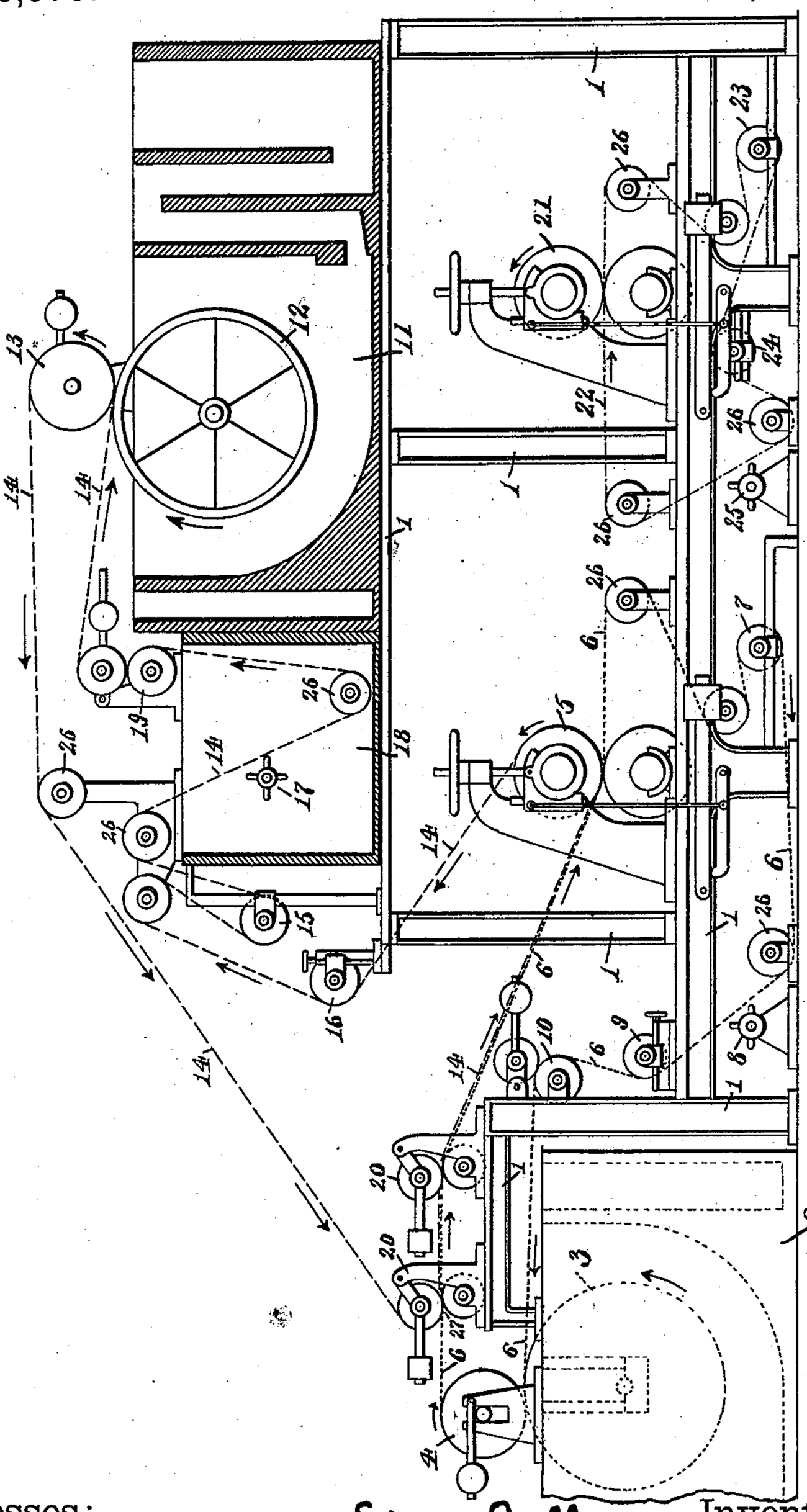
(No Model.)

L. P. CLAWSON.

PAPER MAKING MACHINE.

No. 485,575. Patented Nov. 1, 1892.



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UNITED STATES PATENT OFFICE.

LINUS P. CLAWSON, OF HAMILTON, OHIO, ASSIGNOR TO THE BLACK & CLAWSON COMPANY, OF SAME PLACE.

PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,575, dated November 1, 1892.

Application filed August 26, 1891. Serial No. 403,835. (No model.)

To all whom it may concern:

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

This invention pertains to improvements in paper-making machines designed, primarily, for use in producing thick paper from sulphite fiber, the thick paper being produced by forming two thinner webs in the process of making. It has been quite usual to thus make thick paper from various stocks; but the sulphite fiber seems disinclined to lend itself to control by the usual laws of paper-making, and I believe I am the first to have successfully solved the problem of forming thick paper of sulphite fiber by making two webs together. In making paper of sulphite fiber the web cannot be carried along upon the under surface of a felt, as with other stock.

My improved machine will be readily understood from the following description, taken in connection with the accompanying drawing, which is a side elevation of a paper-making machine, exemplifying my present invention, the second cylinder and its vat appearing in vertical longitudinal section.

In the drawing, 1 indicates sundry frame parts; 2, the vat of the first cylinder, constructed as usual; 3, the first cylinder, arranged therein as usual; 4, the first couching-roll, lightly weighted and engaging its cylinder, as usual; 5, the first press, as usual; 6, the first felt, starting at the first couching-roll and going through the first press and finally back to the first couching-roll; 7, stretch-roll for the first felt, to be of any usual arrangement; 8, beater for the first felt; 9, guide-roll for the first felt; 10, squeeze-rolls for the first felt, the stretcher, washer, guide, and squeezer operating upon the lower member of the first felt, so that the make of the first cylinder can be carried by this felt from the couching-roll to and through the first press; 11, the vat of the second cylinder, disposed in advance of the vat of the first cylinder and preferably elevated above the press part of the machine, so as to permit of the passage of the completed web of paper from the press part to the calenders or what not without the need of tortuous turns; 12, the second cylinder; 13, the second couching-roll, the second vat, second cylinder, and second couching-roll being substantially duplicates of the corresponding first parts; 14, the second felt, starting at the second couching-roll and going thence back to a point on the first felt near the first couching-roll and turning thence forward and going along over and with the first felt and with it through the first press and going from thence back to its couching-roll; 15, stretch-roll for the second felt; 16, guide-roll for the second felt; 17, beater for the second felt; 18, washing-box for the washer of the second felt, its presence being incident to the elevated location of the second vat, &c., the object of the box being to protect the parts below from drip; 19, squeeze-rolls for the second felt, the squeeze-rolls, washer, stretcher, and guide-roll of the second felt engaging the lower member of the felt, so that its upper member is clear for the conveyance of the make of the second cylinder from the second couching-roll rearwardly to the point of delivery upon the first felt; 20, squeeze-rolls, engaging both the first and second felts between the first couching-roll and the first press, the exemplification showing two pairs of these rolls; 21, the second press, as usual; 22, second press-felt, as usual; 23, stretch-roll for the second press-felt; 24, guide-roll for the second press-felt; 25, washer for the second press-felt; 26, sundry rolls for the support of the various felts, and 27 that point in the path of the first felt and the second felt and the make of the first cylinder and the make of the second cylinder where the two felts and the two makes begin to travel together and the two makes of paper become merged into the joint web.

The make of the second cylinder goes from the second couching-roll rearwardly supported on top of the second felt and thus supported it is carried to point 27. The make of the first cylinder moves forward from the first couching-roll supported on top of the first felt and thus supported is carried to the point 27. The two makes are here laid together to form the joint web of paper, and the two felts, with the joint web between them, go through the squeeze-rolls 20, which give the joint web a light consolidating pressure, and then go

through the first press, after which the joint web is delivered to the second press, as usual, and the two felts separate and return in their several circuits. The make of neither cylinder is left unsupported from below until the consolidation has been effected and the first heavy pressure given.

I claim as my invention—

1. In a paper-making machine, the combination, substantially as set forth, with two paper-making devices, each arranged to produce a web of pulp, and a pair of press-rolls, of a felt arranged to remove the web from one of said paper-making devices and carry it upon its upper surface to and between said press-rolls and a felt arranged to remove the web from the other of said paper-making devices and carry it upon its upper surface to and against the web carried upon the first-mentioned felt, whereby both webs have bottom support from the time of production to time of reaching press-rolls.

2. In a paper-making machine, the combination, substantially as set forth, of a first cylinder, a first couching-roll, a pair of press-rolls, a first felt engaging said first couching-roll and arranged to carry the make of said first cylinder upon the upper surface of its upper member forwardly to and between said press-rolls, a second cylinder, a second couching-roll, and a second felt engaging said second couching-roll and arranged to carry the make of said second cylinder rearwardly upon the upper surface of its upper member and deliver it upon the make of the first cylinder at a point between the first couching-roll and the press-rolls.

3. In a paper-making machine, the combination, substantially as set forth, of a first cylinder, a first couching-roll, a second cylinder, a second couching-roll, a pair of press-rolls, a pair of squeezing-rolls, a first felt engaging the first couching-roll and arranged to carry the make of the first cylinder upon the upper surface of its upper member forwardly between said squeezing-rolls and then between said press-rolls, and a second felt engaging the second couching-roll and arranged to carry the make of the second cylinder upon the upper surface of its upper member rearwardly toward the first couching-roll and then to pass between said squeezing-rolls and then between said press-rolls.

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