Oct. 13, 1959 J. ENOS, JR 2,908,121

PACKAGES AND PACKING METHODS

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FIG. 1.

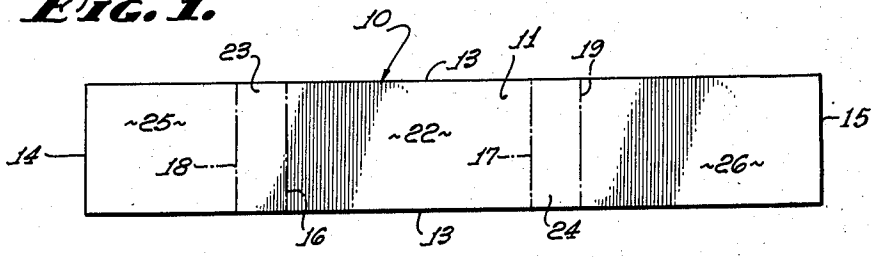


FIG. 2.

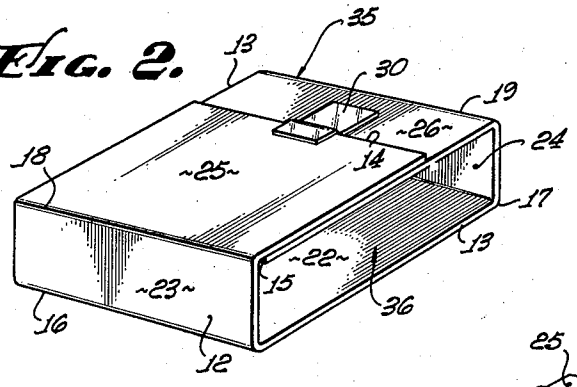


FIG. 3.

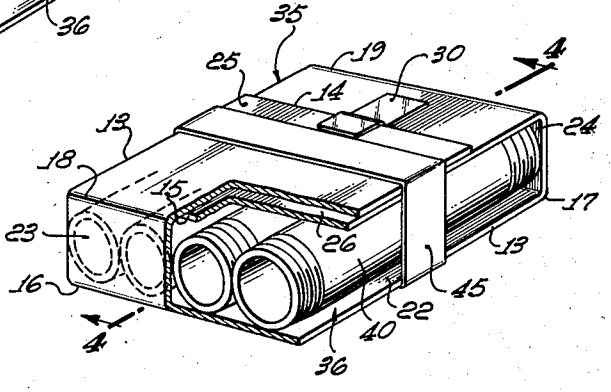


FIG. 5.

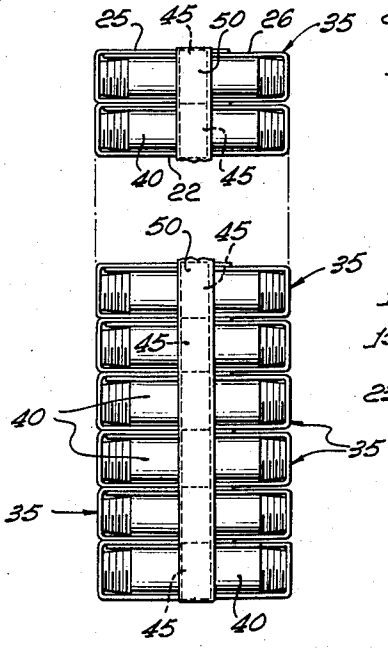
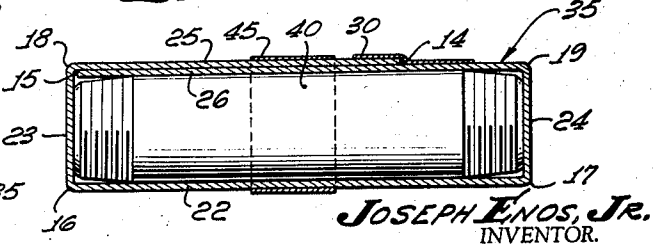


FIG. 4.



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PACKAGES AND PACKING METHODS

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2 Claims. (Cl. 53—3)

The present invention relates to packages and more particularly to the packaging of articles in relatively small packs and the packaging of pluralities of such relatively small packs in assembled relation in multiple packs.

It is well-known that the ultimate cost to the consumer of many articles of sale involves more expense for the packaging and repackaging of the articles than the actual production thereof. For example, pipe fittings are usually shipped from the manufacturer to the wholesaler in bins, barrels or other large containers. The wholesaler usually repacks the fittings in fiberboard boxes or paper bags for sale to hardware stores, plumbing shops or like retail merchants. The retail merchants in turn repackage the fittings in small quantities suitable for customer purchase or in response to customer selection.

However, the best packing methods and packages available have been subject to disadvantages which the present invention has successfully overcome. Since conventional fiberboard boxes and other packages have been uneconomical in small sizes and frequently not properly durable, the above described packaging and repackaging procedure has still been followed even though admittedly inconvenient, uneconomical and time consuming. If formed prior to shipment to the user, fiberboard packages are extremely bulky to ship and to store. If shipped in flat blanks formed for the purpose, as is the usual practice, they are relatively compact to ship and to store but impose upon the user the onerous tasks of folding, assembling and taping or otherwise securing the assembled packages.

Further, such previous packages have not made fully successful provision for economical small packs of a suitable size for the ultimate purchaser nor for the convenient and economical assembly of such small packs into multiple packs for shipment from the factory to the wholesaler or the like.

In addition to the added sales appeal of small packages, sales are also stimulated if the customers are able to see the articles within the packages. While it is recognized that packages providing content visibility have been known, such packages also have not been economical, have usually not been available in small sizes, and have required repackaging by the retail merchant since such packages have not been adapted to economical large volume shipment from factory to wholesaler or the like.

Accordingly, it is an object of the present invention to provide a simplified package for articles adapted for compact assembly, which package is economical in even small sizes.

Another object is to enable the packaging of articles in relatively large quantities, as for shipment from a factory to wholesalers, which permits the ultimate sale or distribution in relatively small packages without repackaging.

Another object is to provide a multiple pack of interconnected packages conducive to convenient and economical shipment of articles in relatively large amounts

and their subsequent sale or distribution in relatively small amounts in packages severed from the multiple pack.

Another object is to reduce the consumers price for packaged articles by the provision of more economical packages and by avoiding requirements for repackaging.

Another object is to provide an improved package for pipe nipples and other elongated articles adapted for compact assembly.

These and other objects will become more apparent in the subsequent description in the specification.

In the drawing:

Fig. 1 is a top plan view of a blank of sheet material which has been scored in the manner provided by the present invention.

Fig. 2 is a perspective view of a package embodying the principles of the present invention in an initial stage of its formation.

Fig. 3 is a view similar to Fig. 2 but showing the package in a succeeding stage of its formation and being cut away to show pipe nipples contained therein.

Fig. 4 is a somewhat enlarged longitudinal section taken on line 4—4 of Fig. 3.

Fig. 5 is a fragmentary side elevation of a stock of the packages, such as shown in Fig. 3, but with each of the packages on a somewhat reduced scale from that shown in Fig. 3 and with several packages at the top of the stack removed to illustrate an important advantage of the invention.

Referring more particularly to the drawing, an elongated substantially rectangular sheet or blank **10** of preferably economical material, such as fiberboard or cardboard is provided. For convenience in later reference, the sheet has a predetermined inside surface **11**, an outside surface **12**, a pair of parallel longitudinally extended side edges **13**, and a pair of parallel transversely extended end edges **14** and **15**.

In addition, the sheet **10** is transversely scored or stamped to provide a pair of inner fold lines **16** and **17** in spaced parallel relation, and a pair of outer fold lines **18** and **19** in spaced parallel relation to the inner fold lines as well as the end edges **14**. The sheet thus provides a rectangular center panel **22**, relatively short intermediate panels **23** and **24**, a short end flap **25**, and a longer opposite end flap **26**.

On a mass production basis, it will be evident that the sheet **10** may be part of a much larger piece of cardboard or other suitable material and that by use of a stamping machine, the lines **16**, **17**, **18** and **19** may be stamped into individual sheets **10** cut from such larger piece of material.

The sheet **10** is first folded on the inner fold lines **16** and **17** to bring the intermediate panels into upright, substantially perpendicular relation to the center panel **22**, as best seen in Fig. 2. The longer end flap **26** is then folded downwardly on the outer fold line **19** until it is in substantially parallel relation to the center panel. The end edge **15** is placed along the outer fold line **18**. It is to be noted at this point that the long end flap and the center panel are preferably of the same length so that when the long end flap is placed as described, the center panel, the long end flap, and the intermediate panels **23** and **25** are in rectangular relation with each other. Next, the shorter end flap **25** is folded downwardly along the outer fold line **18** into overlying relation with the longer end flap. In this regard it is noted that the end edge **14** is in spaced relation to the outer fold line **19** so as to provide an exposed area of the long end flap. The sheet is secured in this condition by means of a securing tape **30** adhesively bonded to the short end flap **25**, extended transversely of the end edge **14**, and bonded to the exposed area of the longer end flap. The

sheet thus forms a wrapper generally indicated by the numeral **35** including opposite side openings or windows **36** circumscribed by the side edges **13**.

In order to fill the wrapper **35**, it is stood on one of its sides so that one of the side openings **36** rests against a flat surface, such as a table not shown, and the opposite side is upwardly disposed. Elongated articles **40**, such as pipe nipples, are then fitted downwardly into the wrapper so as to lie between the center panel **22** and long end flap **26** and to extend longitudinally of the center panel between the intermediate panels **23** and **24**. Preferably the distance between the intermediate panels is equal to the length of the articles. It is not necessary, however, that the diameter of the articles be equal to the distance between the long end flap and the center panel inasmuch as the articles may be stacked in corded condition within the wrapper. In any event it is sufficient to observe at this point that the dimensions of the wrapper may be suited to accommodate various sizes, numbers and types of articles in the manner described.

When the wrapper **35** is filled with articles **40**, an article retaining tape **45** is transversely extended in circumscribing relation around the wrapper so as to bridge the side openings **36**. The tape, which may be similar to the flap securing tape **30**, is preferably of a high strength, commercial, adhesive material so that it may be bonded to itself or to the center panel **22** or short end flap **25**. Pressure tapes are excellently suited to the purpose. It will be evident that the article retaining tape holds the articles within the wrapper in visible condition and completes a very compact package.

The filled wrappers or packs **35** may be stacked one upon the other, as shown in Fig. 5. For this purpose the center panel **22** of each wrapper is rested on the short and long end flaps **25** and **26** of the wrapper therebeneath so that the side edges **13** are coincident and the inner fold lines **16** and **17** are coincident with the outer fold lines **18** and **19** of the wrapper next adjacent therebelow. A stack retaining tape **50** of suitable length is then transversely extended in circumscribing relation around the entire stack of wrappers so as to overlay the article retaining tapes **45** where they bridge the individual side openings **36** of the wrappers and where they extend across the uppermost and lowermost wrappers in the stack. As before, the stack retaining tape is preferably adhesively bonded to itself, to the uppermost or lowermost wrapper and/or to the edges **13** of the wrappers. In this manner a large number of articles may be packaged, conveniently stored or transported, and easily distributed in large or small quantities without repackaging.

OPERATION

The operation of the subject invention is believed to be readily understood and is briefly summarized at this point. Normally, the sheets **10** are formed and scored as a preliminary operation and shipped to the user in flat, stacked relation.

For the packaging of pipe nipples or other articles **40**, a stack of sheets **10** is placed on a table along with a number of nipples and a quantity of adhesive tape. The sheet is initially folded and taped to form the wrapper **35** as shown in Fig. 2. Then it is filled with nipples **40** and the article retaining tape **45** is extended therearound. It is found that this is a very rapid and easy task to perform and that the completed package is compact and durable. When employing the package and packaging method of the subject invention, packaging costs have been reduced to a fraction of what was previously regarded as an irreducible minimum.

Although different size sheets **10** should be employed for articles of various dimensions, it is possible to store or transport a greater number of articles of the same length in multiple packs with the package of the subject invention. As explained, the wrappers **35** can be stacked as shown in Fig. 5 and held in this condition by a stack retaining tape **50**. The number of wrappers in the stack is easily selected to suit requirements. As far as distribution is concerned, the stack retaining tape may be transversely severed at any position longitudinally of its length between adjacent packs **35** to remove a selected number thereof. As illustrated in Fig. 5, two wrappers containing eight nipples are segregated from the top of the multiple pack. The remaining packages in the stack are held intact inasmuch as the stack retaining tape overlies and is bonded to the sheets **10** and the article retaining tape **45**.

Clearly, therefore, the subject invention although simple in nature provides significant improvements in the packaging art. It obviates the need for having extensive varieties of box sizes to accommodate different numbers of packaged articles. It is more economical to construct and assemble, and is as fully durable and dependable in use as packages which have previously been known. The package of the subject invention also enhances the sales appeal of packaged articles inasmuch as the side openings **36** provide windows through which the articles may be viewed and make small package units commercially feasible. In practical application, the package of the present invention has met with widespread approval as being excellently suited to the accomplishment of its intended purposes.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A method of packaging elongated substantially straight, rigid, cylindrical, tubular articles of uniform length and diameter and having open opposite ends and outer cylindrical surfaces, comprising scoring an elongated substantially rectangular sheet of fiberboard having a predetermined length, longitudinally extended side edges and transversely extended end edges to provide a pair of outer fold lines spaced from their respectively adjacent end edges to define predetermined elongated inner and outer end flaps between such outer fold lines and their respectively adjacent end edges; scoring said sheet to provide a pair of inner fold lines spaced apart the same distance as the length of the inner end flap and substantially equally spaced from their respectively adjacent outer fold lines to define an elongated center panel therebetween and intermediate panels between respectively adjacent inner and outer fold lines, the distance between the inner fold lines being substantially equal to the common length of the articles to be packaged; folding the sheet along the inner fold lines to bring the intermediate panels into spaced substantially parallel relation whereby the intermediate panels are spaced substantially the same distance apart as the common length of the articles to be packaged; folding the inner end flap along its outer fold line into spaced parallel relation with the center panel and with its end edge in abutment with the outer fold line between the outer end flap and the adjacent intermediate panel; folding the outer end flap along its outer fold line into overlapping relation with the inner end flap; affixing the outer end flap to the exposed outer surface of the inner end flap; inserting elongated articles within the folded sheet between the center panel and the inner end flap with the articles extended longitudinally of the center panel and end flaps, with the opposite open ends of the articles respectively engaging adjacent intermediate panels, with the outer surfaces of adjacent articles in contact with each other, and with the outer surfaces of the outermost articles extended longitudinally adja-

cent to opposite side edges of the sheet and substantially tangential to planes containing said side edges whereby the longitudinal axes of the articles are disposed transversely of the fold lines of the sheet; and extending a length of tape transversely around the center panel and the end flaps substantially equidistantly between the intermediate panels and transversely of the articles against the outer surfaces of the outermost articles to hold the articles in said folded sheet.

2. A method of packaging elongated hollow pipe nipples of substantially equal, predetermined length and uniform diameter with an elongated substantially rectangular sheet of substantially rigid fiberboard material having predetermined length and width, longitudinally extended opposite side edges, and transversely extended opposite end edges, said nipples having outer cylindrical surfaces and opposite open ends, comprising the steps of scoring the sheet to provide a pair of outer fold lines, one of which is spaced a distance from its adjacent end edge substantially equal to the common length of the pipe nipples and defining an elongated inner end flap with said adjacent end edge, and the other of the fold lines being spaced closer to its adjacent end edge to define an elongated outer end flap therewith; scoring said sheet to provide a pair of inner fold lines spaced substantially the same distance apart as the length of said inner end flap and being in substantially equally spaced relation to adjacent outer fold lines to define an elongated center panel between the inner fold lines and intermediate panels between said inner and outer fold lines, the intermediate panels being of substantially the same length as the common diameter of the pipe nipples, all of said fold lines being in substantially parallel relation to each other and to the end edges; folding the sheet along the inner fold lines to bring the intermediate panels into opposed substantially parallel spaced relation; folding the inner end flap into spaced substantially parallel relation to the center panel with its end edge abutting the outer fold line between the outer end flap and the adjacent intermediate panel, the inner end flap being thereby spaced from the center

panel a distance substantially equal to the common diameter of the pipe nipples, and the distance between the intermediate panels being thereby substantially equal to the length of the pipe nipples; folding the outer end flap into overlapping relation with the inner end flap whereby its end edge is in spaced relation to the outer fold line between the inner end flap and its adjacent intermediate panel; applying tape transversely of the end edge of the outer end flap on the outer surface of the outer end flap and the exposed outer surface of the inner end flap to hold the inner and outer end flaps together; stacking a plurality of the pipe nipples between the inner end flap and the center panel with the pipe nipples extended longitudinally of the center panel, with the longitudinal axes of the nipples in a common plane substantially parallel to the center panel, with said axes substantially normal to the fold lines of the sheet, with opposite ends of the nipples contacting respectively adjacent intermediate panels, with the outer surfaces of adjacent nipples in contact with each other, and with the outer surfaces of the outermost nipples being respectively substantially tangential to planes containing the outer edges of the sheet; and extending a length of tape transversely around the folded sheet equidistantly between the intermediate panels and in contact with the outer end flap, the outer surfaces of the outermost pipe nipples in the resultant package, and the center panel thereby to hold the nipples within the folded sheet while exposing the outermost nipples.

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