(No Model.)

C. PARENT.

PAPER MAKING MACHINE.

No. 266,307. Patented Oct. 24, 1882.

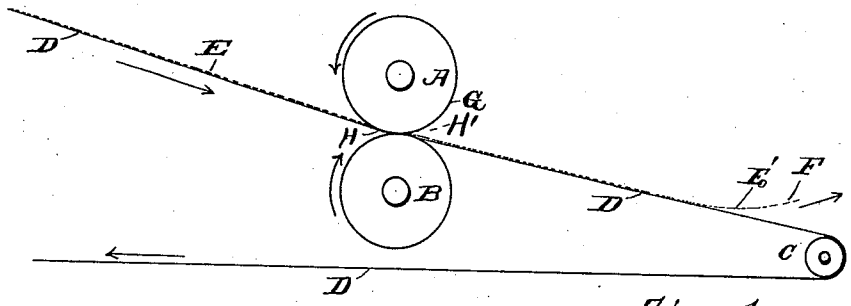


Fig 1

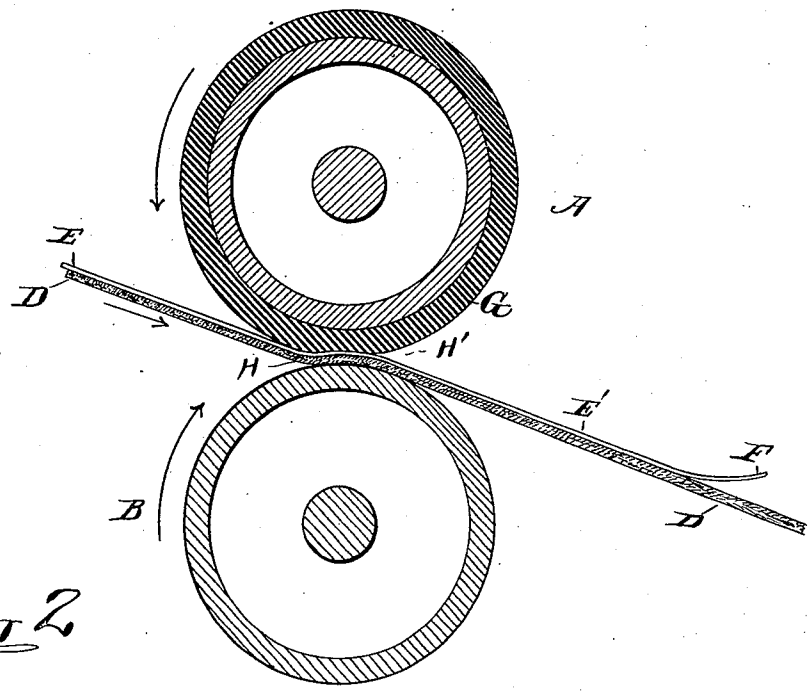


Fig 2

WITNESSES:

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UNITED STATES PATENT OFFICE.

CALEB PARENT, OF ROCKDALE, NEAR HAMILTON, BUTLER COUNTY, OHIO.

PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,307, dated October 24, 1882.

Application filed September 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, CALEB PARENT, of Rockdale, near Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification.

In paper-machines the pulp is first formed into a web or sheet. This sheet is very tender and will bear no handling. It is not paper; it is a sheet of pulp and water. It is supported on an endless apron of wire or felt and carried through a pair of press-rolls which express much of the water, and at the same time greatly compact the substance of the sheet. It may then be called "paper," and should be of sufficient strength to be separated from its supporting-felt and be carried as a continuous web to machines for drying or otherwise treating it. This first pressing of the pulp-sheet is one of the most annoying operations of the paper-maker. The sheet must be well pressed, and at the same time it must not be pressed into adherence with its felt or wire. The pressing-roll is found to possess a certain "picking-up" quality which tends to take the sheet from the felt or wire. This quality is of great importance; but if the affinity of the sheet for the roll be too great, the sheet will leave the felt or wire and cling to the roll. Breaks in the web must always be looked for at the first press-roll, and scrapers or doctors are provided to scrape the ruined matter from the roll in case it sticks. Chemicals are applied to the roll, which are useful in many cases. In some paper-mills three or four gallons of coal-oil per day are used on the top press-roll. The cost of this oil represents the interest on an investment of some eighteen hundred dollars. What is wanted is a press-roll which will press the pulpy sheet, lift it from the felt or wire, and at once replace it lightly upon the felt or wire in condition to be at once separated from the felt or wire.

Press-rolls are often made of cast-iron. Such rolls rust and roughen. Brass rolls do not rust, but they are very expensive. Woolen jackets are often used, but they are not durable. They seem, however, to have a peculiar power of throwing off the pulpy sheet, which they lift from the felt or wire. Hard-rubber jackets are used on account of their non-corrosive properties. Except in the case of woolen jackets, I am not aware that press-rolls have ever been made to possess peculiarly the power to lift the sheet from the wire or felt and at the same time not retain the same upon their own surfaces.

My invention relates to the surface of the first press-roll; and it consists of a roll whose pressing-surface is formed of soft rubber and arranged to operate in combination with a bottom roll, a felt or wire, and a sheet of pulp, as hereinafter set forth.

In the accompanying drawings, Figure 1 is an end view of a pair of press-rolls showing general operation, and Fig. 2 is a section of a pair of rolls embodying my invention.

A is the top press-roll; B, the bottom press-roll; D, the felt or wire conveying the sheet of wet pulp from the forming part of the paper-machine to the press-rolls; E, the sheet of wet pulp supported on the felt or wire as it goes to the press-rolls; E′, the same after it has passed the press-rolls and arranged to lie loosely upon the felt or wire; F, the same separated from the felt or wire and in condition to be led to other parts of the machine; G, a soft-rubber surface on the top press-roll.

The roll B may be of metal, wood, or any other suitable material. The soft-rubber surface G of the top roll, A, may be a thick jacket on a roll of other material, or the roll may be formed of rubber. At the point H, where the rolls press the pulp and felt or wire, the soft-rubber surface of the upper roll yields and takes a non-circular form and the pulpy sheet adheres to some extent. At H′ the soft rubber reacts and assumes its normal circular form, and this reactive movement discharges from the roll-surface the slightly-adherent paper sheet and permits it to lie loosely upon the felt or wire, or to be carried as a continuous self-supporting sheet to other parts of the machine. The sheet never sticks to the rolls so as to be broken, and no scrapers or doctors or chemicals are needed.

I claim as my invention—

The combination, in a paper-making machine, substantially as set forth, of a bottom press-roll, a felt or wire, and a top press-roll having a surface of soft rubber.

CALEB PARENT.

Witnesses:
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