Aug. 24, 1937. G. D. DODGE 2,091,033

VENETIAN BLIND FIXTURE

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Fig. 1

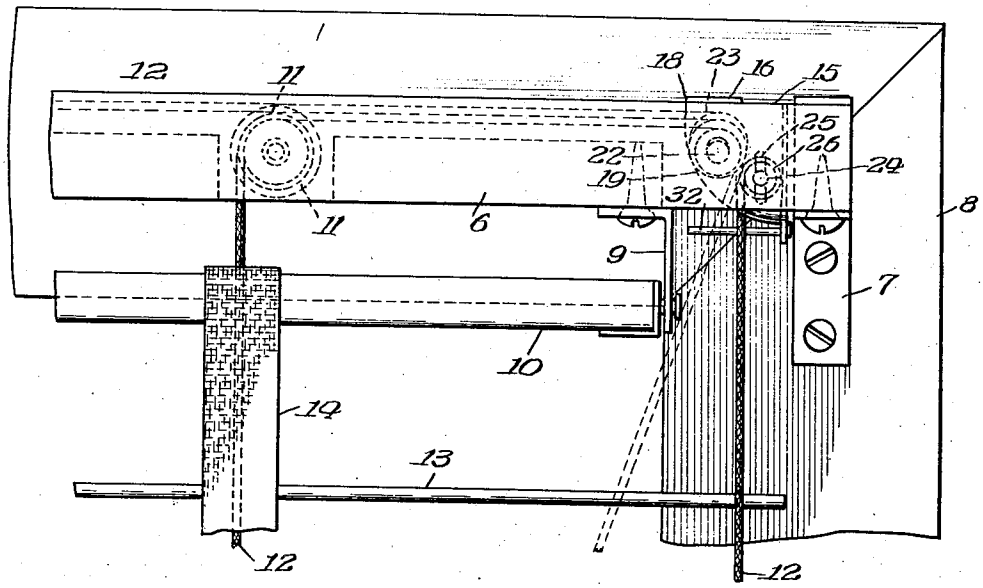


Fig. 2

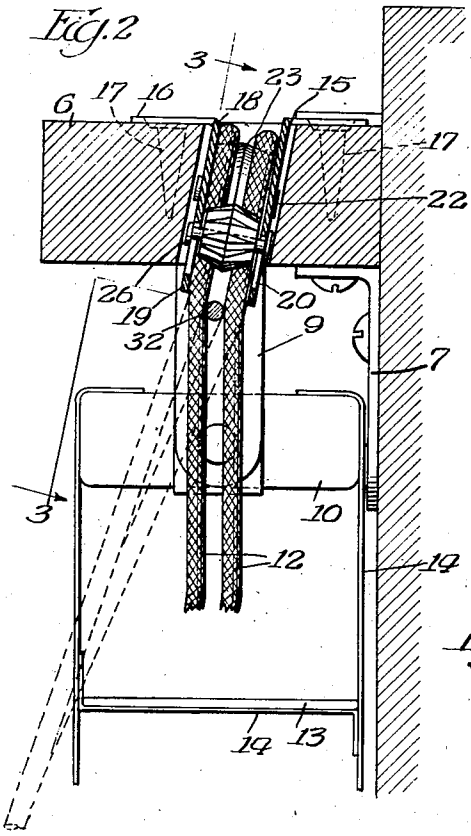


Fig. 3

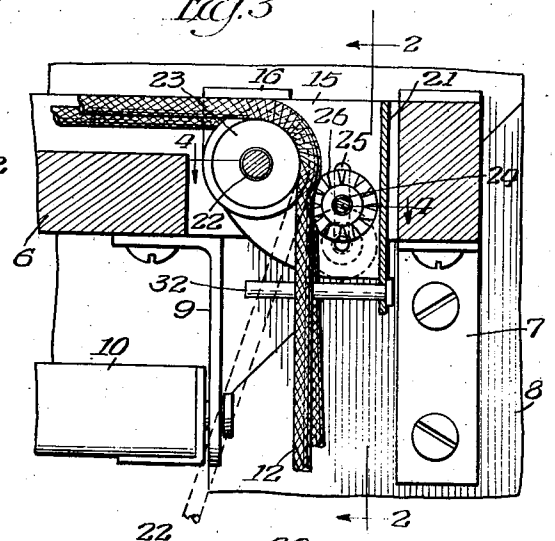
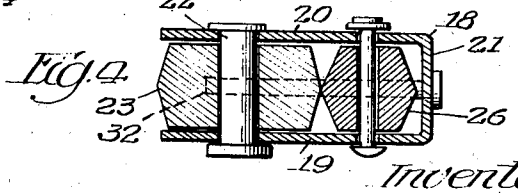


Fig. 4



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Fig. 5

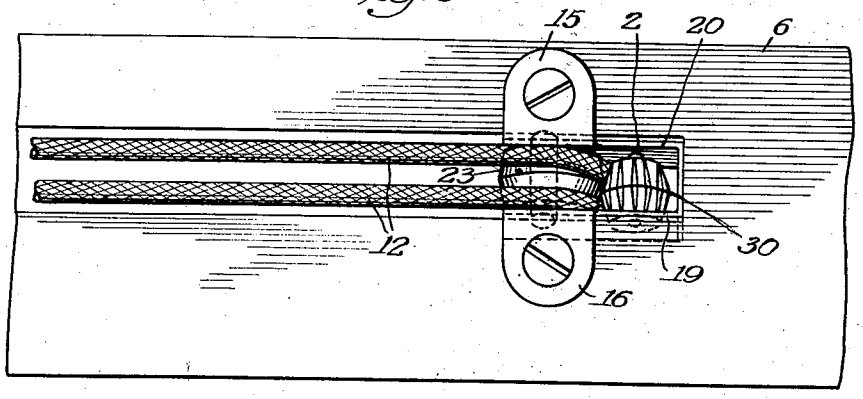


Fig. 6

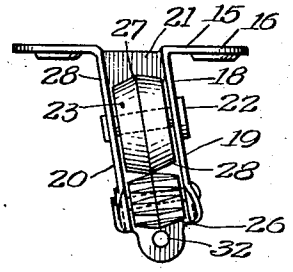


Fig. 7

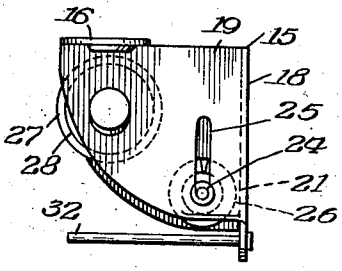


Fig. 8

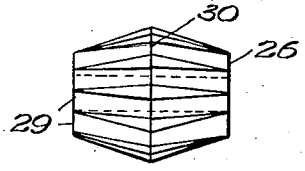


Fig. 9

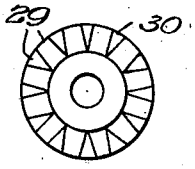


Fig. 10

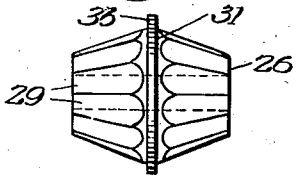
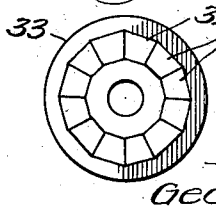


Fig. 11



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UNITED STATES PATENT OFFICE

2,091,033

VENETIAN BLIND FIXTURE

George D. Dodge, Evanston, Ill.

Application September 24, 1934, Serial No. 745,220

16 Claims. (Cl. 156—17)

This invention relates to a Venetian blind cord holder and stop fixture, and the primary object of the invention is to provide an improved automatic stop for Venetian blinds whereby the operating cord, when let loose, will cause the cord to be gripped between a fixed revolubly mounted member and a second slidable revolubly mounted member, the friction of the cord causing the slidable revolubly mounted member to be moved into juxtaposition in respect to the fixed revolubly mounted member to impinge the cord, said cord, when held at a predetermined angle, causing the slidable member to move away from the fixed member permitting the cord to have free movement.

Another object of the invention is to provide a relatively simple, inexpensive, positively operating cord holder stop for a Venetian blind, whereby the blind may be raised or lowered when the operating cord is released, and there held in its raised or lowered positioned when the cord is released.

A further object of the invention is to provide fixed and slidable rollers, one of which is provided with a plurality of beveled surfaces or facets to contact with the cord, whereby the cord will be caused to be impinged between the facet roller and a second cooperating roller.

A still further object of the invention is to provide a Venetian blind cord holder and stop fixture which is constructed so that the body of the fixture will lie at an angle with respect to the bar to which it is attached and thus project downwardly and away from the sash permitting free and easy operation of the cord which will be away from and out of interference with draperies or window curtains.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawings illustrate a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detailed elevation of a Venetian blind mounted on the face of a window casing and embodying the invention.

Fig. 2 is a detail sectional view of the device taken on the line 2—2 of Fig. 3 showing the Venetian blind lifting cord in its normal free operating position.

Fig. 3 is a detail sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a detail sectional view on the line 4—4 of Fig. 3.

Fig. 5 is a detail top plan view of the top bar of a Venetian blind showing the fixture applied thereto.

Fig. 6 is a detail end elevation of the device not applied to a blind.

Fig. 7 is a front view of the device shown in Fig. 6.

Fig. 8 is a detail side view of one type of roller which may be used in connection with the device or fixture.

Fig. 9 is an end view of the roller shown in Fig. 8.

Fig. 10 is a detail side view of another type of roller which may be used.

Fig. 11 is an end view of the roller shown in Fig. 10.

The Venetian blind herein shown for the purpose of illustration has an upper supporting member or top bar 6 which is fixed by means of brackets 7 (only one of which is shown) to the face 8 of a window jamb. Brackets 9 (only one being shown) pivotally support a tilting bar 10. Rollers 11, Fig. 1, over which a double lifting cord 12 passes, are arranged in the member 6. The blind operating cord 12 passes through alined openings in the slats 13, and tapes 14 support the slats in proper spaced relationship. The top bar 6, the tilting bar 10, the manner of operating the blind, and the mode of fastening, as well as the construction of the blind, are known in the art and therefore further description thereof need not be made.

The cord holder and stop 15 is provided with a horizontal attaching arm or bracket 16, which is adapted to be fastened by fastening means, such as screws 17, to the upper supporting member 6. While the drawings show the horizontal member 16 fixed to the upper surface of the member 6, it is, of course, understood that the bracket 16 may be fastened to the under side of the member 6, whereby the bracket would be hung from the underside of the member 6 instead of projecting from the upperside thereof. The device 15 also comprises a vertical downwardly extending U-shaped or channel-shaped body portion 18, Figs. 4 and 6, comprising downwardly extending oppositely disposed front and rear legs 19 and 20, respectively, and an integral end connecting portion 21. The bracket 16 and the body 18 which includes the spaced legs 19 and 20 and the end connection or portion 21, is preferably made in one piece, being formed from a blank of sheet metal material. The body portion 18 which extends downwardly from the horizontal bracket or attaching portion 16, projects forwardly at an angle, Fig. 6,

from the bracket 16 which rests on the flat surface of the top bar 6. In other words, the bracket 16 is horizontal, while the body projects forwardly at an angle from the straight horizontally disposed bracket 16. A pin 22 passes through the legs 19 and 20, and a roller 23 arranged between the legs is revolubly mounted on the pivot pin or axis 22. Spaced endwise of the axis or pin 22 is a second pin 24, which is mounted for sliding operation in oppositely disposed slots 25 formed in the legs 19 and 20. A second roller 26 is revolubly mounted on the pin 24. The second roller 26 therefore has revoluble movement on its pin or axis 24, and inasmuch as the pin or axis 24 is slidably mounted in the opposed slots 25, the roller 26 may be said to have vertically slidable movement as well as rotative movement in respect to the legs 19 and 20.

The roller 23, Figs. 6 and 7, is substantially hexagonal in longitudinal section, having its central peripheral dimension greater than the dimension at the side edges. The central portion 27 of the roller 23 is the greatest diameter of the roller and tapers off toward its ends 28. The roller 26 is smaller than the roller 23 but is similar in general shape and in cross section but having a central crest or diameter which is greater proportionately in respect to the diameter at its sides. From the ends of the roller 26 toward its center or crest there are provided a plurality of facets 29, Figs. 8 to 11, which may merge as at 30, Figs. 8 and 9. A space may be left between the inner edges of the facets 29, as indicated at 31 for a purpose which will later appear. Broadly, the rollers 23 and 26 may be termed "egg-shaped", the roller 26 having facets arranged about its peripheral surface, as shown. The rollers 23 and 26 are constructed to provide instantaneous and positive gripping action on the cord the precise moment the cord is released from the operator's hand. This positive action is accomplished by the two rollers 23 and 26, one of which is fixed and in constant rotary position, while the other one is free to work upwardly and downwardly on its floating axle or pin 24. The particular shape of the rollers 23 and 26 causes this gripping action. The consecutive flat surfaces or facets around the entire periphery of one of the rollers is the nucleus of the positive gripping action, and the floating action of one of the rollers is the cause of the instantaneous feature. In practice it has also been found that the rollers 23 and 26 have no appreciable wearing effect on the cord.

A cord separator 32 is rigidly fixed to the rear portion 21 of the housing 18 and extends inwardly between the legs 19 and 21. The purpose of this cord separator is to keep the parts of the cord from tangling or twisting and to keep the cords separated at all times, and thereby enhance the easy operation of the blind. This separator 32 is adapted to extend between the cords as clearly shown in Fig. 2. Another desirable way of keeping the cords separated is by applying a ring or other upstanding element 33, Figs. 10 and 11, on the space 31 between the facets 29. The height of the ring from the peripheral face of the roller 26 is less than the thickness of the cord. Therefore, it cannot possibly hinder the operation of the cord. This ring 33 is preferably formed integrally with the roller 26, although it can be made as a separate element and later fastened thereto. Regardless of whether the cord separator comprises the pin 32 or the ring 33, the cords are kept in proper position at all times, kept from twisting and, therefore, the cord is capable of passing freely about the pulleys 11 in their proper natural order.

The invention provides for a complete automatic stop for Venetian blinds employing the double lifting cord. The device is truly automatic in that as soon as the operator lets go of the hoisting cord, the blind will automatically stop at that precise moment. There is no need of holding the cord at right angles to cause the stop to function. The high sensitiveness of the stop does the work automatically, and the separator pin 32 keeps the cords separated and prevents them from twisting. A slight tension must be kept on the hoisting cord when the blind is first operated, as otherwise the sensitiveness of the floating roller will stop the lowering action, which, as outlined above, is its duty to do. Therefore, when the blind is only partly lowered, the cord will be gripped as shown in Fig. 3. When it is desired to operate the blind, the cord must be freed from the gripping or clamping action of the rollers 23 and 26. In order to release the cord from the rollers 23 and 26, a slight tension is exerted on the cord, and it may be moved to the position shown in dotted lines in Fig. 3. When the cord is in this latter position, it is free from the sash curtain or drapes, and the roller 26 mounted on the pin or axle 24 will drop to the bottom of the slot 25 in unlocked position. The blind may, therefore, be raised or lowered and the second roller 26 will not return to clamping position until the cord is left free and there is no tension on the cord. However, as soon as the cord is released, the movement thereof will cause the lower sliding roller 26 to move upward in its guide slot 25 until it attains the position shown in Fig. 3, at which time it will be in gripping relationship with respect to the fixed roller 23. By making the rollers 23 and 26 egg-shaped, that is, by having the rollers higher in the center and tapering off toward the ends, the cord will be properly divided and thereby avoid the trouble heretofore caused by the tendency of the cord to twist even without the use of the cord separator elements 32 or 33. The cord holder and stop 15, having its body extending forwardly at an angle, permits the cord to be held outwardly away from the sash free and clear of the drapes or curtains. Thus, when the cord is held outwardly away from the sash, as shown in dotted lines in Figs. 2 and 3, the cord is out of engagement with the lower pulley 26, and the blind can be raised or lowered. As soon as the cord is released, it will assume a straight position, at which time the cord will contact with the roller, causing it to raise and impinge the cord between the two rollers.

In cases where only a single cord is used for raising or lowering the blind, a smooth cylindrical roller may be substituted for the roller 23. In practice, it has been found that, if a smooth fixed roller is substituted for the roller 23, it will cooperate with the slidably mounted roller 26 and positively perform the function of automatically stopping the blind when a single operating cord is employed. Where a single cord is employed, the cord will pass between the smooth cylindrical roller and the slidable roller 26 will be effected and controlled in exactly the same manner as the double cord construction shown in correlation with the two rollers 23. Single cord operated blinds are well known and inasmuch as a cylindrical roller per se is well known, no further description thereof need be made.

The invention provides a Venetian blind cord

holder, stop and separator for causing instantaneous and positive gripping action on the cord or cords the moment the cord or cords are released by the operator. The device is relatively simple in construction, is positive and efficient in operation, it can be readily and quickly assembled, and it may be applied to existing blinds. The method of hanging the device is optional as it can be either fastened to the lower side of the upper supporting member or it may be applied on the top surface of the supporting member, as shown.

Another form of automatic stop, but employing the principle of a fixed roller and a slidable roller, is disclosed and claimed in applicant's co-pending application, Serial No. 745,219, filed September 24, 1934. In this latter co-pending application the device is of a slightly different construction and is claimed in combination with cord supporting rollers to permit easy operation of the blind and to prevent twisting of the cord. This latter case also discloses and claims the different sized pulleys to insure easy operation of the blind and to prevent twisting of the cord. The present case shows the cord rollers 11 of different diameters so as to assist in preventing twisting of the cord or cords. However, these rollers form no part of this present invention, as they are claimed in the aforesaid co-pending application.

Change may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. In a Venetian blind having a bracket, a revolubly mounted roller positioned in the bracket on one side of a cord, a second roller spaced below the first named roller and mounted on the other side of the cord, said last named roller being mounted on a floating axle and adapted to travel vertically toward and away from the first named roller into locked and into unlocked positions respectively.

2. A stop for Venetian blinds comprising a bracket having spaced legs, a roller arranged between said spaced legs, a pin passing through said legs and upon which said roller is rotatively mounted, oppositely alined slots arranged in said legs, a pin passing through said slots and having movement in the slot throughout the length thereof, and a second roller of smaller diameter mounted on said last named pin.

3. A stop for Venetian blinds comprising a bracket adapted to be fastened to a part of a Venetian blind, said bracket being channel-shaped and having outwardly extending legs, a pin passing through said legs, a roller mounted on said pin between said legs, alined vertical slots in said legs rearwardly of said pin, a pin passing through said slots and free to move in said slots, a second roller of smaller diameter mounted on said last named pin between said legs.

4. A stop for Venetian blinds comprising a bracket having spaced legs, alined vertical slots in said legs, a pin arranged in said slots and free to travel the length thereof, a locking roller mounted on said pin between said legs whereby the roller is movable on said pin the length of said slots, a second pin passing through said legs forwardly of said slots and substantially at the upper end of said slots, and a roller mounted on said last named pin between said legs.

5. A stop for Venetian blinds comprising a bracket having spaced legs, a pin passing through said spaced legs, a roller mounted on said pin between said spaced legs, alined slots positioned rearwardly of said first named pin, the upper ends of said slots being substantially in line with said pin, a pin arranged in said slots, and a second roller having facets about its periphery mounted on said pin between said legs and having free floating movement in said slots.

6. A stop for Venetian blinds comprising a bracket having spaced legs, a pin passing through said spaced legs, a roller mounted on said pin between said spaced legs, alined vertical slots positioned rearwardly of said first named pin, the upper ends of said slots being substantially in line with said pin, a pin arranged in said slots, and a second roller mounted on said pin between said legs and having free floating movement in said slots, one of said rollers being provided with facets about its periphery.

7. A stop for Venetian blinds comprising a bracket having spaced legs, a pin passing through said spaced legs, a roller mounted on said pin between said spaced legs, alined slots positioned rearwardly of said first named pin, the upper ends of said slots being substantially in line with said pin, a pin arranged in said slots, and a second roller mounted on said pin between said legs and having free floating movement in said slots, one of said rollers being of greater diameter at its center than at its ends.

8. A stop for Venetian blinds comprising a bracket having spaced legs, a pin passing through said spaced legs, a roller mounted on said pin between said spaced legs, alined slots positioned rearwardly of said first named pin, the upper ends of said slots being substantially in line with said pin, a pin arranged in said slots, and a second roller mounted on said pin between said legs and having free floating movement in said slots, one of said rollers being smaller in diameter at its ends than at its center.

9. A stop for Venetian blinds comprising a bracket having spaced legs, a pin passing through said spaced legs, a roller mounted on said pin between said spaced legs, alined slots positioned rearwardly of said first named pin, the upper ends of said slots being substantially in line with said pin, a pin arranged in said slots, and a second roller mounted on said pin between said legs and having free floating movement in said slots, one of said rollers being substantially hexagonal in longitudinal cross section.

10. A Venetian blind cord holder and stop comprising a U-shaped bracket having a back and forwardly extending legs, supporting ears on said bracket for supporting said bracket to a part of a Venetian blind, a pair of rollers mounted between said legs, one of said rollers having slidable movement in respect to said legs.

11. A Venetian blind cord holder and stop comprising a U-shaped bracket having a back and forwardly extending legs, supporting ears on said bracket for supporting said bracket to a part of a Venetian blind, a pair of rollers mounted between said legs, one of said rollers having slidable movement in respect to said legs, said last named slidable roller being larger in diameter at its central portion than at its ends.

12. A Venetian blind cord holder and stop comprising a member having spaced legs, pins passing through said legs, rollers mounted on said pins between said legs, one of said pins having slidable movement in said legs, said slidable

roller having its ends of a predetermined diameter, the diameter of said last named roller intermediate its ends being greater than the diameter at its ends.

13. A cord holder and stop for Venetian blinds having double operating cords comprising a bracket adapted to be fastened to the top bar of a Venetian blind, a body integral with said bracket and extending downwardly and forwardly at an angle from said bracket, said body being channel-shaped and having downwardly and forwardly extending spaced legs, a pin passing through said legs, a roller mounted on said pin between the legs, alined slots in said legs, a pin passing through said slots and free to move in said slots, a roller mounted on said last named pin between said legs, said rollers being arranged on opposite sides of the Venetian blind double operating cord, and a member adapted to separate the reaches of the cord.

14. A stop for Venetian blinds comprising a bracket having a mounting flange and spaced legs, said legs being angularly disposed away from a plane perpendicular to the mounting flange, a roller arranged between said spaced legs, a pin passing through said legs and upon which said roller is rotatively mounted, oppositely alined slots arranged in said legs, a pin passing through said slots and having movement in the slot throughout the length thereof, and a second roller of smaller diameter mounted on said last named pin.

15. A Venetian blind cord-holder and stop comprising a U-shaped bracket having a back and forwardly extending legs, supporting ears on said bracket for supporting said bracket to a part of a Venetian blind, and a pair of rollers mounted between said legs, one of said rollers being non-slidable within said legs, the other of said rollers being slidable within said legs, the non-slidable roller being larger in diameter than the slidable roller, both of the rollers being larger in diameter at their central portions respectively than at their ends, said non-slidable roller having a smooth surface along its converging sides and said slidable roller having an irregular surface along its converging sides.

16. In a Venetian blind having a bracket, a revolubly mounted roller positioned in the bracket on one side of a cord, a second roller spaced below the first named roller and mounted on the other side of the cord, said last named roller being mounted on a floating axle and adapted to travel vertically toward and away from the first named roller into locked and unlocked positions respectively, the last named roller being so positioned as to lie in contact with said cord when the parts are in normal idle position.

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