April 8, 1969 W. R. COBB 3,437,346

ROLLER STRUCTURE FOR SUPPORTING APPLIANCES AND THE LIKE

Filed May 4, 1966 Sheet 1 of 2

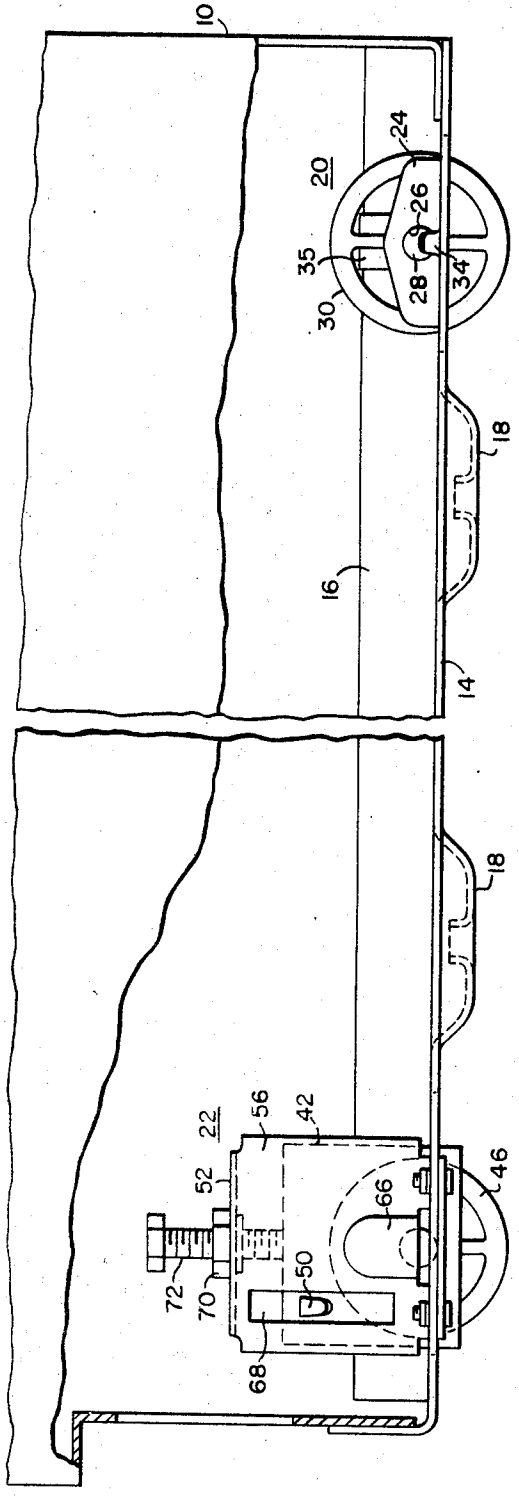


FIG. 1.

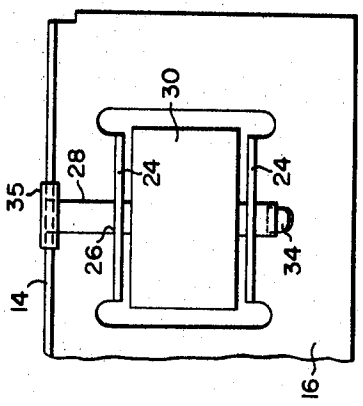


FIG. 2.

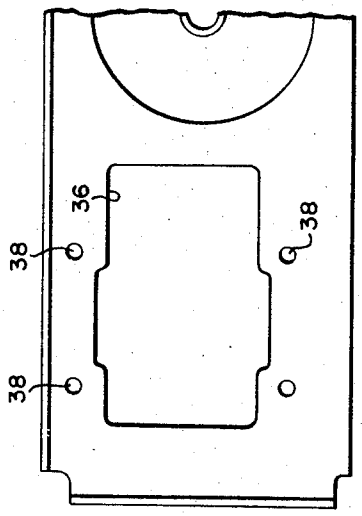


FIG. 3.

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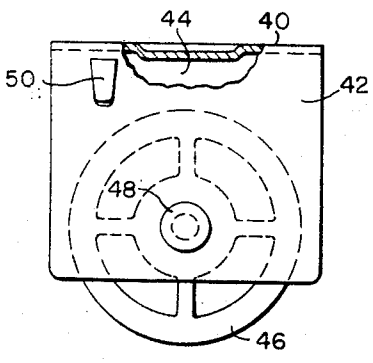


FIG.4.

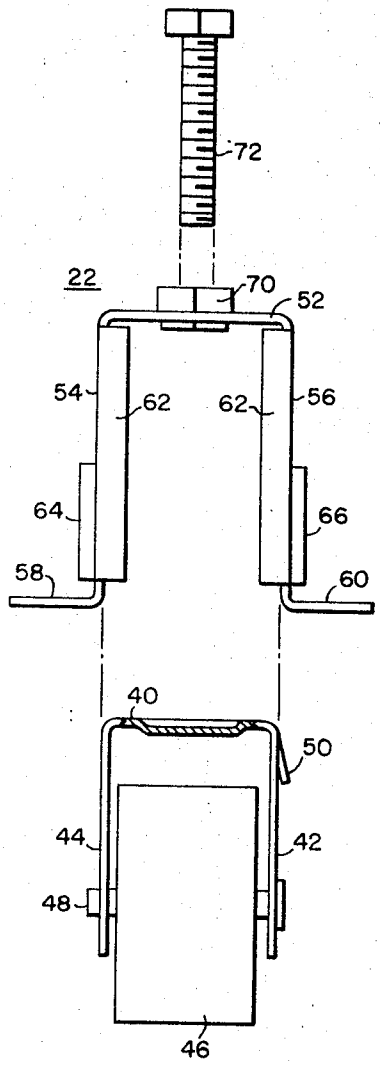


FIG.5.

WITNESSES

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3,437,346

Patented Apr. 8, 1969

3,437,346

ROLLER STRUCTURE FOR SUPPORTING APPLIANCES AND THE LIKE

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Filed May 4, 1966, Ser. No. 547,664

Int. Cl. B62d *21/18;* B60b *3/02*

U.S. Cl. 280—43.2 1 Claim

ABSTRACT OF THE DISCLOSURE

Appliance supporting roller apparatus in which one U-shaped member carrying a wheel is nested in another U-shaped member, the U-shaped members being adjustable vertically relative to each other by means of an adjusting bolt associated with the bights of both of said U-shaped members.

This invention relates to roller structure for supporting a refrigerator cabinet or the like structure to facilitate movement of the cabinet.

One object of the invention is the provision of a roller arrangement which is of a low cost and lends itself to installational as an optional accessory.

Another object is the provision of such a roller arrangement which is readily adjustable for leveling purposes.

In accordance with one part of the invention, a roller structure is provided which includes a downwardly-open, U-shaped housing in which is nested a downwardly-open, U-shaped carriage carrying a wheel and axle assembly from its legs. Vertically adjustable screw means are threadably secured to the bight of one of the other of the U-shaped member and bears against the other U-shaped member so that the carriage may be vertically adjusted within the housing. Means preventing the carriage from dropping out of the housing can be provided in the form of a closed end vertical slot in one of the housing legs adapted to receive stop means carried by the respective vertical leg of the carriage. The carriage may be guided in its vertical movement, and prevented from being displaced out of the generally open front and rear faces of the housing by providing inwardly-directed flanges along at least one diagonally opposite pair of vertical edges of the housing legs.

In accordance with another part of the invention the rear wheels supporting the refrigerator are arranged to be carried in non-adjustable fashion directly from a front-to-rear extending rail which is punched to provide an opening in which the wheel is situated, with the punched flanges journaling an axle for the wheel, and a punched tab being provided to prevent axial displacement of the axis out of its journaled position.

The invention will be described in connection with the accompanying drawing illustrating a currently preferred embodiment by way of example, and wherein:

FIGURE 1 is a fragmentary side view, partly in section, of a lower part of a refrigerator cabinet provided with roller means according to the invention;

FIG. 2 is a top view of a rear roller installed;

FIG. 3 is a fragmentary top view of the rail portion adapted to receive the adjustable front roller;

FIG. 4 is a side view of a carriage, and wheel and axle assembly installed thereon; and

FIG. 5 is an exploded view of the structure of FIG. 4 from the front, and of the housing and adjusting means.

For purposes of illustrating the invention in connection with a refrigerator cabinet, the lower portion of such a refrigerator cabinet **10** is shown. The structure defining the lower portion of the cabinet has a pair of front-to-rear extending rails rigidly secured thereto to its front and

rear members. The rails are generally L-shaped in lateral cross-section, and include an extended area base **14** and an upright flange **16**. The base is punched, embossed, drilled and otherwise worked to provide space to accommodate the wheels if they are used, and to provide front and rear bosses **18**, the rear bosses receiving leveling screws or bolts if wheels are not to be used. The roller assembly **20** shown at the rear of the cabinet is non-adjustable and accordingly may be carried directly from the rail by a simple, inexpensive structure. The vertically adjustable front roller assembly **22** is supported from the rail somewhat differently to permit vertical adjustment.

The means for supporting the rear roller assembly **20** (FIGS. 1 and 2) includes a pair of punched-up flanges **24**, each flange being provided with a hole **26** to receive the axle **28** upon which the rear wheel **30** is mounted. The axle is devoid of a head on either end. Thus in assembly the axle may be inserted through a hole in rail flange **16** aligned with holes **26**, then through one flange **24**, then the wheel and then the other flange **24**. The lanced tab **34** bent up out of the plane of the rail base stops the axle **28** against undue axial displacement in the one direction. The opposite end of the axle is prevented from displacement back through the upright flange **16** hole by a friction saddle clip **35** placed on the upright flange to cover the hole.

The front end of the rail is adapted to receive the adjustable front roller assembly **22** (FIGS. 1 and 3) in the punched-out opening **36**. Four holes **38** are provided adjacent the opening **36** to receive fasteners turned up from below through housing flanges to secure the housing to the rail.

Details of the structure of the adjustable front roller assembly in unassembled form are best shown in FIGS. 4–5. The carriage includes a horizontal bight portion **40**, and a pair of vertical legs **42** and **44** disposed as installed so that the carriage is generally open at the bottom and on its front and rear faces. The wheel **46** is carried by axle **48** which has its opposite end portions journaled in holes in the vertical legs **42** and **44**. One end of the axle **48** is provided with a head, and the other end may be cold headed over after the wheel and axle are installed in a carriage. One leg **42** of the carriage is also provided with a struck-out tab **50** which serves with cooperating housing structure to prevent disengagement of the carriage out of the bottom of the housing.

The housing as shown in FIGS. 1 and 5 is also U-shaped in cross-section and downwardly-open. The housing is dimensioned to slidably receive the carriage in nested relation in the housing. The housing includes a horizontal bight portion **52**, opposite vertical leg portions **54** and **56** and a pair of lateral mounting flanges **58** and **60** directed outwardly from the bottom edge of the respective legs. The flanges **58** and **60** are provided with holes which register with the holes **38** when the housing is inserted upwardly into the opening **36** of the rail (FIG. 1) for securement.

Each vertical edge of the legs **54** is provided with an inwardly-directed flange **62** (FIG. 5). The central lower portions of the legs **54** and **56** are provided with outwardly-embossed channels **64** and **66**, respectively, which provide space to accommodate the outward projection of the axle **48** of the carriage in the vertical movement of the carriage within the housing. The housing leg **56** as shown in FIG. 1 has a vertical slot **68** which receives the struck-out tab **50** of the carriage. The bottom closed end of the slot prevents disengagement of the carriage downwardly out of the housing.

The bight **52** (FIGS. 1 and 5) of the housing has a central aperture adapted to receive a stepped nut **70** which is inserted in the aperture and then has its lower part headed over to a degree to hold the nut securely in the

bight. The adjusting bolt **72** is threadably received in the nut **70** with the lower end of the bolt bearing against the carriage bight **40**.

The carriage may be very simply installed in the housing by simply flexing the opposite legs **54** and **56** of the housing apart slightly to permit the struck-out tab **50** to be received within the slot **68**. The housing is then installed in the front opening **36** of the rail by means of the fasteners previously referred to. The head of the bolt **72** may be reached through a front opening of the refrigerator cabinet (FIG. 1) and a ratchet type socket wrench or the like used to adjust the bolt **72** up or down to vary the relative position of the carriage within the housing for leveling.

The right angle aspect of the housing and carriage imparts sturdiness to the structure in handling and in use, and its simple character precludes, as a practical matter, incorrect installation and adjustment.

As noted before, displacement of the carriage and wheel out of the open bottom end of the housing is prevented by the struck out tab **50** engaging the bottom closed end of the slot **68**. Displacement of the carriage from front-to-rear relative to the housing is prevented by engagement of the vertical edges of the carriage legs **42** and **44** against the inwardly-directed flanges **62** along the vertical edges of the housing vertical legs.

The entire roller structure lends itself to low cost production, and to use as an optional accessory which may be readily installed either in the factory or later. The adjusting means bears directly against the carriage so that adjustment is directly effected rather than through any means such as levers and links typically requiring more parts and ones of more complexity.

When no rollers are to be used, the rear bosses **18** are provided with threaded leveler as noted before. To attach front levelers, the punched piece from hole **36** (FIG. 3) is oriented diagonally relative to the hole **36**, secured to the margins of the hole **36**, and a leveler turned up into a nut centered in the punched piece.

I claim as my invention:

1. In an appliance:

a roller assembly for supporting said appliance for rolling movement upon a floor, said roller assembly as a whole including

a first adjustable roller assembly comprising

a downwardly-open, U-shaped housing including a bight portion and a pair of vertical legs,

a downwardly-open, U-shaped wheel carriage including a bight portion and a pair of vertical legs nested in said housing for vertical movement therein,

said housing and said wheel carriage including integral structure cooperating to restrain relative movement between said housing and said wheel carriage,

a wheel and axle assembly carried by said vertical legs of said carriage,

means for adjusting the height of said carriage relative to said housing including a vertically-disposed screw member threadably carried by the bight of one of said U-shaped members, and bearing against the bight of the other of said U-shaped members;

a rail having an extended area horizontal web mounting said first adjustable roller assembly adjacent one end, said rail also having an upright edge flange with a hole therein through which a wheel axle may be inserted adjacent the other end of said rail; a vertically-stationary second roller assembly adjacent said other end of said rail;

said second roller assembly comprising

a wheel and axle, journaling members aligned with said hole in said upright edge flange and including a pair of spaced flanges integral with said web and bent up out of the plane of said web, and stop means also aligned with said hole in said upright edge flange and integral with said web and bent up out of the plane of said web to prevent axial displacement of said axle in one direction out of said journaling flanges, said upright edge flange carrying means after said axle has been inserted for blocking said hole to prevent axial displacement of said axle in the other direction out of said journaling flanges.

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