E. E. HARRIS.

WINDOW SHADE CONTROLLING DEVICE.

APPLICATION FILED JULY 11, 1912.

1,044,453. Patented Nov. 12, 1912.

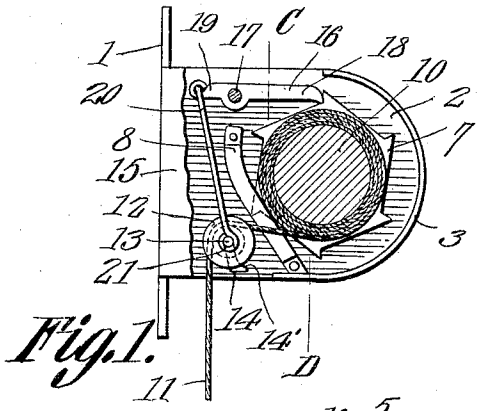

Fig. 1.

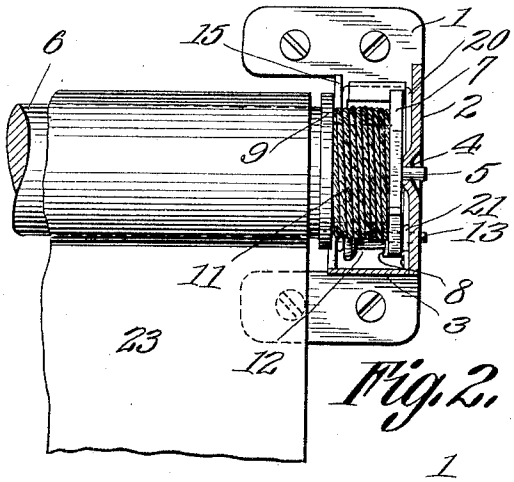

Fig. 2.

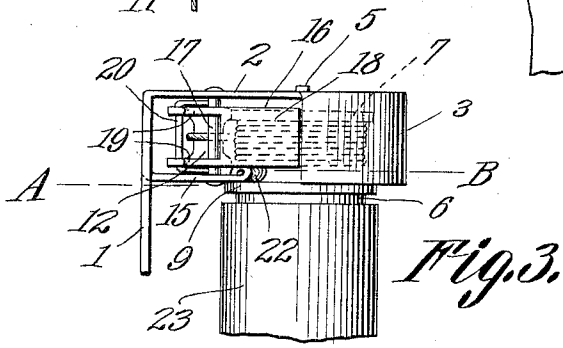

Fig. 3.

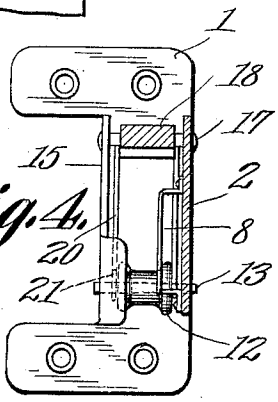

Fig. 4.

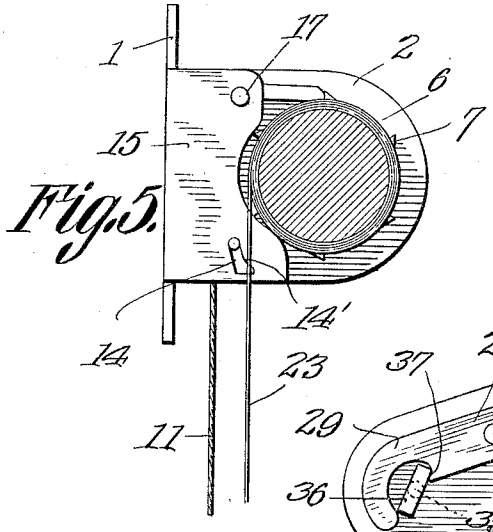

Fig. 5.

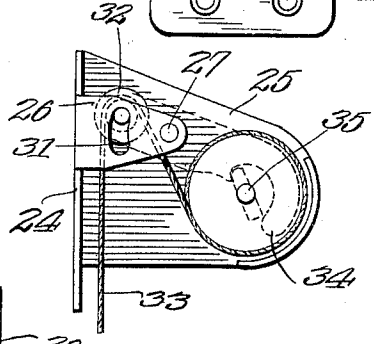

Fig. 6.

Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

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WINDOW-SHADE-CONTROLLING DEVICE.

1,044,453. Specification of Letters Patent. Patented Nov. 12, 1912.

Application filed July 11, 1912. Serial No. 708,892.

To all whom it may concern:

Be it known that I, EDWARD E. HARRIS, a citizen of the United States, residing at Valliant, in the county of McCurtain and State of Oklahoma, have invented a new and useful Window-Shade-Controlling Device, of which the following is a specification.

This invention relates to controlling devices for window shades, its object being to provide cord controlled mechanism whereby the actuation of a shade roller can be regulated, one cord being utilized both for rotating the roller so as to raise the shade and for controlling the operation of locking means whereby unwinding of the shade from the roller is regulated.

Another object is to provide novel means for holding the roller so as to prevent the shade from unwinding therefrom.

A further object is to provide improved means for connecting the controlling cord with the holding mechanism.

A further object is to provide a device of this character which is simple and compact in construction, the parts of which will not readily get out of order, and which is inexpensive to manufacture.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention have been shown.

In said drawings:—Figure 1 is a view partly in section and partly in elevation of the device with a shade and its roller combined therewith, the section being taken on the line A—B Fig. 2. Fig. 2 is a front elevation of the parts shown in Fig. 1, the bracket being shown in section. Fig. 3 is a plan view of the parts shown in Figs. 1 and 2. Fig. 4 is a section on line C—D Fig. 1. Fig. 5 is an elevation of the inner side of the device, the shade and its roller being shown in section. Fig. 6 is an inner side elevation of a modified form of device. Fig. 7 is an elevation showing the outer side of said modified form.

Referring to the figures by characters of reference 1 designates an attaching plate having an outstanding bracket 2 from the inner side of which extends an arcuate flange 3 which constitutes a guard for protecting the mechanism carried by the bracket. An opening 4 is formed in the bracket 2 and is adapted to receive the neck or gudgeon 5 of a shade roller 6, that end of the roller nearest the bracket 2 being provided with a ratchet wheel 7 adapted to rotate therewith. A retaining and guide strip 8 is secured at its ends to the inner face of the bracket 2 and the ratchet wheel 7 projects between this strip and the bracket so as thus to hold the gudgeon 5 against withdrawal from the opening 4. A collar or annular flange 9 extends from the shade roller 6 and that portion of the roller between the collar and the ratchet wheel may, if desired, be reduced in diameter so as to form a winding drum 10. One end of a controlling cord 11 is secured to this drum and the cord is wrapped around the drum and passes over a spool 12 which, in the form of device shown in Figs. 1 to 4 inclusive, is journaled on a pin 13 the ends of which are mounted to slide within slots 14. One of these slots is formed in the bracket 2 while the other slot is formed in an ear 15 which extends from the attaching plate 1 and is parallel with the bracket 2. The lower end of each slot 14 is extended a short distance toward the space below the roller 6 and the upper walls of these extended portions of the slots are preferably inclined, as shown at 14′. A dog 16 is fulcrumed on a rod 17 which is seated at its ends in the bracket 2 and the ear 15. This dog includes a broad tongue 18 adapted to engage the ratchet wheel, and parallel arms 19. The arms are pivotally engaged by a bail 20 which extends downwardly between the bracket 2 and the ear 15 and has terminal eyes 21 in which are secured the end portions of the pin 13. Thus it will be seen that the weight of the tongue 18 serves not only to hold the dog normally in engagement with the ratchet wheel 7 but also causes the dog normally to hold the bail 20 and the pin 13 elevated so that the ends of the pin

will bear against the upper ends of the slots 14. As shown particularly in Fig. 3 the front edge of the ear 15 is rolled inwardly to form a guide bead 22. This bead coöperates with the strip 8 to prevent the cord 11 from slipping off of the ends of the spool 12.

In the drawings an ordinary window shade has been indicated at 23. When it is desired to raise the shade the cord 11 is pulled downwardly. This causes the spool 12 likewise to move downwardly until the ends of the pin 13 are brought to a stop by the ends of the bottom extensions of the slots 14. Bail 20 will therefore shift the dog 16 so as to raise the weight or tongue 18 out of engagement with the ratchet wheel 7. Continued pulling of the cord will thus cause the cord to unwind from the drum 10 and the roller 6, which rotates with the drum, will thus wind the shade thereon. When the shade has been raised to the height desired, the cord 11 is released whereupon the weight or tongue 18 will gravitate into engagement with the ratchet wheel 7 and cause the arms 19 to pull upwardly on bail 20 and thus restore the pin 13 and the spool 12 to their initial positions. When it is desired to lower the shade the operator pulls lightly on the cord 11 so as to cause the spool 12 to move the pin 13 downwardly until its ends are seated under the inclined walls 14′ of the slots 14. This movement will be sufficient to elevate the dog out of engagement with the ratchet wheel. By then holding the cord and paying it out gradually, the weight of the shade 23 will cause the roller 6 to rotate and the shade to unwind therefrom. As soon as the shade has been lowered a desired distance, cord 11 is released and the dog 16 permitted again to gravitate into engagement with the ratchet wheel so as to hold the shade roller against further rotation.

Importance is attached to the fact that the cord 11 is guided to the spool 12 by strip 8 and bead 22 as it is thus prevented from jumping off of the spool and becoming lodged beyond either end thereof. Importance is also attached to the fact that the spool is located close to the lower end of the bracket 2 and the ear 15 as a smaller bend in the cord is thus made necessary and the wear and tear upon the cord is correspondingly reduced. It is to be understood, however, that the spool 12 can be located at any other point desired, it being possible to mount it either above or below the position illustrated in Fig. 1.

Instead of constructing and arranging the parts as hereinbefore described, a structure such as illustrated in Figs. 6 and 7 may be utilized. This structure includes an attaching plate 24 having a bracket 25 extending from the outer side thereof and an ear 26 extending from its inner side, the bracket and ear being connected by a cross pin 27, one end of which projects beyond the outer side of the bracket 25. Secured to the outer end of this pin 27 is an arm 28 one end of which constitutes a weight, as shown at 29 while its other end has a pin 30 extending laterally therefrom and through arcuate slots 31 formed in the bracket 25 and in the ear 26. A spool 32 is mounted for rotation on this pin 30 and is engaged by a controlling cord 33, one end of which is secured to and is adapted to be wrapped about one end portion of a shade roller 34. A gudgeon 35 extends from the shade roller and through an opening in the bracket 25 and is provided with an elongated head 36 which not only serves to prevent withdrawal of the gudgeon from the bracket 25, but also coöperates with the arm 28 for the purpose of locking the roller 34 against rotation in one direction. In other words, the weighted arm 28 constitutes a dog, this arm having a shoulder 37 against which the head 36 moves when rotating in one direction. The weighted end 29 of the arm or dog 28 is so shaped as to permit the head 36 to rotate freely in the opposite direction when the dog or arm 28 is raised out of engagement with the head 36.

From the foregoing description it will be apparent that when the cord 33 is pulled downwardly it causes the spool 32 to move downwardly and the pin 30 to lift the weighted end 29 of the arm or dog 28. Thus the shoulder 37 is moved out of the path of the head 36 and further pulling on the cord 33 will result in the rotation of roller 34 and the winding of the shade thereon. When it is desired to lower the shade, the cord 33 is pulled lightly so as to lift the shoulder 37 out of the path of the head 36 after which the cord 33 is paid out gradually so as thus to permit the shade to unwind from the roller under its own weight. As soon as the cord is released, the shoulder 37 will drop into the path of the head 36 and stop further unwinding of the shade.

By comparing the two structures which have been described, it will be seen that the same principle of operation is involved in both of them, the head 36 being the equivalent of the ratchet wheel 7 and the arm or dog 28 being the equivalent of the dog 16.

It will be noted that in the form of device shown in Figs. 1 to 5 inclusive the end walls of the slots 14 constitute stops for positively limiting the up and down movement of the pin 13 and the corresponding movement of the dog 16. The slots 31 in the structure shown in Figs. 6 and 7 also operate in the same manner to limit the up and down movement of pin 30 and the corresponding movement of the dog 28.

Importance is attached to the fact that the rods or cross pins 17 and 27 are fixedly

connected to the dogs and each of them has two bearings, one adjacent each end. By thus arranging the bearings there is no danger of the dogs and spools tilting laterally and binding upon adjacent structures. Instead the parts are always held in proper relation to each other and work freely.

It has been found in actual practice that the cord should be attached to the drum or spool on the shade roller at a point between two of the teeth of the ratchet wheel or between the two ends of the head 36 so that, when the cord is completely unwrapped, the ratchet wheel or the head 36 will not bind upon the dog and said dog will be free to move upwardly during the exertion of downward pressure upon the spool engaged by the cord.

What is claimed is:—

1. A window shade controlling device including a shade carrying roller, a dog, means revoluble with the roller and normally cooperating with the dog for holding the roller against rotation under the weight of the shade, a slotted structure constituting a support for the dog and roller, a pin movable with the dog and projecting into the slots, said pin being movable against the ends of the slots to limit the dog in its movement, a spool carried by the pin, and a controlling cord mounted on the spool and connected to the roller, said cord constituting means for shifting the pin within the slots to disengage the dog, and for rotating the roller to wind the shade.

2. A window shade controlling device including a structure having opposed slots, a shade carrying roller, a dog, means revoluble with the roller and normally coöperating with the dog for holding the roller against rotation under the weight of the shade, a pin movable with the dog and mounted to reciprocate in the slots, a spool carried by said pin, a controlling cord for rotating the roller to wind the shade and for shifting the spool and pin to move the dog out of holding position.

3. A window shade controlling device including a structure having opposed slots, a shade carrying roller, a dog, means revoluble with the roller and normally coöperating with the dog for holding the roller against rotation under the weight of the shade, a pin movable with the dog and mounted to reciprocate in the slots, a spool carried by said pin, a controlling cord for rotating the roller to wind the shade and for shifting the spool and pin to move the dog out of holding position, and opposed means upon the structure for holding the cord against displacement relative to the spool.

4. A window shade controlling device including a supporting structure, a shade carrying roller, a ratchet wheel thereon, a combined guide and retaining device upon the structure for holding the ratchet wheel against lateral displacement relative to the structure, a dog normally engaging the ratchet wheel, a movably supported spool normally held in elevated position by the dog, a controlling cord mounted on the spool, said cord constituting means for shifting the spool to disengage the dog from the ratchet wheel and for rotating the roller to wind the shade, said dog and ratchet wheel normally coöperating to prevent the shade from unwinding under its own weight, and means upon the structure and coöperating with the first mentioned guide for holding the cord against displacement relative to the spool.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD E. HARRIS.

Witnesses:

HERBERT D. LAWSON,

WALLACE J. HILL.