United States Patent

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[33] **Germany**
[31] **P 17 78 213.7**

[54] **MOVABLE STORAGE-UNIT ASSEMBLIES**
6 Claims, 2 Drawing Figs.

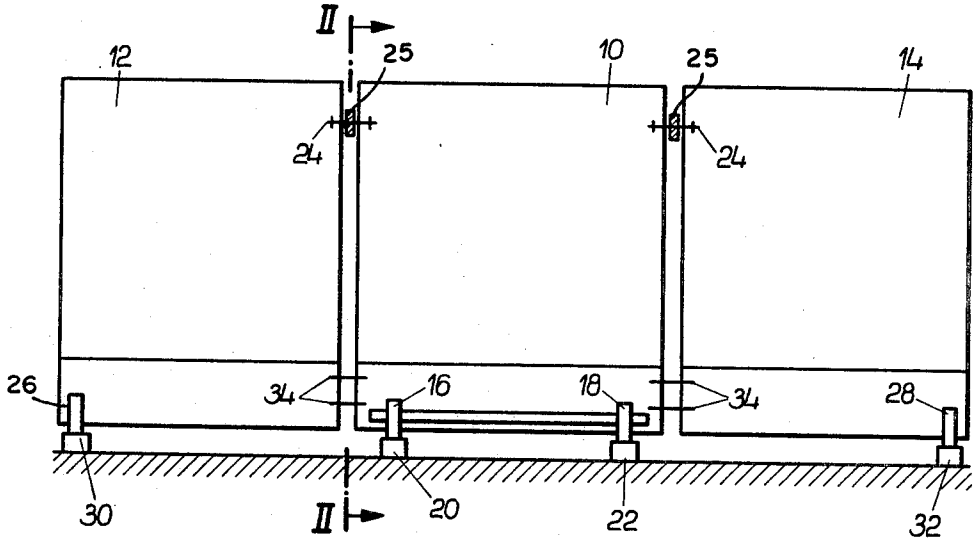
[52] **U.S. Cl.** **312/200**
[51] **Int. Cl.** **A47b 53/00**
[50] **Field of Search** 312/198, 199, 200; 109/49

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ABSTRACT: A movable storage unit assembly comprising a base storage unit having a pair of runners adapted to ride on a pair of parallel rails and first and second auxiliary storage units, each of the auxiliary storage units having one side attached to and supported by the base storage unit and the other side of each auxiliary storage unit having a runner adapted to ride on one of a second pair of parallel rails.



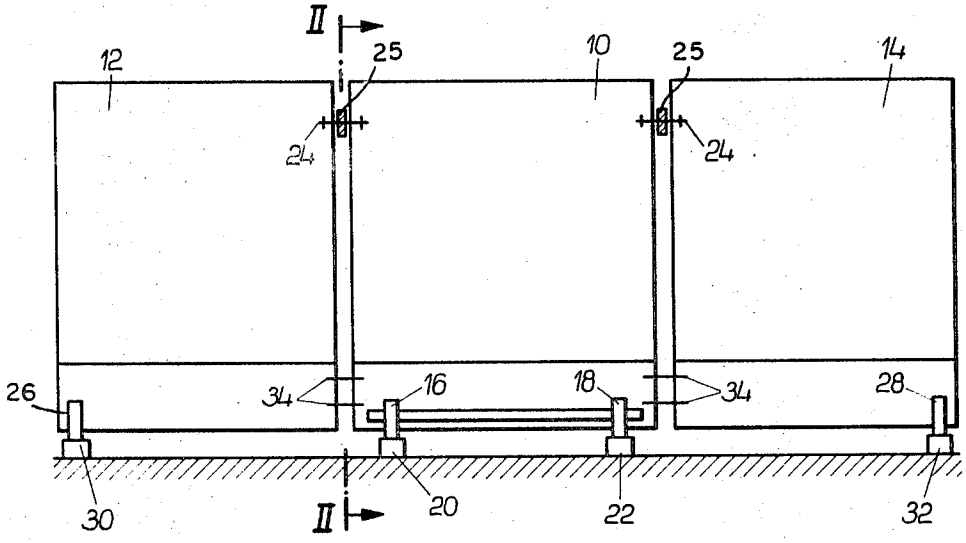

II
12
25
10
25
14
24
24
26
34
16
18
34
28
30
20
22
32
II

Fig. 1

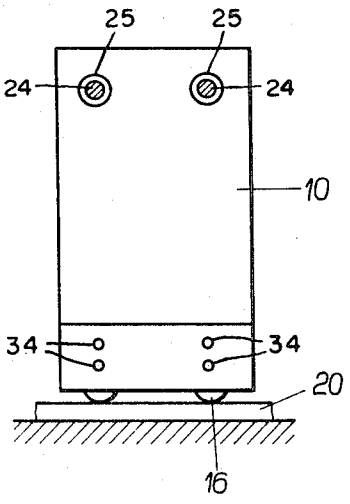

25
25
24
24
10
34
34
20
16

Fig. 2

MOVABLE STORAGE-UNIT ASSEMBLIES

BACKGROUND OF THE INVENTION

The present invention pertains to movable storage unit assemblies and more particularly to movable storage unit assemblies including a base storage unit and at least one auxiliary storage unit supported in part by the base unit.

Movable storage units are well known and widely utilized because they permit maximum utilization of storage space in restricted areas. Such storage units are particularly useful for shelves and cupboards. Since the storage units are movable the area necessary to store the unit and permit access thereto is equal to the total area of the movable storage units plus the access space necessary to remove and insert objects to be stored. That is, in order to remove or insert an object in one storage unit the other storage units are moved to provide an access space adjacent the one storage unit; and, accordingly, the access space may be provided adjacent any of the storage units.

When stationary storage units are utilized, access spaces must be provided adjacent each storage unit to permit removal and insertion of objects. Even though the number of access spaces may be reduced by placing two stationary units adjacent one another and providing the access spaces on the opposite sides, the amount of space required for the utilization of stationary storage units is undesirable where storage space is limited.

One disadvantage of conventional movable storage units is that they are relatively expensive in comparison with stationary storage units. Movable storage units normally incorporate a drive system which may be a central drive whereby all of the movable storage units are driven by a single motor by means of a cable or a chain, or an individual drive whereby each movable storage unit includes a motor. Conventional assemblies of movable storage units are extremely difficult to extend or expand, particularly those assemblies utilizing a central drive.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a movable storage unit assembly that avoids the disadvantages and expense of conventional movable storage units.

Another object of the present invention is to reduce the peripheral equipment necessary to support a movable storage unit assembly.

A further object of the present invention is to utilize a base storage unit of a movable storage unit assembly to support one side of an auxiliary or side storage unit.

The present invention has another object in that a base storage unit of a movable storage unit assembly is supported on runners riding on a pair of parallel rails and is utilized to provide support for the sides of a pair of auxiliary storage units each of which includes runners adapted to ride on one rail of a second pair or rails.

Some of the advantages of the movable storage unit assembly of the present invention over conventional movable storage unit assemblies are that the number of rails necessary to support the assembly is reduced, that the assembly may be disassembled for transportation purposes and to permit entrance into areas having narrow passageways through which an entire assembly could not be moved, that due to the simplified structure and reduction in peripheral equipment manual labor during installation is reduced to a minimum, that existing assemblies may be expanded or reduced without changing or altering the drive system in any manner whether a central, individual or hand drive is utilized, and that lateral storage space is fully utilized with a minimum of equipment and expense.

The present invention is generally characterized in a movable storage unit assembly including a base storage unit having runners disposed on both sides and adapted to ride on first and second parallel rails, and an auxiliary storage unit having a first side and a second side, means connecting the first side of the auxiliary storage unit with a side of the base storage unit, and a runner disposed on the second side of the auxiliary storage unit and adapted to ride on a third rail parallel to the first and second rails.

Further objects and advantages of the present invention will become apparent from the description of the preferred embodiment as shown in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic front elevational view of a movable storage unit assembly according to the present invention.

FIG. 2 is a schematic side elevational view of the assembly of FIG. 1 taken along lines II–II.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A movable storage unit assembly according to the present invention is shown in FIG. 1 and includes a base storage unit **10** and two side or auxiliary storage units **12** and **14**. Base storage unit **10** is supported on runners **16** and **18** disposed at either side of the unit, respectively, to ride on a pair of parallel rails or tracks **20** and **22**. As best shown in FIG. **2**, it is desirable to provide two runners spaced from each other in the direction of travel of base storage unit **10** on rails **20** and **22** in order to stabilize the unit and to prevent tipping.

Auxiliary storage units **12** and **14** are connected with base storage unit **10** for support by means of bolts **24** and **34**. Resilient means such as rubber springs may be utilized with or instead of the bolts and may be inserted between the side edges of base storage unit **10** and auxiliary storage units **12** and **14** in order to act as buffers between the base and auxiliary storage units and to permit slight variations in movement between the base storage unit and the auxiliary storage units without undue wear on the bolts **24** and **34** and the connections on the side edges of the units. Furthermore, the resilient connecting means compensate for unevenness in the foundation supporting the rails and permit the assembly to move around curves in the rails with little difficulty. Auxiliary storage unit **12** has a runner **26** disposed at the side opposite the side supported by base storage unit **10**, and runner **26** is adapted to ride on a rail **30** arranged in parallel with rails **20** and **22**. Similarly, auxiliary storage unit **14** has a runner **28** disposed at the side opposite the side supported by base storage unit **10**, and runner **28** is adapted to ride a rail **32** arranged in parallel with rails **20**, **22** and **30**.

Auxiliary storage units **12** and **14** are thus supported on only one side by runners and are supported on the other side by base storage unit **10**. Accordingly, the second rail normally required to support a storage unit is obviated thereby reducing the peripheral equipment necessary to install the assembly of the present invention. Clearly auxiliary units may be added or removed, as described, to provide an extremely flexible system.

Runners **16**, **18**, **26** and **28** may comprise any easily slidable surface; however, the runners are preferably wheels to reduce friction to a minimum. The stability of base storage member **10** in cooperation with the horizontal and vertically spaced bolts **24** and **34**, as shown in FIG. **2**, permit the use of only one runner with the side of each auxiliary storage unit without the danger of tipping; however, a plurality of runners spaced in the direction of travel of the auxiliary storage units may be utilized as a safety precaution.

The base and auxiliary storage units may take any conventional form and may include shelves and doors to facilitate storage and access. Base storage unit **10** may be utilized with only one auxiliary storage unit without causing imbalance due to the alignment of support bearings obtained by making the support structure for each storage unit identical except for the number of runners.

Inasmuch as the present invention is subject to many variations, modifications and changes in detail, it is intended that all matter described in the foregoing specification or

shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A movable storage unit assembly for use with a plurality of parallel rails comprising a base storage unit having a first side and second side, load-supporting runners disposed adjacent said first and second sides of said base storage unit and adapted to ride on first and second of said plurality of parallel rails, a first auxiliary storage unit having a first side and a second side, first means detachably connecting said first side of said first auxiliary storage unit with said first side of said base storage unit, and a first runner disposed adjacent said second side of said first auxiliary storage unit and adapted to ride on a third one of said plurality of rails parallel to the first and second rails.

2. An assembly as recited in claim 1 wherein said first means includes means for resiliently connecting said first side of said auxiliary storage unit to said first side of said base storage unit.

3. An assembly as recited in claim 2 wherein a second runner is disposed adjacent said second side of said first auxiliary storage unit, said second runner being spaced from the first runner in the direction of travel of said first auxiliary storage unit on the third rail.

4. An assembly as recited in claim 1 and further including a second auxiliary storage unit having a first side and a second side, second means connecting said first side of said auxiliary storage unit with said second side of said base storage unit, and a second runner disposed adjacent said second side of said second auxiliary storage unit and adapted to ride on a fourth one of said plurality of rails parallel to the first, second and third rails.

5. An assembly as recited in claim 4 wherein said first means includes means for resiliently connecting said first side of said first auxiliary storage unit to said first side of said base storage unit and said second means includes means for resiliently connecting said first side of said second auxiliary storage unit to said second side of said base storage unit.

6. An assembly as recited in claim 5 wherein a third runner is disposed adjacent said second side of said first auxiliary storage unit spaced from said first runner in the direction of travel of said first auxiliary storage unit on the third rail, and a fourth runner is disposed adjacent said second side of said auxiliary storage unit spaced from said second runner in the direction of travel of said second auxiliary storage unit on the fourth rail.