

C. F. JENKINS.
 APPARATUS FOR MAKING PAPER BOTTLES.
 APPLICATION FILED MAR. 22, 1909.

960,226.

Patented May 31, 1910.

Fig. 1.

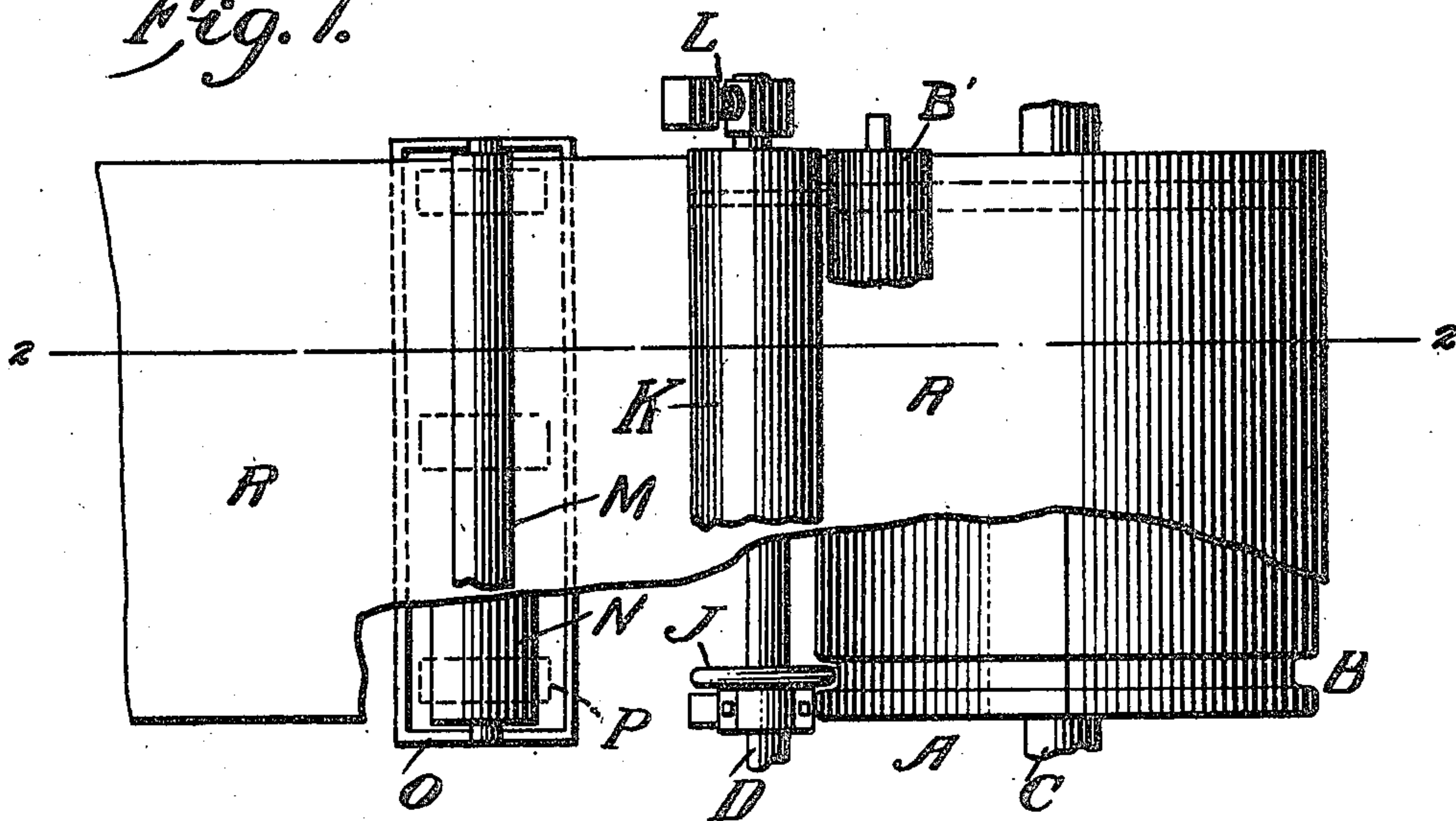


Fig. 2.

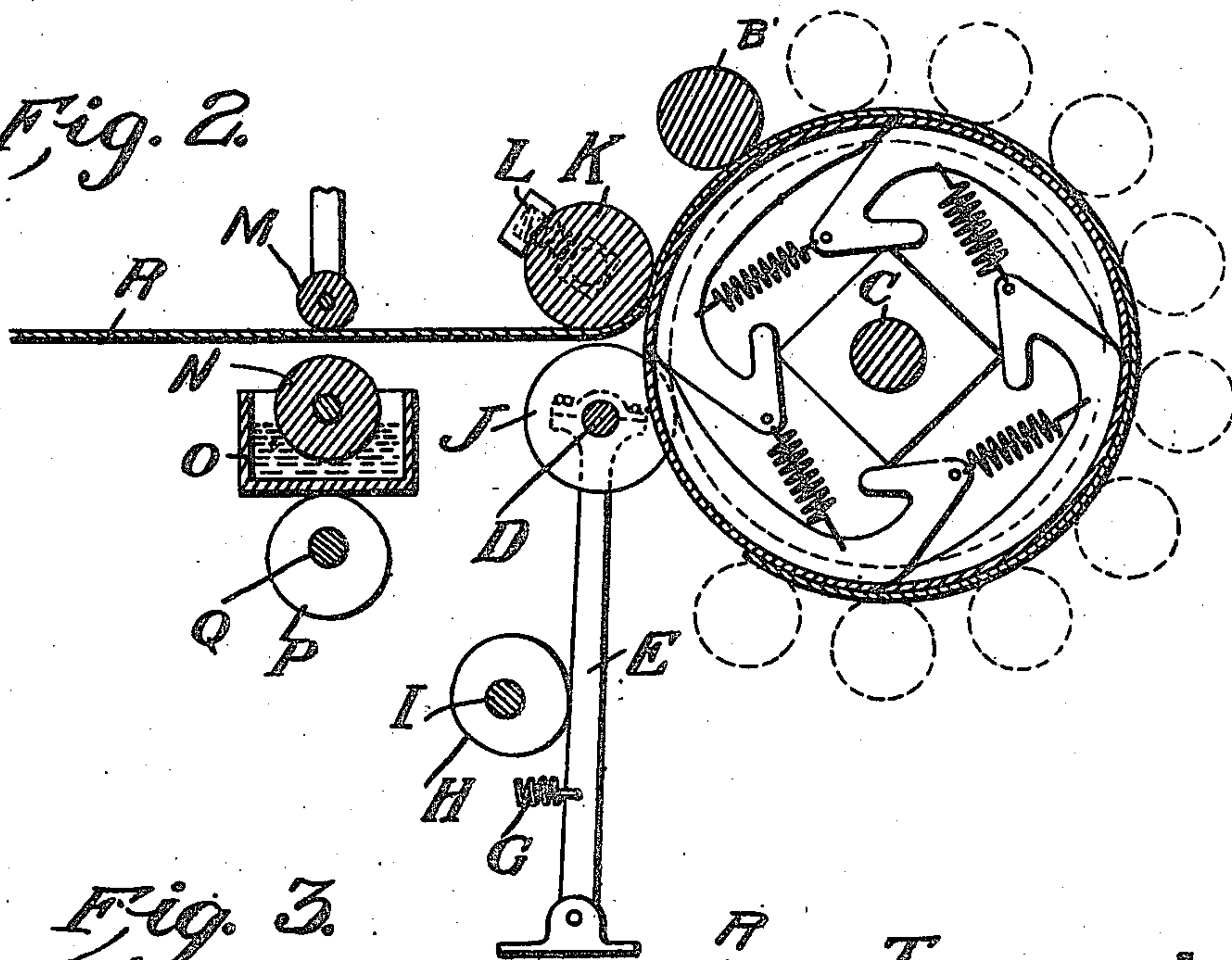
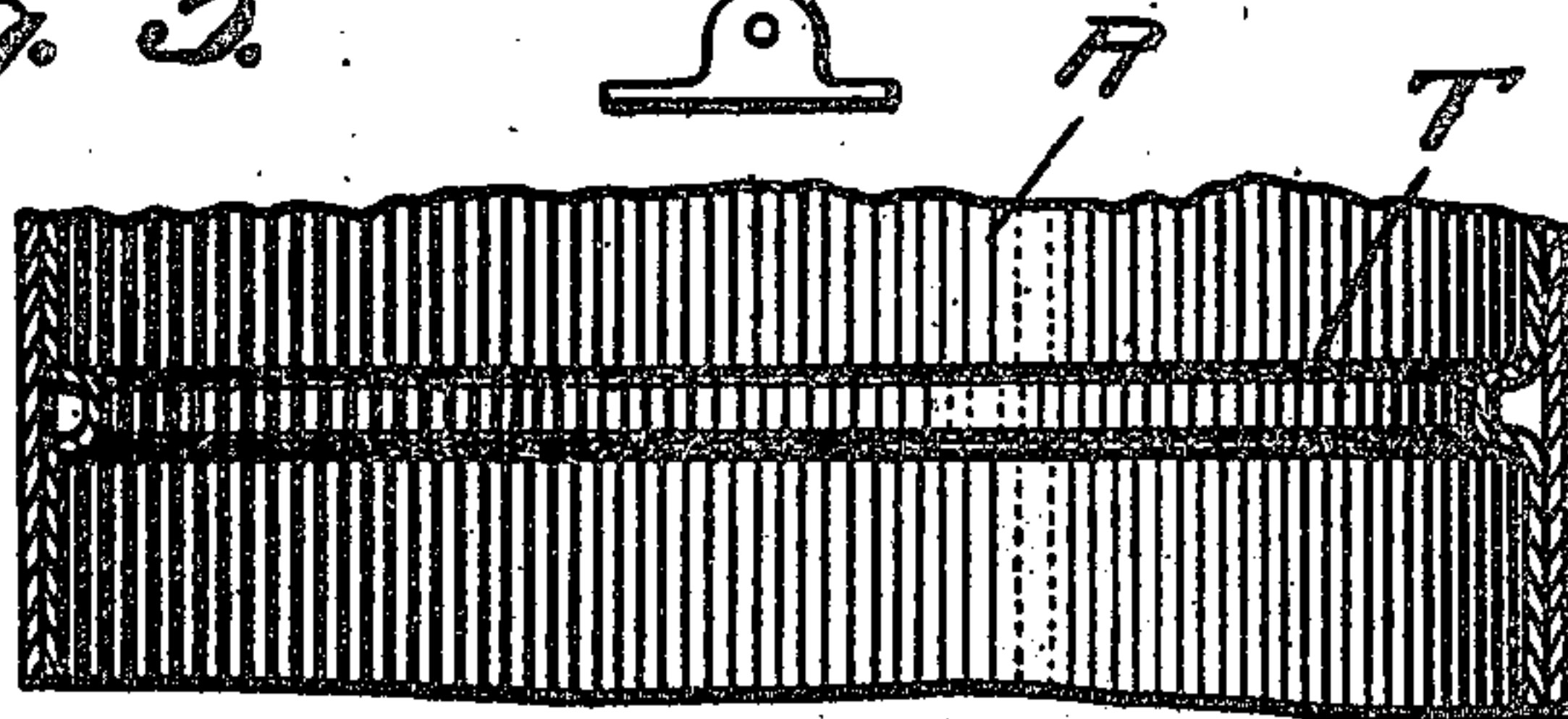


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MAKING PAPER BOTTLES.

960,226.

Specification of Letters Patent.

Patented May 31, 1910.

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To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Apparatus for Making Paper Bottles, of which the following is a specification, reference being had therein to the accompanying drawing.

10 The object of this invention is to provide means for making straight, convolute wind paper tubes having internal circumferential ribs, usually near each end so that they may serve the double purpose of stiffening

15 the tube and affording shoulders against which the closures, or top and bottom of the tube may rest. The desired tubes are made by winding a paper strip, as wide as the length of the tube, upon a collapsible

20 mandrel having circumferential grooves at the points where ribs are to be formed and pressing the primary layers of stock into these grooves, to form the ribs, and winding and cementing one or more turns of stock

25 upon such primary layers, without pressing these outer layers into the grooves. The exterior of the resulting tube is thus left smooth and the outer layers spanning the grooves prevents their widening after the

30 tube is completed. The tube being thus made, the mandrel is collapsed and the tube is freed therefrom.

In the accompanying drawings, which are partly diagrammatic, Figure 1 is a plan view of a portion of a machine embodying the invention, parts being broken away. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 is a partial longitudinal section of the tube showing one rib.

40 In these views, A represents a drum-like collapsible mandrel having a circumferential groove B near each end mounted upon a shaft C, and having around its circumference a series of paper guiding rollers B'. Alongside the drum is a shaft D, parallel to the shaft C, carried by arms E pivoted at F to swing toward and from the mandrel and normally held away from the mandrel by one or more springs G but forced toward

50 the mandrel at intervals by a suitable cam H rotated by a shaft I. Upon the shaft D disks J are fixed in position to enter the grooves B when the shaft is swung toward

the mandrel. Above the shaft D is rev-
olubly mounted a roller K which is nor- 55
mally pressed against the periphery of the mandrel by springs L. More distant from the mandrel is a parallel roller M mounted in preferably fixed bearings, and below this a parallel cement-applying roller N revolu- 60
bly mounted in a vertically movable cement receptacle O which is raised at intervals by a suitable cam or cams P mounted on a rotary shaft Q.

In operation, a sheet R of stock is trained 65
beneath the two rollers M, K and between the latter and the mandrel. By rotation of the roller K and the mandrel, the paper is wound upon the latter until its end reaches the disks J, which have been swung forward 70
by the cams H and which being held in position by the cams press the paper into the grooves during at least one complete revolution of the mandrel forming ribs T, after which the cams cease to hold the disks in po- 75
sition and they are swung from the mandrel by the spring G. Just before this movement of the disks the cement roller is raised by the cam P and pressed against the paper be-
low the roller M, applying cement to its 80
lower surface, the form of the cam being such that paper is gummed for a distance at least equal to the circumference of the mandrel. As the gummed portion of the strip is fed forward and pressed upon that por- 85
tion of the strip already grooved and wound upon the mandrel, it forms a smooth outer layer cemented to the entire face of the grooved portion, and the strip having been severed at the proper point, in any suitable 90
manner, the tube is complete and the strip ready for forming a second tube in like manner. The tube being completed the mandrel is collapsed and the tube removed, after which the mandrel is restored to normal 95
form.

Collapsible mandrels being well known and no novelty being herein claimed for the mandrel, its construction and operation are not herein set forth in detail. 100

What I claim is:

1. The combination with a mandrel and means for winding a paper strip in a plurality of turns about the same, of means for pressing the portion first wound to form 105
circumferential ribs as the winding pro-

gresses, means for gumming the succeeding portion, and means for pressing the gummed portion firmly down upon the ribbed portion.

5 2. The combination with a circumferentially grooved rotary mandrel, of means for pressing into the grooves paper winding upon the mandrel, devices for moving said means into and out of action at predeter-
10 mined intervals, means for applying adhesive material at predetermined intervals to paper winding upon the mandrel, and means for pressing the gummed portion upon the portion embossed by being pressed into the
15 grooves.

3. The combination with a rotary mandrel having circumferential grooves, of rotary disks arranged to be forcibly swung into said grooves, a spring pressed roller parallel to
20 and pressing against said mandrel, and a reciprocating gumming device arranged for applying adhesive material upon widely separated transverse sections of a paper strip

passing beneath the pressing roller and winding upon the mandrel. 20

4. The combination with a collapsible mandrel circumferentially grooved near its ends of rotary disks adapted to press paper into said grooves, respectively, and mounted upon a swinging support, a cam arranged to swing the support in one direction, a spring resisting the action of the cam, a spring pressed roller working against the mandrel, an adhesive applying roller, a cam adapted to move said adhesive applying roller at intervals against a paper strip passing between the spring pressed roller and the mandrel, and a roller arranged to prevent the paper from moving from the adhesive applying roller. 30 35 40

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES FRANCIS JENKINS.

Witnesses:

B. H. DAILEY,

ARTHUR L. BRYANT.