March 29, 1938. I. C. BARLOW ET AL 2,112,262

VENETIAN BLIND

Filed Jan. 28, 1936

Fig. 1.

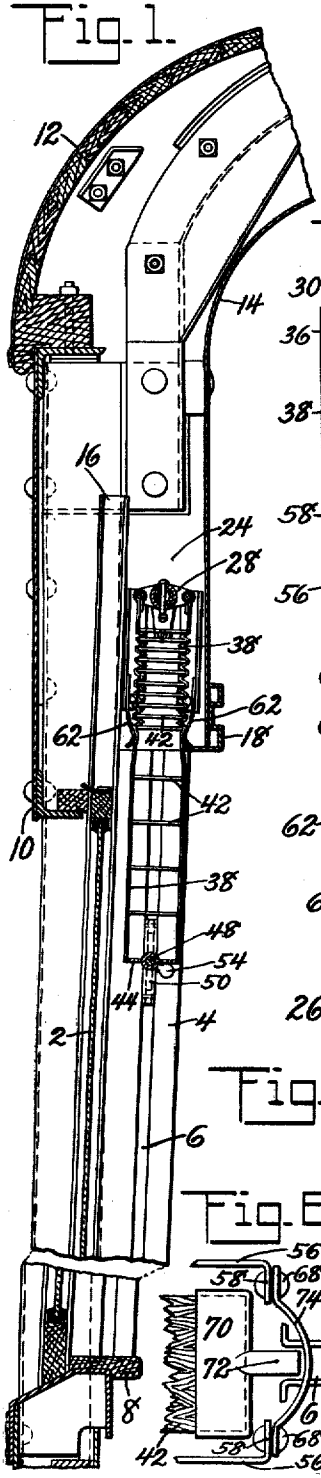

Fig. 4.

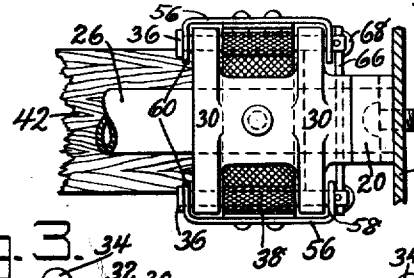

Fig. 3.

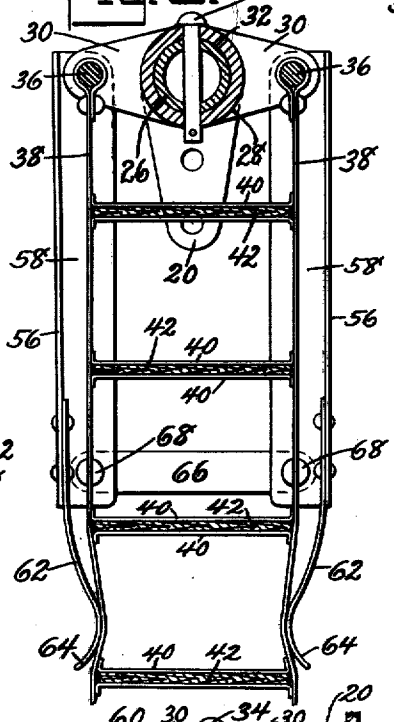

Fig. 5.

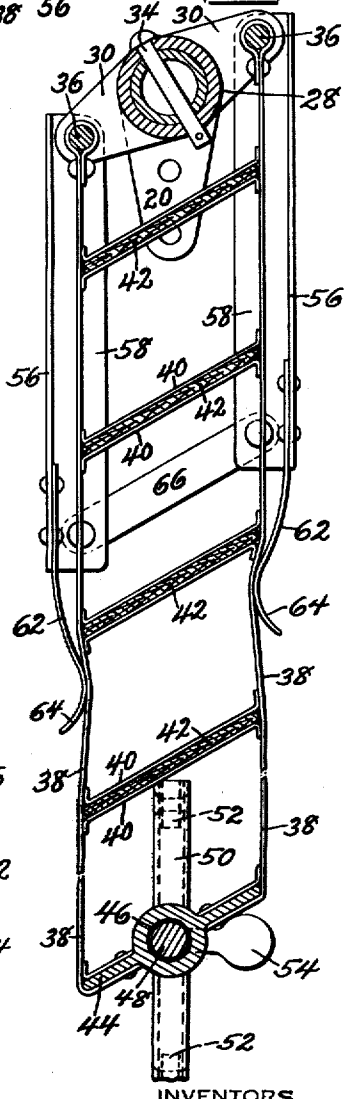

Fig. 2.

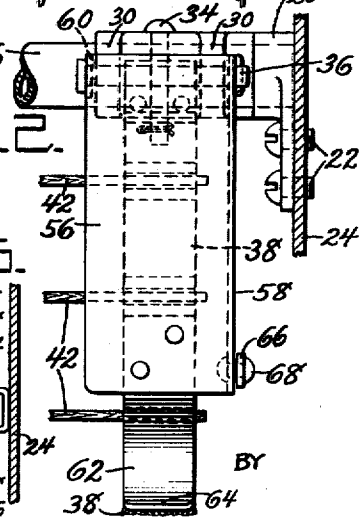

Fig. 6.

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VENETIAN BLIND

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Application January 28, 1936, Serial No. 61,118

11 Claims. (Cl. 156—17)

This invention deals with improvements in Venetian blinds in general and in particular to Venetian blinds for railway passenger cars or similar vehicles.

Previous Venetian blinds have been made in which ropes running over pulleys at the top of the window opening were attached at the ends of the bottom slat and when these ropes were pulled the bottom slat would be raised more or less in a level position picking up the slats above it. If the blind were left in some position intermediate the fully lowered position it was necessary to properly attach these pull ropes to a fixture to hold the bottom slat and the ones resting upon it in the desired position. Thus, regardless of whether the blind was partly or fully raised there was always a large bulky bundle of slats obstructing the vision, light and air flow, this in addition to the dangling pull ropes and the additional ropes used to control the slat angles.

Present railway cars, trolleys and buses are equipped with ordinary shades which, if the passenger desires to block the glare of the sun or the vision of curious bystanders at station stops, must be fully drawn, thus not only darkening the interior, but shutting off all air and the vision of the passenger. Venetian blinds of the old familiar type have recently been used in rail cars to overcome the objections of the regulation window shade but have not been entirely satisfactory due to the blocking of light by the unattractive bundle of slats and the inconveniences of the numerous ropes, pulleys and brackets.

It is an object, therefore, of this invention to provide a Venetian blind in which the bundle of extra slats is concealed.

Another object of the invention is the provision of a Venetian blind in which all ropes, pulleys and other accessories are eliminated.

A further object of this invention is the provision of a Venetian blind which may be applied directly to existing car structures and as a substitute for the present shade.

A further object of the invention is the provision of a Venetian blind in which the objectionable slap of the slats when blown by a breeze is eliminated.

A yet further object of the invention is the provision of a Venetian blind in which the bundle of extra slats is retained above the upper edge of the window opening.

A still further object of the invention is the provision of a Venetian blind in which retaining means for the extra slats is provided which grips the slats at constant tension regardless of the slat angularity.

These and other objects of the invention will be apparent to those skilled in the art from a study of the following description, together with the accompanying drawing in which:

Figure 1 is a sectional view of a portion of a rail car showing the Venetian blind applied thereto;

Fig. 2 is an enlarged view of the retaining means at the upper portion of the unit;

Fig. 3 is an enlarged sectional view showing the retaining means with the slats in the horizontal position;

Fig. 4 is an enlarged plan view of retaining means in the position shown in Fig. 3;

Fig. 5 is an enlarged sectional view similar to Fig. 3 but showing the slats in a slightly tilted position, and

Fig. 6 is an enlarged plan view showing a slight modification of the device.

Referring now to the drawing in detail, the rail car used for illustrative purposes consists of the usual posts between which extend the windows 2 held in place by side finish strips 4, having curtain guide slots 6. The bottom edge of the window opening is formed by sill members 8, while the upper edge is formed by the lower edge of letterboard 10, above which is carried the roof 12. The interior of the car is completed by ceiling and finish 14 covering the framing and concealing the window guides 16 in cases where they are used. This car construction is purely representative as it is obvious that the car construction does not affect the Venetian blind other than possibly imposing space or size limitations, but in all cars as at present built there is sufficient space behind the finish and above the window to house the Venetian blind as shown. Existing cars may in most cases be converted by simply removing the present shade, securing the Venetian blind unit in place and by modifying the finish strip 18 slightly to accommodate the slats.

The Venetian blind unit itself consists of end bearing brackets 20 of suitable form, which may be secured by means 22 to existing structure 24, and these brackets have the ends of rod or pipe 26 journaled therein for rotation. Castings 28 are provided having spaced ears or lugs 30 and a central opening 32 permitting the casting to be slid over the rod or pipe to be fastened in place by pin or other means 34 passing through aligned openings in the casting and rod or pipe. These castings when secured in place adjacent

each end of the rod or pipe will abut the brackets and prevent any unnecessary end play of the top rod. The spaced ears or lugs are provided with openings through which pins **36** may be passed and these pins provide support for the upper ends of webbing straps **38** between which spaced fabric strips **40** extend to support and retain the slats **42** in the proper position and relation. The straps pass around or are secured to lower slat **44**, preferably formed of metal, such as aluminum, having a central opening **46** through which rod **48** extends pivotally carrying on its ends guide frames **50** having rollers **52**. This guide frame with its rollers is very similar to the present shade guide member which may be used if desired. A handle **54** is attached to the bottom slat so as to permit tilting and retention of the lower slat in any position and, therefore, the entire group of slats as is evident.

The retaining means for the slats consists of metal plates having a relatively wide web **56**, end flange **58** and an ear or tab **60** which is provided with a hole in alignment with a hole in the upper end of the flange and through which holes the pins **36** are passed, thus providing widely spaced bearings for the plate and preventing its shifting on the pins, since the flange and tab overlap the ears of the casting. The lower portion of the plates have spring means **62** secured thereto, having rounded end portions **64** and these spring means are preferably disposed in the plane of the web straps although this is not necessary. A link **66** and suitable pivot means **68** join the lower ends of the flanges on the plates together, thus forming with the upper casting a parallel motion device which, since the webbing is attached thereto, must move in unison with the webbing and slats. This movement insures equal and constant spring pressure to retain the slats irrespective of whether the slats are horizontal or tilted. The plates may be extended the full length of the window if desired, but ordinarily this will not be necessary.

The operation of the device is as follows: Assuming the Venetian blind unit in the position shown in Fig. 1, if it is desired to lower the blind it is only necessary to pull the lower slat down like any ordinary shade releasing thus as many slats as is desired from the spring means. In case the blind is no longer desired, it is only necessary to raise the lower slat, thus carrying it and the slats thereabove upward and forcing them into the retaining means above the spring clips. The guide rollers during these operations as well as at all times will retain the lower slat in the proper position, since the rollers run in the guide **6** formed in the window finish strips.

In case the side sway of the unit should be objectionable then any or all of the slats may be capped by metal means **70**, having a projecting pin **72** adapted to slide in the guideway **6** as shown in Fig. 6. Due to the projection of the pins it will then be necessary to arch or curve the tie strap **74** outwardly as shown instead of using a straight strap as previously described. It is thus seen that any slapping of the slats is prevented even though the window be open and a strong jerky wind blowing into the car, since the slats are positively held in position.

The unit as described consists of two parallel motion retaining devices joined together by the suspending bar or rod for joint operation and these parallel motion devices have the straps attached thereto which carry the slats and the bottom controlling slat, but it is obvious that the manner of forming, connecting and arranging the parts of the unit may be varied widely while conforming to the teaching of the invention. The unit may be used in various places other than on vehicles, such as houses, and these various applications, arrangement of parts and modifications are contemplated as fall within the scope of the appended claims.

What is claimed is:

1. A Venetian blind comprising, spaced supporting members, means connecting said members, flexible strips connected to said supporting members, slats supportable by said strips, said slats being movable to positions of use or disuse, and means connected to said supporting members independently of the flexible strips for retaining the slats which are not in use adjacent the supporting members.

2. A Venetian blind comprising, spaced supporting members, means connecting said members for operation in unison, flexible strips connected to said supporting members, a plurality of slats supportable by said strips and resilient means connected to said members for movement therewith, said slats being movable to positions of use or disuse, said resilient means retaining the slats which are not in use adjacent the supporting members.

3. A Venetian blind comprising, spaced supporting members, means connecting said members for operation in unison, flexible strips connected to said supporting members, a plurality of slats supportable by said strips, said slats being tiltable to a plurality of angular positions and movable to positions of use or disuse, and resilient means connected to said members for retaining the slats which are not in use adjacent the supporting members, said resilient means exerting a constant pressure on said slats regardless of the angular position of the slats.

4. A Venetian blind comprising, spaced supporting members, means connecting said members for operation in unison, flexible strips connected to said supporting members, a plurality of slats supportable by said strips, said slats being tiltable to a plurality of angular positions and movable to positions of use or disuse, parallel motion means connected to said members, and resilient means carried by said parallel motion means, said resilient means retaining the slats which are not in use adjacent the supporting members.

5. A Venetian blind comprising, spaced bearing brackets, spaced supporting members frictionally carried by said brackets, means connecting said supporting members, flexible strips connected to said supporting members, a plurality of slats supportable by said strips and resilient means connected to said members for movement therewith, said slats being movable to positions of use or disuse and said resilient means retaining the slats which are not in use adjacent the supporting members.

6. A Venetian blind comprising, spaced bearing brackets, spaced supporting members frictionally carried by said brackets, flexible straps connected to said supporting members, a plurality of slats supportable by said straps, said slats being tiltable to a plurality of angular positions and movable to positions of use or disuse, and resilient means movable in unison with said slats during tilting, said means retaining the slats which are not in use adjacent the supporting members.

7. A Venetian blind comprising, spaced bearing brackets, spaced supporting members carried by said brackets, said supporting members being provided with spaced apart lugs, flexible straps, means connecting said straps to said lugs, a plurality of slats supportable by said straps, said slats being movable from an operating to an inoperative position, and means for retaining said slats in an inoperative position adjacent the supporting members, said means consisting of spaced plates connected to said lugs, resilient means connected to said spaced plates and a connecting bar joining said plates.

8. A Venetian blind comprising, spaced bearing brackets, spaced supporting members carried by said brackets, said supporting members being provided with spaced apart lugs, flexible straps, means connecting said straps to said lugs, a plurality of slats supportable by said straps, said slats being movable from an operative to an inoperative position and means for retaining any selected number of said slats in an inoperative position adjacent the supporting members, said means consisting of spaced apart plates pivotally connected to said lugs by said strap connecting means, resilient means attached to said spaced plates in the plane of said straps, and a connecting bar joining said plates.

9. A Venetian blind comprising, spaced bearing brackets, spaced supporting members carried by said brackets, said supporting members being provided with spaced apart lugs, flexible straps, means connecting said straps to said lugs, a plurality of slats supportable by said straps and movable from an operative to an inoperative position, means attached to a plurality of said slats to guide them in a definite path, and means for retaining any selected number of said slats in an inoperative position adjacent the supporting members, said means consisting of spaced apart plates connected to said lugs, resilient means connected to said spaced plates and an arched connecting bar joining said plates.

10. A Venetian blind comprising, spaced supporting members, means connecting said members, flexible strips connected to said supporting members, slats supportable by said strips, said slats being movable to positions of use or disuse, means connected with at least one of said slats to guide it in a definite path, and means connected to said supporting members independently of the flexible strips for retaining the slats which are not in use adjacent the supporting members.

11. A Venetian blind comprising, spaced supporting members, means connecting said members, flexible strips connected to said supporting members, slats supportable by said strips, said slats being movable to positions of use or disuse, means associated with a plurality of said slats to maintain them in a definite path, and means connected to said supporting members independently of the flexible strips for retaining the slats which are not in use adjacent the supporting members.

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