

Oct. 28, 1941.

H. F. WATERS

2,260,424

SHIPPING CASE

Filed Feb. 7, 1939

2 Sheets-Sheet 1

Fig. 1.

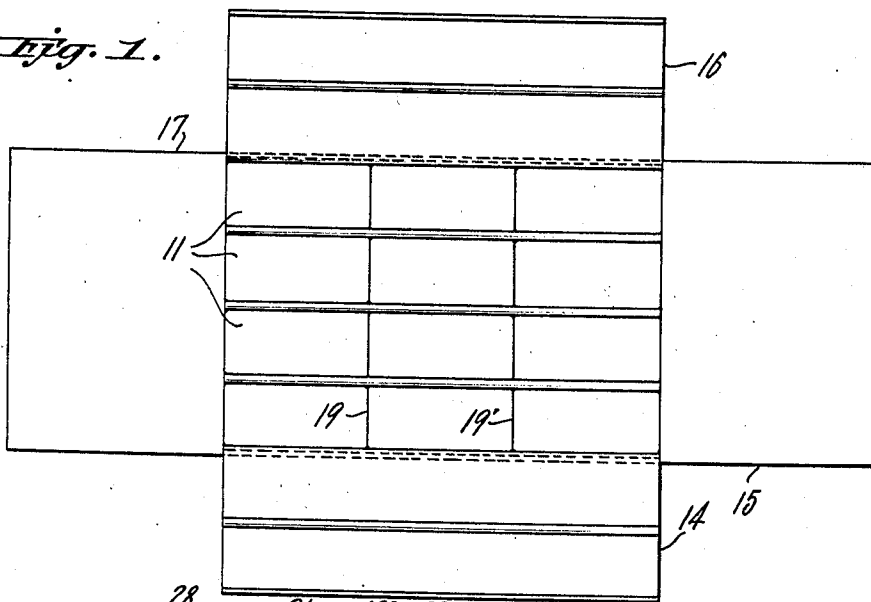


Fig. 2.

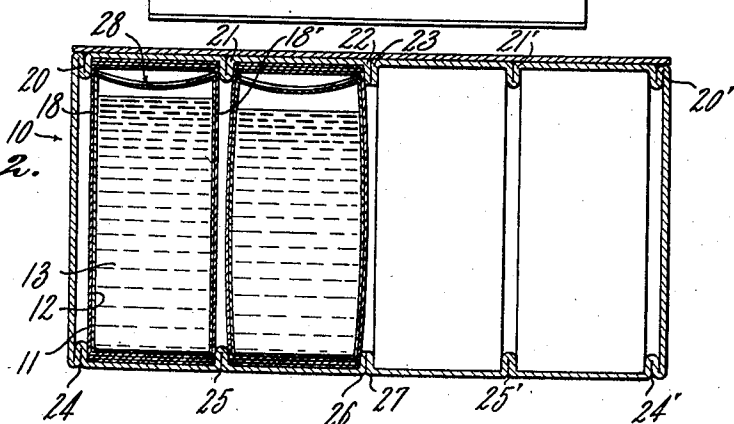
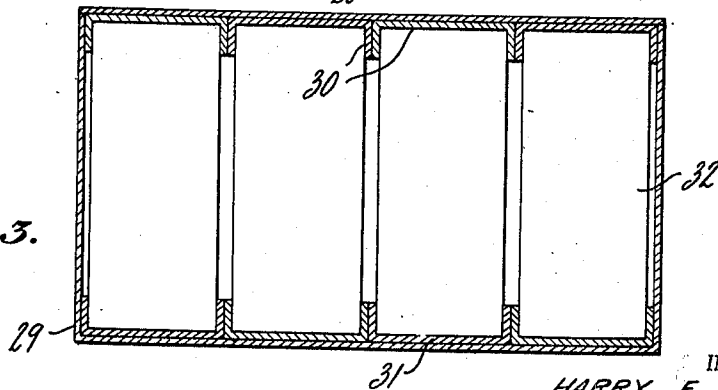


Fig. 3.



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2 Sheets-Sheet 2

Fig. 4.

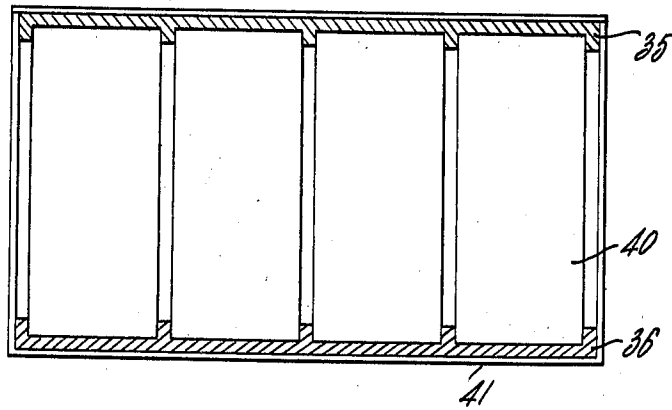


Fig. 5.

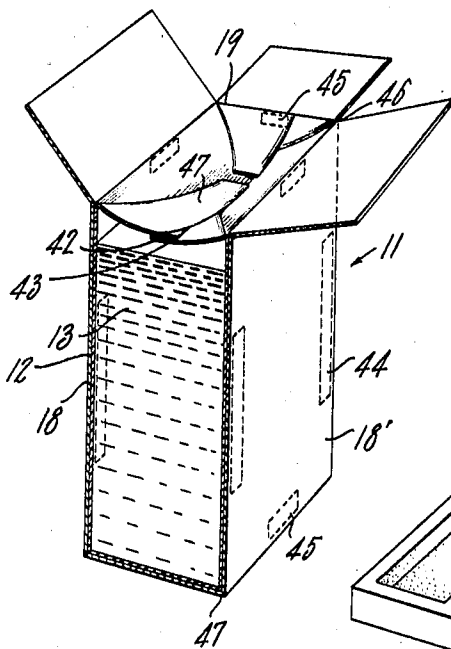


Fig. 6.

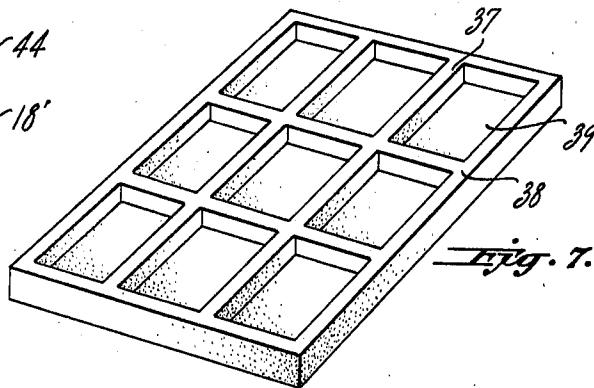
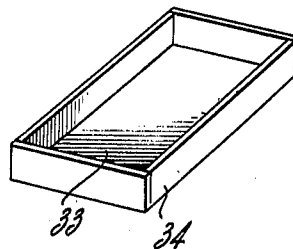


Fig. 7.

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2,260,424

SHIPPING CASE

Harry F. Waters, New York, N. Y.

Application February 7, 1939, Serial No. 255,029

4. Claims. (Cl. 206—65)

My present invention relates to improvements in shipping cases and, more particularly, to a shipping case provided with means to separate the packages packed therein in such a manner that certain of the walls of the package will be free to move when subjected to shock or those stresses and strains encountered in shipment.

One of the important features of my present invention is to provide in a shipping case for packages containing liquids such as oil, milk, etc., suitable means for holding certain of the walls of the packages from contact with walls of adjacent packages to the end that these walls may flex due to surging of the contained liquid, thereby preventing undue pressure on the closures of the packages.

Another object of my present invention is to provide an improved form of shipping case for liquid packages wherein sufficient space is allowed between certain of the walls of adjacent packages to permit flexing of the walls so that the closures of the package will be subjected to as little strain as possible.

These and other objects of my present invention will become more apparent from a reading of the following description taken in conjunction with the attached drawings in which:

Fig. 1 is a top plan view of a shipping case with the closure panels in open position to illustrate certain features of my present invention;

Fig. 2 is a broken sectional view through the shipping case illustrating in detail the manner in which the cartons are held therein;

Fig. 3 is a sectional view through a shipping case illustrating a modified form of the partitioning or separating means;

Fig. 4 is a view similar to Fig. 3, but illustrating another form of partitioning or separating means;

Fig. 5 is an enlarged perspective view of one of the individual cartons, certain parts being broken away to illustrate the relationship between the inner liquidproof bag and the carton;

Fig. 6 is a perspective view of the separator illustrated in Fig. 3; and

Fig. 7 is a perspective view of the separator shown in Fig. 4.

Referring now to the drawings in which like numerals indicate like parts and more particularly to the embodiment of my invention disclosed in Figs. 1 and 2, I have shown a shipping case 10 in which are packed the cartons 11 and which are of the construction illustrated in detail in Fig. 5. Each dispensing unit comprises a carton 11 preferably rectangular in shape in

which is positioned a liquidproof bag 12 containing oil 13 or other liquid. Both the shipping case 10 and the carton 11 are of standard construction and are formed from any suitable sheeted fibrous material as, for example, kraft board, chipboard, jute board or the like. The shipping case is provided with conventional closure panels 14, 15, 16 and 17.

In the packaging of milk and oil or liquids readily responsive to atmospheric changes, I have found that increases in volume of the liquid due to an increase in temperature will place the side walls 18 and 18' of the carton under stress and if these walls cannot flex or are held rigidly against similar walls of adjacent cartons or against the walls of a case, the increase in volume will cause pressure against the closure of the inner liquidproof bag and will in a great many instances cause leakage along the closure. The sharp or wide fluctuation in the volume will in some cases actually break the walls of the inner bag. Although it is more economical to use an inner liquidproof bag which in turn is supported by an outer carton, nevertheless, the attendant shipping difficulties have restricted the use of such a package in the distribution of oil. I have discovered that by the use of partitioning means which will be presently described, the problems heretofore encountered are met.

In accordance with my present invention I provide partitioning means which are so located with respect to the cartons that the side walls of the latter neither contact with each other nor with the walls of the shipping case. I have illustrated several forms of partitioning means. Referring now specifically to Figs. 1 and 2, I have provided partitioning means 20 and 20' which serve to space the side walls of the cartons from the walls of the shipping case. Intermediate separators or partitioning means 21 and 21' are also provided which serve to space the sidewalls of adjacent cartons from each other. These separators or partitioning means are formed in the closure flaps or panels 14 and 16 by forcing a portion of the material thereof out of the normal plane of these panels so as to provide closed U-shaped means projecting into the shipping case as clearly illustrated in Fig. 2. The centrally disposed separator or partitioning means is formed by flanges 22 and 23 carried, respectively, by the outer edges of the closure flaps or panels 14 and 16.

The above described separators or partitioning means are duplicated in the bottom of the case and comprise outer partitioning means or sepa-

rators 24, 24', intermediate partitioning means 25, 25' and a centrally disposed partitioning means or separator formed by the flanges 26 and 27.

In Fig. 2 I have illustrated the manner in which the partitioning means serve to protect the cartons during shipment. In the carton illustrated in the left hand side of Fig. 2, it will be noted that sidewalls thereof are not subjected to abnormal pressure so that the level of the liquid will be adjacent to the top 28 of the bag 12. Should the shipping case be dropped or subjected to shock the liquid will tend to surge, thereby creating an internal pressure which must be dissipated throughout the carton. If the sidewalls of the carton were held confined the internal pressure created would of necessity cause the liquid to press against the closure of the bag. As has been previously described pressure against the closure of the bag would be liable to either break the material from which the bag is formed or would cause leakage in the closure seam. However, by allowing an outward movement of the sidewalls of the carton, the danger of breaking the bag containing the oil or other liquid is obviated. As will be presently described and as may be ascertained from an inspection of Fig. 5, the volumetric capacity of the bag is greater than the volumetric capacity of the carton irrespective of whether the walls of the carton are bulged outwardly. I have found that it is not necessary to separate the smaller end walls 19, 19' of adjacent cartons from each other since the sides or area of the side walls are such as to compensate for any turbulence or surging of the liquid or for any increase in the normal volume of the packaged liquid.

Referring now to Figs. 3 and 6, I have illustrated another form of separator or partitioning means which has proved also to be suitable in commercial use. As in the embodiment illustrated in Figs. 1 and 2, the shipping case 29 is of conventional construction, and since it is not modified in any way in order to form the separator or partitioning means, it has been illustrated semi-diagrammatically. The top and bottom separators or partitioning means 30 and 31 are formed from an integral blank of fibrous material. The blank is so scored that the marginal edges thereof may be folded normally to the central panel 33 as illustrated in Fig. 6, thereby providing flanges 34. Each separator, therefore, is in effect a tray whose internal dimensions are such as to permit the tray to be fitted snugly over the top and bottom of each of the cartons 32. This form of separator or partitioning means is advantageous in that the desired space between the side walls of the cartons is at all times assured. In some instances the integrally formed partitions or separators illustrated in Figs. 1 and 2 become broken or forced out of shape, thereby making it difficult to close the shipping case satisfactorily.

Referring now to the form of separator or partitioning means illustrated in Figs. 4 and 7, I have shown top and bottom partitioning means or separators 35 and 36 formed from molded fibrous material. The fibrous material is so molded as to provide transversely and laterally disposed ribs 37 and 38 projecting from the material forming the base of the partitioning means or separator, thereby forming a plurality of pockets 39 of a size whose internal dimensions are such that the top and/or bottom of the carton will fit snugly therein so that the side walls of

the carton 40 are maintained out of contact. The shipping case 41 is shown semi-diagrammatically inasmuch as the particular construction thereof is of no importance to the present invention.

Referring now to Fig. 5, I have illustrated in detail the construction of the oil package which has already been partially described in connection with the description of Fig. 2. The carton 11 is of conventional construction and is generally rectangular in shape. The sidewalls 18, 18' thereof are much greater in area than the end walls 19 (one of said end walls having been omitted in order to illustrate certain features of construction). The liquidproof bag 12 is so formed that the longitudinal seam 42 does not have its raw edges 43 in contact with the liquid 13 contained therein. In order to render the bag liquidproof, it may be coated with any suitable liquid-proofing material or it may be made from a laminated stock, the inside lamination being liquidproof. There is a distinct relation between the size of the bag and the size of the carton, the size of the bag being such that the walls thereof will at all times be supported in a slack untensioned condition by the walls of the carton.

In order that the bag and carton may be shipped flat to the refinery, the bag is attached to the walls of the carton so that when the carton is squared up the bag will also be squared up in a position suitable for filling. I have found, however, that the squaring of the bag to the carton walls cannot be done in a haphazard manner. Care must be taken not to adhere the bag walls to the corners of the carton, because when tension is placed on the bag when it is filled or against the corners of the carton, there will be a tendency for the bag to tear. Accordingly the bands of adhesive 44, extending along the sidewalls of the carton, stop well short of the top and bottom thereof. Similarly those bands of adhesive 45 located at the top and bottom of the end and sidewalls of the carton do not extend to the corners 46 and 47. Thus the bag walls are free to move for a substantial area around these corners.

This method of adhering the bag to the carton also permits the top of the bag to move should the volume of the oil fluctuate due to temperature changes. The closure for the bag is formed by bringing opposed walls of the bag into contacting relation and then sealing same. The sealed portion is then folded downwardly against the packaged contents and the ears 47 are folded over against the closure first formed.

I claim:

1. A shipping case of the class described comprising, in combination, an outer shipping container, a plurality of packages containing liquid packaged in said container, means located at the top and bottom of said container spacing the packages from each other and from the walls of the container a distance sufficient to permit flexing of the walls of the packages when subjected to external and internal forces, said means each comprising a central panel provided with flanges extending normal thereto embracing the end of the package, the number of said means located at the top and bottom of said container being twice the number of packages packaged in said container.

2. In a shipping case of the class described, an outer shipping container, a plurality of packages containing a liquid positioned within said container, each of said packages comprising a substantially rectangular carton having its front and

rear walls substantially wider than the side walls thereof, said carton being made of relatively rigid material but capable of substantial distortion when subjected to external and internal forces, means located at the top and bottom of said container spacing the packages from each other and from the walls of the container a distance sufficient to permit flexing of the walls of the packages when subjected to external and internal forces, said means each comprising a central panel provided with flanges extending normal thereto embracing the end of the package, the number of said means located at the top and bottom of said container being twice the number of packages packaged in said container.

3. A package of the class described, comprising an outer container, a plurality of flexible paper units having a liquid sealed therein within said container, each of said units comprising a substantially rectangular carton capable of substantial flexure when subjected to stresses whereby upon application of external or internal force the walls of said cartons tend to bulge outwardly

and increase the cross-section of said cartons within said bulged portions, and means at the ends only of said cartons spacing walls of juxtaposed cartons from each other a distance sufficient to permit substantially maximum bulging of said walls without contact therebetween.

5 4. A package of the class described, comprising an outer container, a plurality of flexible paper units having a liquid sealed therein within said container, each of said units comprising a substantially rectangular carton capable of substantial flexure when subjected to stresses whereby upon application of external or internal force the walls of said cartons tend to bulge outwardly
10 and increase the cross-section of said cartons within said bulged portions, and means at the ends only of said cartons spacing walls of juxtaposed cartons from each other and from the sides of said outer container a distance sufficient
15 to permit substantially maximum bulging of said carton walls without contact of said walls with one another or with said container.

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