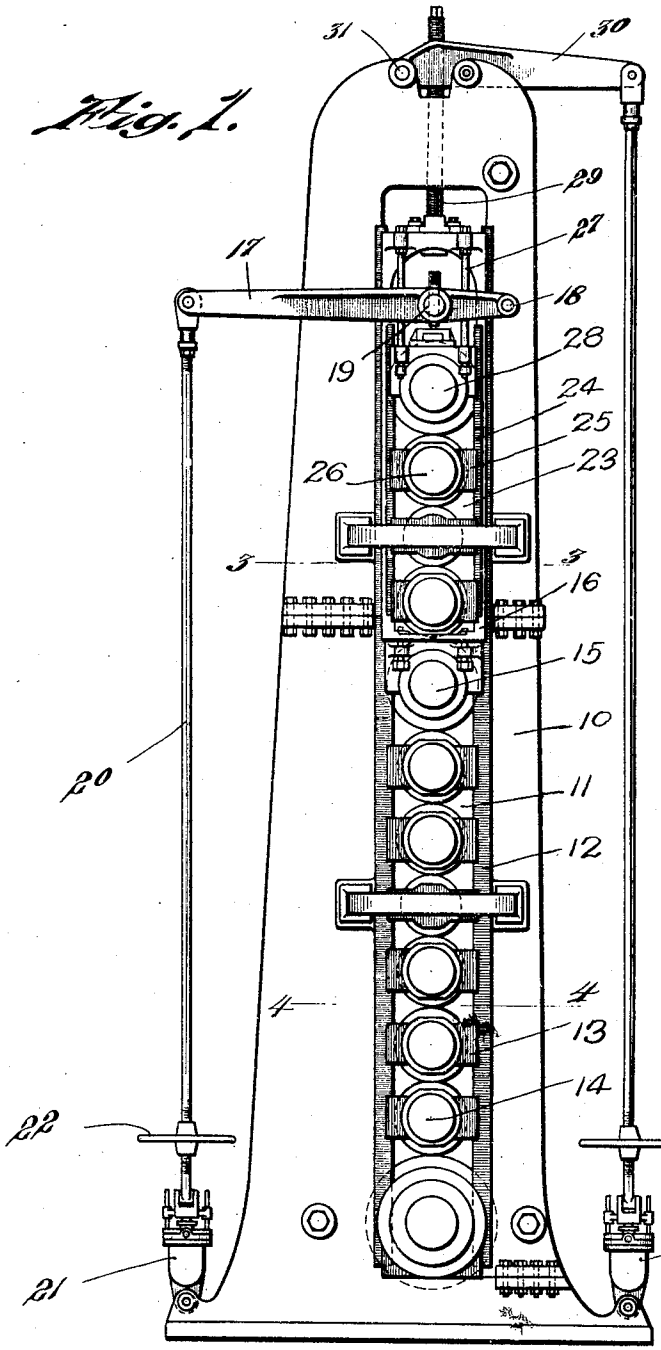
Sept. 27, 1932. T. E. KANE 1,879,296

CALENDERING MACHINE

Filed Nov. 7, 1930 3 Sheets-Sheet 1

Fig. 1.



INVENTOR.
Thomas E. Kane.
BY
Barlow & Barlow
ATTORNEYS.

Sept. 27, 1932. T. E. KANE 1,879,296

CALENDERING MACHINE

Filed Nov. 7, 1930 3 Sheets-Sheet 2

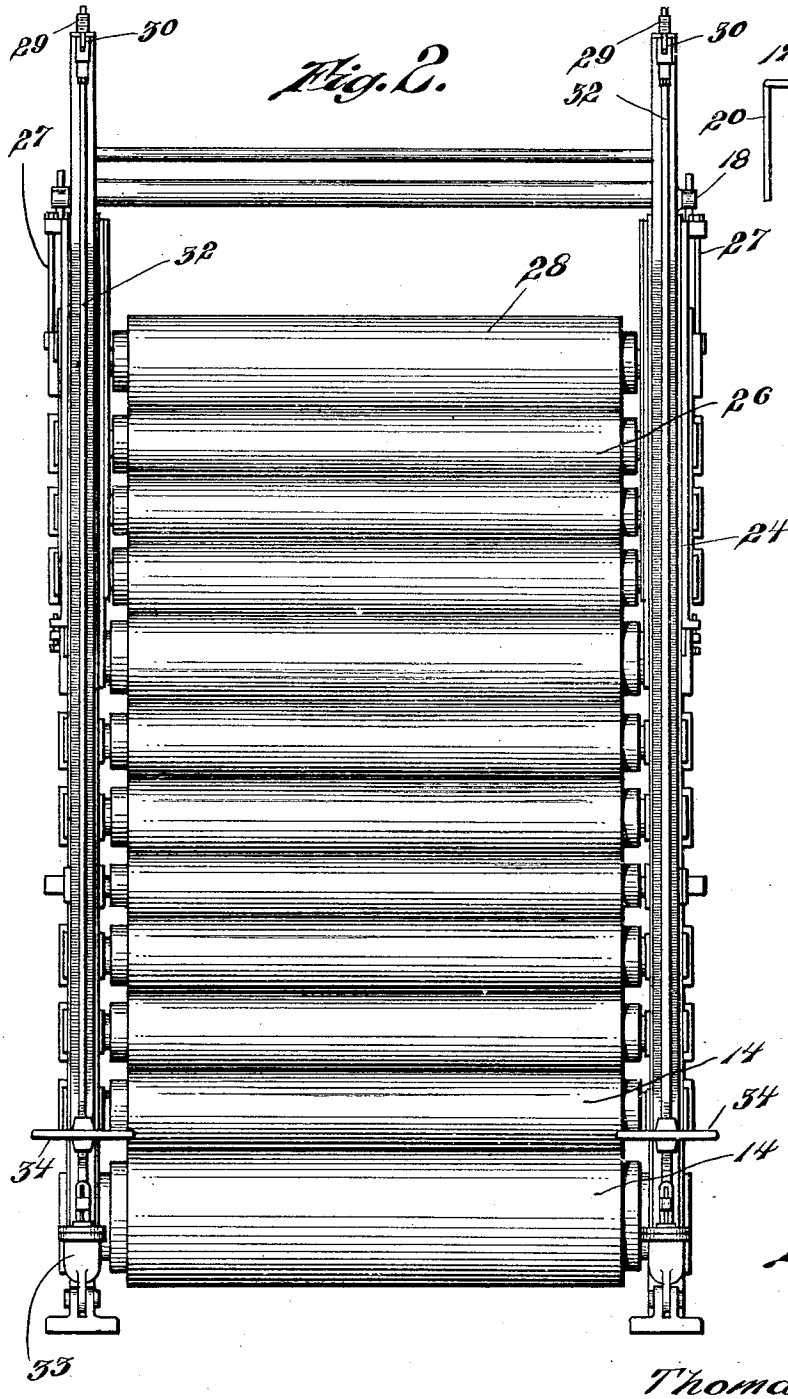


Fig. 2.

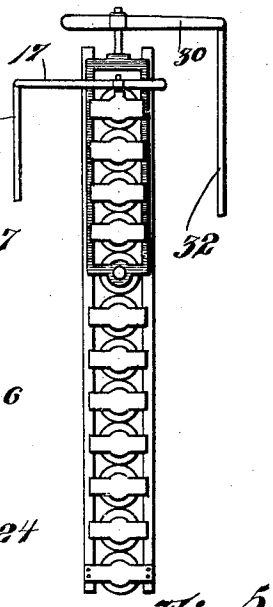


Fig. 5.

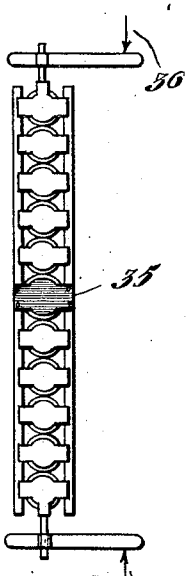


Fig. 6.

INVENTOR.
Thomas E. Kane
BY
Barlow & Barlow
ATTORNEYS.

Sept. 27, 1932. T. E. KANE 1,879,296

CALENDERING MACHINE

Filed Nov. 7, 1930 3 Sheets-Sheet 3

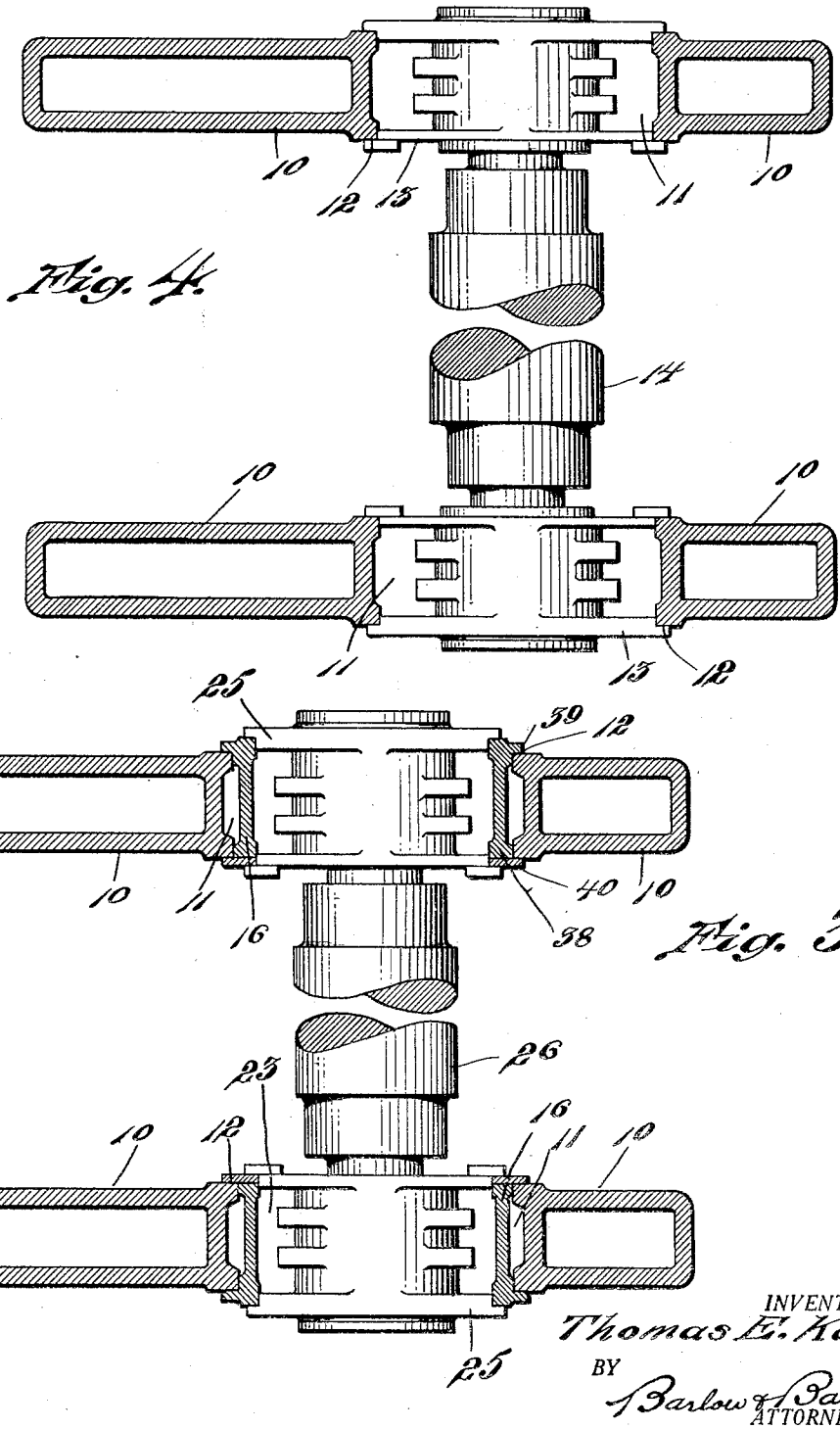


Fig. 4.

Fig. 5.

INVENTOR.
Thomas E. Kane
BY
Barlow & Barlow
ATTORNEYS.

Patented Sept. 27, 1932

1,879,296

UNITED STATES PATENT OFFICE

THOMAS E. KANE, OF MANSFIELD, MASSACHUSETTS, ASSIGNOR TO THE TEXTILE-FINISHING MACHINERY COMPANY, A CORPORATION OF RHODE ISLAND

CALENDERING MACHINE

Application filed November 7, 1930. Serial No. 494,075.

This invention relates to a calendering machine, and has for its object to provide a machine for finishing a sheet of paper, or the like, by a single pass thru the machine, to accomplish the result of two passes thru the machine which have been previously required.

A further object of the invention is to provide means whereby the work may be subjected at different points during its passage thru the machine to different amounts of pressures by the calendering rolls.

A still further object of the invention is the provision of a construction by which two different pressures may be used in the machine with one pressure supplementing the other pressure in acting on a certain group of rolls of the machine thru which the work passes.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is an end elevation of the calendering machine.

Fig. 2 is a front elevation of the same.

Fig 3 is a section on line 3—3 of Fig 1.

Fig. 4 is a section on line 4—4 of Fig. 1.

Fig. 5 is a diagrammatic view of the manner of applying pressure to the different rolls of the machine; and

Fig 6 is a similar diagrammatic view illustrating a modified construction in which pressure is applied in opposite directions rather than in the same direction, as shown in Fig. 5.

In the use of calendering machines, particularly for finishing paper, and the like, it has heretofore been found desirable to run the work thru the machine with the pressure upon the rolls relatively light and thereafter running the paper again thru the machine with a greater amount of pressure upon the rolls, thus necessitating the handling and reeling of the paper between passes; and in order that this handling and reeling of the work may be avoided, I have provided a machine in which the paper is first subjected to a light pass and thereafter in the same machine and without reeling subjected to a heavier pressure thus eliminating one handling and reeling of the work in the finishing thereof; and the following is a detailed description of the present embodiment of this invention illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawings, 10 designates the hollow end support standard of the frame of a calendering machine, which is provided with a vertical opening 11, the marginal edges 12 of which are machined to provide the sliding surface of a guideway for the roll bearings 13 which are located in the spaced pair of support standards, and in which rolls 14 are mounted and extend from one bearing to the other and in contact with each other, as illustrated in Figs. 1 and 2.

These rolls are arranged in groups, the lower group or series of rolls may consist of any desired number, that which I have chosen for the purposes of illustration herein being eight, one in contact with and resting upon the other in the machine, as illustrated in Figs. 1 and 2.

The bearing 15 of the uppermost roll of this group or series, is secured to a slide member 16 slidably mounted in the guideways 11, 12, and pressure may be applied to this slide member 16 thru the lever 17 pivoted at 18 on the standard and connected to the slide member 16 at 19 in any suitable manner. A link 20 connects the lever 17 to the hydraulic pressure device 21 of a known type, described more specifically in Patent No. 1,587,784, dated June 8, 1926, the pressure being controlled by a hand wheel 22.

The slide member 16 is of a generally rectangular construction and is provided with an opening 23, the marginal edges 24 of which are provided with a finished surface for the sliding engagement of the roll bearings 25, in which bearings there are mounted rolls 26 extending from one standard to the other. These rolls 26 are in contact with each other and the lowermost roll of this upper group or series is in contact with the uppermost roll 15 of the first or lower group or series of rolls mentioned to

which pressure is applied thru the above said mechanisms.

The rolls 26, however, which have their bearings slidably mounted in the frame 25, are not affected by the pressure which acts thru the frame 16. A separate pressure is applied to the uppermost roll, and acts thru guide rods 27 which are secured to the uppermost roll 28 of the second or upper group or series thru the shaft 29 upon which pressure is applied by means of lever 30 pivoted as at 31 and drawn downwardly thru the link 32 by a hydraulic pressure-applying device 33 of the type heretofore mentioned and which is controlled by a hand wheel 34.

The pressure is applied thru a hydraulic device 33 which acts upon the roll 28 and in turn upon the rolls below the same in the member 16 and is thus transmitted to the roll 15 of the lower group, which also receives pressure thru the sliding frame and thus the two separate pressures which act upon the two groups are added together so that their combined force acts upon the rolls 15 and the rolls below to apply a greater pressure to the work as it passes therethru than when passing thru the upper series of rolls, the bearings of which are mounted in the slide member 16.

I have found this manner of applying pressure preferable, but a similar result may also be obtained which I have illustrated in Fig. 6 in which the bearing for the middle roll 35 is fixedly mounted in the support standards and opposite pressures indicated by the arrows 36, 37 are applied to the upper and lower series of rolls which may accomplish the same result but a greater pressure, of course, will be necessary at the arrow 37 on the lower group of rolls than where two pressures are added together to have their combined forces effective as in the diagrammatic showing of Fig. 5, similar to that in Fig. 1 heretofore pointed out.

Bearings which are slidably mounted are illustrated at 38, and are provided with a fixed side lip 39 and removable side lip 40 to engage the marginal guide surfaces 12 to smoothly direct their vertical movement.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. In a calendering machine, a series of slidably mounted rolls, means for applying pressure thereon, a second series of rolls slidably mounted in a portion of the means thru which said pressure is applied to the first series, and means for applying pressure to said second series of rolls.

2. In a calendering machine, a series of slidably mounted contacting rolls, a slidably mounted frame thru which pressure is applied to the uppermost roll of said series, and a series of contacting rolls slidably mounted on said frame and in contact with the uppermost roll of the first said series.

3. In a calendering machine, a series of slidably mounted contacting rolls, a slidably mounted frame, means for applying pressure thru said frame to the uppermost roll of said series, and a series of contacting rolls slidably mounted in said frame and in contact with the uppermost roll of the first said series, and means for applying pressure on the uppermost roll of the second said series.

4. In a calendering machine, a frame comprising a pair of spaced upright support standards having guideways therein, pairs of bearings slidable in said guideways at the lower portion thereof, rolls mounted in and extending between said pairs of bearings and resting with their surfaces one on the other, a pair of slide members slidably mounted in said guideways in the upper portion thereof and attached to the upper pair of said slidably mounted bearings, guideways in said slide members, a plurality of pairs of bearings slidably mounted in the guideways in said slide members, rolls mounted in and extending between said pair of bearings, means for applying pressure to the uppermost pair of bearings in said slide member for transmission to the rolls therebeneath, and separate and independent means for applying pressure to said slide member to transmit pressure to the bearings to which it is connected and to the rolls therebeneath, whereby the rolls in said slide member are unaffected by the last mentioned pressure.

5. In a calendering machine, a plurality of series of slidably mounted rolls, one of said series of rolls being capable of sliding independently of the other series, and independent pressure means for acting separately and independently on said series of rolls in the same direction.

6. In a calendering machine, a plurality of series of slidably mounted rolls, one of said series of rolls being capable of sliding independently of the other series, and pressure means for acting separately on one of said series of rolls and jointly on the other of said series of rolls in the same direction.

In testimony whereof I affix my signature.

THOMAS E. KANE.