

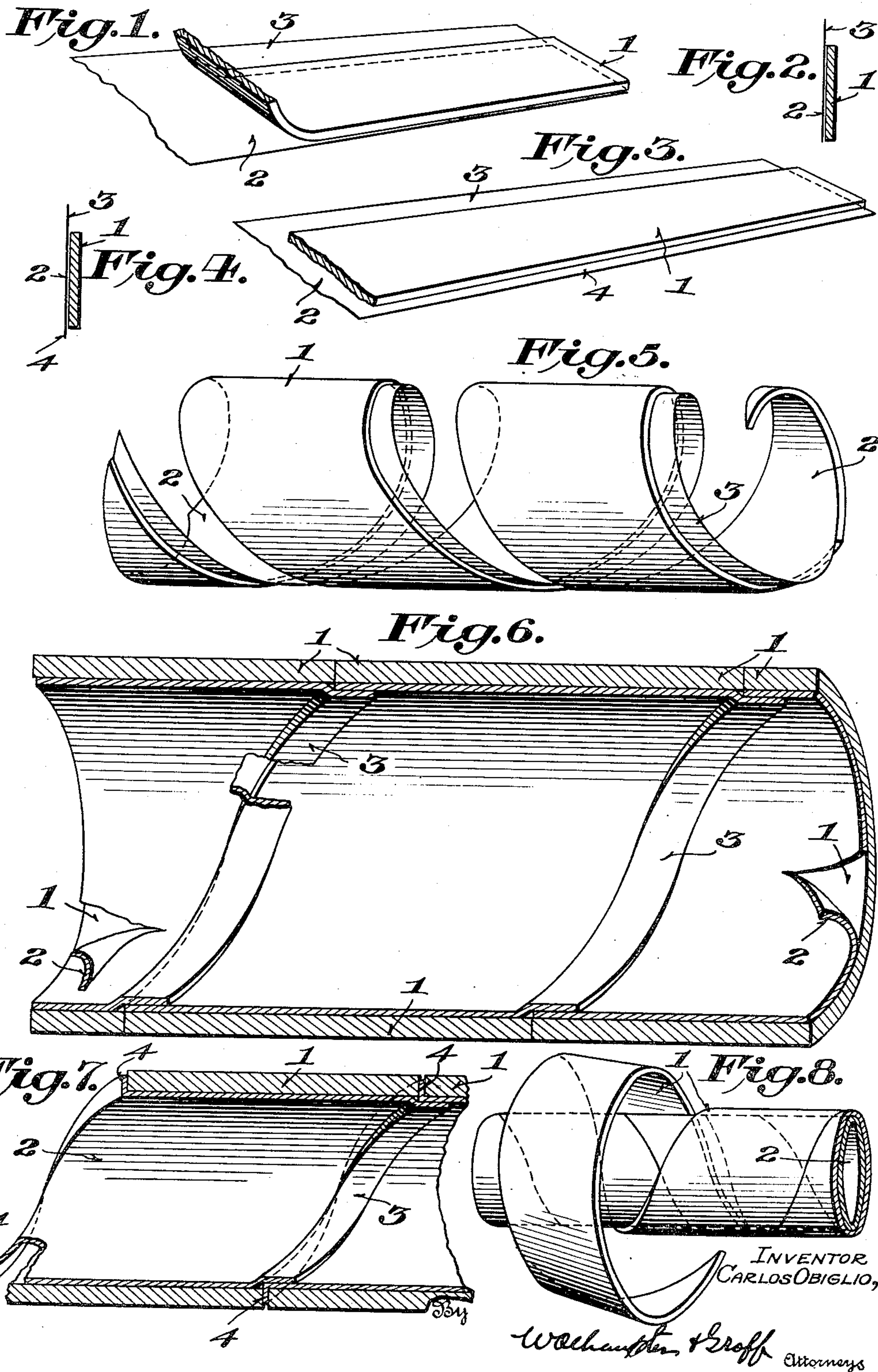
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PROCESS FOR THE MANUFACTURE OF TUBULAR BODIES

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PROCESS FOR THE MANUFACTURE OF
TUBULAR BODIES

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1 Claim. (Cl. 93—94)

This invention relates to a novel and improved process for manufacturing tubular bodies, provided over its entire length with an internal lining, a preferably adapted for the constructions of containers and the like, and substantially has for an object a novel process of manufacture offering outstanding advantages over the methods heretofore known and used for the same purpose.

The process of manufacturing tubular bodies by spirally winding on a central mandrel or core, one or several bands or strips of cardboard or the like, is already known.

The improvement which forms the object of this invention essentially consists in providing said strips or bands, previously to winding the same in a tubular shape, with a band of suitable lining material, so arranged that after the spiral winding of the composite layer structure of said strips and bands, the tubular body formed thereby will have its inner surface entirely covered with a layer of said lining material.

By means of this method, the cost of manufacture of the tubular containers thereby obtained, is considerably reduced, while the perfect continuity of the internal lining layer permits of securing entirely watertight containers, even when for the outer or surface layer of the tubular bodies, a porous material of rather low grade is used.

It will be understood that the internal lining may consist of thin metallic sheet or of any other suitable material, not liable to oxidize or corrode by the action of the product to be packed or held in the container. For the same purpose thin strips of Celluloid, Cellophane or any other suitable watertight material may conveniently be used.

The invention also has in view other objects which will appear in the course of the following description.

In order that the invention may be readily understood and carried into practice without difficulty, a preferred embodiment of the same has been shown by way of example in the illustrative drawing annexed to this specification and in which:

Figure 1 illustrates a piece of cardboard strip, provided with a band of lining material, which as assembled in layers are to be used for the manufacture of tubular containers by the process according to this invention.

Figure 2 shows a transverse section of said strip and band of lining material.

Figure 3 illustrates a modified arrangement of

the same strip with its band of lining material extending on both sides of the cardboard strip.

Figure 4 is a cross section of the assembled elements of the modified form shown in Figure 3.

Figure 5 shows a perspective view which illustrates the process of manufacturing the tubular body by using the elements of Figures 1 and 2.

Figure 6 is a longitudinal section of the tubular body after assembling the same by the process according to this invention, as shown in Fig. 1.

Figure 7 is a longitudinal sectional view of the tubular body after assembling the same in the manner shown in Fig. 3 and

Figure 8, finally, shows a further modification in the performance of the novel process of manufacture.

In all the said figures, the same numbers of reference are used to indicate like or corresponding parts.

The novel process according to this invention is substantially based on the use of a strip 1 (Fig. 1) of cardboard or other suitable material, adapted for forming a tubular body or container, to one of the surfaces of which is applied a band 2 which is to constitute the lining of the container and which is affixed to the strip 1 by cementing or in any other suitable manner.

Said band 2 of lining material may conveniently be affixed to the strip 1 so as to cause one of its lateral edges to project beyond the corresponding edge of the strip 1, thereby forming a flange 3 of suitable width, as indicated in detail in Figures 1 and 2, or, in a modified form, so as to extend beyond both edges of said strip 1, as shown in detail in Figures 3 and 4, in which latter case, two flanges 3 and 4 will be formed, which may be of the same or of different width.

For shaping the tubular body, the combined layers formed by the strips 1 and 2 is spirally wound on a suitable mandrel or core, by using machinery of known construction. This operation is so performed that the material which forms the internal layer or lining 2, will be arranged toward the inner part of the strip 1, as shown in detail in Figure 5, and so as to cause the adjacent edges of the strip 1 to abut, taking care that the protruding edge formed by the flange 3 will be applied to the inner surface of the band 2 which forms the lining layer of the next following winding, as will be understood when observing the details of Figure 6.

Previous to winding, the lateral edges of the strip 1 and the outer face of the flange 3 may conveniently be coated with a suitable cement-

ing material, so that when spirally winding the elements 1 and 2, the adjacent edges of the element 1 will tightly adhere one to another, while the flange 3, in turn, will adhere to the layer of lining which forms the next following winding.

The modified arrangement shown in Figure 7 consists in the fact that in the construction of this type of tubular body the combined arrangement of layers shown in Figures 3 and 4 is used, wherein the lining band protrudes on both edges, in which case the operation according to this process consists in applying, while winding, one of the protruding edges of the lining band 2, that for instance which forms the flange 3, against the internal face of the band of lining of the next following turn, while the opposite flange 4 is twisted upwardly so as to become gripped between the adjacent edges of the strips 1, the engaging surfaces being joined by cementing or otherwise.

The modification shown in Figure 8 consists in that the strip 1 which forms the tubular body, is formed by two or more layers obtained by successively applying said strip on the lower layers, in form of spirals wound in opposite directions. It will be understood that in this case, the band 2 of lining material must be of sufficient length for covering the internal surface only of said body.

From the foregoing description, the manner of carrying the invention into practice will have clearly been understood and no further explanations are deemed necessary for those skilled in the art.

Having now particularly described and ascertained the nature of my invention and the manner in which the same is to be performed, I

declare that what I claim as new and desire to secure by Letters Patent, is:

A process for making a helically wound paper tube wound with a two-layer strip comprising a relatively thick body strip and a relatively thin lining strip fastened together on their faces, consisting of the steps of adhesively fastening a said thin lining strip to said thick body strip narrower than said lining strip and with flange portions of said lining strip on both sides thereof extending beyond both edges of the face of said thick body strip to which said lining strip is fastened, winding the two-layer strip so formed into a helical tube with said lining strip on the inside of said tube and with a first said flange portion of said lining strip on a given turn of the tube so extending beyond an edge of said thick body strip face extending over the lining strip of an adjacent turn in its said position on the inside of said thick body strip, bending the second said flange portion of said lining strip on said given turn of the tube so extending beyond an edge of said thick body strip face upwardly at right angles along an edge of said thick body strip and terminating said bent flange portion substantially flush with the outer face of said thick body strip for holding said bent flange portion between said edge of the heavy body strip of said given turn and an edge of said thick body strip of a second adjacent turn to seal the radial joint between juxtaposed edges of the body strip, and adhesively attaching said first extending flange portion to said lining strip of said first mentioned turn to transversely seal the inner side of the radial joint and also seal the lining strips of the adjacent turns.

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