

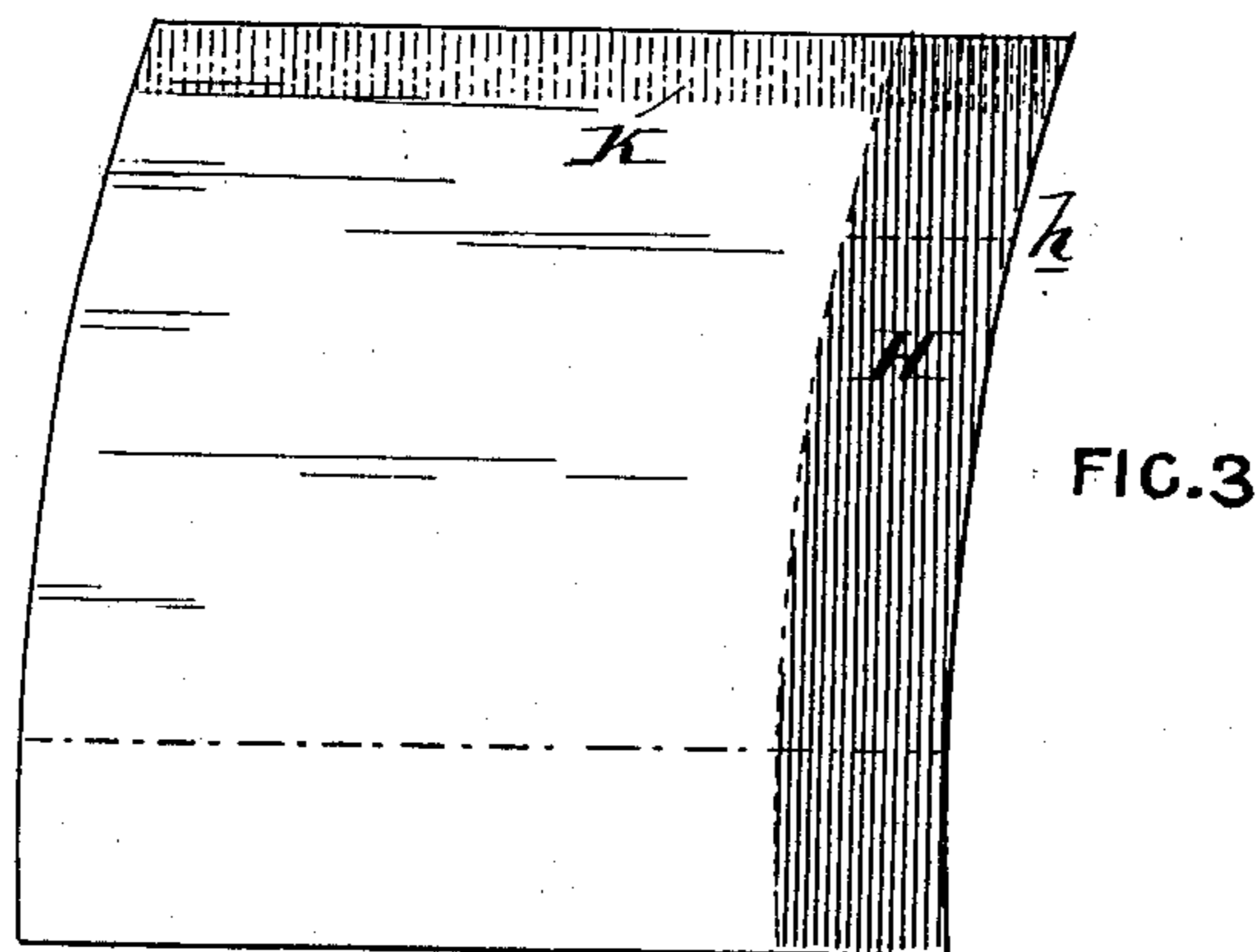
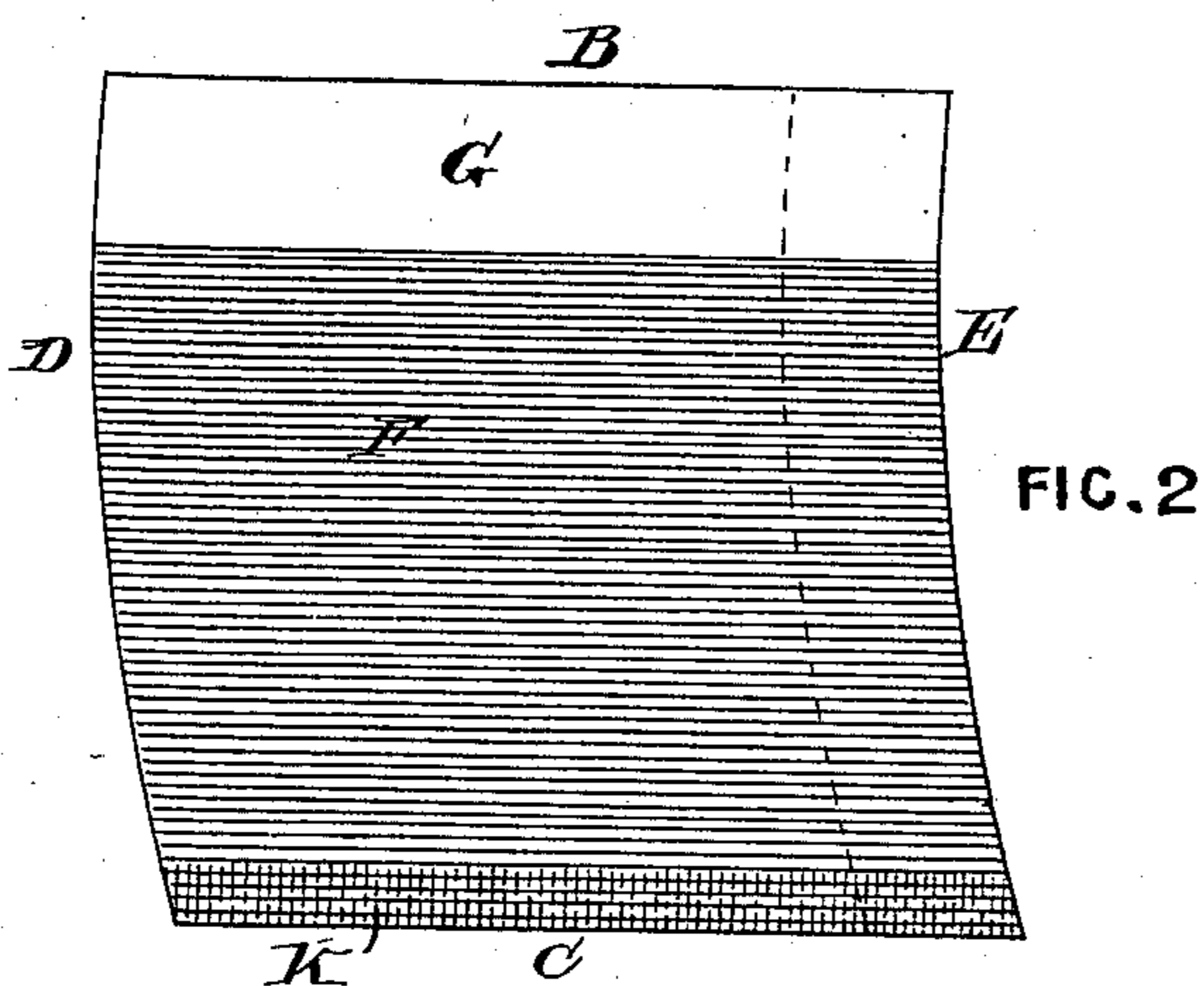
No. 661,151.

W. J. McCAUSLAND.
COP TUBE.

Patented Nov. 6, 1900.

(Application filed June 23, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLIAM J. MCCAUSLAND, OF CAMDEN, NEW JERSEY.

COP-TUBE.

SPECIFICATION forming part of Letters Patent No. 661,151, dated November 6, 1900.

Application filed June 23, 1900. Serial No. 21,259. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. MCCAUSLAND, of Camden, county of Camden, and State of New Jersey, have invented an Improvement in Cop-Tubes, of which the following is a specification.

My invention has reference to cop-tubes; and it consists of certain improvements fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to so construct a cop-tube for spinning-machines that it shall have great rigidity at the top or smaller end to prevent breakage and interference with the winding operation of the yarn on the tube and spindle.

My object is, further, to so construct the tube that it may be made of hard or sized paper, and thereby secure great strength throughout its entire body structure.

My improvements will be better understood by reference to the drawings, in which—

Figure 1 is a perspective view of a cop-tube embodying my invention. Fig. 2 is a plan view of the paper sheet before winding, and Fig. 3 is a similar plan view of the sheet looking upon the opposite side.

I is the cop-tube and is formed of a sheet of paper wrapped and pasted upon itself and is slightly tapering, so as to be smaller at the top than at the bottom. This tube is preferably made of a sheet of hard sized paper A of the shape shown in Figs. 2 and 3, in which the sheet has opposite parallel edges B C in direction of the length of the finished tube and the opposite ends curved, as at D and E. One edge D or that corresponding to the bottom of the tube is cut on a curve, which is convex, while the opposite edge is curved on a concave line, as at E, to form the top or smaller end of the cop-tube. This sheet A has one of its faces F all covered with paste except a narrow strip G adjacent to the edge B, said edge G being that which is to form the inner face of the finished tube and should be devoid of paste. The opposite face of the sheet A for a short distance adjacent to the edge E is provided with glue H, the said glue being on the face opposite to that on which the paste F is placed. It is also evident that, if desired, the glue may only extend to the

dotted line *h*, so as not to come upon the outside surface of the finished tube.

The sheet A is wound upon a mandrel having a slight taper corresponding to that of the bobbin-spindle which is to receive the cop-tube. The coiling of the paper begins on the edge B, and as the bottom of the tube takes up the edge D the top is formed by the edge E, the curvature thereof insuring the proper forming of the smaller end. The body of the tube is pasted by the paste F and forms a firm yet reasonably-pliable tube adapted to readily adapt itself to the spindle. The additional glue H adjacent to the smaller end adds considerable body and solidity to the smaller end at J, Fig. 1, so that in handling the tube its smaller end will not be readily injured or broken down. This construction gives a hard upper end, coupled with the softer and more pliable body and lower end.

In practice this tube may be made of any suitable kind of paper, but I prefer to use a sized or hard paper because of the greater solidity to the cop-tube as a whole. However, in using sized paper trouble is experienced from the tendency of the edge C freeing itself and opening up after the coiling operation. This is especially so with hard-pressed or calendered papers. To enable me to employ sized papers of hard texture, I abrade or mechanically break down the stiffening of the paper adjacent to the edge C, preferably after applying the paste F, so that when the paper is wrapped into a tube the edge C will be softened and enabled to adhere and remain in that condition, as indicated at K in Fig. 1.

While I prefer the construction herein described, the minor details thereof may be modified without departing from the spirit of the invention.

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

1. A cop-tube formed of a coiled sheet of paper or pliable material having its inner face coated with paste and the outer longitudinal edge abraded or mechanically softened to insure its adherence and in which the longitudinal outer seam is continuous and smooth so as to form an unobstructed surface for the yarn.

2. A tapered tube formed of a coiled sheet of paper or pliable material having its inner face coated with paste and the outer longitudinal edge abraded or mechanically softened to insure its adherence and furthermore having the smaller end stiffened by an extra layer of glue or paste between the coiled layers.

3. As a new article of manufacture a tapered cop-tube formed of coiled paper having its overlapping layers pasted together and the smaller end stiffened or strengthened by an extra layer of glue interposed between and shielded by the overlapping coils of the paper.

4. A sheet of paper adapted to be coiled into a tapered cop-tube consisting of a sheet having parallel edges B, C, and curved edges D, E, one convex and the other concave, the sheet having paste upon the greater portion of its surface on one side and extending between the curved edges D, E, so as to leave a longitudinal unpasted surface G adjacent to the edge B, and a narrow strip of glue transversely arranged upon its other face and adjacent to the concave edge E and extending to the edge B of the sheet.

5. A sheet of paper adapted to be coiled into a tapered cop-tube consisting of a sheet

having parallel edges B, C, the latter being abraded or mechanically softened, and curved edges D, E, one convex and the other concave, the sheet having paste upon the greater part of its surface on one side and extending between the curved edges D, E to and including the abraded edge C, so as to leave a longitudinal unpasted surface G adjacent to the edge B, and a narrow strip of glue transversely arranged upon its other face adjacent to the concave edge E and extending to the edge B of the sheet.

6. A cop-tube consisting of coiled hard or sized paper having its layers directly glued or pasted together and having its outer longitudinal edge continuous and abraded or mechanically softened and incorporated with glue or paste and tightly secured to the body of the tube so as to retain its sealed condition and present a continuous smooth surface.

In testimony of which invention I have hereunto set my hand.

WM. J. McCAUSLAND.

Witnesses:

R. M. HUNTER,

J. W. KENWORTHY.