Dec. 9, 1952 W. HACHTEL 2,620,507

ANTIFRICTION CURTAIN HANGER

Filed Oct. 14, 1949

Fig.1.

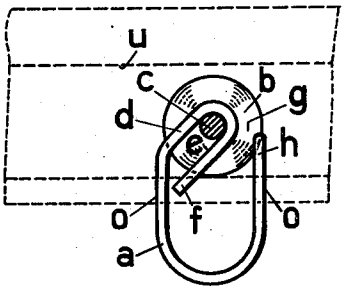


Fig.2.

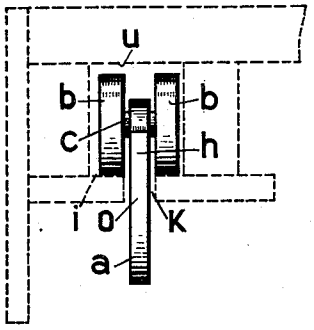


Fig.3.

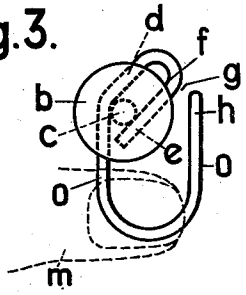


Fig.7.

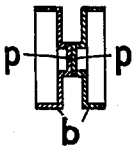
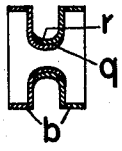


Fig.8.



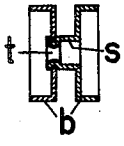


Fig.9.

Fig.4.

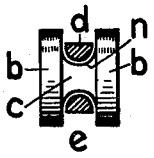
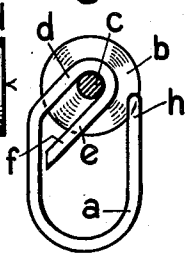


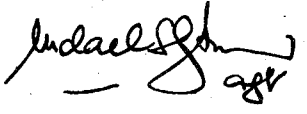
Fig.5.



Fig.6.



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ANTIFRICTION CURTAIN HANGER

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5 Claims. (Cl. 16—87.6)

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The present invention relates to suspending means for curtains of the horizontally shiftable type and is particularly directed to suspending means of this kind consisting of pairs of rollers to which the curtain is secured with the aid of hook-like fastening means.

Known suspending means of this type have the disadvantage that, when the curtain is pulled along on the rollers the fastening means are forced into strongly oblique position, whereby the curtain is frequently thrown off the hooks.

The aforesaid drawback is obviated by the present invention. According to the invention the hook-like fastening members are loosely and shiftably suspended from the axles of pairs of rollers by means of a long-hole-loop extending from the upper end of one of the shanks of the hook in obliquely ascending direction toward the vertical centre of the hook in such a way that between the upper end of the looped portion and the upper free end of the other shank of the hook a gap is created, which, when the fastening members are suspended from the axles is laterally closed up by the side-walls of the pairs of rollers.

For fastening the curtain to the fastening member, the latter is held between two fingers, whereupon the appertaining roller automatically slips down in the long-hole-loop, so that the gap between the upper end of the loop and the free end of the hook is laid bare for the curtain to be fastened thereto. After the fastening to the hooks has taken place, the suspending members, i. e. the rollers and fastening members suspended therefrom, are pushed into the guide passage of the guiding and operating means. When this is being done the fastening members or hooks will automatically slip down in the long-hole-loop, so that the gap between the free end of the hook and the long-hole-loop is laterally closed up again by the side-walls of the rollers, whereby unintended slipping of the curtain from the hooks is made impossible.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings, forming a part of this invention, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings, but may be changed or modified, so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings, in which similar characters

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of reference indicate corresponding parts in all of the several figures,

Fig. 1 is a front elevation of the suspending means, with one of the rollers removed for clearness of illustration;

Fig. 2 is a side elevation of the suspending means;

Fig. 3 is a front elevation of the suspending means with the fastening member shifted into fastening position;

Fig. 4 shows, partly in section, a pair of rollers provided with an inwardly curved axle embraced by a fastening wire or semi-rounded cross-section;

Fig. 5 is a side elevation of the suspending means provided with a fastening wire of partly flattened formation;

Fig. 6 is a front elevation of the construction of Fig. 5 with one of the rollers removed;

Figs. 7 to 9 are cross-sections through pairs of rollers provided with different types of axles.

Referring now to the drawings in detail, the reference character *l* denotes the guiding means provided in known manner with the guide passage *u* in which the pairs of rollers *b* are guided. The rollers *b* are supported in the guide passage *u* by means of the inwardly projecting supporting members *i*, serving as a runway for the rollers *b*. The pairs of rollers are held together and spaced apart with the aid of the axle *c*. Secured to the axles *c* of the rollers *b* are the fastening members *a*, which are equipped with a looped portion *e* by means of which they are loosely and shiftably suspended from the axles *c*, so that the easy rotation of the rollers in the looped portion is not interfered with. The fastening members *a* are of hook-like or U-shaped formation and are suspended from the axles *c* in such a way that they project from the guide passage *u* through the slot *k* between the supporting members *i*. According to the invention the looped portion *e* of the U-shaped fastening members *a* extends from one of the upper ends of the shank-portions *o* in obliquely ascending direction towards the vertical centre of the fastening members. The looped portion consists of the bent portions *d* and *f* positioned approximately parallel to each other and forming between them the long-hole-loop *e*. The free end *h* of the other shank portion *o* forms the hook by means of which the curtain is hooked to the fastening members *a*. Between the end *h* and the bent portion *f* of the looped portion *e* is the gap *g* which, when the fastening member *a* is in the position illustrated in Fig. 1 is laterally closed up

by the pair of rollers *b*, but which, when the fastening member is held between the fingers *m*, so that the axle of the rollers slips down in the loop *e*, is accessible, as shown in Fig. 3, permitting thereby the curtain to be slipped onto the fastening member *a*.

After the curtain has been secured to the fastening members, the rollers are pushed into the guide passage *u*, whereupon, when the rollers are rolling along on the supporting members *i*, the fastening members *a* automatically slip back in the oblique long-hole *e* into the position illustrated in Fig. 1, in which the gaps *g* are again laterally closed up by the side-walls of the rollers *b*.

The straight-lined shank portions *o* are so positioned that they extend in vertical direction and act as shock absorbers when during the operation of the suspending mechanism some of the suspending members are forced into contact with one another. Moreover, the rollers *b* are of somewhat smaller size and diameter than the distance between the shock absorbing outer surfaces of the shank portions *o*, so that, when the suspending members are pulled against one another, no jumping of one roller over another roller can take place.

The fastening members *a* may consist of wire having either a rectangular or a semi-rounded cross-section. In case the fastening members *a* are made of wire having a rectangular cross-section, the rollers *b* should be provided with axles of cylindrical shape. See Figs. 2, 7, and 9. On the other hand, if the fastening members consist of wire having a semi-rounded cross-section, the fastening members have to be bent in such a way that the rounded portion of their surface is on the inside, while the flat portion of their surface is on the outside of the loop *e*. In the latter case the rollers have to be provided with axles *c* of inwardly curved formation, as indicated in Figs. 4 and 8. The fastening members *a* are so devised, with respect to the distribution of their weight, that the shock absorbing portions *o* are extending in vertical direction when the fastening members are suspended from the axles *c*.

The curtain may be secured to the fastening members either directly or with the aid of detachable intermediate fastening means.

According to the form of construction illustrated in Figs. 5 and 6, the bent portions *d* and *f* have been flattened. The consequence is that the axles are shorter and the rollers wider, while the total width of the pairs of rollers including the axles remains the same. This has the advantage that the weight of the rollers and the efficiency of operation of the device have been increased.

It is further possible to manufacture the fastening members *a* and their long-hole-loops *e* through punching from sheet-metal or any other suitable material.

The same applies to the rollers, which likewise may be produced from sheet-metal. According to Fig. 7 the axles consist of two halves *p* pressed integral with the rollers from sheet-metal and thereupon fastened together through welding or riveting. According to Fig. 8, portions of sheet-metal *q* and *r* have been forced out of the material of the rollers and then slipped onto each other and united through pressing. In the modification illustrated in Fig. 9 the axle *s*, forced out of the material of one of the rollers, has been provided with an extension *t*, which then is inserted into a hole of the other roller and secured to the latter through pressing.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a suspending device for a curtain of the horizontally shiftable type, the combination of a pair of rollers secured together by means of an axle, and a hook-like fastening member adapted to extend substantially in the plane of the curtain and having one of its ends extending in obliquely ascending direction toward the vertical line of symmetry of said fastening member and bent in such a way that an elongated closed loop-shaped portion is created in the same plane by means of which said fastening member is loosely and slidingly, but undetachably suspended from said axle and manually shiftable from a lower operative position to an upper inoperative position, said fastening member being shaped in such a way that between said elongated closed loop-shaped portion of said fastening member and the other end of its hook-like body a gap is formed which, when said fastening member is suspended from said axle in said lower operative position, is laterally closed up by the inner lateral faces of said pair of rollers while being accessible in said upper inoperative position.

2. A suspending device for curtains as specified by claim 1, in which said elongated closed loop-portion is shaped in such a way that the longer-sides of said loop-shaped portion extend in substantially parallel direction to each other and thus form a guide-way in which said axle is slidingly, shiftably and rotatably positioned.

3. A suspending device for curtains as specified by claim 1, in which said axle is of inwardly curved surface formation, and in which said fastening member consists of wire having a semi-rounded cross-section and bent in such a way that the rounded portion of its surface engages the curved surface portion of said axle so as to be guided therein, while the flat surface portion on the opposite side of the wire acts as shock absorbing surface.

4. In a suspending device for a curtain of the horizontally shiftable type, the combination of a pair of rollers secured together by means of an axle; and a hook-like fastening member adapted to extend substantially in the plane of the curtain and having one of its ends extending in an obliquely ascending direction towards the vertical line of symmetry of said fastening member and bent in such a way that an elongated closed loop-shaped portion is formed in the same plane by means of which said fastening member is slidably, but undetachably suspended from said axle and manually shiftable from a lower operative position to an upper inoperative position, said fastening member being shaped in such manner that between said elongated closed loop-shaped portion of said fastening member and the other end of its hook-like body a gap is formed which is laterally closed up by the inner lateral faces of said pair of rollers in said lower operative position, while being accessible in said upper inoperative position, the portion of said fastening member placed between said rollers being flattened and of reduced thickness comparing to the thickness of the portion of said fastening member projecting from said rollers, and slidably guided between said rollers whereby for a predetermined wheel base of said rollers the width of each of said rollers can be increased.

5. A suspending device for curtains as speci-

fied by claim 1 including the feature that said rollers and said axles are made of pressed sheet-metal.

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The following references are of record in the file of this patent:

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