

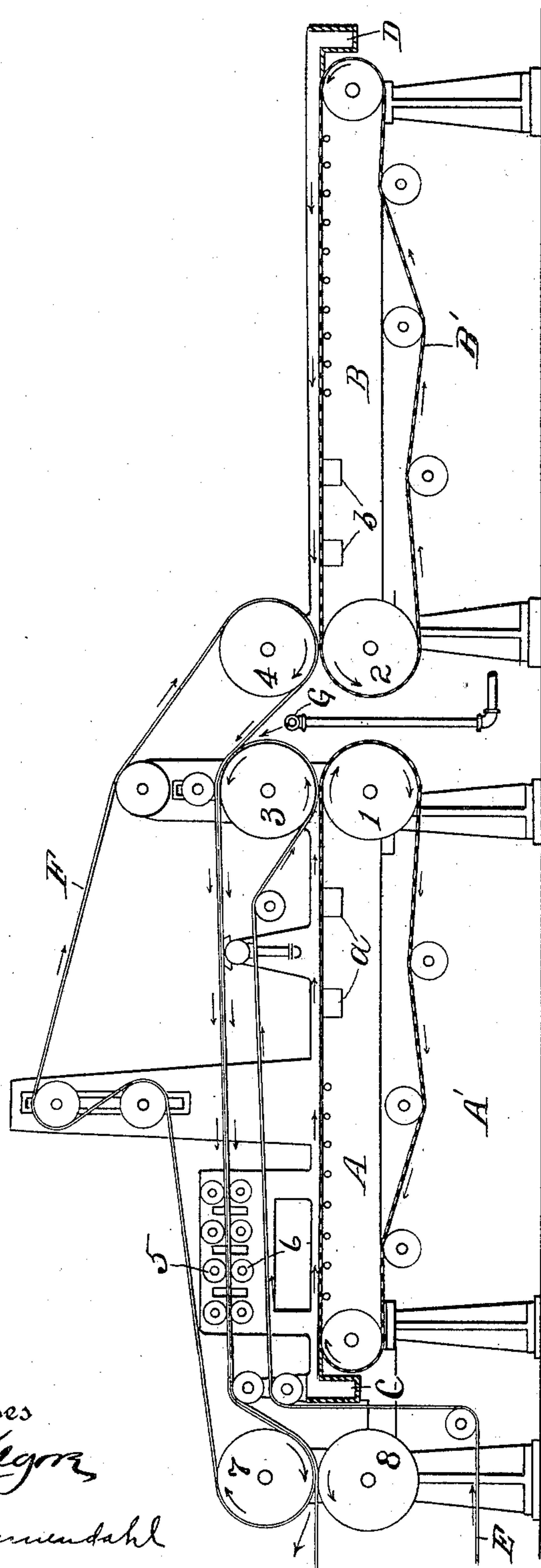
No. 704,572.

Patented July 15, 1902.

A. OUTERSON.
PAPER MAKING.

(Application filed Nov. 20, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

ANDREW OUTERSON, OF WINDSOR LOCKS, CONNECTICUT.

PAPER-MAKING.

SPECIFICATION forming part of Letters Patent No. 704,572, dated July 15, 1902.

Application filed November 20, 1901. Serial No. 82,963. (No specimens.)

To all whom it may concern:

Be it known that I, ANDREW OUTERSON, a citizen of the United States, residing at Windsor Locks, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Paper-Making, of which the following is a full, clear, and exact description.

The object of the invention is to improve the quality of paper, particularly the finished surface, and to effectually cover up what is known as the "wire side" of the paper.

There are many different methods of making paper in use at the present time; but my invention has particular reference to paper made on Fourdrinier machines and does not concern itself with papers made by other processes.

After a sheet of pulp has been worked by various steps into a marketable product it is found that the side which has rested on the wire is roughened or uneven and not in the best possible condition for use. In printing it is particularly noticeable that this, what may be termed "wire side," of the paper, will not take nearly so good and clear an impression from the type as the opposite side, and it is customary with all printers to avoid using the wire side for the impression, if possible, and it is not alone in printing that it is objectionable to use the wire side of the paper, but in view of all this it has been customary in making paper on Fourdrinier machines to finish the wire side of the paper and not in any way conceal it.

By my invention I am enabled to produce paper from a Fourdrinier machine which when finished presents equally perfect surfaces.

The figure of the drawing represents a diagrammatic view of an apparatus embodying my invention.

In carrying out my invention I make use of two Fourdrinier machines, as indicated at A and B, with their delivery ends set opposite one another. The Fourdrinier wires are denoted at A' B', passing around the customary idler-rolls and over suction-boxes *a b* and couch-rolls 1 2, these wires moving in the direction of the arrows.

C D denote the points at which the pulp is flooded onto the wires.

E F denote the felts, which coöperate with the wires A' B', respectively, and remove the pulp from the wires. The felt E is carried around the idler-pulleys, moving in the direction of the arrows and passing around the couch-roll 3, which is set directly over each roll 1 of the Fourdrinier machine A, returning and passing between the sets of baby-rolls 5 6 and the rolls 7 8. The felt F, moving in the direction of the arrows over suitable idler-pulleys, passes about couch-roll 4, which is set directly over couch-roll 2 of the Fourdrinier machine B, then passing over the roll 3 and moving along with the felt E through the baby-rolls 5 6 and between the rolls 7 8. It is understood that these felts are in the form of endless belts. In the operation of the machine as the felt E passes between the rolls 1 3 it picks up the pulp from the wire A' and as the felt F passes between the rolls 4 2 it picks up the pulp from the wire B'. In both cases it is evident that the wire side of the pulp is away from the felt. The felt E now travels about the roll 3 and the felt F passes onto the roll 3 on the top of the felt E, thus uniting the wire sides of the two sheets of pulp. As the pulp travels along between the felts E F and through the baby-rolls 5 6 the two sheets are pressed together and thoroughly united, and as it passes between the rolls 7 8 it is subjected to a still greater pressure, which further effects the desired result. Upon passing through between the rolls 7 8 the felt F leaves the sheet of pulp and travels around, as indicated. The felt E carries the sheet of pulp to another part of the machine, where it delivers it for further operations. It is advisable in order to make the adhesion of these two sheets of paper as they come from their respective wires more certain that their wire sides shall be sprayed with water, and I have indicated at G what is intended to represent a suitable apparatus for accomplishing this result. It is clearly evident from this arrangement that I am enabled to produce a Fourdrinier-made paper on which the wire sides shall be in the center of the

sheet and the two surfaces can be finished with an equal degree of perfection, so that either one of them will receive with equally good results any impressions, either in printing or otherwise, which are given them.

I claim as my invention—

The herein-described method of making paper with both sides having the same degree of finish, consisting of forming separate sheets on Fourdrinier machines arranged adjacent to one another with their delivery ends opposite to each other, delivering the

15 sheets with their wire sides together to a carrier, spraying the sheets as they are delivered to the carrier, passing the sheets to primary pressure-rolls for uniting the wire sides of the sheets, and finally passing the united sheets to secondary pressure-rolls to further solidify and unite into a single sheet.

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