Oct. 13, 1931. J. K. TOMLINSON 1,827,444

SHADE ROLLER

Original Filed Feb. 13, 1928

Fig. 1.

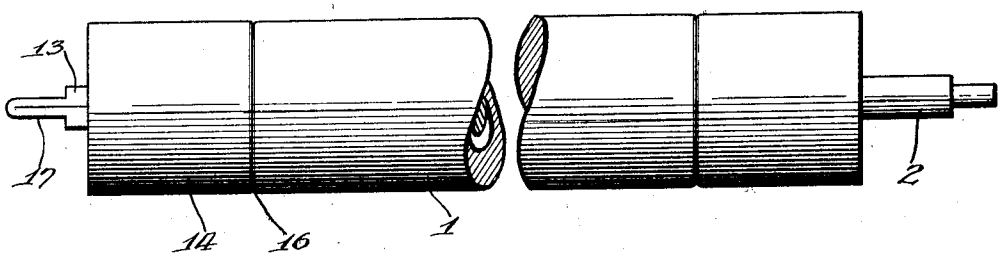


Fig. 2.

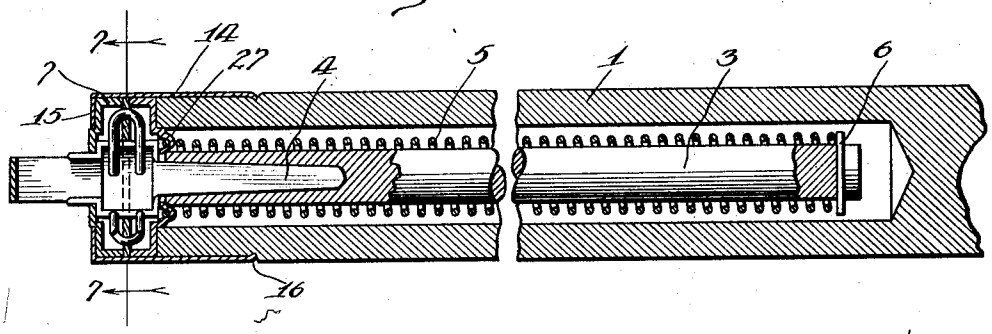


Fig. 3.

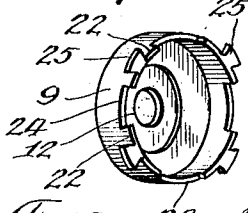


Fig. 4.



Fig. 5.

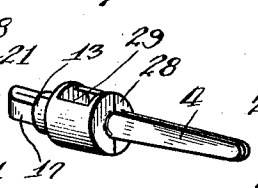


Fig. 6.

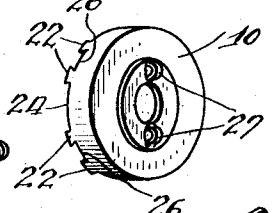


Fig. 7.

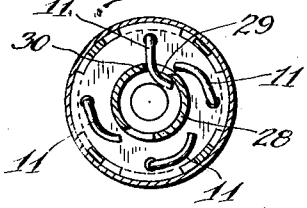


Fig. 8.

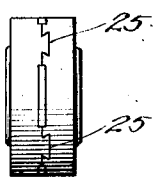


Fig. 9.

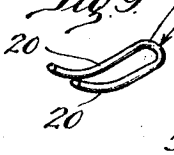
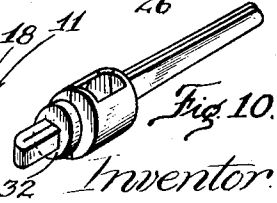


Fig. 10.



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UNITED STATES PATENT OFFICE

JOHN K. TOMLINSON, OF CHICAGO, ILLINOIS

SHADE ROLLER

Application filed February 13, 1928, Serial No. 253,855. Renewed March 2, 1931.

My invention relates to shade rollers.

One of the objects of my invention is to provide an improved shade roller construction which will prevent accidental release of the shade roller.

A further object of my invention is to provide a shade roller construction of the character indicated, which will be cheap to manufacture, and durable and efficient in use.

Further objects will appear from the description and claims.

In the drawings in which an embodiment of my invention is shown,

Figure 1 is an elevational view of a shade roller;

Fig. 2 is an axial section thereof;

Fig. 3 is a perspective view of part of the pawl carrier housing;

Fig. 4 is a perspective view of the pawl carrier and pawls;

Fig. 5 is a perspective view of a sheet metal stamping which provides a pawl retainer, a bracket engaging portion, a bearing portion, and a prong portion;

Fig. 6 is a perspective view of the other part of the pawl carrier housing;

Fig. 7 is a section on the line 7—7 of Fig. 2;

Fig. 8 is an elevation of the pawl carrier housing assembled;

Fig. 9 is a perspective view of one of the pawls; and

Fig. 10 is a perspective view showing a slightly different form of bearing.

Referring to the drawings in detail the construction shown therein comprises a wooden roller 1 to which the shade is attached, pawl controlled spring means at one end of the roller for controlling rotation of the roller, and a spring pressed pin 2 at the other end of the roller for engaging a supporting bracket.

The pawl controlled spring means for controlling rotation of the shade roller comprise the stamping shown in Fig. 5 which is formed of sheet metal doubled upon itself to provide various portions performing various functions, a non-rotatable wooden rod 3 into which the prong portion 4 of the stamping is inserted, a coil torsion spring 5 having one end secured at 6 to the wooden rod, a pawl carrier housing 7 to which the other end of the coil torsion spring is secured, a pawl carrier disk 8 secured between the mating halves 9 and 10 and said housing, and a plurality of pawls 11, four in number, pivotally mounted on said pawl carrying member. The outer half 9 of the pawl carrier housing has a bearing opening 12 cooperating with a rounded hollow journal portion 13 formed on the sheet metal stamping. The pawl carrier housing is secured to the end of the wooden shade roller by means of a cap or ferrule 14 having a flange 15 which holds the housing in position, the edge of the cap or ferrule being crimped inwardly at 16 to bite into the wooden roller and hold the parts securely in position. The outer end of the stamping is flattened to provide a portion 17 for engaging the notch in the usual shade roller bracket.

The pawls may be formed of wire as shown in Fig. 9 bent to provide an intermediate journal portion 18 journalled in an opening 19 in the disk-like pawl carrier 8, and two pawl portions 20 lying on opposite sides of the pawl carrier and connected with each other by said journal portion 18. The pawl carrier has four arcuate surfaces 21 which fit underneath the arcuate flanged portions 22 of the two valves 9 and 10 of the pawl carrier housing, and has four outwardly extending portions 23 which fit into notches or recesses 24 formed between the aforesaid flanges. The two halves of the housing may be secured together in any suitable manner as by means of dovetail lugs 25 formed on one of the halves which may be pressed down to engage in dovetail notches 26 formed in the other half. Loops 27 may be struck up from one of the housing parts to provide for the attachment of the coil torsion spring 5.

That part of the sheet metal stamping which cooperates with the pawl to hold the shade roller against rotation comprises a hollow split drum-like structure 28 formed from two mating halves and having an opening through which the points of the pawls can enter as shown in Fig. 7. The roller is brought to a stop against the action of the coil torsion spring by a two-point engagement of the pawl, the end of the pawl engag-

ing the inner side of the drum, and the intermediate part of the pawl engaging the front edge 30 of the opening 29.

By reference to Fig. 7 it will be seen that there is no danger that the pawl will become disengaged from the holding drum accidentally as the shade roller would have to be rotated backwardly a substantial distance in order for the point of the pawl to be released from its engagement with the holding drum. The pawls are so shaped that they can be threaded through the openings 19 in the pawl carrier and then moved to a position in which the pawl portions straddle the pawl carrier so that when the housing members are assembled in position the pawls will also be held assembled on the pawl carrier. The operation is as follows:

If the shade is in lowered position and held as shown in Fig. 7, and it is desired to raise the shade, the shade is first pulled down far enough to withdraw the pawl 11 from the opening in the retaining drum 28 and the shade is then quickly released whereupon the coil torsion spring 5 will cause rapid rotation of the shade roller and centrifugal force will cause the pawls 11 to fly outwardly to prevent their engagement with the retaining drum. To stop the shade in the desired position the movement of the shade is arrested to prevent centrifugal force from acting on the pawls to throw them outwardly and the shade is allowed to roll slowly upward until the point of one of the pawls enters the opening in the holding drum and the parts are again held in the position shown in Fig. 7.

The construction shown in Fig. 10 is substantially the same as that shown in Fig. 5 except that the bearing portion for the housing instead of being formed as an integral part of the sheet metal stamping is formed as a separate metal collar 31 which is slipped over the flattened end 17 of the sheet metal stamping.

While I have described but two embodiments of my invention, it is obvious that many modifications therein may occur to those skilled in the art, and I desire, therefore, that my invention be limited only by the scope of the appended claims and by the prior art.

I claim:

1. A shade roller construction comprising a roller, a pawl carrier secured to rotate therewith, a pawl mounted on said carrier, said pawl carrier comprising a disk having an opening therethrough, said pawl being formed of wire shaped to provide a middle journal portion journalled in said opening and two pawl portions lying on opposite sides of said disk and connected with each other by said journaled portion.

2. A shade roller construction comprising a roller, a pawl carrier, a pawl mounted on said carrier and housing means for said pawl carrier and pawl, said pawl carrier comprising a disk on which said pawl is pivotally mounted, said housing means comprising two cup members embracing between them said pawl carrier and pawl, said housing means and pawl carrier being secured to rotate with said roller, said pawl comprising a portion operating in the space between said disk and one of said cup members.

3. A shade roller construction comprising a roller, a pivotally mounted pawl secured to rotate with said roller, and means engageable with said pawl for holding said roller against rotation comprising an abutment member engageable with an intermediate portion of the pawl, and an abutment member engageable with the end portion of the pawl.

4. A shade roller construction comprising a roller, a pawl secured to rotate with said roller, and means including a portion engageable with said pawl for holding said roller against rotation comprising a drum member having an opening through which the point of the pawl enters, the end of the pawl engaging the inside of the drum and an intermediate portion of the pawl engaging the front edge of the opening to hold the roller against rotation.

In witness whereof, I have hereunto subscribed my name.

JOHN K. TOMLINSON.