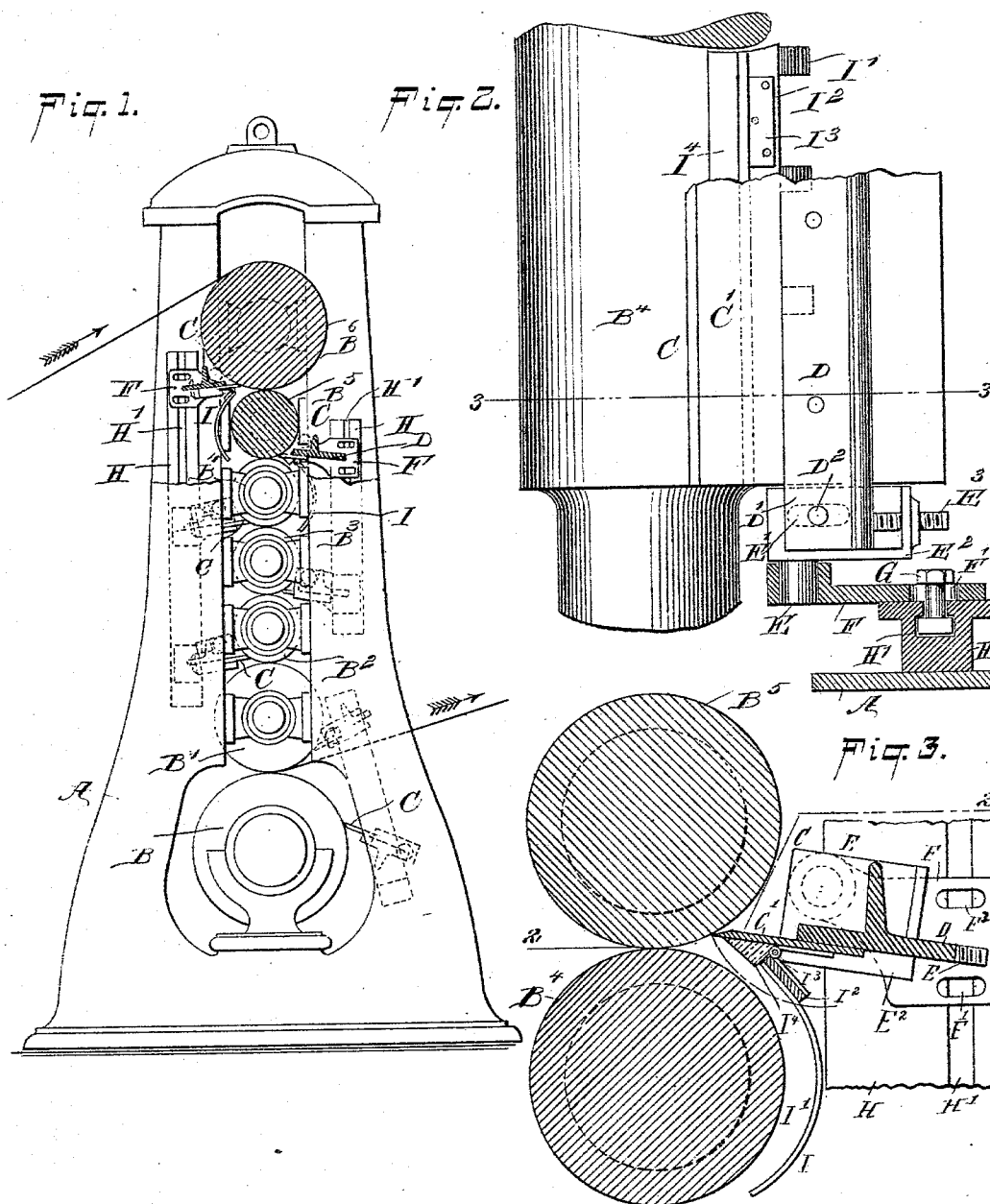


(No Model.)

T. H. LATIMER.
AUTOMATIC DOCTOR.

No. 559,723.

Patented May 5, 1896.



WITNESSES:

WITNESSES:
William Grebel.
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UNITED STATES PATENT OFFICE.

THOMAS H. LATIMER, OF WILMINGTON, DELAWARE.

AUTOMATIC DOCTOR.

SPECIFICATION forming part of Letters Patent No. 559,723, dated May 5, 1896.

Application filed August 24, 1894. Serial No. 521,178. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. LATIMER, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Automatic Doctor, of which the following is a full, clear, and exact description.

The invention relates to paper-making machinery; and its object is to provide a new and improved automatic doctor and calender feed which is comparatively simple and durable in construction and arranged to permit of conveniently increasing or lessening the pressure of the doctor upon the rolls and to afford automatic and instant relief in case of an accumulation of paper at or on the rolls without danger of the doctor striking the next lower roll.

The invention consists in certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement as applied and with parts in section; Fig. 2 is an enlarged sectional plan view of part of the improvement on the line 2 2 of Fig. 3, and Fig. 3 is a sectional side elevation of the same on the line 3 3 of Fig. 2.

In suitably constructed standards A is arranged a stack of rolls B, B', B², B³, B⁴, B⁵, and B⁶, arranged one above the other and over and between which passes the paper first from the driers up to the top rolls B⁶ and then between the several rolls to pass from the lowermost set of rolls B' B to the reel. The peripheral surface of each roll is engaged by a doctor C, formed with a transversely-extending plate C', bolted, riveted, or otherwise fastened to a T-shaped rail D, extending transversely and formed with projecting ends D', each carrying a bolt D², engaging a longitudinally-extending slot E' in a trunnion-plate E², forming the support for the said rail D and the doctor-plate C', as will be readily understood by reference to Figs. 2 and 3. Each trunnion-plate E² has its trunnions E journaled in brackets F, provided with longitudinally-extending slots F', each engaged by a

bolt G, fitted to slide vertically in a suitable groove H', formed in a guideway H, secured to the inner face of the corresponding standard A. By this arrangement I am enabled to adjust the bracket F longitudinally on loosening the bolt G to move the doctor-plate C', that it may have more or less force in frictional contact with the corresponding roll. In addition to this the doctor-plate can be adjusted relative to the roll by screws E³, screwing in the trunnion-plate E² and abutting against the outer sides of the ends D' of the rail D, as plainly shown in Fig. 2, it being understood that by screwing up or unscrewing the said screws E³, the T-rail D, carrying the doctor-plate C', is moved inward or outward, the T-rail being held by its bolt D² in the longitudinal slot E' of the trunnion-plate E². It will thus be seen that the doctor is adjustably held on the trunnion-plate and the trunnion-plate is supported on adjustable brackets, as before described. The T-rail D is arranged in such a manner relative to the trunnion E that its weight bears down at the outer ends of the trunnion-plates E², so as to hold the doctor-plate in frictional contact with the corresponding roll, and is adjustable according to the amount of pressure required on the roll. This is true of all the doctors except the one for the lowermost roll B, in which latter case the doctor-plate C' presses on the upper half of the peripheral surface of the said roll, and for this purpose it is necessary that the position of the T-rail D be reversed to force the doctor-plate to bear downward, instead of upward.

In order to properly conduct the paper between the rolls, a guide I is employed for each doctor, the said guide being provided with a series of segmental fingers I', secured on a transversely-extending bar I², connected by a series of hinges I³ with the under side of the doctor-plate C', the pivot of the hinges being somewhat in front of the trunnions E, as shown in Fig. 3. It will be seen that by this arrangement the segmental fingers I' are free to swing outwardly in case of the accumulation of a wad or a mass of paper or other obstruction, the inward movement being limited by a transversely-extending stop I⁴, held on the under side of the doctor-plate C' and forming

part of the hinges I³, the upper edges of the fingers I' abutting against the said stop. (See Fig. 3.)

By the arrangement above described the use of springs, levers, or of weights for pressing the doctor-plates against the surface of the rolls is entirely abandoned and the greater portion of the weight of the rail D is used, instead of springs or levers, to keep the doctor-plate in contact with the corresponding roll. The amount of pressure with which each doctor-plate rests or presses against the roll can be easily regulated and made greater or less by changing the position of the trunnions, as above described. The trunnions also permit the doctor-plate to be automatic in its movement, and they permit the plate to rise and fall with the roll, so that the same relative position is always maintained between the doctor and its roll when the paper passes through the stack of calender-rolls by the machine-tenders. This movement keeps the point of the doctor-plate constantly in contact with the surface of its roll and at all times follows the position of the rolls, so as to prevent the paper or scabs from adhering to the face of it. As the doctor is always in contact with the roll, it is impossible for the paper to get between the roll and the doctor-plate.

By the construction of the calender-feed for conducting the paper between the rolls the guide I can at any time be easily swung aside and freed from the wad or mass of paper or other obstruction which may have accumu-

lated on it, and as soon as this mass of paper or accumulation has been removed, then the guide will swing automatically back to its normal position by gravity.

It will be further seen that when the doctor is swung downward, thus removing it from its contact with the roll, then the edge of the doctor-blade C will not strike the roll below, but will swing clear of it. This result is obtained by properly locating the trunnion above the surface of the doctor-plate.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a calendering-machine, the combination, with a roll, of pivoted plates, a rail movably supported thereon, a doctor secured on the said rail, and means for adjusting the rail on the said pivoted plates, substantially as described.

2. In a calendering-machine, the combination, with a calendering-roll, of vertically and longitudinally adjustable brackets, trunnions journaled in the said brackets, and provided with trunnion-plates, a rail supported on said trunnion-plates, a doctor carried by the said rail, and means for adjusting the said rail on the said trunnion-plates, substantially as described.

THOMAS H. LATIMER.

Witnesses:

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WM. T. WILMANS.