Oct. 1, 1968 J. ROBSON 3,403,815

DISPENSING PACKAGE

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Fig. 1.

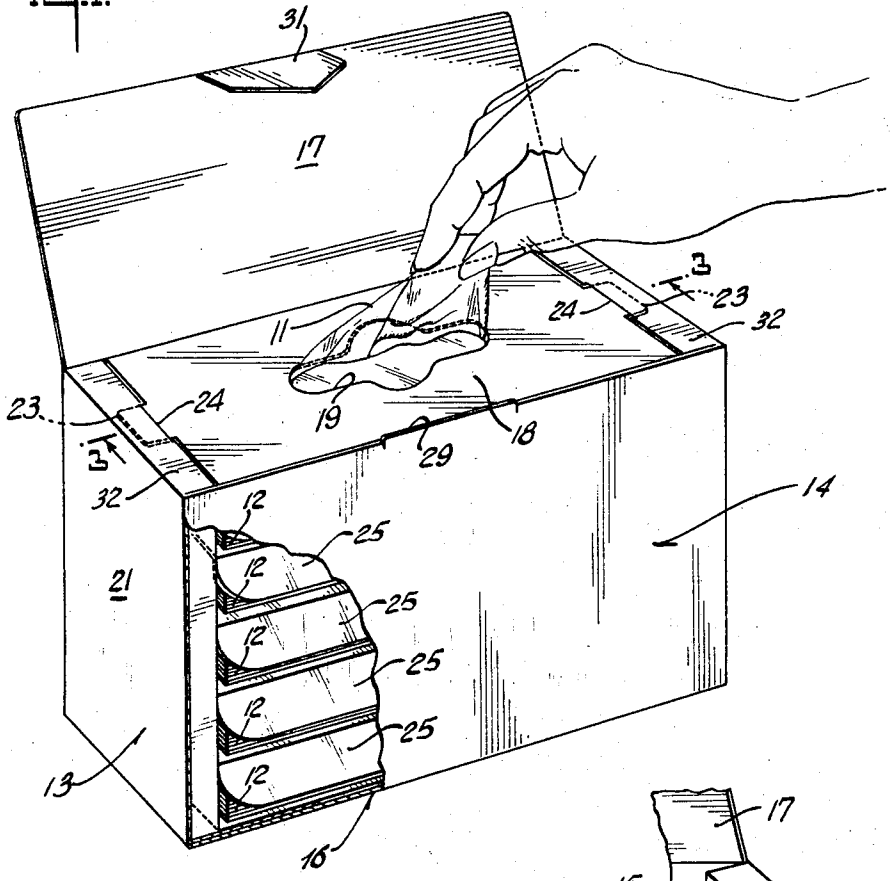
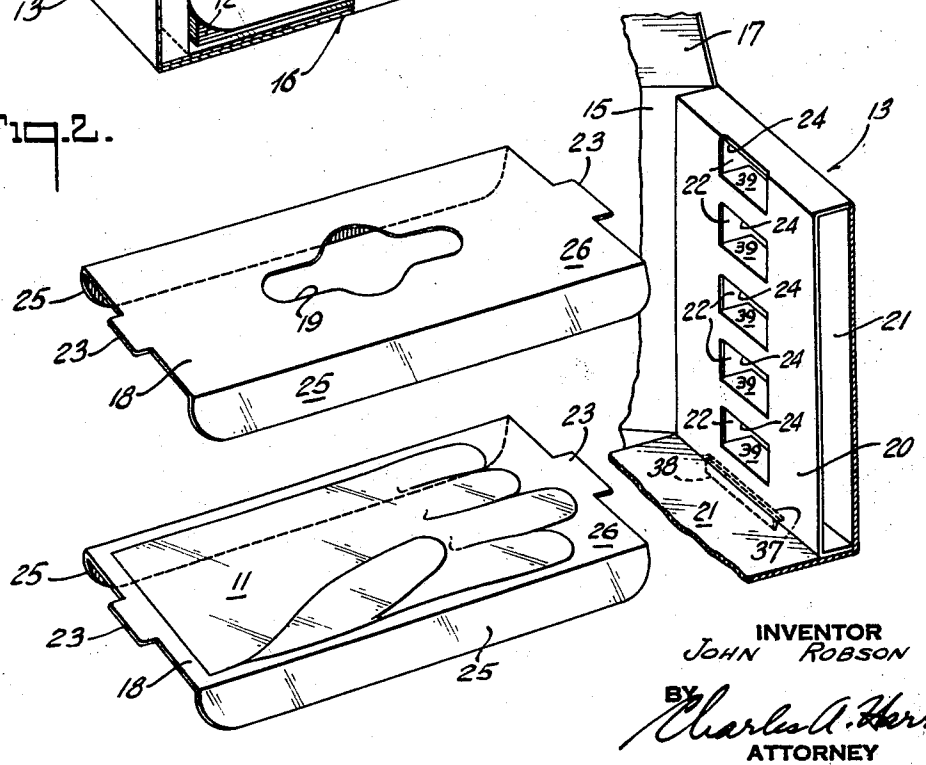


Fig. 2.



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Fig. 3.

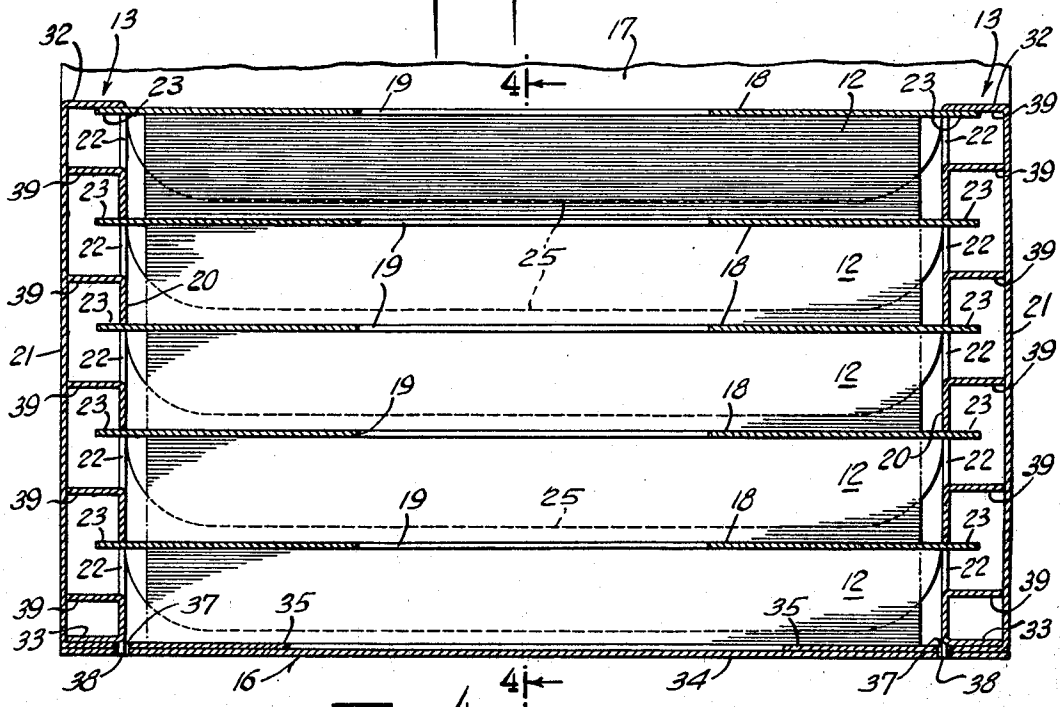


Fig. 4.

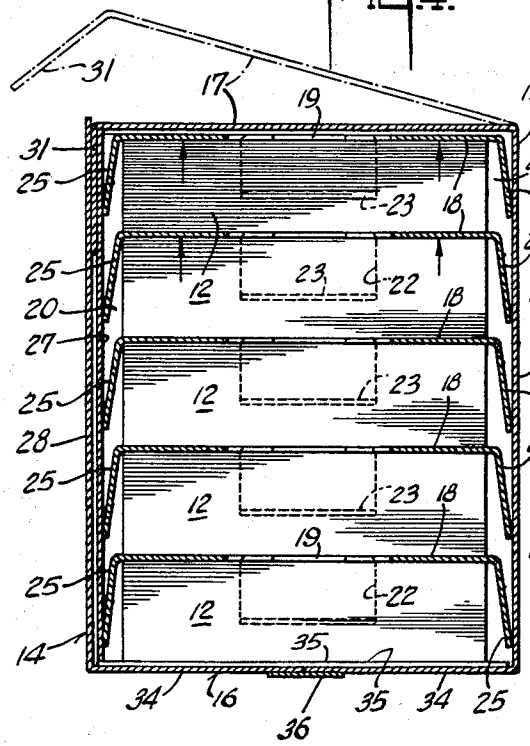


Fig. 5.

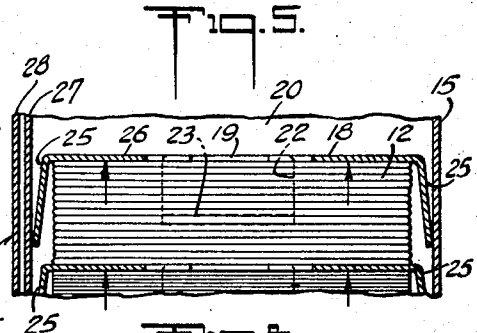
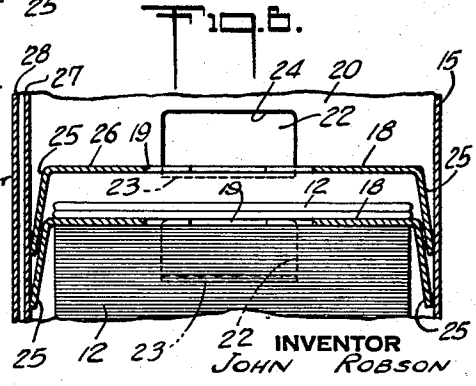


Fig. 6.



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Fig. 7.

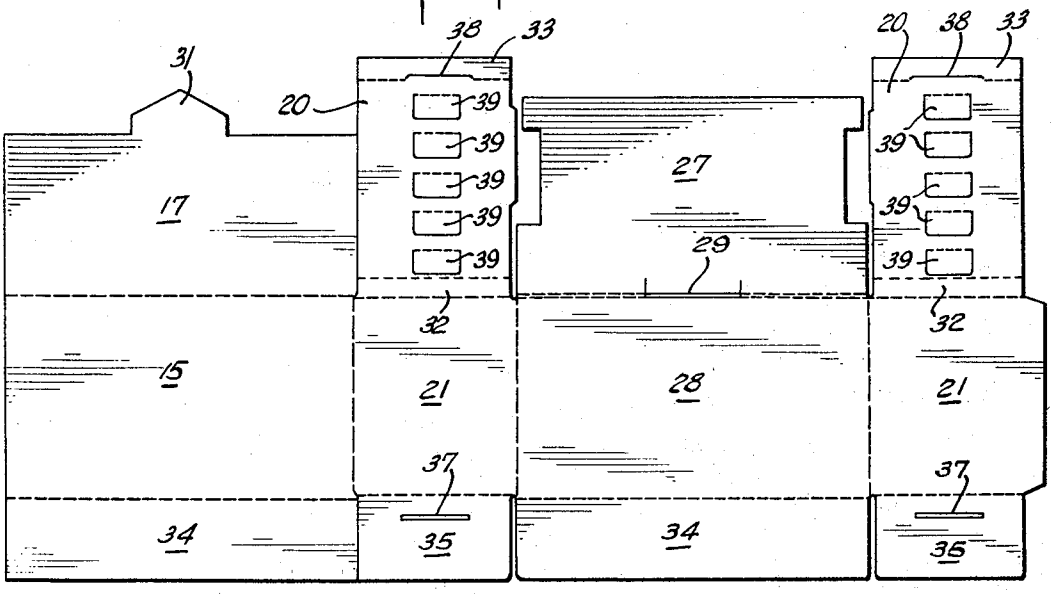
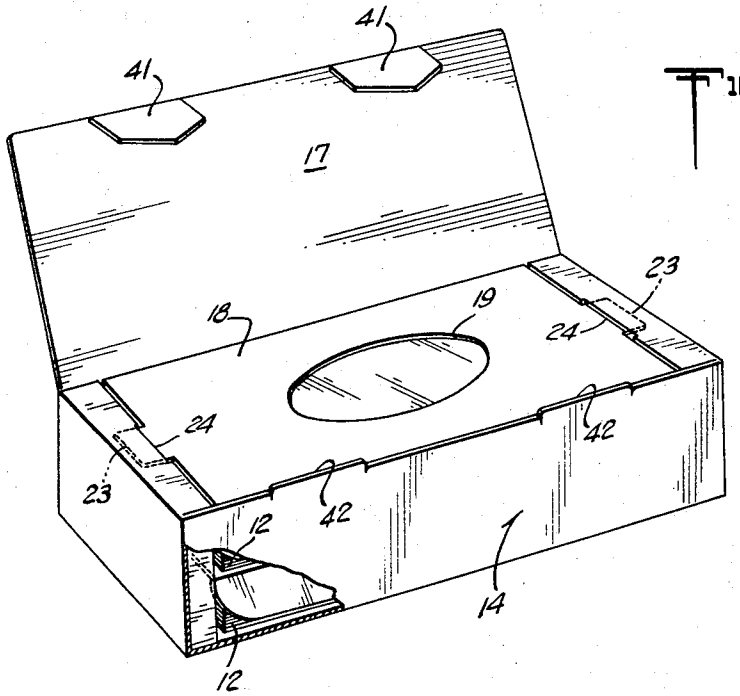


Fig. 8.



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3,403,815

DISPENSING PACKAGE

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Filed July 11, 1967, Ser. No. 652,497
11 Claims. (Cl. 221—34)

ABSTRACT OF THE DISCLOSURE

A dispensing package and carton for flat flexible articles such as plastic gloves wherein the articles are arranged in a plurality of compressed stacks of said articles and said stacks are separated and maintained in compressed condition by a plurality of horizontal dispensing walls mounted at each end of the carton for vertical movement with respect to a series of stops; each of the dispensing walls having a dispensing opening through which the articles may be drawn from the stacks below them.

The present invention relates to packages for dispensing a multiplicity of flat flexible articles from a stack of said articles and cartons therefor, more particularly to such packages wherein the stack of articles normally would be bulky and is compressed vertically to decrease the bulk of the stack and facilitate dispensing individual articles from the carton.

Heretofore, various constructions have been proposed for packages and cartons for dispensing flat articles such as napkins, cleaning tissues, and the like, from an initially compressed stack of said articles. These packages have been widely used for dispensing tissues through an opening in the top of the carton, and have been improved by adding a flat insert, such as disclosed in United States Letters Patent No. 3,207,360, which rides on top of the stack and defines an opening through which the tissues are drawn.

Dispensers also have been proposed which include a heavy dispensing plate or insert of this type which applies a substantially constant pressure to the top of the stack as the stacked articles are dispensed through a slot or other opening in the plate as described in United States Letters Patent No. 1,464,180.

The prior art packages of this type all suffer from the fact that the stack is retained compressed only by the outer package structure, i.e., by the top and bottom of the carton, itself. It is not practical or practicable to attempt to include a weighted dispensing plate in the package to apply pressure to the top of the stack. The cost and weight of any package structure designed on this principle would be prohibitive. As a result, the pressure on the stack is limited by the strength of the carton which, in turn, is a function of carton size. This means that the number of articles which can be compressed and dispensed from a given carton is limted.

Furthermore, since the amount of compressive force which can be applied to the stack is limited, it soon becomes completely dissipated as the articles are dispensed so that the remaining articles no longer "pop up" for ready removal through the top of the package. This problem is accentuated as the number of articles in the stack is increased with a corresponding increase in its height or thickness. In addition, since the articles become less and less accessible as the bottom of the carton is approached, there is a practical limit to the number of articles which can be readily dispensed from a single package in this manner.

I have invented a package and carton structure for stacked flexible articles wherein theoretically, at least, there is no limit to the number of articles which can be readily dispensed from a single package. Furthermore,

in my package, much greater compressive forces may be applied to the stacked articles, thereby allowing more articles to be packaged in a given size carton. In accordance with my invention, the articles are stacked in such a way that the compressive force is dissipated less quickly than in the most closely related packages of the prior art, thereby facilitating dispensing of the articles from the package. In addition, the articles are arranged in my package in a plurality of relatively shallow compressed stacks, rather than only in one stack. This means both that the articles in my package do not become inaccesible, and that my package may be designed to contain an almost unlimited number of articles.

The package of my invention is particularly suited for packaging flat flexible articles, such as thin rubber-like surgical gloves which, when stacked in quantity, offer considerable resistance to compression of the stack. However, it may be used for packaging and dispensing almost any kind of flat flexible article which may advantageously be dispensed from a stack as described herein.

The package of my invention comprises a plurality of compressed stacks of flat flexible articles and a carton for holding said stacks and dispensing the articles from the top stack remaining therein. The carton comprises a plurality of horizontal dispensing walls mounted at each end of the carton for vertical movement with respect to a series of stops. These dispensing walls separate the stacks and hold them in a compressed condition. The stops are vertically spaced from one another and adapted to limit the vertical movement of each end of each dispensing wall, and position the dispensing walls to define the height of the stacks and hold the stacks compressed. Each of the dispensing walls has a dispensing opening through which articles may be withdrawn for use, as in a tissue dispenser.

The articles in the top stack first are exposed through the dispensing opening in the uppermost horizontal dispensing wall, and may be withdrawn therethrough for use. As the articles are withdrawn in this manner, they continue to "pop up" or be pressed against the top dispensing wall so that they may be grasped easily through the opening. Finally, when enough of the articles are withdrawn from the top stack, the compressive forces on the stack become dissipated and the uppermost dispensing wall gradually drops away from its stops and rides down on top of those articles remaining in the stack in such a way as to minimize disarrangement of the stack. The remaining articles still may be reached through the opening in the dispensing wall until all of the articles in the top stack have been dispensed. As the last article in the top stack is removed, the second horizontal wall becomes exposed and the articles in the second stack then may be dispensed through the opening therein. To facilitate dispensing of the articles from successive stacks, the uppermost dispensing walls may be removed from the carton as the stacks which they protect are used up.

Normally, the carton of this invention includes a pair of opposed end walls and a corresponding pair of spaced side, or front and back, walls joining the end walls. In this construction, the aforesaid series of stops normally are presented by the opposed end walls. Preferably, each of the end walls presents a series of guide slots which are spaced vertically from one another and the stops, for holding the dispensing walls, are presented at the top of these slots. In this construction, the dispensing walls preferably have tongues or other portions normally riding in the slots and adapted to engage the stops at the top of the slots when holding the stacks compressed. To assure that the dispensing walls possess sufficient stiffness between their respective tongues to hold the subjacent stacks compressed and to help position the said stacks laterally in the carton, each of the walls includes

a pair of depending longitudinal flanges foldably connected to the central portion of the dispensing wall.

In a preferred form of this invention, wherein the stops are presented by slots located in the opposed end walls of the carton, each of the end walls comprises an inner panel and an outer panel which are spaced horizontally from one another and the slots are presented only in the inner panels. This allows the outer panels of the end walls to be continuous for providing a complete enclosure for the stacked articles. In one preferred form of this embodiment of the invention, the carton also comprises a bottom wall and a top cover which preferably folds down over the top dispensing wall and unfolds to expose this wall for dispensing purposes. The cover and all of the above-mentioned walls of the carton, including both panels of the end walls, are formed from a single piece of sheet material which is adapted to be folded to form the desired carton structure.

Other and further advantages of this invention will appear to one skilled in the art from the following description and claims taken together with the drawings wherein:

FIG. 1 is a view in perspective of one embodiment of the package and carton of this invention, partially broken away to show the interior of the package.

FIG. 2 is a similar view in perspective of two of the horizontal dispensing walls and one of the end walls of the package of FIG. 1 partially exploded to show how the contents, i.e., plastic medical gloves, are arranged in the package with respect to these parts.

FIG. 3 is a somewhat enlarged longitudinal sectional view taken along the line 3—3 of FIG. 1.

FIG. 4 is a similarly enlarged transverse sectional view taken along the line 4—4 of FIG. 3.

FIG. 5 is a transverse sectional view of a portion of the package of FIG. 4 illustrating how the uppermost horizontal dispensing wall holds the stack beneath it compressed after the stack above it has been removed from the package.

FIG. 6 is a partial sectional view similar to FIG. 5 showing the position of the uppermost dispensing wall when there are only a few articles remaining in the stack below it.

FIG. 7 is a plan view, on a somewhat reduced scale, of the blank from which the carton of the package of the preceding figures was folded and constructed.

FIG. 8 is a view in perspective, similar to FIG. 1, of a package according to a somewhat different embodiment of this invention.

Referring to FIGS. 1–7 of the drawings, there is shown a package and carton according to one embodiment of this invention wherein a multiplicity of flat flexible articles, i.e., plastic medical gloves **11**, are arranged for dispensing from a plurality of compressed stacks **12** of these gloves. In this embodiment of the invention, the gloves may be packaged in a series of five stacks of approximately 50 gloves each, one above the other in such a way that the total, i.e., approximately 250 gloves, is contained in, and available for dispensing from, a relatively compact and sturdy package.

The stacked gloves **11** are contained in a carton which comprises opposed end walls **13** joined by front and back side walls **14** and **15**, respectievly, a bottom wall **16** closing the bottom of the carton, a top cover **17** foldably connected to one of the side walls, and a series of five horizontal dispensing walls **18** mounted in the opposed end walls **13**. The dispensing walls **18** are located, one above each of the stacks **12**, in such a way as to both separate the stacks and hold them in a compressed condition. Each of the dispensing walls **18** defines a centrally located dispensing opening **19** through which the gloves **11** may be withdrawn or dispensed from the stack **12** below it. As long as the stack remains in compressed condition, the gloves will tend to "pop up" into the opening **19** for dispensing therethrough. When the compressive force on the stack has become dissipated, the gloves can be reached through the dispensing opening **19** for dispensing, as will be further described hereinafter. Each of the end walls comprises an inner panel **20** and an outer panel **21**. Each of the said inner panels **20** presents a series of guide slots **22** spaced vertically from one another, whereas the outer panel **21** is continuous to provide a complete enclosure for the gloves. Each of the horizontal dispensing walls **18** is somewhat shorter in length than the distance between the opposed inner panels **20** of the end walls, but presents opposed tongues **23** which enter corresponding opposed slots **22** in the end walls and, thereby, locate the dispensing walls **18** vertically in the package. The normal uncompressed height of a stack of gloves **11** according to this invention would be considerably greater than the height of the compressed stacks **12** contained in the package. Thus, it is an important function of each of the horizontal dispensing walls **18** to hold or retain the stack below it in a compressed condition. Each dispensing wall **18** is held down on top of a stack of gloves for this purpose by the engagement between the top **24** of each of the aforesaid slots **22** and the corresponding tongues **23** of each dispensing wall **18** which ride in these slots. In other words, the tops of each of these slots act as a series of stops **24** which hold the dispensing walls **18** in compressing relation with the subjacent stack **12** of gloves. Since the slots **22** in the end walls have a definite vertical height, it will be seen that the dispensing walls **18** are mounted for vertical movement in the slots with respect to the stops **24** at the top of the slots. However, a given dispensing wall **18** will remain in contact with its respective stops in such a way as to retain the subjacent stack in a compressed condition until enough of the gloves are withdrawn from the stack to dissipate the compressive forces therein. Thereafter, the dispensing wall **18** will ride on top of the stack and move downwardly with the stack to prevent the gloves from being displaced therefrom until the tongues **23** of the dispensing wall come into contact with the bottom of the slots **22** in which they ride, as shown in FIG. 6. Since the dispensing wall **18** in question is so close to the bottom of the stack below it, or the next subjacent dispensing wall, as the case may be, at this point, the gloves **11** remaining in the partially dispensed stack may be withdrawn quite easily through the dispensing opening **19** therein until the stack is completely dispensed. Normally, each dispensing wall **18** is removed from the carton when the stack below it is completely dispensed to facilitate dispensing gloves from the next subjacent stack. However, it is possible to dispense gloves from a compressed stack by drawing them through two of the dispensing walls **18** when the stack above has been completely dispensed and the uppermost dispensing wall is in the position shown in FIG. 6. Similarly, the uppermost dispensing wall, shown in FIG. 6, may be removed prior to the time that the partially dispensed immediately subjacent stack is completely dispensed. However, when the cover **17** at the top of the package is unfolded or removed from the package by tearing or the like, the uppermost dispensing wall **18** desirably is left in the package to act as a retainer and partial dust cover at least for all of the gloves **12** in the immediately subject stack.

In order to assure that the dispensing walls **18** possess sufficient longitudinal stiffness to apply the necessary compressive forces to the stack below them, they each include a pair of depending longitudinal flanges **25** folded downwardly from and integral with a central horizontal panel portion **26** of the dispensing wall which normally rests directly on top of the subjacent compressed stack **12**. As shown most clearly in FIGS. 4 through 6, these flanges **25** overlap the sides of the stacks **12** and occupy a space provided between the stacks and the front and back side walls **14** and **15**. These flanges **25** are foldably connected to the central panel **26** of the dispensing walls in such a way that they tend to unfold or spread outwardly and

thereby engage the inner surfaces of the front and back walls **14** and **15** to retain the stacked gloves in position laterally in the carton. This arrangement assures that the stacked gloves remain centrally located in the package and do not become jammed against one side of the carton during storage or handling.

One of the important features of this embodiment of the invention is that all of the parts of the carton may be folded and constructed from a single sheet of material, i.e., from a single blank of paper board or corrugated paper packaging material, or the like, as shown in FIG. 7. In this embodiment of the invention, the front wall **14** of the carton comprises an inner and outer panel **27** and **28**, respectively, as shown in FIGS. 4–6, as well as in FIG. 7. The inner panel **27** of the the front wall acts as a retainer for the inner panels **20** of the end walls when the various parts of the blank are folded into position, as well as providing a structure for defining a slot **29** adapted to receive a corresponding tongue **31** provided on the leading edge of the foldable cover **17**. This assures that the cover **17** may be opened, closed and retained in position and then opened again easily any number of times as the gloves are being dispensed from a given carton. Narrow top spacer walls **32** and bottom spacer walls **33** are formed in the blank integral with the inner panels **20** of the end walls to position the inner panels with respect to the outer panels **21** of the end walls when the parts are folded together, as shown most clearly in FIGS. 2 and 3. The bottom wall **16** of the carton actually consists of four flaps, i.e., a pair of longitudinal flaps **34** foldably connected to the front and back walls of the carton and a pair of end flaps **35** foldably connected to the outer panels **21** of the end walls of the carton. As shown most clearly in FIG. 3, the end flaps **35** are folded in first and then the side flaps **34** are folded over the end flaps and into contact therewith to form the bottom wall of the carton. As shown in FIG. 4, these side flaps **34** of the bottom wall **16** may be held together by a piece of pressure-sensitive adhesive tape **36**, or the like, to provide a complete enclosure. The end flaps **35** of the bottom wall each define a slot **37** for receiving a corresponding shallow tongue **38** provided at the bottom of each of the inner panels **20** of the end walls for holding these panels in position. The slots **22** in the inner panels of the end walls are formed merely by folding in a corresponding series of flaps **39** which are adapted to remain in the end wall structure and provide horizontal rigidity therefor, as shown most clearly in FIGS. 2 and 3.

After the carton has been formed by folding the blank of FIG. 7 and interlocking the various parts, the described hereinbefore, the first stack **12** of gloves **11** may be placed in position in the bottom of the carton and the first horizontal dispensing wall **18** engaged with the lowermost slots **22** in the end walls. Then, the remaining stacks and dispensing walls may be successively added until all of the stacks are loaded in compressed condition, as illustrated in FIGS. 1 and 3–6. However, it may be possible to load the package in one step, i.e., by compressing all five stacks together wtih their respective dispensing walls in position with respect thereto, and then folding the carton around the compressed stacks to form the package. In either case, the end result is a package wherein the gloves **11** may be dispensed easily through the dispensing openings **19** provided in the horizontal dispensing walls, yet may be package in almost any quantity in a unit which may be constructed easily from a single blank of sheet material such as conventional paper board, or the like.

FIG. 8 illustrates a somewhat different embodiment of the invention wherein only two compressed stacks **12** of gloves, or other flat articles, are contained in the package. The construction of the package of FIG. 8 is otherwise identical with that of the foregoing figures, except for the shape of the dispensing opening **19** in the horizontal dispensing walls **18** of the package and the fact that there are two tabs **41** for closing the foldable cover **17** and a corresponding pair of slots **42** presented along the top edge of the front wall **14** of the carton.

It will be apparent that the package of this invention may be utilized for packaging and dispensing any kind of flat article which may be dispensed from a compressed stack in the manner described, and that the opening in the dispensing wall and the various other structural features of the carton of this invention may be modified somewhat to suit the particular type of article or material which is being dispensed. Furthermore, it will appear to those skilled in the art that innumerable variations, applications, modifications, and extensions of the basic principles involved in this invention may be made without departing from its spirit or scope.

What is claimed is:

1. A dispensing package for a multiplicity of flat flexible objects which comprises a plurlity of compressed stacks of said articles and a carton for holding said stacks; said carton comprising a plurality of horizontal dispensing walls mounted at each end of the carton for vertical movement with respect to a series of stops, said dispensing walls separating said stacks and holding them in a compressed condition and said stops being vertically spaced form one another and adapted to limit the vertical movement of each end of each dispensing wall, and each of said dispensing walls defining a dispensing opening through which said articles may be withdrawn for use; whereby said dispensing walls are urged against said stops when the stacks first are placed in the carton, and each of said dispensing walls is adapted to move downwardly on top of the stack beneath it as the height of the stack drops below the respective stops normally holding the wall and the stack compressed.

2. A package according to claim **1**, which comprises a pair of opposed end walls and a pair of spaced side walls joining said end walls, and the aforesaid stops are presented by said end walls.

3. A package according to claim **2**, wherein said end walls each presents a series of guide slots spaced vertically from one another and said stops are presented at the tops of said slots.

4. A package according to claim **3**, wherein said dispensing walls have portions normally riding in said slots and adapted to engage the tops and bottoms of said slots.

5. A carton for dispensing a multiplicity of flat flexible articles from a plurality of compressed stacks of said articles, which comprises a plurality of horizontal dispensing walls mounted at each end of the carton for vertical movement with respect to a series of stops, said dispensing walls being adapted to separate said stacks and hold them in a compressed condition and said stops being vertically spaced from one another and adapted to limit the vertical movement of each end of each dispensing wall, and each of said dispensing walls defining a dispensing opening through which said articles may be withdrawn for use; whereby a plurality of stacks of said articles may be placed in said carton, separated and held in a compressed condition by said dispensing walls in such a way that said dispensing walls are urged against said stops when the stacks first are placed in the carton, and each of said dispensing walls is adapted to move downwardly on top of the stack beneath it as the height of the stack drops below the respective stops normally holding the wall and the stack compressed.

6. A carton according to claim **5**, wherein the said norizontal dispensing walls each comprise a flat panel portion and a pair of longitudinal flanges foldably connected to said panel portion, said longitudinal flanges increasing the longitudinal stiffness of said dispensing walls between said stops.

7. A carton according to claim **5**, which comprises a pair of opposed end walls and a pair of spaced side walls joining said end walls, and the aforesaid stops are presented by said end walls.

8. A carton according to claim 7, wherein said end walls each presents a series of guide slots spaced vertically from one another and said stops are presented at the tops of said slots.

9. A carton according to claim 8, wherein said dispensing walls have portions normally riding in said slots and adapted to engage the top and bottom of said slots.

10. A carton according to claim 8, wherein each of said end walls comprises an inner panel and an outer panel spaced horizontally from one another and said slots are presented only in said inner panels.

11. A carton according to claim 10, wherein said carton also comprises a bottom wall and a top cover and said bottom wall, said cover, said side walls and both

panels of said end walls all are fromed from a single piece of sheet material which is adapted to be folded into the desired carton structure.

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