

[54] LOAD HOLDING DEVICE IMPROVEMENT

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[51] Int. Cl. **B65j 1/22**

[58] Field of Search ...248/361 A, 361 R; 105/369 A,
105/366 B; 280/179 A

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Primary Examiner—Edward C. Allen

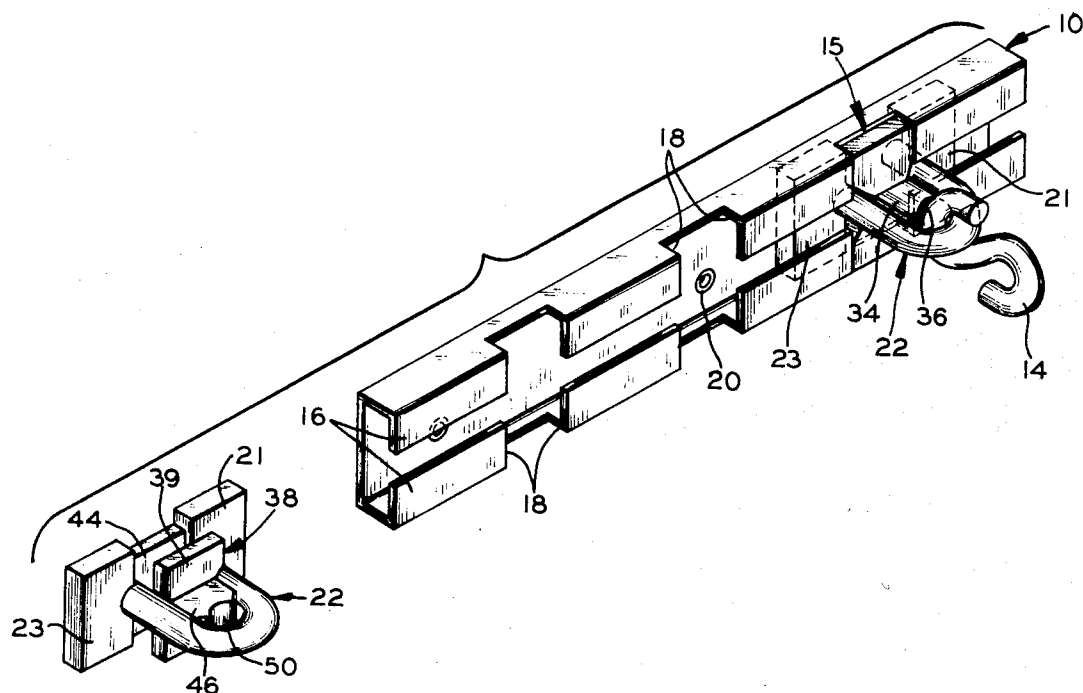
Attorney—Walter E. Pavlick

[57] ABSTRACT

A guide rail in which a carriage is adapted for move-

ment to a plurality of locations. The guide rail is provided with slots, the sides of which form an abutment. The carriage comprises a pair of feet joined together by an elongated U-shaped bridge forming a track along which a locking block is adapted to move to a plurality of positions. The locking block is provided with shoulders which become seated in the slots of the guide rail when the locking block is in one position to prohibit movement of the carriage along the guide rail. In another position of the locking block on the track, the shoulders on the locking block are extracted from the slots in the guide rail to permit movement of the carriage to the desired position. When the locking is in the position having the shoulders seated in the slots in the guide rail, an S-shaped member is passed under the bridge of the carriage and engages the locking block to hold the locking block in its position in the guide rail slots thereby locking the carriage in the desired location along the guide rail. In a second embodiment of the invention, a pair of spaced shoulders are provided on the locking block and the length of the locking block is such that it will engage the bridge member before the second shoulder on the locking block is extracted from the slots in the guide rail so that the locking block is contained within the bridge of the carriage to form a gravity lock when the load holding device is used in an overhead position.

10 Claims, 12 Drawing Figures



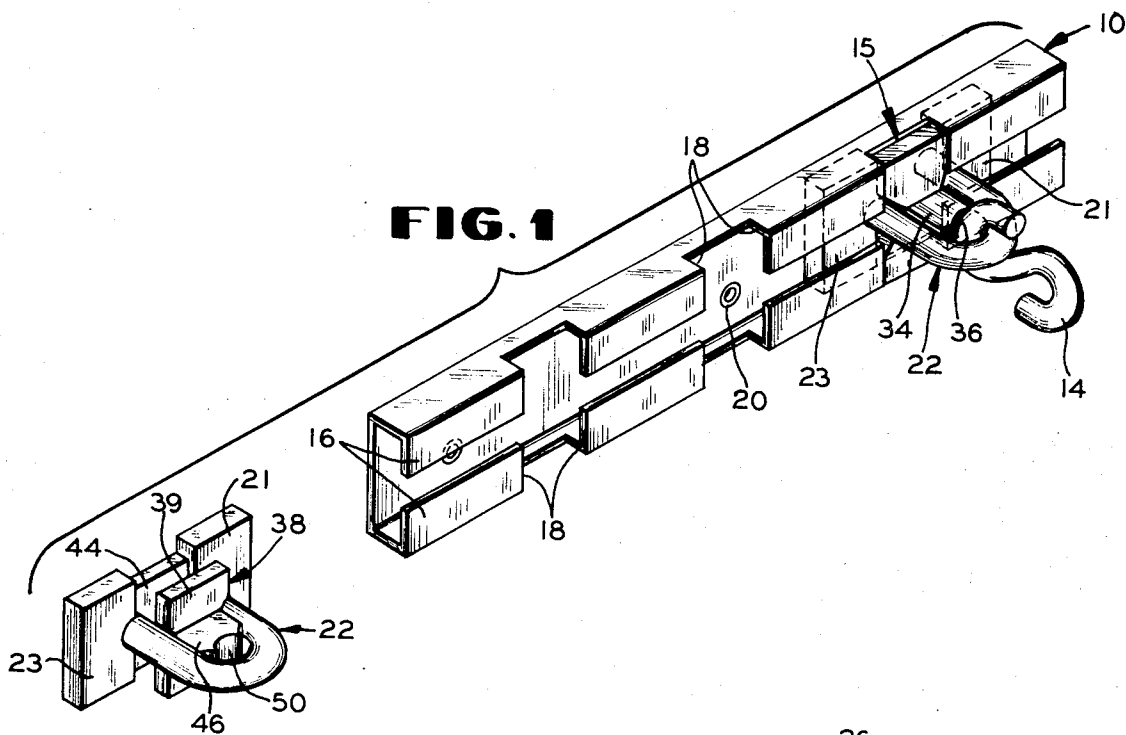


FIG. 1

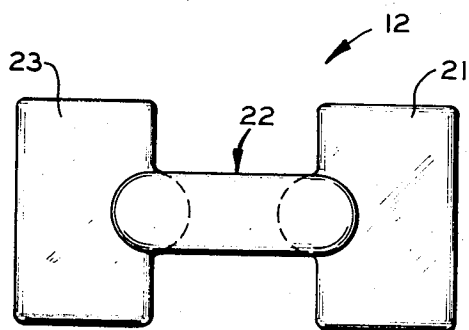


FIG. 2

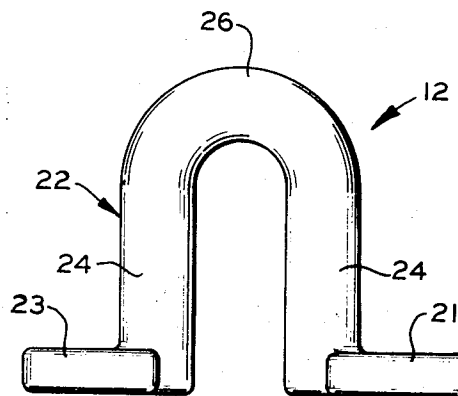


FIG. 3

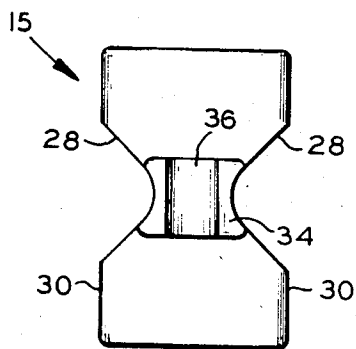


FIG. 4

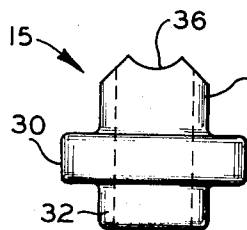


FIG. 5

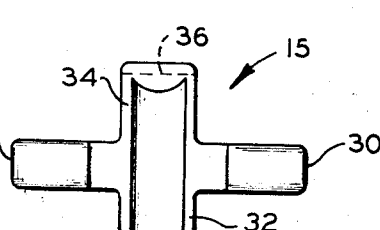


FIG. 6

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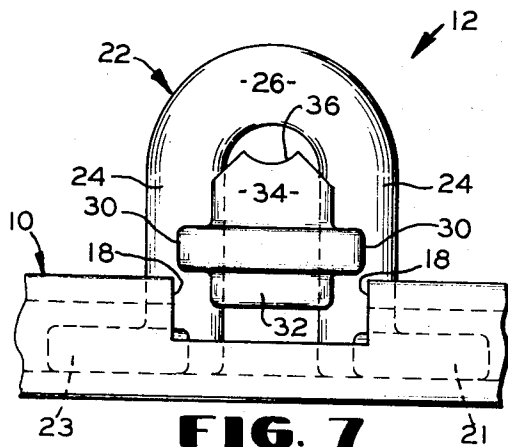


FIG. 7

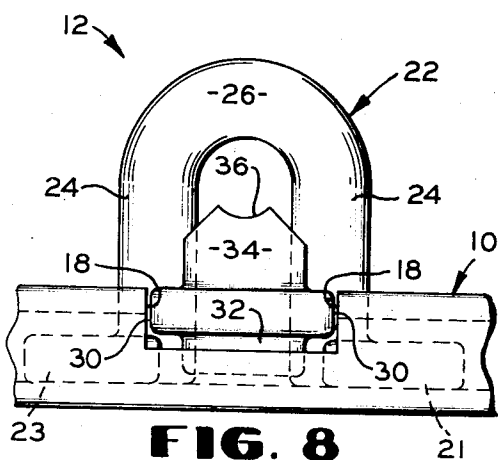


FIG. 8

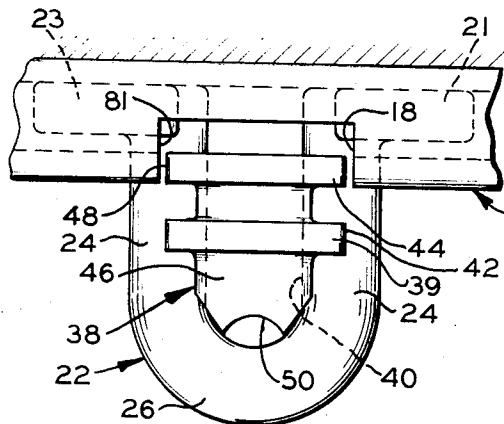


FIG. 9

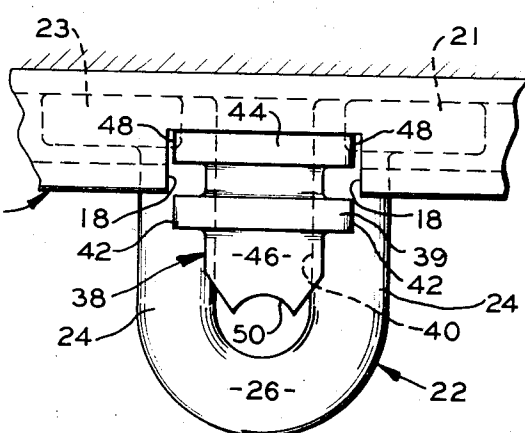


FIG. 10

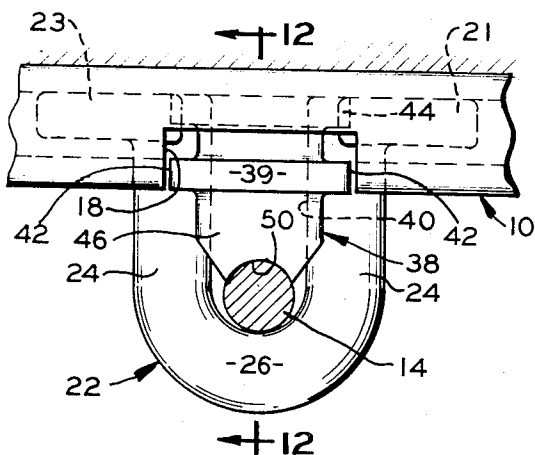


FIG. 11

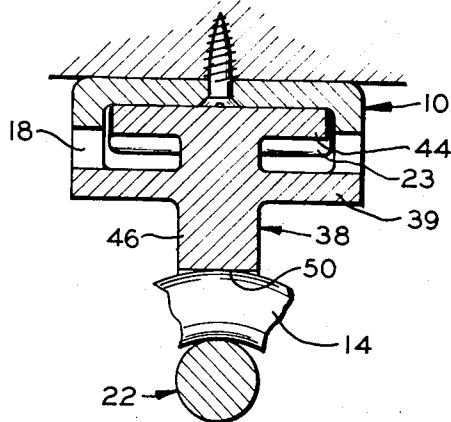


FIG. 12

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LOAD HOLDING DEVICE IMPROVEMENT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The field of this invention is load holding devices for vehicle, marine, air cargo and home use.

2. Description of the prior Art

This invention is an improvement to U.S. Pat. application Ser. No. 42,736 filed June 2, 1970 entitled Load Holding Device with Thomas S. Bowers also being the inventor. The disclosure of such prior patent application is similar to the present disclosure except that the hooked shaped member or the S-shaped member is passed directly through the bridge of the carriage and abuts against the sides of the slots in the guide rail directly when the eye of the carriage member is aligned with the selected slot. While such structure worked perfectly satisfactorily, it was necessary to have a plurality of S-shaped or hook shaped members of substantial strength constantly available since such member also engaged the abutment of the slots to prevent movement of the carriage. However, these members can be lost or misplaced. Therefore, it was desirable to have means of substantial strength contained within the carriage to serve as the abutment means with the slots in the guide rail. Furthermore, prior art devices were free to slide freely and rattle upon return transit.

SUMMARY OF THE INVENTION

Accordingly, the carriage of this invention has an elongated U-shaped member forming a track and a bridge connecting the two legs of the "U." Locking means in the form of a block is positioned within the "U" of the carriage and movable to a plurality of positions along the track while being retained thereby. The shoulders of the locking block are adapted to be seated in the slots in the guide rail when the locking block is in one position along the track so that movement of the carriage is prohibited. Any type of means such as a hook shaped member, an S-shaped member, or a rope may then be passed under the bridge of the carriage member and serves to hold the locking block seated within the slots of the guide rail.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a load holding device embodying this invention showing a carriage having a single shouldered locking block assembled within the guide rail and a carriage having a double shouldered locking block in a position to be assembled within the guide rail;

FIG. 2 is a plan view of the carriage shown in FIG. 1;

FIG. 3 is a front elevation view of the carriage shown in FIG. 2;

FIG. 4 is a plan view of the locking block having a single shoulder as shown in FIG. 1 and showing its mounting relationship with respect to the track formed by the carriage;

FIG. 5 is a front elevation view of the single shouldered locking block shown in FIG. 4 as it is mounted within the track of the carriage and having an S-shaped member shown in cross section positioned under the bridge of the carriage;

FIG. 6 is a side elevation view of the single shouldered locking block shown in FIG. 5;

FIG. 7 is a view looking down upon a segment of the guide rail when it is fixed in place and with the carriage and locking block assembled within the guide rail and the locking block in its outward position permitting movement of the carriage along the guide rail;

FIG. 8 is a view similar to FIG. 7 but with the locking block in a position inwardly along the track of the carriage and seated in the slot of the guide means to prohibit movement of the carriage;

FIG. 9 shows a view of a segment of the guide rail mounted on the overhead or ceiling with the carriage and locking block assembled within the guide rail and the locking block in its downward position;

FIG. 10 is a view similar to FIG. 9 with the locking block in its intermediate position whereby the carriage and locking block may be moved along the guide rail with the inwardly extending lips of the guide rail passing between the two shoulders of the locking block;

FIG. 11 is a view similar to FIGS. 9 and 10 but with the locking block in its upward position and a hook passed through the bridge of the carriage to hold the locking block in its locking position to prohibit movement of the carriage along the guide rail;

FIG. 12 is a cross section view of the rail segment shown in FIG. 11 and taken along the lines 12-12 of FIG. 11.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

First Embodiment (FIGS. 1-8)

Referring more particularly to the drawings, the invention consists primarily of three major parts, a longitudinally extending guide means or rail indicated generally at 10, and a positioning means or carriage indicated generally at 12, adapted to be movable along the guide means and having attaching means formed integral therewith, and locking means indicated generally at 15 retained by the positioning means and being movable with respect thereto. A fourth part, a securing means which, as shown in FIG. 1, takes the form of an S-shaped hook member 14 may also be employed.

In FIG. 1, the rail or guide means 10 is an elongated channel shaped member with the legs thereof having lips 16 bent inwardly at right angles to their respective legs. The lips 16 of opposite legs terminate short of each other so that an opening extends the full length of the guide rail between the lips.

Spaced at intervals along the channel shaped member are relieved portions or slots defined by abutment or latch means 18 on the sides of each slot. The slots extend at right angles to the length of the channel shaped guide rail 10 and are of a width approximately a third of the distance between the slots.

As shown in the drawings, the channel shaped guide means 10 is provided on the base of the channel with spaced apart (3 in this instance) counter sunk apertures 20 which are adapted to receive screws to position the guide means 10 along the wall or in any other suitable position where the load holding device is to be used.

The positioning means or carriage 12 may be of several different types of configurations but of necessity is a length greater than the slots defined by the abutment means 18 so that when the slide is inserted from one end into the channel shaped guide means 10, it will

remain within the guide means. Carriage 12, as shown more clearly in FIGS. 2 and 3, comprises a base means consisting of a front and rear foot 21 and 23 joined by an inverted elongated U-shaped member 22 the legs 24 of which form a track means and terminate in a bridge portion 26 connecting the two legs. Accordingly, the bridge 26 forms an attaching means which is adapted to receive the S-shaped member for securing it to the carriage 12. The width of the feet 21 and 23 of the carriage 12 is greater than the distance between the bent-over lips 16 of the guide rails 10 so as to be retained within the guide rail.

When a carriage 12 is placed within the guide rail 10, the U-shaped portion 22 extends outwardly and protrudes from between the bent-over lips 16. Accordingly, it is a simple matter for the user of the load holding device to place his finger on the U-shaped portion 22 and move the carriage 12 longitudinally within the guide rail 10 to the selected position aligning the U-shaped portion 22 with a slot in the guide rail.

To a fixedly position the carriage 12 in the desired location along the guide rail 10, locking means 15 in the form of a generally rectangular block is provided between the legs of the U-shaped portion 22 of the carriage. The sides of the rectangular block are provided with notch means in the form of cutaway portions 28 which are adapted to accommodate the legs of the U-shaped portion 22. It is apparent from the drawings that the width of the locking block 15 is generally greater than the distance between the legs of the U-shaped portion 22 of the carriage while the width of the locking block at the notch location is lesser than the distance between the legs of the U-shaped portion. Accordingly, the locking block 15 is retained within the U-shaped portion 22 and the legs thereof form a track along which the locking block is movable.

It is apparent from viewing FIG. 7 that when the locking block 15 is in its outer position, abutment or latch means in the form of shoulders 30 on the sides of the locking block 15 are free from engagement with the abutment means 18 provided in the slots of the guide rail. Thus, the carriage 12 may be moved along the guide rail 10 and a fin 32 protruding outwardly from beneath the mid-portion of the locking block passes between the inwardly extending lips 16 of the guide rail. When the desired location has been reached aligning the U-shaped member 22 of the carriage with the selected slot in the guide rail 10, the locking block 15 is then moved to its inward position, as shown in FIG. 8, to become seated within the selected slot. Should movement of the carriage 12 be attempted in either direction, the shoulders 30 on the locking block will engage the abutment means 18 to prevent movement thereof.

While the locking block will normally remain in its seated position, to insure that the locking block 15 is maintained securely within its seated position within the slot of the guide rail, a head portion 34 extends outwardly from the mid portion of the locking block 15 and is provided with a groove 36. It is apparent that the bridge portion 26 of the U-shaped member on the carriage 12 forms an attaching means or eye which is adapted to accommodate the S-shaped securing means 14. When the S-shaped member 14 is so received under the bridge of the U-shaped member, the S-shaped

member is positioned within the groove 36 in the head of the locking block 15 to maintain the locking block in its seated position within the selected slot of the guide rail.

Second Embodiment (FIGS. 1 and 9-12)

The second embodiment of this invention is similar to the first with the exception of the construction of the locking block 15. Accordingly, like reference numerals will be used for like parts to those of the first embodiment. The locking block 38 of the second embodiment is shown in FIG. 1 assembled within the carriage 12 and about to be assembled in the guide rail 10.

The locking block 38 has a body portion 39 generally rectangular in configuration and the sides of the body are provided with notches or cutaway portions 40 to receive the legs 24 of the U-shaped portion 22 of the carriage so that the locking block is movable along the track provided by the legs 24 to a plurality of positions. The locking block 38 is provided with a first abutment means or shoulders 42 on both sides of the rectangular body adjacent the notches 40.

In addition, a second body portion 44 of the locking block 38 is provided beneath the first body portion. The body portion 44 has notches 40 aligned with those of the first body portion and is of a smaller rectangular configuration than the first so that it will fit within and be seated in the back of the channel shaped rail when the locking block 38 is moved to its inner most position. Also, the size of the second body portion 44 is such that it will slide longitudinally with the bent-over lips 16 of the guide rail 10.

In operation, with the guide rail 10 mounted in an overhead position, the locking block 38 will drop by gravity to the position shown in FIG. 9 wherein a head portion 46 of the block will engage the bridge 26 of the carriage U-shaped portion 22. In this position (such as in return transit unloaded), the dimensions of the locking block are such that an abutment means or shoulder 48 provided on both sides of the second body portion 44 engages the abutment means or latch 18 on the guide rail 10 to prevent movement of the carriage and hold it securely so that it will not rattle.

If it is desired to move the carriage 12 to another location along the guide rail 10, the locking block 38 is moved upwardly from the position shown in FIG. 9 to that shown in FIG. 10 wherein the space between body portions 39 and 44 is aligned with the bent-over lip portions 16 of the guide rail 10. The carriage 12 may then be moved longitudinally along the guide rail with the lips 16 being received in the space between the body portions 39 and 44 of the locking block to guide movement thereof.

When the carriage has been moved to the desired location along the guide rail 10, the locking block 38 is moved upwardly to the position shown in FIG. 11 wherein it becomes seated in the relieved portion or slot in the guide rail 10. Movement of the carriage 12 in either direction is now prohibited by engagement of the shoulders 42 on the first body portion 39 with the abutment means or latch means 18 on the sides of the guide rail slot. To maintain the locking block 38 in its upward position, an S-shaped member (shown in cross section) is looped under the bridge portion 26 of the U-shaped portion 22 of the carriage and is accommodated by a groove 50 provided in the outer extremity of the head

portion 46 of the locking block 38. Accordingly, it is apparent that the carriage 12 is now secured in the desired location along the guide rail 10.

While only two embodiments of the invention have been shown, it is apparent that there may be many changes in structure and operation without departing from the scoop of this invention as defined by the appended claims.

What is claimed is:

1. In a load holding device the combination comprising
 - a. an elongated guide means having
 1. first latch means disposed at various positions along the length of said guide means,
 - b. positioning means slidable along said guide means to a plurality of positions adjacent said first latch means,
 - c. locking means having second latch means disposed thereon and being movable to a plurality of positions with respect to said positioning means but being retained thereby,
 - d. said first and second latch means cooperating with each other when said locking means is in one position with respect to said positioning means to prohibit movement of said positioning means along said guide means, and said first and second latch means being free from cooperation when said locking means is in another position with respect to said positioning means to permit movement of said positioning means along said guide means.
 - e. attaching means disposed on said positioning means, and
 - f. and means selectively secured to said attaching means when said locking means is in said one position and engaging said locking means to positively lock said locking means in said one position.
2. The combination of claim 1 wherein said first latch means is formed by a plurality of relieved portions in said elongated guide means and said second latch means comprises a shoulder on said locking means adapted to be positioned within a selected relieved portion of said elongated guide means.
3. The combination of claim 1 wherein said positioning means includes means forming a track and said locking means is movable along said track means whereby said first and second latch means cooperate with each other when said locking means is in one position along said track to prohibit movement of said positioning means along said guide means, and said first and second latch means being free from cooperation when said locking means is in another position along

said track means to permit movement of said positioning means along said guide means.

4. The combination set forth in claim 1, wherein said elongated guide means comprises a channel shaped member having bent-over lip portions on the open portion thereof and said positioning means comprises a carriage having base means slidable within said channel shaped member and retained therein by said bent-over lip portions and a track means extending outwardly from said base means between said bent-over lip portions of said channel shaped member and receiving said locking means.

5. The combination set forth in claim 4 wherein said attaching means is the terminal portion of said track means.

6. The combination of claim 5 wherein said means selectively secured to said attaching means comprises a hook member.

7. The combination of claim 4 wherein said track means takes the form of an elongated "U" shaped member extending outwardly from said base means and said locking means is provided with notch means cooperable with said "U" shaped member so that said locking means is adapted for slidable movement along said "U" shaped member.

8. The combination of claim 7 wherein the bridge of said "U" shaped member forms an attaching means and means is looped under said bridge for securement to said attaching means and cooperable engagement with said locking means to maintain said locking means in said one position.

9. The combination of claim 1 wherein said second latch means comprises a first shoulder engagable with said first latch means when said locking means is in said one position, and a second shoulder on said locking means engaging said first latch means when said locking means is in a second position, said first and said second shoulder being spaced from each other on said locking means whereby when said locking means is in a third position said first latch means is free to pass between said shoulders permitting movement of said positioning means along said guide means.

10. The combination of claim 9 wherein securing means is cooperable with said attaching means and engages said locking means to hold said locking means in said one position and wherein said locking means engages (the bridge of said "U" shaped member) said attaching means to hold said locking means in said second position whereby said second shoulder engages said first latch means to prohibit movement of said positioning means along said guide means.

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