Jan. 10, 1950 J. WOJAKOWSKI 2,494,221

ROLLING SHELF

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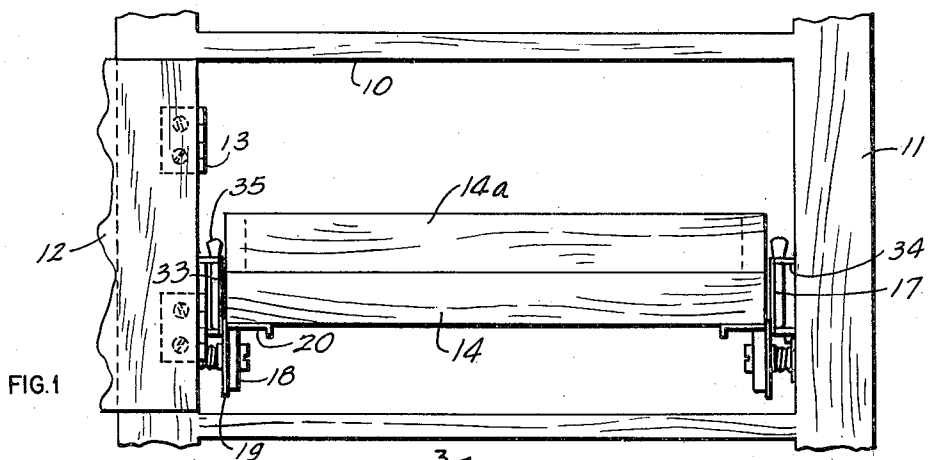


FIG.1

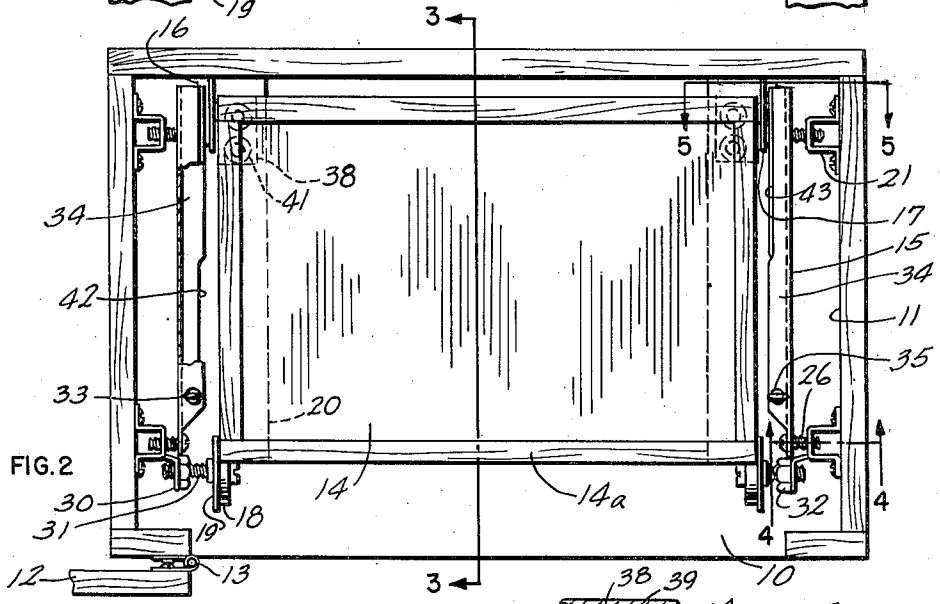


FIG.2

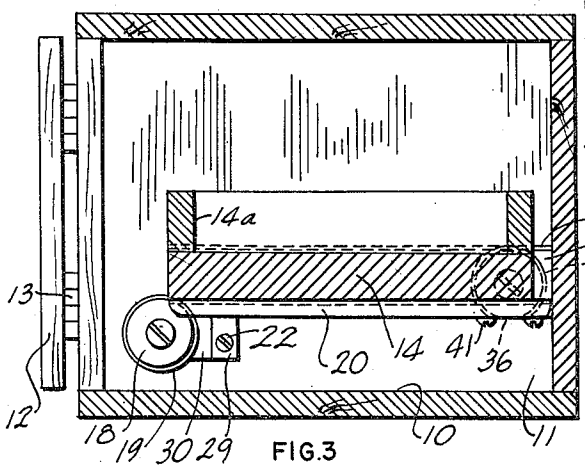


FIG.3

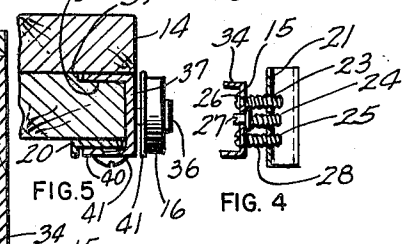


FIG.5 FIG. 4

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ROLLING SHELF

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11 Claims. (Cl. 45—77)

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My invention relates to rolling shelves of the type usually installed in file cabinets, tool chests, etc., and one object is to adapt a shelf of this type to cupboards, kitchen cabinets and other equipment usually containing solid shelves or lacking the same or a sufficient number thereof.

A further object is to provide a ready-made shelf installation which can be applied to wooden cabinets or cupboards with a mere screw driver as a tool, and with little extra work to a steel cabinet.

Another object is to design a rolling shelf installation which is in every sense a machine-type equipment, as distinguished from a make-shift or temporary expedient.

A still further object is to construct a rolling shelf installation which includes means to fit, adapt and adjust it to irregularities in the spacing and form of the cabinet or cupboard side walls between which the installation is mounted.

An important object is to provide a rolling shelf installation which is simple and durable in construction and operates with a high degree of efficiency.

With the above objects in view and any others which may suggest themselves from the description to follow, a better understanding of the invention may be had by reference to the accompanying drawing, in which—

Fig. 1 is a fragmental front view of a conventional cabinet or cupboard with its door wide open and containing the novel rolling shelf installation;

Fig. 2 is a plan view; and

Figs. 3, 4 and 5 are, respectively, sections on the lines 3—3, 4—4 and 5—5 of Fig. 2.

Referring specifically to the drawing, 10 denotes a typical compartment in a cabinet or cupboard whose side walls are indicated at 11, the door 12 being hinged at 13 to one of the side walls.

The shelf is indicated at 14 and is preferably made of wood and with a marginal rim 14a. It is disposed between two tracks 15 spaced inwardly from the walls 11, the tracks being of channel form and with facing hollows. The shelf carries a pair of rollers 16 at the rear, these being flanged at their inner ends as indicated at 17 and adapted to roll in the correspondingly-located tracks. At the front the shelf is designed to ride on a pair of rollers 18, these being flanged at their outer ends as indicated at 19; and the shelf carries metallic base strips 20 underneath and inwardly of its sides to provide a more durable medium in actual engagement with the rollers 18.

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The tracks 15 are supported from the side walls 11 by fundamentally identical front and rear brackets 21. Each bracket is in the shape of a horizontal arch whose feet abut the related side wall 11 and are secured to the same by screws 22. The crown of the arch is formed with a vertical series of three tapped holes 23, 24 and 25 opposite the adjoining track 15; and round-headed screws 26 are directed from the inner side of the track to thread into the holes 23 and 25. A headless screw 27 threads from the inner side of the track into the hole 24, such screw having an enlargement or flange 28 on the outer side of the track.

The shelf and adjoining tracks are designed as a unit of a suitable width to be received between the sets of brackets 21. Thus, the headless screws 27 are first partly threaded into the respective brackets and the tracks mounted on the nicked inner ends of these screws. The screws 23 and 25 are then driven to secure a hold in the brackets. The screws 27 are now backed or advanced, as the case may be, to procure the proper spacing between the tracks and the brackets while maintaining the co-operative relation or alinement of the tracks with the shelf. Thus, irregularities in the spacing, parallelism or form of the side walls 11 may be taken up by the adjustment of the screws 27. When this has been done, the screws 23 and 25 are advanced to firmly secure the tracks to the screws 27.

The frontal brackets 21 are extended downwardly as indicated at 29 and projected forwardly with inward angle flanges 30. These are perforated for the outward passage of screws 31 forming spindles for the frontal rollers 18. The adjustment of the screws 31 enables these rollers to be accurately alined with the sides of the shelf; and lock nuts 32 are provided for the screws 31 to fix the adjustment thereof.

A limit for the forward travel of the shelf is formed by a pair of vertical pins 33. These are slidably fitted in alined holes in the forward portions of the track flanges 34 and are flattened above the upper flanges to become expanded as indicated at 35 and keep from dropping through the tracks. The rear rollers 16 of the shelf meet the pins 33 when the shelf has advanced to the foremost position. However, the pins 33 may be easily lifted out to permit the shelf to be drawn clear of the tracks and out of the cabinet, such as for cleaning or repair.

The rear rollers 16 are made as independent units for easy application and adjustment relative to the shelf. Thus, each roller is journaled

on a headed pin 36 fixedly carried by a channel plate 37. The upper flange 38 of the latter is embedded in a horizontal recess 39 made in the side of the shelf, while the lower flange 40 lies under the related base strip 20. A pair of screws 41 are threaded upwardly through the flange 40 to bear against the said base strip, clamping the plate 37 to the shelf. It is apparent that the channel plates may be shifted in any direction to properly space or aline the rear rollers before the screws 41 are driven fast, so that the channel plates function in the manner of clamps.

The tracks 15 are designed in a manner to promote the easy travel of the rollers 16. Primarily, the flanges of these form stops in relation to the track flanges 34 while rolling along the same. However, the frictional engagement of the rollers with the track flange edges retards the free operation of the shelf to some extent, particularly when it is apparent that the friction of the rollers with the bottom flanges is in a reverse direction to that with the upper ones. The tracks are therefore formed to allow roller friction only with the top flanges along the foreparts of the tracks, and only with the bottom flanges along the rear parts thereof. This is done by correspondingly recessing the bottom flanges at 42 and the top ones at 43. The reason for so placing the recesses is due to the upward urge of the rollers 16 when the shelf is advanced and extends out of the cabinet with a slight overhang, and the downward pressure on the said rollers when the shelf is being backed into the cabinet and more of its weight bears on the rear rollers. Thus, the roller flange 16 will only contact one of the flanges of the tracks when the shelf assumes side sway during its travel, materially reducing the factors of friction and noise.

It will now be evident that the novel shelf installation not only contains means to aline or adjust the rollers 18 and 16 in respect to the sides of the shelf, but also has means for alining the tracks 15 for the true travel of the rollers 16 and adjusting the spacing of the tracks in respect to the side walls of the cabinet. At the same time, the installation comprises a set of ready-made machine fiittings which are easily applicable to any cabinet in which a shelf of commensurate size can be fitted. The drawing shows the shelf on a much smaller scale than the fittings in order that these may be illustrated clearly, and it is obvious that in an actual installation the fittings will occupy narrow spaces, allowing for a maximum practicable shelf width. Further, where the shelf and cabinet are of wood, only a screw driver is necessary to make the installation, making it possible for almost any owner of a cupboard to install a highly efficient rolling shelf or a number of such shelves in the same. However, little additional skill will be required to install a wooden shelf in a steel cabinet; and no undue skill would be required to adapt the installation to a steel cabinet receiving a metal shelf. Finally, it is apparent that the novel shelf installation is made up of few parts which are simple and capable of being produced at small expense.

While I have described the invention along specific lines, various minor changes or refinements may be made therein without departing from its principle, and I desire to consider such changes and refinements as coming within the scope and spirit of the appended claims.

I claim:

1. A rolling installation for a shelf between the side walls of a cupboard or the like, including guides alongside the shelf, front and rear rolling supports between the latter and the guides, and adjustable alining means for the rolling supports, the rear rolling supports comprising clamps applied to the sides of the shelf, a roller carried by each clamp, and means to adjust the latter laterally and angularly in relation to the corresponding side of the shelf.

2. A rolling installation for a shelf between the side walls of a cupboard or the like, including guides alongside the shelf, front and rear rolling supports between the latter and the guides, and adjustable alining means for the rolling supports, the rear rolling supports comprising channeled clamps slidably embedded with one of their flanges in the sides of the shelf and with their other flanges underlying the shelf, and screws threaded upwardly through such other flanges to bear against the bottom of the shelf and secure the clamps to the same.

3. A rolling installation for a shelf between the side walls of a cupboard or the like comprising guides alongside the shelf, rear rollers carried by the latter and operable along the guides, frontal rollers underneath the shelf, spindles for the frontal rollers carried by the guides, and means to adjust said spindles laterally in respect to the shelf.

4. The structure of claim 3, said frontal rollers being formed with rim flanges at their outer ends, and such rim flanges receiving the sides of the shelf between them.

5. The structure of claim 3, said guides comprising a pair of channel tracks with facing hollows and receiving the rear rollers within such hollows, and rim flanges on the inner ends of the rear rollers and forming stops in respect to the edges of the track flanges.

6. A rolling installation for a shelf between the side walls of a cupboard or the like, comprising a pair of channel tracks alongside the shelf and having facing hollows, frontal rolling supports for the shelf, rear rollers carried by the latter and operable in said hollows, such rear rollers having rim flanges at their inner ends serving as stops in respect to the edges of tht track flanges, and means restricting the frictional engagement of said rim flanges to either the lower or upper ones of said edges during the travel of the shelf.

7. A rolling installation for a shelf between the side walls of a cupboard or the like, comprising a pair of channel tracks alongside the shelf and having facing hollows, frontal rolling supports for the shelf, rear rollers carried by the latter and operable in said hollows, such rear rollers having rim flanges at their inner ends serving as stops in respect to the edges of the track flanges, and means restricting the frictional engagement of said rim flanges to the lower ones of said edges when the shelf travels in the rear part of the cupboard and to the upper ones of said edges when the shelf travels in the frontal part of the cupboard.

8. A rolling installation for a shelf between the side walls of a cupboard or the like, comprising a pair of channel tracks alongside the shelf and having facing hollows, frontal rolling supports for the shelf, rear rollers carried by the latter and operable in said hollows, such rear rollers having rim flanges at their inner ends serving as stops in respect to the edges of

the track flanges, the upper track flanges being narrower than the lower ones along the rear portions of the tracks to form clearances for said rim flanges when the shelf travels in the rear part of the cupboard and rests with its rear rollers on the lower track flanges, and the lower track flanges being narrower than the upper ones along the frontal portions of the tracks to form clearances for said rim flanges when the shelf travels out of the front of the cupboard with an overhang beyond said frontal rolling supports and urges said rear rollers against the upper track flanges.

9. A rolling installation for a shelf between the side walls of a cupboard or the like comprising supporting guides for the travel of the shelf alongside the same, brackets carried by said walls opposite the guides, and means to secure the latter to the brackets in adjustably spaced relation, said means comprising headless screws threaded in outward directions into the brackets and flanged shortly from their inner ends, the guides being perforated to receive the screw portions inwardly of thier flanges, and screws directed outwardly through the guides at points lateral to the headless screws and threaded into such brackets to secure the guides against the flanges of the headless screws.

10. A rolling installation for a shelf between the side walls of a cupboard or the like comprising supporting guides for the travel of the shelf alongside the same, brackets carried by said walls opposite the guides, and means to secure the latter to the brackets in adjustably spaced relation, said means comprising headless screws threaded in outward directions into the brackets and flanged shortly from their inner ends, the guides being perforated to receive the

screw portions inwardly of their flanges, and screws directed outwardly through the guides at points lateral to the headless screws and threaded into such brackets to secure the guides against the flanges of the headless screws, said brackets being arch shaped, and said screws threading into the crown of the arch.

11. A rolling installation for a shelf between the side walls of a cupboard or the like comprising supporting guides for the travel of the shelf alongside the same, brackets carried by said walls opposite the guides, and means to secure the latter to the brackets in adjustably spaced relation, said means comprising headless screws threaded in outward directions into the brackets and flanged shortly from their inner ends, the guides being perforated to receive the screw portions inwardly of their flanges, and screws directed outwardly through the guides at points lateral to the headless screws and threaded into such brackets to secure the guides against the flanges of the headless screws, said brackets being in the shape of horizontal arches, and said screws occurring in line and threading into the crown of the arch.

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