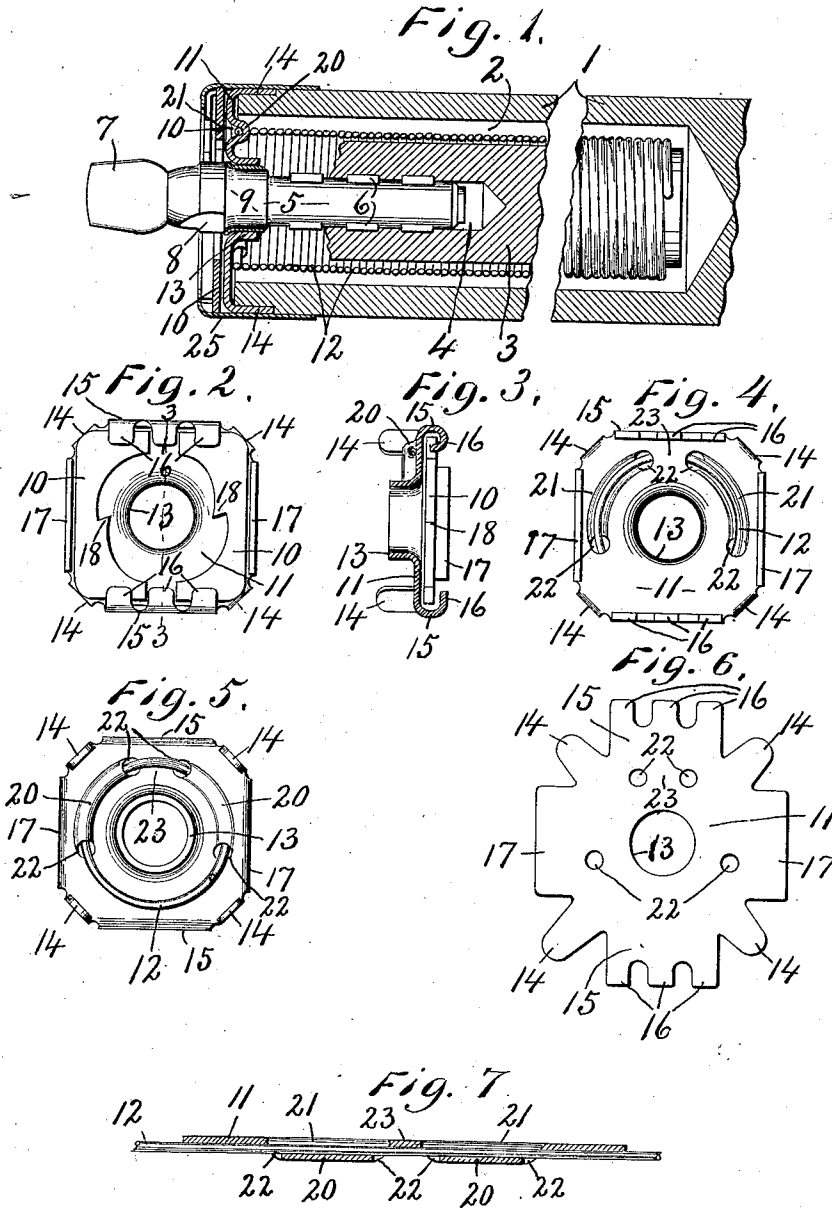


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SHADE ROLLER.

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1,053,460.

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UNITED STATES PATENT OFFICE.

JAMES V. WASHBURNE, OF FULTON, NEW YORK.

SHADE-ROLLER.

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To all whom it may concern:

Be it known that I, JAMES V. WASHBURNE, of Fulton, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Shade-Rollers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in shade rollers of the class set forth in my pending application #543,229 filed February 11, 1910 in which the roller is hollow throughout a portion of its length for receiving a centrally disposed spindle having a spear at one end adapted to interlock with a suitable bracket for holding the spindle stationary during the operation of the roller by or against the action of a suitable retracting spring which is coiled around the spindle and has one end secured thereto and its other end secured to a suitable disk on the end of the roller adjacent the spear.

The roller and spindle are usually made of cold rolled steel having a reduced end provided with fins driven into one end of the spindle to lock the two elements together, the intermediate portion of the spear having a circular bearing upon which the catch carrying disk is journaled and therefore the spear performs the quadruple functions of supporting one end of the spindle; holding said spindle stationary against rotation; forming a bearing for the catch carrying plate for holding the roller concentric with the spindle and permitting it to rotate, and also serving as a clutch section cooperating with the catch plates to hold the roller in its rotarily adjusted position.

In my pending application referred to, it will be observed that a portion of the catch carrying disk which is secured to the adjacent end of the roller is pressed up from the plane of the main body in the form of a semi-circular rib or channel open at the ends for receiving the adjacent end of a coiled spring, thus forming a continuous semi-circular groove in the outer face of said disk in which the adjacent helix of the spring is seated. I have discovered, however, that

when the spring is tensioned axially, as, for example, when attaching it to the spindle and to the disk, the central portion of the end helix of the spring within the channel or groove tends to rock toward the catch plates to such an extent as to sometimes interfere with the operation of said plates, and the main object of my present invention is to obviate this difficulty by forming two substantially quadri-circular channels and leaving the intervening bridge between their ends so that the adjacent arched portion of the helix will have inner and outer bearings and thereby be held against tilting movement relatively to the disk.

It is sometimes desirable to place the curtain roll at the bottom of the window frame to enable the curtain to be unrolled from the bottom upward in which case it may be necessary to lock the catch plates in their open positions so as not to interlock with the shoulders on the spear.

Another object of my present invention is to provide means whereby the same roller may be operated either from the bottom or top of the window.

Other objects and uses will be brought out in the following description.

In the drawings—Figure 1 is an enlarged longitudinal sectional view of a portion of a curtain roller embodying the various features of my invention. Fig. 2 is an outer end face view of the detached catch carrying disk and catch plates thereon, showing the catch plates as locked in their open positions. Fig. 3 is a transverse vertical sectional view of the same disk taken on line 3—3, Fig. 2. Fig. 4 is an outer end face view of the detached catch carrying disk, the catch plates being removed to show the manner of connecting the adjacent end of the spring thereto. Fig. 5 is an inner end face view of the same disk showing the adjacent portion of the spring attached thereto. Fig. 6 is a plan of the blank for forming the catch carrying disk. Fig. 7 is an enlarged sectional view of the catch carrying plate through the channels as developed in a straight line.

In illustrating my invention I have shown

a portion of a roller —1— having a central circular chamber —2— extending some distance inwardly from one end for receiving a spindle —3—. This spindle is also provided with a central lengthwise socket —4— opening from one end in which is tightly driven the reduced end of a spear —5— having a series of radially projecting fins to firmly lock the spear and spindle to each other against relative rotation. The outer end of the spear extends some distance beyond the adjacent end of the spindle —3— and is provided with a flattened portion —7— for engagement with a suitable bracket not shown to hold the spindle —3— against rotation. The intermediate portion of the spear —5— between the flattened end —7— and adjacent end of the spindle —3— is preferably circular and of greater diameter than the portion which enters said spindle and is provided with a plurality of, in this instance two, grooves —8— and a circular bearing —9— just at the inner end of the grooves, said grooves forming shoulders adapted to be engaged by a corresponding number of radially movable catch plates —10— presently described.

A one-piece catch carrying disk —11— shown in its developed form in Fig. 6 is adapted to be secured to the spear end of the roller —1— to form a bearing for said roller upon the journal —9— of the spear and is also provided with means for interlocking engagement with the adjacent end of a coiled spring —12— and in addition to these functions is provided with means for receiving and retaining the catch plates —10— in operative position. For these purposes the central portion of the disk is pressed laterally beyond the plane of the main body to form a circular hub —13— journaled upon the bearing —9—, while the margin of the disk is provided with a plurality of, in this instance four, lugs or ears —14— preferably arranged at the four corners of a rectangle and deflected or bent laterally in the same direction as the hub —13— for entering corresponding recesses or grooves in the periphery of the adjacent end of the roller —2— to lock the disk and roller against relative rotation and at the same time holding this end of the roller concentric with the axis of the spindle —3— and spear —5—. Two of the diametrically opposite sides of the disk —11— are provided with similarly formed wings or flanges —15— which are bent at substantially right angles to the main body in a direction opposite to that of the hub —13— and lugs —14— and the outer edge of each flange or wing is provided with a plurality of, in this instance three, tongues —16— preferably spaced equi-distant apart and bent inwardly toward the axis but apart from the main body

of the disk so as to form intervening guide grooves for the reception of the adjacent edges of the catch plates —10—. The remaining diametrically opposite sides of the disk —11— are provided with laterally projecting wings or flanges —17— which are bent outwardly at right angles to the main body of the disk or in the same direction as the flanges —15— to form suitable stops for limiting the outward sliding movement of the catch plates —10—. These catch plates are somewhat similar to those in my pending application referred to and consist of similar flat sheet metal sections mounted upon the disk —11— in the manner described at opposite sides of the spear in the transverse plane of the grooves —8— and are provided on their inner edges with shoulders —18— reversely arranged for engagement with said grooves in the usual manner when used in connection with an overhead curtain roll. On the other hand when it is desired to position the curtain roll at the bottom of the window, the operation of these catch plates is undesirable and in order that they may be held in their open positions, the central tongues —16— may be bent inwardly between the meeting edges of the plates when in their open positions as shown in Figs. 2 and 3, thereby allowing the curtain to be raised and lowered and held in position by the usual means employed for curtains which are drawn from the bottom upward.

By making the disk —11— of bendable metal, the central tongues —16— may be readily bent inwardly or outwardly as may be desired according to the location of the curtain either at the bottom or top of the window. As previously stated this disk —11— also forms a convenient anchorage for the adjacent end of the coiled spring and in order that the attaching helix of said spring may be held against relative tilting movement of the disk, portions of the latter at opposite sides of the center are depressed to one side of the plane of the main body to form raised quarter circular ribs —20— on one side of the disk and corresponding channels or grooves —21— in the opposite side of the disk, said grooves terminating in apertures —22— through said disk for permitting the adjacent helix of the coiled spring to be readily inserted through the channels 21 as shown more clearly in Figs. 4 and 5. That is, the apertures —22— define the ends of the channels which are formed by pressing the intervening portions of the disk to one side of the plane of the main body thus leaving a bridge —23— between the adjacent ends of the channels, such bridge being in the plane of the main body. It is now clear that the channels engage one side of the helix of the spring passed there-through, while the bridge engages the oppo-

site side of said helix and prevents relative tilting of this portion of the spring when the latter is under tension.

The catch carrying disk —11— is additionally held upon the adjacent end of the roller —1— by means of a ferrule —25— which is tightly fitted upon the periphery of said roller and has its outer end overhanging and preferably engaged with the flanges —15— and —17—, thereby forming a shield to protect the sliding plates in a measure against contact with external objects which might interfere with their free action and at the same time the ferrule gives a certain degree of finish to the end of the roller and aids in positioning the curtain or shade upon said roller. The main features, however, of the invention consist in providing a one-piece catch carrying plate with means of attachment for one end of the coil spring, additional means for holding the spring against tilting movement relatively to the disk, and further means for retaining the catch plates in operative position thereon and for holding the catch plates when necessary against inward movement toward each other.

What I claim is:

1. In a shade roller, a catch carrying disk and catches movable thereon toward and from each other, said disk having means thereon for retaining the catch plates in operative position, and additional means for holding them apart.

2. In a shade rolling device, a roller, a catch carrying disk having laterally projecting lugs interlocked with one end of the roller, opposite catch plates slidable on the disk toward and from each other, said disk having an integral tongue bendable to and from a position between the meeting edges of the catch plates.

3. In a shade rolling device, a roller having a chamber opening from one end, a spindle in said chamber and having a socket in the end adjacent the open end of the roller, a spear tightly fitted in said socket and provided with a circular bearing, a catch carrying plate having its marginal edges provided with inturned lugs tightly engaging the roller, said disk having a central portion pressed inwardly beyond the main body forming a hub journaled on the circular portion of the spear, opposite catch plates slidable across and upon the outer face of the disk, and tongues on the disk bendable to and from a position between the meeting edges of the catch plates.

4. In a shade rolling device, a roller having a central chamber opening from one end, a spindle centrally in said chamber, a spear secured to and projecting axially from one end of the spindle, a catch carrying disk of sheet metal having its central portion de-

pressed inwardly forming a hub journaled on said spear, said disk having portions of its marginal edge bent inwardly and engaged with the adjacent end of the roller and other portions thereof bent outwardly and inwardly toward each other forming guide grooves for the catches, and opposite catch plates slidably mounted on the disk and having their ends guided in said grooves, said outturned portions having tongues bendable to and from a position between the meeting edges of the catch plates.

5. A shade rolling device comprising a roller having a chamber opening from one end, a spindle centrally in said chamber, a spear secured to and projecting from one end of the spindle and provided with a circular bearing, a catch carrying disk having a central hub journaled on said circular bearing, said disk having its outer edge provided with inturned lugs secured to the adjacent end of the roller and portions of its intermediate portion between the hub and lugs depressed inwardly beyond the plane of the main body and concentric with the hub at points circumferentially apart one from the other forming separate channels, leaving an intermediate bridge between the adjacent ends of the channels, and a spring having one end secured to the spindle and its other end passed through the channels and across the inner face of the bridge.

6. A sheet metal catch carrying disk for shade rollers having its central portion and parts of its marginal edges bent inwardly beyond the plane of the main body forming respectively a central hub and marginal lugs, the main body of the disk being provided with opposite pairs of apertures spaced apart, the portions of the main body between each pair of apertures concentric with the axis of the disk being depressed inwardly beyond the main body to form opposite channels, leaving the portion of the disk between the adjacent ends of the channels flat to form a back rest for a spring, and a spring having one of its helices inserted through said channels and across the inner face of the back rest.

7. In a shade rolling device, a roller having a chamber opening from one end, a spindle centrally in said opening and provided with a socket also opening from one end, a spear tightly fitted in said socket and provided with lengthwise grooves in its periphery and a circular bearing at the inner face of the grooves, a catch carrying disk secured to the adjacent end of the roller and having a central hub journaled on the circular bearing of the spear, the intermediate portion of said disk having separate portions thereof depressed inwardly beyond the plane of the main body forming separate

channels spaced apart leaving the intervening portion of the plate forming a bridge, a coil spring having one end secured to the spindle and its other end passed through said channels and across the inner face of the bridge, and catch plates slidably mounted upon the outer face of the disk and movable into and out of engagement with the grooves in the spear.

In witness whereof I have hereunto set my hand on this 14th day of July 1911.

JAMES V. WASHBURNE.

Witnesses:

H. E. CHASE,
E. A. THOMPSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."