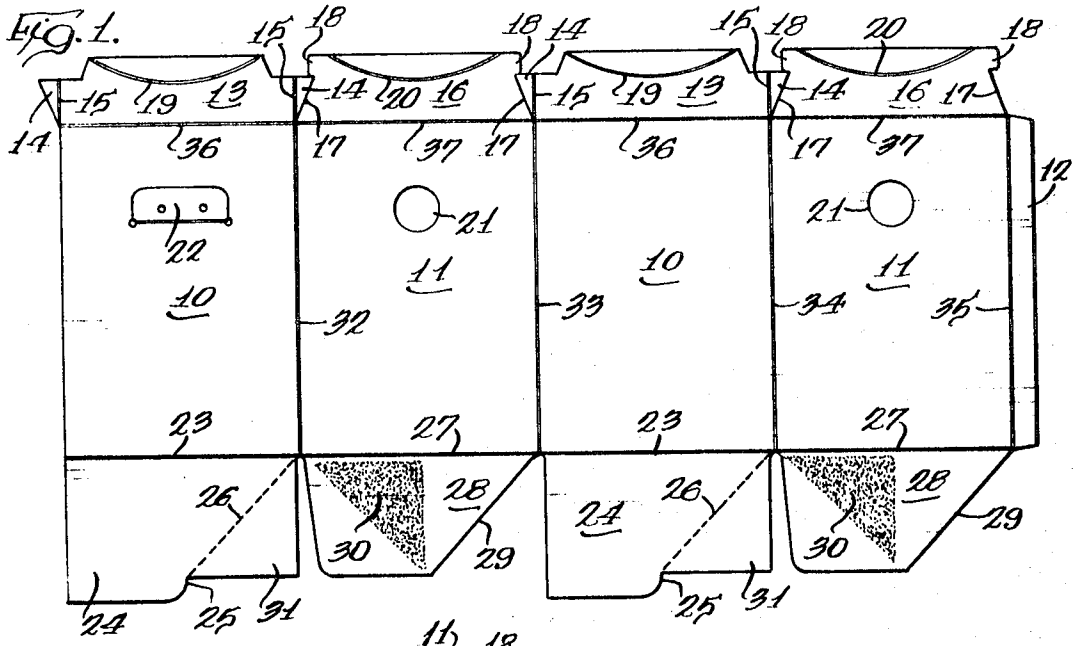
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DISPOSABLE CONTAINER

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Fig. 1.



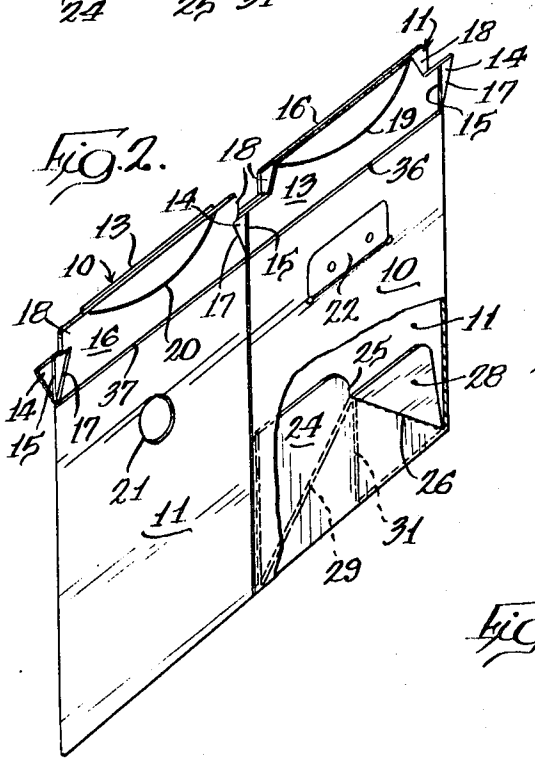
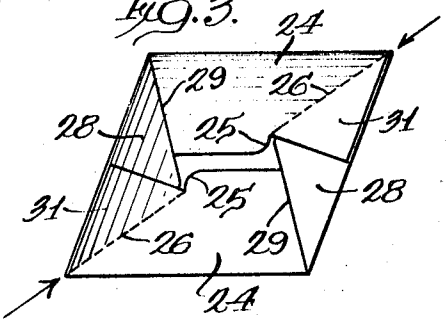


Fig. 2.

Fig. 3.



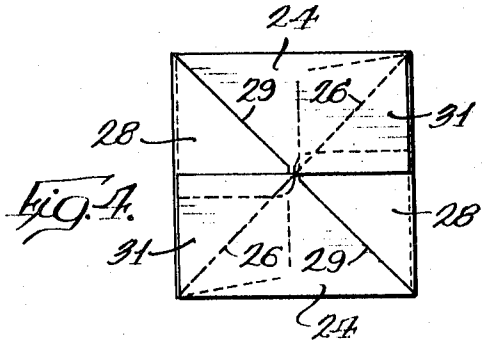


Fig. 4.

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Fig. 5.

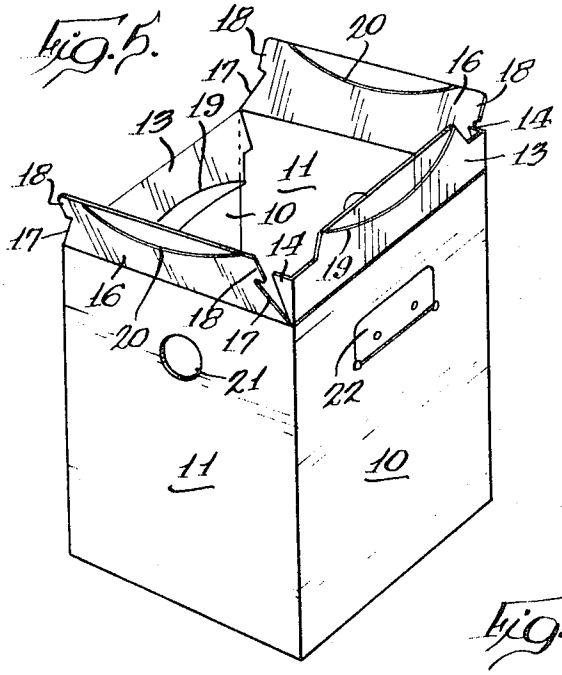


Fig. 6.

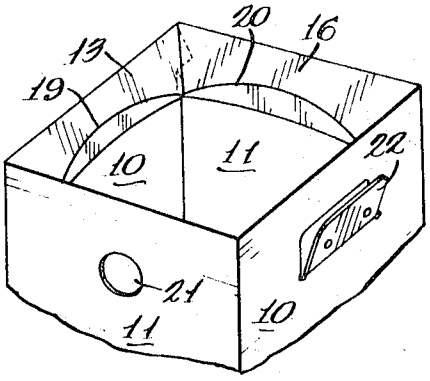


Fig. 7.

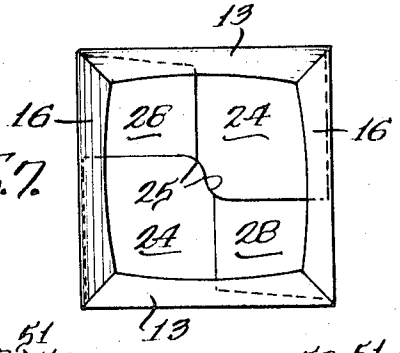


Fig. 8.

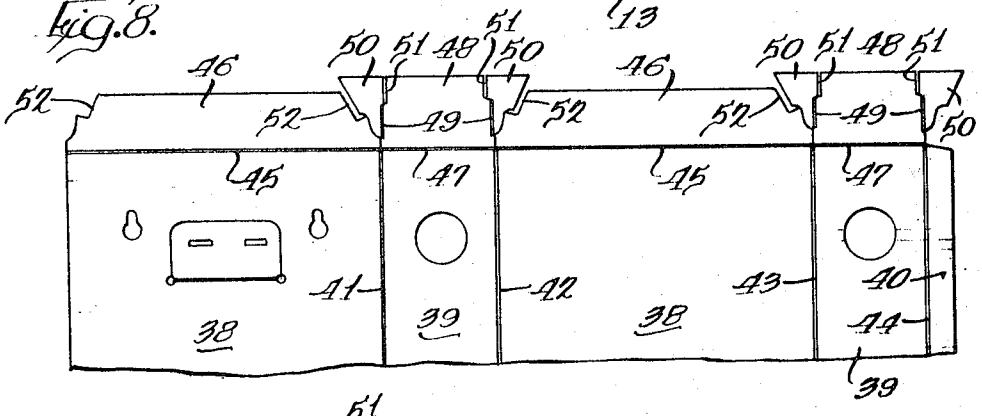
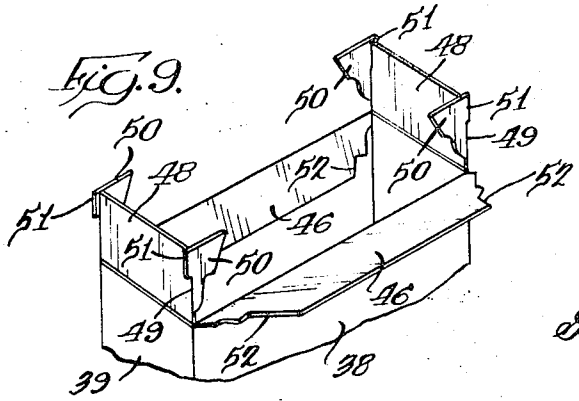


Fig. 9.



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Fig. 10.

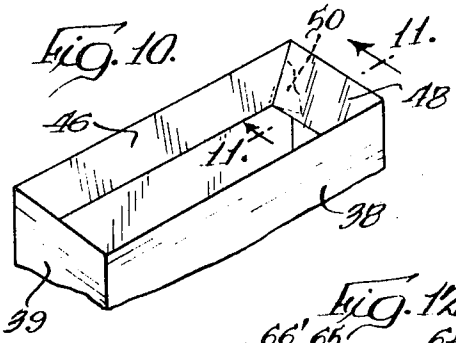


Fig. 11

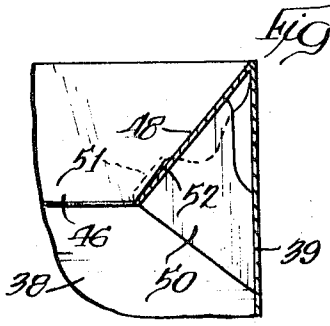


Fig. 12.

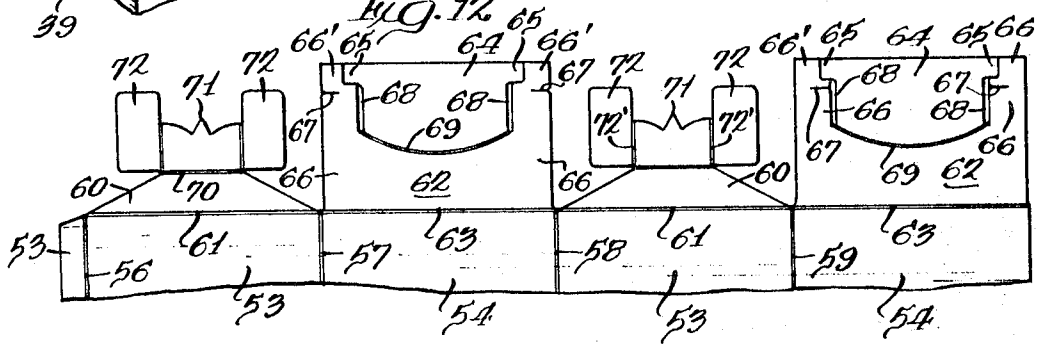


Fig. 13.

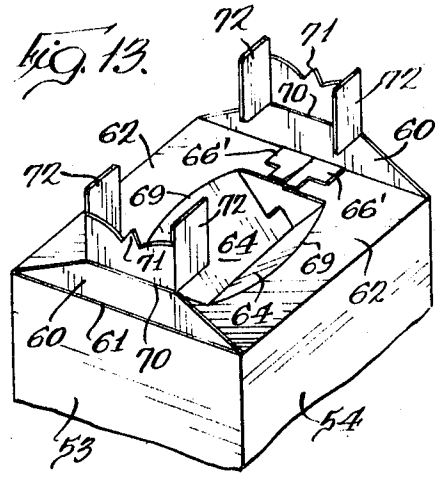


Fig. 15.

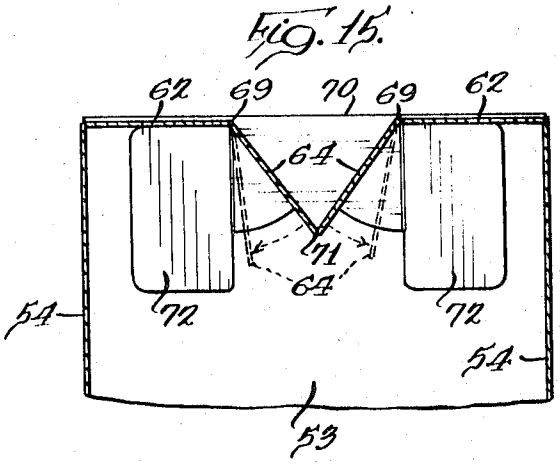
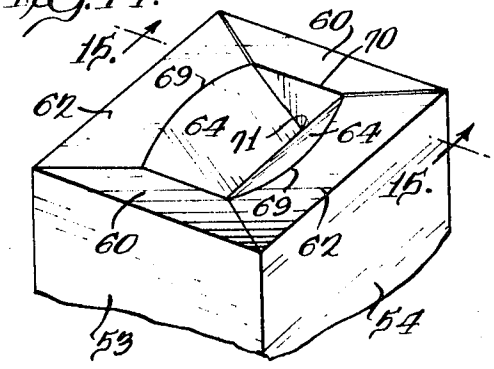


Fig. 14.



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Fig. 16.

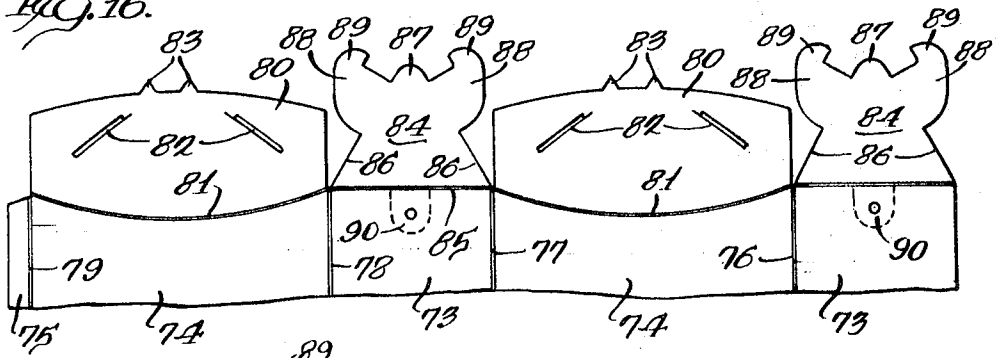


Fig. 17.

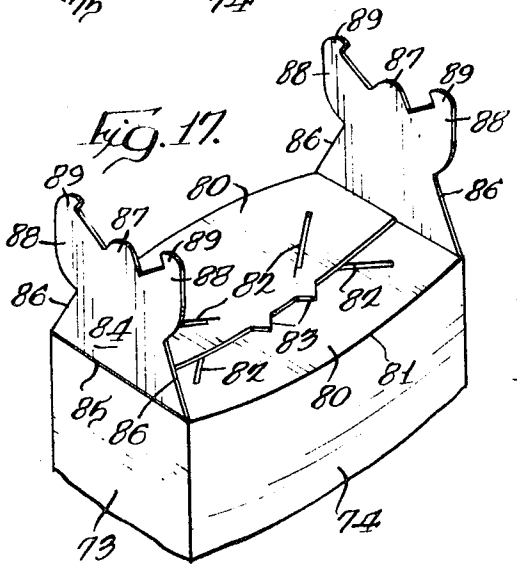


Fig. 18.

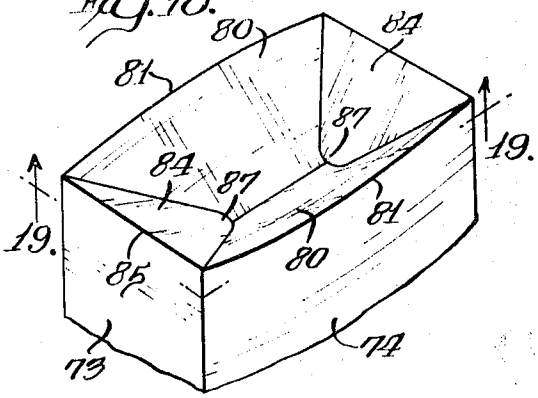


Fig. 19.

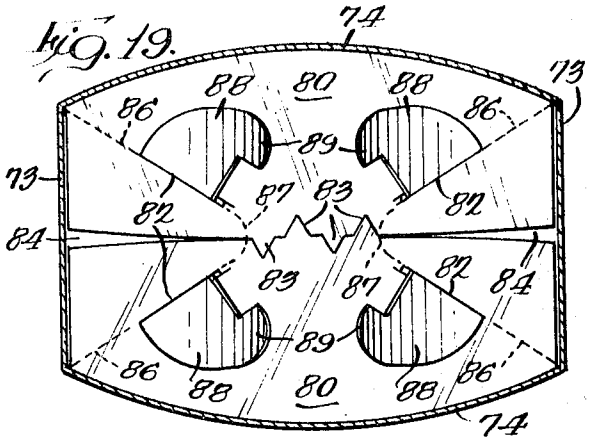
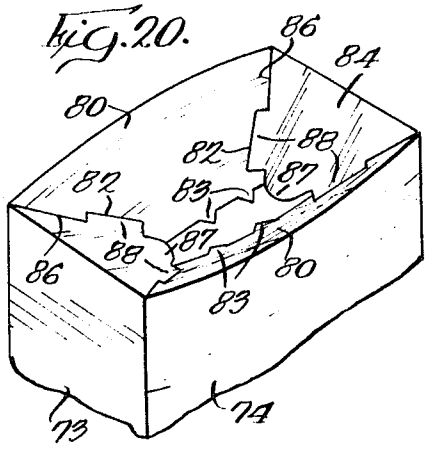


Fig. 20.



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3,455,498

DISPOSABLE CONTAINER

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Int. Cl. B65d 5/10
U.S. Cl. 229—39 4 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to a collapsible and erectible container formed of a single blank of paperboard which has interlocking bottom forming flaps hinged to the side walls and also interlocking top forming flaps hinged to the side walls. The top forming flaps are adapted to maintain the walls of the carton in substantially rectangular spaced relationship. In some embodiments of the invention the top forming flaps extend in spaced relationship to each other and in others the top forming flaps extend into abutting relationship with one of the opposed pair being adapted to be yieldably spaced on hinged lines to provide a temporary opening.

The present invention relates to disposable cartons which can be stored, transported and then readily erected to substantially rectangular form and of relatively economical construction formed of a single blank of paperboard and can be used in the home or in doctors' or dentists' offices or by hospitalized patients as a waste container and thereafter disposed of.

Containers of the present class have been heretofore provided in collapsible form with bottom flaps that interlock but the present invention further provides top forming flaps which give the container stability and also limit the area of the top opening to a desired extent. In some specific embodiments of the present invention the top forming flaps extend into abutting relationship with each other so as to normally form a complete pilferage resistant sanitary closure but which complete closure contains a pair of opposed flaps which yield on their scored hinge lines to provide a temporary opening and then spring back into place to close the top. This is accomplished without any spring aids but relies essentially on the tendency of scored paperboard, after it has been bent on a score line, to spring back to its original flat condition.

The objects of the present invention, its details of construction and arrangement of parts and economies thereof will be further explained in connection with the accompanying drawings wherein:

FIG. 1 is a blank development of one form of container of the present invention.

FIG. 2 is a perspective view of the blank of FIG. 1 partially assembled and in collapsed condition ready for shipment and storage.

FIG. 3 is a bottom view of the blank of FIG. 2 during its stages of erection showing the bottom flaps in partial engagement with each other.

FIG. 4 is a view progressive of FIG. 3 showing the formed flaps of the container in their final relationship wherein the container is erected.

FIG. 5 is a perspective view of the container formed from the blank of FIG. 1 and with the top closure flaps in separated relationship.

FIG. 6 is a perspective view progressive to that of FIG. 5 showing the top flaps in interlocked carton sustaining final relationship.

FIG. 7 is a plan view of the container of FIG. 6.

FIG. 8 is a fragmentary section of the carton development of a modified form of container of the present invention.

FIG. 9 is a fragmentary perspective top view of the blank of FIG. 8 in partially assembled condition.

FIG. 10 is a view progressive to that of FIG. 9 showing the top closure flaps in interlocking engagement.

FIG. 11 is a section on the line 11—11 of FIG. 10.

FIG. 12 is a fragmentary blank of another modified form of container showing the top portion thereof.

FIG. 13 is a perspective view showing the blank of FIG. 12 with its top closure flaps in partially erected condition.

FIG. 14 is a view progressive to that of FIG. 13 with the top closure flaps in interlocked final relationship.

FIG. 15 is a section on the line 15–15 of FIG. 14.

FIG. 16 is a fragmentary top portion of the carton blank of another modified form of the present invention.

FIG. 17 is a fragmentary perspective top view of the carton blank of FIG. 16 in partially erected condition.

FIG. 18 is a view progressive to that of FIG. 17 with the top closure flaps in fully assembled relationship.

FIG. 19 is a section on the line 19—19 of FIG. 18.

FIG. 20 is a view progressive to that of FIG. 18 showing an opposed pair of top closure flaps in spaced relationship and providing an entry opening to the container.

Referring to the drawings and initially to the form of FIGS. 1 to 7, the reference numerals 10—10 show one pair of container side walls and the reference numerals 11—11 show a second opposed pair of container side walls all hinged together on score lines with a short end tab 12 secured to the terminal end of one of the side walls 11 and which is adhesively secured to the free edge portion of one of the side walls 10. In such condition, when the tab 12 is secured to the side wall 10 the assembly can then be collapsed to the form shown in FIG. 2.

Secured to the upper edges of the walls 10 and 11 are the top closure flaps 13—13 each having a pair of tabs 14—14 secured thereto on the hinge lines 15—15. A second pair of top closure flaps 16—16 are formed with notches 17—17 and ears 18—18 whereby the tabs 14 may interengage in the notches 17 and abut against the ears 18 of the adjacent flaps when the top forming flaps 13 and 16 are folded inwardly so that they come to rest in an inclined position as shown in FIG. 6.

These flaps 13—13 may further be formed with the arcuate score lines 19—19 adjacent their terminal edges and the flaps 16—16 can be formed with the arcuate score lines 20—20 in a similar manner so that when the flaps 13 and 16 are folded inwardly as shown in FIG. 6 the score lines 19 and 20 permit the portion of the flaps to assume a more rectangular position and a smoother entrance opening.

Although the flaps 13—13 and 16—16 are shown to extend in relatively wide spaced relationship to each other, the respective flaps may be of greater length so that they can provide a relatively small opening as is desired, say one inch or two inches, or as much as desired as will be understood.

Some of the side walls such as walls 11 as shown at 21 can be formed with apertures for more readily grasping the receptacle and other of the side walls such as side wall 10 at 22 may be provided with a hinged flap so that the receptacle can be thereby pinned to the bed of a hospitalized patient or secured thereby to some other desired location.

The bottom edges of the side walls 10 and 11 have hinged thereto bottom closure flaps. Thus, the side walls 10—10 have hinged thereto on their score lines 23—23 the flaps 24—24, these flaps being of partially reduced length to form an arcuate area notched as at 25 and are further

provided with score lines, in this case shown dotted at **26**. The opposed side walls **11—11** have secured thereto at the score lines **27—27** the flaps **28—28** each of which has an inclined edge **29** and a glue area **30**. Before setting up the carton to the form of FIG. 2, the sections **31—31** of the flaps **24—24** are adhesively secured over the areas **30—30** and the bottom forming flaps are thus initially bent inwardly on their score lines **23—23**, **27—27** and the score lines **26—26**. When it is desired to erect the carton, it is initially flexed in the direction of the arrows shown in FIG. 3 whereupon the bottom flaps become disposed in overlying or interlocking relationship with the notched and rounded areas **25—25** abutting on the free inclined edges **29—29** of flaps **28—28** and in interengaging relationship with the rounded notched areas **25—25**, and with rounded notched areas **25—25** in interengaging relationship with each other.

In thus setting up the carton the side walls hinge on the lines **32**, **33**, **34** and **35** to assume a squared-up relationship whereupon the top flaps **13—13** are bent downwardly on their score lines **36—36** and the flaps **16—16** on the score lines **37—37** to assume their interlocked carton reinforcing relationship as previously explained, namely with the tabs **14** locking in the notches beneath the ears **18** on the flaps **16—16** as shown in FIG. 6. In this relationship the flaps **13—13**, which to an appreciable extent extend the full width of the wall **13**, project into abutting relationship with the opposed pair of walls **11—11** with the tabs **14—14** in abutment against the walls **11—11** to form a firm open support for the upper end of the container.

The modified form of the invention shown in FIGS. 8 to 11 is substantially similar to the form of FIGS. 1 to 7 except that the form of FIGS. 8 to 11 shows the carton of oblong form rather than the previously described square form.

Thus, in FIGS. 8 to 11 the blank comprises the side walls **38—38** and **39—39** and the end tab **40** hinged together on the lines **41**, **42**, **43** and **44**, the tab **40** being then adhesively secured to the free edge of the wall **38** to provide the tubular relationship. The bottom forming flaps are not shown since they are similar to the form shown in FIGS. 1 to 7.

The side walls **38—38** have secured thereto on the hinge lines **45—45** the top flaps **46—46** and the side walls **39—39** have hinged thereto on the score lines **47—47** the narrow top closure flaps **48—48**. The flaps **48—48** have hinged thereto on the lines **49—49** the ears **50—50**. These ears **50—50** are partially separated from the flaps **48** to provide slots **51—51** which receive therein in interlocking engagement the forwardly notched portions **52—52** of flaps **46—46** to thereby provide an inclined downward opening into the container and with the top closure flaps **46—46** and **48—48** in interlocked reinforcing relationship to hold the carton open in the rectangular form shown in FIG. 10.

Another modification of the present invention is shown in FIGS. 12–15, this form having a normally completely closed top with a pair of flaps adapted to be flexed on hinge lines for depositing material into the confines of the container. This self-closing and readily opening top provides a sanitary closure and renders it pilferage resistant. For example, when syringe needles and other articles discarded by a nurse or doctor are dropped into the container the tendency of one to retrieve articles from the confines of the container is reduced or substantially eliminated.

Thus the container of the form of the invention of FIGS. 12–15 comprises a one-piece blank composed of the opposed side walls **53—53** and a second pair of opposed side walls **54—54** and the end tab **55** which is adhesively secured against the free end of one of the side walls **54** to provide a tubular form as previously explained. Likewise, this form has bottom closure flaps hinged thereto similar to the form of FIGS. 1–7 previously described.

These side walls are in hinged engagement by means of the score lines **56**, **57**, **58** and **59**. To the upper ends of the side walls **53—53** there are hinged the top closure flaps **60—60** on the score lines **61—61** and to the side walls **54—54** are hinged the top closure flaps **62—62** on the score lines **63—63**.

For interlocking engagement the flaps **62—62** are each provided with a medial terminal flap portion **64** having opposed ears **65—65** and lateral flap portions **66** having slits **67**. These side components **66—66** are separated as at **68** from the medial components **64** and thus when the components **66** of one top flap **62** are brought into into adjacent relationship with those of the opposed flap **62** they are engaged by internesting of the components **66** at their slits **67** as shown in FIG. 13 where one terminal portion **66'** becomes disposed to another terminal portion **66'**. In this position as shown in FIG. 13 the medial flap components **64—64** can be flexed downwardly on their arcuate score lines **69—69**.

For interlocking engagement and for holding the medial flap components **64—64** in downward inclined position but to retain them in a flexible manner the opposed top closure flaps **60—60** have inclined side edges terminating at the score or hinge line **70** in the intermediate stop member **71** having the side wings **72—72** hinged thereto on the score lines **72'—72'**. Thus, after the components **64—64** on the top flaps **62—62** are folded in place the outer components of side walls **60—60** are folded inwardly and wings **72—72** become disposed at the lateral edges of the components **64—64** adjacent their separated area **68**, so that the ears **66'** ride between the wings **72—72** and the stop member **71** disposed between them as shown in FIG. 15. Here the components **64—64** of top closure flaps **62—62** can be pivotally moved on their score lines **69—69** by manually depressing them to the limits of the wings **72—72** and upon manual release they move towards each other to the limit of the stop **71** to reclose the container, the open position being shown by the dotted lines in FIG. 15 and the movement being in the direction of the illustrated arrows there.

Another modification of the present invention is shown in FIGS. 16–20 and comprises a carton composed of a single blank which comprises an opposed pair of side walls **73—73** and a second pair of side walls **74—74** and an end flap **75**. These are hinged together on the score lines **76**, **77**, **78** and **79**, the end flap **75** being adhesively secured adjacent the free end of one side wall **73** to provide a tubular form as previously described. This form of carton construction also has bottom forming flaps similar to those described with respect to FIGS. 1–7.

In this case, the side walls **74—74** each have a top closure flap **80** hinged thereto on a score line **81**, which in illustrated form is shown to be arcuate. Additionally, this closure flap **80** is formed with a pair of oblique internal slots **82—82** and at its free outer edge opposed to the score line **81** is provided with one or more teeth **83**, the teeth on one flap **80** being offset from the teeth **83** on the opposed flap **80** so that these two flaps **80—80** can be brought into closure as shown in FIG. 18 by a springing arrangement on their score lines **81—81**. It will be noted that in this form the completely opened container is not fully rectangular but rather substantially so the side walls **74—74** being caused to extend in a somewhat arcuate manner.

The opposed side wall components **84—84** are hinged on the score lines **85—85** to the side walls **73—73** and are formed with inclined side edges **86** terminating in the portion **87**. Extending laterally from the inclined sides **86** are the wings **88** terminating in the hook component **89**. These laterally extending members **88** and their hooks **89** are then projected within the oblique slots **82** in the

opposed side wall portions 80—80 as shown in FIGS. 19 and 20 to form a slidable interlock.

For mounting purposes a perforated tab 90 can be provided in one of the side walls in a manner similar to the flap 22 shown in FIG. 2. Whether the unit in this form be mounted or not its flap components 80—80 can be caused to separate by pressing the opposed side walls 73—73 toward each other or by causing them to be so relatively pressed which action causes the side walls 80—80 and their teeth 83—83 to be separated so as to permit ingress to the container for articles to be dropped therein. The provision of the teeth has a tendency to prevent finger ingress to withdraw anything which has once been deposited in the container.

I claim:

1. A four sided collapsible and erectible container formed of a single blank of paperboard and including interlocking bottom forming flaps hinged to said side walls and interlocking top forming flaps hinged to said side walls, said top forming flaps being adapted to maintain the walls of the carton in substantially rectangular spaced relationship, one opposed pair of top forming flaps being inwardly adapted to extend into contiguous relationship with each other and the second opposed pair of top forming flaps being adapted for sliding interlocking engagement with the former and to normally form a complete top closure therewith, said first pair of contiguous flaps being then yieldably separable to provide a temporary ingress opening to the container.

2. The receptacle of claim 1 wherein the contiguous sides of said first pair of flaps include offset pairs of laterally projecting teeth to prevent finger ingress.

3. The receptacle of claim 1 wherein the first pair of flaps are formed with oblique slots adapted for slidable reception of hook components formed on the second pair of flaps.

4. The receptacle of claim 1, wherein the contiguous sides of said first pair of flaps include offset pairs of laterally projecting teeth to prevent finger ingress, and wherein the first pair of flaps are formed with oblique slots adapted for slidable reception of hook components formed on the second pair of flaps, said first pair of flaps being adapted to be separated by relative pressure on the side walls of the container hinged to said second pair of locking flaps.

References Cited

UNITED STATES PATENTS

2,677,495 5/1954 Buttery ..... 229—39

FOREIGN PATENTS

206,971 4/1966 Sweden.
425,017 3/1911 France.

DAVID M. BOCKENEK, Primary Examiner

U.S. Cl. X.R.

229—37, 41