No. 886,884. PATENTED MAY 5, 1908.

W. F. SMITH.

MANUFACTURE OF PAPER CONES FOR YARN WINDING MACHINES.

APPLICATION FILED DEC. 19, 1907.

Fig. 1.

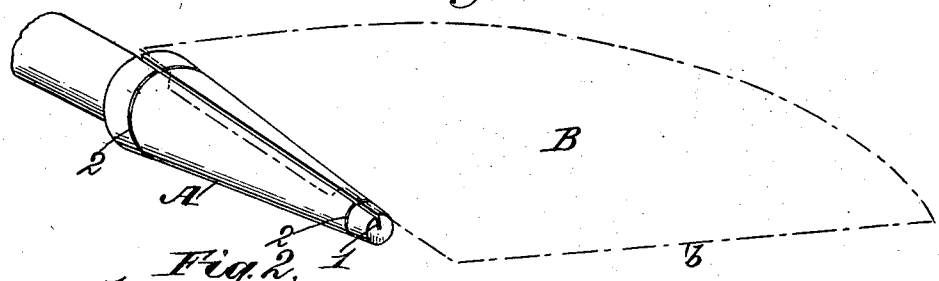


Fig. 2.

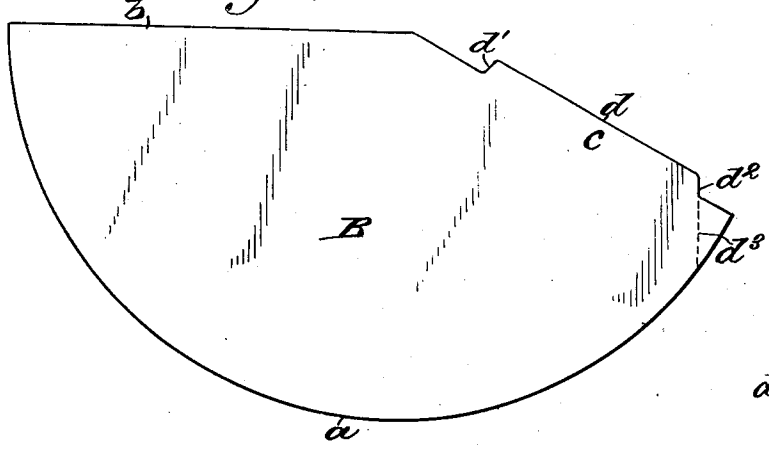


Fig. 3.

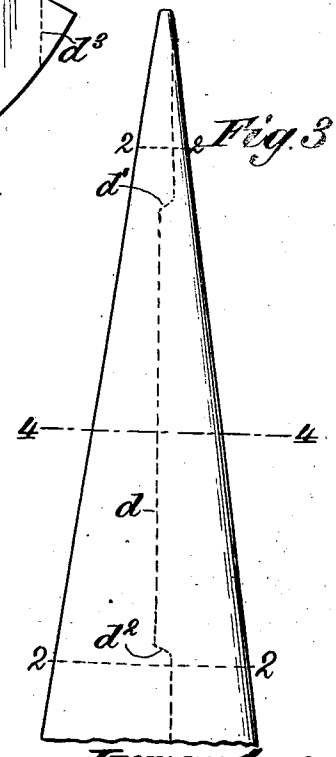


Fig. 4.

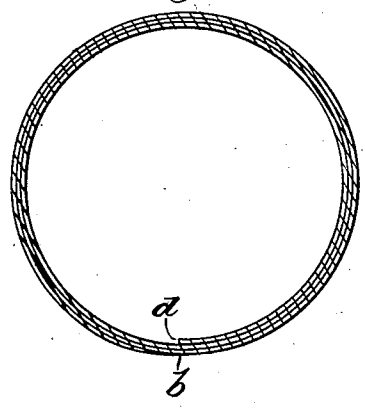
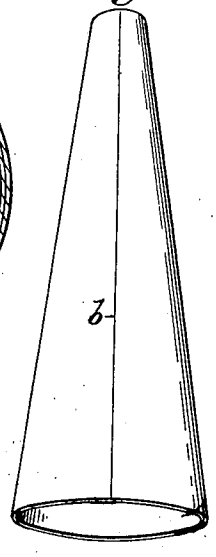


Fig. 5.



Witnesses.
Robt. Garrett
H. Lee Hebert

Inventor:
Walter F. Smith.
By Marcellus Bailey
Atty.

UNITED STATES PATENT OFFICE.

WALTER F. SMITH, OF HARTSVILLE, SOUTH CAROLINA, ASSIGNOR OF ONE-HALF TO SOUTHERN NOVELTY COMPANY, OF HARTSVILLE, SOUTH CAROLINA, A CORPORATION OF SOUTH CAROLINA.

MANUFACTURE OF PAPER CONES FOR YARN-WINDING MACHINES.

No. 886,884. Specification of Letters Patent. Patented May 5, 1908.

Application filed December 19, 1907. Serial No. 407,105.

To all whom it may concern:

Be it known that I, WALTER F. SMITH, of Hartsville, in the county of Darlington and State of South Carolina, have invented a new and useful Improvement in the Manufacture of Paper Cones for Yarn-Winding Machines, of which the following is a specification.

My invention has relation to the paper blank from which the cone is formed, the object being to facilitate the manufacture of the cone, to permit its ends to be readily cut and squared while still on the mandrel on which the blank that forms it is wound, and to produce a cone of uniform thickness throughout. For this purpose the blank which I have devised is of sector-like shape, with its two straight edges at a slight angle to each other, and a tongue upon that one of said edges which is upon the inside of the formed cone.

The nature of my invention and the manner in which the same is or may be carried into effect, will be readily understood by reference to the accompanying drawing in which—

Figure 1 is a perspective view of the conical former or mandrel on which the blank is wound to form the paper cone—showing in dotted lines the position occupied by the blank at the commencement of the operation, with the tongue entered in place in the slot in the mandrel designed to receive it. Fig. 2 is a plan of the blank in its preferred form. Fig. 3 is a view of the cone after it has been wound, but before it has been squared. Fig. 4 is a cross section on line 4—4, Fig. 3. Fig. 5 is the finished cone.

The conical former or mandrel is of any suitable dimensions as required for the cone to be produced. It has in its exterior a longitudinal slot 1 extending from end to end of the mandrel, and, between its ends, two annular scores or shallow grooves 2 parallel with each other in planes at right angles with the axis of the former. These shallow grooves indicate the lines on which the ends of the cone are cut off and squared, and they therefore are located upon the mandrel at such distance apart from each other as required for the length of finished cone.

The blank B is cut from a sheet of paper of suitable texture. It is sector-like in shape. It is somewhat less than semicircular, its two straight edges b, c, standing at a slight angle to each other, the point at which they meet corresponding to the apex of the cone to be formed. In the formed cone, the edges b, c, are upon the outside and inside of the cone respectively, extending lengthwise of the same and in such position that they will be parallel to, without appreciably overlapping, one another, thus producing a cone with walls of uniform thickness throughout. The curved edge of the blank is lettered a. The edge b is preferably the deckle edge of the paper from which the blank is formed. Upon the other edge c is a tongue d, the length of which is not greater than, and preferably coextensive with, the distance between the annular grooves 2 upon the periphery of the conical mandrel A—the tongue being intended to enter the slot 1 in the mandrel and to occupy that portion of it between the annular grooves 2, as indicated in Fig. 1. The tongue may be formed by cutting two jogs d', d^2 in the edge c as shown in full lines Fig. 2, or by continuing the jog d^2 by a cut on the dotted line d^3, thus severing from the body of the blank the small triangular piece beyond the dotted line d^3. In either event however the jogs d', d^2 define the limits of the tongue, which is so located upon the edge c between the edges b and a, that when the blank is wound up into cone form, the tongue will be shorter than the uncut cone and located within the transverse lines of cut 2, 2.

The blank at the outset of the winding operation occupies the position indicated by dotted lines in Fig. 1 with the tongue entered into that portion of the slot 1 in the mandrel which lies between the annular shallow grooves or lines of cut 2—it being understood that the blank is coated on both faces with flour paste or other suitable adhesive material. The mandrel is then turned in a direction to wind the blank upon it in the form of a cone—presenting the appearance represented in Fig. 3 when the winding is finished, the longitudinal edges b, c, of the blank, one on the outside and one on the inside of the cone, being parallel to and practically in coincidence with each other as indicated in Fig. 4. In Fig. 3 the dotted line d', d, d^2 indicates the location on the inside of the cone of the tongue and jogs; and the dotted lines 2, 2 indicate the lines on which the cone is to be cut and squared. The tongue d after the withdrawal of the cone from the mandrel at first stands at right angles to the body of the cone, but as it dries it takes of itself a flat po-

sition and finally lies close against the inner face of the cone.

It is requisite in a cone of this description that all portions of it should be balanced and the ends should be true and square. The finishing of the cone for this purpose I can effect upon the same mandrel upon which it is wound and while it is still in wet or moist condition, the tongue *d* by reason of its being confined to the portion of the slot 1 between the lines 2, permitting the severing of the unfinished ends of the cone which protrude beyond those lines to be effected with entire ease and certainty.

Having described my invention and the manner in which the same is or may be carried into effect what I claim and desire to secure by Letters Patent is—

A blank for the manufacture of cones for yarn, consisting of a sector-shaped paper sheet having its two straight edges *b*, *c*, at a slight angle to each other, and a tongue *d* upon the edge *c*, substantially as and for the purposes hereinbefore set forth.

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

WALTER F. SMITH.

Witnesses:

CHAS. S. HYER,

W. LEE HELMS.