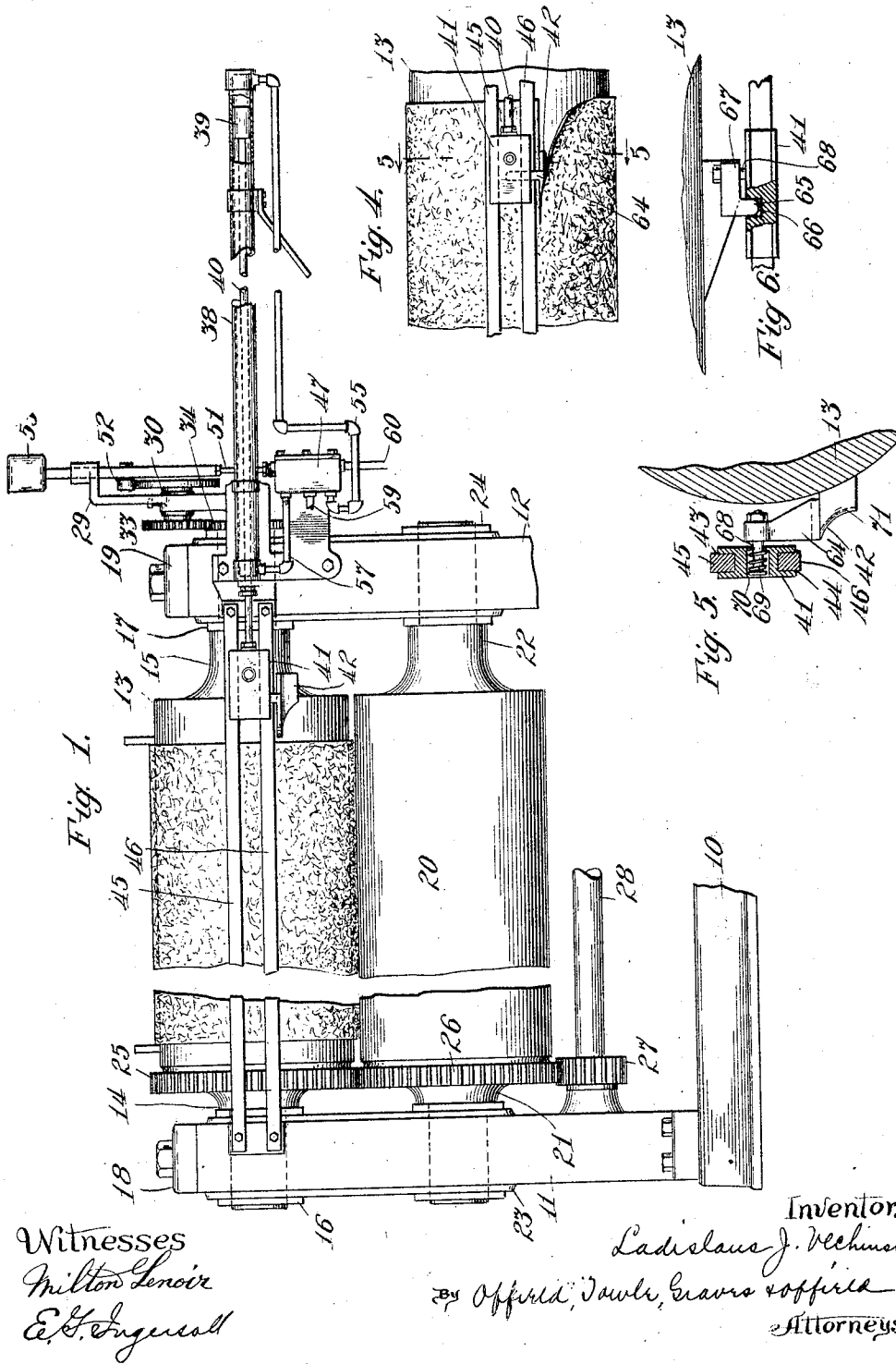


L. J. VECHINSKY.
 AUTOMATIC ROLL SKINNING MECHANISM.
 APPLICATION FILED MAR. 18, 1912.

1,057,468.

Patented Apr. 1, 1913.

2 SHEETS-SHEET 1.



Witnesses
 Milton Lenoir
 E. L. Ferguson

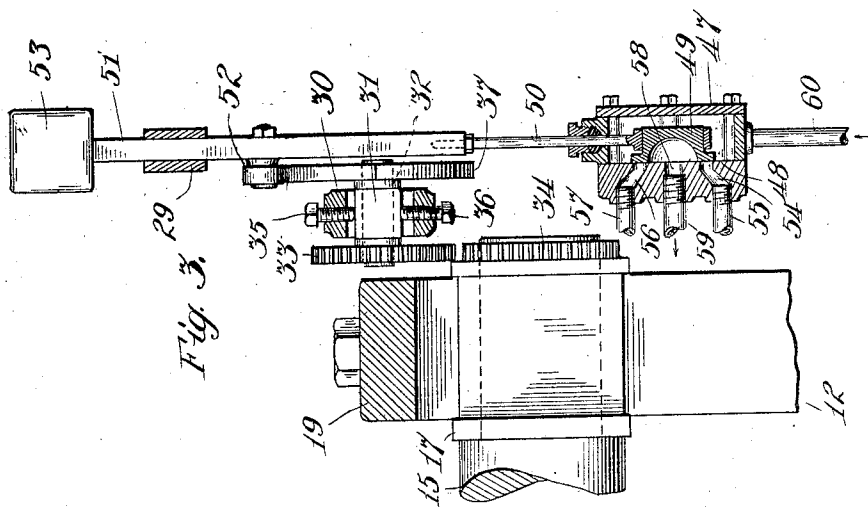
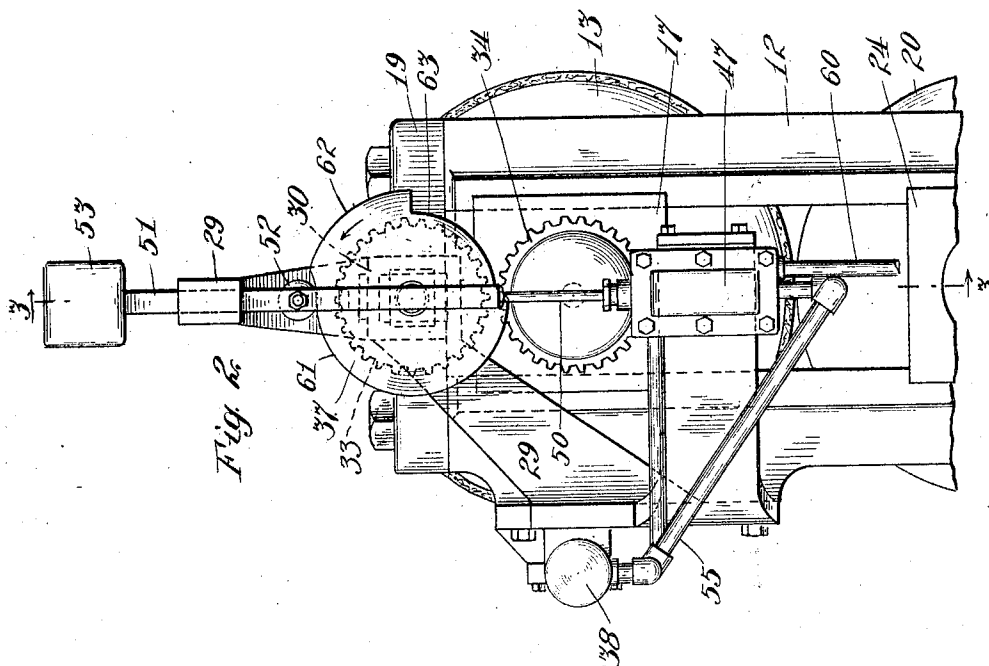
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 Ladislav J. Vechinsky
 By Official, Javle, Gravo & Official
 Attorneys.

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Witnesses
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UNITED STATES PATENT OFFICE.

LADISLAUS J. VECHINSKY, OF PORT EDWARDS, WISCONSIN, ASSIGNOR OF ONE-HALF TO GILBERT E. MARVIN, OF NEKOOSA, WISCONSIN, AND ONE-HALF TO ARBA B. MARVIN, OF CHICAGO, ILLINOIS.

AUTOMATIC ROLL-SKINNING MECHANISM.

1,057,468.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed March 18, 1912. Serial No. 634,526.

To all whom it may concern:

Be it known that I, LADISLAUS J. VECHINSKY, a citizen of the United States, residing in the city of Port Edwards, county of Wood, and State of Wisconsin, have invented certain new and useful Improvements in Automatic Roll-Skinning Mechanism, of which the following is a specification.

My invention relates to automatic roll skinning mechanism which although adaptable for all manufacturing processes where a sheet of material formed on a cylinder is to be periodically removed in the form of a sheet, is particularly adaptable for removing pulp sheets formed by successive layers on a roll of so-called "wet machines."

In the operation of a wet machine, the pulp is carried on an endless belt and deposited in layers on an upper press roll which rests against a similar bottom press roll placed in bearings vertically under the top roll. As the pulp is deposited on the top roll in a layer that gradually grows thicker, it has been the usual custom to have a man strip off the layer or sheet of pulp with a so-called "skinning-stick." This of course requires an extra man and constant supervision by him of the machine. Attempts have been made to more or less automatically skin the pulp from the roll, but such attempts have been more or less unreliable and inefficient.

One of the important features of my invention is therefore to provide more efficient and reliable mechanism to be automatically controlled by the thickness of the pulp sheet to efficiently and reliably and at the proper time imitate the operation of a skinning stick to cut the pulp sheet.

Another object is to start the pulp sheet away from the roll during the cutting thereof so that the sheet will then by its own weight disengage itself from the roll to be received on suitable transfer mechanism.

In the accompanying drawings I have illustrated one form of mechanism for carrying out the features of my invention and

in these drawings Figure 1 is a front elevational view showing the upper and lower press rolls and the association therewith of the skinning controlling mechanism; Fig. 2 is an enlarged end elevational view for illustrating more clearly the operation of the skinning mechanism; Fig. 3 is a view partly in section looking from plane 3—3 Fig. 2; Fig. 4 is a front elevational view of one end of the top roll showing the skinning knife in engagement with the pulp thereon; Fig. 5 is an enlarged sectional view taken substantially on plane 5—5 Fig. 4; and Fig. 6 is a plan view of the parts shown in Fig. 5.

The roll supporting frame comprises a base 10 mounting bearing standards 11 and 12. The top press roll 13 has trunnions 14 and 15 journaled in bearing boxes 16 and 17 which are vertically reciprocable in the vertical openings 18 and 19 in the standards 11, so that the upper roll may move bodily vertically. The lower press roll 20 has trunnions 21 and 22 journaled in bearing boxes 23 and 24 secured in the standards 11 and 12. At one end, the upper and lower rolls carry gears 25 and 26 respectively which are always in mesh with each other. The gear 26 of the lower roll meshes with a pinion 27 on a drive shaft 28 journaled in the standards 11 and 12 and adapted to be driven in any suitable manner. The formation of the pulp layer or sheet on the upper press roll is well understood in the art,—an endless belt carrying an endless thin layer of pulp to the upper roll, which layer is wound about said roll until a thick layer or sheet is formed thereon, and when this layer is thick enough it is ready to be skinned or peeled from the roll. In the arrangement described, as the layer on the upper roll becomes thicker, the roll is gradually raised bodily, and I provide skinning mechanism which is automatically brought into operation when the layer on the roll reaches a certain thickness. A bracket 29 extends upwardly and inwardly from the standard 12, and at its end carries a rectangular head 30 in which is supported a journal box 31 for

journaling a shaft 32 carrying at its inner surface the gear 33 which is in vertical alignment with a gear 34 carried on the outer end of the trunnion 15 of the top roll. The gears 33 and 34 are normally out of mesh but the gear 33 is so adjusted that when the pulp layer on the top roll reaches a certain thickness, the gears will mesh. To adjust for the operation of gear 33, the journal box 31 is vertically adjustable being shown as supported between upper and lower adjusting screws 35 and 36 engaging in the upper and lower walls of the head 30. The outer end of shaft 32 carries a cam disk 37 which controls the operation of valve adjusting mechanism for the skinning knife actuating mechanism. As shown a cylinder 38 is mounted on the standard 12 of the upper roll. Reciprocable within this cylinder is the piston 39 from which extends the piston rod 40 which terminates at its outer end in a rectangular head 41 which has the upper and lower grooves 43 and 44 for receiving the slide rods 45 and 46 secured to and extending between the standards 11 and 12 directly in front of the top press roll. This head 41 carries a skinning knife structure 42, which will be described more in detail later, and as the piston is reciprocated forward and back in the cylinder 38, the head 41 is reciprocated in front of the roll and the skinning knife is reciprocated across the front of and against the roll to cut the pulp sheet thereon. The piston can be driven by any suitable fluid under pressure, but preferably steam or compressed air is used.

The valve mechanism for controlling the flow of fluid to and from the cylinder is best shown in Figs. 2 and 3. A valve chest 47 is supported from the standard 12 vertically below the cam disk 37, this valve chest having the valve seat 48 over which reciprocates a D-valve 48 whose stem 50 extends upwardly from the valve chest and is connected with a rod 51 to which is pivoted a cam roller 52, some means such as a weight 53 being provided for holding the roller against the cam periphery. From the lower port 54 in the valve seat a supply pipe 55 extends to the outer end of the cylinder 39 and from the upper port 56 a supply pipe 57 extends to the inner end of the cylinder, the intermediate or exhaust port 58 connecting with the exhaust pipe 59. As the valve is vertically reciprocated over this seat, the pipes 55 and 57 are alternately connected with the valve chest and with the fluid supply delivered by a pipe 60. The cam disk 37 has the section 61 of intermediate diameter and of about 180 degrees in extent, the section 62 of about 90 degrees extent being of greater diameter, and section 63, of about 90 degrees extent, being of lesser diameter than the intermedi-

ate section, the connection between the sections 61 and 62 being gradual, and the connection between the sections 62 and 63 being abrupt, as clearly shown in Fig. 2.

When the machine is set in operation, the parts rotate in direction of the arrows indicated thereon and are in the positions indicated, the gears 33 and 34 being out of mesh and the cam roller 52 being at the end of intermediate section 61 ready to be engaged by the larger diameter section 62, the valve being in intermediate or exhaust position. As soon as the pulp on the top roll reaches a predetermined thickness, the gear 34 will come into meshing engagement with gear wheel 33 and the cam disk will be rotated and, as soon as the larger section 62 engages the cam roller, the valve will be moved upwardly to connect the upper port 56 with the exhaust port and to expose the port 54 to the valve chest so that compressed fluid will flow to the outer end of the cylinder and the piston will be driven out so that the head 41 will be carried across the guide bars 45 and 46 and the pulp layer cut by the knife. When the cam roller now drops from the section 62 to the short diameter section 63 on the cam, the valve will connect the port 54 with exhaust outlet and will expose the port 56 leading to the inner end of the cylinder. Compressed fluid will now enter at the inner end of the cylinder and the fluid exhausted at the outer end thereof and the head 41 is carried back to its normal position. The cam roller then comes into engagement with the intermediate section 61 of the cam and the valve is moved to its intermediate position to close both ports. The adjustment of the parts is such that the cut pulp layer will not be entirely removed from between the rolls until the cam disk has returned to normal condition with the cam roller at the end of section 61. When the sheet finally leaves the rolls, the top roll will of course drop to unmesh gear 34 from the gear 33. Thus at certain intervals determined by the thickness of the pulp on the upper roll, the skinning mechanism will be automatically controlled and actuated to cut the accumulated pulp layer.

The skinning knife may be of any suitable design. As shown, the knife 42 is suspended from the head 41, an arm 64 extending upwardly from the knife having a forward extension 65 at its end engaging in a socket 66 in the rear side of the head and in order to hold the knife to the head and also to hold the point of the knife against the roll, the arm 64 has a lateral extension 67 through which passes a bolt 68 whose head is within the pocket 69 in the front side of the head 41, a compression spring 70 being interposed between the bolt head and the base of the pocket so that the right end of

the knife will be pulled outwardly and the left end thereof held against the roll. The knife has also a deflector blade 71 which, as illustrated in Fig. 4, engages under the pulp sheet after the cutting thereof to pull the sheet from the roll so that the sheet will then automatically be delivered from between the rolls to a suitable receiving surface. After the knife has reached the left end of the roll the lower end of the cut sheet will of course have fallen away from the roll and the upper end of the sheet will have traveled upwardly with the roll so that the knife and its supporting head can be returned to normal position at the right of the roll.

I thus provide a simple and efficient attachment for wet machines, which is controlled entirely automatically by the rolls to accurately and efficiently and at the proper time cut the accumulated pulp sheet and to peel the sheet from the top roll.

I do not, of course, desire to be limited to the precise construction, arrangement and operation shown and described, as changes are possible which would still come within the scope of the invention and

I claim the following:

1. In combination with the upper and lower press rolls of a pulp machine, one of which rolls is adapted to receive accumulating layers of pulp, of a skinning knife, means for guiding said knife longitudinally across the face of said receiving roll, a cylinder having a piston connected with said knife, valve mechanism for controlling the flow of fluid under pressure to said cylinder, and means rendered operative when said pulp reaches a certain thickness on said receiving roll to control said valve mechanism to cause reciprocation of said piston within said cylinder and reciprocation of the knife across the receiving roll to cut the accumulated sheet of pulp thereon.

2. In combination with the upper and lower press rolls of a pulp machine, one of which is adapted to receive accumulating layers of pulp, of a skinning knife, guide ways for guiding the movement of said knife longitudinally across the face of said receiving roll, a cylinder, a piston reciprocable within said cylinder and connected with said knife, valve mechanism for controlling the flow of fluid under pressure to said cylinder, cam mechanism controlling the operation of said valve mechanism, and means automatically actuated when the accumulated pulp reaches a certain thickness to set said cam mechanism in operation.

3. In combination with the upper and lower press rolls of a pulp machine, one of which receives accumulating layers of pulp, of a skinning knife, a cylinder, a piston within said cylinder and a rod extending from said piston and connected at its outer

end with said knife, said cylinder being positioned so that said piston when actuated will cause reciprocation of the knife across the face of the receiving roll, valve mechanism for controlling the flow of fluid to and from said cylinder, a stem extending from said valve mechanism and carrying a cam roller, a cam disk for cooperating with said roller to shift the valve stem and valve mechanism to control the flow of fluid to the cylinder to cause reciprocation of the piston therein, a normally interrupted driving train between said cam disk and receiving roll and means for closing said driving train when the accumulating pulp on the receiving roll reaches a predetermined thickness.

4. In combination with the upper and lower press rolls of a pulp machine, one of which receives accumulating layers of pulp, of a skinning knife, a cylinder, a piston within said cylinder and a rod extending from said piston and connected at its outer end with said knife, said cylinder being positioned so that said piston when actuated will cause reciprocation of the knife across the face of the receiving roll, valve mechanism for controlling the flow of fluid to and from said cylinder, a stem extending from said valve mechanism and carrying a cam roller, cam disk for cooperating with said roller to shift the valve stem and valve mechanism to control the flow of fluid to the cylinder to cause reciprocation of the piston therein, a gear wheel connected with said disk, a gear wheel on said receiving roll, said gear wheels being normally out of mesh and vertically movable, journal boxes for said receiving roll for allowing said receiving roll to gradually raise as the accumulating pulp increases in thickness thereon, said gears being brought into mesh as soon as the pulp reaches a predetermined thickness.

5. In combination with the upper and lower press rolls of a pulp machine, one of which is adapted to receive accumulated layers of pulp, guide bars extending in front of the receiving roll, a head mounted on said guide bars to reciprocate thereon, a knife pivoted on said head, yielding means on said head acting against said knife to hold the knife edge against said receiving roll, and means automatically controlled by the thickness of pulp on said roll for causing reciprocation of said head and application of the knife to cut the pulp.

6. In combination with the upper and lower press rolls of a pulp machine, one of which is adapted to receive accumulated layers of pulp, guide bars extending in front of the receiving roll, a head mounted on said guide bars to reciprocate thereon, a knife pivoted on said head, spring means on said head acting against said knife to hold the

knife edge against said receiving roll, and means automatically controlled by the thickness of pulp on said roll for causing reciprocation of said head and application of the
5 knife to cut the pulp, said knife having a deflector blade for deflecting the pulp layer away from the roll after cutting thereof by the knife edge.

In witness whereof, I hereunto subscribe my name, this 12th day of March A. D. 1912. 10

LADISLAUS J. VECHINSKY.

Witnesses:

C. E. JANKE,
W. J. FISHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."