Dec. 24, 1940. R. E. OTTENHEIMER 2,225,655

DISPLAY CABINET

Filed March 11, 1938 3 Sheets-Sheet 1

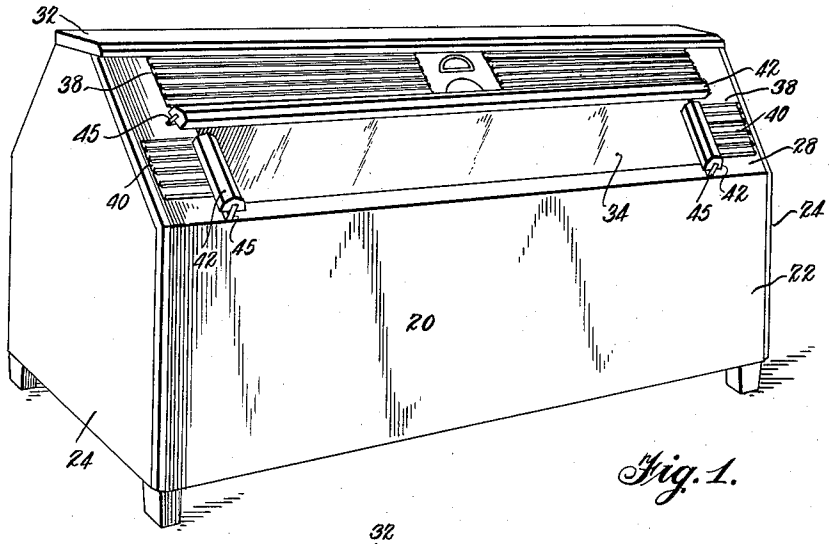



Fig. 1.

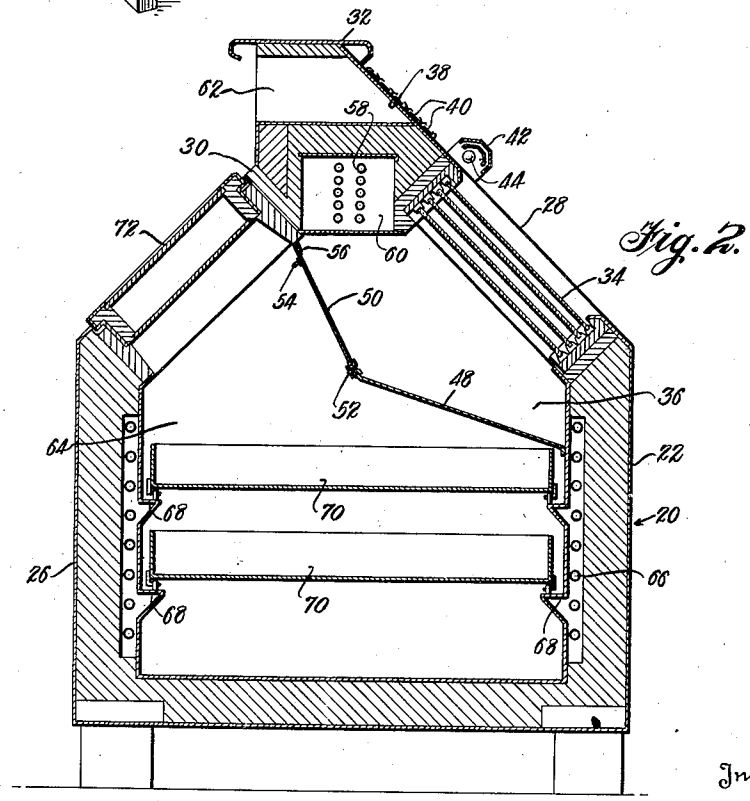



Fig. 2.

Inventor

Reuben E. Ottenheimer

By Raymond Wooton

Attorney

Dec. 24, 1940. R. E. OTTENHEIMER 2,225,655

DISPLAY CABINET

Filed March 11, 1938 3 Sheets-Sheet 2

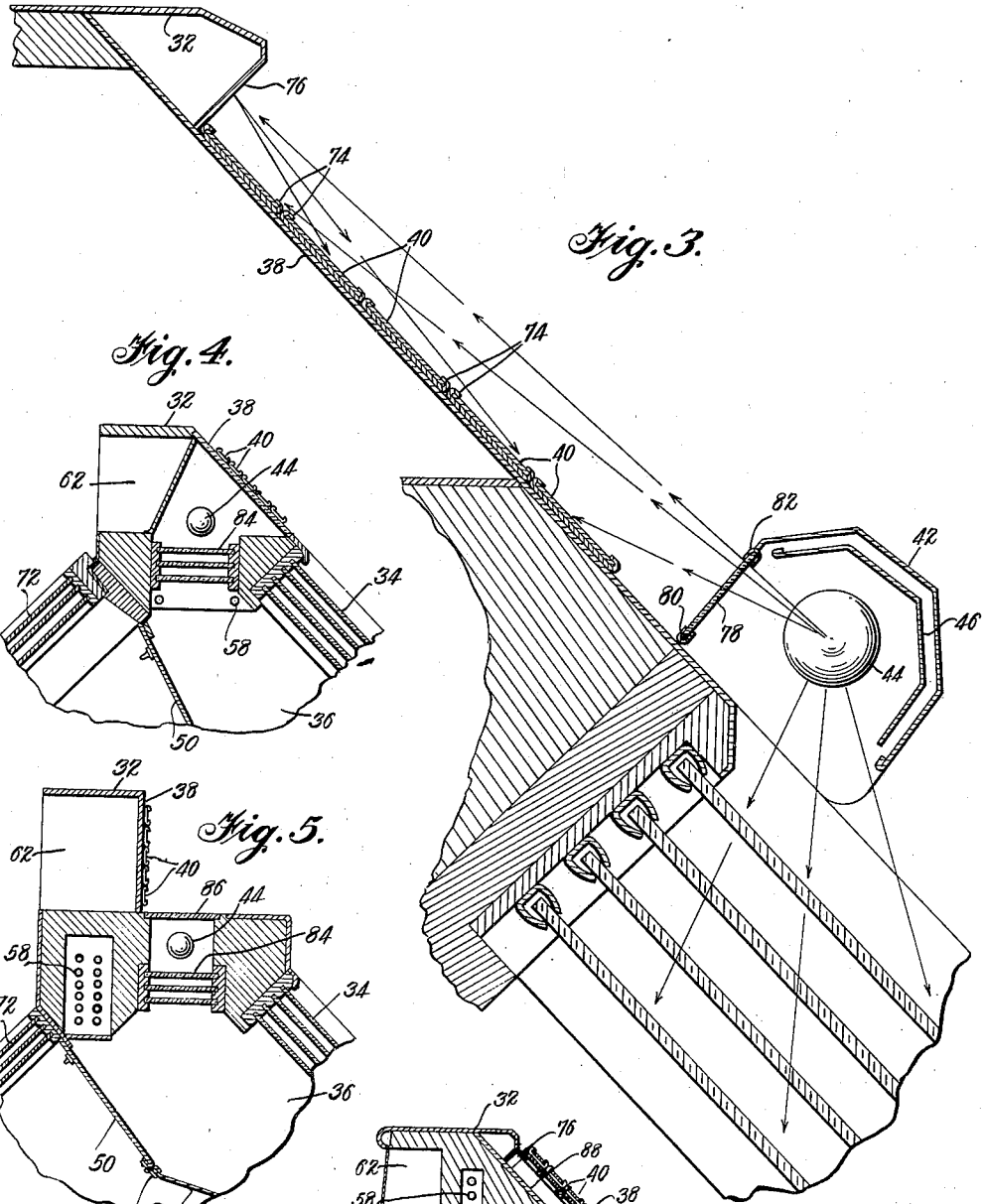



Fig. 3.

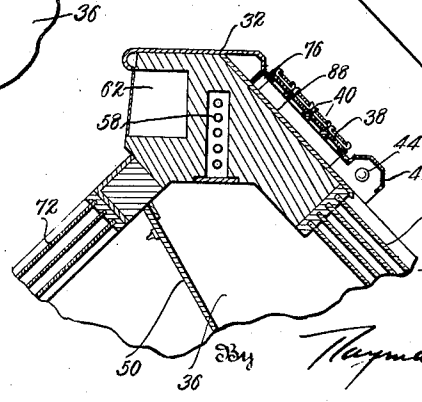
Fig. 4.




Fig. 5.




Fig. 6.




Inventor

Reuben E. Ottenheimer

By Raymond W. Cotton

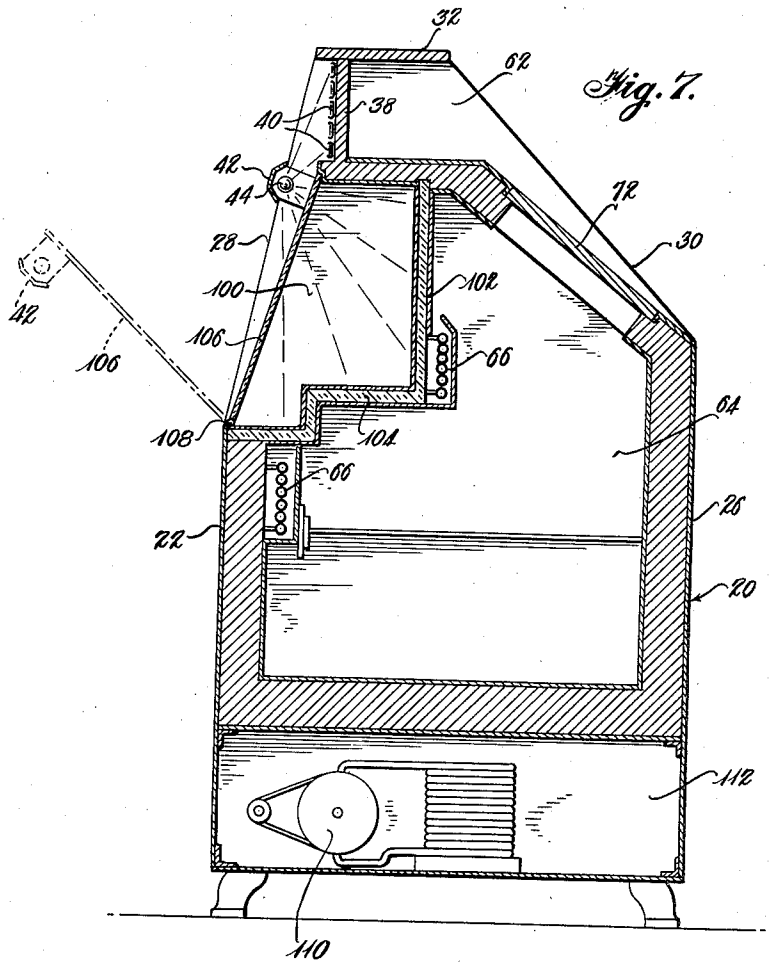
Attorney

Dec. 24, 1940. R. E. OTTENHEIMER 2,225,655

DISPLAY CABINET

Filed March 11, 1938 3 Sheets-Sheet 3

Fig. 7.




Inventor

Reuben E. Ottenheimer

By Raymond Wooton

Attorney

Patented Dec. 24, 1940 2,225,655

# UNITED STATES PATENT OFFICE

2,225,655

## DISPLAY CABINET

Reuben E. Ottenheimer, Baltimore, Md.

Application March 11, 1938, Serial No. 195,396

7 Claims. (Cl. 40—130)

The present invention relates to display cabinets.

More particularly, the invention relates to cabinets of the display window type provided with sign bearing means substantially adjacent to but not obstructing the goods on display so that in a single glance the customer may coordinate the goods with its price and/or other information relating thereto.

In refrigerated display cabinets heretofore proposed, the identification and price marking of goods on display have not been provided for in an adequate manner nor has there been any coordination of the goods with such data. In many cases price tags have been attached to the goods by pins, clips or other fastening means at the expense of the appearance of the display, and such devices not only obstruct the goods but often become separated therefrom or turned at such an angle that it is difficult for a customer to read them. In other cases, paper or similar signs have been pasted or crudely suspended upon various portions of a display cabinet, producing an arrangement which is not only unsightly, but difficult to replace when the goods to be vended is changed or when the prices themselves are revised. Nor is it uncommon for signs relating to goods on display to be mounted at such distances from the merchandise that a customer will find them only with difficulty if at all.

By the present invention it is proposed to provide a refrigerated display cabinet having a sign supporting surface substantially adjacent the display window in such a manner that the articles on display as well as the signs supported on the panel are below the eye level of an adult of average height standing adjacent to the cabinet. In this manner, the customer can inspect the goods on display and without unduly shifting his eyes, read the information regarding the nature of the products and their sale prices.

A highly satisfactory construction is afforded by a display compartment having a sloping floor and a sloping multi-glazed window so that a customer will readily observe the contents. The sign supporting surface may be parallel to or angularly disposed to the window, but in any event, sufficiently near the window to permit ready scrutiny by a prospective customer surveying the goods.

It is also contemplated to provide illuminating means for the display compartment and the sign supporting surface so as to render the goods and the information relating thereto clearly perceptible and attractive. Since in most cases the goods on display in such a cabinet will be maintained at a subatmospheric temperature, provision has been made for thermally insulating the source or sources of light from the refrigerated section or sections of the cabinet. This has been accomplished by mounting the illuminating means externally of the refrigerated portion or portions of the cabinet, although in some cases, the illuminating means may be set into the cabinet so as not to project therefrom, in accordance with so called flush construction.

The cabinet of the present invention may comprise a refrigerated storage compartment in addition to the refrigerated display compartment and provision has been made for maintaining such compartments at different subatmospheric temperatures where desired or required by the character of the goods stored and on display. Moreover, an unrefrigerated storage compartment has been provided, suitable for the reception of wrapping materials or other accessories commonly utilized in vending foods. The refrigerated storage compartment may be provided with suitable sliding racks, shelves or trays to facilitate access by the vendor to the goods contained therein.

Where it is desired to illuminate the storage compartment as well as the display compartment and the sign supporting surface, a light transmitting panel may be used to partition the display compartment from the storage compartment so that a portion of the light may pass from the display section into the storage portion of the cabinet and thereby assist the sales person in locating desired material.

The construction contemplated by the present invention is particularly adapted for use in the vending of frosted or frozen foods which have only relatively recently made their appearance on the market. Inasmuch as the nature, appearance, shapes, unit sizes and prices of such foods are entirely novel to the average consumer at this stage of their development, it is essential that they be merchandized in such a way as to instruct prospective customers in each of these respects. Where the ordinary vehicles of advertising exclusively relied upon for thus educating the public, the length of time required would be far too excessive and the expenses involved would be proportionately large. The cabinet arrangement proposed herein renders it feasible to actually display a reasonable number of examples of the actual packages for sale while maintaining the products at the comparatively extremely low temperatures necessary for their preservation. Moreover, and of primary impor-

tance in this connection, the customer can inspect the food, unobscured by price tags or other signs, and at the same instant observe the closely adjacent information regarding price, quality and other identifying and explanatory information concerning the novel products.

It will be evident, of course that the present construction is likewise entirely suitable for the vending of well known products such as ice cream in packages or in bulk, meats, vegetables, dairy products, etc., packed in their well known manner, but in these cases, the customer is already familiar with the appearance, condition and approximate prices of the goods. Accordingly, the need for the present invention is greatly intensified where, as in the case of frozen foods, the goods to be vended must first be made familiar to the public.

Inasmuch as it is preferable to present only examples of such products for actual display, it becomes important to amply provide for the storage of large numbers of different kinds of the frozen foods and to furnish a source of illumination externally of the storage compartment so as not to reduce the effects of the refrigeration.

The illuminating means may be provided with suitable reflectors, screens, and/or other means to obtain colored or otherwise varied lighting effects. The light may be thrown directly upon the sign supporting surface and the sign elements mounted thereon, or a translucent or transparent construction may be adopted to permit the light to pass from behind suitably constructed sign elements. Provision for ventilating the cabinet illuminating means may be provided to prevent undue heating losses and to avoid objectionable condensation.

The cabinets of the present invention are preferably of such overall dimensions that an adult sales person of average height can transact business with the customer over the top of the cabinet so that it simultaneously serves as a counter and therefore it is advantageous to provide the cabinet with a flat upper surface.

The details of construction proposed by way of example will be evident upon reference to the attached drawings wherein:

Fig. 1 is a perspective of an illuminated cabinet having a display compartment and sign supporting panel;

Fig. 2 is a transverse section through an intermediate portion of the cabinet of Fig. 1;

Fig. 3 is a fragmentary enlargement of a portion of the section of Fig. 2;

Fig. 4, Fig. 5 and Fig. 6 represent fragmentary cross sections of modifications of the present invention; and

Fig. 7 is an elevation in section of a further modification.

The cabinet **20** has been shown for purposes of this description as comprising a front wall **22**, end walls **24**, a rear wall **26**, a sloping front wall or panel **28**, a sloping rear frame **30** and a substantially flat top **32**.

The sloping front wall is provided with a multiglazed window **34** permitting inspection of the goods contained in the display compartment **36**, and adjacent to this window, one or more sign supporting surfaces or panels **38** adapted for the reception of sign elements **40**. Intermediate the window and the sign supporting surface or surfaces, there are provided as shown in Figs. 1, 2, 3 and 7, one or more lamp housings **42** for the reception of one or more light sources **44**. The housing or housings serve to shield direct rays of light from the eyes of the customer and at the same time permits the light to impinge upon the goods on display and the sign elements **40**. The housing or housings are suitably supported upon the cabinet by angles **45** or other convenient attaching means. The housing or housings may be polished internally or alternatively may receive a reflecting surface or surfaces **46** suitably shaped to direct the light most efficiently to the surfaces or articles to be illuminated. The source or sources of light **44** may consist of one or more incandescent lamps or luminous tubes supplied with operating current through suitable conductors, not shown.

The display compartment **36** is separated from the remainder of the cabinet by a partition **48** which constitutes the floor of the compartment and a partition **50** which is preferably of light transmitting material. The light transmitting partition is preferably supported in movable relationship with respect to the floor, as by means of a hinge or hinges **52**. A knob or handle **54** is also provided to facilitate adjustment of the partition for access to the display compartment. A frame **56** engages the partition **50** when in the closed position depicted in Fig. 2 of the drawings in a manner to substantially isolate the display compartment from the remainder of the cabinet and air currents are thus restricted. The display compartment may be provided with a refrigerating element **58** suitably mounted in a recess **60** formed in the upper portion of the cabinet and substantially out of the line of vision of the customer.

An unrefrigerated storage compartment **62** has been shown in Fig. 2 of the drawings directly behind the sign supporting surface **38** and immediately below the top **32** of the cabinet. This compartment will serve admirably for the storage of wrapping material, literature, or other accessories commonly needed in conjunction with the sale of food products.

Since the display compartment will ordinarily accommodate only a few of the products to be vended from a cabinet of this type, a comparatively large refrigerated storage compartment **64** may be formed below the display compartment and separated therefrom by the floor **48** and light transmitting partition **50**. This storage compartment is provided with a refrigerating element or elements **66** which may partially or completely encompass it, depending upon the refrigerating conditions to be satisfied. To facilitate access to the articles stored within this compartment, its walls have been provided with a plurality of rows of tracks **68** for the reception of a similar number of rows of sliding or wheeled racks, trays or receptacles **70**. Preferably each row will contain one tray less than the length of the cabinet would accommodate in order that these trays or receptacles may be shifted from side to side to allow the sales person to reach into the cabinet for the removal of an article from any position in any row. It will be readily understood that the lowermost portion of the refrigerated storage compartment is also adapted for the reception of articles for sale, and may or need not be equipped with sliding containers.

The sloping rear frame **30** of the cabinet is fitted with one or more doors **72** mounted near the upper portion thereof, which may be opened for access to either or both the display compartment and the refrigerated storage compartment. The sloping relationship and the position of such door or doors with respect to the cabinet have

been adopted to produce an optimum balance between accessibility and refrigeration losses. Where such doors are hung vertically, greater accessibility to the display compartment and refrigerated storage compartment might be possible, but in view of the relatively low temperature maintained within the cabinet, especially when used for frozen foods, the refrigeration losses upon opening the door would be excessive. On the other hand, were the doors suspended horizontally at the top of the cabinet the refrigeration losses would be nominal but the accessibility poor.

By virtue of the position of the door or doors 72 of the present invention, and because of the preferred relatively low height of the entire cabinet, a sales person can readily reach through the opened door to the most remote portion of either the dislay compartment, after moving the partition 50, or the refrigerated storage compartment. Moreover, since the entire cabinet is preferably below the eye level of an adult of average height standing adjacent thereto, the flat top 32 serves admirably as a counter over which to transact a sale and purchase.

The sign elements 40, shown to best advantage in Fig. 3, may be received by channel-like elements 74 suitably carried by the sign supporting surface 38. The sign elements are preferably adapted for ready removal and replacement to accommodate changes in the articles for sale and revision of their prices. These elements 40 may be manufactured from paper or cardboard or from light transmitting materials such as glass or Celluloid. The paths of the light rays emanating from the light source have been depicted diagrammatically by the arrows in Fig. 3. Supplemental reflecting means 76 may redirect stray light onto the sign elements and may simultaneously serve as a finish strip or bead extending from the top of the cabinet. Provision has been made for the insertion of light screens 78 which may be of light transmitting material and colored if desired, for the production of varied lighting effects. These light transmitting elements or screens 78 may be carried in channels 80 and 82 mounted on the cabinet and housing respectively. Such screens preferably will be removable so as to permit the distribution and/or color of light to be changed if desired.

In the modification represented in Fig. 4 of the drawings, the light source 44 is positioned behind a light transmitting sign supporting surface 38. The source has been shown as substantially equidistant from all portions of the sign supporting surface, tending to promote uniform illumination of the signs. In this case the sign elements 40 themselves will be cut-out or of light transmitting material. In order to permit passage of light to the display compartment without substantial loss of refrigeration, a multi-glazed construction 84 is interposed between the light source and display compartment and forms at least a part of the upper wall of the compartment. The refrigerating unit 58 in this construction, if required, will be suitably modified to permit the necessary distribution of light. Here again, a light transmitting partition 59 may be employed between the display compartment and the refrigerated storage compartment to permit the passage of light into the latter.

In the construction shown in Fig. 5 of the drawings a multi-glazed window 84 similar to that of Fig. 4 is utilized to permit the passage of light from the enclosed source 44 to the display compartment and refrigerated storage compartment. In this form a light transmitting panel 86 is placed above the light source to permit direct illumination of the sign elements 40. The panel 86 may be clear or opalescent or colored as may be desired. This panel may be composed of several sections of similar or dissimilar materials in the same manner as proposed for the members 78 of Figure 3.

The construction of Fig. 6 of the drawings utilizes the housing 42 for the light source 44 from which rays are directed into the display compartment 36. Here again the sign supporting surface 38 is light transmitting in nature and the sign elements 40 themselves permit the passage of light. In addition to the supplemental reflecting means 76, there may also be provided a reflecting surface 88 substantially parallel to the sign supporting surface or otherwise conformed to effect an optimum light distribution for approaching uniform illumination of the several sign elements.

The modification shown in Fig. 7 of the drawings contemplates the use of an unrefrigerated display compartment 100 suitable for the reception of dummy packages to simulate the goods for sale. In this case, the display compartment is separated from the refrigerated storage compartment by an insulating partition 102 which may form a floor 104 of stepped construction to receive several rows of goods in stepped arrangement. The window 106 may be provided with a suitable hinge 108 at its lower edge to permit access to the display compartment and the lamp housing 42 with its lighting assembly may be supported directly from the frame of the window so as to be movable therewith to a position such as indicated in broken lines.

The storage compartment has been depicted as containing a plurality of refrigerating elements 66, which will be connected through suitable tubing, not shown, to a compressor 110, or other refrigerating system, mounted below the storage compartment in a compartment 112. Here again, the top of the cabinet as a whole will preferably be below the eye level of an adult of average height standing adjacent thereto.

Although several modifications have been shown in the attached drawings, the present invention is by no means restricted thereto except as provided for in the claims as follows.

I claim:

1. A refrigerated cabinet comprising a display compartment having a window, a sign supporting surface carried externally by said cabinet substantially adjacent to said display compartment, a source of light external of said compartment and intermediate said sign supporting surface and said compartment, reflecting means adjacent said light source directing light from said source to illuminate said sign supporting surface and said compartment and supplemental reflecting means remote from said light source cooperating to redirect stray light.

2. A refrigerated cabinet comprising a display compartment having a window, a sign supporting surface of substantial area carried externally by said cabinet substantially adjacent to said display compartment and substantially in alignment with said window, a source of light external of said compartment intermediate said sign supporting surface and said compartment and illuminating the same.

3. A refrigerated having a window, a sign supporting compartment

surface carried externally by said cabinet substantially adjacent and substantially in alignment with the window of said display compartment, means carried by said surface for releasably retaining a removable sign element, sign elements associated with said surface and said means and means external of said compartment directly lighting said compartment and indirectly lighting said sign supporting surface and said elements.

4. A refrigerated cabinet for keeping articles of merchandise, comprising a display compartment having means affording visual access to the interior thereof from the exterior of the cabinet, a surface of substantial area provided on the exterior of said cabinet substantially in alignment with said means, indicia, relating to the said articles, removably arranged on said surface, a housing enclosing a source of light and arranged on the cabinet externally of said compartment, said housing arranged to direct light from the said source towards the said indicia and the said compartment and to check radiation thereof in any other direction whereby the indicia and the interior of the compartment are specially illuminated.

5. A refrigerated cabinet for keeping articles of merchandise, comprising a display compartment having a window, a surface of substantial area provided on the exterior of said cabinet substantially in alignment with said window carrying selected indicia referring to said articles, a source of light arranged on the cabinet externally thereof, and means shielding the said source for directing light toward the indicia and the display compartment and for checking its radiation in any other direction whereby the indicia and the interior of the compartment are specially illuminated.

6. A refrigerated cabinet comprising a display including a display compartment having a window through which the interior of the compartment is visible and a sign supporting surface of substantial area carried externally by said cabinet substantially adjacent to said window, to form with the contents of the compartment, a complete display, and at least one light source external of said compartment illuminating said sign supporting surface and said compartment.

7. A refrigerated cabinet comprising a display compartment having a window, a refrigerated storage compartment adjacent said display compartment, a light transmitting partition intermediate said compartments, a sign supporting surface substantially adjacent to said display compartment and means intermediate said sign supporting surface and compartments for illuminating said sign supporting surface and said compartments.

REUBEN E. OTTENHEIMER.