Nov. 12, 1940. C. F. WOOD 2,221,016

MACHINE FOR STORING AND VENDING REFRIGERATED ARTICLES

Original Filed May 16, 1938

FIG. 1.

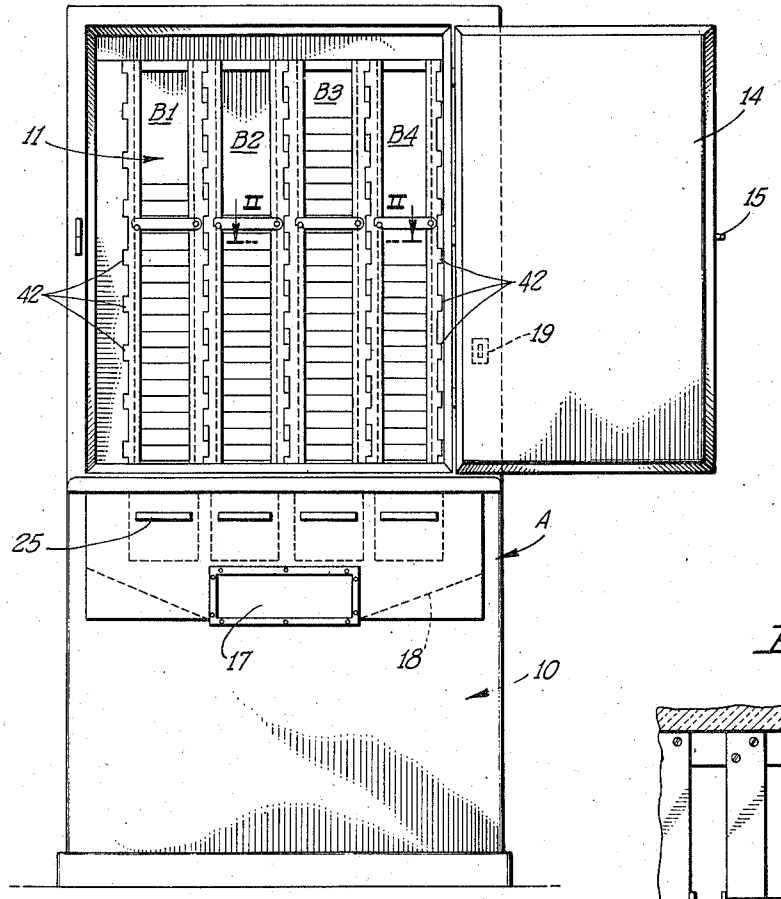


FIG. 2.

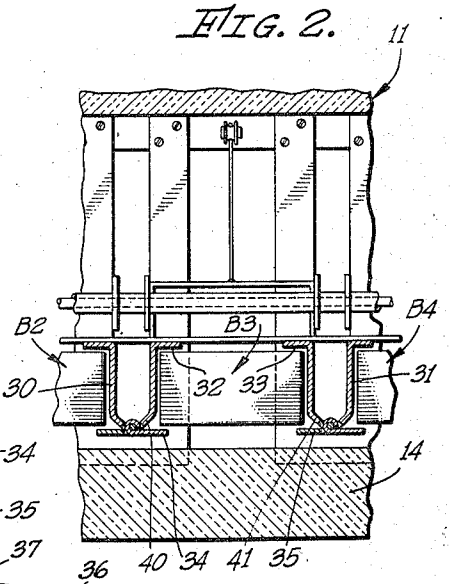
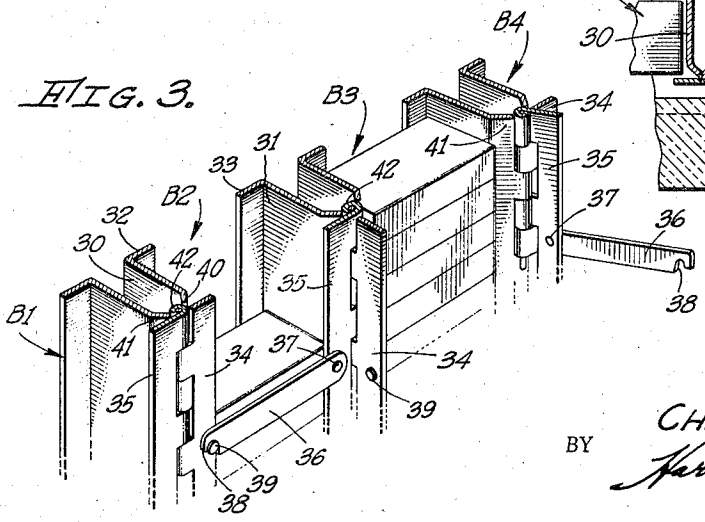


FIG. 3.



INVENTOR.
CHARLES F. WOOD
BY Harold W. Mattingly
ATTORNEY

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MACHINE FOR STORING AND VENDING REFRIGERATED ARTICLES

Charles F. Wood, Los Angeles, Calif.

Original application May 16, 1938, Serial No. 208,207. Divided and this application January 29, 1940, Serial No. 316,131

6 Claims. (Cl. 312—42)

This invention relates to vending machines for storing a supply of articles requiring refrigeration, such as small packaged bars or blocks of ice cream, and for vending such articles one at a time.

This application is a division of my copending application Serial No. 208,207, filed May 16, 1938 (Patent No. 2,201,464), for "Vending machine for refrigerated articles."

Many previous attempts have been made to construct and successfully operate vending machines for automatically vending ice cream blocks and other frozen commodities upon the insertion into the machine of the appropriate coin or coins. Such machines have usually included a refrigeration cabinet having some refrigeration apparatus or medium therein for maintaining the interior of the cabinet or refrigeration chamber at a sufficiently low temperature to maintain the articles in their frozen condition while awaiting ejection from the machine.

For the best success, such machines should be capable of holding a generous supply of the articles and preferably should be capable of holding a series of stacks of articles, each stack containing articles of a different color or flavor so as to permit some choice on the part of the person obtaining articles from the machine.

In order to adapt such machines to the holding and selective vending of different flavored or distinct articles, the refrigeration chamber is provided with a plurality of vertically extending channels into each of which a stack of a particular kind of article may be held in a vertical column, one article piled upon the other in the stack. Such channels are ordinarily formed of box-like structures constructed from sheet metal and required the filling of the channels by insertion of the blocks or ice cream bars one by one into the channel. Such operation is laborious and time-consuming.

It is therefore an object of my invention to provide a vending machine of the character described in which the channels for the several stacks of articles are formed in such manner as to have their front sides completely open and to provide retaining flanges at the front sides which are moved from a position extending wholly or partially across the open face of the channel to a position exposing the entire width of the channel to permit a column or stack of the articles to be bodily inserted into the channels.

Another object of my invention is to provide a structure of the character set forth in the preceding paragraph in which the movable flanges for the individual channels are independently movable so that the opening of the flanges for one stack will not disturb the articles in the adjacent stacks.

Another object of my invention is to provide a structure of the character set forth in which each of the channels is provided with an individual flange locking means which will hold the flanges of that channel in closed relation independently of the position of the flanges of adjacent channels.

Other objects and advantages of my invention will be apparent from a study of the following specifications, read in connection with the accompanying drawing, wherein

Fig. 1 is a view in front elevation of the improved vending machine, the door of the storage chamber thereof being open to show the guides for the stacks of articles to be vended from the machine;

Fig. 2 is a detail horizontal sectional view taken along line II—II of Fig. 1; and

Fig. 3 is a fragmentary perspective view of the stack guide mechanism illustrated in Figs. 1 and 2.

Referring to the accompanying drawing, I have illustrated my improved vending machine as comprising a suitable refrigeration cabinet A which may be constructed similarly to the construction of well known mechanical refrigerators and which may include a lower compressor compartment 10 and an upper storage compartment 11. In the lower compartment 10 there may be disposed any suitable form of motor driven compressor or the equivalent for compressing a refrigerating medium which expands within suitable expansion chambers or cooling coils (not shown) within the storage chamber. Any suitable form of cooling mechanism may be employed for refrigerating the storage chamber 11, the primary object thereof being to maintain a circulation of cold air within the storage chamber to maintain articles, such as ice cream bars and the like, which may be stored therein at a sufficiently low temperature as to preserve the material of the articles and the solidity of their form.

The storage chamber has its front wall normally closed by a hinged door 14 which may be locked in closed position by means of any suitable latch 15 and may be provided with a lock (not shown). In the forward wall of the cabinet there is also provided a suitable exit opening 17 through which the articles purchased are discharged. In the back of this opening there is formed an inclined chute 18 which may receive articles from

any and all of the stacks of articles contained within the storage chamber. The articles when released from the stacks slide downwardly and forwardly on the chute 18 and are removed by the purchaser through the opening 17.

In the front wall of the cabinet there is disposed a coin receiving opening 19 into which coins necessary for the purchase of the articles may be deposited and associated therewith is a suitable coin collecting and coin-release mechanism by which any one of a number of ejector handles 25 may be released to permit such handles to be drawn forwardly of the machine to eject a single article from a selected one of the stacks.

In the form of the invention illustrated herein the storage chamber 11 is adapted to contain four stacks of articles to be vended from the machine, the articles being arranged in any desired manner such as in stack B1 may be ice cream blocks all of one flavor while in stacks B2, B3 and B4 may be contained stacks of ice cream bars of different flavors, respectively. To permit the person purchasing an article to select which of the flavors he desires, a separate handle 25 is provided for each one of the stacks and the coin released mechanism, as illustrated and described in my copending application Serial No. 208,207 (Patent No. 2,201,464) of which this application is a division, is adapted to release all of the handles 25 but upon the drawing forward of any selected handle the remaining handles are locked against movement, requiring the deposit of additional coins to additionally remove articles from stacks not initially selected. Since this mechanism constitutes no part of the present invention, description and illustration thereof is omitted.

The articles or ice cream blocks in the various stacks are held in vertical column, one piled upon the other, by means of suitable stack guides which may comprise a frame formed of sheet metal and having the shape illustrated particularly in Figs. 2 and 3 in which the metal is so shaped as to provide two spaced side walls 30 and 31 for each stack spaced apart by a distance just slightly in excess of the length of one of the bars or other articles to be dispensed from the machine and having a lateral width substantially equal to the width of the width of one of the articles. The rearward ends of the side walls 30 and 31 are turned inwardly as indicated at 32 and 33 to form rear guide flanges engaging the rear edge of the articles and holding them in vertical alignment. The flanges 32 and 33 are preferably relatively narrow so as to leave as large an area of the rear faces of the articles exposed to the circulation of air in the storage chamber as possible.

The forward sides of the articles are held in place by means of flanges 34 and 35 secured to the forward edges of the side walls 30 and 31, respectively, and adapted to extend partially across the front edges of the articles within the stack.

To facilitate the loading of the stacks with new supplies of articles to be vended, the flanges 34 and 35 are not rigidly secured to the walls 30 and 31 but are instead hingedly secured thereto so as to permit these flanges to be swung forwardly like doors to expose the entire front of the guide channel formed by the guides, thus permitting a stack or column containing a plurality of the articles piled one upon the other to be bodily placed as a unit into the guide channel and then the flanges 34 and 35 associated with that stack or channel may be swung to the closed position as illustrated in Fig. 3 and held in this closed position by means of suitable ratching mechanism illustrated herein as comprising a latch bar 36 pivoted as at 37 upon the flange 35 and having at its opposite end a hook 38 adapted to engage a headed pin 39 secured upon the flange 34.

To further assist in the ready loading of the articles into the stacks, the forward edges of the side wall guides 30 and 31 are bent outwardly as indicated at 40 and 41, respectively, so that the adjacent side walls of adjacent stacks form apices 42 to which the hinges of the flanges 34 and 35 may be secured. Thus the forward edges of the guide side walls 30 and 31 are flared outwardly and engage the articles as they are inserted into the channel and guide and align them as they are placed in the stack.

It will be apparent from the foregoing description that I have provided a stack construction for machines adapted to vend small articles in which the time and effort required to load the stacks of articles in the vending machine are materially lessened and yet after the articles are in place within the stack they are prevented from shifting their vertically aligned relation and are accurately guided downwardly in the stack as the lowermost articles are vended one by one therefrom.

While I have shown and described the preferred embodiment of my invention, I do not desire to be limited to any of the details of construction shown or described herein, except as defined in the appended claims.

I claim:

1. In a vending machine, a storage chamber, means for supporting within the chamber a stack of articles to be vended, including side wall members spaced from each other by a distance substantially equal to the length of the articles to be vended, the rear edges of said side walls being formed with inwardly extending flanges to engage the rear faces of the articles in the stack, front flanges associated with the front edges of said side walls, and means mounting said front flanges for movement between closed positions extending across the front edges of articles in the stack and open positions exposing the full width of the stack for the reception of articles during refilling of the stacks.

2. In a vending machine, a storage chamber, means for supporting within the chamber a stack of articles to be vended, including side wall members spaced from each other by a distance substantially equal to the length of the articles to be vended, the rear edges of said side walls being formed with inwardly extending flanges to engage the rear faces of the articles in the stack, front flanges associated with the front edges of said side walls, and means hingedly mounting said front flanges for movement between closed positions extending across the front edges of articles in the stack and open positions exposing the full width of the stack for the reception of articles during refilling of the stacks.

3. In a vending machine, a storage chamber, means for supporting within the chamber a stack of articles to be vended, including side wall members spaced from each other by a distance substantially equal to the length of the articles to be vended, the rear edges of said side walls being formed with inwardly extending flanges to engage the rear faces of the articles in the

stack, front flanges associated with the front edges of said side walls, means mounting said front flanges for movement between closed positions extending across the front edges of articles in the stack and open positions exposing the full width of the stack for the reception of articles during refilling of the stacks, and means for locking said front flanges in closed position.

4. In a vending machine, a storage chamber, means for supporting within the chamber a stack of articles to be vended, including side wall members spaced from each other by a distance substantially equal to the length of the articles to be vended, the rear edges of said side walls being formed with inwardly extending flanges to engage the rear faces of the articles in the stack, the forward ends of the side walls being bent outwardly to form an outwardly flared entrance to said channel, and front flanges associated with the front edges of said side walls, and means mounting said front flanges for movement between closed positions extending across the front edges of articles in the stack and open positions exposing the full width of the stack for the reception of articles during refilling of the stacks.

5. In a vending machine, a storage chamber, means for supporting within the chamber a plurality of stacks of articles to be vended from the machine, including vertically extending side wall guide members for each of the stacks, the side wall guides for each of the stacks being spaced from each other by a distance substantially equal to the length of an article to be vended and having a width substantially equal to the width of one of said articles, the adjacent side walls of adjacent stacks being spaced from each other to provide air circulation space between the adjacent stacks, the forward edges of the adjacent side walls of adjacent stacks being bent toward and meeting each other, a pair of front flanges associated with each of the adjacent pairs of side walls, and means pivotally mounting each of said flanges upon the meeting edges of said adjacent walls for hinged movement independent of the other of said pair of flanges.

6. In a vending machine, a storage chamber, means for supporting within the chamber a plurality of stacks of articles to be vended from the machine, including vertically extending side wall guide members for each of the stacks, the side wall guides for each of the stacks being spaced from each other by a distance substantially equal to the length of an article to be vended and having a width substantially equal to the width of one of said articles, the adjacent side walls of adjacent stacks being spaced from each other to provide air circulation space between the adjacent stacks, the forward edges of the adjacent side walls of adjacent stacks being bent toward and meeting each other, a pair of front flanges associated with each of the adjacent pairs of side walls, means pivotally mounting each of said flanges upon the meeting edges of said adjacent walls for hinged movement independent of the other of said pairs of flanges, and individual locking means for the front flanges for each of said stacks whereby the flanges of one stack may be opened while the flanges of the remaining stacks remain closed.

CHARLES F. WOOD.