

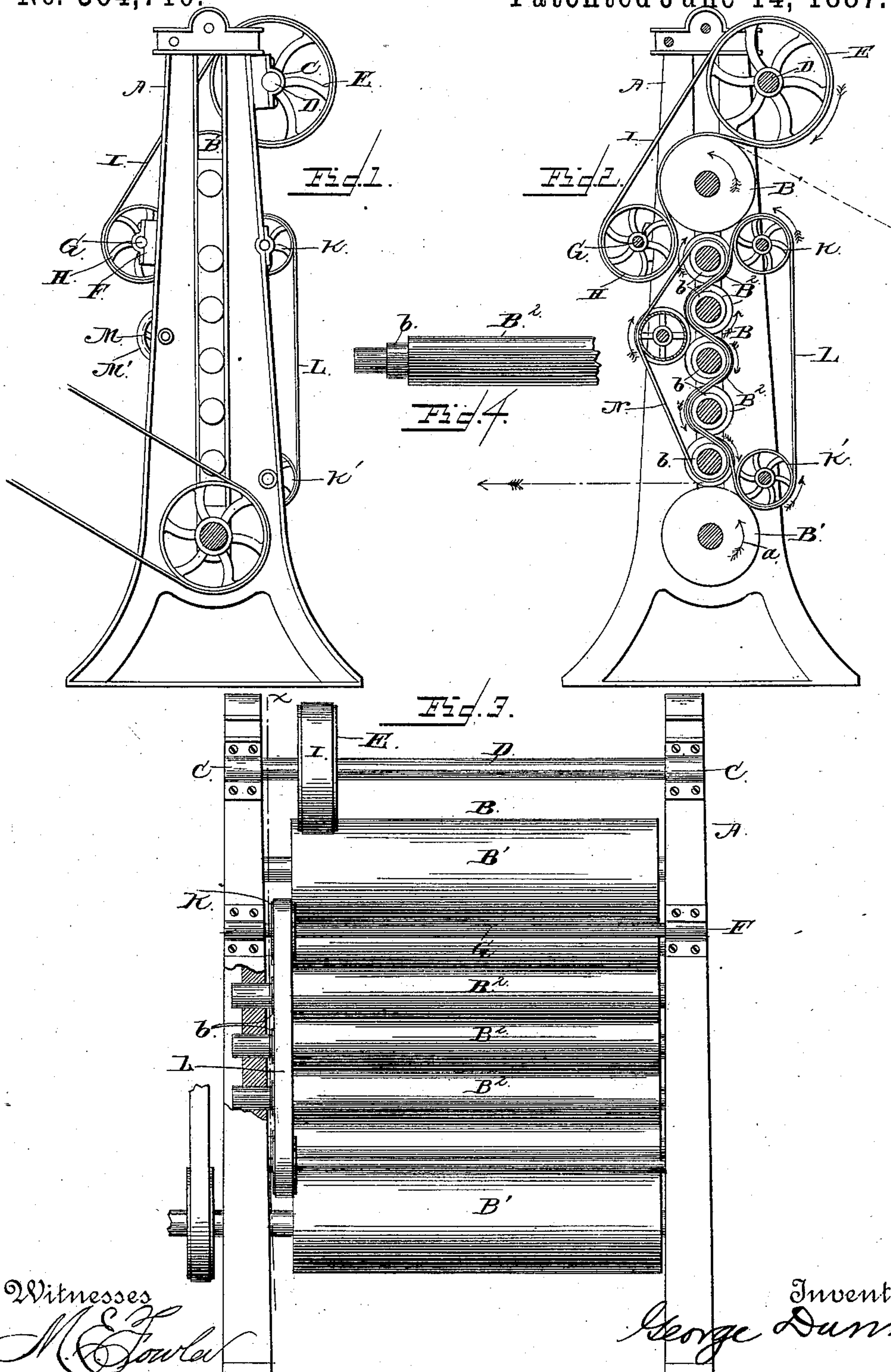
(No Model.)

G. DUNN.

LEADER FOR PAPER CALENDER ROLLS.

No. 364,710.

Patented June 14, 1887.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE DUNN, OF LEE, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
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LEADER FOR PAPER-CALENDER ROLLS.

SPECIFICATION forming part of Letters Patent No. 364,710, dated June 14, 1887.

Application filed February 12, 1887. Serial No. 227,407. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DUNN, a citizen of the United States, residing at Lee, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Automatic Leaders for Paper-Calender Rolls, of which the following is a specification.

My invention relates to an improvement in automatic leaders for paper-calender rolls; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the drawings, Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a vertical sectional view of the same, taken on the line *x x* of Fig. 3. Fig. 3 is a front elevation, partly in section. Fig. 4 is a detail view.

A represents a suitable vertical frame, and B represents a vertical series of calender-rolls, which are journaled horizontally in the sides of the frame A. The upper and lower rolls B' of the series have twice as great a diameter as the intermediate rolls, B², and the faces of the said top and bottom rolls B' are perfectly plane. The lower roll B' is driven by a belt-pulley in the usual manner, and imparts rotation to the remaining rolls by reason of the said rolls being in contact with each other. The intermediate calender-rolls, B², are each provided at one end with a reduced neck, *b*, the diameters of the necks of all the rolls B² being equal.

C represents a pair of bearing boxes or blocks which are bolted on the front side of the frame, at the upper end thereof, and in the said bearing-blocks is journaled a shaft, D, which is provided at one end with a belt-pulley, E. The said pulley is arranged in line with one end of the top calender-roll, the lower side of the said pulley being slightly out of contact near the upper side of the said roll.

F represents a pair of bearing boxes or blocks which are bolted to the rear side of the frame at a slight distance below the top calender-roll B'. In the said bearing-blocks is journaled a horizontal shaft, G, which is provided at one end with a belt-pulley, H, the diameter of which is slightly less than the diameter of the top calender-roll, and the front side of the said pul-

ley is arranged in line with the rear side of the top intermediate calender-roll B².

I represents an endless belt of suitable width, which connects the pulleys E and H and passes over the rear upper side of the top calender-roll B', the said belt bearing on one end of the said roll.

K and K' represent a pair of belt-pulleys which are journaled at the front side of the frame A, the pulley K being arranged slightly above the upper intermediate calender-roll B², and the pulley K' being arranged slightly below the lower intermediate calender-roll. Both pulleys K and K' are journaled in front of the calender-rolls.

L represents an endless belt, the width of which is somewhat less than the width of the necks of the intermediate calender-rolls, and the said endless belt connects the pulleys K and K' and bears against opposite sides alternately of the necks of the calender-rolls B².

M represents a belt-pulley, which is journaled in one side of the frame A, in rear of the intermediate calender-rolls and at about the center of the series. An endless belt, N, connects the said pulley M with the necks of the rolls B², the said belt N being in contact with the rear side of the belt L while it is being led through the rolls. The pulley M has flanged edges M' to keep the belt N in line.

The operation of my invention is as follows: The lower calender-roll B' is rotated in the direction of the arrow *a*, (shown in Fig. 2,) thereby causing the series of calender-rolls to rotate and the belts I, L, and M to run in the directions indicated by the arrows in Fig. 2. The web of paper from the paper-machine is caught at its free end by an attendant, and is directed to the upper calender-roll B', one side or corner of the web of paper being inserted between the upper side of the top calender-roll and the opposing lower side of the endless belt I. As the roll rotates the web of paper is carried by it until it reaches the point where the rear side of the endless belt L and the front side of the endless belt M meet on the front side of the neck of the upper intermediate roll B², thereby guiding the edge of the web of paper to the said belts, when it is instantly caught between them and is carried through the series

of intermediate calender-rolls, thereby guiding the paper web automatically between the said calender-rolls and causing the web to pass between the series of rolls until it reaches the lower roll B', from which the web of paper passes rearwardly, as indicated by the arrow in Fig. 2.

As the necks of the intermediate calender-rolls are all of the same diameter, the belts L and M are moved at the same rate of speed and the web of paper is led through and between the series of rolls at a rate corresponding to the rotation of the said rolls, and without causing the paper to become creased or wrinkled while it is being calendered.

By means of my improved devices hereinbefore described I am enabled to entirely dispense with the services of the operatives who are usually employed to guide the web of paper through the rolls.

Having thus described my invention, I claim—

In a machine for calendering paper, the combination of the intermediate rolls B², having the necks b, and the endless belts L and M, passing over the necks of the said rollers and arranged on the opposite sides thereof alternately, for the purpose set forth, the top roll B', the pulleys E and H, the latter being arranged below the top roll and on the rear side of the upper roll B², and the endless belt I, connecting the pulleys E and H and bearing on the upper rear side of the top roll B', for the purpose set forth, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE DUNN.

Witnesses:

JOHN McLAUGHLIN,
T. A. BOYNE.