

(No Model.)

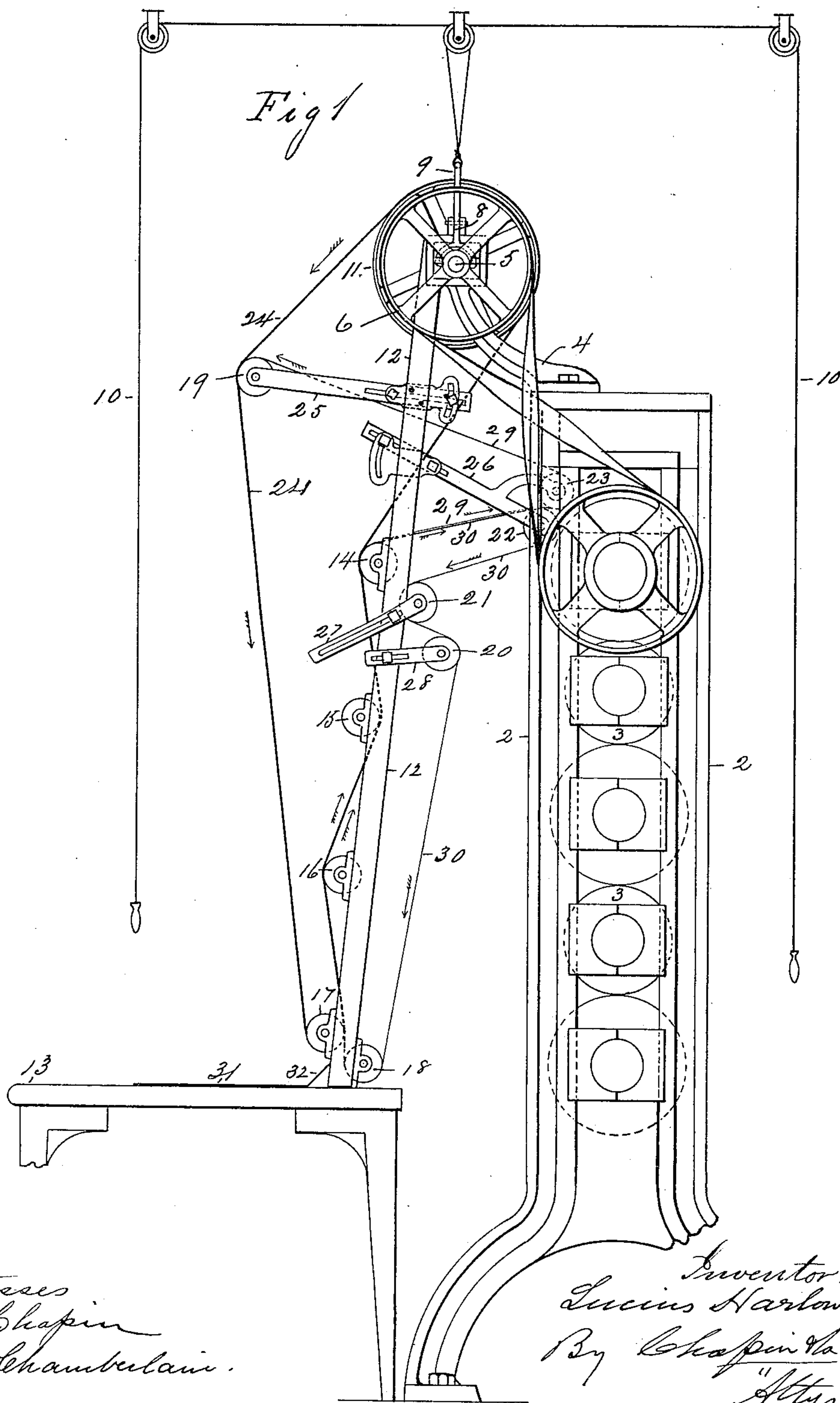
2 Sheets—Sheet 1.

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SHEET FEEDING DEVICE FOR PAPER CALENDERING MACHINES.

No. 350,741.

Patented Oct. 12, 1886.



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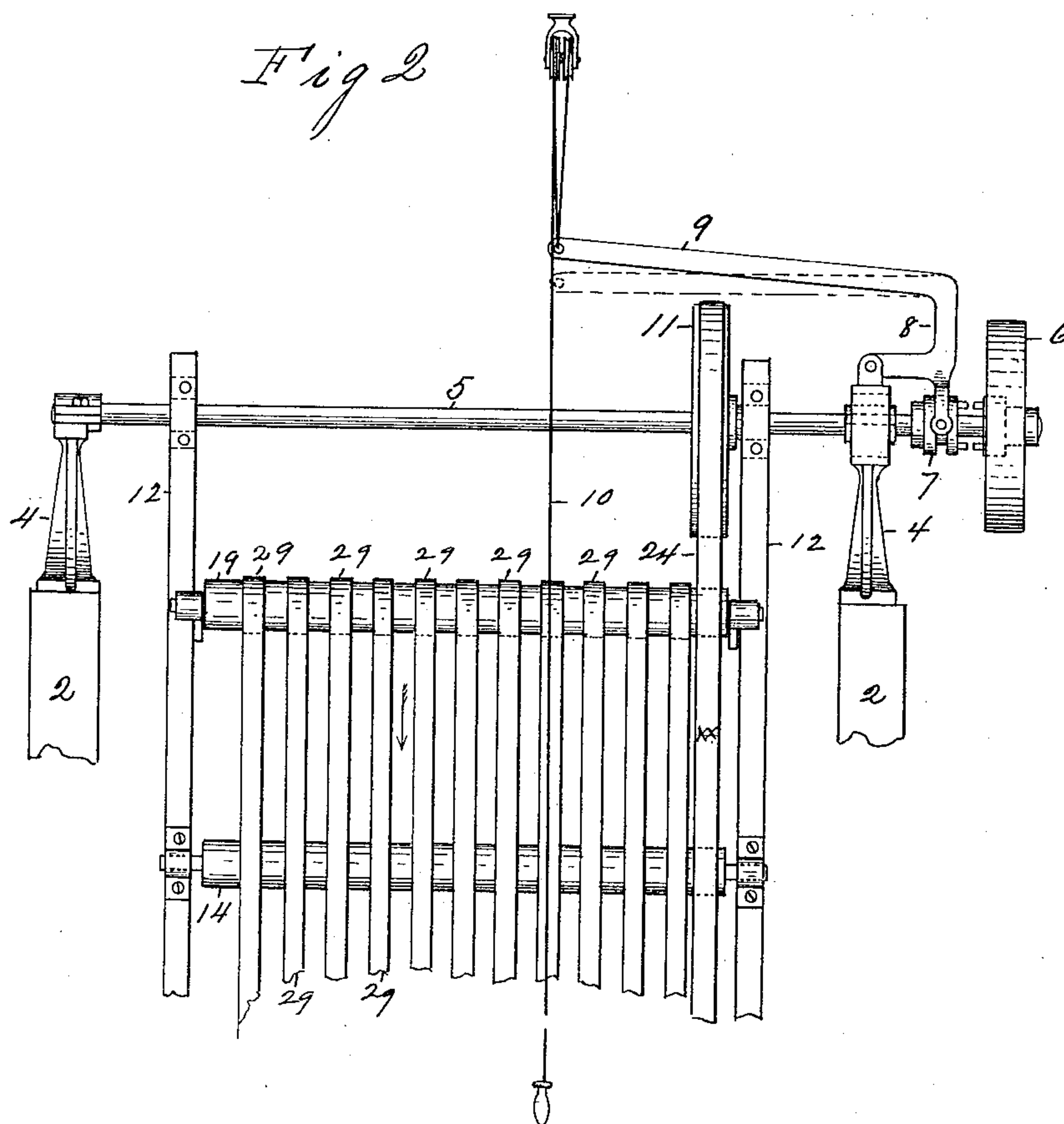
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Witnesses  
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# UNITED STATES PATENT OFFICE.

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## SHEET-FEEDING DEVICE FOR PAPER-CALENDERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 350,741, dated October 12, 1886

Application filed June 7, 1886. Serial No. 201,326. (No model.)

*To all whom it may concern:*

Be it known that I, LUCIUS HARLOW, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Sheet-Feeding Devices for Paper-Calendering Machines, of which the following is a specification.

This invention relates to sheet-feeding devices for paper-calendering machines, the object being to provide improved means for conveying sheets of paper from a table by the side of the calender, inconsiderably elevated above the floor; and the invention consists in the peculiar arrangement and combination of the sheet-feeding devices and the mechanism controlling the movement thereof, all as hereinafter fully described, and set forth in the claims.

In the drawings, forming part of this specification, Figure 1 is an end elevation of a paper-calendering machine, having applied thereto sheet feeding devices and operating mechanism for the latter constructed according to my invention. Fig. 2 is a front elevation of the upper part of the sheet-feeding devices (the lower part being broken away) and of the mechanism which controls the movements of said devices.

In the drawings, 2 indicates the frame of the paper-calendering machine, the rear leg of the latter being shown broken off, and 3 indicates the usual calendering-rolls of the machine. To the upper end of said machine are suitably secured two shaft standards, 4, provided with suitable boxes in which is hung to rotate the shaft 5. Said shaft has upon one end the loose clutch-pulley 6, which is given a rotary motion by a belt or other suitable connection with the calendering-machine, as shown in Fig. 1. On shaft 5, by the side of said clutch-pulley 6, is placed a clutch, 7, having the usual splined sliding attachment with said shaft, and to a suitable standard on the top of one of said standards 4 is pivoted an elbow-lever, 8, having a fork thereon which engages in the usual manner with a groove around said clutch 7. To the upper end of the elbow-lever 8 is rigidly attached a lever, 9, and to the end of the latter are attached two shipping-cords, 10, which pass over pulleys attached to the ceiling of the room in which the machine is or other

convenient place, and their free ends hang down, one on the front and one on the rear side of the machine, having convenient handles attached thereto, as shown in Fig. 1. Said shaft 5 has fixed thereon a pulley, 11, to serve a purpose hereinafter set forth. A frame, 12, has its upper end supported on said shaft 5, the latter rotating freely in boxes on said frame, and the latter extends downward by the side of the calendering-machine to the top of the table 13, on which the paper is laid which is to be calendered. On said frame 12 are hung the tape-guiding rolls 14, 15, 16, 17, and 18, and supported on said frame on arms which are adjustably attached to the latter are other tape-guiding rolls, 19, 20, 21, 22, and 23, the latter being shown in dotted lines in Fig. 1. A belt, 24, is applied to the pulley 11, and is carried around the outer side of the tape-guiding roll 19, around the roll 17 at the lower end of frame 12, and against the opposite sides of the rolls 16, 15, and 14, and thence back to pulley 11, and thereby said tape-guiding rolls, against which said belt bears, are given their requisite rotary motion. The said roller 19 is supported in arms 25, (only one of which is shown in the drawings,) which are adjustably attached to the frame 12, whereby the belt 24 is kept at a proper tension, and the arms 26, 27, and 28, in which the rollers 23, 22, 21, and 20 are supported on frame 12, are likewise adjustable on the latter, in order to adjust the tension of the tapes, hereinafter described, which run around said rolls, and to provide for bringing the rollers 23 and 22 into proper position at the side of the calendering-rolls, whereby the delivery of the sheets of paper to the latter is insured. The belt 24 runs in the direction indicated by the arrows in Fig. 1.

Sheet-conveying tapes 29 and 30 (there being two sets running face to face) are hung upon the aforesaid tape-guiding rolls, as follows: Said tapes 29 run over the roll 19, in line with the belt 24, Fig. 1, and around roller 17, and against the opposite sides of rollers 16, 15, and 14, and from the latter toward the calender-rolls and around roller 23, and back to roller 19. The tapes 30 run from the under side of roller 22 against or around the opposite sides of rollers 21 and 20, and from the latter downward and around roller 18, at the lower end of frame 12, and thence against the sides of



the aforesaid tapes 29, and following the course of the latter to roller 14, and from thence around roller 22, passing under the tapes 29. Referring to Fig. 1, it is seen that the tape-guiding roller 18, around which the tapes 30 run, is set a little below the roller 17, thereby providing for the introduction of sheets of paper from the table 13 between the tapes carried by said rolls. A paper-guiding plate, 31, is placed on table 13, having an upwardly-inclined rear edge, 32, whereby a sheet of paper which is laid upon said plate 31, and pushed backward or toward the rollers 17 and 18, has its edge guided upward in a suitable direction to cause it to be properly entered between the moving tapes carried by said rollers.

Paper that is to be calendered is in practice fed rapidly to machines of this class and the tendency of sheets of paper, and particularly those which are of light weight, to become displaced between the carrying-tapes caused by their improper introduction therebetween renders it essential in feeding devices of the character herein described that means be provided whereby the operator who feeds the paper to the machine, or the one who receives it from the machine, can stop the feeding device at will, independently of the regular rotary movement of the calendering-rolls, otherwise much paper is wasted by being improperly presented to the calendering-rolls, whereby it is wrinkled and cut. Another source of inconvenience in the use of the said paper-feeding devices without means for stopping the same quickly at will arises from the feeding, inadvertently oftentimes, of several sheets at a time instead of one, and when such over-feeding occurs, unless said sheets can be stopped before they reach the calendering-rolls, there is danger that the latter will be sprung or otherwise injured by the presence between them of a greater thickness of paper than they are set to operate upon.

To the end that the aforesaid inconveniences in the use of the within-described feeding devices with calendering-machines may be obviated, the clutch-pulley 6 (which has a continuous rotary motion by its connection with said machine) and the clutch 7 are applied to the shaft 5, which gives motion to the carrying-tapes, and said clutch is operated to be engaged with or disengaged from said clutch-pulley, thereby starting or stopping said sheet-carrying tapes by the operation of the elbow-lever 8 and the lever 9 connected therewith. Said lever 9 is of sufficient weight to operate the clutch 7 by gravity, to carry it into engagement with the pulley 6, and when in that position it stands as indicated by dotted lines in

Fig. 2—that is to say, one which causes the carrying-tapes to be operated—but when either of cords 10 is seized and pulled by the operator the end of the lever 9 is raised, as shown in said last-named figure, and the clutch is disengaged from the clutch-pulley, thereby stopping shaft 5 and the sheet-carrying tapes 29 and 30 and preventing any further supply of paper to the calendering-machine until the said shipping-cord is released and lever 9 is allowed to drop, carrying clutch 7 into engagement with pulley 6.

The operator sits at the table 13 and pushes one sheet of paper after another over the plate 31, causing the rear end of the sheet to slide upward when it meets the inclined edge 32 of said plate and to enter between the said carrying-tapes as they come around the rolls 17 and 18, and each sheet is carried between said tapes up to the top of roll 14 and then moves with the tapes in an upwardly-inclined direction, as shown in Fig. 1, to a point between the rollers 22 and 23, where it is delivered between the calendering-rolls.

What I claim as my invention is—

1. Sheet-feeding devices for paper-calendering machines, consisting of a frame, 12, supported at the side of the latter in nearly a vertical position, a series of tape-guiding rolls, substantially as described, hung transversely on said frame, two series of sheet-carrying tapes applied to said rolls and running face to face, combined with the calendering-machine, a shaft having a driving-pulley thereon, and a belt having an engagement with said pulley and with several of said rolls, a loose clutch-pulley running on said shaft by engagement with the calendering-machine, a clutch located on said shaft to engage with said pulley, and a clutch-operating lever and shipper-cords, substantially as described.

2. In combination, a paper-calendering machine, the shaft 5, hung thereon, the loose clutch-pulley 6, rotating on said shaft by suitable connection with said machine, the clutch 7, having a sliding engagement with said shaft at the side of said clutch-pulley, the pivoted elbow-lever 8, engaging with said clutch and having the lever 9 rigidly attached thereto, and means, substantially as described, for operating the latter, the frame 12, the two series of sheet-carrying tapes 29 and 30, a series of rolls on said frame over which the latter run face to face, and a belt, 24, connecting said shaft 5 with certain of said rolls, substantially as set forth.

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Witnesses:

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