This invention relates to traverse rods, and more particularly to curtain carriers employed in conjunction with traverse rods.

In the design and construction of carrier means for C-shaped rods, various problems are presented. It is highly desirable to provide carriers which slip freely and silently along the slot in the rear face of the C-shaped rod. Lightness, strength of construction, economy of materials and labor are also important problems. In general, it is an object of my invention to provide a one-piece molded carrier for C-shaped traverse rods which, at one and the same time, is light, strong, slides freely and silently in the rod, and requires no labor costs whatsoever in regard to assembly other than that involved in a single molding operation with a simple split mold.

Further objects and features of my invention will be understood and appreciated from a detailed description of a preferred embodiment thereof, selected for purposes of illustration, and shown in the accompanying drawings, in which:

FIG. 1 is a plan view from above of various carriers included in my invention illustrated in position on a C-shaped traverse rod of the telescoping type shown in dotted lines;

FIG. 2 is a view in front elevation of the carriers illustrated in FIG. 1;

FIG. 3 is a view in end elevation of the idler carrier on the left hand side of FIG. 1;

FIG. 4 is a plan view of the idler carrier shown in FIG. 3;

FIG. 5 is a view in rear elevation on an enlarged scale of the idler carrier shown in FIG. 4;

FIG. 6 is a view in perspective of a master carrier made in accordance with my invention;

FIG. 7 is a view in section and side elevation along the lines 7-7 of FIG. 6;

FIG. 8 is a plan view in section along the lines 8-8 of FIG. 6;

FIG. 9 is a perspective view of another form of master carrier made in accordance with my invention; and

FIG. 10 is a cross sectional view in side elevation along the lines 10-10 of FIG. 9.

My invention is embodied in the various forms in FIGS. 1 and 2 including an idler carrier indicated at 10, a plain master carrier indicated at 12, and an overlapping type master carrier indicated at 14. I will describe these three forms in the order given.

The idler carrier 10 is shown in more detail in FIGS. 3, 4 and 5. It includes in its general organization an upstanding body portion 16, a traverse or internal slide shoe support arm 18 carrying internal slide shoe supports 20 at each end, and a curtain support arm 22 mounted at the lower extremity of the body portion 16. The internal slide shoe support arm 18 is dimensioned vertically to fit in smooth sliding relation within the slot of a C-shaped traverse rod as is shown in end view in FIG. 3. On each of the arms 18 extending both above and below the same are internal slide shoes 20 positioned to abut the internal surface of the C-shaped rod above and below the slot traverse. The shoes 20 are provided with rounded surfaces opposed to the said internal surface of the C-shaped rod. In addition, the shoes 20 are positioned on the arm 18 laterally outwardly from the side edges of the body portion 16. This is necessary for the purpose of rendering the slide shoes 20 readily moldable by a simple split mold operation, and I have found that even though the slide shoes 20 are not placed in direct opposed relationship opposite to the external slide shoes 26, 28, the carrier works in an entirely satisfactory manner from an operational point of view.

The internal slide shoe support arm 18 is provided internally with a transversely extending draw-cord groove 24. When the idler carrier 10 is in position on the C-shaped traverse rod, the groove 24 is adapted to receive a draw-cord and permit the same to pass up and down the rod to the front of the idler carrier 10.

The body portion 16 is further provided with an upper external slide shoe portion 26 and a lower external slide shoe portion 28, respectively positioned adjacent to the upper and lower surface of the slot of the C-shaped traverse rod, but spaced therefrom a sufficient distance to permit free sliding along the rod, as well as free transfer from one to another of two rods in telescoping relation. It will be understood furthermore for purposes of simplicity of molding that the external slide shoes 26 and 28 are both located inwardly of the innermost margins of the internal slide shoes 20.

The curtain support arm is formed integrally with the lower extremity of the body portion 16 comprising an arm portion indicated at 22, a vertically extending front flange 25, and a pair of side flanges 29, each of which extends to the rear and continues upwardly along the side margins of the body portion 16. The flanges 29, therefore, form both a buttress for the curtain support arm 22 and a reinforcement for the body portion 16, as well as supporting the upper external slide shoe portion 26 and the vertically extending front flange 25.

Turning now to FIG. 6, the overlapping master carrier 14 will now be described. Essentially it includes the same general elements as the idler carrier 10 with certain modifications. Thus it will be seen that the master carrier 14 employs a body portion 30, an internal slide shoe support arm 32, internal slide shoes 34 mounted on each outer end of the arm 32, a lower external slide shoe 36, upper external slide shoes 38, 39, and 40, a curtain support arm 42 buttressed and reinforced by flanges 44 which likewise extend upwardly and to the rear to reinforce and buttress the body portion 30. In addition, the master carrier 14 is provided with a draw-cord groove 46 similar in nature and function as the draw-cord groove of the idler carrier 10. The principal distinctions between the master carrier 14 and the idler carrier 10 relate to mechanism for securing a draw-cord thereto and to the size and position of the curtain support arm 42. With the master carrier 14, the upper external slide shoe is notched in two places at 48 by deep grooves which extend down and communicate with the draw-cord groove 46 in such a way that the draw-cord may be drawn through the notches around to the back of the body portion 30. With the draw-cord back in this position it may also be looped under a draw-cord securing hook 29 located at the lower rear middle of the carrier 14. The curtain support arm 42 extends substantially to the front of the carrier and off to the side, in order to provide means for overlapping the edge of the curtain on one side of the window with the edge of the side of the curtain at the other side at the middle of the window. It will be noted with reference to FIG. 2 that the arm 42 tilts upwardly. The angle of this tilt is determined substantially as follows. It will be understood that the internal slide shoe support arm 32 fits somewhat loosely within the slot of the C-shaped traverse rod. Thus when a substantial weight of curtain is placed on the arm 32, the arm 32 tends to tilt upwardly to a slight extent. Accordingly, the angle of inclination of the arm 42 from the body portion 30 must
take this amount of tilt into account. In addition, the slope of the angle of arm 42 must also take into account the amount of random deformation which the weight of the curtain will impose on the arm 42 under conditions of use. This amount of deformation depends to some extent on the material employed in molding the master carrier 14. In the preferred embodiment of my invention, molded Nylon, which I understand is a thermoplastic material generally described as a linear super-polymeric resin derived from a reaction of a linear dicarboxylic acid with a polyamine, and the angle of tilt of the arm 42 shown in FIG. 2 represents the angle I find satisfactory when such material is employed. However, it will be understood that other materials of the polyester acrylic alkyd, epichlorohydryne and the like types may be compounded in various forms to render them suitable for use in the molding of the curtain carriers herein described. Naturally the angle of tilt of the arm 42 will be necessarily adjusted to conform to the characteristics of the plastic material employed in molding the carrier.

Another form of master carrier, which I have called a plain carrier is indicated at 12, and is shown in detail in FIGS. 9 and 10. This form of carrier is used to support curtain which stands behind the overlapping edge of the curtain carried by the master carrier 14. The elements of the plain master carrier 12 will not be reviewed in detail in this description because they are all substantially the same as those described in connection with the master carrier 14, except that a different curtain carrying arrangement is provided. In the plain master carrier 12 the curtain is carried by an arm 52 mounted on the lower extremity of the body portion 30. Further support for the arm 52 is provided by buttressing flanges 54, which are, to all intents and purposes, identical to the buttressing flanges 44 of the master carrier 14, except that they do not extend so far around in front but merely contact and support the back side of the arm 52. In the drawings of FIGS. 9 and 10, I have shown the slide shoes of the master carrier 12 formed with gently sloping, more or less, flat faces, whereas the master carrier 14 employs rounded slide shoes.

While the master carrier and idler carrier herein shown each contain important distinctions from one to the other, it will also be seen that the general organizational features thereof apply to all three forms. Thus each form has a body portion, an internal slide shoe support arm dimensioned to fit in sliding relation within the slot of the C-shaped rod, and the position of the internal slide shoe elements is the same. In particular, none of the slide shoes are carried in the carrier in opposed relation to any other slide shoe. This is highly important in my invention in that it avoids the necessity of providing any longitudinally extending grooves of opposed sides for the purpose of receiving the edges of the slot of the C-shaped traverse rod. This arrangement, it is believed, is entirely novel and makes possible for the first time a one-piece molded construction fashioned from a single split mold. Moreover, from a functional point of view, the sequential spacing of the slide shoes of both the master and the idler carriers provides an extremely smooth and noiseless sliding arrangement.

Since numerous minor variations of the preferred embodiment of my invention will now be apparent to those skilled in the art, it is not my intention to confine the invention to the precise form herein shown, but rather to limit it in terms of the appended claims.

Having thus described and disclosed a preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A master carrier for traverse rods comprising a single element of molded tough resilient plastic material, said element having an integral one-piece construction in combination, a body portion, a curtain support arm integrally connected to said body portion at the lower extremity thereof, an internal slide shoe support arm extending longitudinally of said body portion on the forward side thereof and spaced from and above said curtain support, walls in said internal slide shoe support arm forming a draw-cord groove, an internal slide shoe on the forward side of each end of said internal slide shoe support arm to contact the internal surface of a C-shaped curtain rod adjacent to the opening thereof, said internal slide shoe extending above and below said internal slide shoe support arm and positioned thereon laterally clear of the side extremities of said body portion, a lower external slide shoe on said body portion below said internal slide shoe support arm in position to abut the outer surface of said C-shaped curtain rod below the opening thereof and between the internal slide shoes, an upper external slide shoe above the level of said internal slide shoe support arm in position to abut the outer surface of said C-shaped curtain rod above the opening thereof and between said internal slide shoes, walls forming a pair of notches in said upper external slide shoe, in said body portion and in said internal slide shoe support arm in the upper surfaces thereof of communicating with said draw-cord groove to receive and retain a draw-cord.

2. The master carrier defined in claim 1 further characterized by said thermoplastic material being nylon.

3. The master carrier defined in claim 1 further characterized by a pair of reinforcing ribs on the back side of said body portion, both of said flanges communicating with said draw-cord groove, said internal slide shoe support arm being inclined upwardly by an angle substantially equal to the maximum normal angle of longitudinal tilt of said body portion in a C-shaped rod, plus the normal downward deflection of said arm under a normal curtain load.

4. A carrier for C-shaped traverse rods comprising a single element of molded tough resilient plastic material, said element having an integral one-piece construction in combination, a body portion, curtain supporting means integral with the lower extremity thereof, an internal slide shoe support arm extending longitudinally of said body portion on the forward side thereof and disposed horizontally, said internal slide shoe support arm vertically dimensioned to fit in the slot of a C-shaped curtain rod in free sliding relation, walls in said internal slide shoe support arm forming a draw-cord groove dimensioned to receive a draw-cord said rod, an internal slide shoe support arm in position to contact the internal surface of said C-shaped curtain rod adjacent to the slot thereof, said internal slide shoes extending above and below said internal slide shoe support arm and positioned thereon laterally clear of the side extremities of said body portion, a lower external slide shoe on said body portion below said internal slide shoe support arm in position to abut the outer surface of said C-shaped rod below the said slot and between said internal slide shoes, an upper external slide shoe above said said internal slide shoe support arm in position to abut the outer surface of said C-shaped rod above the said slot, and a pair of buttressing flanges integral with the side margins of said body portion normal to the plane thereof, extending downwardly therealong and forming an integral part of said curtain supporting means.

5. A curtain carrier for a slotted traverse curtain rod comprising a base vertically dimensioned to fit in free sliding relation in the slot of said curtain rod, at least a first and a second pair of internal slide shoes, each of said first and said pair of second internal slide shoes consisting of an upper and a lower slide shoe integral with and extending outwardly from the upper and lower side extremities of said base, a pair of external slide shoes consisting of an upper and a lower slide shoe integral with and extending outwardly from the upper and lower surface, respectively, of said base, each one of said internal slide shoes being
adapted to bear in free sliding relation against an inner surface of said slotted rod and each one of said external slide shoes being adapted to bear in free sliding relation against an outer surface of said slotted rod, said pairs of internal and external slide shoes covering separate non-opposing areas of said base.

6. A curtain carrier as in claim 5 having, in addition, a flanged curtain support integrally formed with said base and depending from one side thereof, said one pair of external slide shoes being disposed on said base between the side extremities of said flanged curtain support.

7. A curtain carrier as in claim 6 having, in addition, the side of said base opposite to said one side thereof grooved to accommodate a draw-cord along the length of said base.

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