

(No Model.)

G. E. GRIMM.
PAPER SPOOL OR BOBBIN.

No. 513,317.

Patented Jan. 23, 1894.

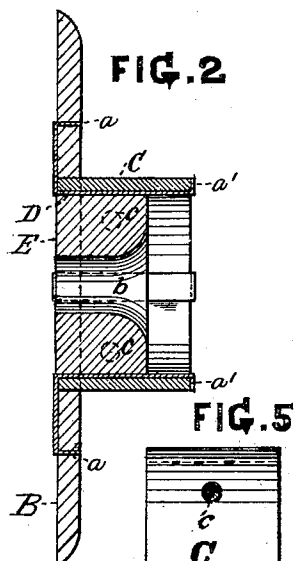
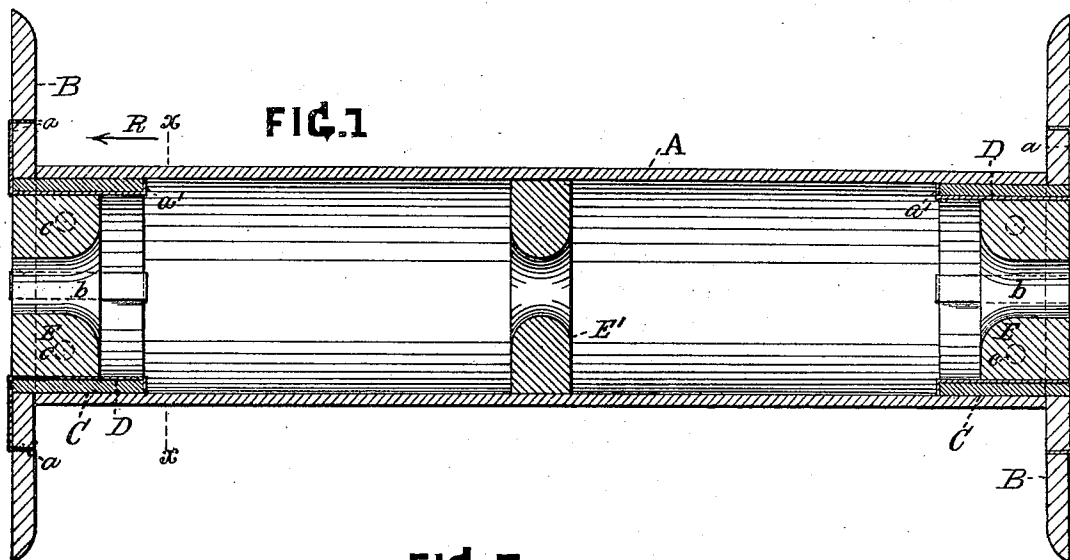


FIG. 3

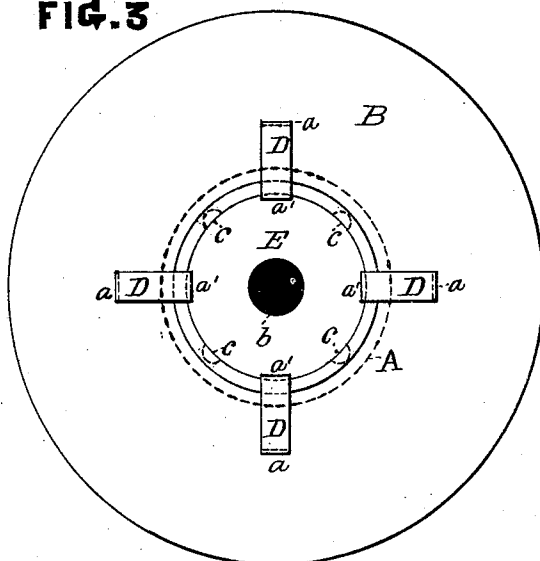


FIG. 5



FIG. 6

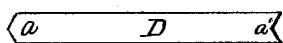


FIG. 7

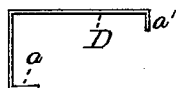
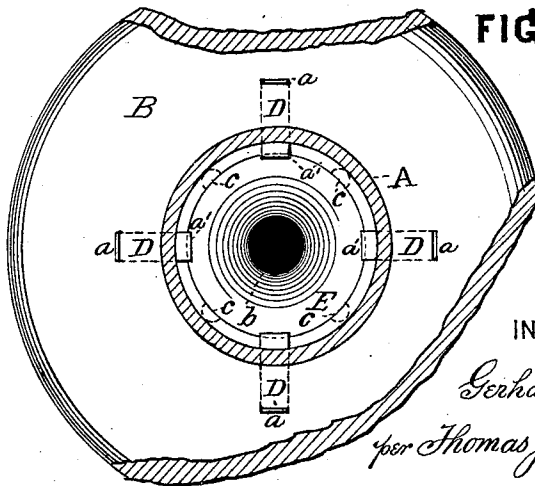


FIG. 4



WITNESSES.

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UNITED STATES PATENT OFFICE.

GERHARDT E. GRIMM, OF CAMDEN, NEW JERSEY.

PAPER SPOOL OR BOBBIN.

SPECIFICATION forming part of Letters Patent No. 513,817, dated January 23, 1894.

Application filed May 11, 1893. Serial No. 473,817. (No model.)

To all whom it may concern:

Be it known that I, GERHARDT E. GRIMM, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented a new and useful Improvement in Paper Spools or Bobbins, of which the following is a specification.

The invention relates to an improvement in the construction of paper spools, or bobbins, upon which a continuous thread of cotton, or woolen yarn, strands of silk, webbings of braid, or tape, for use in weaving fabrics, or in other arts and manufactures are destined to be wound.

My spool or bobbin consists of a sheet of paper, cut to the proper dimensions requisite to be rolled into cylindrical tubular shape, and having the layers thereof forming the body, united by adhesive cement, to obtain the necessary rigidity and firmness, while at the same time securing lightness of weight, with limited cost. Each end of this cylindrical tube, is provided with a short tubular section of like material and construction, that is placed, within the former tube, (one at each end) and cemented therein, materially aiding in strengthening and stiffening said main cylindrical tube. The short tubular sections have upon their outer ends, a vertical disk, formed of card board, or sheets of paper molded together and formed into a head, that are connected with said short sections by a series of metallic strips that pass over the inner surfaces of the sections and are bent upward vertically at each end thus binding the disks and short tubular sections rigidly together. These end portions are then rigidly cemented within the main tubular sections, and the bushings inserted in their positions, as will be more fully understood from the following detailed description, reference being had to the accompanying drawings, in which—

Figure 1, is a longitudinal section of the completed bobbin, or spool. Fig. 2, is a like view of the disk B, end section C, connected together with the metallic strips D, and the bushing E, detached from the main tubular section A. Fig. 3, is an end view of the bobbin, showing the outer face of the disk B. Fig. 4, is a cross section of the bobbin, taken through the dotted line x, x , of Fig. 1, viewed

in the direction of the arrow R. Fig. 5, is a side view of the end, or short tubular section C, detached from its connection. Fig. 6, is a face view, of one of the metallic strips D, previous to being bent. Fig. 7, is an edge view of same, formed into the shape it assumes, when ready for connection with the disks B, and end sections C.

Like letters of reference in all the figures indicate the same parts.

A, is the paper cylindrical tube, which is formed of paper, cut to the dimensions required, for rolling into cylindrical tubular shape, and having one of its surfaces covered with a coating of liquid adhesive cement, which is then rolled upon a mandrel, which causes the coated involved surface to adhere, thus forming the tube.

B, are the end circular disks, cut by dies, from thick card board, or molded from paper, or pulp, and formed with a circular opening in the center, sufficiently large to permit of the insertion of the end section C, which is cemented therein.

D, is the series of metallic strips, shown in detail in Figs. 6 and 7, which are for the purpose of retaining said sections in their seats, on the disks, B, and are bent vertically upward at each end a, a' , to prevent the sections C, from moving out of their positions, by accident, and also to increase the strength, and retain the end disks.

E, are the end bushings, which are formed of continuous strips of paper, rolled into a body, with a central bore b , extending through it, and compressed while in a plastic state into solidity by means of a pair of dies of counterpart shape. These bushings extend a short distance within the sections C, and together with the central bushing E' , strengthen the main cylinder A, and act as journal bearings for the bobbin, as it revolves upon the spindle of a loom, and sustain the pressure of the enwrapping strands of yarn, or fibrous strands, and also with the strips D, prevent the displacement of the end disks. A series of circular orifices c , situated at equidistant points around the barrels of the sections C, permit of a small amount of the material composing the bushings E, while in a plastic state, entering said orifices, and prevent with-

drawal of same when cemented; or they may be coated with cement, that causes them to adhere firmly together.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The paper spool or bobbin, consisting of the cylindrical tube A forming the body of the bobbin, the end disks B, the end sections C fitted within the tube A and end disks B, metallic strips D fitted within sections C, and bent at their inner ends to embrace the ends of sections C, and bent at their outer parts to cover the outer ends of said sections, and having their ends embedded in the disks B, and bushings E fitted within the sections C and strips D, substantially as herein shown and described for the purpose set forth.
2. The paper spool or bobbin, consisting of

the cylindrical tube A forming the body of the bobbin, the end disks B, the end sections C, provided with orifices *c* and fitted within the tube A and end disks B, metallic strips D fitted within sections C, and bent at their inner ends to embrace the ends of sections C, and bent at their outer parts to cover the outer ends of said sections, and having their ends embedded in the end disks B, and bushings E fitting in sections C and strips D, portions of said bushings being impressed into the orifices *c* of the end sections, substantially in the manner herein shown and described.

GERHARDT E. GRIMM.

Witnesses:

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ARNOLD KATZ.