March 21, 1967 S. L. FELDMAN 3,310,220

REDUCIBLE CARDBOARD CONTAINERS

Filed March 25, 1965 2 Sheets-Sheet 1

FIG. 1

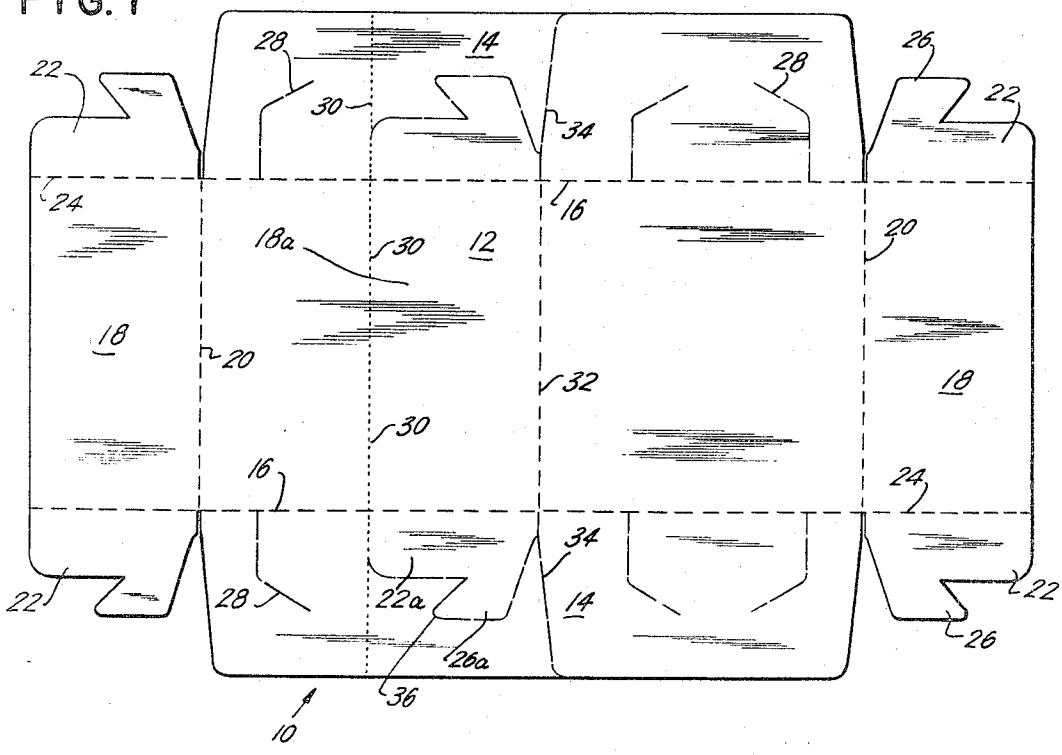


FIG. 2

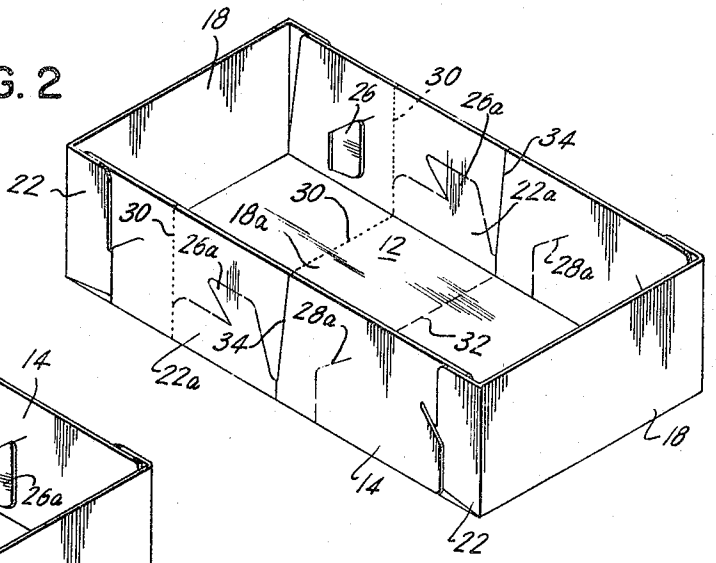
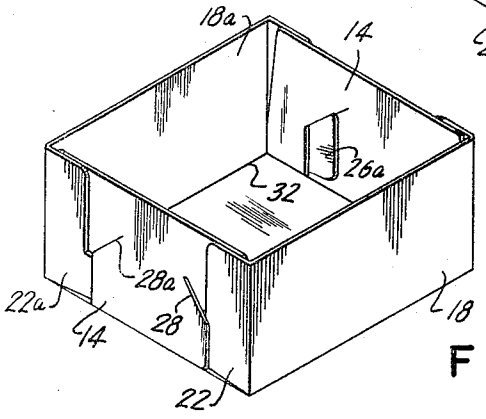


FIG. 3



INVENTOR.
SEYMOUR L. FELDMAN

BY

ATTORNEY

March 21, 1967 S. L. FELDMAN 3,310,220

REDUCIBLE CARDBOARD CONTAINERS

Filed March 25, 1965 2 Sheets-Sheet 2

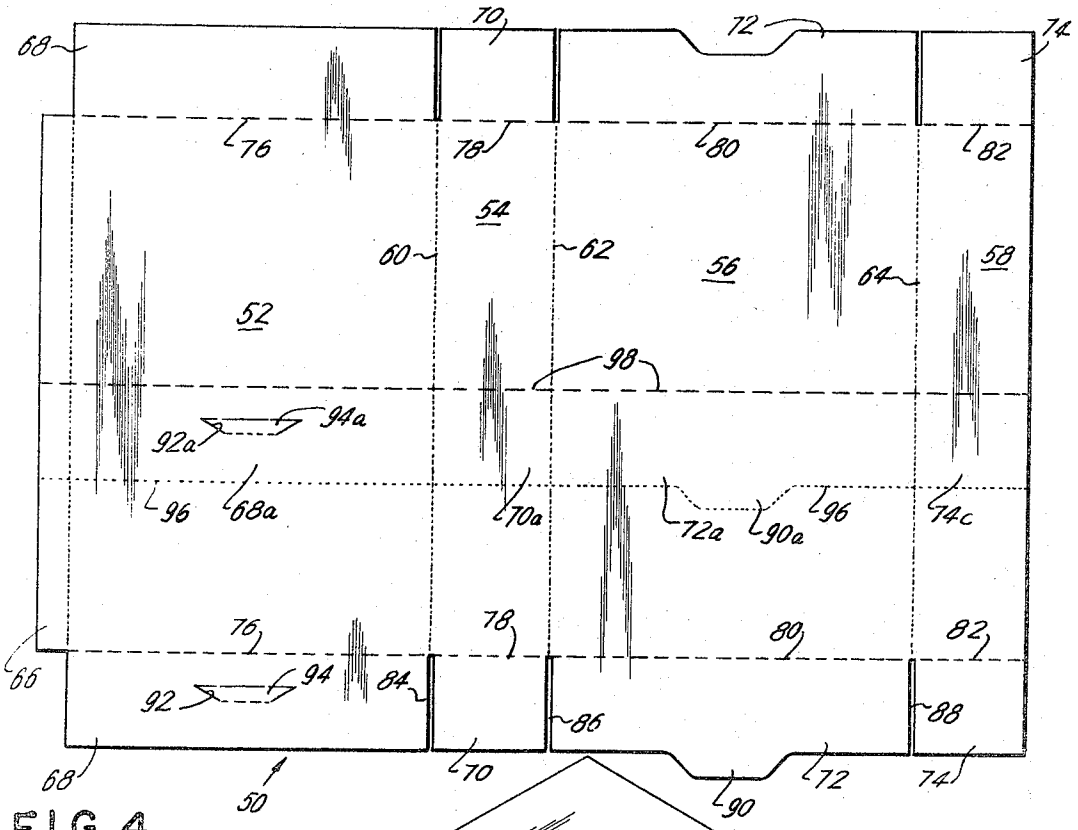


FIG. 4

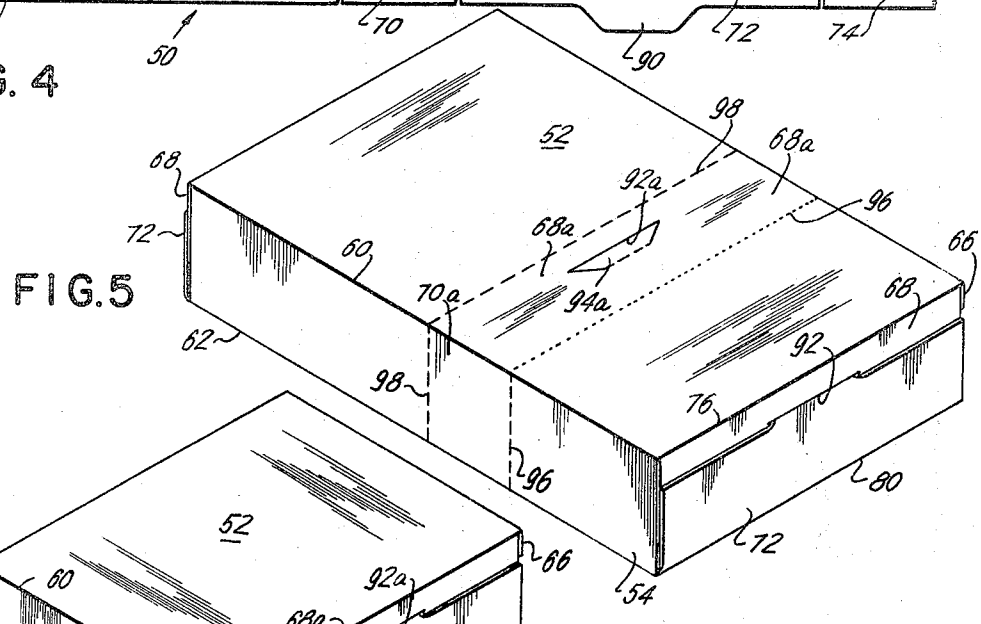


FIG. 5

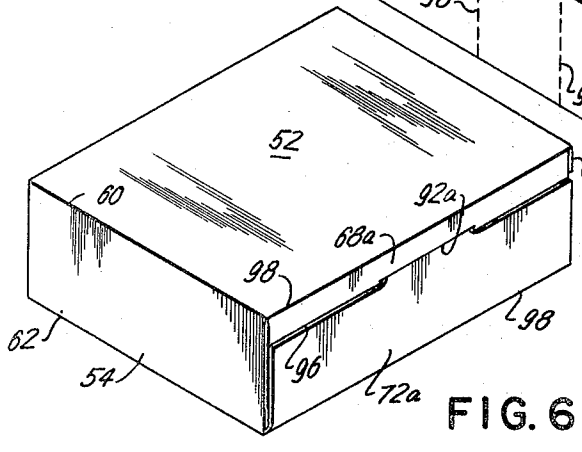


FIG. 6

INVENTOR.
SEYMOUR L. FELDMAN
BY
ATTORNEY

United States Patent Office

3,310,220

Patented Mar. 21, 1967

3,310,220

REDUCIBLE CARDBOARD CONTAINERS

Seymour L. Feldman, 1430 Plimpton Ave.,
Bronx, N.Y. 10452

Filed Mar. 25, 1965, Ser. No. 442,602
3 Claims. (Cl. 229—35)

The present invention relates to reducible containers and, more particularly, to cardboard containers, such as boxes and cartons, that are reducible in size, as part of their contents are removed, but retain their general shape and configuration in their reduced size.

The present invention is directed to the provision of reducible containers useful for a wide variety of products, including, particularly, but not limited to, foods and the like. Containers that are reducible in size as their contents are partially removed have a number of important advantages. One advantage is that of space saving; the size of the container being reduced in size to conform to the reduction of its contents. This is of particular advantage in connection with large cardboard containers often referred to as "economy size" in connection with which substantial storage space savings may be effected, to the benefit of the consumer. It is of especial advantage in connection with containers of frozen foods that are kept in freezers and freezing compartments of refrigerators, wherein storage space is at a premium.

Another advantage of the reducible containers to which the present invention relates is that the consumer may be able to tell, at a glance, the amount of the contents remaining for use in the container and is not likely to be caught short of that product.

While conventional cardboard containers may be reduced in size, such reduction can only be effected by a crushing operation that results in a reclosure that is broken, frayed, ragged and uneven, and generally imperfect for the purpose of providing proper protection for the remaining contents in the container. It is, therefore, an object of the present invention to provide reducible containers, both boxes and cartons, of the character described, having built-in means for reclosing the same after a portion of its contents are removed, to form a substitute closure that is substantially equal in character, by way of form, neatness of appearance and effectiveness, to the original closure of the container.

It is also an object of the present invention to provide reducible containers, of the character described, which may be manipulated by the user with a maximum of ease and facility for reducing its size and for forming and closing the substitute closure therefor.

It is another object of the present invention to provide reducible boxes and cartons, of the character described, which may be produced at little, if any, advance in cost over comparable conventional boxes and cartons, and which may be filled and wrapped in a conventional manner at the same speed and with the same equipment used for comparable boxes and cartons of the standard type.

The foregoing and other advantages and objects of the reducible containers of the present invention will become more readily apparent to those skilled in the art from the embodiments thereof shown in the accompanying drawing, and from the description following. It is to be understood, however, that such embodiments are shown by way of illustration only, to make the principles and practice of the invention more readily comprehensible and without any intent of limiting the invention to the specific details therein shown.

In the drawings:

FIG. 1 is a plan view of a blank for forming a reducible container in the form of an open-top box;

FIG. 2 is an isometric view of the box formed from the blank of FIG. 1; full size;

FIG. 3 is an isometric view of the box of FIG. 2; reduced in size;

FIG. 4 is the blank for a reducible container in the form of a carton;

FIG. 5 is an isometric view of a carton set up from the blank of FIG. 4; and

FIG. 6 is an isometric view of the carton of FIG. 5, reduced in size.

Referring now, in greater detail, to the embodiments of the invention illustrated in the drawings, and with particular reference to the embodiment illustrated in FIGS. 1–3 of the drawings, the same shows an open-type box formed from a blank generally designated as **10**, comprising a center or bottom panel **12** having side-wall forming panels **14** along each of its longitudinal edges, defined from the center panel by foldlines **16**, and having end-wall forming panels **18** at each end thereof, defined therefrom by foldlines **20**. Each of the end wall panels **18** is provided with a flap **22** at each of its two side edges, defined therefrom by foldlines **24**, which are continuous with foldlines **16**. Each of the flaps **22** is formed with a hook **26** engageable in the detent slot **28**, formed in the adjacent end portion of a side wall panel **14** when the side walls and end walls are erected relative to the center panel **12** and the flaps **22** are offset against the exterior of the side walls **14**, as clearly seen in FIG. 2 of the drawings.

Formed transversely across the center panel, inwardly from and parallel to the adjacent end-wall panel **18** is a tearline **30**, that is continued across the two side-wall panels **14**, and formed across the center panel **12**, inwardly of the tearline **30** at a distance equal to the length or height of an end-wall panel **18**, is a foldline **32**, parallel to foldline **20**, which is continued as intermittently cut lines **34**, in the side-wall panels **14**; such intermittently cut lines **34** being parallel to the end edge of the side-wall panel **14** adjacent to the tearline **30**.

The portion of the carton outwardly of the tearline **30** constitutes a tearaway portion for reducing the size of the box. The portion of the center panel **12**, between the tearaway line **30** and the foldline **32**, comprises a substitute end-wall panel **18***a*, foldable on line **32**. The portions of the side-wall panels between the tearaway line **30** and the intermittent cut lines **34** constitute substitute flaps **22***a*, in which a substitute ear **26***a* may be defined by intermittent broken lines **36**.

Each of the side-wall panels is provided adjacent the intermittent cut line with an auxiliary slot **28***a*, parallel to the detent slot **28** of the tearaway portion, in position to receive the substitute ear **26***a* of substitute flap **22***a*.

In use, the blank **10** may be folded and set up along its entire length to form the full-size box, as shown in FIG. 2 of the drawings. When part of the contents is removed, the portion of the box exteriorly of the tearline **30** may be torn away along that line and the substitute end wall **18***a* and flaps **22***a* may be erected along foldline **32** and cutline **34** to provide a new wall at the end of the box, with the substitute flaps **22***a* and hooks **26***a* engaged in the substitute slots **28***a*, as shown in FIG. 3, to thereby form a complete but shortened box. It will be clear that as flaps **22***a* are struck out along the intermittent cutline defining them, the outer portion of the flaps **22***a* will fall away.

While a single tearaway line and a single substitute end-wall panel and a single pair of substitute end-flaps are illustrated in the drawings, it may be readily apparent that more than one substitute end-wall panel may be provided, so that the box may be shortened to more than one reduced size.

It will also be readily apparent that a cover for the box, likewise reducible in size, may be provided in the form of a separate, correspondingly cut and scored blank; or a panel corresponding to panel **12** may be provided integrally with one of the side-wall panels **14**, said separate cover panel having a side-wall panel along its longitudinal free edge, and end-wall panels and flaps at its ends corresponding to the panels **18** and flaps **22**, in a manner that will be readily apparent.

The embodiment of FIGS. 4, 5, and 6 illustrates a reducible four-walled carton embodying the present invention. Such carton is formed of a blank which is generally designated as **50** and which is cut and scored to provide a first side panel **52**, a second side panel **54**, a third side panel **56**, and a fourth side panel **58**; alternate of the panels being of the same width; the panels being defined from one another along foldlines **60**, **62**, and **64**. One of the terminal panels of the blank, such as **52**, may be provided with a glue flap **66** along its longitudinal edge.

The wall panels **52**, **54**, **56** and **58** may each be provided with a foldable end-wall panel **68**, **70**, **72** and **74**, respectively, at each end edge thereof, defined from the respective panels by foldlines **76**, **78**, **80**, and **82**, respectively. The end-wall panels are defined from one another by cutlines **84**, **86** and **88**.

The blank **50** is provided, in alternate end panels at one end thereof, with reclosable locking means where, as in the illustrated embodiment, pairs of alternate panels are of different width; such reclosable locking means may be provided on the pair of the wider of the end panels such as **68** and **72**. In the illustrated embodiment of FIGS. 3–6, such interlocking means may comprise a tongue **90** in the outer edge of one of the wider panels as **72**, and a tongue-receiving slot **92** in the other of the wider panels **68**, formed by the punch-out piece **94**.

Formed across the blank **50**, parallel to the end edge thereof having a tongue **90**, is a tearaway line **96**, extending across all of the panels **52**, **54**, **56** and **58**, as well as glue tab **66**. Inwardly of the tearline **96** there is provided the foldline **98**, parallel to foldlines **76**, **78**, **80** and **82**, and spaced a distance from tearaway line **96** equal to the height of the end panels **68**, **70**, **72** and **74**. The tearline **96** defines a tearaway section and the spaces between the tearline **96** and the foldline **98** defines substitute end-wall panels **68***a*, **70***a*, **72***a* and **74***a*. The portion of the foldlines **60**, **62** and **64** lying between tearline **96** and foldline **98** may preferably be intermittently cut to facilitate the separation of the substitute end-wall panels from one another for purposes of folding.

The portion of the tearline **96** lying within panel **56** may have an outward indentation **90***a*, corresponding in shape and size to the tongue **90** in end panel **72**, and substitute end-wall panel **68***a* may have an intermittent cutline defining the punch-out piece **94***a* for forming the tongue-receiving slot **92***a*. The blank **50** may be set up as a carton in a conventional manner by folding panels **52**, **54**, **56** and **58** along foldlines **60**, **62** and **64**, and then gluing tab **66** to the edge of the terminal side-wall panel **58**. End-wall panels **68**, **70**, **72** and **74** remote from tearline **96** may then be folded inwardly over one another and adhesively secured to one another to form a bottom wall for the carton; end-wall panel **68** folded across panels **70** and **74**, and panel **72** folded over panel **68**, and the tongue inserted into the slot **92**. To reduce the height of the carton, the section remote from the foldline is torn away along tearline **96**; substitute end-wall panels **70***a* and **74***a* are separated from the adjacent end-wall panels **68***a* and **72***a* by tearing along the intermittent cutline, and the substitute end-wall panels folded over in the same manner as the original end-wall panels in the torn-away section, and the panels **72***a* and **68***a* interlocked in the same manner.

While in the illustrated embodiment of the carton of the invention of FIGS. 4, 5 and 6 provision is made for a single tearaway section, it will be readily apparent

that tearlines and foldlines **96** and **98** may be repeated along the length of the blank to make possible several successive reductions in the height of the carton, in a manner that will be readily understood and not thought necessary to be specifically illustrated.

This concludes the description of the reducible containers of the present invention. It will be readily apparent that such containers may be formed of blanks that may be cut and scored by the same procedure as the blanks of conventional cardboard containers of the same type, without the need of any special or additional processing; that they may be folded and glued in the same manner and with the same equipment as the blanks of such conventional type containers; and that they may be set up, filled, sealed, and lined or wrapped, likewise, in the same manner and by the same equipment as conventional type containers, and at the same rate of speed.

It will also be apparent that the containers of the invention may be quickly and easily reduced in size and quickly and easily and neatly refolded and reclosed to provide a neat container of reduced size of clean and attractive outline and shape.

It will be further apparent that numerous modifications and variations may be made in the reducible containers of the present invention by anyone skilled in the art, in accordance with the principles of the invention hereinabove set forth, without the exercise of any inventive ingenuity. I desire, therefore, to be protected for any and all such variations and modifications that may be made within the spirit of the invention and scope of the claims hereto appended.

What I claim is:

1. A cardboard container comprising at least three wall panels, including a first panel, and a panel connected to each longitudinal edge of said first panel and offset relative thereto, end closure means at each end of said container including a panel extension on at least said first panel offset relative thereto to close the space defined by said three panels, a tearline formed across said three panels in spaced relation to and parallel to an adjacent edge of said first panel, and a foldline formed across said first panel parallel to said tearline and a distance inwardly therefrom equal to the length of said panel extension, said foldline in said first panel continued as an intermittent cutline in each of said connected panels, and cooperating interengaging means between said closure and the portion of each connected panel and said foldline thereof, and between the portion of each said connected panel between said foldline thereof and said intermittent cutline thereof and the portion thereof to the other side of said intermittent cutline, interengaging with one another when said panel extension and the portion of said first panel between said tearline and said foldline are selectively disposed in offset position.

2. A cardboard container comprising at least three wall panels, including a first panel and a panel connected to each longitudinal edge of said first panel and offset relative thereto, end closure means at each end of said container including a panel extension on at least said first panel offset relative thereto to close the space defined by said three panels, a tearline formed across said first panel parallel to and spaced from an adjacent edge of said first panel, and a foldline formed across said first panel parallel to said tearline and a distance inwardly therefrom equal to the length of said panel extension, said foldline in said first panel continued as an intermittent cutline in each said connected panels, said panel extension having a laterally extending flap at each side thereof, each said flap having a hook at its end, each said flap foldable against the end of the adjacent connected panel; said adjacent connected panel having a detent slot formed therein receiving said hook; the portion of each said connected panel between said tearline and said intermittent

cutline having a hook corresponding to said hook of said panel extension flap defined therein by an intermittent cutline; the portion of each said connected wall inwardly of said intermittent cutline having a detent slot defined therein by an intermittent cutline adapted to receive said hook of said adjacent portion of the connected panel between said tearline and said intermittent cutline continuous with said foldline.

3. A blank for a reducible cardboard container, comprising a strip of cardboard cut and scored to provide at least three connected wall panels defined from one another by foldlines, at least one of said panels having an extension at each end defined therefrom by a foldline, a tearline formed in said strip across said three wall panels parallel to their adjacent end edges, a foldline formed in said strip across at least the center one of said three panels parallel to said tearline at a distance inwardly therefrom equal substantially to the length of said extension, said foldline in said center panel continued as an intermittent cutline in each panel to each side thereof, said panel extentsion of said center wall panel having a flap extension at each side edge thereof defined therefrom by a foldline, each said flap extension having a hook shape, a detent slot formed in the end portion of the adjacent of each wall panel at each side of said center panel for receiving said hook shaped flap adjacent thereto; the portion of each said wall panel to each side of said center panel between said tearline and said intermittent cutline having a hook corresponding to the said hook flap defined therein by an intermittent cutline, the portion of each said wall panel to each side of said center panel inwardly of said intermittent cutline having a slot formed therein defined by an intermittent cutline adapted to receive said hook of said adjacent portion of said wall panel to each side of said center panel between said tearline and said intermittent cutline continuous with said foldline.

References Cited by the Examiner

UNITED STATES PATENTS

1,772,625	8/1930	Caulfield	229—51
2,251,565	8/1941	Forman	229—16
3,167,240	1/1965	Collura et al.	229—51
3,168,234	2/1965	Bartz	229—51
3,226,006	12/1965	Dunn	229—35

FOREIGN PATENTS

513,675	9/1952	Belgium.
690,233	7/1964	Canada.
1,183,269	12/1959	France.

JOSEPH R. LECLAIR, *Primary Examiner.*

GEORGE O. RALSTON, *Examiner.*

D. T. MOORHEAD, *Assistant Examiner.*