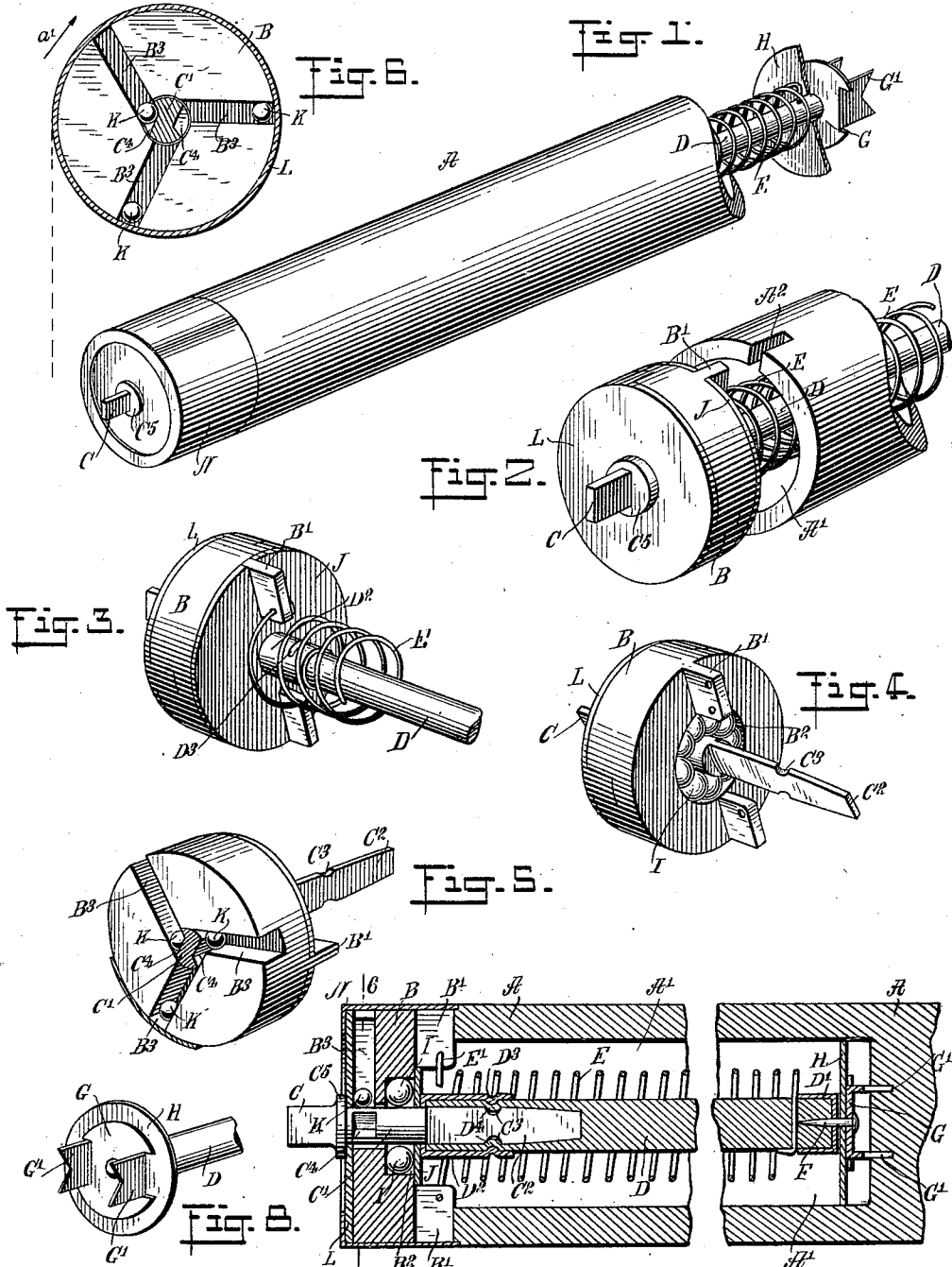


C. K. SNAVELY.
SHADE ROLLER.

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Patented Nov. 14, 1911.



WITNESSES:

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Fig. 7.

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SHADE-ROLLER.

1,008,748.

Specification of Letters Patent. Patented Nov. 14, 1911.

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To all whom it may concern:

Be it known that I, CHRISTIAN KEENE SNAVELY, a citizen of the United States, and a resident of Bloomfield, in the county of Essex and State of New Jersey, have invented a new and Improved Shade-Roller, of which the following is a full, clear, and exact description:

The object of the invention is to provide a new and improved shade roller, arranged to insure an easy and smooth running of the roller for winding up and unwinding the shade cloth, to securely lock the roller in stopping position and to permit convenient assembling of the parts and securely holding the same in position. For the purpose mentioned, use is made of a rotatable roller, provided at one end with a recess for the reception of the spring for the return motion of the roller, a non-rotative spindle extending centrally in the said recess, and provided at its outer end with a spear for engaging a shade roller bracket, to hold the spear and spindle from turning, a cap for closing the recessed end of the roller, and provided with grooves for the reception of locking balls adapted to engage notches in the spear for locking the cap and roller in the stopping position.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of one end of the shade roller, part of the roller being broken out; Fig. 2 is an enlarged perspective view of the same, showing the closing cap detached from the roller; Fig. 3 is a perspective view of the cap, spindle and spring; Fig. 4 is a similar view of the cap, spear and ball bearing; Fig. 5 is a similar view of the cap, spear and locking balls, the spear being shown in section; Fig. 6 is an enlarged cross section of the ball locking device, the section being on the line 6—6 of Fig. 7; Fig. 7 is an enlarged longitudinal central section of one end of the shade roller; and Fig. 8 is a perspective view of the inner end of the spindle, its bearing and centering disk.

The roller A is provided at one end with a recess A' adapted to be closed by a bearing cap B having inwardly-extending lugs B' fitting into correspondingly-shaped slots

A² formed on the end of the roller A so as to hold the bearing cap B from turning. In the bearing cap B is mounted to turn the cylindrical portion C' of a spear C, having a tang C² driven into the outer end of a non-rotative spindle D, extending within the recess A' and around which is coiled a spring E, having the outer end E' secured to one of the lugs B', the spring being guided by passing loosely through the other lug B', as plainly indicated in Figs. 3 and 7. The inner end of the spring E is attached to the inner end of the spindle D, so that when the roller A is rotated in one direction, the spring is compressed to return the roller for rewinding the shade cloth. The inner end of the spindle D is mounted to turn on a pin F driven through disks G and H, of which the disk G is provided with prongs G' driven into the end wall of the recess A', and the disk H fits with its peripheral face against the wall of the recess A', to center the spindle D at the time the parts are assembled and the prongs G' are driven into the end wall of the recess A'. A ferrule D' is placed on the inner end of the spindle, and a ferrule D² is placed on the outer end thereof, and the ferrule D² is provided with an inwardly-extending annular bead D³, for pressing a portion D⁴ of the spindle material into notches C³ formed in the tang C², so as to securely hold the spear C in position on the spindle D.

On the inner face of the bearing cap B is formed a recess B² containing bearing balls I engaging the cylindrical portion C' of the spear C, to insure an easy rotating of the roller A on the non-rotative spear C of the spindle D. In order to hold the bearing balls I in position in the recess B², use is made of a covering disk J, fitting against the inner face of the cap B, and provided with notches engaging the lugs B', as plainly indicated in Fig. 3.

The outer face of the bearing cap B is provided with rectangular grooves B³, each containing a locking ball K, adapted to engage a notch C⁴ formed in the peripheral face of the cylindrical portion C' of the spear C, as plainly indicated in Figs. 5 and 7. One or more notches C⁴ may be arranged on the cylindrical portion C', and each notch is made V shape, one of the walls of the notch being adapted to extend flush with one of the walls of a groove B³ in register

with the notch at the time, as plainly indicated to the left in Fig. 6. Thus when the ball K passes from its groove B³ into the registering notch C⁴, then it extends partly in the groove B³ and partly in the notch, to lock the bearing cap B and hence the roller A against rotation in the direction of the arrow a', that is, in the direction in which the spring E tends to rotate the roller A for winding up the shade cloth. Thus when the shade cloth is drawn down to rotate the roller A in the inverse direction of the arrow a', the balls K do not interfere with such rotation, but when the downward pull on the shade cloth ceases then the ball K in the groove B³ uppermost at the time runs into a corresponding registering notch C⁴ and then locks the bearing cap B and the roller A against return rotation in the direction of the arrow a'. When the operator desires to return the shade, it is only necessary to give a light downward pull on the shade cloth, so as to dislodge the ball K, then in locking position, from the notch C⁴ and then quickly release the shade cloth, so that the roller A is turned by the spring E to wind up the shade cloth and thus throwing the balls outward by centrifugal force and holding the same in this position, without danger of locking the bearing cap B and the roller A by the locking ball K until the rotation is stopped by the operator. The balls K are held in position in the grooves B³ by a covering disk or a plate L, fitting against the outer face of the bearing cap B, and a ferrule N engages the covering plate L, the cap B, covering plate J and the terminal of the roller, so as to hold the several parts in the desired assembled position. The spear C is provided near its outer end with a collar C⁵, abutting against the outer face of the covering plate, to space the outer face of the ferrule N from the shade roller bracket, engaged by the outer flat end of the spear C, to hold the latter against turning. It is understood that the other end of the roller A is provided with the usual trunnion, engaging a shade roller bracket for turning therein.

From the foregoing, it will be seen that the roller A is mounted to turn by the bearing balls on the spear C, thus insuring an easy running of the roller for winding up or unwinding the shade cloth, and the roller is securely locked in stopping position by a locking ball K, and the roller can be readily unlocked whenever it is desired to rewind the shade cloth on the roller A.

It will be noticed that by the use of the collar C⁵ the inward motion of the spear C is limited, as the said collar abuts against the plate L, and the outward movement of the spear is prevented by the ferrule D², and hence the spear is at all times in true position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A shade roller, comprising a rotatable roller having a recess in one end, a non-rotative spindle in the recess of the roller, a spear secured to the outer end of the spindle and having a cylindrical portion provided with peripheral V-shaped notches, a cap for closing the recessed end of the roller and through which the spear extends, said cap being provided in its outer face with radial grooves, a retaining plate on the outer face of the cap, a ferrule engaging the retaining plate and extending over the cap onto roller, balls in the said grooves, and a spring surrounding the spindle and having its inner end secured to the said spindle and its outer end to the cap.

2. A shade roller, comprising a rotatable roller having a recess in one end and slots leading out through said end, a non-rotative spindle in the recess of the roller, a spear secured in the outer end of the spindle and having a cylindrical portion provided with peripheral V-shaped notches, a cap for closing the recessed end of the roller and through which the spear extends, said cap being provided with radial grooves in its outer face and on its inner face with lugs projecting into the slots of the roller, a retaining plate on the outer face of the cap, a ferrule engaging the retaining plate and extending over the cap and over the slotted end of the roller, balls in the grooves of the cap, and a coiled spring surrounding the spindle and having its inner end secured to the spindle and its outer end to the lugs of the cap.

3. A shade roller, comprising a rotatable roller provided at one end with a recess, a coiled spring in the said recess, a non-rotative spindle extending centrally in the said recess, and to which is secured one end of the said spring, a bearing for the inner end of the said spindle, a spear on the outer end of the said spindle and having a cylindrical portion provided at a portion of its length with peripheral notches, a cap for closing the recessed end of the said roller and through which extends the said spear, the cap being provided at its inner face with a recess and with lugs engaging the ends of the roller, the outer face of the cap being provided with grooves, bearing balls in the said cap recess and engaging the non-notched cylindrical spear portion, balls in the said cap grooves for engagement with the said notches, retaining plates on the opposite faces of the said cap to retain the balls, and a ferrule engaging the said roller and inclosing the said cap and the outer retaining plate.

4. A shade roller, comprising a roller having a recess at one end, a bearing cap for

closing the said recessed end, a non-rotative spindle extending in the said recess and passing through the said cap, a centering disk fitting the inner end of the said recess, an attaching plate centrally arranged on the said centering disk, and having prongs engaging the end wall of the said recess, and a bearing pin passing centrally through the said plate and disk and engaging the inner end of the said spindle.

5. In a shade roller, a roller having a recess in one end and slots in said end, a cap having a recessed inner face and lugs engaging the slots of the roller, a non-rotatable spindle having a spear extending

through the cap, the portion of the spear within the cap being cylindrical, a spring having its inner end secured to the spindle and its outer end to one of the lugs of the cap, a covering disk for the recess of the cap, said disk having notches engaging the lugs of the cap, and balls in the recess of the cap and engaging the spear.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN KEENE SNAVELY.

Witnesses:

THEO. G. HOSTER,
JOHN P. DAVIS.

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