparatus. Hence it will be seen that when the paper stock accumulates to a predetermined thickness on the pulp cylinder 1, said cylinder will engage the cams 16 and rotate the shaft 15 in a direction to wind up the cable 18. This will in turn move the shipper lever 19 (the same being fulcrumed as at 24) in a direction to move the clutch into engagement with the spur wheel 22 and the shaft 21 will consequently be turned and set in motion the drive wheel 12. At the proper time, the segment 14 of the wheel 12 will mesh with a pinion 25 secured to the inner end of a counter shaft 26 journaled in any desired way in the framework 4. The shaft 26 carries a sprocket wheel 27 and the latter is connected by a sprocket chain 28 to another sprocket wheel 29 on a cam shaft 30. This cam shaft 30 carries a crank disk or cam 31 which is operatively connected to a lever 32 fulcrumed intermediate of its ends as at 33 in any desired way (for instance in a portion of the bed 3) the upper end of the lever being designed to engage a knife 34 which is mounted in a casing 35 in the cylinder 1.

As best illustrated in Figs. 5 and 6, the knife 34 normally occupies a position in which its cutting edge lies within the peripheral surface of the cylinder 1, one end of the knife projecting laterally from the end of the cylinder and designed to be engaged by the upper end of the lever 32 when the latter is moved into operative relation to the knife by the rotation of the cam or crank disk 31. The knife 34 may be formed with a cutting edge of any desired character either toothed, undulating, or smooth, and the knife is connected to links 36 either one or both of which is connected to a contractile spring 37 tending to hold the knife in its retracted position. When the lever 32 is moved to an operative position, its upper end will engage the projecting end of the knife 34, and in the continued rotation of the cylinder 1, the knife will be forced laterally and owing to its link connection, will be moved outwardly in a radial direction to cut the sheet which has been formed upon the cylinder. Preferably the parts are so timed that the sheet will be cut just after the knife has passed above the adjacent end of the bed or table 3, so that the cut end of the sheet will fall properly upon the table and be fed thereacross and stripped from the cylinder 1 and folded as hereinbefore generally described.

In order to automatically stop the folding apparatus, the arm 19<sup>a</sup> of the shipper lever 19 is designed to be engaged at the proper



time by a cam 38 formed on the edge of the drive wheel 12. When the cam 38 engages the arm 19<sup>a</sup> it will obviously move the shipper lever in a direction to disengage the clutch 20 from the spur wheel 22 and bring the apparatus to a stand-still.

From the foregoing description in connection with the accompanying drawings, the practical operation of my improved apparatus will be apparent. As pulp accumulates on the periphery of the cylinder 1, the latter will be gradually raised until at the predetermined time, the said cylinder will engage the cams 16, the continuous rotation of the cylinder 1 will thereupon rock the cam 16 so as to impart a partial rotary movement to the shaft 15 and the cable 18 will thereby be partially wound upon the disk or pawl 17 and move the shipper lever 19 in a direction to couple the spur wheel 22 and drive shaft 21, the shaft 21 will then be turned to cause the drive wheel 12 to turn, and immediately the segment 14 will engage the pinion 25 of the shaft 26 and turn said shaft and the shaft 30 so as to bring the lever 32 into operative relation with the laterally projecting end of the knife 34. At this time, the cylinder 1 will be in the relative position illustrated in Fig. 3, that is the knife will have just passed above the bed or table 3, and the knife will be thereby projecting outwardly in a radial direction so as to sever the sheet from end to end, one end of the severed sheet falling upon the table, and the sheet being stripped from the cylinder across the table and folded by the leaves above mentioned. As soon as the knife has passed the lever 32 it will be retracted by its spring 37 in readiness for a subsequent actuation, while the lever 32 will be moved to an inoperative position and only subsequently actuated when the pulp has accumulated to a sufficient degree on the periphery of the cylinder 1 to start the folding apparatus and through the instrumentality thereof again cut the sheet next formed on the pulp cylinder.

Having thus described the invention, what is claimed as new is:

1. The combination with the pulp cylinder of a paper pulp press, of a sheet folding apparatus arranged in proximity to said cylinder, actuating mechanism for said folding apparatus, means for starting said actuating mechanism, means for automatically severing the pulp on the cylinder, and an operative connection between said actuating mechanism and said severing means.

2. The combination with the pulp cylinder of a paper pulp press, of a sheet folding

apparatus arranged in proximity to said cylinder, actuating mechanism for said folding apparatus, means for automatically starting the said actuating mechanism, means for automatically severing the pulp on the cylinder, and an operative connection between said actuating mechanism and said severing means.

3. The combination with the pulp cylinder of a paper pulp press, of a sheet folding apparatus arranged in proximity to said cylinder, actuating mechanism for said folding apparatus, means for automatically starting said actuating mechanism, said last named means being controlled automatically by the predetermined thickness of the sheet of pulp on the cylinder, means for automatically severing the pulp on the cylinder, and an operative connection between said actuating mechanism and said severing means.

4. The combination with the pulp cylinder of a paper pulp press, of a sheet folding apparatus arranged in proximity to said cylinder, actuating mechanism for said folding apparatus, means for automatically starting said actuating mechanism, a knife carried by said cylinder and normally held in a retracted position therein, and means controlled by the said actuating mechanism for projecting the knife from the periphery of the cylinder, whereby to sever the sheet.

5. The combination with the pulp cylinder of a paper pulp press, of a sheet folding apparatus arranged in proximity to said cylinder, actuating mechanism for said folding apparatus, a knife carried by said cylinder and normally held in a retracted position therein, the cylinder being mounted in vertically movable bearings, another cylinder subjacent to the first named cylinder and between which the pulp is adapted to pass, whereby the accumulations of pulp on the first named cylinder will gradually raise the pulp cylinder, a shaft mounted above the pulp cylinder, a cam carried by said shaft and arranged to engage the periphery of the pulp cylinder at a predetermined elevation of the latter, and means for automatically starting said actuating mechanism and for projecting the knife out from the periphery of the pulp cylinder upon the engagement of the said cam with the pulp cylinder and the consequent turning of the shaft on which the cam is mounted.

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

JOHN O. HUNT. [L. s.]

Witnesses:

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FREDERICK S. STITT.