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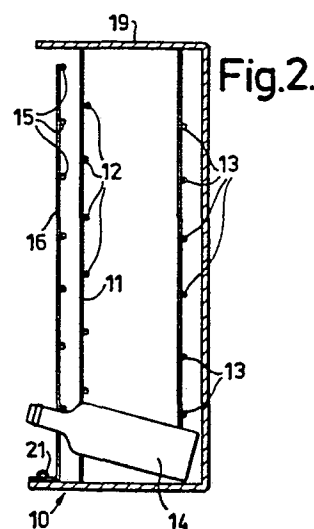
71 Applicant: Rusby, Charles Edward
175 Keighley Road
Illingworth Halifax, West Yorkshire HX2 9II(GB)

72 Inventor: Rusby, Charles Edward
175 Keighley Road
Illingworth Halifax, West Yorkshire HX2 9II(GB)

74 Representative: Neill, Alastair William
Appleyard Lees & Co. 15 Clare Road
Halifax West Yorkshire HX1 2HY(GB)

54 **Storage racks.**

57 A storage rack has a plurality of compartments each having a mouth through which articles such as wine bottles (14) can be inserted for storage in the rack. The rack has closure means e.g. a grid (15,16) movable from an open position to a closed position. In the closed position the closure means reduces the size of the 'mouth' of the compartments in order to prevent articles from being withdrawn from the compartments.



BACKGROUND TO THE INVENTION

The invention relates to storage racks and particularly to racks for storing articles which it is desired to inspect visually from time to time, for example wine bottles when stored in a restaurant, or cans of oil when stored on a garage forecourt.

DESCRIPTION OF PRIOR ART

Racks are known for storing articles such as wine bottles, other bottles, cans of oil, and the like. The racks have a plurality of compartments to receive the articles. However it is difficult to provide a convenient device for storing such articles which can be locked to prevent or reduce the risk of theft. Wine bottles or cans of oil can of course be locked in a cupboard or cabinet, or a rack could be provided with an outer door or a shutter which can be locked, but this means that the articles cannot remain on display and cannot be visually inspected without unlocking and opening the door or shutter. This may be particularly inconvenient in a restaurant where it may be desired to display a large range of wine bottles as part of the decor. A

further inconvenience that might arise with wine bottles in a restaurant, or cans of oil on a garage forecourt, is that it may be desired to check frequently what bottles or cans are still remaining in stock without the inconvenience of having to unlock and then open a door or shutter.

In addition there may be a space problem in locating a door or shutter. If the door or shutter is to hinge or slide open, space must be allowed for to accommodate the door or shutter in the open position and this may be inconvenient in a crowded restaurant or small garage forecourt.

A flexible shutter could be provided, e.g. a shutter which is accommodated in a rolled up manner when the shutter is opened, but such an arrangement is expensive, and visual inspection is not possible without opening the shutter.

OBJECTS OF THE INVENTION

It is an object of the invention to provide a storage rack which can be locked to prevent or reduce the risk of theft, or accidental displacement of the contents of the rack from a desired position.

It is an additional object of the invention to provide a storage rack which allows articles contained therein to remain on display to be visually inspected when the storage rack is locked.

It is a further object of the invention to provide a storage rack which can be locked and unlocked without substantially increasing the space occupied by the storage rack in the respective unlocked and locked position.

5 It is yet another object of the invention to provide a storage rack which can be manufactured simply and cheaply.

SUMMARY OF THE INVENTION

Briefly, and in general terms the invention provides a storage rack comprising a plurality of
10 compartments each having a mouth through which articles such as for example bottles can be inserted for storage in the rack, the rack having closure means adapted to reduce the size of the mouth of the compartment in order to prevent the articles from being withdrawn therefrom.

15 In a preferred embodiment, the closure means comprises a plurality of rods or bars, each rod or bar being arranged to be moved into and locked in an operative position in which each rod or bar extends across a respective one of the mouths of the compartments so
20 that the articles are retained in their associated compartments and cannot be removed therefrom. The rods or bars, when in the operative position, do not severely restrict an observer's line of sight to the articles in the compartments so that the articles are still able
25 to be inspected and/or visually displayed with each rod or bar in the locked operative position.

The plurality of bars or rods in the preferred embodiment are each arranged to slide over a respective one of the mouths of the compartments. In the inoperative position, each rod or bar lies between its associated mouth and the mouth of an adjacent compartment. When moved into the operative position, the rods or bars need only slide up to one half of the length or width of the mouth of the compartments. The plurality of rods or bars can thus be arranged to slide in a limited fashion between their inoperative and operative positions so that little or no more space is required by the storage rack when the rods or bars are being moved into or out of their operative positions than when the storage rack is locked or unlocked.

Further objects, features and advantages of a storage rack according to the invention will become apparent from the following description of an embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a front view of a wine rack according to the embodiment of the invention;

Figure 2 is a side view of the rack of Figure 1, in cross-section, showing the closure means in the closed position;

Figure 3 is a view of part of the rack shown in Figure 2, showing the closure means in the open position; and

5 Figure 4 is a view of part of the rack from the front, to a larger scale, showing the closure means in the closed position.

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

The rack shown in the Figures comprises a square open fronted cupboard 10. Secured to the open front of the cupboard is an array of fixed vertical metal rods 11 and fixed horizontal metal rods 12, the rods 11 and 12 serving to divide the front of the cupboard into seven parallel rows each row containing eight square openings. At the rear of the cupboard there are horizontal support members 13, and the rack can thus be regarded as having
15 fifty-six compartments to respectively receive fifty-six wine bottles, each of the square openings defined by the rods 11 and 12 comprising the mouth of one compartment. The bottles 14 will be supported in an inclined manner as
20 shown in Figures 2 and 3, each bottle resting on one of the rods 12 and one of the supports 13.

As thus far described, the wine rack is similar to conventional wine racks, but the rack has a novel addition in the form of a further array of horizontal rods 15 and
25 vertical rods 16. The rods 15 and 16 are secured together

to form a grid, the grid defining fifty-six squares which are arranged in the same manner and with the same dimensions as the mouths of the compartments for the wine bottles.

5 The grid is arranged for vertical sliding movement in two channel section members 17 and 18 secured to the inner sides of the cupboard 10 at the open face of the cupboard 10. The grid is trapped between the bottom 18 of the cupboard and the top 19 of the cupboard but the grid is not
10 quite as high as the cupboard and can therefore perform limited vertical sliding movement across the mouths of the compartments. In the centre of the bottom edge of the grid there is a tongue 20 which, when the grid is in its lowermost position, engages with a hasp 21 secured to the
15 bottom 18 of the cupboard and the padlock can be passed through the hasp to secure the grid in its lowermost position.

 When it is desired to place wine bottles in the rack, or remove them therefrom, the hasp is unlocked and the grid is raised. In this position the holes in the grid are
20 in exact registration with the mouths of the compartments and they do not obstruct the insertion of wine bottles or the removal of wine bottles. In this position the rods 15 overlie the rods 12 as viewed in Figure 1 and the rods 16 overlie the rods 11 as viewed in Figure 1.

25 When it is desired to lock the wine bottles in the rack, the grid is merely lowered again and the hasp is

re-padlocked to prevent the grid being raised again except by a person having a key to the padlock. The raised position of the grid is illustrated in Figure 3. The lowered position of the grid is illustrated in Figures 2 and 4. It will be seen that the holes in the grid move out of registration with the mouths of the compartments. This has the effect that the rods 15 partially obstruct the mouths of the compartments, as best shown in Figure 4. This position of the rods 15 when the grid is in the lowered position is also illustrated in dotted lines in Figure 1.

When the grid is locked in the closed position, the necks of the bottles can still protrude through the mouths of the compartments, as illustrated in Figures 2 and 3, since the mouths of the compartments are merely obstructed, rather than fully closed. For the same reason, the bottles remain on display, so they can still provide an attractive feature of the decor of a restaurant, and the number and type of bottles remaining unsold can still be checked without the need to open any door or shutter. At the same time all the bottles can be securely locked in the cupboard by means of the padlock, thereby reducing the risk of theft or pilfering.

It will be appreciated that the rack can be used to store articles other than bottles, and the rack is

particularly useful where it is desired to be able to inspect visually the contents of the rack without having to unlock and open any door or shutter.

5 The invention is not restricted to the details of the foregoing embodiment. For instance the rods 16 play no part in obstructing the mouths of the compartments, and some or all of these rods may be omitted, provided that the rods 15 are connected together in a sufficiently rigid manner to prevent bottles or other articles from
10 being removed when the rods 15 are in their lower position.

The padlock may be arranged to operate by passing through two pieces of metal, one secured to the fixed rack and the other to the movable grid. One of the pieces of metal may be provided with two spaced apart holes such
15 that a first hole is in registration with a hole in the other piece of metal when the grid is closed and the second hole is in registration with the hole in the other piece of metal when the grid is open. Thus the padlock can be inserted in the second hole by an authorised user to keep
20 the grid in the open, raised position, when unrestricted entry is required, e.g. if the wine waiter is very busy.

The movable grid may be spring-loaded into the open position, and may be provided with a lock which snaps shut when the grid is urged into the closed position
25 against the action of the spring loading.

The opening and/or locking of the grid may be remote-controlled, e.g. electrically, for example for use in supermarkets where it may be desired to operate one or more racks from a staff position or counter.

5 The invention is not concerned with a particular shape of rack or grill and any desired shape or configuration may be used.

 It is not essential for the direction of opening movement of the grill to be vertical. The grill
10 may move in any desired direction, e.g. horizontally.

Claims:

1. A storage rack comprising a plurality of compartments each having a mouth through which articles can be inserted for storage in said rack, said rack having closure means movable from an open position to a closed position in which said closure means reduces the size of said mouth of said compartments in order to prevent articles from being withdrawn from said compartments.
2. A storage rack according to Claim 1, in which a lock is provided for locking said closure means in said closed position.
3. A storage rack according to Claim 2, in which said lock comprises a key-operated lock.
4. A storage rack according to Claim 1, in which said closure means is slidable between said open and said closed positions.
5. A storage rack according to Claim 1, in which said closure means comprises a bar and means mounting said bar for movement across the mouths of said compartments.

6. A storage rack according to Claim 1, in which
said storage rack comprises a plurality of parallel
rows of compartments and said closure means comprises
a corresponding plurality of bars connected together
5 for movement as a unit.

7. A storage rack according to Claim 6, in which
said plurality of bars are disposed horizontally and
a plurality of vertically extending members interconnects
said plurality of horizontally disposed bars to form
10 a grid having a plurality of apertures.

8. A storage rack according to Claim 7, in which
each aperture of said grid corresponds in shape and
position to a respective one of said mouths of said
compartments.

15 9. A storage rack according to Claim 1, in which
said mouths of said compartments are each defined by
an aperture in a meshed framework.

Fig.1.

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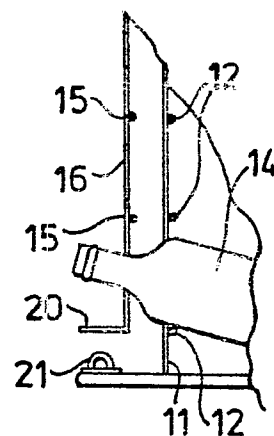
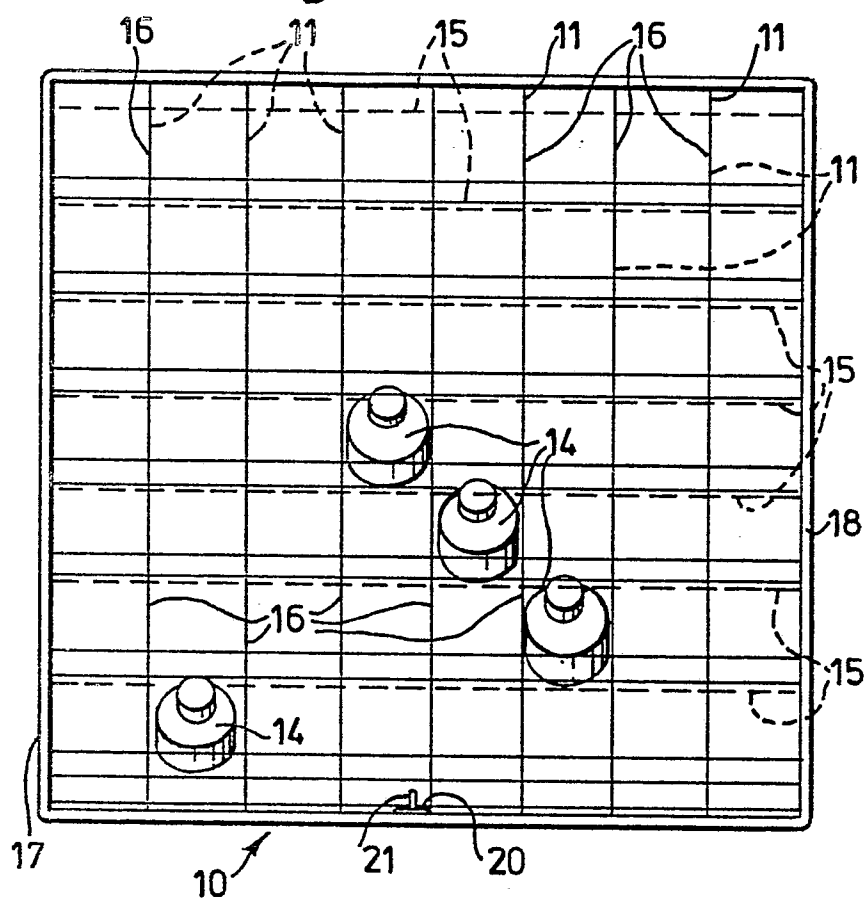


Fig.3.

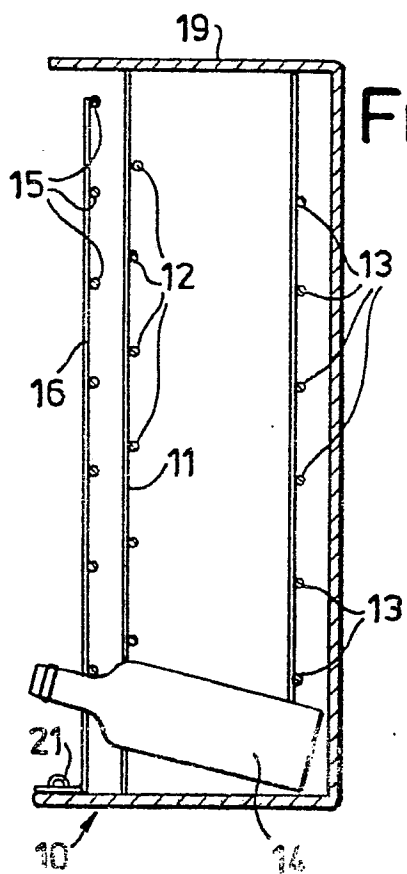


Fig.2.

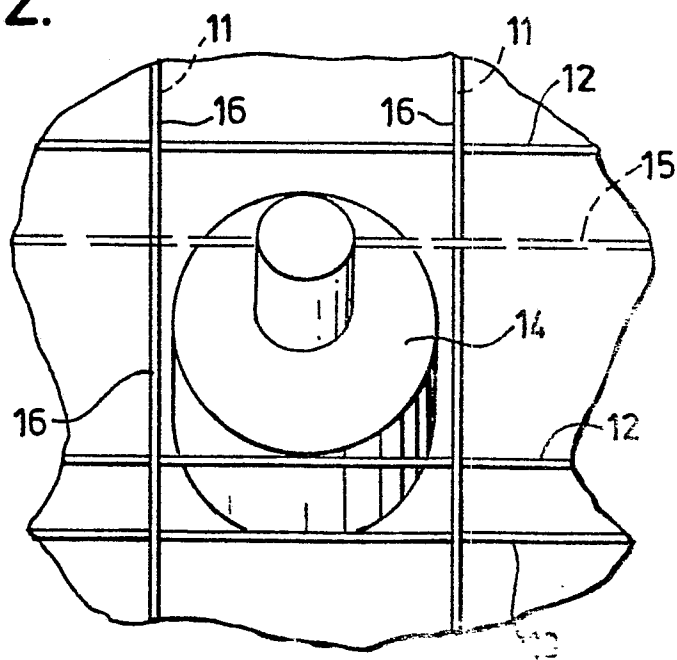


Fig.4.



European Patent
Office

EUROPEAN SEARCH REPORT

0017417

Application number

EP 80 30 0920

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>US - A - 3 464 748</u> (GREGORY) * Column 2, line 65 - column 3, line 63; figures 1,2 *	1-8	A 47 B 73/00
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	<u>US - A - 3 003 644</u> (HILDEBRAND) * Column 2, lines 3-22; figures 1,2 *	6,7	
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A	<u>US - A - 3 896 936</u> (NOTARIUS) -----		TECHNICAL FIELDS SEARCHED (Int.Cl. ³)
			A 47 B A 47 F
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
☒ The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	03-07-1980	SCHMITTER	