J. L. COENEN.

HYDRAULIC PULP OR PAPER PRESS.

APPLICATION FILED MAR. 10, 1910.

976,551. Patented Nov. 22, 1910.

FIG. 1.

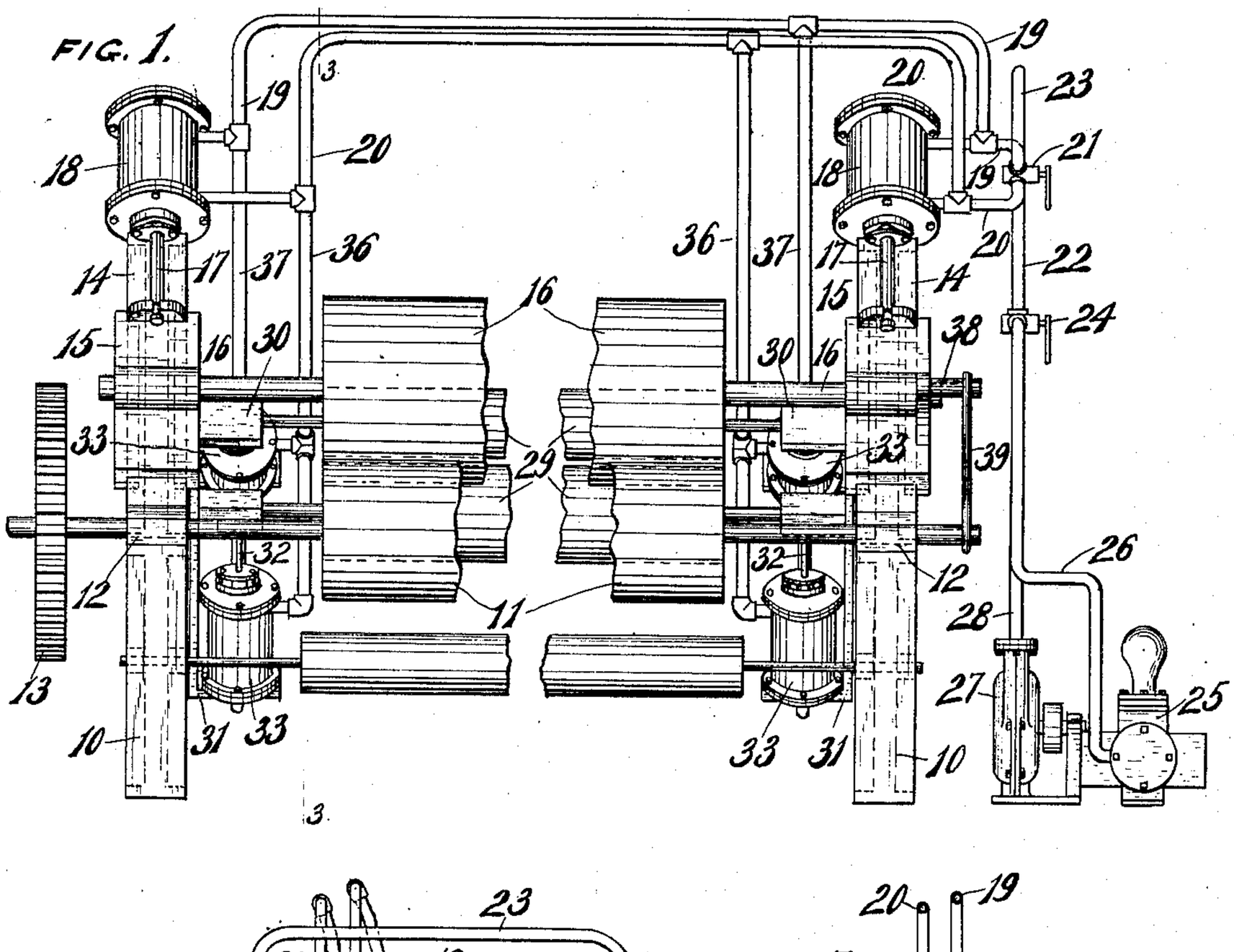


FIG. 2.

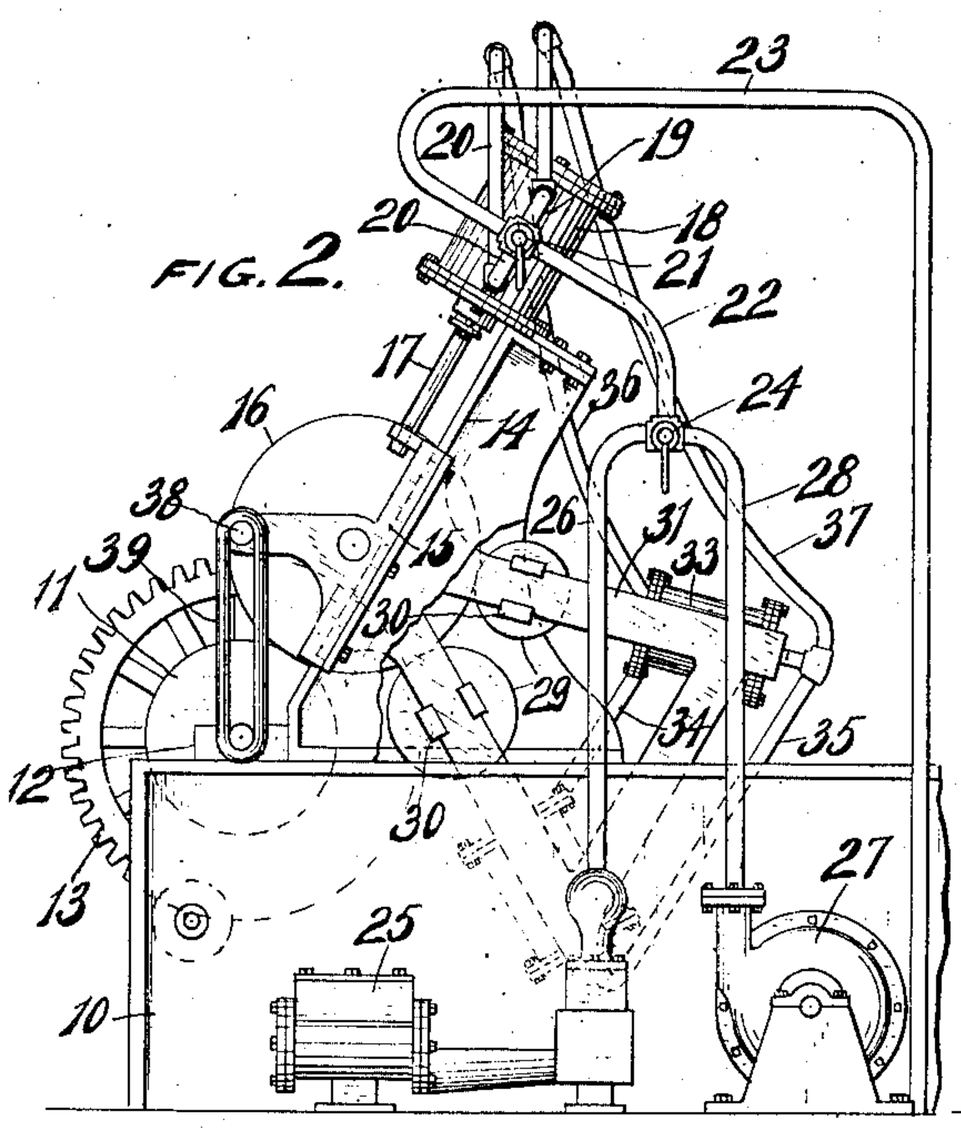
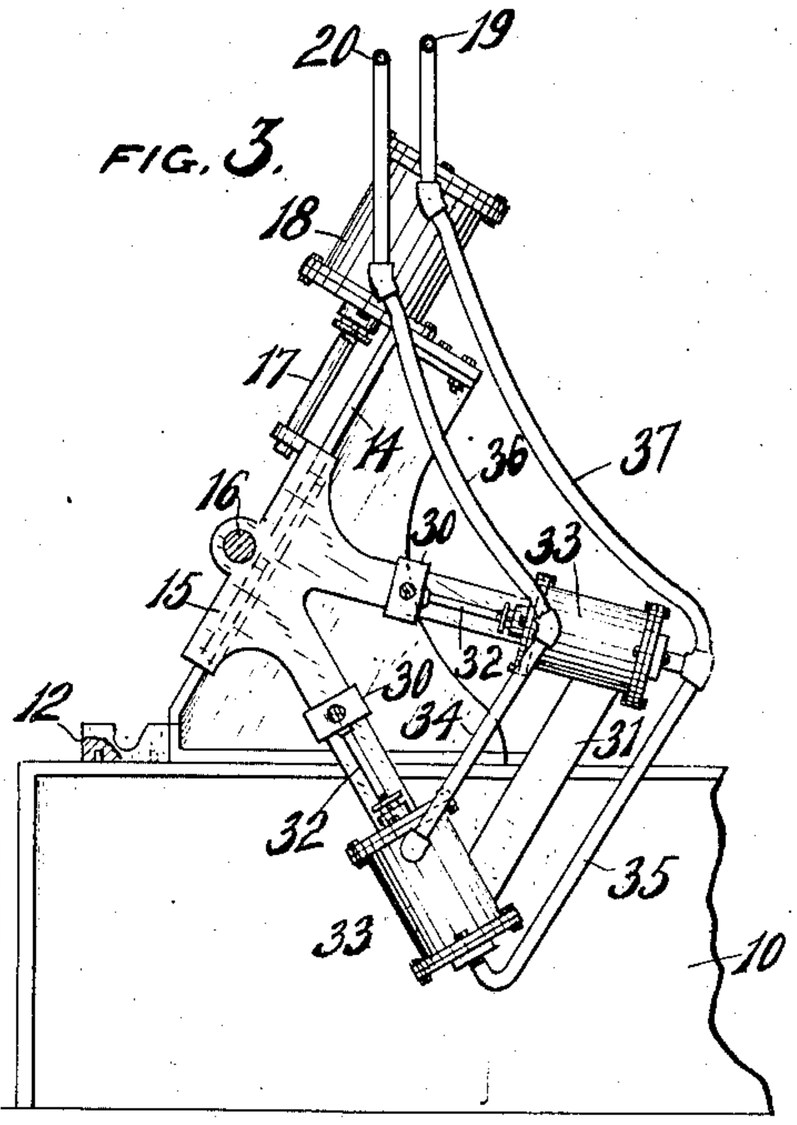


FIG. 3.



WITNESSES

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HYDRAULIC PULP OR PAPER PRESS.

976,551. Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed March 10, 1910. Serial No. 548,330.

To all whom it may concern:

Be it known that I, JOHN LOUIS COENEN, residing in Little Chute, in the county of Outagamie and State of Wisconsin, have invented new and useful Improvements in Hydraulic Pulp or Paper Presses, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention has for its object to provide a press for expressing the water from pulp for paper making and the like by means which will subject the pulp to a preliminary pressing operation before it is passed between the main presser rolls, and further has for its object to arrange the movable presser roll on guides which are inclined to provide space for supplemental presser rolls coöperating with said movable presser roll to accomplish the preliminary pressing operation.

Another object of the invention is to provide such supplemental presser rolls with pressure actuating means operating in unison with pressure actuating means for the movable main presser roll.

With the above and other objects in view the invention consists in the hydraulic pulp press herein claimed, its parts and combinations of parts and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate the same parts in the different views—Figure 1 is a front elevation of a hydraulic pulp press constructed in accordance with this invention; Fig. 2 is an end elevation thereof with a portion of the frame broken away for clearness of illustration; and Fig. 3 is a sectional view thereof on the plane of line 3—3 of Fig. 1.

In these drawings 10 indicates the frame for supporting the parts and which may be of any desired construction suitable for the purpose. A main presser roll 11 is journaled in open bearings 12 which are preferably in the form of blocks removably seated on the frame, as shown in Fig. 3, and said presser roll has a gear wheel 13 mounted on one of its trunnions by means of which it is driven from any suitable source of power. The upper portion of the frame forms inclined guides 14 on which slidable bearings 15 fit to be capable of moving toward or away from the presser roll 11, and journaled in these slidable bearings 15 is the movable presser roll 16 for coöperating with the presser roll 11 in expressing the water from the pulp carried by the usual endless belt which passes therebetween and which is not shown in the drawings because of its being common to all machines of this character. The presser roll 16 is under hydraulic control so as to bear with greater or less pressure against the material passing between it and the presser roll 11 by having its slidable bearings 15 connected with the piston rods 17 of a pair of pressure cylinders 18 mounted on the upper end of the frame, said pressure cylinders being connected together so as to operate in unison by having pipe connections 19 and 20 connecting their outer and inner ends respectively. These pipe connections 19 and 20 also connect with a four way valve 21 which is adapted to connect either of them with a pressure supply pipe 22 and the other with an exhaust pipe 23. The pressure supply pipe 22 is controlled by a three way valve 24 to connect it with either a high pressure reciprocating water pump 25 by means of a pipe 26, or with a low pressure centrifugal water pump 27 by means of a pipe 28, so that the pistons of the pressure cylinders 18 may be forced upwardly or downwardly with greater or less pressure and thereby correspondingly affect the pressure between the presser rolls 16 and 11.

The present invention has particular reference to the supplemental presser rolls which are caused to be correspondingly forced toward or away from the presser roll 16 as said presser roll 16 is pressed toward or away from the presser roll 11. These supplemental presser rolls 29 are mounted in bearings 30 which slide on frames 31 which are carried by the slidable bearings 15 so as to move therewith, and each supplemental presser roll has its bearings 30 connected with the piston rods 32 of pressure cylinders 33 secured to the frame 31 for causing the supplemental presser rolls to be forced against the presser roll 16 with pressure. The cylinders 13 have their inner ends connected by a pipe 34 and their outer ends connected by a pipe 35, while flexible hose connections 36 and 37 respectively connect the pipe 34 with the pipe 20 and connect the pipe 35 with the pipe 19, thus subjecting the inner and outer ends of the cylinders 33 to the same pressure as the corresponding ends of the main cylinders 18. Thus, when the presser roll 16 is forced downwardly against the presser roll 11 the

supplemental presser rolls 29 are correspondingly forced against said presser roll 16 to perform like functions upon the pulp which passes between the supplemental presser rolls and the presser roll 16 as well as between the presser roll 16 and the presser roll 11. The rotary movements of the presser roll 16 and the supplemental presser rolls 29 are received from the driven presser roll 11 through their engagement with the material and felt passing between them.

By means of this invention the pulp is subjected to a preliminary compression by passing between the supplemental presser rolls 29 and the presser roll 16 before it passes between the main presser rolls 16 and 11 and consequently the water is pressed therefrom to a sufficient degree to enable the main presser rolls to effectively complete the operation. The pressure of the supplemental rolls 29 against the presser roll 16 does not have a tendency to interfere with the relation of the presser roll 16 with the presser roll 11, inasmuch as the frames upon which said supplemental presser rolls are mounted are carried by the slidable bearings of the presser roll 16, and, as the cylinders for said supplemental presser rolls are connected in common with the cylinders of the presser roll 16, the degree of pressure to which the pulp is subjected is entirely within the control of the operator. One of the slidable bearings 15 is provided with a bracket extension 38 to have a link 39 hung thereon at times for lifting the presser roll 11 from its bearing block 12 at one end to permit of a new felt being inserted, such lifting operation being performed by admitting the pressure to the inner end of the cylinders so as to slide the bearings 15 upwardly on their guides, while the link 39 causes the end of roller 11 to move upwardly out of its open bearing 12.

What I claim as new and desire to secure by Letters Patent is—

1. A pulp or paper press, comprising a pair of main presser rolls, movable bearings in which one of the presser rolls is mounted to move toward or away from the other main presser roll, frames carried by said movable bearings, a supplemental presser roll mounted on the frames and movable with relation to the movable main presser roll, and fluid pressure means carried by said frames for forcing the supplemental presser roll toward or away from the movable main presser roll.

2. A pulp or paper press, comprising a pair of main presser rolls, movable bearings in which one of the presser rolls is mounted to move toward or away from the other main presser roll, fluid pressure means for moving the said bearings, frames carried by said movable bearings, a supplemental presser roll mounted on the frames and movable with relation to the movable main presser roll, and fluid pressure means carried by said frames for forcing the supplemental presser roll toward or away from the movable main presser roll and being connected in common with the pressure means for moving the bearings.

3. A press, comprising a frame, a main presser roll journaled therein, bearings slidably mounted on the frame at an incline, a second main presser roll journaled in the bearings and coöperating with the other main presser roll, pressure cylinders mounted on the frame, pistons working in said cylinders and connected with the slidable bearings, pipes connecting the respective ends of the pressure cylinders so that they operate together, means for supplying pressure to either end of the pressure cylinders, frames carried by the slidable bearings, supplemental presser rolls carried by said frames and movable with relation to the movable main presser roll, pressure cylinders carried by said frames, pistons working in said pressure cylinders and connected with the supplemental presser rolls for forcing them toward or away from the movable main presser roll, pipes connecting the respective ends of the said presser cylinders, and flexible hose connections from said pipes to the pipes connecting the respective ends of the pressure cylinders for the main presser roll, whereby the pressure cylinders for the supplemental presser rolls operate together with the pressure cylinders for the main presser roll.

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

JOHN LOUIS COENEN.

Witnesses:
JOHN A. KILSDONK,
AUGUST COENEN.