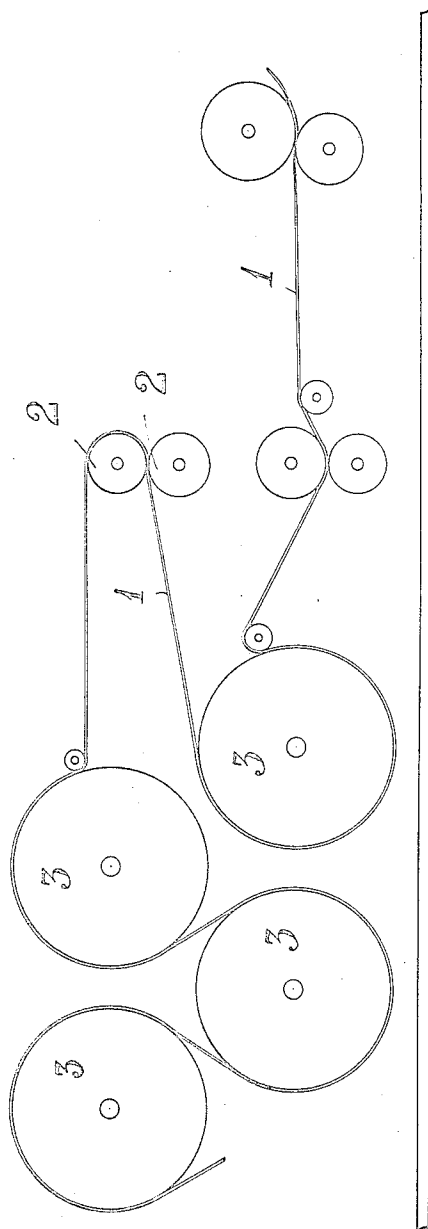


N. PEDERSEN.
PAPER AND PASTEBOARD MACHINE.
APPLICATION FILED MAY 6, 1911.

1,050,164.

Patented Jan. 14, 1913.



Witnesses
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UNITED STATES PATENT OFFICE.

NILS PEDERSEN, OF BORREGAARD, NEAR SARPSBORG, NORWAY.

PAPER AND PASTEBOARD MACHINE.

1,050,164.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed May 6, 1911. Serial No. 625,447.

To all whom it may concern:

Be it known that I, NILS PEDERSEN, a subject of the King of Norway, residing at Borregaard, near Sarpsborg, Norway have invented certain new and useful Improvements in Paper and Pasteboard 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to the manufacture of paper and is especially applicable to low speed machines for making pulp sheets and thick paper, and it has for its object to increase the capacity of the second part of the machine called the press part. This part generally consists of three pairs of rolls called press-rolls and the soft wet paper, from the first part of the machine, is transferred with a woolen felt which passes with the paper between each pair of press rolls.

The invention consists in heating the sheet of pulp or paper after it has passed between the first two pairs of press rolls and before it reaches the last pair of rolls, the heating being effected preferably by passing the sheet over a drying cylinder. This heating reduces the viscosity of the water contained in the sheet so that the action of the last pair of press rolls is greatly enhanced, and the amount of steam necessary for the subsequent drying operation is greatly reduced owing to the fact that the sheet on entering the drier has a much lower content of water than when it is not subjected to the preliminary heating.

In the accompanying drawing, I have illustrated diagrammatically the second or press-part, and the third part or drier of a paper machine.

In said drawing 1, indicates the web or sheet of soft wet paper, 2, 2, the first two sets of press-rolls from which the web passes onto the first drying cylinder 3 of the series of cylinders which constitute the drier or third part of the paper machine. The rela-

tive position of the first cylinder 3 to the second and third pairs of press-rolls, is such that the sheet is caused to pass almost entirely around said cylinder, thus insuring an effective heating of the sheet before it passes from the cylinder 3 and between the latter or third pair of press rolls 2^a from which latter said sheet passes around the remaining cylinders 3^a of the drier as usual.

It will be readily seen that applicant's method may be carried out without any great alterations of the well known forms of paper machines.

The object of the invention could not be attained by substituting for one of the cold rolls, a heated roll or cylinder, because the time during which the sheet is passing between the press rolls is too short to properly heat the sheet.

In rapidly running paper machines the heating could be expedited by heating the felt which runs with the sheet through the press part of the machine.

I claim:

1. The method of making paper pulp and paper, which consists in heating a wet sheet of pulp or paper, to reduce the viscosity of the water therein and thereby facilitate the expulsion of the water therefrom, and passing the heated sheet through the last wet press or presses.

2. The method of making paper pulp and paper, which consists in heating a wet sheet of pulp or paper, to reduce the viscosity of the water therein and thereby facilitate the expulsion of the water therefrom, passing the heated sheet through the last wet press or presses and finally drying the heated pressed sheet.

3. The method of making paper pulp and thick paper, which consists in heating a wet sheet of pulp or paper by passing it over a drying cylinder, to reduce the viscosity of the water in the sheet and thereby facilitate the expulsion of the water from the latter, and passing the heated sheet through the last wet press or presses.

4. The method of making paper pulp and thick paper, which consists in heating a wet sheet of pulp or paper, by passing it over

a drying cylinder, to reduce the viscosity of the water in the sheet and thereby facilitate the expulsion of the water from the latter, passing the heated sheet through the
5 last wet press or presses and finally drying the heated pressed sheet.

In testimony that I claim the foregoing

as my invention, I have signed my name in presence of two subscribing witnesses.

NILS PEDERSEN.

Witnesses:

AUG. OLSEN,

HENRY BORDENRICH.