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FLOOR PAN ARRANGEMENT FOR REFRIGERATED DISPLAY CASE

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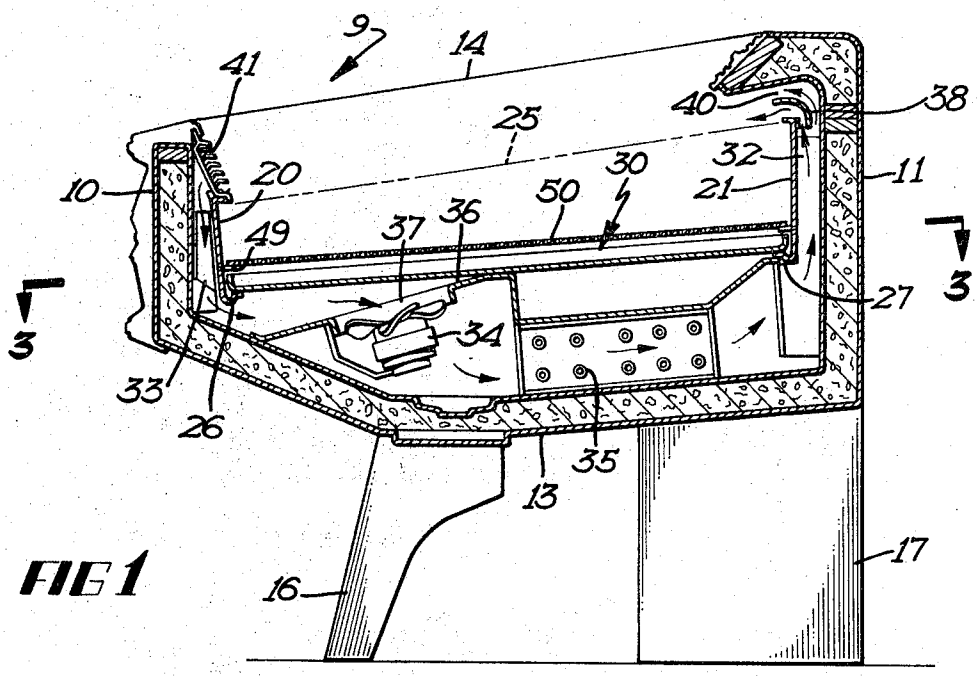


FIG 1

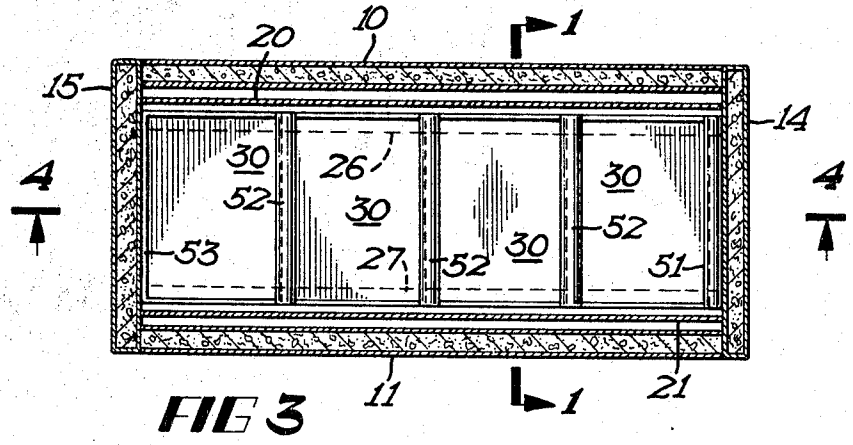


FIG 3

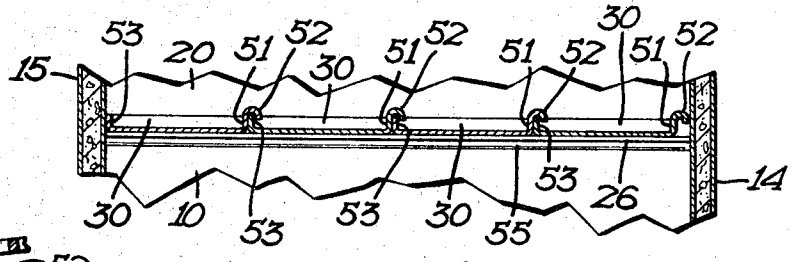


FIG 4

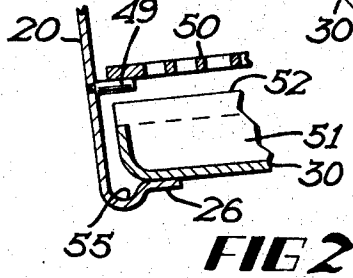


FIG 2

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FLOOR PAN ARRANGEMENT FOR REFRIGERATED DISPLAY CASE

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ABSTRACT OF THE DISCLOSURE

The invention relates to a floor pan arrangement for an air curtain type refrigerated display case. The floor pan arrangement provides (1) easy access for cleaning the space which houses the refrigeration apparatus and for repairing the apparatus, and (2) a drainage system for disposing of liquids created by undesired thawing of food products.

The invention relates to an air curtain type refrigerated display case having a new and improved floor pan arrangement.

In prior art apparatus of the type referred to the floor of the food containing compartment has not been the subject of any substantial inventive development. In the present invention there is provided a plurality of floor pans constructed and arranged in such a way that the pans not only comprise the floor but also provide an integral drainage system and a means to facilitate the easy cleaning of the space therebeneath in which the refrigeration apparatus is disposed. The last mentioned means also facilitates an easy access to the refrigeration apparatus for repair purposes.

A main object of the invention is to provide an air curtain type refrigerated display case having a new and improved floor pan arrangement having the functions described above.

Other objects and advantages of the invention will become apparent from the following specification, drawings and appended claims.

FIG. 1 is a transverse elevational sectional view, taken on line 1—1 of FIG. 3, of an air curtain type of refrigerated display case embodying a food bin floor pan arrangement in accordance with the invention;

FIG. 2 is an enlarged fragmentary portion of the sectional view of FIG. 1;

FIG. 3 is a sectional view taken on line 3—3 of FIG. 1; and

FIG. 4 is a fragmentary sectional view taken on line 4—4 of FIG. 3.

Referring to the drawing, FIG. 1 is a sectional view of a more or less typical air curtain type of refrigerated display case 9 which is normally used for refrigerated foods and is commonly found in super markets. The display case of the illustrated embodiment of the invention is generally tub-like in appearance with two insulated, longitudinally extending front and rear wall portions 10 and 11 and an insulated, longitudinally extending bottom portion 13. The display case 9 has insulated wall portions 14 and 15 at opposite ends thereof and the display case is suitably supported as with legs 16 and 17.

Internally of display case 9 are vertically extending panels or partitions 20 and 21 which are in generally parallel and spaced relation to the insulated walls 10 and 11 and define front and rear walls for a food bin. The upper ends of walls 20 and 21 define the food load line, which is indicated by the imaginary broken line 25, above which food products should not protrude if interference with the normal operation of the cooling system is to be avoided. The lower edges of partitions 20 and 21

have inwardly extending ledges or flanges 26 and 27 which support a plurality of pans 30 which will be referred to in detail further on.

The space between bin wall 21 and outer wall 11 is termed an air supply flue 32 and the space between the bin wall 20 and the outer wall 10 is termed an air exhaust flue 33. The underneath space between pans 30 and the case bottom portion 13 connects and provides fluid communication between flues 32 and 33 and houses a fan and motor unit 34 and an evaporator or cooling coil 35. A partition 36 extends longitudinally the length of the display case between the floor portion 13 and the bottoms of pans 30 and has an opening 37 through which the fan unit 34 draws air from the return flue 32. Ledges 26 and 27 support pans 30 in positions such that there is a slight clearance between the bottoms of the pans and partition 36.

The upper part of wall portion 11, above load line 25 is curved inwardly and overhangs the rear part of the food bin. A vertical extension 38 of the bin wall 21 is also curved inwardly and, in cooperation with the inside surface of the upper part of wall portion 11, forms a cooling air discharge outlet 40 which directs the cooling air to the forward side of the display case. Extending vertically above the bin wall 20 is a louvered return air grille 41 which is inclined relative to the bin wall 20 and is connected indirectly to the upper part of wall portion 10. In operation, cold air is discharged from the cold air outlet 40. This air flows towards the return grille 41 in the form of a blanket or curtain, through the grille and into the return flue 33.

In the illustrated embodiment of the invention there are shown four pans 30 arranged in side by side relation between the end walls 14 and 15 of the display case. Illustrative or representative dimensions for a pan 30 would be a length of 32 inches, a width of 24 inches and a depth of 1½ inches. A display case having a nominal length of eight feet would be equipped with four pans 30 as illustrated.

The rear ledge or flange 27 is at a somewhat higher elevation than the front flange 26 such that the floors of the pans 30 supported by these flanges form an angle of about 6 degrees with the horizontal. Supported approximately an inch or two above and in aprpoximately parallel relation to the pans 30 is a perforated partition 50 made of a material such as aluminum or wire which forms a floor upon which packaged food products are placed. Floor partition 50 is supported on pins 49 which extend horizontally inwardly from the vertical partitions 20 and 21. If desired, means (not shown) may be provided for adjustably supporting floor partition 50 at different heights relative to the pans 30 so that the purchaser of a display case could select the degree of shallowness desired for the food compartment.

The pans 30 are installed by placing them on the ledges 26 and 27 adjacent one another as illustrated. No fastening means need be provided to attach the pans to the ledges 26 and 27 as it is intended that the pans by easily removable so that there will be easy access to the space below the pans for the purpose of cleaning and for repairs to the mechanical equipment housed in that space. Likewise, the perforated floor partition 50 is merely set in its illustrated position so that it also may be installed and removed quickly and easily when there are no food products contained in the display case. Floor partition 50 may also be made having two or more sections so that access may be had to only a portion of the space beneath the pans 30 without the necessity for removing all of the food products from the display case.

In the operation of a refrigerated display case there occurs under certain conditions an inadvertent and unde-

sired melting or thawing of food products contained in the display case. This thawing creates water or other liquids which drain down through the perforated floor partition into the pans **30**.

Each of the pans **30** has four vertically extending walls, as is conventional, but one wall **51** thereof which extends in the lengthwise direction has an upwardly and outwardly extending lip portion **52** which overhangs the wall **53** of an adjacent pan **30**. The liquid which drains down through the perforated partition **50** is thus prevented from flowing between the pans into the space below the pans because the liquid which drops on the pan lips **52** is diverted into the pans.

The front pan support ledge **26** has a drainage function in addition to the function of supporting the forward ends of the pans **30**. With regard to this drainage function, the ledge **26** is formed with a trough **55** such that liquids which run into the trough are directed to one end or the other of the case where means (not shown) are provided for draining the liquids in a suitable manner. It is mentioned above that the forward ends of the pans **30** are supported at a lower elevation than the rearward ends thereof. If a sufficient amount of liquid drains into the pans **30**, the liquid will thus overflow the forward ends of the pans and drain into the ledge trough **55** from which the liquid is drained as described above.

What we claim is:

1. An air curtain type refrigerated display case comprising, an elongated tub-like structure having insulated side and end wall portions and an insulated bottom portion, a food bin in said tub-like structure having side wall sections in spaced relation to said side wall portions to form air supply and air return flues, said bin having a floor section in spaced relation to said bottom portion, fan and motor means and cooling coil means between said floor section and said bottom portion, an air discharge outlet connected to said air supply flue for directing a curtain of air transversely across and generally parallel to the top of said food bin, said floor section comprising a plurality of rectangularly shaped pans extending between said side wall sections, said pans having vertically extending walls and being in closely spaced side by side relation, at least one of said pan walls having an upwardly and laterally extending overhang portion overhanging an adjacent wall of an adjacent one of said pans, means for supporting said pans including a pair of elongated flanges attached respectively to and extending longitudinally relative to said bin side wall sections, one of said flanges being at a lower elevation than the other of said flanges.

2. A refrigerated display case according to claim **1** wherein the lower one of said flanges has a longitudinally extending drain trough formed therein.

3. A refrigerated display case according to claim **1** including a perforated floor section supported above said floor pans in closely spaced relation thereto.

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