Jan. 12, 1943. H. A. EGGERSS 2,307,923

CONTAINER

Filed July 31, 1940

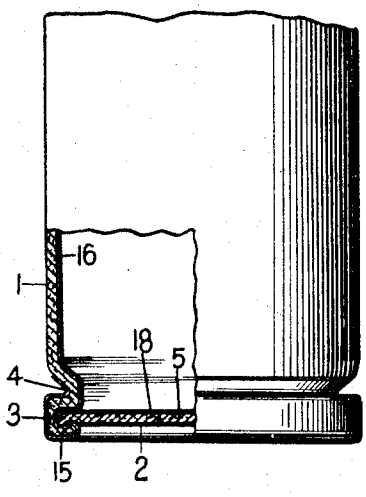


Fig. 1

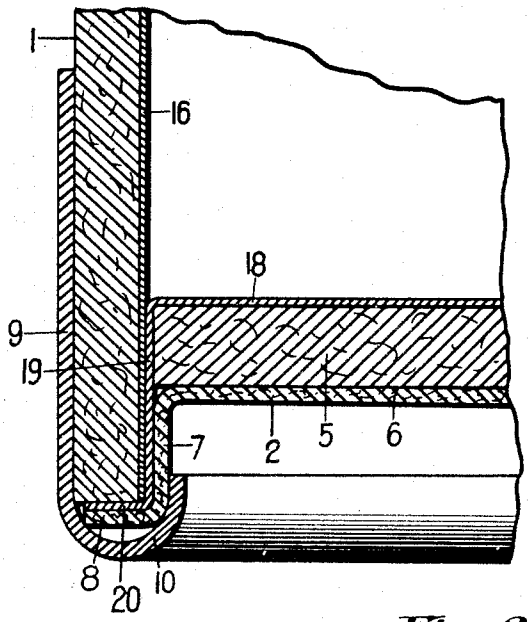


Fig. 2

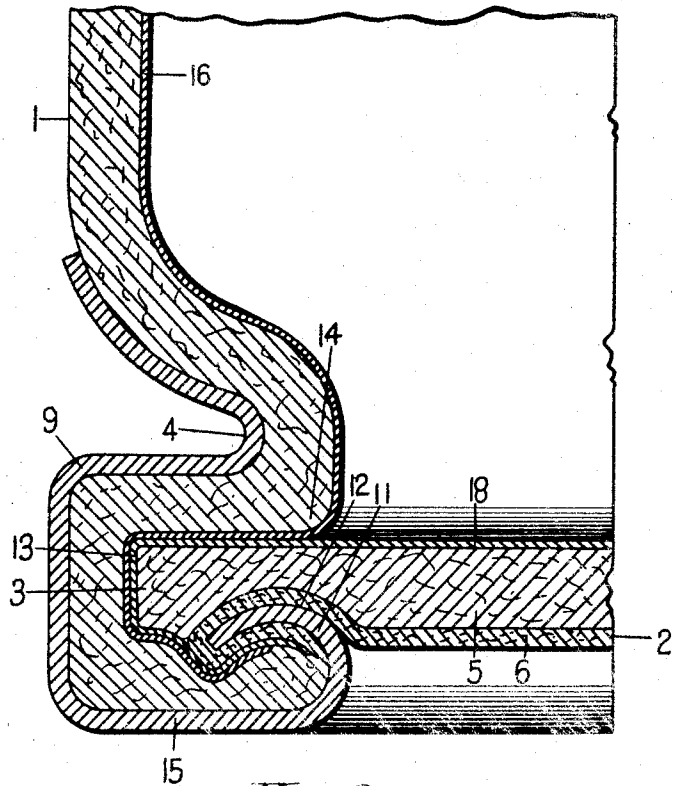


Fig. 3

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Patented Jan. 12, 1943 2,307,923

UNITED STATES PATENT OFFICE

2,307,923

CONTAINER

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Application July 31, 1940, Serial No. 348,984

4 Claims. (Cl. 229—5.5)

My invention relates to containers. It has to do, more particularly, with a barrel or container that is formed primarily of such material as fiber board, pulp board, or paper or straw board, although it is not necessarily limited thereto.

One of the objects of my invention is to provide a fiber barrel or container of such a nature that the bottom head will be securely held in position and the associated chime structure will be of such a nature that it will withstand the excessive blows to which a container of this type is subjected in normal use.

Another object of my invention is to provide a fiber barrel structure or container having the bottom head applied thereto in such a manner that there will be a fluid-tight seal between the bottom head and the cooperating body portion of the barrel.

In its preferred form, my invention contemplates the provision of a container comprising a substantially cylindrical body portion which is made of fiber board or other similar material and which has open ends. The extreme lower end of the fiber board body portion is embraced by a metal band which is firmly secured thereto. A head of heavy fiber material is placed in the lower end of the body portion. In order to firmly hold the head in position, the fiber body portion together with the surrounding metal band are bent to form a continuous internal groove, the walls of which tightly embrace the top and bottom surfaces of the head adjacent its periphery. When the body portion and the reinforcing metal band are bent, a continuous external groove is formed therein at a point spaced above the head. This serves to provide a resilient joint which will effectively withstand the shocks applied to the lower chime and prevent crushing of the chime.

In order to provide a fluid-tight seal between the head and the body portion, the contacting surfaces of the body portion and the head are provided with lining or coating, preferably of thermoplastic material. After the container has been formed, as indicated above, it is subjected to a heating operation which will cause the adjacent layers or coatings on the cooperating head and body portion to adhere to each other and form a fluid-tight joint. The lining of the thermoplastic material is preferably applied to the entire inner surface of the fiber body portion to seal the pores of the fiber material. During use of the container, the resilient structure previously referred to will prevent pulling apart of the layers of thermoplastic material on the body portion and the head.

The preferred embodiment of my invention is illustrated in the accompanying drawing wherein similar characters of reference designate corresponding parts and wherein:

Figure 1 is a side elevation, partly broken away, illustrating the lower portion of a cylindrical container which has a lower end structure according to my invention.

Figure 2 is a detail, in vertical section, of the lower end structure showing the parts assembled and ready for a final forming operation.

Figure 3 is a similar view showing the lower end structure after the final forming operation.

With reference to the drawing, I have shown a barrel structure comprising a body portion 1 which may be of suitable fiber material. This body portion is preferably of cylindrical form and may be produced in any desired manner.

As indicated in Figures 1 and 3, when the lower head structure is finally completed, it embodies a disk-like head 2 which is held in position within a continuous internal groove 3 formed in the lower end of the body portion. A continuous external groove 4 is formed above the head in the body portion to provide a resilient chime structure.

In forming this bottom head structure, as indicated in Figure 2, a disk 5 is inserted into the lower end of the cylindrical shell 1. The disk 5 is preferably made of heavy fiber material similar to the shell 1 and is just slightly smaller in diameter than the shell 1. A tray 6 of fiber material is also inserted into the lower end of the shell 1 below disk 5. This tray 6 embodies a disk-like body portion and a downwardly extending peripheral flange 7. The flange 7 extends downwardly along the inner surface of the shell 1 and then outwardly into overlapping relationship with the end of the shell as at 8. A reinforcing metal band 9 is then positioned in surrounding relationship to the lower portion of the shell or body portion 1. This reinforcing metal band has a U-shape lower end 10 which extends around the lower end of the shell 1 and then upwardly into overlapping relationship with the inner surfaces of the shell 1 and the flange 7 of the tray 6.

The assembled unit indicated in Figure 2 is then subjected to a final forming operation. This final forming operation will bend the fiber body portion or shell 1 together with the metal reinforcing band 9 in the manner indicated best in Figure 3. The lower end of the body portion

together with the metal band is bent into overlapping relationship with the outer surface of the head. The lower portion 10 of the band 9 and the extreme end of the body portion 1 will be curled or beaded, as indicated at 11, and will be forced into the lower surface of the cooperating disk 5 and tray 6, forming therein a continuous groove 12 which is spaced slightly inwardly from the edge of the disk 5. This gives a bulging action at the point 13 which adds further to the tightness of the joint. When the body portion and the band 9 are simultaneously bent, the external groove 4 is formed therein. By forming this continuous external groove 4, there is produced an inwardly projecting rib 14 which is spaced from the end of the body portion and against which the disk 5 is clamped. It will be apparent that the continuous internal groove 3 is formed which receives the head structure and tightly embraces it. By forming the external groove 4, a resilient chime structure is produced. Any blow applied to the lower end of the container at the point 15 will merely serve to cause the walls of the groove 3 to more closely approach each other and grip the head structure therebetween. Similarly, the walls of the external groove 4 will flex towards each other and will absorb the shocks applied to the end of the container.

In order to provide a fluid tight seal between the head and the body portion, the inner side wall of the shell 1 is provided with a coating or lining 16. Similarly, the upper surface of the disk 5 is provided with a lining 18 which may also be a coating, and this lining extends downwardly over the edge of the disk and down over the outer surface of flange 7 of member 6, as indicated at 19. This lining also extends over the end of the shell 1 as indicated at 20. Thus, the cooperating portions of the head and the fiber body portion are provided with these coatings or linings which will be in contact with each other.

The linings or coatings 16 and 18 preferably consist of a suitable thermoplastic substance or other self-adhering substance of such a nature that the two adjacent linings or coatings will adhere to each other when subjected to heat. For example, I may use "Pliofilm" or "Vinylite" as the coating or lining material. The coating material may be applied by spraying, flashing or other means or may be as a separate sheet. The coatings or linings are applied to the head and shell before the container is assembled as indicated in Figure 2. After the container is assembled as indicated in Figure 2 and preferably after it is formed as indicated in Figure 3, the container is heated to cause the two layers 16 and 18 to adhere to each other. Any suitable temperature may be used depending upon the type of coating employed. When I use "Pliofilm," I may employ a temperature of about 270° F. This temperature may be developed during the drying or evaporation of a liquid vehicle present in the fiber part of the container. It is preferable to heat the container to remove the water present in the fiber material or to set up the adhesive used for joining the layers of material used in producing the fiber material. This heating operation will simultaneously cause the coatings 16 and 18 to adhere to each other.

It will be apparent that a fluid-tight seal will be produced between the head and the body portion in this manner. The fluid-tight feature of this joint is particularly enhanced by the resiliency of the chime construction which permits flexing of the chime, such as would develop on rolling or dropping the container on the chime, and which will prevent pulling apart of the coatings 16 and 18.

It will be apparent from the above description that I have provided a fiber barrel structure of such a nature that the bottom head is securely held in position and the associated chime structure is of such a nature that it will withstand the excessive blows to which the container of this type is subjected in normal use. Furthermore, it will be apparent that I have provided effective means for producing a fluid-tight seal between the head and the body portion.

Various other advantages will be apparent from the preceding description, the drawing and the following claims.

Having thus described my invention, what I claim is:

1. A container structure comprising a body portion made of fiber board or the like, a metal band surrounding the outer periphery of said body portion at the end thereof, overlapping such end and extending into overlapping relationship to the inner periphery thereof, a barrel head adapted to be inserted in the end of said body portion, said barrel head including a disk of heavy fiber material and a disk of flexible fiber material disposed on the outer surface thereof and having a flange, said body portion together with the surrounding metal band being bent in such a manner that there is formed a continuous rib which extends inwardly from the side wall of said body portion and supports and prevents inward movement of said barrel head and a continuous flange on the extreme end thereof which extends into overlapping relationship with the outer surface of said head, said last-named flange having a continuous bead on its inner surface which fits into a continuous groove formed in the outer surface of said head adjacent the periphery thereof, said flange on said disk of flexible fiber material on said barrel head extending between said metal band and said body portion.

2. A barrel structure comprising a body portion made of fiber board or the like, a barrel head adapted to be inserted in the end of said body portion, said head including a disk of heavy fiber material and a disk of flexible fiber material disposed on the outer surface thereof, said last-named disk having a peripheral continuous flange formed thereon, a metal band surrounding the outer periphery of said body portion at the end thereof, overlapping such end and extending into overlapping relationship to the inner periphery thereof, said body portion together with said metal band being bent in such a manner that a rib, which extends inwardly from the side wall of said body portion, is formed for preventing inward movement of said barrel head, the forming of said internal rib being also adapted to produce an external groove, said body portion and metal band being also bent in such a manner as to produce a flange on the extreme end thereof which extends into overlapping relationship to the outer surface of said head, said last-named flange having a continuous bead on its inner surface which fits into a continuous groove formed in the outer surface of said head adjacent the periphery thereof, said peripheral continuous flange on the flexible fiber disk of the head extending between the body portion and the portion of the metal band which extends into overlapping relationship to the inner periphery thereof.

3. A container structure comprising a body portion made of fiber board or the like, a metal band surrounding the outer periphery of said body portion at the end thereof, overlapping such end and extending into overlapping relationship to the inner periphery thereof, a barrel head adapted to be inserted in the end of said body portion, said barrel head including a relatively rigid disk and a disk of flexible material disposed in superimposed relationship, said body portion together with the surrounding metal band being bent in such a manner that there is formed a continuous rib which extends inwardly from the side wall of said body portion and supports and prevents inward movement of such barrel head and a continuous flange on the extreme end thereof which extends into overlapping relationship with the outer surface of said head, said last-named flange having a continuous bead on its inner surface which fits into a continuous groove formed in the outer surface of said head adjacent the periphery thereof, said disk of flexible material of the barrel head having a portion which extends between said metal band and said body portion.

4. A container structure comprising a body portion made of fiber board or the like, a metal member surrounding the outer periphery of said body portion at the end thereof, overlapping said end and extending into overlapping relationship to the inner periphery thereof, a barrel head adapted to be inserted in the end of said body portion, said body portion together with the surrounding metal member being bent in such a manner that there is formed a continuous rib which extends inwardly from the side wall of said body portion and supports and prevents inward movement of said barrel head and a continuous flange on the extreme end of the body portion and metal member which extends inwardly in substantially parallel relationship to said head and into overlapping relationship to the outer surface of said head, said flange having a continuous bead on its inner surface which fits into a continuous groove formed in the outer surface of said head adjacent the periphery thereof, said bead being formed by curling the metal member around the end of the body portion.

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