F. N. HAMLIN.

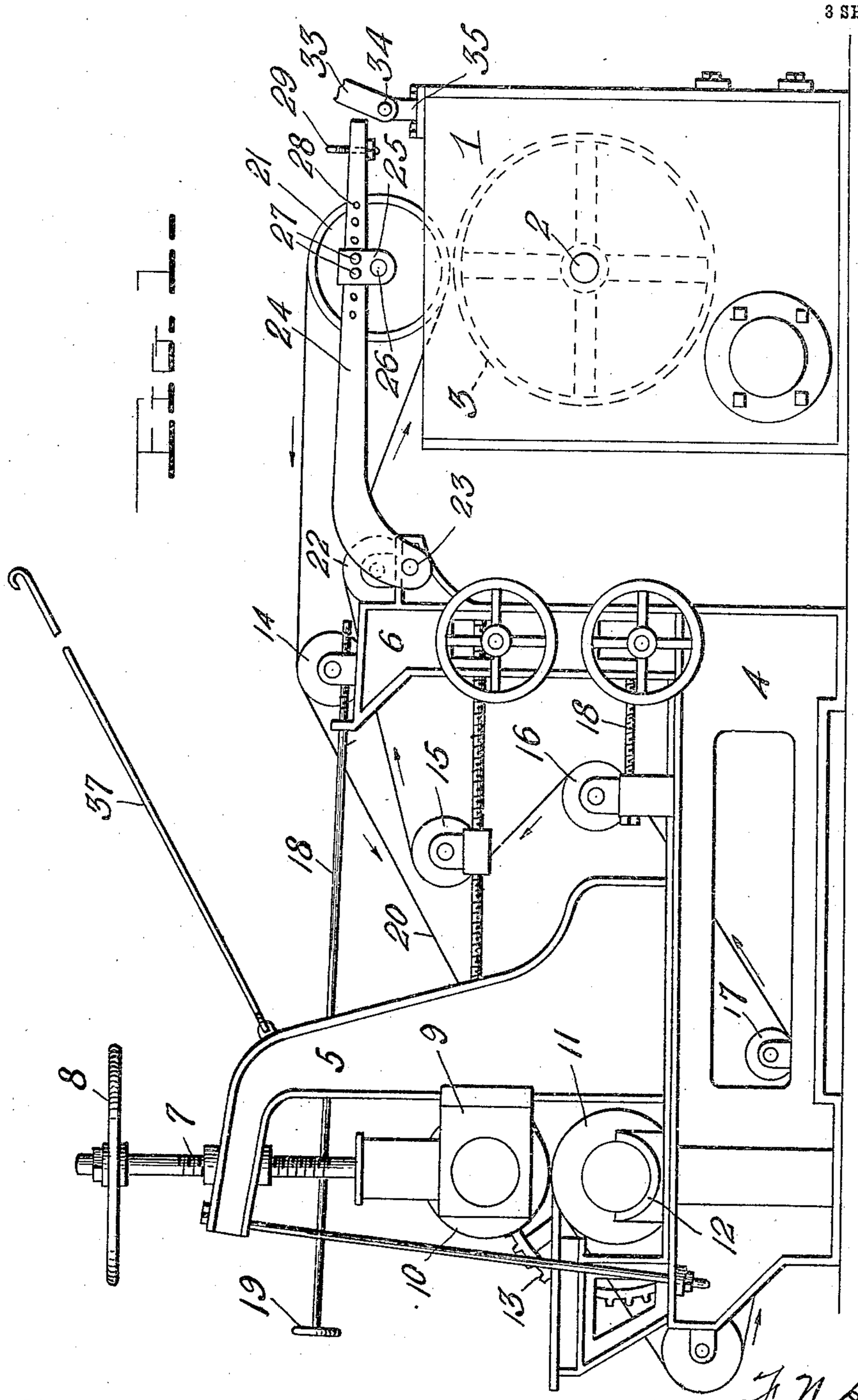
PAPER MAKING MACHINE.

APPLICATION FILED MAY 8, 1909.

958,113.

Patented May 17, 1910.

3 SHEETS—SHEET 1.



Witnesses

Chas. L. Griebauer.

E. M. Ricketts

Inventor

F. N. Hamlin

By Watson E. Coleman

Attorney

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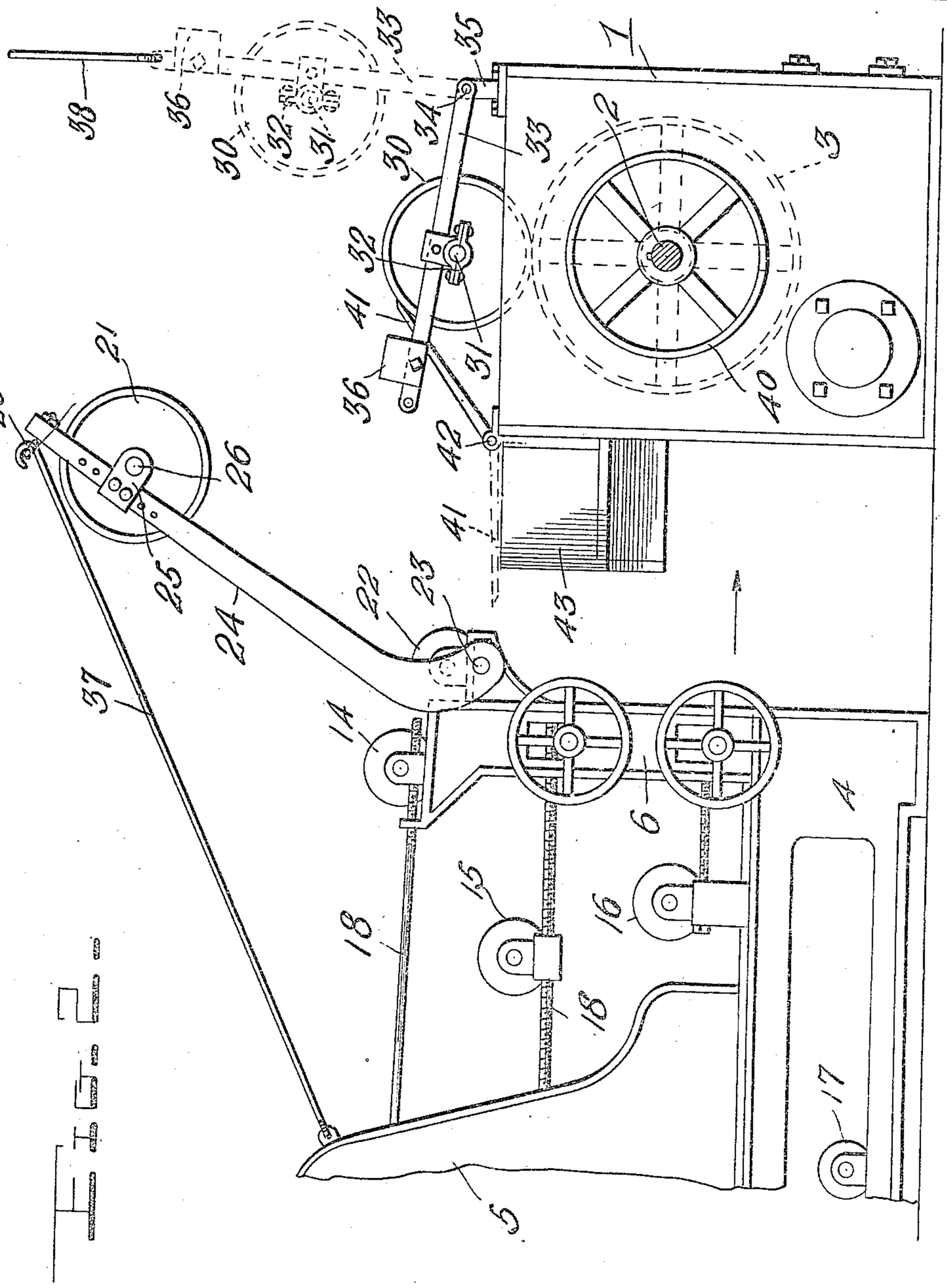

FIG. 2.

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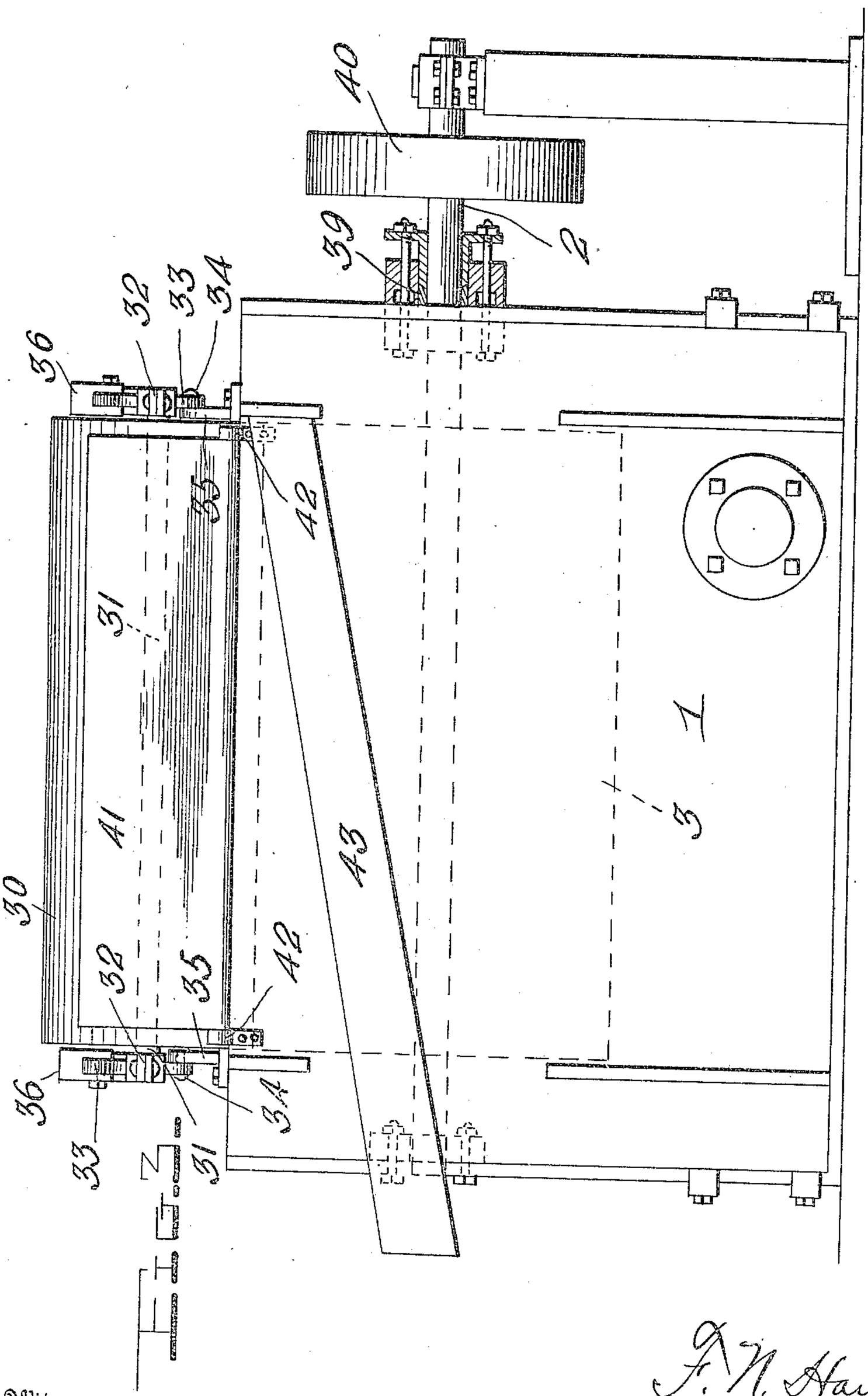

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UNITED STATES PATENT OFFICE.

FREDERICK N. HAMLIN, OF AUSTIN, PENNSYLVANIA.

PAPER-MAKING MACHINE.

958,113. Specification of Letters Patent. Patented May 17, 1910.

Application filed May 8, 1909. Serial No. 494,736.

To all whom it may concern:

Be it known that I, FREDERICK N. HAMLIN, a citizen of the United States, residing at Austin, in the county of Potter and State of Pennsylvania, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to paper pulp machines.

In the art as heretofore developed there are two classes of pulp machines known in the trade as "wet" machines and "decker" machines. These have been made and used as two separate and distinct machines and operated as such.

My invention has for its object to provide certain improvements in the well known "wet" machine which will render it capable of use, at will, either as a "wet" machine, or as a "decker" machine.

A further object of my invention is to provide such a combined machine of a very largely reduced number of parts over the two separate machines and consequently of a much lower cost to manufacture and operate.

A further object of my invention is to economize in the use of felts in the "wet" machine, as well as in lubricators, and in general wear and tear.

The machine known in the trade as the "wet" machine comprises a vat in which a wire cylindrical screen or mold is driven by an endless felt pressed against it on the top as it is passed around a "couch" roll, being practically driven by friction. The pulp stock is gathered out of the water in the vat on the wire of this mold or screen, and picked off the face thereof by the felt and carried by it over rolls to press rolls from which it is either scraped or cut and placed in a marketable condition.

What is known as a "decker" machine comprises a vat in which is mounted a cylindrical screen or mold, on a shaft driven by suitable power, and a couch roll, covered with felt, yieldingly held in contact therewith. The pulp is gathered on the wire of the screen or mold, as in the "wet" machine, and taken therefrom by the felt cover of the couch roll, from which it is scraped, or otherwise removed, and deposited in suitable receptacles to be further operated upon.

My specific improvements are designed to produce a single machine fully capable of all of the operations of both the "wet" and "decker" machines, having no extra parts over the "wet" machine except the couch roll and driving mechanism of the "decker" machine and in which the only adjustment necessary to change from a "wet" to a "decker" machine is to shift the couch rolls and start the driving mechanism of the "decker" machine.

With all of these objects in view, my invention consists primarily in a "wet" machine of the class described and means whereby the couch roll can be shifted and a "decker" couch roll substituted therefor.

My invention further consists in a "wet" machine provided with the ordinary felt-driven cylindrical screen or mold, the ordinary couch roll, a substitute couch roll, means for substituting the one couch roll for the other, and means for changing the driving power from the felt to the screen shaft.

My invention further consists in the improved specific construction, arrangement and combination of the parts involved in my improved machine, all as fully described hereinafter, and afterward specifically claimed.

In order that others skilled in the art to which my invention appertains may readily understand its construction and operation, I will now proceed to particularly describe the same, in connection with the accompanying drawings in which—

Figure 1 is a view principally in side elevation, of an ordinary pulp machine known as a "wet" machine having part of my improvements applied thereto, other parts being omitted, and parts shown in section, the parts being in position to be operated in the well known manner of this class of machines; Fig. 2 is a similar view of the right hand portion of the machine as shown in Fig. 1 with the parts in position to be operated as a "decker" machine; and Fig. 3 is a view partly in elevation, looking in the direction of the arrow shown in Fig. 2, of that portion of the machine which operates as a "decker", parts being shown in section.

1 is the vat into which the pulp is pumped before being formed into sheets.

Journaled in suitable bearings is a shaft 2 upon which is secured a cylindrical screen or mold 3.

4 indicates the base of the machine upon which are mounted side frames 5 and 6, the

side frames being extended and connected laterally to support a screw 7 which receives a hand screw 8 upon the lower end of which are supported sliding bearings 9 for the upper press roll 10, the lower press roll 11 being mounted in suitable stationary bearings 12 supported in the frame 4, said lower press roll being secured upon a shaft 12 which carries a gear wheel 13 and is driven by any suitable power (not shown).

At suitable points in the machine are mounted guide rolls 14, 15, 16, and 17, which are provided with suitable means, as for instance screws 18 operated by hand wheels 19, for adjusting their positions in order to preserve a proper tension in the endless felt band 20 which passes from couch roll 21 over the roll 14, the lower press roll 11 and the guide rolls 17, 16, 15 and 22, to and around couch roll 21, in its passage bearing against the cylindrical screen 3 and ordinarily, by such contact driving said screen or mold.

The construction hereinbefore described is that of the ordinary machine known in the art as the "wet" machine and before referred to, the couch roll in such well known machines however, being also mounted in the manner in which I mount it. In my machine I pivot at any suitable place on the frame of the machine, as at 23, a pair of arms 24 one on each side of the machine, on which pair of arms are mounted slidable bearings 25 for a shaft 26 which carries the couch roll 21, the bearings being adjusted in position on the sliding arms and secured by means of pins 27 entering holes 28 in said arms, in order to assist in maintaining proper tension in the felt band 20 and to maintain the couch roll in proper relation with the cylinder in the vat. A ring, as at 29, is secured on the arms 24.

The mechanism described completes my form of "wet" machine and in order that I may use my machine as a "decker" machine I provide a second couch roll 30 secured upon a shaft 31, mounted in bearings 32, slidable on arms 33, pivoted at 34 on brackets 35 secured in any suitable manner upon the vat 1, the arms 33 being also provided with sliding weights 36.

So long as the couch roll 21 is in position, in contact with the cylindrical screen 3, and the machine driven by suitable power applied to the shaft 12 of the lower press roll, the operation will be that of the ordinary "wet" machine, as before stated, but in order to convert the machine into a "decker" machine, the arms 24 are raised to the position shown in Fig. 2 and held there by engaging a rod 37, pivoted to the side frame 5 of the machine, a hook on the end of which engages the ring 29, and the couch roll 30 is disengaged from a rod 38 depending from the ceiling or some overhead support and lowered from the position shown in dotted lines in Fig. 2 to that shown in full lines in the same figure, in which position it will rest upon the cylindrical screen or mold 3. The parts of the "wet" machine being now out of connection with the mold 3 it is necessary that the mold be driven by other power than from the press roll 11 and felt band 20. I therefore project the shaft 2 of the mold 3 through suitable stuffing boxes secured to the sides of the vat, as at 39 in Fig. 3, and mount upon it a pulley 40, or other means for receiving power from any suitable source.

In operating my machine as a "wet" machine, the pulp, taken up upon the wire of the cylindrical mold 3, is taken therefrom by the felt band 20 and carried by said band to the press rolls from which it is either scraped or cut, and afterward disposed of in the usual manner.

In operating the machine as a "decker" machine, the pulp is taken up on the wire of the cylindrical mold 3 and from thence taken by the couch roll 30 which is covered with felt.

To deliver the pulp from the couch roll 30 I have provided a "doctor" 41, Fig. 2, pivoted at 42 to the top of the vat which is provided with a thin edge to lie close upon the surface of the couch roll 30 which causes the pulp to pass from the couch roll upon and over the "doctor" in its inclined position as shown in full lines in Fig. 2, from whence it is dropped into the inclined trough 43, Figs. 2 and 3, being conducted to suitable receptacles provided to receive it.

When the machine is used as a "wet" machine, and there is consequently no use for the "doctor" or scraper 41, it is turned over into the position shown in dotted lines in Figs. 2 and 3 in which it serves to cover the trough 43.

I have found by practice that the change from a "wet" machine to a "decker" machine can be made in less than five minutes.

All the parts except the couch rolls and their connections may be of any ordinary description.

Much time and labor is saved and many appurtenances necessary for the use of the old separate machines are dispensed with.

Having thus described my invention what is claimed is:

1. The combination with a machine of the character described comprising press rolls, a couch roll, a felt band passing around a press roll and the couch roll, a cylindrical mold contacting with the felt band, of a second couch roll, a felt covering on said second couch roll and means whereby one couch roll may be substituted for the other.

2. In a machine of the character described comprising driven press rolls, a couch roll, a felt band passing around a press roll and the

couch roll and driving the latter, and a mold contacting with the felt band and driven thereby, of a second couch roll provided with a felt-covering, means whereby it may be substituted for the driven couch roll, and driving mechanism for the shaft of the cylindrical mold.

3. In a machine of the character described comprising press rolls, a felt band, a pair of levers pivoted to the frame of the machine, a couch roll supported by said levers and engaged by the felt band, a cylindrical mold, a second pair of pivoted levers mounted on the machine, and a second couch roll mounted in bearings in the last named pivoted levers, the location of the pivoted levers on the machine being such that either of the couch rolls may be brought into proper relationship with the cylindrical mold as may be desired.

4. In a machine of the character described comprising a vat, a cylindrical screen or mold therein, means for applying power to drive said screen direct, a swinging shaft, a driven couch roll carried thereby, a second swinging shaft, a second couch roll carried thereby, and means for bringing either of the couch rolls into contact with the cylindrical mold, as may be desired.

5. In a machine of the character described, the combination with a vat, of a cylindrical mold mounted therein, a trough on the side of the vat, arms pivoted on the top of the vat, a couch roll journaled in bearings on said arms, and a pivoted scraper for the couch roll adapted to serve as a cover for the trough when not in use.

6. The combination, in a machine of the character described, of press rolls, a couch roll, a felt band passing around a press roll and the couch roll, a movable support for said couch roll, a vat, a cylindrical mold rotatably mounted in said vat, a driving mechanism for the shaft of the cylindrical mold, means for holding said support to maintain said couch roll in operative position with respect to the mold, a second swinging support, a second couch roll mounted on said swinging support and provided with a felt covering, and means for holding said second swinging support to maintain said second couch roll in operative position with respect to the mold.

7. The combination, in a machine of the character described, of a vat, a cylindrical mold rotatable therein, a movable support, a couch roll carried by said support and adapted to receive a felt band, a second movable support, a felt covered couch roll carried by a second support, and means whereby one couch roll may be maintained in inoperative position when the other is disposed in operative relation with respect to said cylindrical mold.

8. The combination, in a machine of the character described, of a vat, a cylindrical mold rotatable therein, a movable support, a couch roll carried by said support and adapted to receive a felt band, a second movable support, a felt covered couch roll carried by a second support, supporting means for said supports, whereby one couch roll may be substituted for the other, and means whereby said cylindrical mold may be positively driven.

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

FREDERICK N. HAMLIN.

Witnesses:
L. A. Horn,
E. H. Stewart.