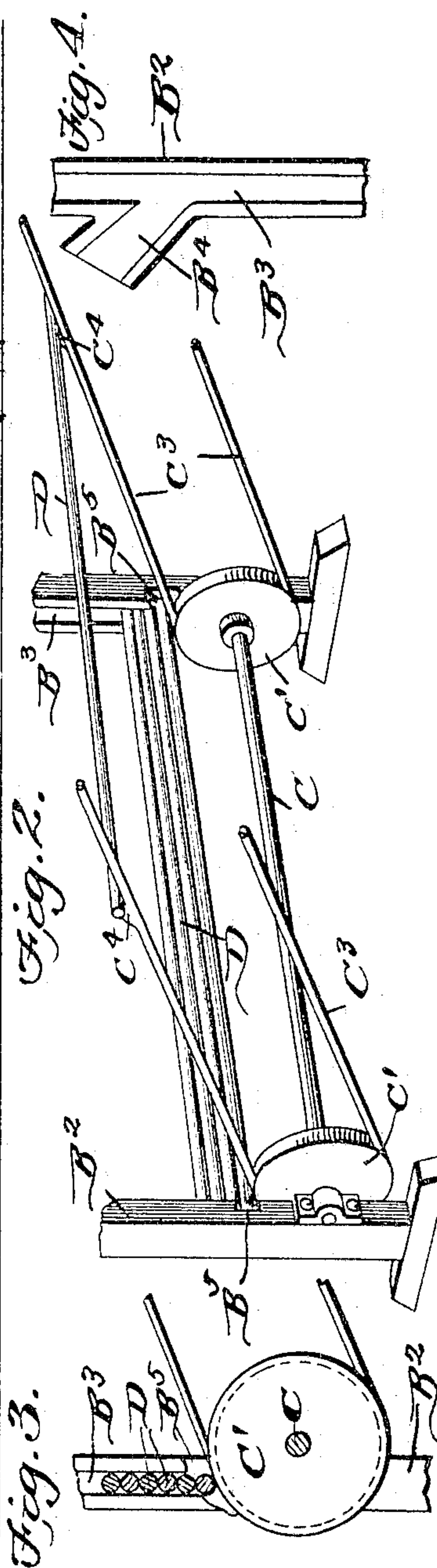
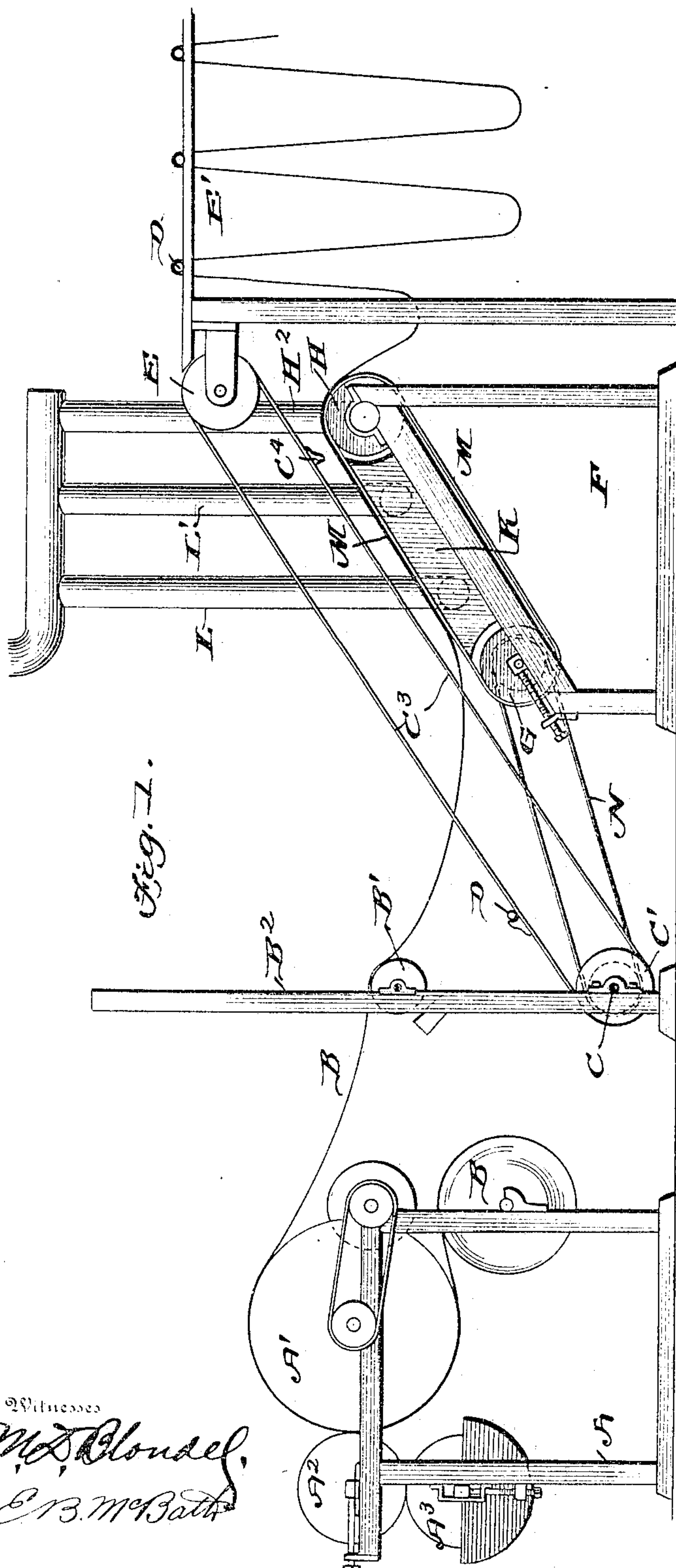


M. CASHIN.
COCKLE STRAIGHTENER FOR COATED PAPER.

APPLICATION FILED APR. 29, 1904.

2 SHEETS—SHEET 1.



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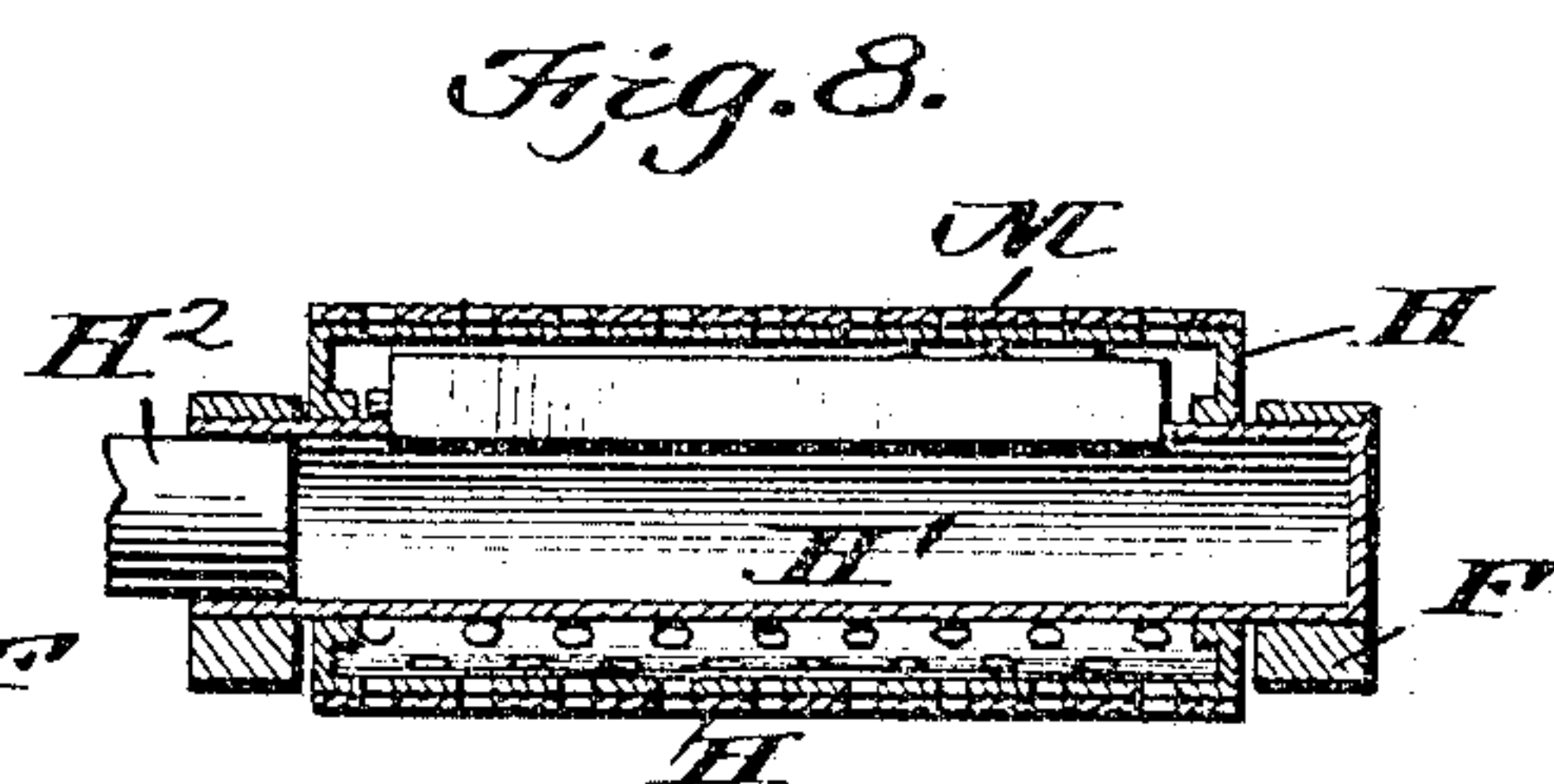
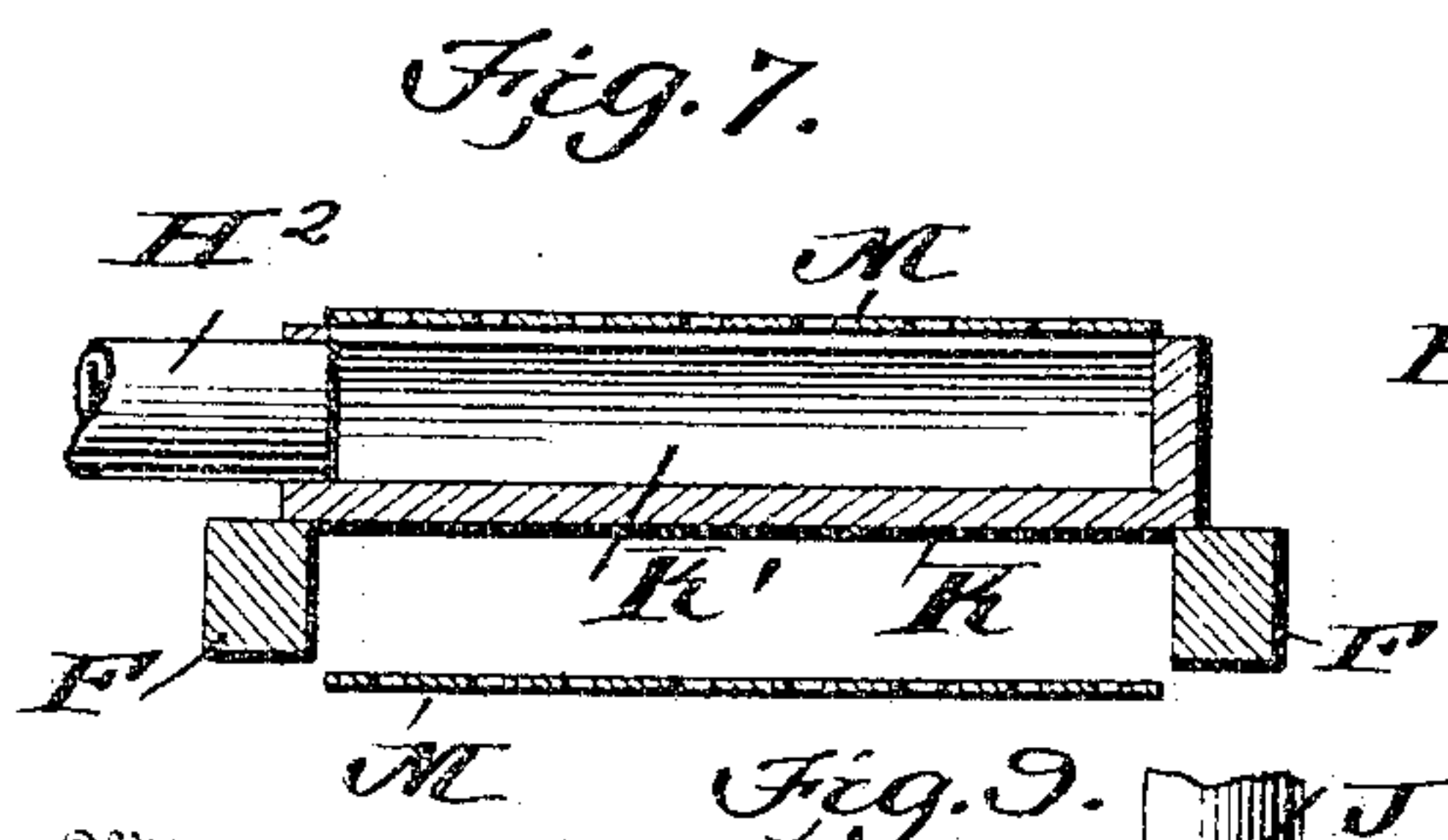
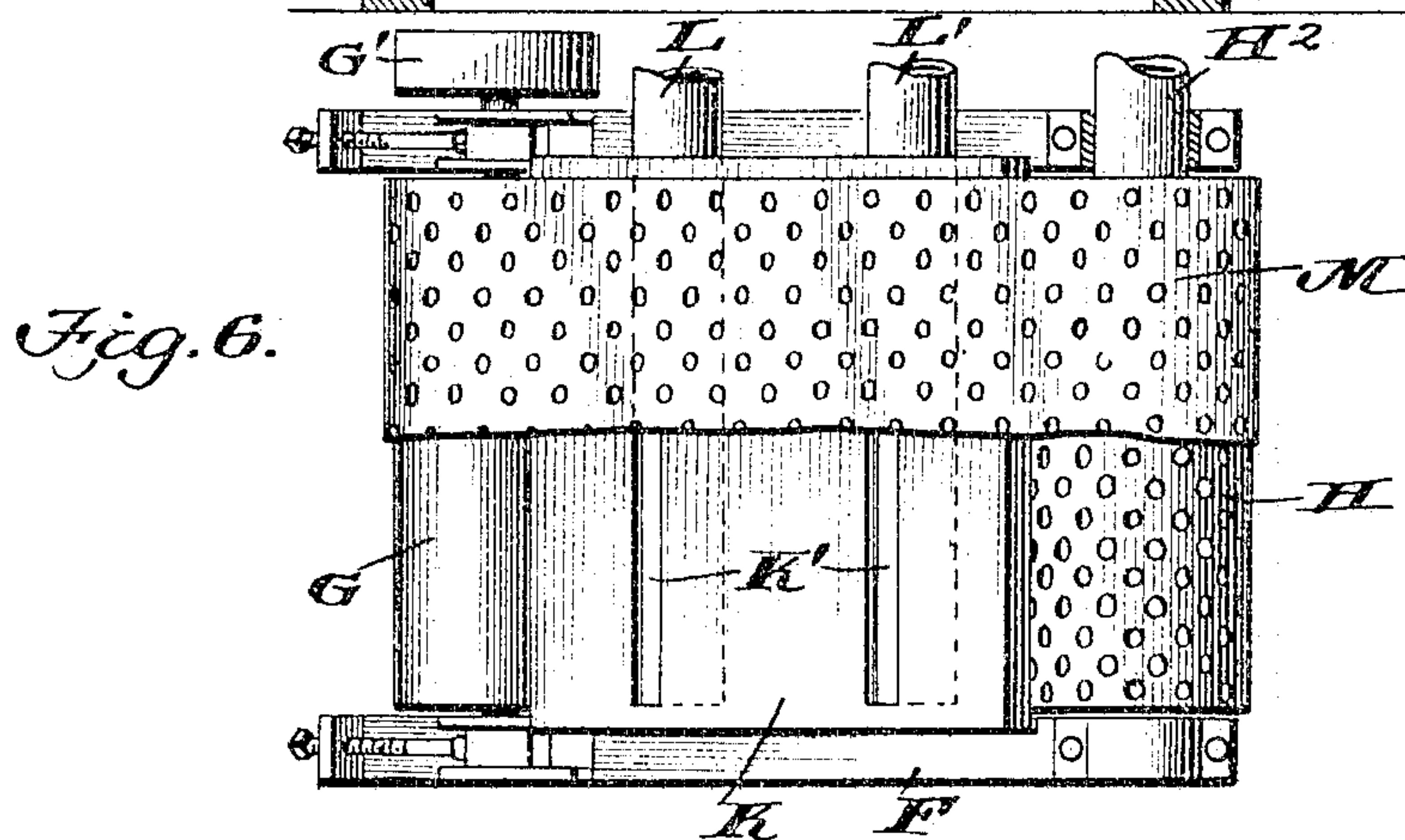
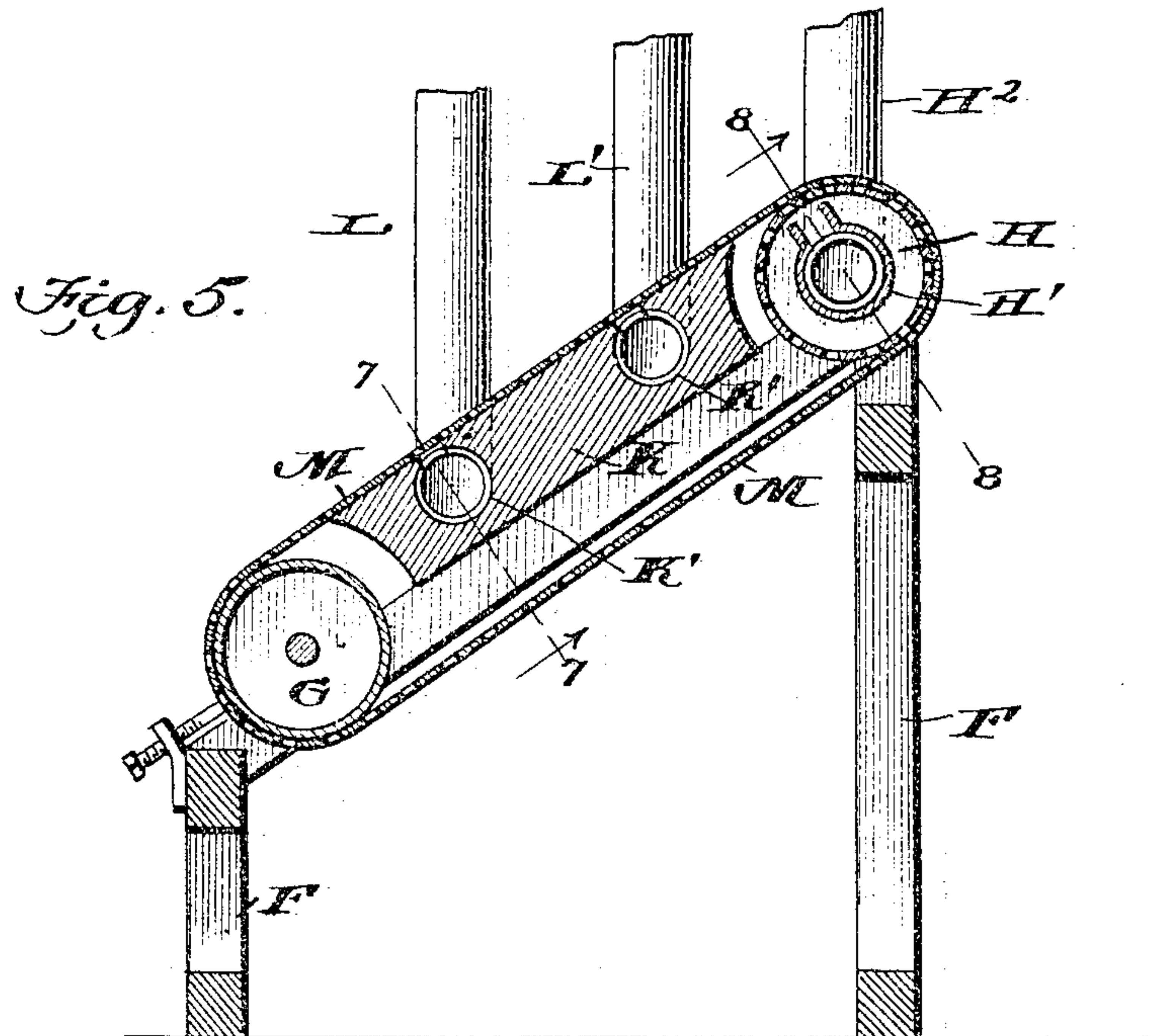
No. 782,218.

PATENTED FEB. 14, 1905.

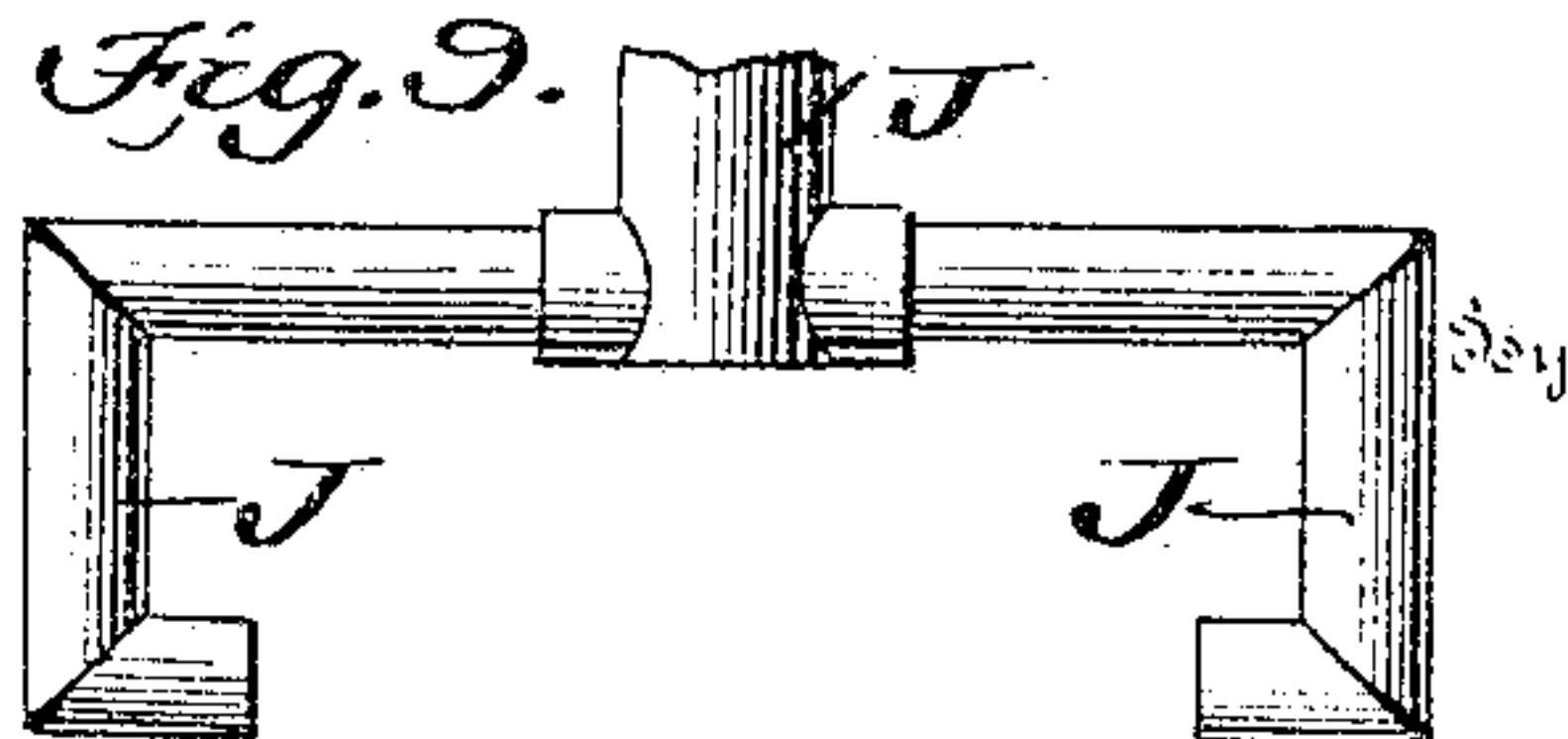
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

MARTIN CASHIN, OF EAST PEPPERELL, MASSACHUSETTS.

COCKLE-STRAIGHTENER FOR COATED PAPER.

SPECIFICATION forming part of Letters Patent No. 782,218, dated February 14, 1905.

Application filed April 29, 1904. Serial No. 205,570.

To all whom it may concern:

Be it known that I, MARTIN CASHIN, a citizen of the United States, residing at East Pepperell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Cockle-Straightener for Coated Paper, of which the following is a specification.

The object of this invention is a simple and efficient device adapted to take out the kinks or folds in coated paper as it passes from the coating-machine to the drying-racks.

The invention consists in passing the paper over a perforated drum from which the air is exhausted, whereby the paper is sucked to the drum and the kinks and folds removed.

The invention further consists in the construction of the drum and the means for feeding the paper thereto.

My invention also consists in the details of construction and combination of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine for coating paper and my novel device for straightening out the paper, the drying-rack being also shown. Fig. 2 is a detail perspective view showing the device for feeding the sticks to the paper. Fig. 3 is a detail elevation of the inner face of a portion of one of the uprights shown in Fig. 2, the sticks being shown in elevation. Fig. 4 is a detail showing the chute through which one end of the sticks are fed. Fig. 5 is a longitudinal section through the apron and saddle. Fig. 6 is a plan view of the apron, partly broken away to show the drum, idler, and saddle. Fig. 7 is a section on the line 7 7 of Fig. 5. Fig. 8 is a section on the line 8 8 of Fig. 5. Fig. 9 is a view in elevation, showing a slightly-modified form of arranging the suction-pipes.

In the drawings, A represents the frame of the coating device carrying the coating-roller A' over which the paper B is passed, and the color-cylinder A² and its feed-cylinder A are also shown. Instead of passing the paper B directly to a drying-rack I pass it over an idle roller B', journaled between two upright standards B². These standards are grooved on their inner faces, as shown at B³. Adja-

cent the lower ends of the standards is journaled a shaft C, having thereon grooved pulleys C', over which pass the endless belts C², the belts being each provided with cleats or spurs C⁴. Below the roller B' a feed-chute B⁴ is arranged on each of the standards B², the groove of the chute intersecting at an angle that of the standard to which it is connected. Adjacent the pulleys C' one side wall of the grooves B³ is cut out, as shown at B⁵. Cylindrical sticks having their ends placed in the grooves of the feed-chutes B⁴ will pass into the grooves of the standards, each stick having an end resting in the groove B³ of one standard and its opposite end in the groove B³ of the opposite standard, and the sticks will rest in vertical alinement, and the lowermost stick will be also in alinement with the cut-out portion B⁵ and in the path of the cleats or spurs C⁴.

The belts C² lead upwardly and pass over idle pulleys E, carried by the drying-frame E'. The sticks D caught by the cleats or spurs, of which there may be one, two, or more on each of the belts, are carried upward and engaging the paper on its under side carry it to the drying rack or frame E', the paper hanging in folds from the stick D.

Arranged between the drying-frame E' and the standards B² is a frame F, the upper members of the frame being upwardly inclined in the direction of the frame E'. At the forward lower end of the frame F is journaled an idle roller G, and at the upper end is a perforated drum H. Arranged centrally in the drum H is a split or slotted sleeve H', rotatable with reference to the drum. This sleeve has a suction-pipe connected to one end and is closed at the opposite end, or where a heavy paper is used and it is desired to secure powerful suction and also support more firmly the sleeve H' it is open at each end, and each end is connected to a pipe-section J, (shown in Fig. 9,) the two pipes opening into a common pipe J'. In the ordinary form, however, I have shown but one pipe H² leading from the sleeve H'. Arranged on the frame F between the roller G and the drum H is a saddle K, which may be of wood, and the ends of pipes L L' are passed transversely into the

saddle, and the upper face of the saddle K is formed with transverse grooves K' immediately above the pipes L L', and the pipes are longitudinally slotted to open into the said

5 grooves.

A perforated apron M, of any suitable material, is adapted to travel over the drum H and roller G, traveling in the direction of travel of the paper. The shaft on which the roller G is journaled carries a pulley G', and by means of a belt N power may be applied to rotate the roller G and impart motion to the apron M and the drum H.

From the above the operation of the device will be obvious. The paper depending from the stick on its way to the drying-frame E', which may be any desired distance from the coating-machine, will rest on the apron M, which travels over the drum H in the same direction that the paper is traveling, and the paper as it passes over the grooves K' will be sucked into same and will also be sucked close to the perforated drum H, and the angle of this latter suction can be adjusted by rotating the sleeve H' so that the opening in the sleeve through which the air is drawn will change its relative position with reference to the paper passing over the drum. The action of these successive suctions on the paper is to smooth it out and take from it all kinks, creases, &c., before the coating has dried and the paper passes to the drying-frame E' with a smooth surface.

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

1. A cockle-straightener comprising a revolvable drum, a sleeve arranged in the said

drum, the drum being perforated and the sleeve slotted, a perforated apron adapted to travel over the drum, means for driving the apron, and means for feeding paper to the apron.

2. A device of the kind described comprising a rotatable drum, said drum being perforated, a slotted sleeve arranged in the drum, means for exhausting air from the sleeve, a saddle having grooves in its upper face, suction-pipes embedded in the saddle and having slats alining with and opening into the grooves, a perforated apron adapted to travel over the saddle and drum, and means for feeding coated paper to the said apron.

3. A device of the kind described comprising parallel grooved standards, the walls of the grooves being cut out adjacent the lower ends of the standards, a shaft carried by the said standards, pulleys on the shaft adjacent the cut-out portions of the groove-walls, a drying-frame, pulleys carried by the drying-frame, endless belts traveling over the pulleys, cleats carried by the belts, a perforated apron arranged between the standards and drying-frame, means for moving the apron, means for drawing air through the perforations of the apron, sticks adapted to rest in the grooves of the standards and be engaged by the cleats of the endless belt and conveyed over the apron to the drying-frame, and means for passing a coated paper above the apron and in the path of travel of the sticks.

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Witnesses:

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