

Fig. 1.

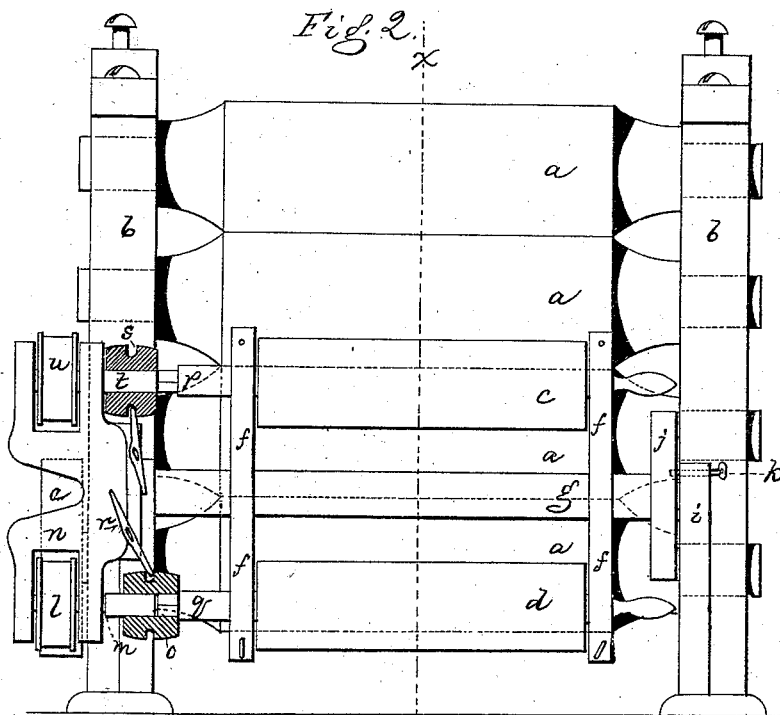


Fig. 2.

Witnesses.
 L. H. Latimer.
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Inventor.
 Nathan H. Whitten
 per Lewis & Maynard Attys

UNITED STATES PATENT OFFICE.

NATHAN H. WHITTEN, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO
HOLYOKE MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN PAPER-CALENDERING MACHINES.

Specification forming part of Letters Patent No. 184,054, dated November 7, 1876; application filed
August 26, 1876.

To all whom it may concern:

Be it known that I, NATHAN H. WHITTEN, of Holyoke, in the county of Hampden and State of Massachusetts, have invented an Improved Calendering-Machine of which the following is a specification:

This invention relates to machines for calendering paper or other material, and the invention has special reference to the combination, with the calendering-rollers, of reels or rolls, on which the paper or other material is wound, and from which it is taken, these reels or rollers being arranged at the same side of the calendering-rollers, thereby saving much valuable time, enabling the machine to take up less floor-space, and preventing the removal of the paper from one to the other side of the calendering-rollers, as is now commonly practiced.

Figure 1 represents the invention in vertical section on lines *x x*, Fig. 2; and Fig. 2 represents the invention in front view.

The calendering-rollers *a*, four being shown, are mounted, as usual, in standards *b*. These rollers are sufficiently close together to nip the paper passing between to properly calender its surface, and the pressure of the rollers is regulated in any usual way. In this instance the lower roller of the series is driven by means of a belt on a pulley, *c'*, at the end of the lower roller. (See Fig. 2.) The paper or material *e* to be calendered is led from a roller, *c*, over the top calender-roller, thence between it and the second, and then between the second and third, and the third and fourth rollers, and to a winding-roller, *d*, Fig. 1, upon which it is wound as it leaves the calendering-rollers, as indicated in the drawing in dotted lines. The roller from which the paper is taken to be calendered, and the roller upon which it is wound when calendered, are both placed at the same side of the calendering-rollers, and in this instance are both supported in bearings *f f* having a common center, *g*, supported in bearings in brackets or suitable standards *i*, so that the rotating frame or bearings carrying the rollers *c d* may be turned about the axis *g*, to bring either the roller *c* or *d* uppermost. A disk, *j*, on axis *g*, in connection with a pin or screw, *k*, serves as a lock-

ing device for the bearing-frame *f* in both the positions, the pin in this instance entering a hole in the disk and being held in the standard *i*.

In calendering paper it is customary to pass it between the calendering-rollers from one to six times, and with a machine of ordinary construction it is necessary to remove the roll of paper each time it passes through to the rear side of the calendering-machine back to the front side of the machine to be again run through. The reels or rolls of paper are heavy, and considerable time is required to move them from the back to the front of the machine, and to remount them in bearings, and the paper is often injured in changing its position.

In this machine the paper is wound on a reel or roll located at that side of the calendering-rollers at which the paper-delivering roller or reel is located, and after the paper passes from one roller through the calendering-machine and is wound upon the other roller, to repeat the operation, it is only necessary to semi-rotate the frame about the axis *g*, thereby bringing the lower of the rollers *c* or *d*; then the receiving-roller, to the top, when it acts as the delivering-roller and the roller just before at the top, and then acting as the delivering-roller will then act in the new and lower position as the receiving-roller. This change of position of rollers *c d* is quickly and easily made, the paper is not injured by handling, and by placing both rollers at the same side of the machine much valuable floor-space is saved in the mill, which is a matter of great importance. The roller *c* or *d*, on which the paper is wound, or the one acting as the receiving-roller, is driven, in this instance, by means of a belt placed on a pulley, *l*, secured to a shaft, *m*, sustained in a suitable frame, *n*, and provided with a sliding clutch or coupling, *o*, (shown in section, Fig. 2,) and provided with a central opening of proper shape to receive the squared or other suitably-shaped end of the shafts *p* or *q* of the rollers *c* or *d*, such clutch engaging and rotating, as shown in Fig. 2, the shaft *q* of roller *d*, winding the paper on the lowermost roller. The clutch *o* is made longitudinally movable on its shaft *m* by means of a proper shifter, *r*. The end of the

shaft of the upper roller, then the delivering-roller, (in this instance shown as shaft *p*,) during the time the paper is being drawn from it, has its end placed within a sliding clutch, *s*, on a shaft, *t*, provided with a pulley, *u*, against or about which is placed a friction device, a brake, or band of any usual or proper construction, such friction devices acting to maintain proper tension on the web of paper passing to the calendering-rollers. The frame carrying the rollers *c d* may be rotated by any suitable mechanism; as, for instance, the disk *j* may be provided at its periphery with teeth, and may be engaged by a pinion on a shaft provided with a proper handle, and any suitable holding or locking devices may be used to hold the frame stationary.

The gist of the invention consists in placing both reels or rollers at the same side of the calendering-rollers, and they may be supported in any suitable way to permit them to be readily changed as to position.

I am aware that in printing-presses the paper has been led into and taken from the same end of the machine by means of rollers.

I claim—

1. The combination, with a series of calendering-rollers, *a*, of reels or rollers *c d* placed at one side of the calendering-rollers, one roller holding the material to be calendered and to be delivered to the calendering-rollers, and the other receiving the calendered material at that side of the calendering-rollers at which it was delivered to the calendering-rollers, as and for the purpose described.

2. The combination, with calendering-rollers, of a rotating frame and two rollers supported by such frame, one roller delivering and the other receiving the material, substantially as described.

3. The rotating frame and its rollers, in combination with a pulley and clutch connecting with and rotating either roller to receive the material from the other roller, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NATHAN H. WHITTEN.

Witnesses:

S. F. STEBBINS,

E. P. BALL.