

(No Model.)

J. C. CORAM.
CONE FOR WINDING.

No. 555,564.

Patented Mar. 3, 1896.

Fig. 1.

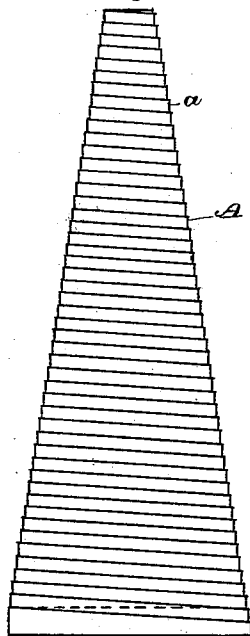


Fig. 3.

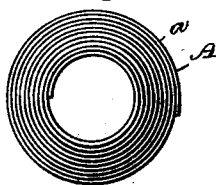


Fig. 2.

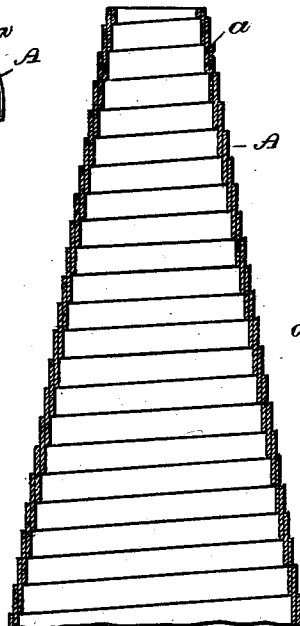
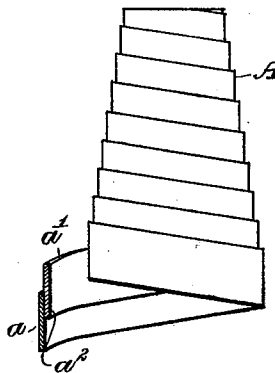


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN C. CORAM, OF LOWELL, ASSIGNOR OF ONE-HALF TO DONALD M. BELCHES, OF BROOKLINE, MASSACHUSETTS.

CONE FOR WINDING.

SPECIFICATION forming part of Letters Patent No. 555,564, dated March 3, 1896.

Application filed March 15, 1893. Serial No. 466,072. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. CORAM, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Cones for Winding, of which the following is a specification.

My invention relates to cones for winding; and the object of said invention is to furnish a cone which is cheaper, stronger, and stiffer for the weight of material used in its construction and which has a better surface for retaining the yarn than cones heretofore used.

In the accompanying drawings, Figure 1 is a front elevation of a cone made in accordance with my improvement; Fig. 2, an enlarged central vertical section of the upper part of such a cone; Fig. 3, a plan of the same, the cones represented in the first three figures being formed from a single strip of sheet material; Fig. 4, a front elevation of the upper part of such a cone formed from two strips of material, showing at the lower end the strips not wound or partially unwound.

Ordinarily cones for winding yarns and threads are made from paper or strawboard cut into a blank closely approximating in form what may be called the "sector" of an annulus—that is to say, a blank having two substantially concentric arc-shaped edges and two straight radial edges, the outer curved edge forming the bottom edge of the finished cone, the cone being formed by wrapping the blanks about a conical mandrel and securing the laps of the blank to each other by paste or glue. The paper or strawboard from which the blanks are cut is in the form of rolls or long strips having parallel sides. It is obvious that in cutting such blanks there would be a great waste of stock, even if two or more blanks could be formed from a single annulus without a remainder, the parts between the curves and the sides of the strips and the small circle cut from the center of the annulus being too small to form blanks. Usually a blank is more than half an annulus, so that the blanks are usually cut in such a manner as to get the greatest number of blanks from the

sheet or strip. In any case nearly one-half of the material is wasted in cutting the blanks.

The grain of the paper or strawboard from which such cones are made runs lengthwise of the uncut strip, but the direction of the grain would vary in different blanks cut from the paper in such a manner as to economize the material. The paper blanks are frequently wet to make them more pliable and to enable them to be wrapped more closely about the mandrel or form. Now the paper after being wet with water, paste, or glue will shrink across the grain more than in the direction with the grain, so that the different blanks made from the same paper or strawboard and upon the same mandrel will vary in size.

The cone A herein described is formed from one or more strips of sheet material cut lengthwise of the strip of paper with parallel edges and wound spirally from the small end to the large upon a mandrel or former in such a manner that each coil of the spiral overlaps the preceding coil from one-half to two-thirds of the width of the narrow strip, the contiguous surfaces of the successive coils being secured to each other by suitable adhesive material, as paste, glue, or cement. The width of the paper strip is preferably about three-eighths of an inch for a cone six inches long and of the usual taper, but the greater the taper the less the width of the strip may be for the same thickness of cone, or, what is the same thing, the same thickness of paper.

The ends of the cone may be trimmed in the usual manner, or the lower or large end may be finished by winding the last turn of the strip *a* at right angles to the axis of the mandrel, as indicated by dotted lines in Fig. 1.

Fig. 4 illustrates a cone formed of two strips *a a'* which lap across each other half-way at *a²*, and the two being wrapped around the mandrel or former just as the single strip shown in Fig. 2 is applied.

The advantage of the construction above described is that the grain of the paper runs lengthwise of the strip or strips upon which the cone is formed, or in a uniform direction spirally around the finished cone from end to

end, so that the shrinkage of the paper will be uniform and in the same direction and cones formed from the same material upon the same mandrel will be uniform in shape after
5 being dried and will be of uniform strength. The surface of the cone thus formed is better for retaining the yarn to be wound on the cone and the cone is stronger and stiffer, according to the weight of material employed,
10 and there is no waste of the stock, except it may be a fraction of a narrow strip at the side of the wide strip or sheet from which the narrow strips are cut.

I claim as my invention—

15 1. A cone formed wholly of one or more straight strips of sheet material of uniform width wound spirally, each turn of said material from the base to the point of said cone overlapping the next smaller turn and each

turn being secured to the next adjacent turn 20 or turns by adhesive material, as and for the purpose specified.

2. A cone formed wholly of one or more straight strips of paper of uniform width, wound spirally, each turn of said paper from 25 the base to the point of said cone overlapping the next smaller turn and each turn being secured to the next adjacent turn or turns by adhesive material, as and for the purpose specified. 30

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 8th day of March, A. D. 1893.

JOHN C. CORAM.

Witnesses:

ALBERT M. MOORE,
DONALD M. BELCHES.