This invention relates to shipping containers and particularly to shipping containers for cops of artificial silk. One object of my invention is to provide a device of the class described in which a plurality of cops of yarn may be shipped with each cop spaced from the other and each cop protected from damage from both without and within the container. Another object of my invention is to provide a yarn package in which a standard type of partition can be used for separating the cops. Another object of my invention is to provide a partition for cops having formations in the surface of the partition adapted to engage and position both a large cop end and a small cop end in order to definitely position a series of cops in a package. Still another object of my invention is to provide a partition plate which can be inexpensively formed out of sheet material and which is so shaped that a single partition plate can be used for any number of tiers of cops which may be placed in a single container, and other objects will appear from the following specification, the novel features being particularly pointed out in the claims at the end thereof.

Coming now to the drawing wherein like reference characters denote like parts throughout:

Fig. 1 is a section through a container for a plurality of cops, including partitions constructed in accordance with and embodying a preferred form of my invention.

Fig. 2 is a top plan view of a container with the cover removed.

Fig. 3 is a fragmentary detail perspective view of a forming illustrating another embodiment of my invention.

It is to be understood that my invention can be applied to containers of different sizes and that the container shown in the drawing is by way of illustration only. Since it is customary to send artificial silk cops in lots of two dozen at a time, the illustrated embodiment of my invention is for a container which will hold this number. However, it is quite obvious that my invention can be equally well applied to containers for both a larger and smaller number of cops.

As indicated in Fig. 1, the container may consist of a box-like structure having a bottom 7, a top 8, end walls 9, and side walls 10. This container may be of wood, corrugated cardboard, or any other relatively strong and stiff material which may be found suitable for the purpose.

The artificial silk 5 is usually wound into cops upon truncated, cone-shaped hubs 7 which are open at both the top 8 and at the bottom 9.

Since the artificial silk is very delicate and can be easily abraded or marred during shipment, it is necessary to space these cops so that they will not touch each other and so that they will not touch the container which protects them.

In accordance with my invention I have provided the container 1 with a series of partitions 12 which, as best shown in Fig. 2, are in the form of flat plates preferably having flanges extending around the entire edge of the plate and having a series of formations 12. In the form illustrated these formations may consist of cup-shaped members having tapered walls 13 leading up to a circular bottom wall 14 which is here shown as being a closed wall, although an opening may be left in this wall if desired.

The proportions of the formations 12 are such that the outside of a forming is adapted to engage and position the large end 7 of the truncated cone cop support and the inside of the forming 12 is adapted to position and locate the small end 8 of the truncated cone support. Thus it is only necessary to have a series of similar partition plates 10 in order to stack up the desired number of rows and tiers of artificial silk cops.

The most economical containers are ones in which two or more tiers of silk cops are placed, because if only a single tier is used, two partition plates are necessary for supporting the tops and bottoms of the cops. If two tiers are used, only three partition plates are necessary. Thus, by varying the height of the container, any number of tiers may be placed in a single container.

It should also be particularly noted that the partition plates 10 need only be made in one shape, since the same partition plate performs the double function of properly positioning either end of the truncated cone artificial silk cop supports.

While it is generally preferable to have the formations 12 cup-shaped, as shown in Figs. 1 and 2 in which the slanting walls 13 are circular in cross-section, this is not necessary, and satisfactory results can be obtained with other shapes of formations. As illustrated in Fig. 3, the formations may be made with a plurality of flat sides.

In this figure the forming is shown as being square and the partition plate 20 is provided with the forming 22 which has a plurality of flat sides 23 and which may have an opening 24 in the top. With this form it will be readily seen that the base or opening 29 in the truncated pyramid cop support will engage the four corners 30 of the forming 22, and the small end of the truncated cone 28 will be received beneath
the four slanting walls and will be positioned thereby so that the end may rest against the flanges 31 which surround the opening 24. However, since a cup-shaped forming 12 is easier to manufacture, I prefer to use this type. The partition plate 20 also differs from partition plate 10 in that the edges 32 do not have flanges corresponding to the flanges 11 on plate 10. These may be omitted if it is necessary to economize, but since the flanges 11 not only stiffen the partition plates 10, but also form an even, firm contact with the edge walls of the container 1, these flanges are preferred. The partition plates 10 may be made of any suitable material, such as molded papier-mâché, metal, or the like. I prefer to construct the partition plates of relatively light-weight metal which can be both easily formed in a press and which provides a good, firm support for the silk cops. It is also an advantage to have the formings 12 made in a solid plate as this prevents any circulation of dust or foreign particles which may otherwise pass from one partitioned chamber of the container to another. Moreover, the partition plates 10 being exactly alike, can be made economically and can be used repeatedly if they are made of substantial material.

Attention is called to the construction of the partition plates in which one cop is mounted directly over the other so that the actual weight of the cop is not supported to any extent by the partition plate, but is, in fact, supported by the walls of the container. It will be noticed that the large end 9 of the truncated cone is separated from one wall of the container only by the thickness of a partition plate 10, and that the large wall 9 of the truncated cone support which rests on the central partition plate 18 of Fig. 1 has its weight supported by the forming 12 which rests on the small end 8 of the support. This upper tier of cops have their small ends 8 separated from the container wall by only the thickness of the partition plate so that the partition plates themselves have practically no weight to support, their sole function being to properly position the cops so that the outside edges 15 of the yarn 6 may be spaced apart and may even be forwarded in such a container without the usual wax paper protective covering if desired. It is a simple matter to load a container with these cops by first dropping a partition plate 10 in the bottom of the container and placing the first tier of cops with their large ends 9 positioned by the formings 12. A second partition plate can then be laid in place with the formings 12 engaging the small upper ends 8 of the cop supports, and as many tiers as desired can be quickly placed in a container.

What I claim is:

1. A shipping container for thread cops carried by truncated cone shaped hubs, comprising a container, a plurality of yarn cops therein, partitions in said container comprising identical, single flat plates, a plurality of similar formings on the flat plates, the inside walls of said formings constituting means to position the smaller end of the truncated cone shaped hub, and the outside walls of the formings constituting means to position the larger end of the truncated cone hubs and means carried by the partitions for spacing the major part thereof from the container.

2. A partition plate for supporting hollow truncated cone shaped cores comprising a relatively flat plate, a plurality of formings of similar size and shape thereon, each forming being so shaped that the outside of the forming may engage and constitute means to position the larger diameter end of the cone shaped member and so that the inside of the forming may engage and constitute means to position the smaller diameter end of the cone shaped member.

3. In a shipping container, the combination with a box-like housing, of cone-shaped hollow cops carried by said container, means for positioning said cops including a plurality of similar spacing plates, each spacing plate including similar formings consisting of inside and outside walls, the inside wall positioning the small end of said cone-shaped cop and the outside wall positioning the large end of said cone-shaped cop, whereby the cops may be spaced from the container and may be supported entirely by said spacers.