G. SCHULER & E. KRAEMER.

ADJUSTABLE SHADE ROLLER.

APPLICATION FILED JUNE 27, 1916.

1,212,696.

Patented Jan. 16, 1917.

2 SHEETS—SHEET 1.

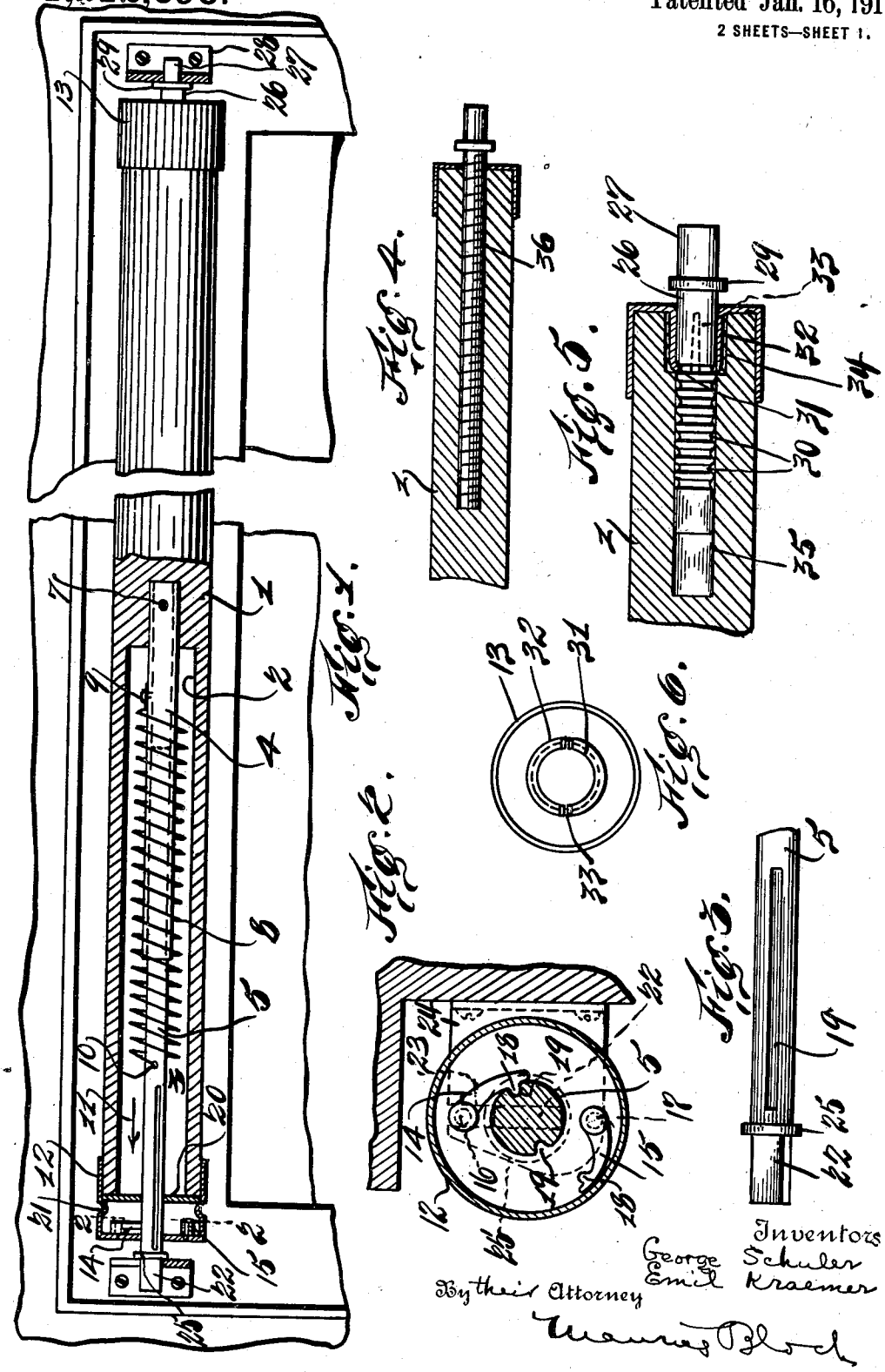


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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2 SHEETS—SHEET 2.

Fig. 7.

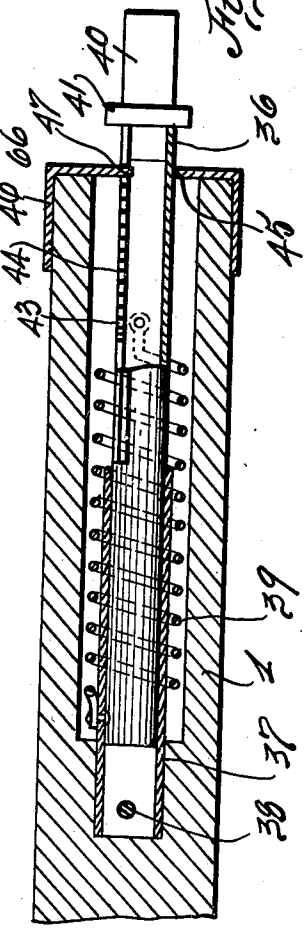


Fig. 8.

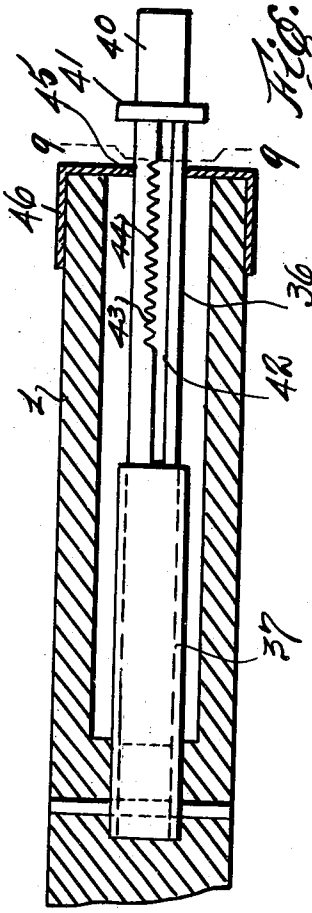
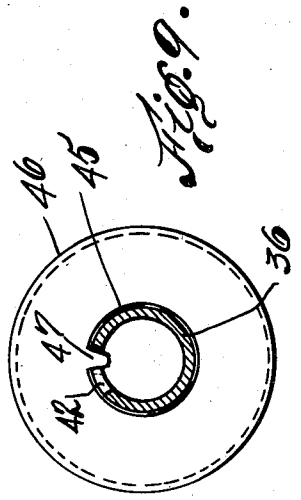


Fig. 9.



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UNITED STATES PATENT OFFICE.

GEORGE SCHULER AND EMIL KRAEMER, OF WOODSIDE, NEW YORK.

ADJUSTABLE SHADE-ROLLER.

1,212,696. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed June 27, 1916. Serial No. 106,096.

To all whom it may concern:

Be it known that we, GEORGE SCHULER and EMIL KRAEMER, citizens of the United States of America, residing at Woodside, Queens county, and State of New York, have invented certain new and useful Improvements in Adjustable Shade-Rollers, of which the following is a full, clear, and exact description.

This invention relates to improvements in shade-rollers, the object being to provide a device of this character having trunnions at each end thereof which are longitudinally adjustable, a further object being to provide an adjustable or extensible spindle which carries a spring arranged to not only wind up the roller after it has been unwound, but to constantly tend to keep the members of the spindle extended. In other words, the spring acts to at all times force the movable member of the extensible spindle outwardly against the adjacent roller bracket. As the movable member of the extensible spindle is forced outwardly by the rewinding spring, it will, when the roller is removed from the brackets, be extended to its full extent; hence, to apply the roller to brackets therefor the movable member of the spindle will be pressed inwardly until its flattened end alines with the bracket jaws intended to receive the same. As the trunnion on the opposite end of the roller is also adjustable, the roller can be applied to windows of different widths by merely adjusting the trunnions.

We will now proceed to describe our invention in detail, the essential features of which will be summarized in the appended claims, reference being had to the accompanying drawing, forming part hereof, wherein—

Figure 1 is a sectional view of our improved shade-roller, partly in elevation, illustrated as applied to a window-sash; Fig. 2 is an enlarged cross sectional view, the section being taken on a line 2—2 in Fig. 1; Fig. 3 is an enlarged view of the outer end of the movable member of the adjustable spindle; Fig. 4 is an enlarged sectional view of one form of adjustable rotatable trunnion; Fig. 5 is a similar view of another form of an adjustable rotatable trunnion; Fig. 6 is a detail end view of the split cap; Fig. 7 is a vertical sectional view, on an enlarged scale, of another form of adjustable trunnion, arranged to rotate with the roller; Fig. 8 is a sectional plan view thereof, the spring being omitted; and Fig. 9 is a sectional end view, the section being taken on a line 9—9 in Fig. 8.

As herein illustrated, our device comprises a roller 1 of wood, metal or other suitable material, having a counter-bore 2 extending into the same from one end to any desirable extent. Within the counter-bore 2, we mount an extensible spindle 3 consisting of the fixed tubular member or support 4 and the rod or movable member 5, which slidably fits the tubular member or support 4. One end of the tubular member 4 is rigidly secured to the roller 1 by a pin 7, which passes through the roller 1 and support 4. For the purpose of rewinding the roller and shade carried thereby (the shade being omitted), we provide a spring 8, one end of which is secured to the support, as at 9, the other end of said spring being secured to the rod 5 as at 10. The spring 8 is applied to the spindle in compressed condition, that is, longitudinally compressed, so that after it is secured in position, it will tend to react and exert pressure in the direction of the arrow 11, thereby keeping the member 5 normally in fully extended position before the roller is placed in the retaining brackets, and when the shade roller is in the brackets, the rod 5 will be pushed inwardly the required distance, as will hereinafter be more fully explained. Each end of the roller 1 carries a cap, said caps being indicated by 12 and 13. To maintain the spring 8 under a torsional tension, we provide the cap 12 with latch-dogs 14 and 15, said dogs being pivoted to the interior of the cap at 16 and 17, respectively. Each dog 14 and 15 carries a ratchet tooth 18 to engage grooves 19 in the rod 5. The grooves 19 are made long enough to permit the dogs 14 and 15 to engage same throughout the limit of the adjustability of the rod 5.

To prevent the cap 12 from being forced onto its end of the roller 1 far enough to cause the dogs 14 and 15 to contact with the end of the roller, or the washer 20 at the end of the roller, we provide the said cap with an annular inwardly directed bead 21 which acts as a stop to maintain sufficient space between the end of the cap and washer 20 to permit of the free movement of the said dogs. As can be seen, the washer 20 is made to fit the cap 12 and acts to aid in supporting the roller; hence, the overhang-

ing portion of the cap 12 is relieved of some of the weight.

The outer end of the rod 5 is flattened, as at 22, to engage the slot or jaw 23 in a bracket 24. The said rod is also provided with a collar 25 to act as a stop and take the longitudinal thrust of the spring 8.

To permit of the accurate centering of the roller, relatively to the window-frame, we provide the roller with an adjustable trunnion 26 which passes through the cap 13 and rotates with the roller. The end 27 of the trunnion 26 engages the bracket 28 and carries a thrust collar 29. To render the trunnion 26 longitudinally adjustable, we provide it with a plurality of annular grooves 30 to be engaged by an annular inturned edge 31 of a cylindrical extension 32 of the cap, split as at 33, to produce yieldable projections. To permit the said projections to yield, the roller 1 is provided with a counter-bore 34 terminating in a central bore 35 to receive the grooved portion of the trunnion 26. To adjust the said trunnion longitudinally it will be pulled outwardly or pushed inwardly, causing the projections produced by splitting the extension 32, to jump the ridges between the grooves 30.

Fig. 4 illustrates another form of adjustable trunnion; in this instance we provide a threaded trunnion 36 which is screwed into the roller 1. The trunnion 36 is adjusted longitudinally by being rotated to the right or left until it is moved inwardly or outwardly to the desired extent.

To assemble the shade-roller, the cap 12 will be placed upon the rod 5, after which the washer 20 will be inserted, whereupon the spring 8 will be applied to the rod 5 and secured at 10. After the spring has been applied, the tubular support 4 will be applied and secured to the spring 8 at 9. After the above operations have been performed, the spindle 3 will be inserted into the roller and the pin 7 passed through the roller and support 4.

To set our improved shade-roller into the retaining brackets therefor, the rod 5, which is normally fully extended by the spring 8, is pushed inwardly the necessary extent to accommodate it to fit the bracket, the trunnion at the opposite end being inserted into the bracket opening therefor.

Figs. 7, 8 and 9 illustrate still another form of adjustable trunnion consisting of a tubular member 36 slidably connected to a tubular support 37 which in turn is secured to the roller 1 at 38. To the support 37 we secure one end of a spring 39, the other end of said spring being secured to the tubular trunnion 36. The tubular trunnion 36 carries a cylindrical bearing stud 40 carrying a collar 41. To render the member 36 adjustable, we slot the same as at 42 and provide a portion of one wall of the slot with recesses 43 to form teeth 44. The member 36 passes through an opening 45 in a cap 46, the said cap carrying a tooth 47 projecting into the slot 42 of the member 36. The spring 39 is applied under a torsional tension to constantly rotate the trunnion 36 to the right in Fig. 9 to keep the tooth 47 in engagement with a recess 43. To adjust the trunnion 36 longitudinally, it will be rotated toward the left, in Fig. 9, to carry the tooth 47 out of its engaging recess. After having moved the tooth out of the recess, the member 36 will be pushed in or pulled out to the desired extent, the spring 39 expanding or contracting with such adjustment of the member 36. When the member 36 is properly adjusted the spring 39 will rotate the member 36 to the right after said member has been released by the fingers or a tool used to rotate it toward the left, and cause the tooth 37 to engage an alining recess 43. The longitudinal tension of the spring 39 will maintain the tooth 47 and its engaging recess to be firmly locked together, in addition to the torsional tension of said spring.

Having now described our invention, what we claim and desire to secure by Letters Patent is:

1. A shade-roller comprising a body portion, an extensible spindle carried thereby, and a spring carried by the spindle arranged to rewind the roller and to tend to constantly extend said spindle.

2. A spindle for shade-rollers consisting of a plurality of slidably connected members, a rewinding spring carried by said spindle and secured at one of its ends to one of said spindle members and at the other end to the coöperating spindle member, said spring acting, after having been secured, to extend said spindle-members.

3. A shade roller comprising a tubular body portion, an extensible spindle carried therein and consisting of two telescopic members, a helical spring surrounding said spindle and attached at its ends to these members respectively and arranged to rewind said roller and tend to continuously extend said spindle, caps for the ends of said tubular body and a trunnion protruding through one of said caps, the outer part of the said spindle extending through the other cap as set forth.

Signed at New York city, N. Y., this 26 day of June, 1916.

GEORGE SCHULER.
EMIL KRAEMER.

Witnesses:
MAURICE BLOCK,
EDWARD A. JARVIS.