Sept. 7, 1943. J. YATES 2,328,766

METHOD OF PACKAGING COMPRESSIBLE COMMODITIES

Original Filed July 12, 1940 3 Sheets-Sheet 1

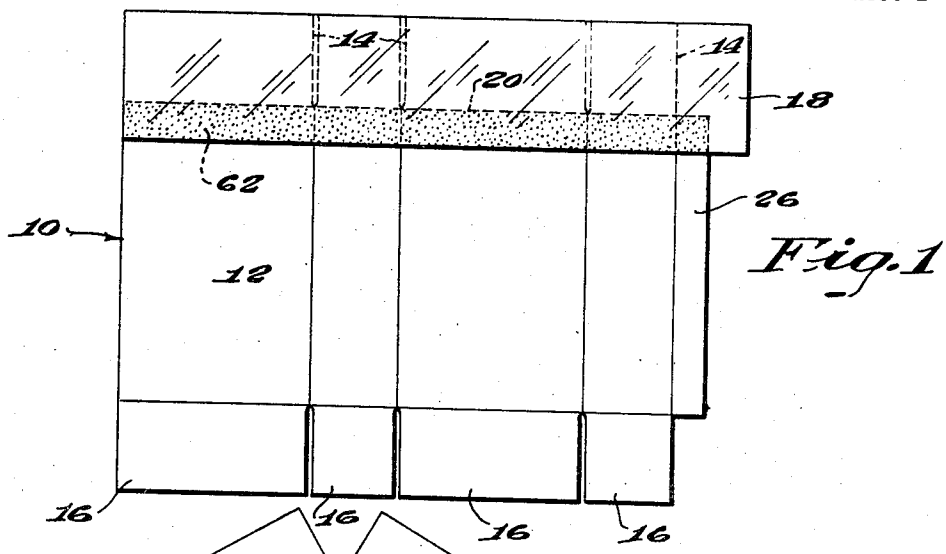



Fig. 1

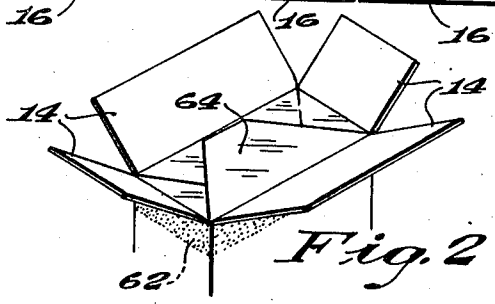



Fig. 2

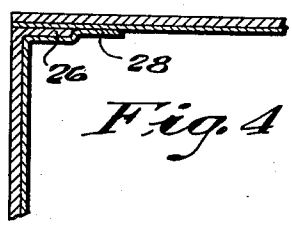



Fig. 4

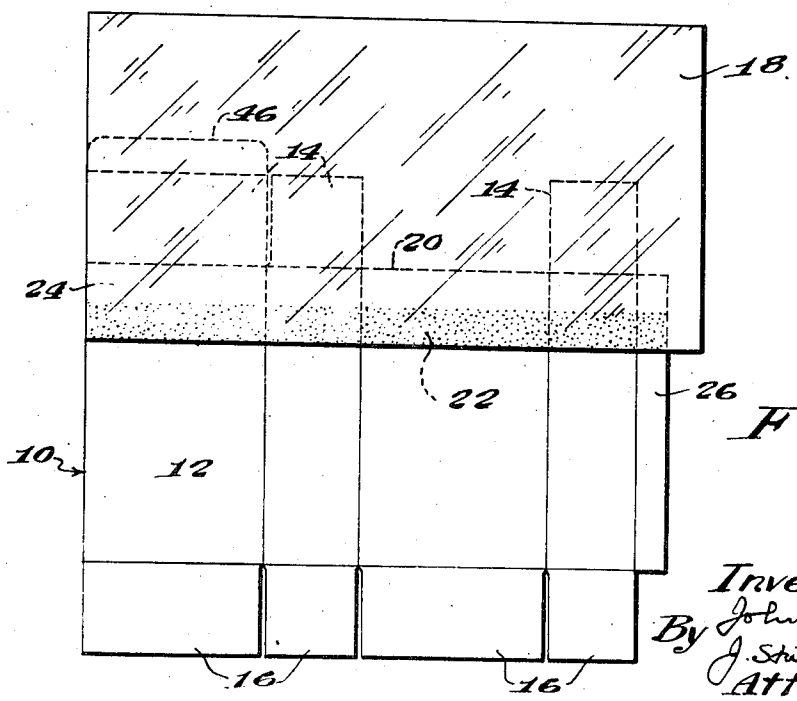



Fig. 3

Inventor
John Yates
By J. Stanley Churchill
Attorney

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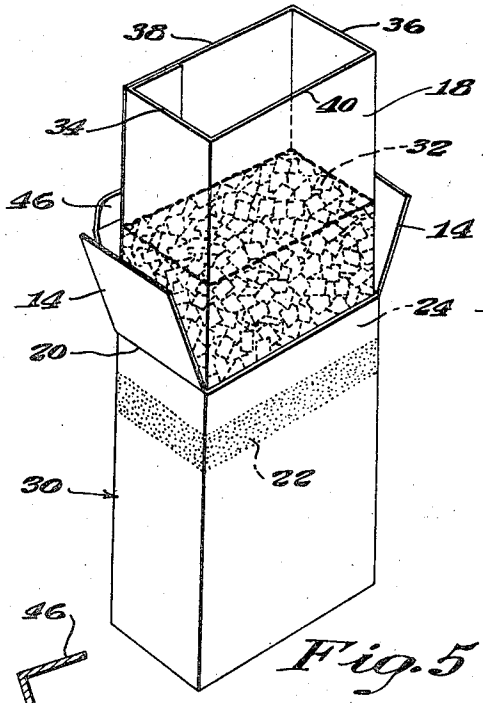



Fig. 5

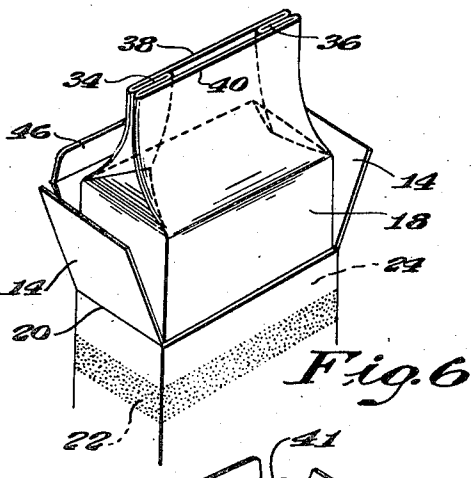



Fig. 6

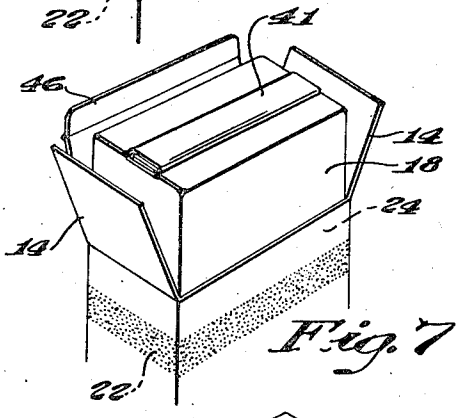



Fig. 7

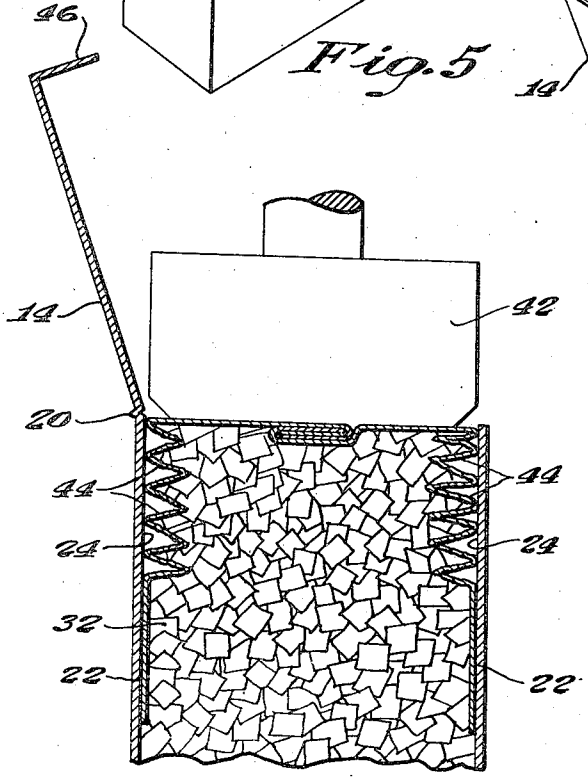



Fig. 8

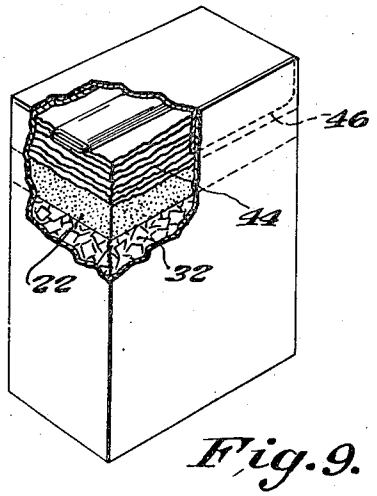



Fig. 9.

Inventor
John Yates
By J. Stanley Churchill
Attorney

Sept. 7, 1943. J. YATES 2,328,766

METHOD OF PACKAGING COMPRESSIBLE COMMODITIES

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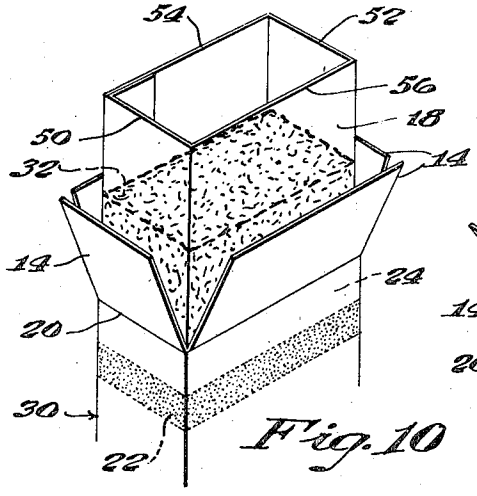



Fig. 10

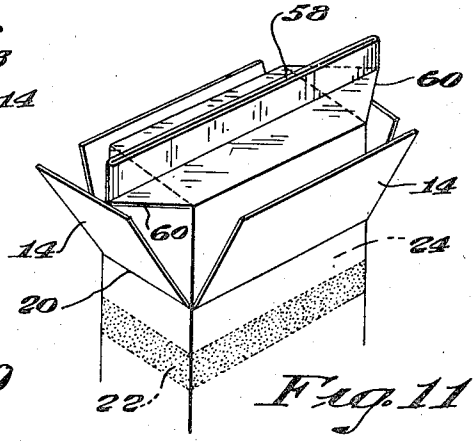



Fig. 11

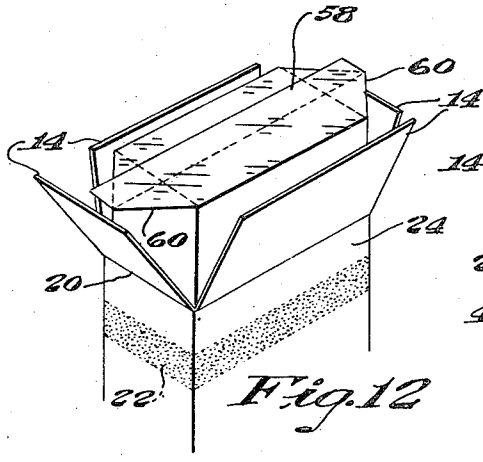



Fig. 12

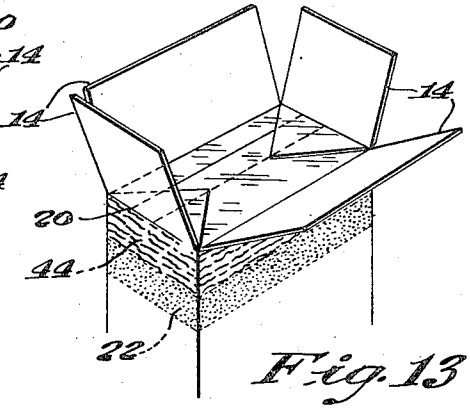



Fig. 13

Inventor
John Yates
By J. Stanley Churchill
Attorney

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# UNITED STATES PATENT OFFICE

2,328,766

## METHOD OF PACKAGING COMPRESSIBLE COMMODITIES

John Yates, Quincy, Mass., assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass., a corporation of Massachusetts

Original application July 12, 1940, Serial No. 345,139. Divided and this application April 10, 1941, Serial No. 387,835

6 Claims. (Cl. 93—6)

This invention relates to a method of packaging a compressible commodity.

The object of the invention is to provide a novel and improved method of packaging a compressible commodity by which the commodity may be packaged in a simple and practical manner and at minimum cost.

With this general object in view and such others as may hereinafter appear, the invention consists in the method of packaging a compressible commodity hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a plan view development of a carton blank having a partial lining affixed thereto; Fig. 2 is a perspective view of one form of top closure for the lining of the present package; Fig. 3 is a plan view development of a modified form of the carton blank and the partial lining affixed thereto; Fig. 4 is a detail view in cross-section showing a detail of construction to be referred to; Fig. 5 is a perspective view showing one step in the present method of making a package; Figs. 6 and 7 are perspective views showing subsequent steps in the present method; Fig. 8 is an enlarged detail view in cross-section showing a further step in the method of making the package; Fig. 9 is a perspective view of a completed package produced in accordance with the present method having portions broken away to show the inner construction, and Figs. 10, 11, 12 and 13 are perspective views of a package embodying a modified form of top closure for the lining and illustrating the present method of making the package.

In general, the present invention contemplates a novel method of packaging a compressible commodity which is particularly adapted to facilitate packaging of a commodity such as soap flakes, or similar compressible material which, in its loose or expanded state, occupies greater volume than capacity of the container into which the commodity is to be deposited and consequently compression of the commodity is required during the packaging operation in order to deposit a predetermined weight thereof into the package.

In order to afford a sufficient background for a complete understanding of the present invention, previous attempts at handling and packaging a commodity having similar characteristics will be briefly summarized. It has been the usual practice in the soap industry to package such materials as granulated and flaky soap products in a plain carton without the use of an inner lining, such lining being deemed unnecessary both as a matter of economy and because of the non-perishable nature of the product. As is commonly known, such materials, when loosely packed into a carton, tend to settle down in the package during transportation so that the consumer would receive the package in a partially filled condition if steps were not taken to settle the material during the packaging thereof. The usual method of plunging the material down into the package in order to deposit additional material was found to be unsatisfactory because of the inherent nature of the material to assume its former state when the plunger was raised and because of the tendency of the bottom of the plunger to cause a suction during its retracting stroke to thereby draw the material up again. Furthermore, additional filling stations are required to deposit the additional material adding to the expense of the packaging equipment. Tapping or shaking the carton in order to settle the contents was also found to be unsatisfactory because of the nature of the material, the time required, and because of the additional filling stations necessary. The next step in the development of the art of handling and packaging material of this nature was to compress the material prior to the introduction of the latter into the carton. Mechanism for accomplishing this result is illustrated and described in the United States patent to Howard, No. 2,076,640, dated April 13, 1937. Such a procedure, although found to be highly satisfactory for the purpose, required special equipment to be added to the filling machine, such as the compression chambers, thereby adding to the expense of the machine.

In accordance with the present invention, the container for packaging products of the character described may comprise the usual outer carton having a body portion and top and bottom closing flaps and such carton is provided with a lining having a mouth portion extending a substantial distance above the top score line compressing the mouth portion of the carton. In practice I prefer to provide the carton with a partial lining which is preferably adhesively affixed to the body portion of the carton below the score line or mouth of the carton, and the lining extending above the score line is detached from the top closing flaps of the carton whereby a top closure for the lining, enclosing the material in the container, may be made independently of said top closing flaps. For some purposes the partial lining may also be detached

from the body portion of the carton for a short distance below the score line of the latter as will be described.

In accordance with the present method of producing a package for a commodity having elastic characteristics, utilizing a container of the construction above described, the carton is first filled with the required amount of the commodity to a height above the score line, the commodity being supported by the extended sides of the partial lining. The mouth of the lining is then closed at a level above the top of the carton and preferably at normal level of the commodity as it stands in an uncompressed condition to thereby enclose and confine the commodity within the carton. In this condition, the lining and the confined commodity is forced down into the carton so that the top of the lining will be disposed level with or slightly below the score line. As a result of this operation, the product is compressed and the sides of the lining are crushed against the inner walls of the carton to form a series of irregular folds which are effective in frictionally engaging the carton to retain the commodity in its compressed state and to prevent the elasticity of the commodity in raising the top of the lining. Thereafter, the top closing flaps of the carton are closed and adhesively secured in the usual manner to seal the carton. During the latter operation the compressed commodity and the crushed lining material forms a satisfactory base to offer sufficient resistance when pressure is applied against the end of the closed flaps of the carton to set the glue so that a tight and efficient seal may be made. Thus, the required quantity or weight of the commodity may be deposited into the carton in one filling or weighing operation and in its loose or expanded state, the partial lining confining the commodity during the subsequent plunging or compressing operation whereby the improved package may be produced in a simple and practical manner and at a minimum cost.

Referring now to the accompanying drawings illustrating the preferred embodiment of the invention, **10** represents a carton blank provided with a body portion **12** and having top and bottom flaps **14**, **16** respectively. As shown in Fig. 1, the body portion has a partial lining **18** adhesively affixed thereto, and in practice, the partial lining is preferably attached to the carton blank while the latter is in its flat or developed form and before being folded and assembled to form a carton. The partial lining **18** may be affixed to the upper portion of the carton blank, adjacent to but below the upper score line **20** of the carton and the lining may extend unattached above the score line as illustrated in Fig. 1, and independently of the carton flaps. As illustrated in Fig. 3, the partial lining **18** may extend a substantial distance above the score line **20** and above the extended flaps **14**, and the lining may be adhesively secured to the carton by a strip of adhesive **22**, as shown.

As illustrated in Figs. 1 and 3, it will be observed that the partial lining extends laterally a short distance beyond the elongated joining flap **26** so that when the carton is assembled, the corner portion, as shown in Fig. 4, will be provided with an overlapping portion **28** of the lining which may be adhesively secured to the adjacent surface of the lining to provide an efficient seam for the edges of the lining.

In producing the package of the present invention, the assembled carton **30**, see Fig. 5, is first filled with a sufficient quantity of the loosely deposited material **32**, to make up the required weight of the package, such a quantity normally filling the carton up to a height well above the top score line **20** of the carton, the material **32** being supported by the extended sides of the lining **18**. The mouth of the lining may then be closed by any usual or preferred form of top closure level with the top of the material and as shown in Figs. 6 and 7, the top closure may be formed by folding the opposed sides **34**, **36** of the lining inwardly and bringing the opposed sides **38**, **40** together, to form an elongated folding strip **41** which may be folded and overfolded and then laid flat on top of the surface of the lining, leaving the package in the condition shown in Fig. 7. Thereafter, see Fig. 8, the material **32** and the lining enclosing the material are forced downwardly to position the top of the folded lining on a level with or slightly below the top score line **20** of the carton thereby compressing the material within the carton. This operation may be accomplished in any usual manner such as by a plunger, indicated herein at **42**. As hereinbefore described, in one embodiment of the invention, the partial lining **18** is detached and free from the carton body for a short distance below the score line **20** and as a result of this construction the lining enclosing the material is crushed between the sides of the carton by the plunging operation, forming a series of irregular folds **44** and causing the lining to frictionally engage the inner walls of the carton in a manner such as to retain the material in its compressed condition and preventing the material from springing back to assume its former position. Thereafter the top flaps **14** may be closed and sealed in the usual manner to complete the package illustrated in Fig. 9. In the embodiment of the invention illustrated in Fig. 3 and in Figs. 5 through 9, the top closure for the carton includes a tucking flap **46** which in its closed position, see Fig. 9, is disposed between the front side wall of the carton and the crushed portion of the lining and above the adhesively secured portion **44** of the lining. This construction of carton permits the use of a tuck flap type of top closure and the extended portion of the lining serves to guide the material into the carton and thereby permits the package to be filled in an upright position with the tucking flaps uppermost. Heretofore in some instances tuck top cartons have been required to be filled in an inverted position, a procedure which has some practical disadvantages.

Figs. 10 through 13 illustrate a modified form of top closure for confining the material within the lining before the plunging operation, and as herein shown, the modified top closure may be formed by spreading the opposed narrow sides **50**, **52** outwardly and bringing the opposed sides **54**, **56** together to form an elongated folding tab **58** which may be folded down on the surface of the lining. The triangular tabs **60** formed by this operation are then folded inwardly to complete the closure, and thereafter the lining and material is forced down into the carton and compressed in the manner hereinbefore described.

As illustrated in Figs. 1 and 2, the partially lined carton may be used to advantage in the packaging of materials other than those of an elastic nature and which require little or no settling of the contents of the container, and in such instances, the strip of adhesive **62** may be disposed directly adjacent the score line **20** of

the carton and the mouth of the lining may be provided with a top closure 64 of any usual or preferred construction. The extended portion of the mouth of the lining assists in guiding the material into the carton during the filling operation. In the packaging of a product which requires some settling, the extended sides of the partial lining serves to support the product in its expanded condition so that a sufficient quantity or weight of the commodity may be introduced into the container in one filling or weighing operation, the carton being thereafter subjected to a tapping or shaking to settle the product below the score line whereupon the mouth of the lining and the top flaps 14 may be closed in the usual manner.

From the description thus far, it will be observed that the present method of packaging is particularly useful in the packaging of a commodity of an elastic nature, whereby a relatively large bulk of the commodity in its loose or expanded state may be deposited in the container, and thereafter confined and compressed into the package. The provision of a partial lining enables the carton to be economically manufactured and prevents the material from spilling out over the score line of the carton and between the corner openings of the top flaps during any required settling or plunging operation. It will also be observed that the present construction of the package provides a substantial base for the top flaps during the closing operation whereby an efficient top closure may be made.

This application is a division of my copending application, Serial No. 345,139, filed July 12, 1940, Patent No. 2,305,371, dated December 15, 1942.

Having thus described the invention, what is claimed is:

1. The method of packaging a compressible commodity in an amount normally occupying a space greater than the capacity of the package, which consists in depositing the commodity in its expanded condition into a carton having a lining extending above the mouth thereof, said expanded commodity filling the carton a substantial distance above the mouth, forming a top closure for the lining over the top of the expanded commodity to confine the latter within the package, and then forcing the lining down into the package to compress the commodity and to form a series of folds in the lining adapted to frictionally engage the inner side walls of the package to assist in retaining the commodity in its compressed condition, and thereafter closing the top flaps of the carton.

2. The method of packaging a compressible commodity in an amount normally occupying a space greater than the capacity of the package, which consists in depositing the commodity in its expanded condition into a carton having a partial lining extending above the mouth thereof, said expanded commodity filling the carton to a substantial distance above the mouth, forming a top closure for the lining over the top of the expanded commodity to confine the latter within the package, and then forcing the lining down into the package to compress the commodity and to form a series of folds in the lining adapted to frictionally engage the inner side walls of the package to assist in retaining the commodity in its compressed condition, and thereafter closing the top flaps of the carton.

3. In the method of packaging a compressible commodity the steps comprising filling a carton having a lining secured to the interior walls of the body of the carton below the mouth thereof and being detached from the upper portion of the body of the carton to above the mouth thereof, forming a top closure in the lining to confine the commodity, then forcing the lining and commodity down into the carton to compress the commodity and thereafter closing the carton.

4. The method of packaging a free flowing commodity in an amount normally occupying a space greater than the capacity of the package, which consists in depositing the commodity in its normally loose condition in a carton having a lining extending above the mouth until said loosely deposited commodity fills the carton above the mouth thereof, forming a top closure for the lining over the top of the loosely deposited commodity to confine the latter within the lining, and then forcing the lining down into the carton to compress the commodity and to crush portions of the lining into frictional engagement with the side walls of the carton, and thereafter closing the top flaps of the carton.

5. The method of packaging a compressible commodity in an amount normally occupying a space greater than the capacity of the package, which consists in depositing the commodity in its expanded condition into a carton having a lining extending above the mouth thereof, said expanded commodity filling the carton a substantial distance above the mouth, forming a top closure for the lining over the top of the expanded commodity to confine the latter within the lining, and then forcing the lining down into the carton to compress the commodity and to present the top of the lining level with the mouth of the carton to provide a substantially firm base against which the top flaps may be sealed, and thereafter closing the top flaps of the carton.

6. The method of packaging a compressible commodity in an amount normally occupying a space greater than the capacity of the package, which consists in depositing the commodity in its expanded condition into a carton having a lining extending above the mouth thereof until the commodity fills the carton a substantial distance above the mouth, forming a top closure for the lining over the top of the expanded commodity to confine the latter within the lining, and then forcing the lining down into the carton to compress the commodity and to present the top of the lining level with the mouth of the carton and to crush portions of said lining into frictional engagement with the side walls of the carton to assist in retaining the commodity in its compressed condition, the top of said crushed lining forming a substantially firm base against which the top flaps may be sealed, and thereafter closing the top flaps of the carton.

JOHN YATES.