Dec. 13, 1966 W. A. ORD 3,291,544

STORAGE AND ARTICLE DISPENSING MEANS

Filed Jan. 11, 1965 2 Sheets-Sheet 1

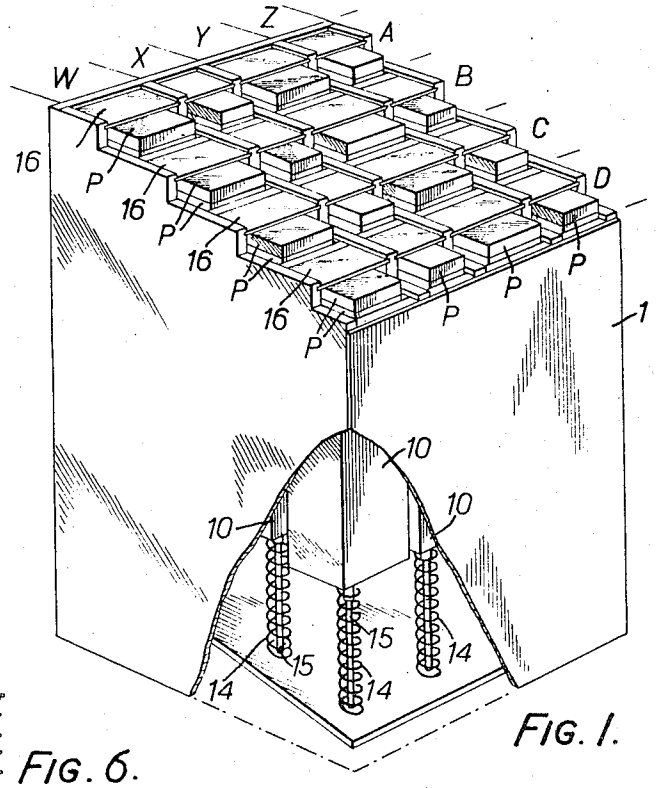


FIG. 1.

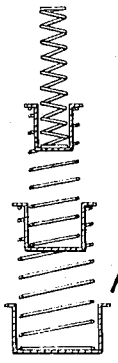


FIG. 6.

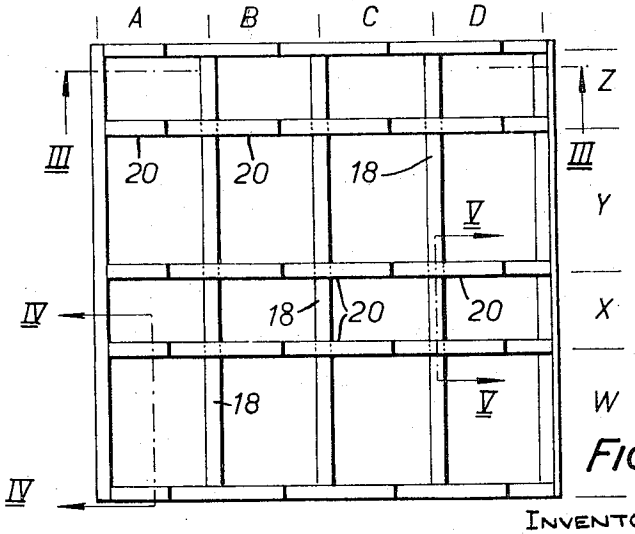


FIG. 2.

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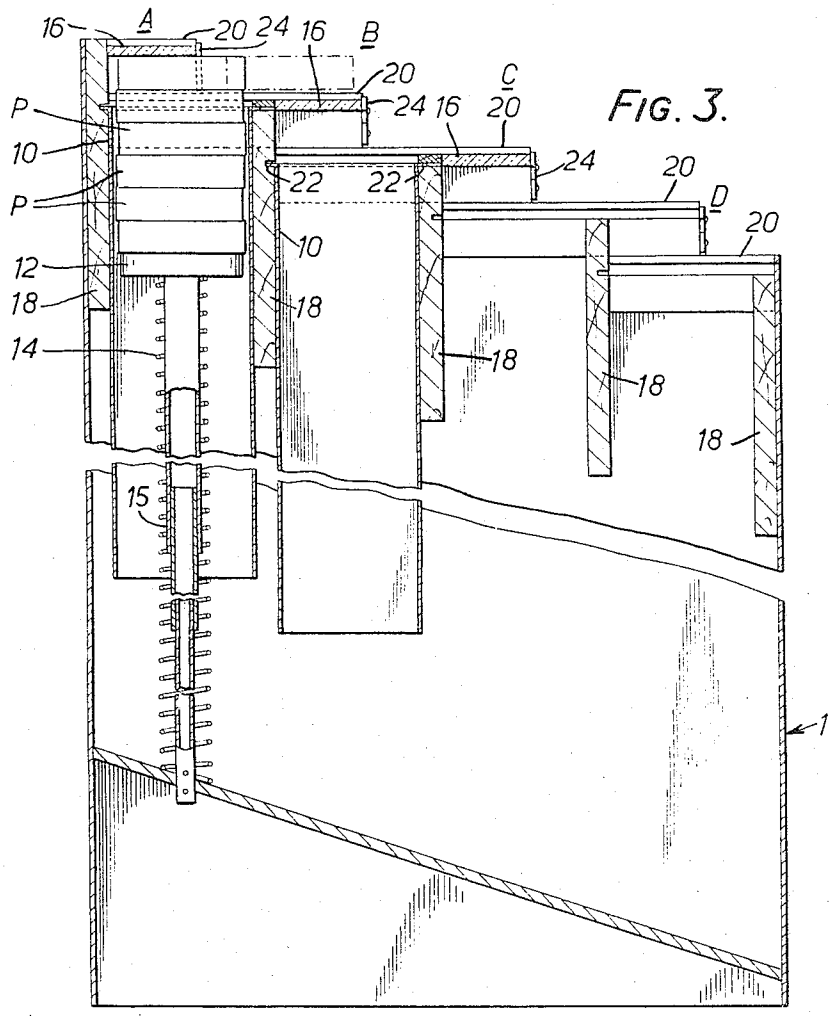


FIG. 3.

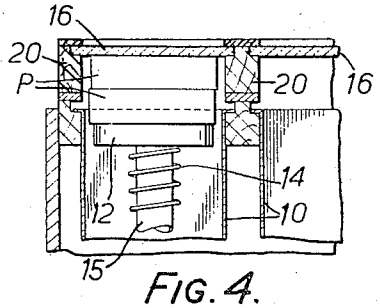


FIG. 4.

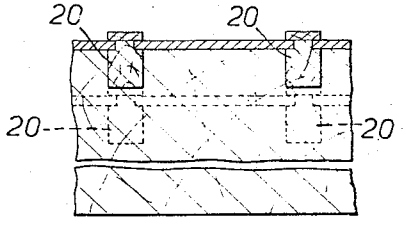


FIG. 5.

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STORAGE AND ARTICLE DISPENSING MEANS

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5 Claims. (Cl. 312—71)

This invention relates to apparatus for the storage, display and dispensing of articles of merchandise.

A dispensing unit constructed in accordance with the inventon includes a plurality of vertical magazines arranged one behind another, each magazine having at its upper end a dispensing opening through which the uppermost article in the magazine can be withdrawn, and means urging the articles towards the upper end of the magazine, the magazines being arranged with their dispensing openings set at different levels to allow an article to be withdrawn forwardly from one magazine across the top of the adjacent magazine in front.

In this specification, the apparatus of the invention is described and claimed as having its magazines vertical, with the dispensing openings at the upper ends, but this is purely a matter of convenience of description and definition and it should be understood that apparatus in accordance with the invention can be constructed to operate in any desired attitude, e.g. vertical or horizontal with the dispensing opening at either end, e.g. upper or lower, and the description and claims must be understood and construed accordingly.

One form of apparatus in accordance with the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of the apparatus;

FIGURE 2 is a plan of the framework of the apparatus;

FIGURES 3, 4 and 5, are sectional views, on a larger scale, taken on the lines III—III, IV—IV and V—V, respectively, in FIGURE 2, and

FIGURE 6 shows a detail modification.

The apparatus comprises a console cabinet **1** housing a plurality, e.g. sixteen, magazines arranged in rows, A, B, C, D and columns, W, X, Y, Z, all the magazines in one row having their dispensing openings at one level, while the magazines in each column are arranged stepwise, each magazine having its dispensing opening at a higher level than the adjacent magazine to the front. For the purposes of illustration there is shown a unit having sixteen magazines arranged in four columns and four rows but it will be apparent that many different numbers and arrangements of magazines will be possible.

Each magazine comprises a vertical tube or sleeve **10** of a cross-section to suit the size and shape of the articles, which may for example be cigarette packets P. The sleeves may be all of the same cross-section or may be of different sizes to suit different packets. For example the sleeves in one or more rows may be extra long to accommodate packets of so-called "king size" cigarettes, and the width of sleeves in different columns may be different, some columns being of a width to suit say packets of ten cigarettes, while others suit packets of twenty. The tube **10** is provided internally with a piston **12** which is urged upwardly, conveniently by means of a coil compression spring **14** which is prevented from buckling by a telescopic tube assembly **15** coaxial with the spring and attached at its upper end to the piston **12**. Spaced above the upper end of each magazine there is a clear glass plate **16** against which the uppermost article in the stack bears; the plate **16** has less horizontal depth than the packet, so that the front end

portion of the packet is exposed for gripping and withdrawing horizontally forwardly between the plate **16** and the upper end of the magazine. The depth of the gap between the plate and the top of the magazine is preferably such as readily to accept the thickness of one packet P but not the combined thickness of two packets P.

The magazine sleeves **10** and their glass plates **16** are mounted in a frame which is grid-like in plan but step-like in end elevation. The frame comprises a plurality of parallel, vertical, wooden transverse members **18** extending the full width of the apparatus and a plurality of side members **20** supported by the transverse members **18**. Each of these side members **20** consists of a bar of timber having horizontal, longitudinal grooves in its sides, and each glass plate **16** is supported between a pair of adjacent side members **20**, the lateral marginal portions of the plate **16** being slidably received in the grooves in the side members **20**. Each side member **20** is extended rearwardly, through a slot in the adjacent transverse member **18**, and is secured at its rear end by a dowel to the next transverse member **18** to the rear. Between the last mentioned pair of transverse members **18**, the groove in the side member **20** receives and supports an outwardly directed flange **22** at the upper end of the magazine sleeve **10**. Each side member **20** therefore plays its part in supporting the glass plate **16** of one magazine and the sleeve **10** of the adjacent magazine to the rear. This does not apply, of course, to the side members which support the glass plates in the rearmost row A. The above described construction is clearly illustrated in the drawings. In FIGURE 3, for the sake of clarity, the magazine in row B is shown with the piston **12** omitted and the magazine in row C is shown with the sleeve **10** and the piston **12** completely omitted. This construction also allows units of different sizes to be built up using many standardized parts. For example, the side members **20** (except for those along the two sides of the apparatus), are all of the same cross-section and so can conveniently all be cut from uniform stock.

In order to prevent accidental withdrawal of the glass plate **16** with the articles, there is provided a small metal catch **24** attached to the front end of each side member **20**, which catch is notched and loosely mounted so that it can be raised against gravity to bring the notch in register with the groove. Alternatively the catch may be fixedly secured so that the glass plate **16** must be pressed downwardly to clear the lower edge of the notch. The glass plate **16** is of course readily removable for refilling the magazine from above.

The unit can advantageously be mounted at the end of a counter, where it is readily accessible to the counter assistant, or against the wall. The unit is extremely compact and allows use to be made of the space below counter level which is often wasted and which is always a bad display position. At all times the top packet in each storage column is fully exposed to view and is readily accessible for withdrawal. Upon withdrawal of any packet the next packet in the same column is immediately displayed to view and made available for withdrawal.

While one particular form of dispensing unit has been described above by way of example only, the invention is not limited to the details thereof, many variations and modifications being possible within the scope of the appended claims.

For example, in one modified form of the invention the single spring **14** for urging the piston **12** of each magazine is replaced by three aligned, coil compressing springs of substantially equal length but different diameters, which are arranged to telescope partially one within another. The uppermost spring is mounted at its lower end in a cup, which is, in turn, received inside the upper end por-

tion of the second spring, this spring abutting the underside of an outward flange at the upper end of the cup. The lower end of the second spring is received in another flanged cup received in the upper end portion of the third or lowest spring. The third spring may also be supported in a similar cup. The depth of the cups is approximately one third of the free length of each spring, so that when each spring is fully compressed, to about one third of its length, the "dead" space taken up by the three springs is little more than the space taken by a single spring, and is only about one third of the space required by a single spring of the same (combined) stroke, thereby allowing more efficient use to be made of the overall length of the magazines. The cups also serve to restrain the springs from buckling, and may render any additional guide tube or the like unnecessary. This arrangement is illustrated diagrammatically in FIGURE 6.

Another form of the invention employs a zig-zag leaf spring, which requires very little dead space when fully compressed. A spring of this form may however require guide means.

Each of the last two described forms of the invention is particularly useful when the apparatus is required to be mounted horizontally upon a wall, since it allows the projecting length of the magazines to be minimized.

I claim:

1. A storage display and dispensing apparatus comprising a plurality of vertical magazines arranged in a series one behind another, each magazine having at its upper end a dispensing opening through which the uppermost article of a stack of articles in the magazine can be horizontally withdrawn, the magazines of said series being successively taller with their dispensing openings at vertically staggered levels to allow an article to be withdrawn forwardly from one magazine across the top of the adjacent magazine to the front, a frame for supporting said magazines, said frame comprising a plurality of transverse members extending transversely to the direction in which said articles are to be withdrawn and a plurality of side members extending transversely to said transverse members, one side member being positioned on each of two opposite sides of each magazine, each side member being provided with a horizontal slot opening toward a magazine, said slots extending horizontally from a position at the top of one magazine along the sides of the taller adjacent magazine whenever a taller adjacent magazine exists, a vertical tube forming part of each magazine, said tube being open at its upper end to receive a stack of said articles and provided at said upper end with outwardly extending projections seated in the slots of the side members extending along the sides of that magazine,

a translucent plate forming the top of each magazine seated in those slots of the side members which are positioned at the top of that magazine, and means for urging a stack of articles in each tube upwardly toward said translucent plate.

2. Apparatus as claimed in claim **1**, wherein said side members comprise uniform bars formed with grooves constituting said slots.

3. Apparatus in accordance with claim **1**, wherein the means urging the articles towards the upper end of the stack comprises a spring urged piston.

4. Apparatus in accordance with claim **3**, wherein the piston is urged by a single coil compression spring which is prevented from buckling by means of a telescopic tube assembly coaxial with the spring and secured at its upper end to the piston.

5. Storage and dispensing apparatus comprising a plurality of elongate magazines, each adapted to house a stack of articles, said magazines being arranged side-by-side in rows, one row behind another, each magazine having a dispensing end and being positioned between two overlapping pairs of opposed side members, each pair of which brackets two adjacent magazines, is provided with facing slots and extends transversely with respect to said dispensing ends, a tube extending longitudinally of the magazine and open at the dispensing end, said tube having outwardly directed flanges which engage in the slots of one of said pairs of opposed side members, a plate of transparent material slidably received in slots of the other of said pairs of opposed side members, the end of said tube and said plate defining a dispensing opening, and resilient means for urging said stack of articles against said plate, said dispensing openings of said magazines in one row facing towards the row in front and being positioned beyond the dispensing ends of the magazines in the row in front.

References Cited by the Examiner

UNITED STATES PATENTS

181,834	9/1876	Goehring	312—71
2,083,843	6/1937	Hicks	312—71
2,128,781	8/1938	Lister et al.	312—45
2,435,104	1/1948	Solomon	221—57
2,503,741	4/1950	Johnson	224—15
2,841,206	7/1958	O'Brien	248—403
3,039,758	6/1962	Gratzmuller	267—1

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