Jan. 26, 1960 A. C. MONK, JR 2,922,360

PACKAGING OF COMMODITIES

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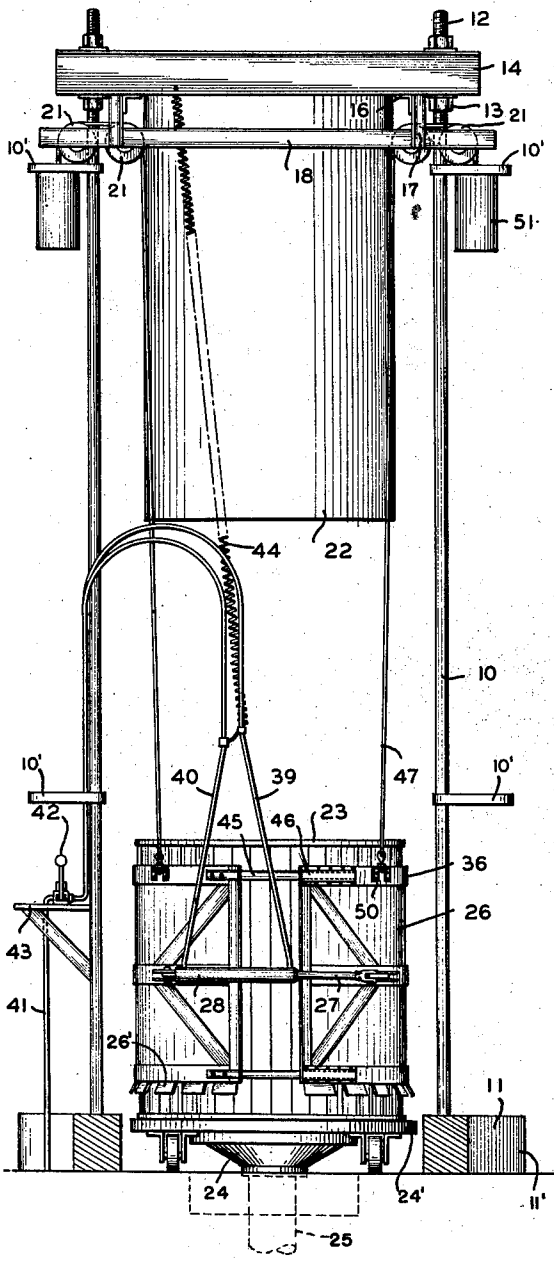


FIG. 1

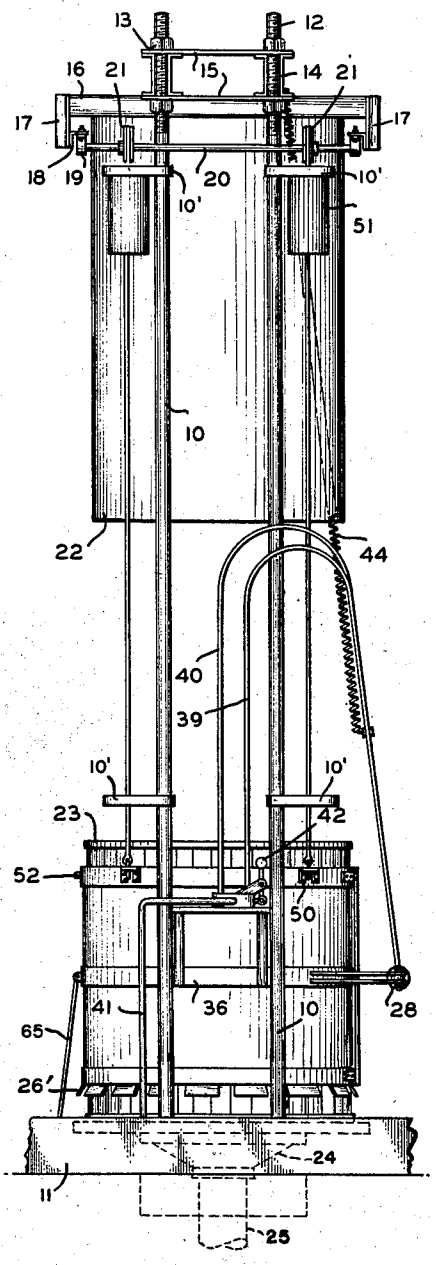


FIG. 2

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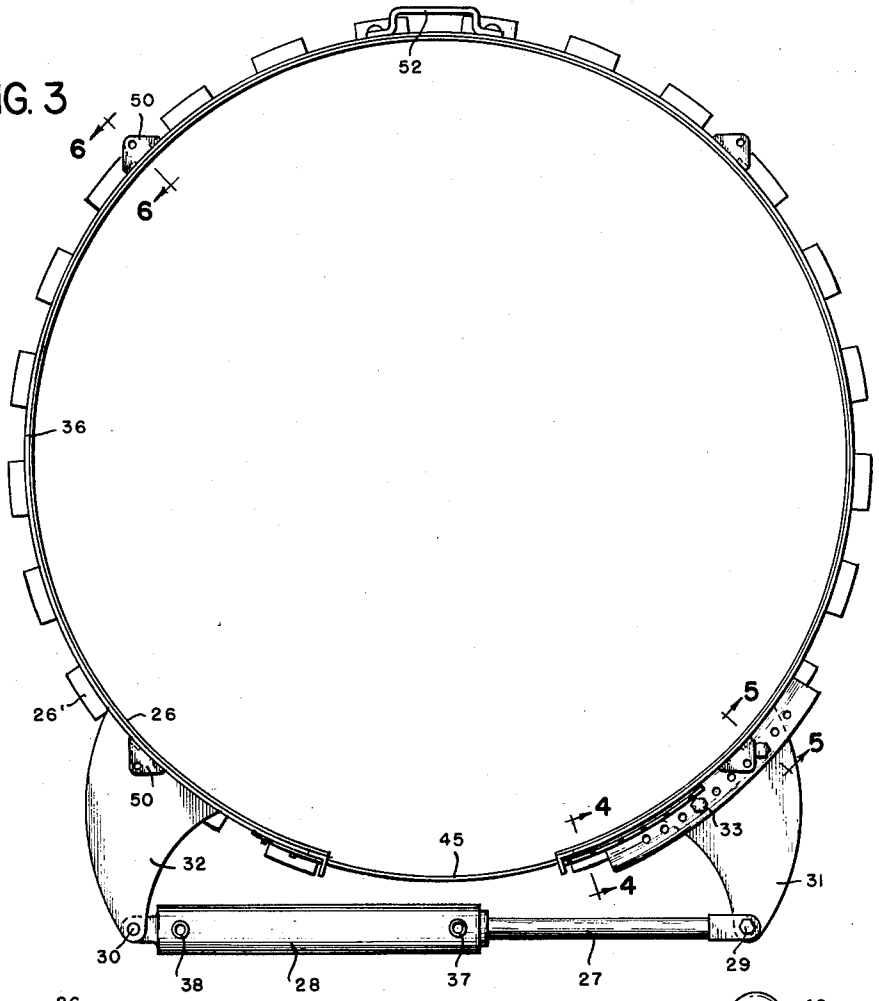
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FIG. 3



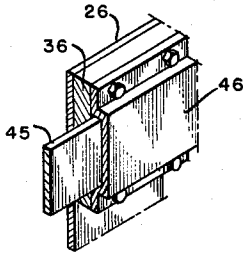


FIG. 4

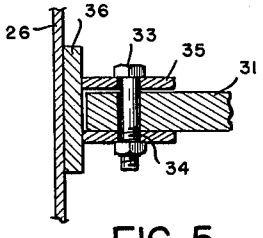


FIG. 5

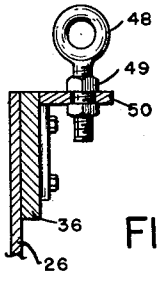


FIG. 6

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FIG. 7

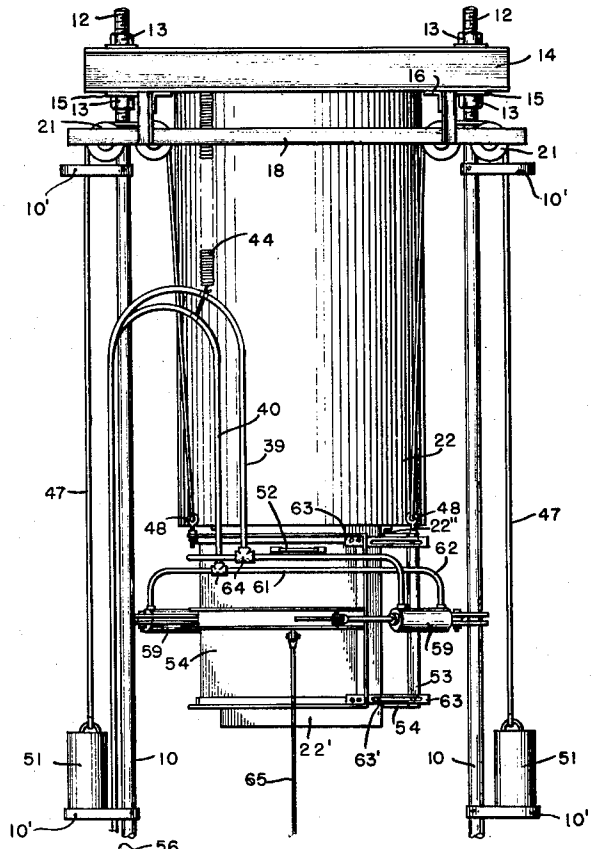
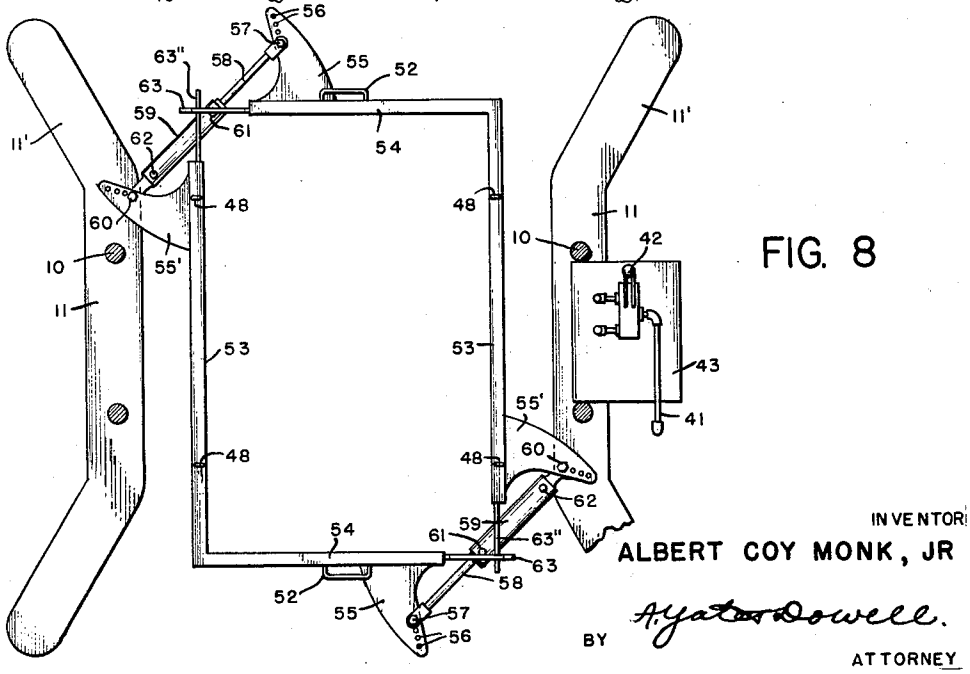


FIG. 8



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2,922,360

PACKAGING OF COMMODITIES

Albert Coy Monk, Jr., Farmville, N.C.

Application October 11, 1957, Serial No. 689,715
4 Claims. (Cl. 100—229)

This invention relates to the packaging of commodities of various kind, in bulk and otherwise, for the transportation and storage of the same, and in the packaging of which substantial pressure or force is applied in order to insure that the container in which the individual commodity or commodities is placed be completely filled and contain the desired weight of the product.

The invention contemplates the packaging of any desired commodity which it is desirable to compress in order to reduce the size of the mass and to fill a container therewith, for example the filling of tobacco containers with leaf tobacco, so that sufficient pressure may be applied to insure the container being filled and contain the desired weight of tobacco as well as being supported during the pressing operation.

Hogsheads have been filled and so have boxes and other containers with tobacco or other material using a press to apply force necessary to compress the tobacco or other material sufficiently to insure complete filling of the hogshead or container with the result that frequently there has been enlargement of the mid-portion of the container to such an extent that breakage or injury has occurred resulting in loss or damage to the container, tobacco, increasing cost of handling, delay, and the necessity for the use of skilled labor.

It is an object of the invention to overcome the difficulties enumerated and to make it possible to employ containers of lighter materials with a consequent saving, including savings in transportation, less expensive materials such as paper, cloth, plastics, plywood, flakeboard, fiberboard, metal, wire, or combination thereof in the construction of tobacco containers, and other containers filled under pressure by using a casing or jacket of a size and character to be placed around the container in a manner to support and reinforce the same against internal expansive pressure while the contents of the container is being pressed.

A further object of the invention is to provide a simple inexpensive, easily applied casing or jacket for use around a tobacco container contents of which are to be pressed to provide the necessary resistance to destructive outward pressure during pressing as well as a device of this character which can be applied and used by unskilled labor with minimum effort and consumption of time, which is available at all times and requires no appreciable space.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawings wherein:

Fig. 1 is a front elevation of a press employed in connection with the pressing of tobacco into a container and illustrating one application of the invention applied thereto;

Fig. 2, a similar view taken at right angles to Fig. 1;

Fig. 3, an enlarged top plan view of the supporting and reinforcing jacket and expanding and contracting means therefor;

Fig. 4, an enlarged section on the line 4—4 of Fig. 3;

Fig. 5, an enlarged section on the line 5—5 of Fig. 3;

Fig. 6, an enlarged section on the line 6—6 of Fig. 3;

Fig. 7, a fragmentary front elevation of a press with an attachment constituting a modified form of the invention for use in filling a rectangular container; and

Fig. 8, a top plan view of the jacket of Fig. 7.

Briefly stated the invention comprises a casing or jacket supported out of the way but readily available to be applied around the girth of a container such as a tobacco hogshead, box or the like and with contraction and expansion means for such jacket operated by a piston and a cylinder or other means pneumatically or hydraulically or by other power or force multiplication means for contracting and expanding the jacket to provide support for and to prevent undue expansion of the tobacco hogshead, box, or other container while the contents of tobacco or other commodity are being compressed therein. For supplying the necessary force a press is provided which comprises a head on the end of a power driven piston which compresses the tobacco or other commodity in the hogshead, box or other container against a fixed abutment or support.

With continued reference to the drawings, a press is utilized in the pressing of tobacco into a container. Such press may be of the character disclosed in Figs. 1 and 2 and comprised of a series of posts 10 mounted on foundations 11, such posts having threaded upper ends 12 for the reception of a pair of spaced nuts 13 between which are mounted frame members 14 and cross members 15.

Beneath the frame members 14 are located angle members 16 provided at opposite ends with depending members 17 to which are attached angles 18 carrying bearings 19 which support shafts 20, provided with pulleys or sprockets 21 on each end of each of the shafts.

Extending from the upper framework is a depending head or abutment 22 of a shape corresponding to that of the interior of a container to be pressed as for example of cylindrical shape for use in filling a tobacco hogshead in which instance the lower end of the abutment is adapted to enter a hogshead 23 so that tobacco placed into the hogshead will be forced against the head 24 on the end of a ram 25, which will come in contact with such head. In other words, against the tobacco confined between the movable head 24 and the fixed end of the abutment or stationary head 22, pressure can be applied to compress the tobacco until sufficient weight is obtained.

This force causes the exertion of pressure laterally within the container and in order to support the wall thereof it has been customary to place a chain around the container. In the present instance a casing or jacket 26 is provided and is contractable by power means of any desired character as for example by means of a piston 27 in a cylinder 28 attached by bolts 29 and 30 to brackets 31 and 32, the bracket 32 being fixed to the member 26 and the bracket 31 being adjustably connected thereto by means of bolts 33, extending through openings 34 in brackets 35, attached to a reinforcing band 36 on the casing or jacket 26.

The cylinder 28 is provided with communicating passages 37 and 38 for the reception, through connections 39 and 40, of pressure fluid from a source of supply 41 and under the influence of a control valve 42, mounted on a bracket 43. The pressure fluid connections 39 and 40 are supported by means of a spring 44 attached to the upper frame of the press.

The casing or jacket 26 is provided with outwardly disposed guide members 26' to facilitate the casing being lowered over a hogshead with minimum difficulty. The upper and lower ends of the contiguous portions of the casing or jacket 26 are provided with cooperating guide

bands 45 received in guides 46 for maintaining the parts in proper relation before and during contraction.

Prior to its application the casing or jacket 26 is supported in elevated position out of the way of workmen in and during use it also is supported by cables or chains 47 attached to screw eyes 48 by lock nuts 49 on brackets 50, attached to one of the reinforcing bands 36. The cables or chains 47 extend over pulleys, or sprockets 21 and are provided with counter-balancing weights 51 at their opposite ends. If desired, the casing or jacket may be provided with one or more handles 52. Stops 10' may be provided for limiting the movement of the counterbalancing weights.

It will be apparent from the foregoing that the reinforcing casing or jacket of the present invention requires no usable space and is out of the way where it does not interfere with the loading, unloading or operation of the press when not in use, but is readily available at all times with saving of time, effort, and expense, since it may be employed at all times in the pressing of tobacco into containers, and it will provide the necessary reinforcement to prevent rupture or breakage of the container. Further, the device is inexpensive, may be readily produced, applied to a conventional press, and used by unskilled labor. Further it may be moved into and from operative position by hand or in any other manner.

The structure described is intneded for use when material, for example, leaf tobacco is pressed into a container such as a tobacco hogshead. It is designed to provide an outside support for the mid-portion of the container to withstand internal pressure. The same principle is applicable to containers of other shapes, for example, in Fig. 7 and 8 equipment is described for use around a rectangular box as illustrated.

A press may be provided of the general character of that described with opposed portions between which the material used in the filling of the container is compressed. If desired, a different form of compression device may be employed. As illustrated in Figs. 7 and 8 this may include a substantially rectangular extension or attachment 22' secured by bolts 22'' or other attaching means to the bottom of the abutment 22 of Figs. 1 and 2.

Extension 22' forms a smaller abutment, and is of a size to be received within a box of rectangular or other configuration and a reinforcement for such box in the form of a rectangular casing or jacket composed of a pair of L-shaped cooperating members having long and short arms 53 and 54. These L-shaped members are adapted to be applied to the diagonally opposite corners of a box or other container of any desired shape and be forced toward each other to support and reinforce the box during the pressing of the same.

In order to hold the casing or jacket around the container or box a single bracket 55 and a double bracket 55' are provided at each joint attached to the free ends of the members 53 and 54, each bracket having a series of openings 56 for the reception of bolts 57 by means of which the ends of the pistons 58 are fastened to the brackets 55, and the ends of the cylinders 59 are attached by means of the bolts 60 to the brackets 55'. The cylinder 59 is provided with fluid connections 61 and 62 by means of which the associated brackets may be contracted or expanded for more closely conforming to the external configuration of the exterior of the container or for releasing the jacket therefrom.

The exposed surface of the press head 24 is adapted to be mounted flush with the floor or other surface beneath which the press head is mounted in order to permit the passing thereover of a truck or dolly 24' on which the container is adapted to be supported and transported to the press. The truck likewise may be used with the structure of Figs. 7 and 8. If desired, the foundations 11 may be provided with angular extensions 11' for facilitating the movement of the truck into operative position.

The L-shaped members having sides 53, 54 may be maintained in alignment by straps 63 fixed at the top and bottom of each of the sides 53 and provided with slots 63' and cooperating rods or bars 63'' which are fixed at the top and bottom of each of the sides 54 and extend through the slots 63' in the straps 63. Thus it will be clearly seen that the L-shaped members may be moved toward and from each other and still be in alignment.

The operating mechanism for moving the L-shaped members toward and from each other corresponds to that of the earlier figures; however, the lines 39 and 40 terminate in T connections 64 which join the lines 61 and 62 which extend to the operating cylinders 59.

With the construction disclosed the reinforcing casing or jacket is available at all times. When not in use it is adapted to being disposed at an elevated position where it is out of the way of workmen but it is provided with a cable 65 as shown in Fig. 2 by which it may be lowered into operating position. During the pressing the casing or jacket remains with the container as the latter is moved.

Although the movable member of the press is illustrated as moving upwardly it, of course, may be constructed to move downwardly using the floor as an abutment in which event the container and jacket would remain stationary during the pressing operation but the jacket might still be mounted for movement upwardly when it was not in use.

The press may be of the general character indicated with an abutment added to any desired configuration corresponding to the container to be filled and the casing or jacket of corresponding configuration. If the jacket is rectangular to fit about a rectangular container the L-shaped cooperating members may be applied about the diagonal opposite corners of the containers and be forced toward each other to reinforce the container during its pressing.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawing and described in the specification, but only as indicated in the following claims.

What is claimed is:

1. Apparatus for compressing material within a removable container having relatively fixed walls comprising the combination of a press including a vertically disposed frame, a depending head on said frame of a configuration conforming substantially to the shape of the interior of the container, an extendable and retractible ram movable toward said head, said container being positionable on said ram and movable therewith toward said head, a jacket constructed to be contracted into engagement and conformity with the exterior of said container, said jacket having free ends, power operated means interconnecting said free ends, counterbalance means suspending said jacket and permitting the same to be lowered and disposed about said container said power-operated means on said jacket being adapted to expand and contract said jacket in encircling relation about said container whereby the container may be raised into telescoping relation with said head and with the jacket externally engaging said container, said container and jacket subsequently being lowered with said ram and said jacket raised to facilitate the removal of said container from beneath said head.

2. The structure of claim 1 in which said power operated means comprises fluid pressure controlled cylinder and piston means operatively connected between contiguous vertical edge portions of said jacket.

3. The structure of claim 1 in which said jacket includes outwardly flared lower guide portions engage-

able with the upper end of said container for facilitating disposition of the jacket on said container when the jacket is moved.

4. Apparatus for compressing material within a removable container having relatively fixed walls comprising the combination of a press including a vertically disposed frame, a depending head on said frame of a configuration conforming to the shape of the interior of the container, a second head positionable below said depending head for supporting the container, an extendible and retractible ram movably supporting one of said heads, said container being positionable on said second head and in alignment with said first head, a jacket constructed to be contracted into engagement and conformity with the exterior of said container, counterbalance means suspending said jacket and permitting the same to be raised and lowered and disposed about said container, power operated means on and carried by said jacket for expanding and contracting said jacket in encircling relation about said container whereby one of said heads may be moved relatively to the other head into telescoping relation with said container, said jacket externally engaging said container, said container and jacket subsequently being movable relative to one of said heads and said jacket moved vertically to facilitate removal of said container from between said heads.

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