Oct. 28, 1941. C. M. HART 2,260,452

TEXTILE CONE

Filed Sept. 26, 1939 2 Sheets-Sheet 1

Fig. 1.

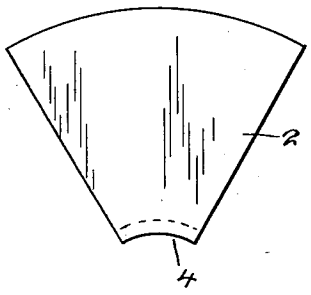


Fig. 2.

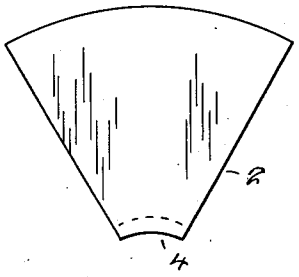


Fig. 3.

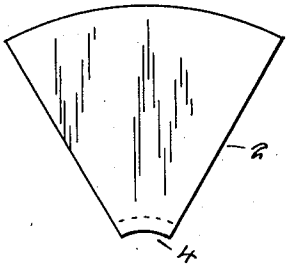


Fig. 4.

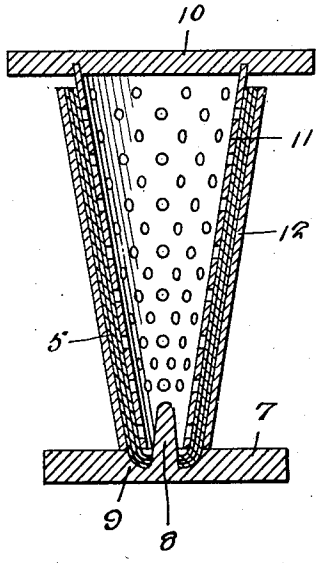


Fig. 5.

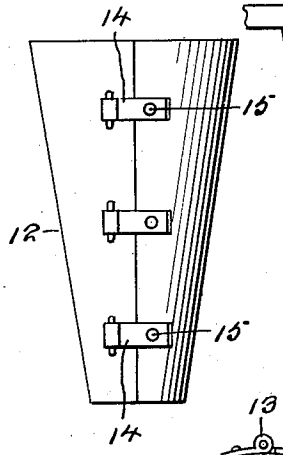


Fig. 6.

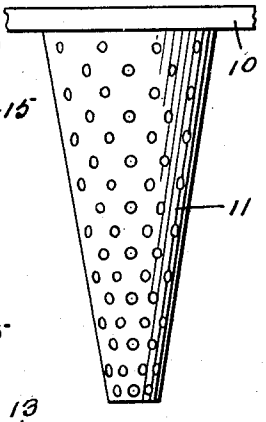


Fig. 8.

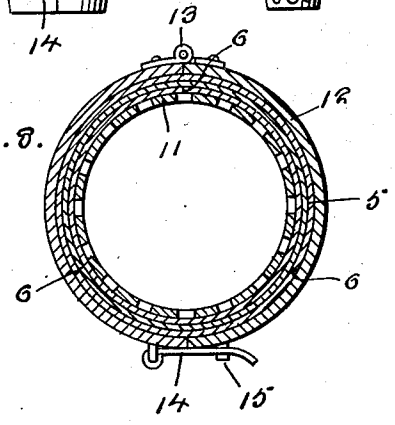
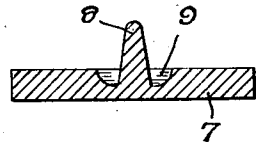


Fig. 7.



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Oct. 28, 1941. C. M. HART 2,260,452

TEXTILE CONE

Filed Sept. 26, 1939 2 Sheets-Sheet 2

Fig. 9

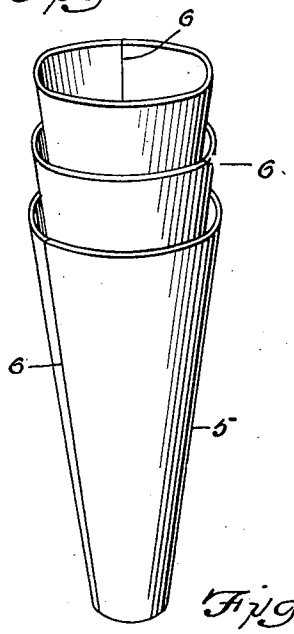


Fig. 10.

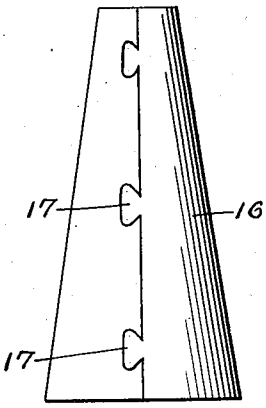


Fig. 11.

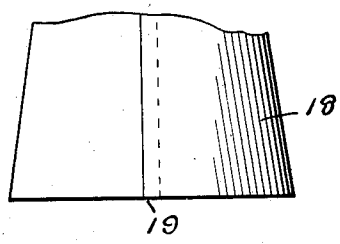


Fig. 12.

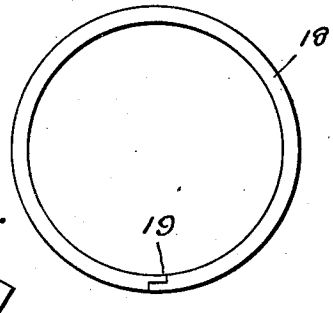


Fig. 16.

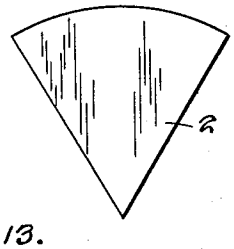


Fig. 17.

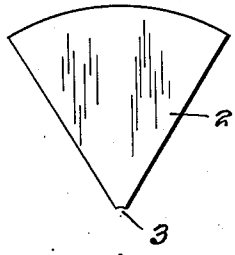


Fig. 15.

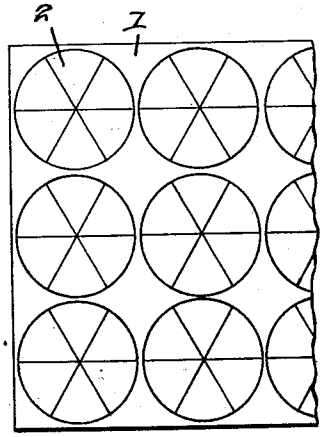


Fig. 13.

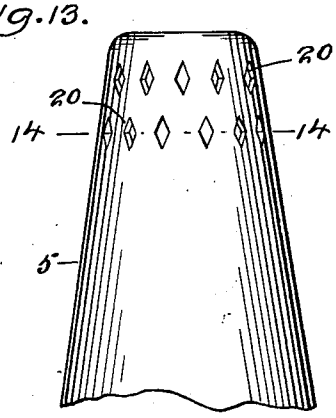
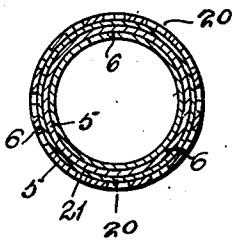


Fig. 14.



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Patented Oct. 28, 1941 2,260,452

UNITED STATES PATENT OFFICE

2,260,452

TEXTILE CONE

Charles M. Hart, Chattanooga, Tenn.

Application September 26, 1939, Serial No. 296,670

2 Claims. (Cl. 242—122)

This invention relates to paper cones designed for use as cores for thread packages in the textile industry, and its general object is to provide a cone that is perfectly balanced and round throughout the entire circumference thereof, and has a uniform outer surface free from the objectionable longitudinal ridge seam present on cones now in general use.

A further object is to provide a cone constructed from several conical shells that has its apex end colored for identification purposes, either by using a colored hard drying material or by providing openings in the outer shell and disposing a lining of contrasting color between the inner and outer shells to show through the openings.

Another object is to provide a cone for the purpose set forth, that is simple in construction and extremely efficient in use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figures 1, 2 and 3 are plan views of one of the forms of the disk segments used in producing my cone.

Figure 4 is a longitudinal sectional view taken through the shaping and pressing apparatus.

Figure 5 is a view of the outer or female die of the apparatus.

Figure 6 is a view of the inner or male die.

Figure 7 is a sectional view taken through the base member of the apparatus.

Figure 8 is a transverse sectional view taken through the apparatus in its entirety with a cone therein.

Figure 9 is a view of the segments of Figures 1 to 3, rolled in conical shell formation and illustrates the manner of mounting the same, so that the seams are disposed out of registration.

Figure 10 is a view of a shell provided with a modified or locking seam.

Figure 11 is a fragmentary view of a shell provided with an overlapping joint or seam.

Figure 12 is a bottom plan view of Figure 11.

Figure 13 is a fragmentary view of a cone provided with identification means.

Figure 14 is a sectional view taken approximately on line 14—14 of Figures 13.

Figure 15 illustrates a sheet of paper stock stamped or cut to provide segments from which the shells are made.

Figure 16 is a view of one of the segments removed from the sheet.

Figure 17 is a view of a slightly modified form of segment.

Referring to the drawings in detail, and particularly to Figure 15, the reference numeral 1 indicates a sheet of paper stock that may or may not have a roughened or serrated surface and which is stamped or cut to provide segment blanks 2 from which my cone is made, the segments being first removed and may be retained in their original shape as shown in Figure 16, or may have a tip of the apex cut away in arcuate formation, as at 3 in the form of Figure 17 or a larger portion of the apex may be cut away in arcuate formation as at 4, in the form of Figures 1 to 3 inclusive.

In any event, each segment is rolled upon itself in conical formation as shown in Figure 9 to provide shells 5. Two or more of these shells with the longitudinal edges of each disposed in abutting contact, are nested one within the other, as likewise shown in Figure 9, and the outer faces of the inner shells are coated with any suitable adhesive material, such as liquid or plastic cement for securing the shells in face to face relation to produce a cone of several layers of material, to render the same sufficiently rigid to prevent any possibility of damage thereto.

When the shells are nested, the seams which are indicated by the reference numeral 6 are disposed out of registration with each other, as clearly shown in Figure 9, and the shells are pressed in nested formation, as well as shaped to provide a complete core for the thread package, by the apparatus shown in Figures 4 to 8 inclusive.

While all the shells are originally of the same size, as they are cut from the sheet as shown in Figure 15, it will be obvious that the inner shells must be slightly reduced in size in order for the shells to snugly fit one within the other, particularly if the longitudinal edges of the inner shells are disposed in abutting contact, as shown, and which is of course desirable, so that the inner face of the cone will be uniform and free from a seam ridge like the outer face, as the longitudinal edges of the outer shell must be disposed in abutting contact, because such is one of the most important features of my cone to meet the ex-

act requirements of a cone of this character in order that it will function to the best advantage.

The apparatus for pressing and shaping the shells in complete cone formation, includes a base plate 7 having a peg or upright 8 formed on and rising centrally therefrom and disposed about the upright is an annular recess 9, the upright being tapered inwardly from its lower end, and the recess being rounded outwardly from the upright, as clearly shown in Figure 7. A head or pressure plate 10 having an annular groove therein is included in the apparatus and fixed in the groove is the large end of a truncated conical hollow inner or male die 11 that is perforated throughout the entire area thereof to allow for the passage of air therethrough to break a vacuum that may exist during the use of the apparatus.

Cooperating with the inner or male die for receiving, shaping, pressing and securing the nested shells together, is an imperforate outer or female die 12 that is likewise of truncated conical hollow formation, but the outer die is made to provide a pair of like sections, each constituting a half in the form shown, and being hinged together along one of the longitudinal edges thereof by barrel type hinges 13, while the opposite longitudinal edges are detachably secured together by suitable latching means. The latching means shown includes arms 14 having one of their ends pivoted to one section and extending from the other section are studs 15 arranged in the path of openings in the free ends of the arms to be received therein for latching the sections together, as clearly shown in Figure 8.

In the use of my apparatus, I want it understood that the blanks 2 are individually or collectively applied within the outer or female die 12 and it will be obvious that the blanks when being inserted therein will conform to the conical formation thereof. The sheet 1 of paper stock from which the blanks are cut, may have a coating of adhesive material thereon, that is retained on the blanks when they are cut from the sheet 1, and in that event the adhesively coated face of the blanks are moistened prior to or while being inserted in the female die. However, the blanks may not have a coating of adhesive material thereon, and then liquid cement or plastic must be applied thereto, as will be apparent. It will of course be understood that the blanks are inserted with their small ends innermost, and by following the shape of the female die, they are converted into the shells of my cone. The apex ends of the shells are disposed within the recess 9, and pressure is applied to the head plate 10 for forcing the shells together and the apex ends thereof within the recess 9 to follow the shape of the latter, as will be obvious upon inspection of Figure 4. The dies may be heated, to expedite the drying action of the adhesive material between the shells, as well as the shaping action of the rounded apex end thereof. Again, in the event the shells are made from paper having smooth faces, the inner surface of the die 12 and the outer surface of the die 11 may be serrated from adjacent the apex ends thereof to its opposite end to produce inner and outer roughened surfaces on the cone. However, the apex end portion of the die 12 is smooth so that it will produce a smooth apex portion on the cone, especially in the event the cone is made from paper having a roughened face. It will be obvious that the upright 8 not only cooperates with the curvature of the recess 9 to curve the apex end of the cone inwardly, but centers the opening at the apex end concentrically to the opposite end of the cone, so that the cone will be perfectly balanced, a feature which is of importance in a cone of this character.

The shell 16 of the form of Figure 10 is shown as including a lock joint, in that one longitudinal edge thereof has formed thereon tongues 17 to be received in recesses in the opposite longitudinal edge, but in any event the edges are disposed in abutting relation and the same is true with respect to the tongues and recesses. It will be noted that the tongues 17 increase in width from their connection with their longitudinal edge for fitting association with the recesses, so as to prevent any possibility of the tongues being pulled from the recesses, thus the edges are firmly locked together, and I want it understood that the tongues and recesses can be of other shapes from that shown. It will be further understood that the shells of Figure 10 are disposed in nested relation and secured accordingly in the same manner as the shells 5 to provide a cone.

In Figures 11 and 12, I have illustrated a shell which for distinction is indicated by the reference numeral 18, as having an overlapping joint 19, or in other words the longitudinal edges of the shell 18 are cut in right angle formation to provide flanges for disposal in overlapping relation with respect to each other, as clearly shown in Figure 12. Again, the longitudinal edges of the shells may be skived, with the skived edges disposed in overlapped relation. However, it will be understood that regardless of the type of joint used the shells of these forms are adhesively secured together in exactly the same manner as the other shells, for disposal in nested formation to provide a completed cone, as best shown in Figure 4.

It has been previously set forth, that it is necessary for the outer surface of the apex ends of cones of this character, to be smooth, in order to prevent damage to the thread, and while the apparatus will render the apex end of the cone smooth, I likewise may use a hard drying material, such as enamel or the like and the material is preferably of a contrasting color than that of the cone, for identification purposes. However, any coloring matter may be used and thence a light coat of transparent hard drying material is applied over the coloring matter.

In Figures 13 and 14, I have illustrated a cone provided with identification means, and for that purpose, the outer shell has a plurality of openings 20 arranged in rows about the circumference thereof adjacent to its apex end, the openings being of diamond shape in the form shown, but it will be obvious that they may be of any appropriate shape. The intermediate shell may be of a different color than the outer shell, so that it can be readily seen through the openings 20. However, I have shown a lining strip 21 between the intermediate and outer shells, and the strip is of course of a different color than that of the outer shell, so that it likewise can be readily seen through the openings 20 for identification purposes, as will be apparent.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. A textile thread package cone comprising a plurality of shells, each having a flush seam extending longitudinally thereof, means for securing the shells nested one within the other and with the seam of each shell disposed out of registration with the seams of adjacent shells, the outer surface of the apex end portion of the cone being smooth and the remaining portion of the outer surface being rough, the outermost shell having openings therein adjacent to its apex end and arranged circumferentially about the same, and means of a color contrasting with that of the outer shell and disposed within the latter to show through the openings to provide identification means for the cone.

2. A textile thread package cone comprising a plurality of shells, each having a flush seam extending longitudinally thereof, means for securing the shells nested one within the other and with the seam of each shell disposed out of registration with the seams of adjacent shells, the outer surface of the apex end portion of the cone being smooth and the remaining portion of the outer surface being rough, the outermost shell having openings therein adjacent to its apex end and arranged circumferentially about the same, and a lining strip of a color contrasting with that of the outer shell and disposed between the latter and the shell next thereto to show through the openings to provide identification means for the cone.

CHARLES M. HART.