United States Patent

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[54] **MULTIPLE COLUMN MULTIPLE CHOICE VENDING MACHINE**
2 Claims, 2 Drawing Figs.

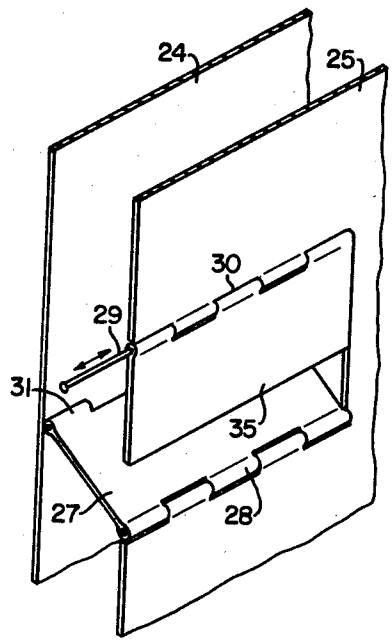
[52] **U.S. Cl.** **221/108**
[51] **Int. Cl.** **B65g 59/00**
[50] **Field of Search** 221/108, 242, 131, 178, 109, 107

[56] **References Cited**
UNITED STATES PATENTS

2,255,007	9/1941	Greene et al.	221/131X
3,169,621	2/1965	Johnson et al.	221/178X

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ABSTRACT: A multiple column multiple choice vending machine having a respective vending gate for each column with removable or selectable diverting means to divert some articles stored in one column to an adjacent column to be vended by the adjacent column vending gate while permitting other articles stored in the one column to be vended by the one column vending gate thus increasing capacity for favorite articles without reducing the total choice of articles.



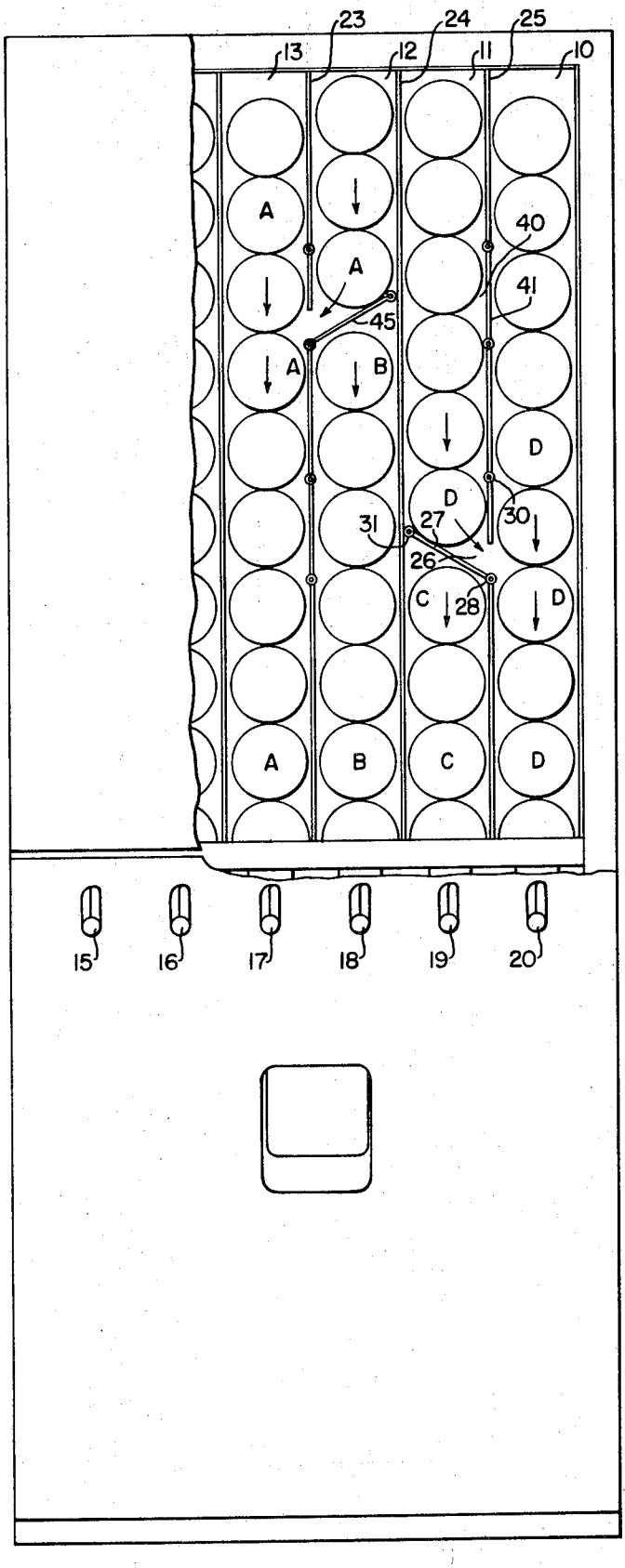
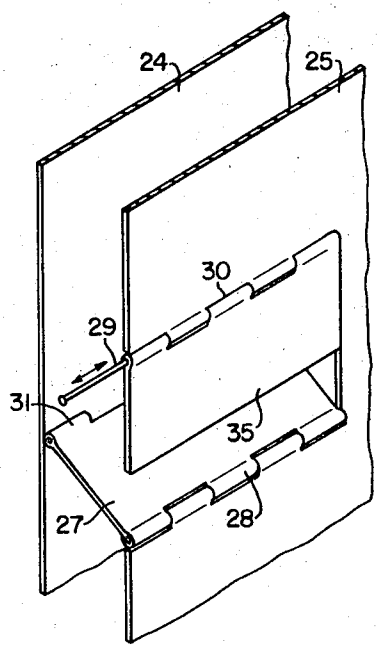


FIG. 1.

FIG. 2.



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MULTIPLE COLUMN MULTIPLE CHOICE VENDING MACHINE

CROSS REFERENCE TO RELATED APPLICATIONS

So far as is known this invention is not related to any pending patent applications.

BACKGROUND OF THE INVENTION

Multiple column multiple choice vending machines with a respective vending gate for each column are of course well-known. It is desirable to offer a maximum number of choices of articles to be vended while at the same time keeping the machine reasonably compact in size. It has been found that certain articles are favorite choices and it is therefore also desirable to increase the respective capacity for those one or two favorite articles without reducing the maximum number of choices to be vended by all of the vending gates of the machine.

PRIOR ART

Reference may be made to the U.S. Pat. No. 2,399,105 issued to Donaldson on Apr. 23, 1946 which shows an arrangement for increasing the storage capacity of articles to be vended by a single vending gate with a plurality of columns but not providing a multiple choice through a multiplicity of vending gates as is done by the present invention.

SUMMARY

According to the invention, the vending machine is provided with a plurality of side by side storage columns each having a respective vending gate and diverting means is provided to be selectably movable into position in a respective column to move articles stored in the one respective column on one side of the diverting means to an adjacent column to be vended by the adjacent column vending gate while still permitting articles stored in the one column on the other side of the diverting means to be vended by the one column vending gate. In the preferred form of the invention, the side by side columns are vertically positioned with vertical partitions therebetween. At least one of the vertical partitions between adjacent columns is provided with an aperture intermediate its length which may be normally closed by a plate hinged along the bottom edge of the aperture and movable to an inclined position within an adjacent column to open the aperture so that articles stored in the adjacent column above the inclined plate can move over the inclined plate and through the aperture into the adjacent column to be vended by the adjacent column vending gate. To minimize the possibility of jamming, it may be desirable to provide a flapper plate to be removably suspended from one or more hinges along the upper edge of the partition aperture and to swing into the adjacent column after the articles in the adjacent column are depleted and as articles are moved from the one column through the aperture into the adjacent column.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the vending machine of the invention partly broken away in the front to show the novel storage columns and article diverting structures of the invention; and

FIG. 2 is a perspective detail elevation showing the partition aperture and associated diverting means in a preferred form of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings the vending machine of the invention will be described in connection with a six column multiple choice vending machine although it will be understood that the invention may be readily adapted to a vending machine having any plural number of storage columns. Also, although the invention will be described in connection with a vending machine having a plurality of vertically positioned side by side storage columns, the principles of the invention may be adapted to other arrangements of multiple storage column machines in which the storage columns are not necessarily in a vertical plane.

As shown by FIG. 1 of the drawing, the vending machine is comprised of six side-by-side vertically positioned storage columns four of which are shown at 10—13 by the cutaway portion of the drawings. Each of the six vertical storage columns is provided with a respective vending gate such as is shown at 15—20. The details of the vending gate mechanism are not shown since they do not form a part of the present invention. In the drawing, each respective gate is represented by the operating handle therefore as shown at 15—20. Inasmuch as each of the storage columns is provided with a respective gate and there are six such gates in the embodiment of the invention being described, the machine has a capacity for vending six different choices of articles. Thus the vending gate 17 would be enable to vend article A, vending gate 18 article B, vending gate 19 article C, and vending gate 20 article D. Similarly two other different article choices (not shown) could be vended by the respective vending gates 15 and 16.

For purposes of describing the present invention it is assumed that articles A and B are favorite choice articles and it is therefore desirable to increase the storage capacity of the vending machine for articles A and D while still enabling vending gates 18 and 19 to vend a less favorite choice of articles B and C. It will be noted that each of the respective vertical storage columns 10, 11, 12 and 13 are separated by vertical partition walls 23, 24 and 25. The details of the magazine structure and the various partition walls are not shown since they may take various noninventive forms well known to those skilled in the art. In order to increase the vending capacity for the favorite choice D to be vended by the vending gate 20, the vertical partition wall 25 is provided with an aperture 26 that may be normally closed by the pivotal plate member 27 supported by a hinged pivot generally shown at 28 at the lower horizontal edge of the aperture 26. By removing the pin shown at 29 from the upper horizontal hinge 30, the plate 27 may be moved into the storage column 11 to rest in an inclined position as shown with its upper hinge edge 31 abutting the inside wall of the next adjacent vertical partition 24. Thus articles which may be favorite choice articles D in the storage column 11 above the inclined plate 27 may move over the inclined plate surface through the aperture 26 into the storage column 10 to be vended by the vending gate 20, with other favorite choice articles D in column 10. Of course the articles of the favorite choice D in column 11 can not move into column 10 until the supply of the favorite choice articles D in column 10 is depleted to the point where the highest stored article D therein is below the lower hinge point 28 for the inclined plate 27.

Although the invention is completely operative as thus far described with articles such as canned drinks of the favorite choice D moving over the upper inclined surface of the plate 27 from the storage column 11 through the aperture 26 into the storage column 10, there is a possibility of occasional jamming of the articles unless the angle of inclination for the plate 27 and the dimensions of the aperture 26 are precisely related to the size and shape etc. of the article to be vended. To minimize the possibility of jamming and make the arrangement of the invention more flexible as regards the sizes of the articles to be vended, a pivotal flapper plate 35 may be suspended within the aperture 26 from the hinge 30 along the upper horizontal edge of the aperture 26. It is believed that the function of the flapper plate 35 to minimize jamming is clear considering the foregoing drawing and description and need not be further elaborated.

In order to increase the flexibility of the arrangement of the invention so that a desired relative proportioning of storage capacity of favorite and less favorite articles may be obtained, the arrangement of the invention provides for a number of apertures spaced at different points above the vending gate,

each normally closed by a plate member that is movable to an inclined position within a respective one of the adjacent storage columns. For example the vertical partition **25** may be provided with a second aperture **40** spaced above the lower aperture **26** and normally closed by the plate member **41**. Obviously any number of additional apertures may be provided in a desired one of the vertical partitions such as the partition **25**. Also certain ones of the vertical partitions such as the partition **24** may be formed in the conventional fashion without any diverting apertures. It is also desirable to emphasize that the diverting plate member such as the plate member **27**, **41** or **45** can be pivoted into either one of the adjacent storage columns such as the respective columns **10** and **11** by diverting plates **27** and **41** and columns **12** and **13** by diverting plate **45**.

Although a simple preferred arrangement of pin hinges for securing the diverting plates with respect to the diverting apertures for column partition walls has been described, it should be understood that various detailed supporting means and pivotal hinge structures other than that described may be employed within the spirit of the invention as should be obvious to anyone skilled in the art.

I claim:

1. A multiple column multiple choice vending machine comprising, a plurality of article storage columns arranged in vertical side-by-side positions with vertical partitions therebetween, at least one of the partitions between adjacent columns having an aperture intermediate its length through which an article stored in one column can move into the adjacent column, a plurality of vending gates disposed to provide a respective vending gate for each article storage column, and diverting means adapted to be removably positioned in one respective column at a point spaced from the respective vending gate thereof to divert those articles stored in the one column on one side of the diverting means to an adjacent second storage column for vending by the respective vending gate of the second column while permitting articles stored in the first column on the other side of the diverting means to be vended by the respective vending gate for the first column, said diverting means being comprised of a plate member normally closing said aperture and hinged at its lower edge to be movable to an upwardly inclined position within one of the adjacent columns to permit movement of articles in the one storage column on the upper side of the inclined plate through the aperture into the other adjacent storage column.

2. The invention of claim **1** in which a flapper plate is removably suspended within the aperture from one or more hinge pivots along the upper edge of said aperture to be movable into an adjacent storage column.