

M. HANSON.
PULP MACHINE.

APPLICATION FILED JUNE 11, 1910.

986,976.

Patented Mar. 14, 1911.

2 SHEETS-SHEET 1.

Fig. 1.

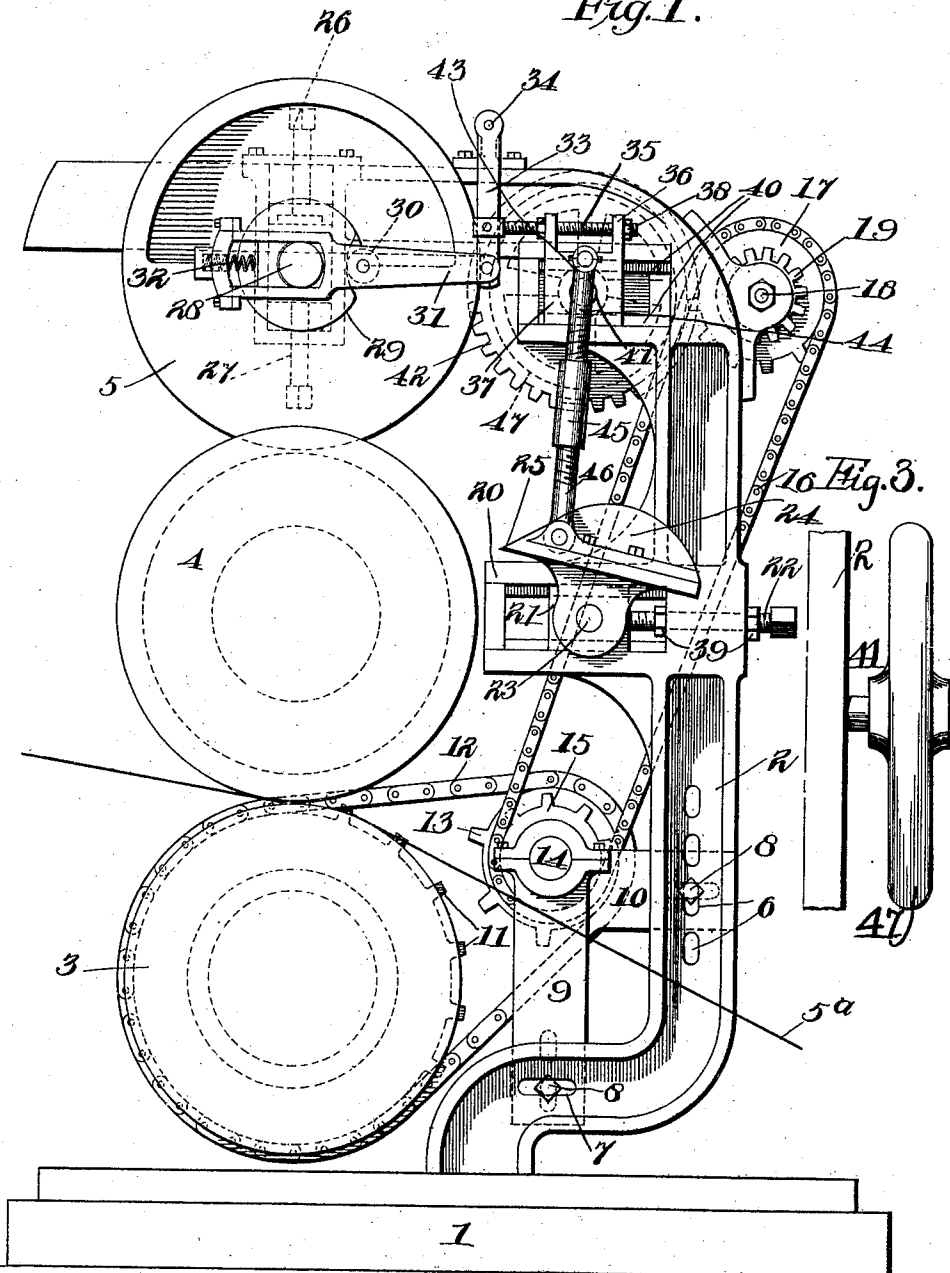


Fig. 3.

Witnesses
Byron Collings.
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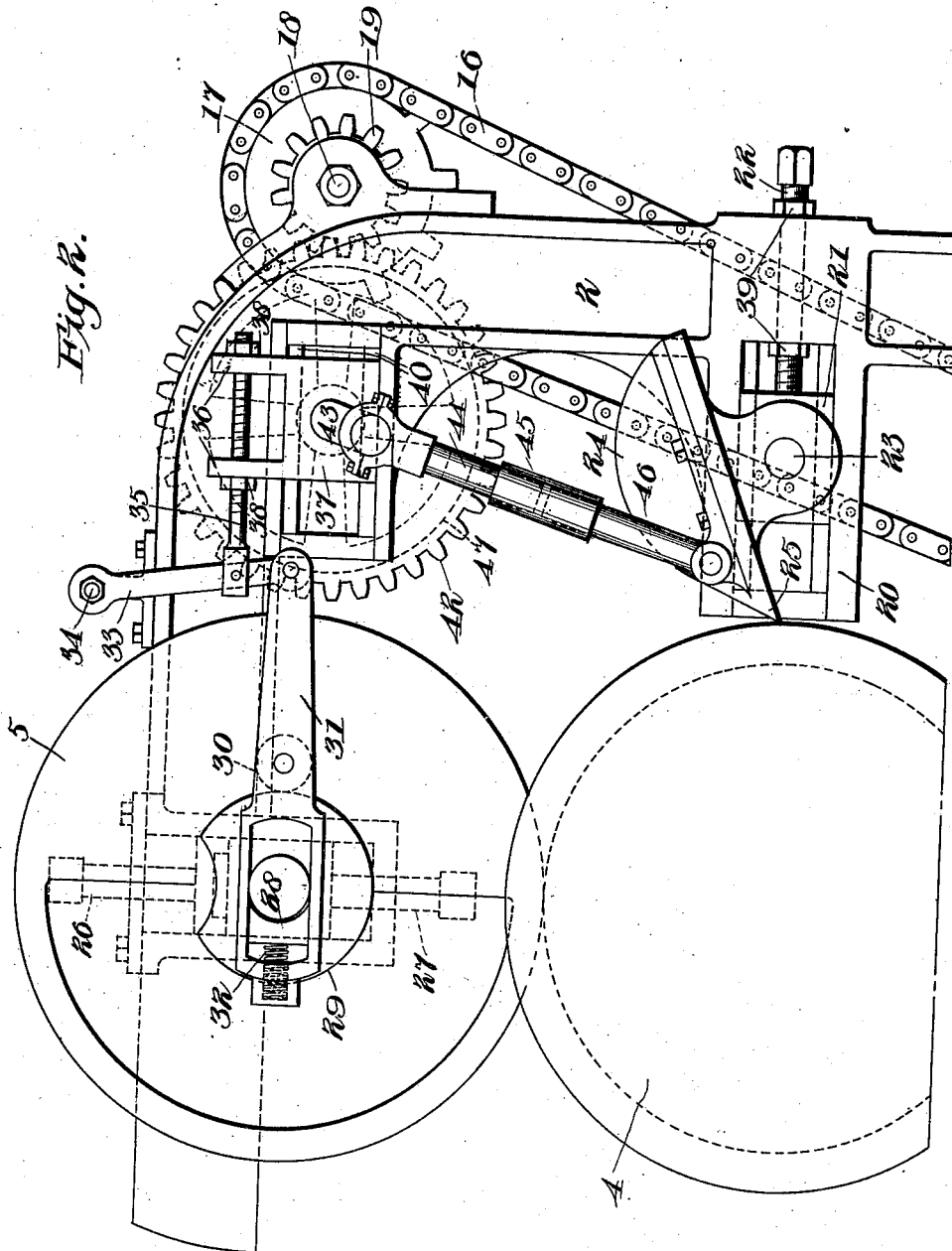
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UNITED STATES PATENT OFFICE.

MARTIN HANSON, OF MARINETTE, WISCONSIN.

PULP-MACHINE.

986,976.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed June 11, 1910. Serial No. 566,428.

To all whom it may concern:

Be it known that I, MARTIN HANSON, a citizen of the United States, residing at Marinette, in the county of Marinette and State of Wisconsin, have invented certain new and useful Improvements in Pulp-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in pulp machines and is a specific improvement over the machine shown in my former Patent, No. 901,168, dated October 13, 1908, and the object of my invention is to specifically improve that construction and to provide a simple and effectively working machine by which the wet pulp collected on the roll may be automatically stripped from said roll when a layer of the desired thickness has been formed.

With this object in view, my invention consists in the construction and combinations of parts as hereinafter described and claimed.

In the accompanying drawings—Figure 1 is a side view of a part of a pulp machine embodying my invention. Fig. 2 is a side view, on a larger scale, of the top of the machine in a different position. Fig. 3 is a detailed view showing part of the frame, a shaft and the hand wheel thereon.

1 represents the base of the machine, having fastened thereto a bent frame 2.

3 represents the lower press roll and 4 the upper press roll, which rests directly thereagainst, an endless felt belt 5^a running between these rolls in the usual way. The bearings and supports for these rolls are not shown on the drawing. Above the top press roll 4 is the friction roll 5, which operates the doctor knife, said roll having one part made solid and the other hollow, so that the solid part acts as a weight to always bring, or tend to bring, the top roll 4 into the position shown in Fig. 1.

The upright frame 2 is provided with a series of apertures 6 and 7, through which bolts 8 pass, engaging with apertures in the brackets 9 and 10, respectively, by means of which the brackets may be adjusted. The brackets 9 and 10 may be, and preferably are, made in one piece.

The roll 3 is provided on one edge with teeth 11, which engage the sprocket chain 12,

which passes over a sprocket wheel 13, which is secured to a shaft 14, mounted in bearings at the junction of the brackets 9 and 10. On this shaft is also mounted a second sprocket wheel 15, over which a sprocket chain 16 runs, engaging a sprocket wheel 17 on a shaft 18, mounted in bearings secured to the frame 2, and the shaft 18 also carries a gear wheel 19.

The frame 2, at about the center of the top press roll 4, is provided with an extension 20, cut away in the center to form guides for the block 21, which slides therein, the position of said block being determined by means of the bolt 22, which is fastened into said block so as to turn freely therein and passes loosely through the hole in the frame 2, nuts 39 being used to fasten said bolt in various positions, so that the block 21 may be readily adjusted back and forth. In the block 21 is mounted a shaft 23, to which is fastened at the ends, upwardly extending arms 24, to which arms the doctor knife 25 is bolted or otherwise secured.

The friction roll 5 is mounted in bearings in the top portion of the bent frame 2, which bearings are adjustable by means of bolts 26 and 27, so that the thickness of the layer of pulp which is brought along by the band 5^a, and which collects on the roll 4, may be varied at will. The friction roll 5 is mounted on a shaft 28, which is provided with a cam 29, with which a roller 30 is adapted to engage. This roller is carried on a pin in the sliding arm 31, one end of which is forked and embraces the shaft 28. 32 represents a spring, which keeps the roller 30 in contact with the cam 29. To the other end of the arm 31 is pivotally connected one arm of a swinging lever 33, pivoted at 34 on a bearing carried by the frame 2.

Pivotally attached to the lever 33 is a rod 35, screw-threaded as shown, and this rod passes loosely through holes in extensions of a slidable block 37, nuts 38, mounted on said rod 35, being used for the purpose of adjusting said block on said rod. The block 37 slides freely in guides 40, formed in an extension of the frame 2, its position being determined by the nuts on the rod 35. In the block 37 is mounted a shaft 41, provided with a hand wheel 47 on one end, and also provided with a gear wheel 42, which is adapted to mesh with the gear wheel 19 when the block 37 is shifted, as hereinafter described. On the shaft 41 are mounted

crank arms 43, to which are pivoted rods 44, which rods are united by double-threaded nuts 45 to rods 46, pivotally attached to the brackets 24 in which the doctor knife is mounted, there being two of these crank shafts to operate the doctor knife, one at each end of the machine. In fact, the entire structure may be duplicated at both sides of the machine, if it is desired.

10 The operation is as follows:—A layer of pulp is brought along by the band 5^a and collects, as usual, on the top press roll 4. As it passes between the rolls 3 and 4, it collects on the upper press roll 4 until the latter finally rises, the bearings being movable, until it strikes against the friction roller 5. The friction roller 5 is then operated and by means of the arm 31, lever 33, and rod 35, it presses the block 37 to the right in the position shown in Fig. 2, until the gear wheel 42 contacts with the gear wheel 19, whereupon, by means of the sprocket chains and connections already described, the shaft 41 is rotated, bringing the doctor knife down against the top press roll 4 and stripping from said roll the layer of pulp. It should be noted that the doctor knife 25 is located above the center of the roll 4, thus stripping the layer of pulp from above said roll instead of from below it, which action I have found in practice to be advantageous. The hand wheel 47 is provided so that the doctor knife 25 may be operated by hand in case the stock crushes. In starting on a new lot of pulp, sometimes it happens that the stock will not collect in an even layer upon the roll 4, and it is desired to clean off said roll. The doctor knife is then operated by hand.

I claim:—

40 1. In a pulp machine, the combination of a supporting frame, vertically arranged rolls therein, means for conducting pulp between two of said rolls, a pivotally mounted knife-edged doctor, adjustable bearings for said doctor, a swinging weighted roller adapted to be operated by the upper roll when the layer of pulp thereon has attained the de-

sired thickness, a cam carried by said roller, adjustable connections between said cam and said doctor, including devices whereby the movement of said cam brings into play gear wheels engaging with each other, throwing the doctor knife into contact with the upper press roll, substantially as described.

2. In a pulp machine, the combination of 55 a supporting frame, vertically arranged rolls therein, movable bearings in said frame, a weighted roll supported in said frame above said press roll, a cam operatively carried by said weighted roll, an arm operated by said cam, a doctor, adjustable connections between said arm and said doctor, including gear wheels adapted to be thrown into mesh by the movement of said arm, and crank arms operated by said gear wheels to throw 65 said knife-edged doctor into contact with the upper press roll, substantially as described.

3. In a pulp machine, the combination of a supporting frame, vertically arranged 70 rolls, means for conducting pulp between said rolls, a pivotally mounted knife-edged doctor, adjustable bearings in which said doctor is mounted, a weighted roll adapted to be engaged by the upper press roll when 75 the layer of pulp thereon has attained the desired thickness, a cam carried by said weighted roll, an arm provided with a roller engaging said cam, a lever pivotally connected to said arm, a rod carried by said lever, a bearing block adjustably secured to said rod, a shaft secured in said bearing block and provided with a hand wheel, crank connections between said block and said knife-edged doctor, and a gear wheel adapted 85 to mesh with said first named gear wheel when the latter is moved by the movement of said arm, substantially as described.

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

MARTIN HANSON.

Witnesses:

ALFRED HANEBECK,
WALTER P. SETRIGHT.