Sept. 8, 1970 R. M. SAUNDERS 3,526,995

ROLLER ASSEMBLY FOR SLIDING DOORS

Filed Feb. 3, 1969

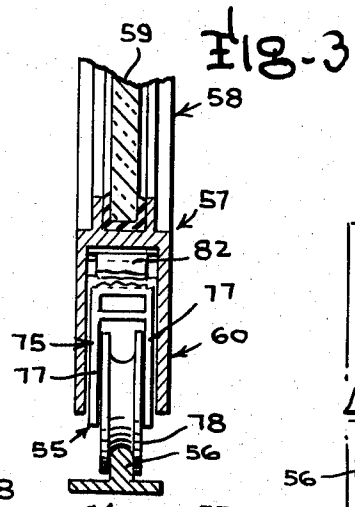


FIG-3

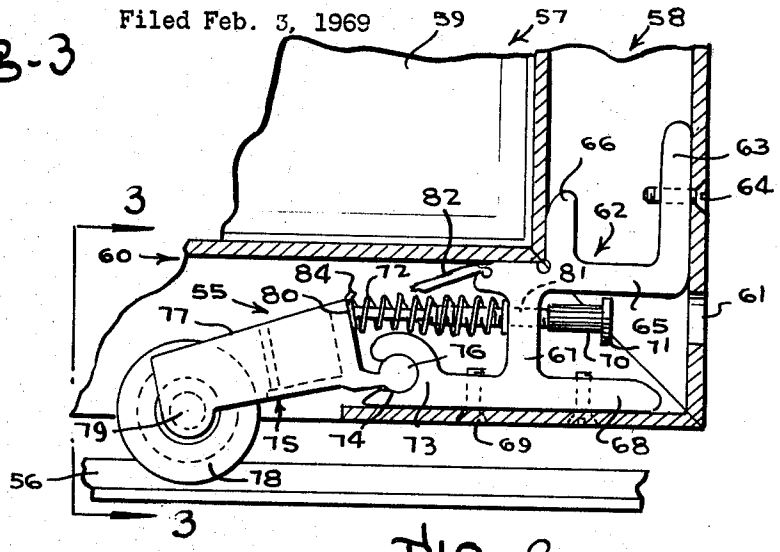


FIG-2

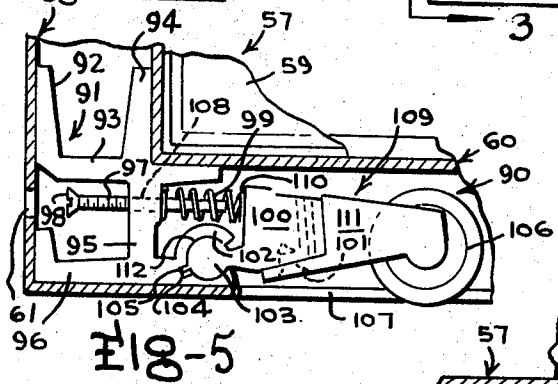


FIG-5

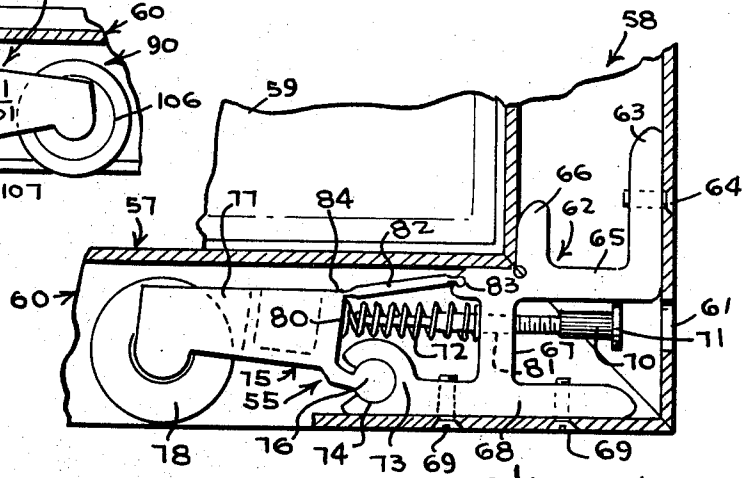


FIG-1

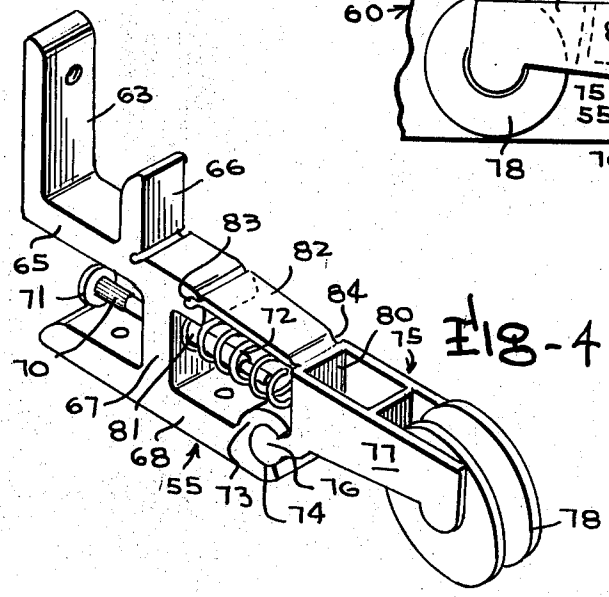


FIG-4

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ROLLER ASSEMBLY FOR SLIDING DOORS

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ABSTRACT OF THE DISCLOSURE

A sliding door roller assembly with a no-jump feature, and wherein there is provided a replaceable wheel housing and a spring-loaded mechanism for maintaining the parts in their proper location.

BACKGROUND OF THE INVENTION

Field of the invention

The present invention pertains to roller assemblies as defined in Class 20, subclass 19, and Class 49, subclass 425.

Description of the prior art

The prior art includes the following prior patents: 3,040,391, 3,060,524, 2,980,947, 3,298,136, 3,175,255.

Some of the differences or advantages that the present invention has over these prior patents is as follows:

The roller assembly for sliding doors of the present invention has a no-jump feature, and wherein there is provided a means for replacing the wheel housings, the roller assembly adapted to be used for various types of sliding doors, such as sliding screen doors, patio doors and the like. In addition, there is provided a spring-loaded mechanism for helping prevent the device from jumping its track, and wherein there is provided an improved adjustable feature, and there is also provided a means for facilitating initial installation of the door in its framework.

SUMMARY OF THE INVENTION

In accordance with the present invention there is provided a roller assembly for sliding doors which includes a bracket having a member pivotally connected thereto, and wherein a wheel housing is detachably or removably connected to the assembly, there being a screw member which permits adjustment of the parts to the desired location, and wherein there is provided a means for initially retaining or maintaining the wheel housing and associated parts in their raised position until the door is mounted or positioned in the frame whereby the parts can be subsequently adjusted to move the wheel down into engagement with its track.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view, with parts broken away and in section, illustrating the retaining means in its initial position.

FIG. 2 is a view similar to FIG. 1 but showing the parts in a different position.

FIG. 3 is a sectional view on line 3—3 of FIG. 2.

FIG. 4 is a perspective view of the roller assembly of FIGS. 1 through 3, per se.

FIG. 5 is a fragmentary sectional view illustrating a modification.

Referring now to FIGS. 1 through 4 of the drawings, there is illustrated a roller assembly which is indicated generally by the numeral **55**, and the numeral **56** indicates a portion of a horizontally disposed track, while the numeral **57** indicates a portion of a sliding door, the door **57** includes vertically disposed spaced parallel side members **58**, a panel **59**, and a bottom rail **60**. The side members **58** may have apertures or openings **61** therein for the

insertion therethrough of a portion of a screwdriver or other tool. The numeral **62** indicates a bracket or casting which includes a vertically disposed first leg or portion **63** which engages an inner surface of the member **58**, and which may be secured in place by a securing element such as a screw **64**. The bracket **62** further includes a horizontally disposed second portion **65**, as well as an upstanding portion **66** which may be defined as a third portion **66**. The bracket **62** also includes a depending vertically disposed fourth portion or leg **67** as well as a horizontally disposed fifth portion or leg **68** which is adapted to be secured in place by a securing element such as the screw **69**.

The numeral **70** indicates an adjustable screw member which has a head **71** thereon that is adapted to be engaged by a screwdriver or tool extended through the aperture **61**. A spring member or coil spring **72** has one end circumposed on a portion of the screw member **70**, and the other end of the coil spring **72** abuts or engages a cross-piece **80** of an adjustable base unit **75**. The numeral **73** indicates an enlargement or shoulder on the portion **68** of the bracket **62**, and the enlargement **73** has an arcuate recess **74** therein. The base unit **75** has an integral rounded tongue **76** which is adapted to rockably or pivotally engage the recess **74**. Base unit **75** further includes side portion **77**, and the numeral **78** indicates a wheel or roller which is journalled between the side portions **77** as at **79**, and the roller **78** is adapted to engage or move along the track **56**. The portion **67** of the bracket **62** has a threaded aperture or opening **81** therein through which extends the screw member **70**. The numeral **82** indicates a rupturable tab or tongue which is adapted to be initially connected to the bracket **62** as at **83**, and initially the other end of the tongue **82** is connected to the base unit **75** as at **84**, and this initial position of the parts is illustrated in FIG. 1. At the proper time, the parts can be adjusted so that the tongue **82** will separate at the point **84** from the base unit **75** so as to permit the roller assembly to move to its lower operative position after the door has been installed. This arrangement permits or facilitates installation of the door in its door frame inasmuch as the door can be readily installed in the door frame with the roller in raised position as shown in FIG. 1, whereby subsequently the parts can be adjusted or moved so that the roller assembly moves to its lowermost position so that the roller or wheel engages the track in order to permit the sliding door to move back and forth in the desired manner.

From the foregoing, it will be seen that there has been provided a roller assembly for sliding doors, and in use with the parts arranged as shown in the drawings, initially the parts may be in a position such as that shown in FIG. 1 so that the wheel or roller and associated parts are arranged within the lower portion or bottom rail portion of the door. With the parts in the position of FIG. 1, the door can be readily installed or inserted in its frame, and because the wheel or roller **78** is in the retracted position of FIG. 1 there will be no interference with placement of the door in its frame. After the door has been inserted in the frame, the parts can be adjusted or moved so that they occupy a position such as that shown in FIG. 2, whereby the roller will engage the truck so that a door can slide back and forth along the track in the desired manner.

Attention is now directed to FIGS. 1 through 4 wherein it will be seen that there is provided a roller assembly **55** which has a no-jump feature. In the arrangement of FIGS. 1 through 4, the bracket **62** is adapted to be snugly mounted within each lower corner portion of a sliding door such as the door **57**. With further reference to the roller assembly **55**, the bracket **62** may be secured in place in the corner of the door by means of securing elements, such as the securing elements **64** and **69**, and

initially when installing the door **57** in the door frame or in the proper position above the track **56**, the parts are in the position shown in FIG. 1, and this serves to assure that there will be sufficient clearance to facilitate mounting or installation of the door inasmuch as the roller **78** will be in a retracted or upward position. After the door has been mounted in its proper position above a track, such as the track **56**, a tool such as a screwdriver can be arranged so that the shank or tip of the screwdriver is easily and readily inserted through the opening **61** to engage the head **71** of the screw member **70**, so that the screw member **70** can be rotated or turned inwardly in the threaded opening **81** in the portion **67** of the bracket **62**, and this will cause the inner end of the screw member **70** to bear against a portion such as the portion **80** of the base unit or wheel housing **75** so that the unit **75** can pivot or rotate about an axis extending through the portion **76** and the portion **76** can rotate or swivel in the recess **74** or the enlargement **73**. This will cause the tab or tongue **82** to rupture or break such as at the point **84** so that the parts will move downwardly from the position shown in FIG. 1 to the position shown in FIG. 2, whereby the wheel **78** will properly engage the track **56**. The coil spring **72** serves to exert the proper amount of pressure on the unit **75** so as to maintain the wheel or roller **78** in engagement with the track **56** so that the roller will not jump off the track, whereby the door will slide back and forth in the proper and desired manner.

It will be seen that the tongue **82** thus provides a means for initially and selectively retaining or maintaining the wheel **78** in its housing **75** in raised position until the door has been installed in its proper location, whereby the screw member **70** can then be adjusted or rotated to rupture the tongue or tab **82** at a point such as the point **84** so that the spring can maintain the wheel downward and below the lower edge portion of the door.

It is to be understood that the parts can be made of any suitable material and in different shapes and sizes as desired or required.

Also, it will be seen that in accordance with the present invention there has been provided a roller assembly for a sliding door which is rugged in construction and economical to make or manufacture as well as being efficient to use and in addition the roller assembly is convenient and foolproof in operation as well as being easily and readily adjustable.

It will be seen that with the present invention the members such as the tab or tongue **82** hold the roller up inside the door until it is desired to release the roller, and this makes it easier to install or mount the door in place because there are no downwardly projecting parts that will get in the way of door installation. After the door is in position, the tab or tongue can be moved or released to permit the roller and associated parts to move downwardly as previously described. With the present invention, the parts cannot be put in place incorrectly and there are a minimum number of parts which are ruggedly constructed. Also, the present invention is not limited to any particular configuration or construction of door. Other or alternative ways can be used for maintaining the roller in retracted position until it is desired to have the roller engage the track. The device is spring-loaded whereby the spring keeps the roller from jumping the track after the assembly has been properly adjusted. Due to the provision of the interengaging portions, the parts cannot be put together in improper manner since there is only one way that they will fit together. The parts can be molded, cast or stamped, or they can be made of solid materials, and in a very short period of time the wheel and wheel housing can be replaced without the necessity of removing the entire assembly, merely by removing screw **50**, and this can be done without dismantling any other portion of the door.

The present invention is light in weight and is specially convenient to use on screen doors and the like.

Referring now to FIG. 5 of the drawings, the numeral **90** indicates a roller assembly for a sliding door such as the sliding door **57**. The door **57** may include vertically disposed spaced parallel side members **58**, a panel **59**, a bottom rail **60** having a cutout or opening **107**, and the side members **58** have openings **61** therein for the insertion therethrough of a portion of a screwdriver or other tool.

As shown in FIG. 5, the roller assembly **90** includes a bracket **91** which includes a first leg or portion **92** that is vertically disposed, and the bracket **91** further includes a horizontally disposed second portion **93**, as well as an upstanding third portion **94**. The bracket **91** also includes a vertically disposed fourth portion or leg **95** which has a threaded opening **108** therein. The bracket **91** also includes a horizontally disposed portion or leg **96**. As shown in the drawings, there is provided a screw member **97**. The screw member **97** has a head **98** on the outer end thereof. The numeral **99** indicates a coil spring which has one end circumposed on a portion of the screw member **97**. The roller assembly **90** further includes a support member **109** that embodies or includes a body piece **100**, as well as a base element **111**, and the pieces **100** and **111** are adapted to be fastened together as, for example, by means of securing element **101**. The coil spring **99** has an end hereof abutting a surface or portion **110** of the body piece **100**. The portion **96** of the bracket **91** has a shoulder or rounded portion **102**, and the shoulder **102** has an inner recess **112**. The numeral **103** indicates a rounded tongue which is integral with the body piece **100**, and the tongue **103** is adapted to selectively, rockably and pivotally move in the recess **112**. The tongue **103** has a rupturable tab **104**, and the shoulder **102** is provided with a groove **105** for selectively receiving the tab **104**. The numeral **106** indicates a wheel or roller which is journaled in the base element **111**.

It will, therefore, be seen that when using the roller assembly **90** of FIG. 5, initially the parts are in the position of FIG. 5 so that the tab **104** is seated in the groove **105**. At the proper time the parts can be adjusted so that the tab **104** will rupture or separate from the tongue **103** so as to permit the roller assembly to move to its lower operative position partially through the cutout **107** after the door has been installed. This will permit installation of the door in its door frame with the roller in raised position as shown in FIG. 5. Subsequently, the parts can be adjusted or moved so that the roller assembly moves to its lowermost position whereby the roller or wheel **106** will engage the track therebelow in order to permit the sliding door to move back and forth as desired or required. As shown in FIG. 5, it is only necessary to insert a tool such as a screwdriver through the opening **61** to engage the head **98** so as to rotate the screw member **97** whereby the inner end of the screw member **97** will bear against or engage a portion such as the portion **110** of the body piece **100**, and when sufficient slight pressure has been applied in this manner, the tab **104** will rupture from its tongue **103** so that the coil spring **99** will bias or urge the support member **109** to a down position, after the door has been installed. Thus, the coil spring **99** functions to provide a no-jump feature to the assembly due to the fact that the wheel **106** will be urged or biased into engagement with its track in such a manner that the ability of the wheel **106** to jump from its track will be minimized or eliminated.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and apparatus.

What is claimed is:

1. In a no-jump roller assembly for sliding doors, a bracket, a pivotally mounted wheel housing operatively

connected to said bracket, spring means operatively connected to said wheel housing, and retaining means for selectively maintaining the wheel housing in raised position, said retaining means comprising a rupturable tongue.

2. In a roller assembly for a sliding door, in combination with a horizontally disposed track, said sliding door including vertically disposed side members having apertures therein, said door further including a horizontally disposed bottom rail, a bracket including a vertically disposed first portion, a horizontally disposed second portion, an upstanding third portion, a depending fourth portion, and said bracket further including a horizontally disposed fifth portion, there being a threaded opening in said fourth portion of the bracket, a screw member extending through said last-named opening, a coil spring circumposed upon said screw member, a base unit engaging the other end of the coil spring opposite to the end on the screw member, a wheel journalled in said base unit, an enlargement on the fifth portion of said bracket and said enlargement having an arcuate recess therein, said base unit having a rounded portion swivelly engaging said last-named recess, and a rupturable tongue operatively connecting said base unit to said bracket.

3. In a roller assembly for sliding doors, a bracket, an adjustable screw member connected to said bracket, a coil spring circumposed on a portion of said screw member, a support member having said coil spring engaging a portion thereof, a shoulder on said bracket and said shoulder having a recess therein, said support member having an integral rounded tongue for selective rockable movement in said recess, a rupturable tab on said tongue, there being a groove in said shoulder for receiving said tab, and a roller connected to said support member.

4. The structure as defined in claim 3, wherein said bracket includes a first vertically disposed portion, a horizontally disposed second portion, a vertically disposed third portion, a depending fourth portion having a threaded opening therein for receiving said screw member, and said support member including a body piece and a base element connected together.

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J. KARL BELL, Primary Examiner

U.S. Cl. X.R.

16—91; 49—425