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W. H. HOFFMAN.

PAPER MAKING MACHINE.

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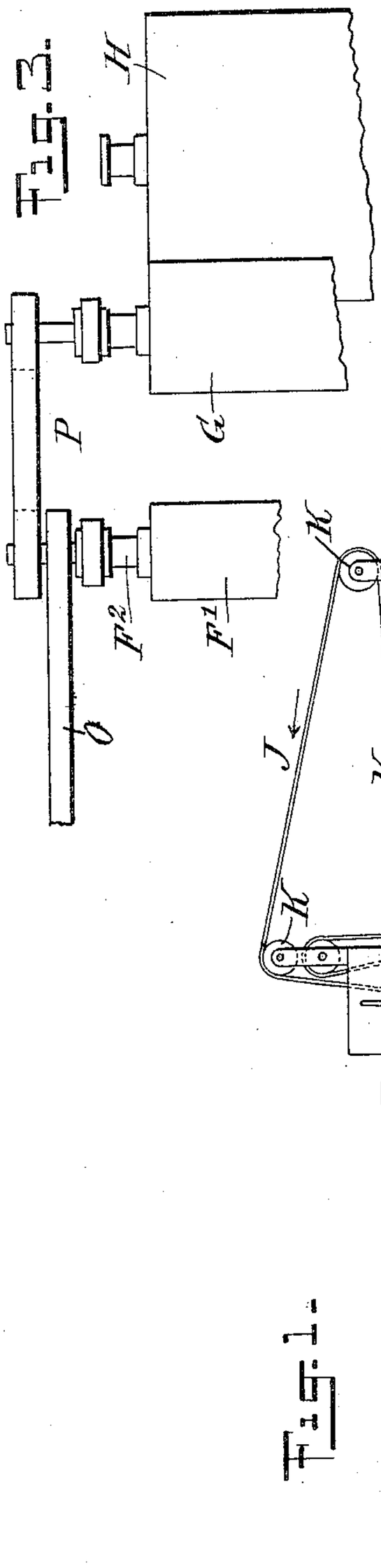

Fig. 1.

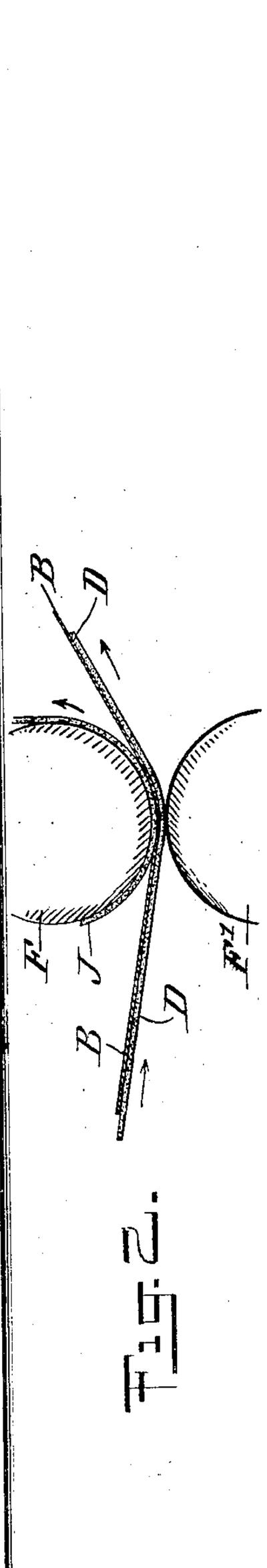

Fig. 2.

WITNESSES.

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PAPER-MAKING MACHINE.

No. 844,938. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed October 26, 1906. Serial No. 340,668.

To all whom it may concern:

Be it known that I, WILLIAM H. HOFFMAN, a citizen of the United States, and a resident of Little Falls, in the county of Herkimer and State of New York, have invented new and useful Improvements in Paper-Making Machines, of which the following is a full, clear, and exact description.

The invention relates to cylinder and Fourdrinier machines; and its object is to provide certain new and useful improvements in paper-making machines whereby light-weight stock, such as is used for making tissue and toilet paper, is prevented from sticking and breaking while passing the press-rolls, thus producing a better quality of paper, increasing the capacity of the machine, and reducing waste of stock to a minimum.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is an enlarged sectional side elevation of the press-rolls, the aprons, and the paper sheet passing between the aprons and press-rolls; and Fig. 3 is a plan view of the driving-gear for the lower press-roll, the making-cylinder, and the couch-roll.

The pulp in the vat A is formed into a wet sheet B by the making-cylinder C, which carries the sheet to the endless apron D, passing between the making-cylinder C and the couch-roll E, arranged on the top of the making-cylinder C in the usual manner. The apron D, with the sheet of paper B thereon, passes from the couch-roll E to and between the upper and lower press-rolls F and F' and then passes to and around the couch-roll G, running in contact with the first drying-cylinder H. As shown in Fig. 1, the apron D is in contact with a portion of the peripheral face of the drying-cylinder H, and the return or lower run of the apron D passes over a series of guide-rollers I, back to and between the making-cylinder C and the first couch-roll E. Guide-rollers I' for the upper run of the apron D are arranged between the couch-roll E and the press-rolls F and F'. A second endless apron J passes around the lower half of the upper press-roll F, so that the sheet of paper B is for the time being between the aprons D and J—that is, while passing between the press-rolls F and F', as will be readily understood by reference to Fig. 2, the additional apron J prevents the sheet of paper B from sticking to the upper press-roll F, thus preventing breaking or other injury to the sheet of paper. The apron J passes over a series of guide-rollers K and also through a washing device L for keeping the apron J clean.

The lower press-roll F' has its shaft F^2 connected with suitable machinery for driving the press-roll F', and this shaft F^2 is connected by a driving device O, such as pulleys, and a belt with the making-cylinder C and also by a driving device P, such as pulleys, and a belt with the couch-roll G, (see Fig. 3,) to rotate the latter in unison with the driven press-roll F', it being understood that the rotation of the couch-roll G causes the first drying-cylinder H to rotate. The latter is made hollow and is heated by steam or other suitable means, so that the sheet of paper is partially dry before it passes from the first drying-cylinder H onto the second drying-cylinder H', and so on through the rest of the paper-making machine. On the top of the first drying-cylinder H is arranged a doctor N to prevent the return movement of the sheet of paper on the drying-cylinder H.

It is understood that when the machine is running and the feed-apron D carries the wet sheet between the press-rolls F F' then the wet sheet is subjected to pressure to squeeze out the water, the auxiliary apron J preventing the sheet from sticking to the upper press-roll F, and hence the sheet is positively carried along by the feed-apron D to the couch-roller G and drying-cylinder H. As the sheet is partly dried by contact with the drying-cylinder H, it does not stick to the same, and hence passes readily to the second drying-cylinder H'.

From the foregoing it will be seen that the wet sheet of paper B is not liable to stick and break, and hence the machine is very serviceable for making very thin paper, such as tissue and toilet paper, the arrangement permitting a continuous running of the paper-making machine, thus increasing the capacity of the machine, at the same time reducing the waste to a minimum and producing a better quality of paper.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A paper-making machine comprising a pair of press-rolls of which one is driven, aprons passing between the said press-rolls, one of the aprons carrying the wet sheet of paper between the press-rolls while interposed between the aprons, a drying-cylinder, and a couch-roll for the same and over which passes the apron carrying the sheet of paper to deliver the latter to the drying-cylinder.

2. A paper-making machine comprising a pair of press-rolls of which one is driven, aprons passing between the said press-rolls, one of the aprons carrying the wet sheet of paper between the press-rolls while interposed between the aprons, a drying-cylinder, a couch-roll for the same and over which passes the apron carrying the sheet of paper to deliver the latter to the drying-cylinder, and means for driving the couch-roll in unison with the driving press-roll; the couch-roll driving the drying-cylinder.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. HOFFMAN.

Witnesses:

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WILLIAM D. WATT.