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A. T. FOSTER.

SHADE ROLLER.

APPLICATION FILED APR. 17, 1907.

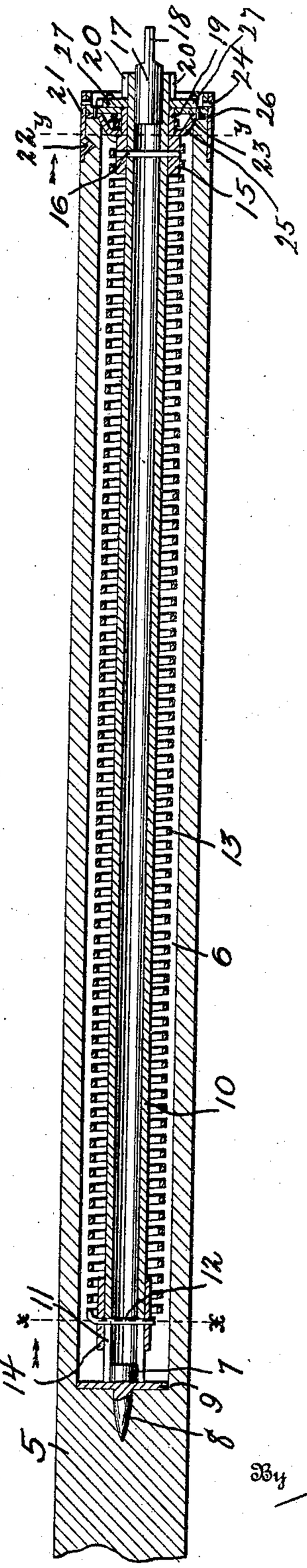

Fig. 1.

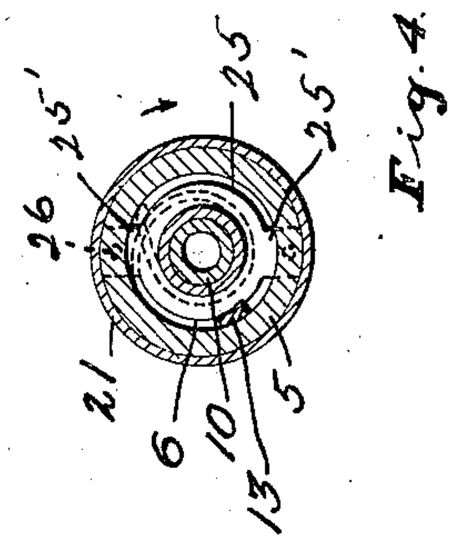

Fig. 4.

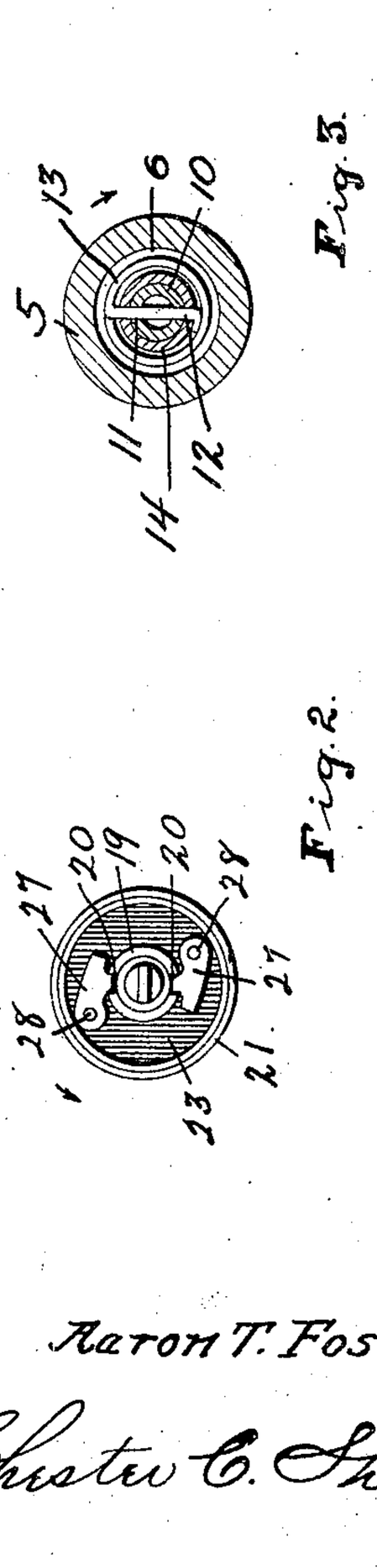

Fig. 3.

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

AARON THOMAS FOSTER, OF CHILLICOTHE, OHIO.

SHADE-ROLLER.

No. 877,070. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed April 17, 1907. Serial No. 368,637.

To all whom it may concern:

Be it known that I, AARON THOMAS FOSTER, citizen of the United States, residing at Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Shade-Rollers, of which the following is a specification.

My invention relates to shade rollers and has for its object the provision of a device of this character constructed in such manner that the shaft upon which the actuating spring is wound, will be held in perfect alinement with the remainder of the roller.

A further object of the invention is the provision of a shade roller constructed in such manner as will simplify devices of this character and cheapen their cost of manufacture.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:

In the accompanying drawing: Figure 1 is a longitudinal section of a shade roller constructed in accordance with the invention, Fig. 2 is an end elevation of said roller, Fig. 3 is a transverse section upon line *x*—*x* of Fig. 1, looking in the direction of the arrow, and, Fig. 4 is a transverse section upon line *y*—*y* of Fig. 1, looking in the direction of the arrow.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numeral 5 designates a shade roller which has an annular recess 6 formed therein for a portion of its length. A bearing stud 7 having a pointed end 8 is integral with a bearing washer 9. This stud is driven into the roller at the end of the recess 6. A hollow shaft 10 is longitudinally disposed within the recess and is split at 11 for the reception of the end 12 of a spiral spring 13, said spring surrounding the shaft 10. A collar 14 is secured upon the end of the shaft and the end 12 of the spring 13 passes through this collar. The stud 7 forms a bearing for the inner end of the shaft, as will be readily understood. A collar 15 is secured by a pin 16 upon the shaft 10. A plug 17 is driven into the outer end of this shaft and is provided with a flattened portion 18 which is adapted to engage in the usual slotted curtain fixture, not shown. A second collar 19 is secured upon the shaft 10 by some means, not shown, such as soldering, brazing or pinning. This collar 19 has a smaller external diameter than the collar 15 and said collar 19 is slotted as at 20 (see Figs. 1 and 4) for a purpose which will be hereinafter described. A ferrule 21 is secured upon the end of the roller, either by tacks or screws, not shown, or by forcing a portion of said ferrule which is preferably formed of thin metal, into the wood of the roller as is indicated at 22. A plate 23 is secured to this ferrule by pins 24 and a second plate 25 is secured by pins 26 to the plate 23. It will therefore be seen that the roller 5, plate 23 and plate 25 turn together, the plates 23 and 25 having their rotative bearing upon the collar 19. Pawls 27 are pivoted at 28 to the plate 23, these pawls being adapted to engage in the slotted portions 20 of the collar 19. The end of the spring 13 is secured between the plates 23 and 25.

As is best illustrated in Fig. 4, the plate 25 is smaller than the plate 23 and is provided with ears 25′ through which the pins 26 pass. The end of the spring passes between the smaller portion of the plate 25 and around behind the upper ear 25′ (see Fig. 4). The end of the spring then passes around the collar 19 and back to the point 20, the end of the spring being frictionally bound between these plates.

The operation of the device is as follows: When the shade, not shown, is drawn upon, the roller is rotated in the direction of the arrow in Fig. 2, at which time the pawls ride over the collar 19 without engaging in the slotted portions 20 thereof. This movement of the roller places the spring under tension as will be readily understood, for the shaft 10 will be held against rotation by the flattened portion 18 of the block 17 which is secured to said shaft, being engaged in a slotted curtain fixture. The roller will therefore be rotated bodily with relation to said shaft and since one end of the spring 13 is secured to said roller, it follows that this spring will be wound up or replaced under tension. If the shade be released in such manner as to permit a very slow retrograde movement of the roller, the uppermost pawl 27 will drop into the slotted portion 20 of the collar 19 to prevent further retrograde movement of the roller and to hold the shade at the desired height.

The operation of devices of this character, is so well known, that no further description with relation thereto is deemed necessary. The invention in this instance resides in the detailed structure by which a bearing of per-

fect alinement is secured for the roller. This is accomplished by having the hollow shaft 10 which is adapted to receive the bearing plug 7 and by securing upon this shaft the collars 15 and 19, said latter collar being slotted for the reception of the pawls 20. These tubular shafts may be so cheaply made and the collars be so easily secured thereon that no casting of any kind is required and consequently the cost of a shade roller constructed in accordance with this invention is far below that of the ordinary shade roller. In addition to this, the provision of the bearing for the plates 23 and 25 upon the collar 19 and the provision of the bearing for the inner end of the shaft upon the plug 7, causes the roller to run in perfect alinement.

From the foregoing description, it will be seen that the present construction provides a rigid shaft which extends from the bearing plug 7 to the exterior of the shade roller. It has been found that where the shaft upon the interior of the shade roller and the member that engages the bracket are made in separate pieces, with a joint between them, the shaft soon becomes twisted out of alinement with the portion of the structure that engages the bracket and the shade roller consequently does not run true.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim is:

1. The combination with a hollow shade roller, of a bearing plug located at one end of said shade roller, a shaft, the end of which is adapted to receive said bearing plug, a spring surrounding said shaft, one end of which is secured thereto, and a collar secured to the opposite end of the shaft which is slotted for the purposes set forth.

2. The combination with a hollow shade roller, of a bearing plug located at one end of said shade roller, a shaft, the end of which is adapted to receive said bearing plug, a spring surrounding said shaft, one end of which is secured thereto, a collar secured to the opposite end of the shaft which is slotted for the purposes set forth, and a plate which closes the end of the roller and has its bearing upon said collar, said plate carrying pawls which are adapted to engage in the slotted portions of said collar.

3. In a device of the character described, the combination with a shade roller having a longitudinal opening formed therein, of a bearing plug carried by said roller at the inner end of said opening, a tubular shaft the inner end of which is adapted to have its bearing upon said bearing plug, a second plug driven into the opposite end of the shaft and having a flattened portion, a slotted collar mounted upon the exterior of said shaft, a plate mounted to turn with the roller, pawls carried by said plate which are adapted to engage the slotted portions of the collar, and a spring one end of which is secured to the shaft and the opposite end of which is secured to the plate.

4. A tubular shaft for shade rollers having a plug driven into one end thereof which is adapted to engage with a shade fixture and a collar surrounding said tubular shaft, said collar being slotted as and for the purposes set forth and pawls carried by the shade roller adapted to engage in the slots of the collar.

In testimony whereof, I affix my signature in presence of two witnesses.

AARON THOMAS FOSTER.

Witnesses:

H. T. ROBINS,

ROBERT W. MANLY.