Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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My invention aims to provide an improved method of packaging eggs for shipment and sale, and includes a novel container or carton whereby the said method may be practiced.

In the drawings, which show by way of example one form of container for carrying out my method, and illustrating one manner of practicing the same, the several figures are perspective views wherein:

Fig. 1 shows a blank for forming a carton embodying one form of my invention;
Fig. 2 illustrates a completely formed, partly opened carton;
Fig. 3 shows a carton set up for filling;
Fig. 4 shows, upon a larger scale, a carton with a filler element partially positioned therein;
Fig. 5 illustrates one manner of assembling the carton and contents in accordance with the method of my invention;
Fig. 6 shows a carton packed and sealed, the open position of the cover being indicated in dotted lines.

Heretofore egg cartons or receptacles in which eggs are distributed to the retail trade and by them to users have customarily been packed by hand and necessarily in a slow and relatively expensive manner. It has generally been necessary first to set up a carton, open it, position a separate cellular filler in the carton, or otherwise manipulate the carton preparatory to and during packing. In accordance with the method of my invention a cellular or compartment filler or nest of any suitable type may be packed with eggs while separate from the carton, the packed filler subsequently positioned and preferably sealed in the carton, all with a minimum of labor and expense and permissibly largely or wholly automatically by suitable machinery.

Present day conditions in the egg trade, wherein large wholesalers handle daily thousands of dozens of eggs, and frequently utilize cartons in carload lots of 250,000 dozen, have created a demand, heretofore unfilled, for speedier and preferably automatic machine packing of eggs. An egg box adapted for automatic packing with the resulting great saving in labor costs to the packer must, however, be not more expensive in material and manufacture than the standard box heretofore used, if it is to be practical. A price differential of under twenty-five cents a thousand dozen is often controlling. At the same time the factor of maximum safety and protection to the contents must not be neglected. It is to meet these conditions that my carton and method of packing the same have been produced.

The carton herein disclosed is, so far as I am aware, the first carton adapted for automatic or machine packing. It is likewise less expensive to manufacture, and yet retains all the desirable features of the standard carton, thus affording maximum protection and safety for the eggs while reducing manufacture and labor costs for both box maker and packer.

As will be apparent from the drawings and from the following description the article in question is a carton or immediate container for the eggs, to serve the functions of the ordinary flap cover carton commonly seen in retail stores, plus its own novel uses, and is not intended as a mailing case or outside package for an inner carton, such for example as disclosed in the United States patent to Tracy 1,198,792.

The method of my invention will be most readily understood from a consideration, first, of one form of carton which may be employed in carrying out said method. As best seen in Fig. 4, each receptacle or container comprises two main elements, namely, a carton or container element proper, indicated generally at 1, and a filler or nest element indicated generally at 2. Said filler element may be of any suitable type, preferably collapsible, herein including transverse partitions 3 and longitudinal partitions 4 sufficient in number to provide the desired number of cells or compartments or rows thereof. The terms “cells” or “cellular” as herein employed are intended to include cells, compartments or other chambers or formations for the individual eggs. Desirably, but not necessarily, a partition at one side or end of the filler is formed with a flange upon one of its edges, preferably the top or bottom edge, as indicated at 5 in Figs. 4, 5 and 6. If desired a similar flange may be provided at the opposite side or end of the filler. Said flanges, which may project out as far as but desirably not beyond the tips of the partitions at right angles to the partitions on which the flanges are formed, constitute a portion of one means of sealing the filler within the carton.
as will be later fully described, and also afford additional strength and rigidity for the carton.

The container element or carton proper, which also desirably is collapsible, for convenience in shipment from manufacturers to users, is in accordance with my invention formed as a tube having at least one vertical side or end open. Said tubular carton element, which may be of any desired length and width depending upon the number of cells or rows of cells in the filler to be contained, in the form shown is open at its opposite ends. It is substantially rectangular in cross section and comprises a top 6, opposite side walls 7, 7 and a bottom or floor 8, all collapsible into a substantially flat condition, but together providing a circumferentially continuous wall of great strength and rigidity.

Said container element or carton proper is preferably formed from a single substantially rectangular blank, having straight edges, shown in Fig. 1. The blank is entirely free from tabs, projections, cut outs, or other irregularities, and in width does not exceed the length of the complete carton. Consequently very materially less stock is required than for cartons as usually formed, there being absolutely no wasteage. Referring to said Fig. 1, the blank is scored or creased for folding along parallel lines, indicated herein at 9, 10, 11 and 12, so as to provide five portions including the top, bottom, and opposite side members above mentioned, and a securing flap 13. One portion of the blank, for example the portion 6, which is to constitute the top of the carton desirably is perforated along one or more lines at an appreciable distance from its edges, or otherwise rendered readily separable thereto, for example, in the manner illustrated at 14 in said figure. The carton may, however, be opened in any other suitable manner for the removal of the eggs by the consumer, as by completely separating the top along the crease at its back or along a perforation thereto, or the top and one or both sides may be removed leaving the filler and bottom of the carton to be used as a tray for placing the eggs in a refrigerator or elsewhere, the carton being perforated along one or both sides to permit such removal, if desired.

In making up the carton, the blank above described is folded upon said scores or creases 9, 10, 11 and 12, and the flap 13 secured, as by gluing, stapling, or the like, flatwise against and preferably upon the inside face of the opposite side wall portion 7, substantially in the manner illustrated in Figs. 2, 3, and 4.

The completed carton is at first in its collapsed or flat form, in which condition it may be packed for shipment in lots or quantities. In Fig. 2, for the sake of clearness, the parts are shown slightly opened. When a carton is to be filled or packed with eggs it may be quickly set up into position to receive a filler, as illustrated in Fig. 3, merely by exerting pressure upon its opposite side edges. Due largely to its tubular construction the described carton, being open at one or opposite sides or ends only, and not along any longitudinal edge, affords a more rigid package than may be had with a carton of the usual flap cover type. Since its main walls are all continuous, it will not twist, yield or tend to spring apart as often happens with cartons as heretofore constructed. Its parallel edges of greatest length are all free of cuts or the like, the adjoining walls at such edges all being integrally, or otherwise securely and permanently united. Consequently also there is no necessity for a seal along any of said edges and the cost of such seal and the labor in attaching the same is avoided. It will also be apparent that a carton such as described may readily be manufactured upon automatic high production machines thus reducing the cost of manufacture.

In practicing my method of packaging eggs the latter are placed in the individual cells of a suitable filler element one form of which is shown herein. Said packed filler element and a tubular cover or carton element, such as above described, are then assembled by relative movement thereof, either or both of them being moved, in a direction substantially parallel with the floor of the carton and in such manner as to telescope the filler element within the latter. One manner of practicing such method is clearly illustrated in Fig. 5. The carton element 1 may be fed or moved along a table or conveyor of any suitable construction, such as illustrated at 15 in Fig. 5, or otherwise positioned in alignment with a filler 2 previously packed with eggs. By relative longitudinal movement of the two elements the filler is then moved or slid into position within said carton or container. As shown in Fig. 5 the packed filler is fed or moved along suitable guide means 16 and is inserted edgewise or endwise and in a substantially horizontal direction into the tubular container 1 through a vertical opening therein, herein at one of its end sides. Due to the tubular or open-side construction of the carton the above method may be performed substantially wholly by machine.

The carton with the packed filler in assembled position within it is preferably sealed in any suitable manner at the open end or side at which the filler was inserted, and if desired, also at the opposite side or end, if open theretof, as in the form illustrated. For this purpose adhesive tape or adhesive may be applied but I prefer a posi...
A further advantage in a carton receiving a filler at a side thereof and in the method of using the same lies in the readiness with which a cushion or pad beneath the eggs may be inserted. If desired a cushion of corrugated or embossed board or other suitable form or material may be positioned beneath the filler when the eggs are placed therein and the filler with the underlying cushion together inserted edgewise into the container element in the manner above described, no additional operation being required.

It will now be understood that my method of packaging eggs contemplates the provision of a cellular filler or nest and a tubular, preferably collapsible, container or carton element, and includes positioning the eggs in the cells of the filler and subsequently assembling the filler and container by relative telescoping movement of the two in a direction substantially parallel with the carton floor, the carton being thereafter sealed in any suitable manner, if desired. While for the purpose of illustration I have shown an elongated tube or carton open at opposite ends and particularly adapted to contain a dozen eggs arranged "2 x 6", obviously other shapes or sizes of open-side or side-filling carton may be employed, such for example as to receive eggs arranged "3 x 4", "1 x 6", "2 x 3", or in lots of two, three or more dozens.

The numerous advantages in my carton for and method of packing eggs will be apparent from the foregoing. The carton is not designed for mailing but for the common, general use by large or small poultrymen, farmers, store and marketmen, for case shippers by car, truck or wagon, cooperative associations, the large packers and butter and egg dealers and chain stores handling fresh or cold storage eggs or both, and for the retail trade. It is the requirements of this class of users that my carton has been particularly designed to meet both where the user conducts a business requiring cartons in carload lots, as is frequently the case, and where the use is on a smaller scale.

Accordingly my carton has been constructed to be capable of flat storage and shipment in the smallest space possible, but to be capable of opening or setting up complete with the least expense of time and labor, due to its extremely simple structure and minimum number of parts. While having but two main elements for assembly, no more than the standard four-side and bottom flap-covered box with filler insert, it affords the required protection, and at a minimum of cost. It can be positively sealed to prevent substitution of the contents, a highly important feature not existing in the standard flap-cover box from which the adhesive stickers or so-called
seals can be and frequently are loosened sufficiently to give access to the eggs without damage to the container.

My carton can be and preferably is made of exactly standard dimensions whereby the filled cartons may be replaced for transportation in the same 30-dozen cases from which the eggs were taken for grading, culling or packaging, according to the general practice in the trade. Such avoidance of special wooden or heavy cases for transporting the filled paper cartons is an extremely important item to egg handlers.

Said 30-dozen cases accommodate five layers of six dozen each, the case being sectioned transversely at mid-length, each section being of a size to receive a square filler holding three dozen eggs arranged six by six. The standard “2 x 6” cartons fit said cases and permit the re-use of the same with the same number of eggs contained. Narrower cartons, which result from the use of non-standard or uncushioned fillers, integral partitions or the like require special packing to prevent undue movement in the cases, or else an extra set of special cases. With the exception of the novel securing or sealing flange or flanges, flaps or the like, at one or both ends, my filler is preferably standard, that is, it provides for each egg a four-walled cell, the filler being formed of cross pieces and the necessary plurality of longitudinal pieces, as opposed to but single longitudinal piece in a 2 x 6 carton or but two longitudinal pieces in a 3 x 4 carton, the cross pieces extending beyond the outer longitudinal pieces to afford cushioning projections taking against the side walls of the carton. Omission of such cushioning projections results not only in a less safe carton but in a carton of non-standard dimension, making the use of the standard 30-dozen cases above mentioned dangerous to the contents or otherwise impracticable. With my carton both the standard dimension and full protection obtained with the cushioned filler are retained.

Further, the disclosed carton is attractive in appearance, and can be readily printed with the names or brands of the various dealers since it presents four unbroken flat surfaces. It is formed absolutely without wastage of stock, and requires but the smallest possible amount of stock. While affording the necessary protection it is susceptible of handling and filling by automatic machinery, such as that forming the subject matter of other applications by me for Letters Patent, and the disclosed carton has been produced with such automatic machine packing and handling particularly in view. Its extreme simplicity is a main factor in that connection.

So far as I am aware, mine is the first side-filling carton designed and adapted to receive a standard, bottomless or a similar self-supported and egg-retaining filler in which the eggs have first been placed and which is thereafter inserted directly into the carton proper, one side wall of the latter then providing a bottom for the filler which may be secured or sealed to the carton in such manner that a single rigid unit is formed, positively closed against substitution of the contents, the carton when subsequently opened by removal of a non-replaceable panel constituting a unitary tray for handling of the eggs by the consumer. By inserting a bottomless or a similar self-supported and egg-containing filler directly into a side-filling container, of whatever size and shape, permissibly utilizing one wall of the latter as the sole bottom for retaining the eggs in the cells, with or without a cushion or pad such as previously mentioned, a great saving in material and labor is gained, which construction and method are broadly new and are so claimed regardless of whether or not the carton is sealed or of any particular manner of sealing. However, by the addition of sealing flanges or like means on one or both end cross pieces of the filler, as herein disclosed, I am able positively to secure or seal the carton against tampering with the contents.

I am aware of the patent to Bauer No. 312,421 dated February 17, 1885, disclosing a packing case formed of four distinct elements each requiring separate manipulation and assembling, including a non-cushioned filler not provided with four-walled cells and incapable of itself retaining eggs placed therein before assembly with other elements, a bottom and side element, and a retaining band for the latter, all of which must be assembled before the filler can be placed in the outside covering, the fourth element, and I make no claim to such construction, it being wholly unsuited for automatic or other quick handling, requiring over twice the amount of stock as employed in my carton, and being incapable of sealing against substitution in the manner described by me.

My method is not limited in its practice to any particular form of open-side carton susceptible of handling in a manner substantially as illustrated and described, nor is the carton of my invention confined to the particular form shown and described herein by way of example.

Claims:
1. The method of packaging eggs in tubular cartons having bottomless cellular fillers which comprises inserting the eggs in the cells of the filler while positioned on a suitable working surface, effecting relative sliding movement of said filler and its tubular carton along said surface thereby to position the packed filler in said carton, and sealing the filler to the carton.
2. The method of packaging eggs in tubular cartons having cellular fillers which comprises inserting the eggs in the cells of the filler while positioned on a suitable working surface supporting the eggs in the vertical direction, and effecting relative sliding movement of said filler and its tubular carton along said surface thereby to position the packed filler in said carton, the filler being permanently retained within the carton for transportation and selling purposes.

3. A package comprising a tubular receptacle and a bottomless filler having eggs therein, said egg-containing filler and said receptacle having been positioned the one within the other by a relative sliding of said parts and being retained in said position for transportation or sale.

4. An egg receptacle comprising container and cellular filler elements assembled and secured together by means rendering impracticable the separation of said elements without leaving evidence of such act, one side of said container being permanent and the side opposite thereto having an integral portion with perforated or similarly marked edges to facilitate removal of said portion, the latter affording the sole means of access to the contents of said filler element.

5. The method of packaging eggs in tubular cartons having cellular fillers which comprises inserting the eggs in the cells of the fillers while positioned on a suitable working surface supporting the eggs without necessary dependence on rigidity in the filler structure and effecting relative sliding movement of said filler and its tubular carton along said surface thereby to position the packed filler in said carton, the filler being permanently retained within the carton for transportation and selling purposes.

In testimony whereof, I have signed my name to this specification.

FRANCIS H. SHERMAN.