Sept. 25, 1956

H. A. ATKINS

2,763,973

METHOD OF PACKAGING TOBACCO

Filed April 9, 1954

2 Sheets-Sheet 1

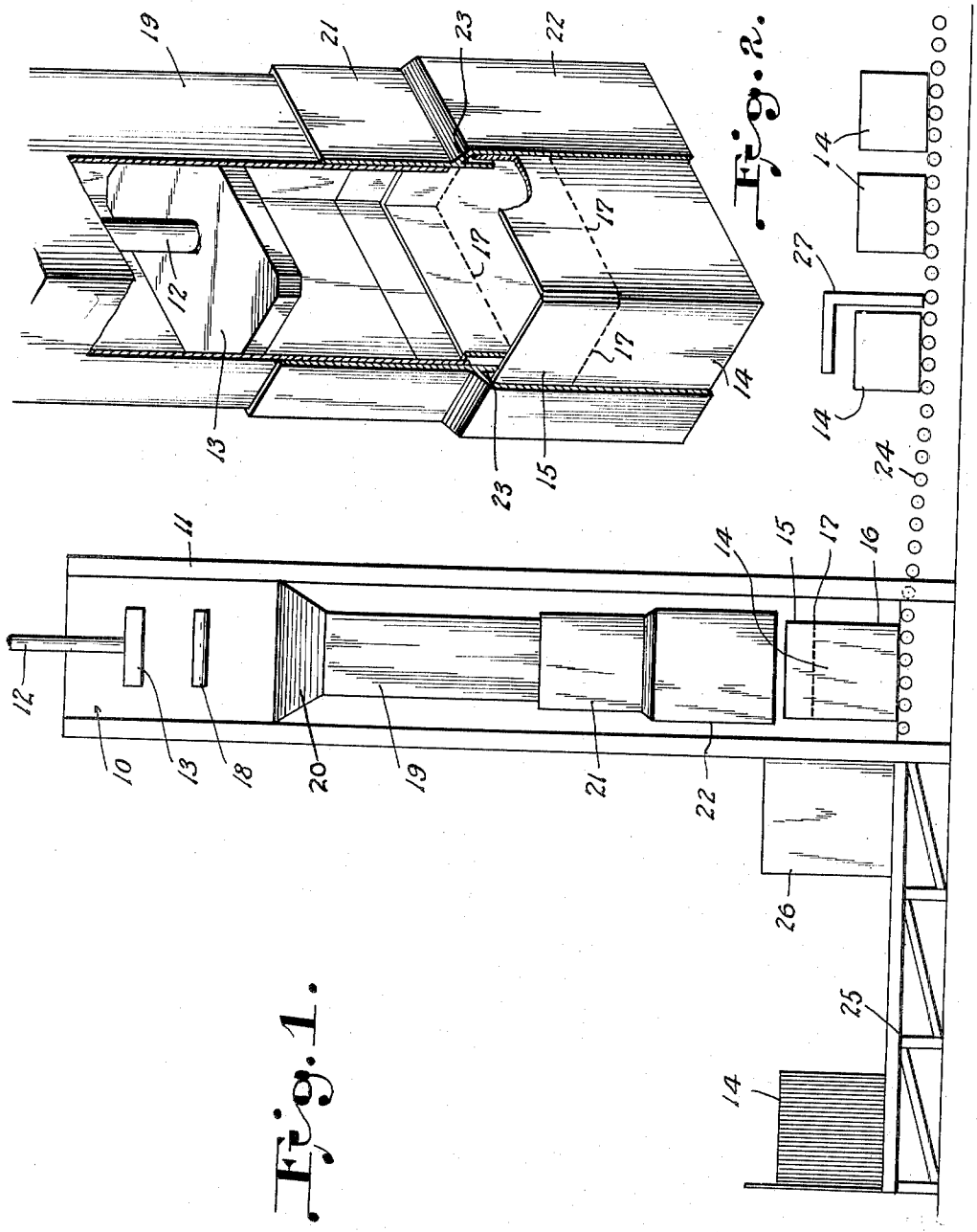


Fig. 2.

Fig. 1.

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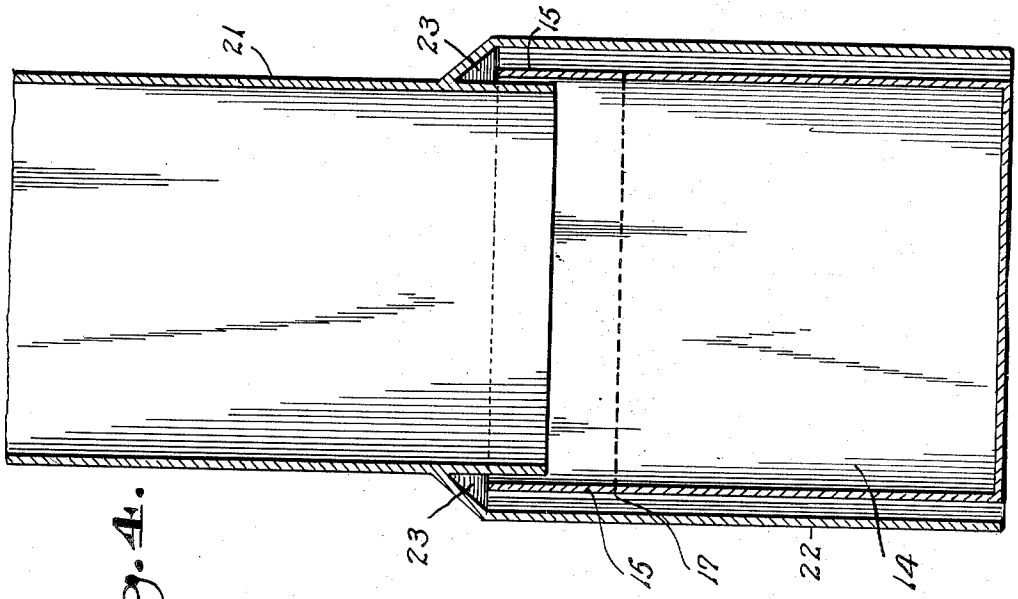


Fig. 4.

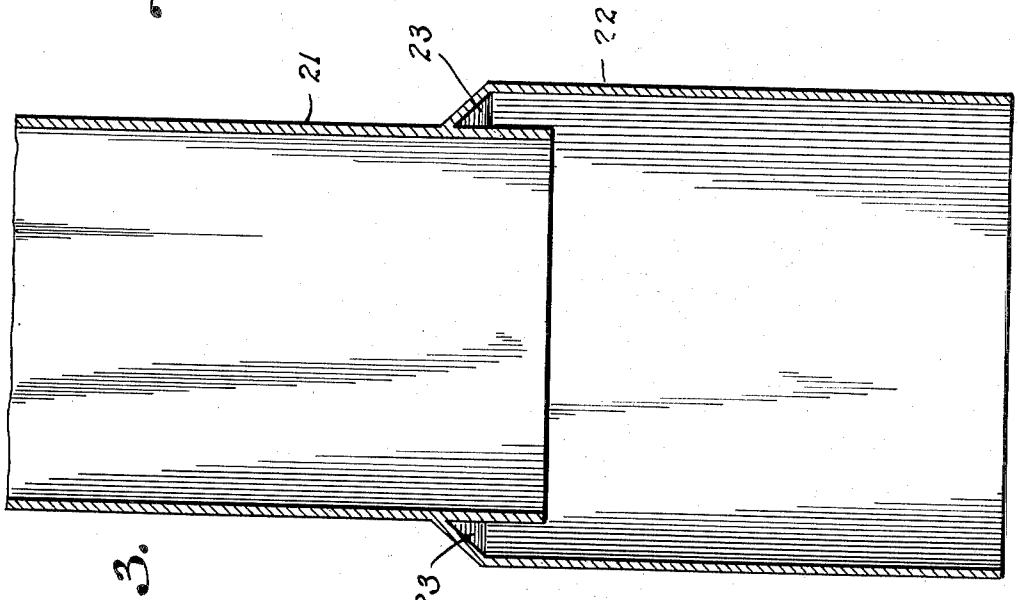


Fig. 3.

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United States Patent Office 2,763,973 Patented Sept. 25, 1956

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METHOD OF PACKAGING TOBACCO

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Application April 9, 1954, Serial No. 422,008

6 Claims. (Cl. 53—24)

This invention relates to a method of packaging tobacco. More particularly, it relates to a method of packaging compressible tobacco in a yieldable-wall top-seal type container.

The origin of the term hogshead to describe a large cylindrical cask or container is unknown. In early colonial times tobacco growers used huge wooden cylindrical containers to transport their tobacco to market. Spikes were driven into each end of the container, shafts attached to the spikes and horses or oxen were used to roll the casks of tobacco to market.

Large cylindrical wooden hogsheads are in general use by tobacco manufacturers to store and transport tobacco. These hogsheads are generally made of wooden staves or plywood, reinforced with necessary metal bands or straps. The hogsheads vary in size but are generally about 48" high and about 48" in diameter. Into each is compressed about 900–1000 pounds of tobacco.

In modern tobacco stemmeries, a hydraulic press is used to compress the tobacco in the hogshead. After the tobacco is compressed, the press head is removed from the hogshead and a wooden top is carefully positioned in the hogshead. The press head is then repositioned to force the top to the desired locking position, and the top is then fastened securely.

While the wooden hogsheads are in general use throughout the industry, there are several disadvantages. Principally, they are costly. They are difficult to open to inspect or secure samples after they are sealed. They are large, heavy and difficult to handle.

Heretofore, investigators have proposed the use of various other types of containers for tobacco, such as cardboard containers, but none have been used successfully to my knowledge. The difficulty experienced with cardboard containers was that the sides of the containers yielded outwardly or burst from the force of the press head during compression of the tobacco. A further problem was that the expansion of the tobacco after compression, caused by its resilience, prevented the top flaps of the carton from being securely fastened.

Now, in accordance with my invention, I have developed a method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising positioning a yieldable-wall, top-seal type container with its top flaps extending upwardly, positioning a rigid form around the outside periphery of said open container, and in spaced relationship thereto, filling said container with compressible tobacco to a level above the top score lines of said container, compressing said tobacco to a level below the top score lines of said container and sealing said container before the compressed tobacco therein can expand to a level above the top score line of said carton.

While there are various types of apparatus adapted to carrying out my method, one particularly preferred is shown in the accompanying drawings and description:

In the drawings:

Fig. 1 is a schematic view in elevation of the overall

method showing the filling chute with box support in raised position, with a yieldable-wall, top-seal type container in filling position, resting upon a roller conveyor.

Fig. 2 is a perspective view with a section cutout showing the container in filling position with top flaps extending upwardly, with the container support in spaced relationship with the container.

Fig. 3 is a cross-section view of a part of the filling chute and box support.

Fig. 4 is a cross-section view of a part of the filling chute and box support and the container in filling position.

Like numerals throughout the several views designated corresponding parts.

Referring now more particularly to the drawing, 10 designates the hydraulic press assembly. This assembly 10 is of a type commercially available except with certain modifications necessary to adapt it for carrying out my method. The assembly 10 consists generally of a vertical frame 11, supporting a hydraulic cylinder 12 of conventional construction. The cylinder 12 contains a piston (not shown) which activates a press head 13. The press head 13 is generally round in shape, but for my method, it preferably is rectangular and adapted to fit within a yieldable-wall, top-seal type container 14, having top flaps 15, sides 16 and top score lines 17.

Numeral 18 designates a conventional type endless belt conveyor which is adapted to deposit tobacco into a filling chute 19. The filling chute 19 is preferably of the same shape as the press head 13, and has a funnel-shaped opening 20 to receive the tobacco. An intermediate section 21 is reinforced to give added rigidity and strength and extends into a rigid container support 22 which is an integral part thereof. The container support 22 extends diagonally downwardly for a short distance at the point of juncture with the intermediate section 21 and continues downwardly parallel to the sides of the intermediate section 21. Flap support zones 23 are provided to give a positive locking action for top flaps 15 of the container 14 to hold them in upright position during filling and compressing. Means, not shown, are provided for lowering and raising the filling chute 19 sufficiently to allow the container 14 as in Fig. 1, or lowered so as to be in spaced relationship with the container 14 as shown in Fig. 4. A roller conveyor 24 is provided upon which the carton 14 rests while in filling position.

Fig. 1 shows a schematic view in elevation of one method of carrying out the method. In addition to the hydraulic press assembly 10 is shown a plurality of containers 14 in collapsed position on a support 25. A carton assembly zone 26 is shown where the containers 14 are assembled. A roller conveyor 24 leads from the hydraulic press assembly 10 to an automatic strapping zone 27 where the container is securely closed.

In operation, a container 14 in collapsed condition is assembled in the assembly zone 26. It is then positioned on the roller conveyor 24 with the top flaps 15 extending upwardly while the filling chute 19 is in raised position. The filling chute 19 is then lowered until the container support 22 surrounds the outside periphery of the carton 14 and is in spaced relationship therewith, and the top flaps 15 are positioned securely in the flap support zones 23.

It is essential the container support 22 fits securely around the periphery of the container 14 since it acts as a rigid support to prevent the sides 16 of the container 14 from yielding outwardly while the tobacco is being compressed.

When the container support 22 is in filling position, the conveyor 18 is started and the desired amount of

tobacco flowed into the container 14 through the filling chute 19. The amount is predetermined, either by level or weight, but in all instances it is more than sufficient to fill the container 14 above the level of the top score lines 17. The press head 13 is then lowered with sufficient hydraulic force to compress the tobacco below the top score lines 17. The press head 13 is immediately withdrawn, and the filling chute 19 raised so that container support 22 is positioned above the top flaps 15. The container 14 is activated along the roller conveyor 24 and proceeds to the automatic strapping zone 27 where the top flaps 15 are folded in closed position and the container 14 securely closed with metal straps, not shown.

Because of the resiliency of the tobacco, it will not remain in compressed position below the top score lines 17. It has been found that sufficient hydraulic pressure can be applied to the tobacco in the container 14 and the tobacco compressed sufficiently that it takes from one and one-half to two minutes after the press head has been withdrawn before the compressed tobacco expands above the top score lines. This is more than sufficient time for the filled carton 14 to be sealed after filling.

While in the drawing a hydraulic press has been shown in which the press head is lowered into the container, the invention is not so limited, since the method may be carried out using a hydraulic press in which the press head remains stationary such as shown in U. S. Patent 2,499,310 to Hathaway.

Although various types of yieldable-wall, top-seal type containers may be used, in practice, it has been found that multiwall corrigated paper containers of about 400 lb. strength are particularly suitable for use.

The size also may vary, but experience has shown that one capable of holding about 450 pounds of tobacco is sufficiently large, yet can be easily handled. It has been found that the use of a container of this size will result in a saving of from 20 to 25% on storage space. Furthermore, weighing about 19 pounds tare it represents a 66⅔% saving in container weight as a hogshead weighs around 108 pounds. Ordinarily the container will be rectangular in shape, although it may be square, if desired.

Experience has shown that yieldable-wall containers, as hereinbefore described, can be processed in a thermovactor machine in the regular manner as a hogshead, with the resulting tobacco being satisfactory in all respects.

The tobacco can be compressed in the yieldable-wall container to the same density per cubic foot as in a hogshead which may vary from 10 to 20 pounds per cubic foot. The resiliency of the tobacco is readily apparent after the press head is removed, so its expansion can be observed with different types tobacco. I have found that in a container containing 450 pounds of bright togacco, if the tobacco is compressed about four inches below the top score lines 17, it will take from 1½ to 2 minutes before the tobacco will expand to above the top score lines 17. Thus, there is sufficient time to remove the filled container 14 to the strapping zone 27 where the top flaps 15 are folded in closed position and the container 14 securely closed before the tobacco has expanded above the top fold lines 17. It will vary somewhat with different types of tobacco, but will generally take from about 1½ to 2 minutes before it has expanded to above the top score lines provided the tobacco is compressed from 4 to 6 inches below the top score lines.

It will thus be apparent that by my novel method, tobacco may be packed and stored in yieldable-wall, top-seal type containers and many advantages result thereby. Because of the size and shape of the containers, savings are achieved in transporting, as well as in warehouse space. Transportation savings are also achieved in the lower tare weight of the container. During storage, the tobacco may be inspected or "thiefed" with greater ease than when packed in wooden hogsheads. In addition,

material saving results from cost of yieldable-wall, top-seal type containers rather than wooden hogsheads. The smaller size allows greater ease of handling than bulky hogsheads.

Although I have shown and described preferred embodiments of my invention, it is to be understood that modifications may be made within the scope of the claims without departing from the spirit or scope thereof.

I claim:

1. A method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising positioning a yieldable-wall, top-seal type container with its top flaps extending upwardly in a togacco filling zone, positioning a rigid form around the outside periphery of said open container including said extended top flaps, and in spaced relationship thereto, filling said container with resilient tobacco to a level above the top score lines of said container, compressing said resilient tobacco to a level below said top score lines, and sealing said container before the resilient tobacco therein can re-expand to a level above the top score lines of said container.

2. A method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising positioning a cardboard container with its top flaps extending upwardly in a tobacco filling zone, positioning a rigid form around the outside periphery of said open container including said extended top flaps, and in spaced relationship thereto, filling said container with resilient tobacco to a level above the top score lines of said container, compressing said resilient tobacco to a level below said top score lines, and sealing said container before the resilient tobacco therein can re-expand to a level above the top score lines of said container.

3. A method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising positioning a multiwall cardboard container with its top flaps extending upwardly in a tobacco filling zone, positioning a rigid form around the outside periphery of said open container including said extended top flaps, and in spaced relationship thereto, filling said container with resilient tobacco to a level above the top score lines of said container, compressing said resilient tobacco to a level below said top score lines, and sealing said container before the resilient tobacco therein can re-expand to a level above the top score lines of said container.

4. A method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising positioning a yieldable-wall, top-seal type container with its top flaps extending upwardly in a tobacco filling zone, positioning a rigid form around the outside periphery of said open container including said extended top flaps, and in spaced relationship thereto, filling said container with resilient tobacco to a level above the top score lines of said container, compressing said resilient tobacco to a level below said top score lines, removing said rigid form, and sealing said container before the resilient tobacco therein can re-expand to a level above the top score lines of said container.

5. A method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising positioning a yieldable-wall, top-seal type container with its top flaps extending upwardly in a tobacco filling zone, positioning a rigid form around the outside periphery of said open container including said extended top flaps, and in spaced relationship thereto, filling said container with reslient tobacco to a level above the top score lines of said container, compressing said resilient tobacco to a density of from 10 to 20 pounds per cubic foot to a level below the said top score lines, and sealing said container before the resilient tobacco therein can re-expand to a level above the top score lines of said container.

6. A method of packaging compressible tobacco in a yieldable-wall, top-seal type container comprising posi-

tioning a multiwall-cardboard container of about 400 lb. strength, with its top flaps extending upwardly in a tobacco filling zone, positioning a rigid form around the outside periphery of said open container including said extended top flaps, and in spaced relationship thereto, filling said container with resilient tobacco to a level above the top score lines of said container, compressing said resilient tobacco to a density of from 10 to 20 pounds per cubic foot to a level below the said top score lines, and sealing

said container before the resilient tobacco therein can re-expand to a level above the top score lines of said container.

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