

M. T. MURPHY.

YARN CONE.

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1,037,295.

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Fig. 1.

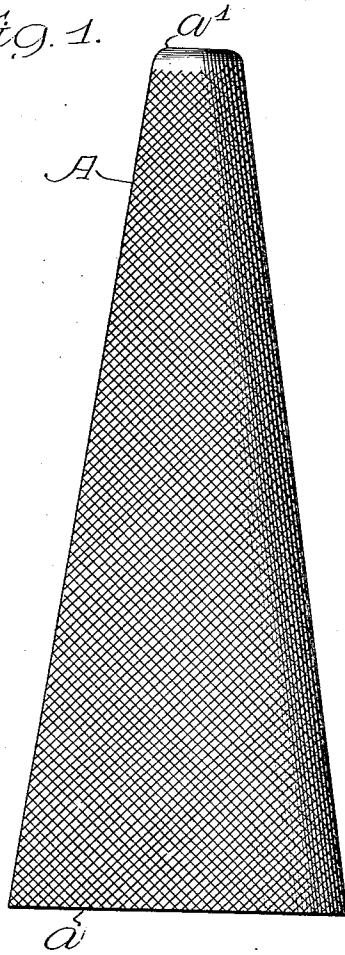


Fig. 2.

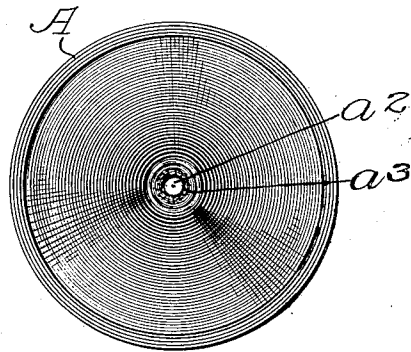
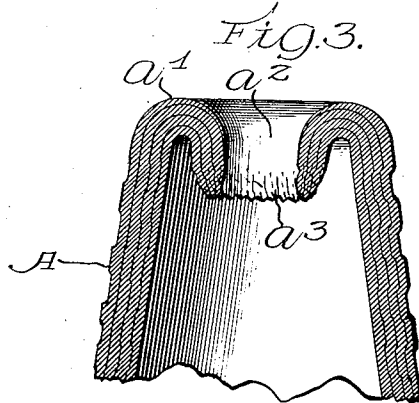


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

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YARN-CONE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MICHAEL TIMOTHY MURPHY, a citizen of the United States of America, and resident of Grand Rapids, Kent county, Michigan, have invented a certain new and useful Improvement in Yarn-Cones, of which the following is a specification.

My invention relates to yarn cones or cone-shaped yarn holders of the kind that are ordinarily made of paper and employed for holding a quantity of yarn in condition to be readily unwound therefrom. Prior to my invention, these yarn cones have been made in various ways, but they have not been entirely satisfactory. They have been largely subject, for example, to two very serious objections. First, they were made in such manner that the tip or smaller end of the cone would very often be rough, which would cause the yarn to catch and break during the unwinding operation. Second, these yarn cones are very largely shipped with the yarn wound thereon, and it very often occurred that the tips or smaller ends of the cones would become crushed or broken during transportation. The cones thus damaged could only be used by first cutting off or refinishing the ends thereof, and in many cases the tips or smaller ends of the cones were so damaged that they had to be thrown away. Moreover, and with the old method of manufacture, it was necessary to make these yarn cones of comparatively thick paper, in order to prevent the same from getting crushed or damaged at the ends thereof, in so far as was possible by this method. As a matter of fact, though, and as previously explained, even the cones made of the comparatively thick paper were often damaged at their tips or ends, and this rendered them unfit for use.

The object of my invention is, therefore, to provide a paper yarn cone of such character that the tip or smaller end thereof will be smooth and comparatively hard, whereby the yarn will not catch and break, and of such character, furthermore, that the said tip or smaller end of the cone will not be liable to crush or break during transportation of the cones in large quantities, as will hereinafter more fully appear.

To these and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1

is a side elevation of a paper yarn cone embodying the principles of my invention. Fig. 2 is a view looking into the base or larger end of said cone. Fig. 3 is a central vertical section of the upper portion of the said cone, on a larger scale, showing the manner in which the upper edge of the cone, after being treated in accordance with the invention, is allowed to remain raw and ragged, and to hang down inside of the cone, thus providing the cone with a tip or upper end portion having a round or well defined opening therein, which opening is circumscribed by a rounded and polished surface that forms the crown of the cone.

As thus illustrated, my invention comprises a paper yarn cone A of pronounced conical formation, having a base or lower edge a , and a crown or tip a' at the upper end thereof. The said cone can be made of any suitable material, and as illustrated is made of several layers of paper or similar fibrous material pressed together to form stiff sides for the cone, whereby the latter will be of suitable strength and adapted to support the yarn in the usual and well known manner. It will be understood that a yarn cone of this kind is employed on a rotary support or arbor which extends upwardly within the cone to support the sides thereof, and the upper end of which terminates a suitable distance below the upper end of the cone, whereby the latter projects a substantial distance above the upper end of the support or arbor.

To form the upper end or crown of the cone, the edge portion thereof is turned in and bent downward, by any suitable means, whereby the material is practically doubled or folded back upon itself in the manner shown more clearly in Fig. 3. This results, it will be seen, in the formation of a round and well defined opening a^2 of considerably less diameter than the inner diameter of the original cone at its upper end. The upper edge a^3 of the cone is left raw or ragged and allowed to hang down inside of the cone, and by reason of the conical formation, the doubled or folded portion thus produced does not ordinarily lie flat against the inner surface of the cone, but to the contrary hangs down at a distance therefrom, as shown in Fig. 3. The method employed is such that in the operation of thus doubling or folding back the material at the upper edge of the cone, the outer surface of the

paper or other material is left hard and smooth, and even with some degree of polish, at a distance from the edge of the paper or other material, whereby a rounded and
 5 hardened and polished crown or tip is provided for the cone. As explained, the polishing and hardening does not extend downward to the edge a^3 which hangs inside of the cone, but terminates a short distance
 10 above this edge, and extends downward on the outer surface of the cone to a point about opposite the said point at which it terminates inside of the cone; although for some purposes, and if desired, the polishing or
 15 smoothing effect may be carried on in such manner that the smooth surface will extend downward quite a distance on the outer surface of the cone. In any event, though, and as explained, a smooth and condensed
 20 surface is produced at a distance back from the edge of the material, and this edge, in a practically raw or ragged condition, is allowed to hang down inside of the cone, in the manner shown. Thus the edge of the
 25 paper or other material is not polished, or at least there is no necessity for its being polished or smoothed, inasmuch as this edge is gotten rid of by turning it over and turning it back and allowing it to hang down a
 30 suitable distance inside of the cone. In other words, the edge of the material, which is formed from the several edges of the thin layers of the material, is brought out of reach of the yarn as it comes off from the
 35 top or tip of the cone, and in this way the usual and practically unavoidable roughness or raggedness of this edge will do no harm, and it does not need to be smoothed and polished. It is much easier to polish
 40 or smooth and harden or condense the surface of the material at a distance back from the edge thereof, and this is done to advantage in the manner shown and described, thus producing a rounded crown or tip for
 45 the cone which not only prevents breaking of the yarn, but which also serves to reinforce the end of the cone and prevent breakage or crushing thereof during transportation of the cones together, and in large
 50 quantities.

Thus it will be seen that the rough or ragged upper edge of the cone, which has heretofore made so much trouble, is completely eliminated as a menace or source of
 55 danger to the yarn, and that this is done without the necessity of any effort to smooth or polish the rough edge of the cone, but rather by simply manipulating the cone in such manner as to bring the said rough or

raw and ragged edge into such position that
 60 it is out of reach of the yarn, and in such manner that the effect, moreover, is to strengthen the cone at its upper end. In this way it is possible to make the cone of thinner paper than heretofore, and if necessary the doubling or folding operation can
 65 be carried on to such an extent that the inner fold will be quite long, even an inch or more, if necessary. For practical purposes, however, and with reasonably thick paper, I find that the inward and downward fold
 70 may be comparatively short, and that the desired objects are attained when the raw or rough edge of the material is turned downward a sufficient distance to bring it
 75 out of reach of the yarn, and in such manner as to afford a firm and smooth crown or surface immediately above said edge.

It will be seen that the cone has a rough outer surface to prevent the yarn from slipping off. The method of treating the upper
 80 end of the cone is such that, in effect, the edge thereof is broken in the operation of doubling or folding it downward. In this way the cone has a smooth and rounded top, a perfectly round hole therein, and a soft edge
 85 which hangs inside of the cone around the bottom of said hole. In other words, the cone has a hard and finished top, but the edge which is folded downward is left unfinished. With the materials ordinarily employed for the manufacture of these cones,
 90 the said depending edge will, therefore, be soft and rough. The hole at the top of the cone is perfectly round, and is cylindric in character, as distinguished from the conical formation of the cone. Thus the said soft
 95 or rough or unfinished edge, as the case may be, is located around the bottom of this perfectly round and cylindric hole.
 100

What I claim as my invention is:

A yarn holder consisting of a stiff paper truncated cone whose upper annular edge is curved inwardly and downwardly, the extremity of the edge hanging down within
 105 the cone, whereby this depending edge is disposed in such manner that it need not be finished, the annular convex upper end formed by thus bending in the upper edge of the cone being smoothed and hardened,
 110 for the purpose set forth.

Signed by me at Chicago, Illinois, this 14th day of October, 1911.

MICHAEL TIMOTHY MURPHY.

Witnesses:

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