# United States Patent [19]

**Barettella**

[11] **3,853,170**

[45] **Dec. 10, 1974**


[54] **SHADE ROLLER APPARATUS**


[76] Inventor: **Bernard Barettella,** 688 Maple Ave., Ridgefield, N.J. 07657



[22] Filed: **Oct. 13, 1971**

[21] Appl. No.: **188,954**

[52] **U.S. Cl.** ..... **160/323**

[51] **Int. Cl.** ..... **A47h 1/13**

[58] **Field of Search** ..... 160/323–326; 64/5



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,090,931 | 3/1914 | McLean | 160/325 |
| 1,688,563 | 10/1928 | Tomlinson | 160/301 |
| 1,882,592 | 10/1932 | Hendrickson | 160/326 |
| 2,106,073 | 1/1938 | Stuber | 64/5 |



*Primary Examiner*—Peter M. Caun



[57] **ABSTRACT**

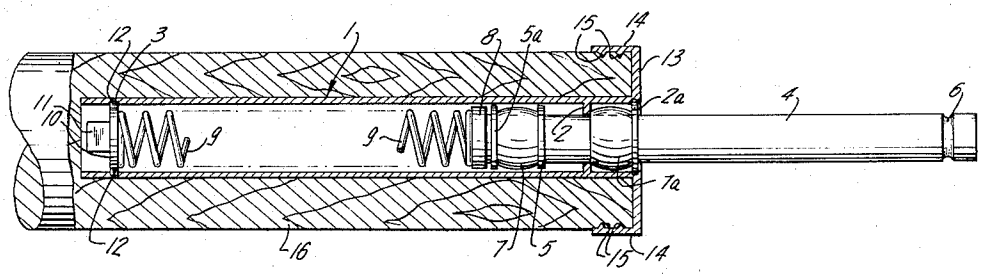
This apparatus is for a shade roller which needs no brackets inside the window frame.

It is composed of an axle **4** two bearing **7,7***a* pivot disc **8** four snap rings **2,2***a*,**5,5***a* spring **9** twist lock **11** housing **1** and a flange **13.**

The operation is as follows. The axle **4** is positioned against the inside of the window frame at one side. Then the shade roller is pushed in to compress the spring **9** where then the other end of the shade roller is positioned horizontal inside the window frame at the other side of the window frame. Then the shade roller is released and the spring **9** will project the axle **4** against the inside of the window frame and this will allow the shade roller to stay in a fixed position without brackets.

When the shade roller is to be used with brackets on the outside of the window frame on the casing the spring **9** is taken out by the use of the twist lock **11** in order to retract the axle **4** to a stationary position, and to take the extension pressure off the brackets.


**1 Claim, 2 Drawing Figures**



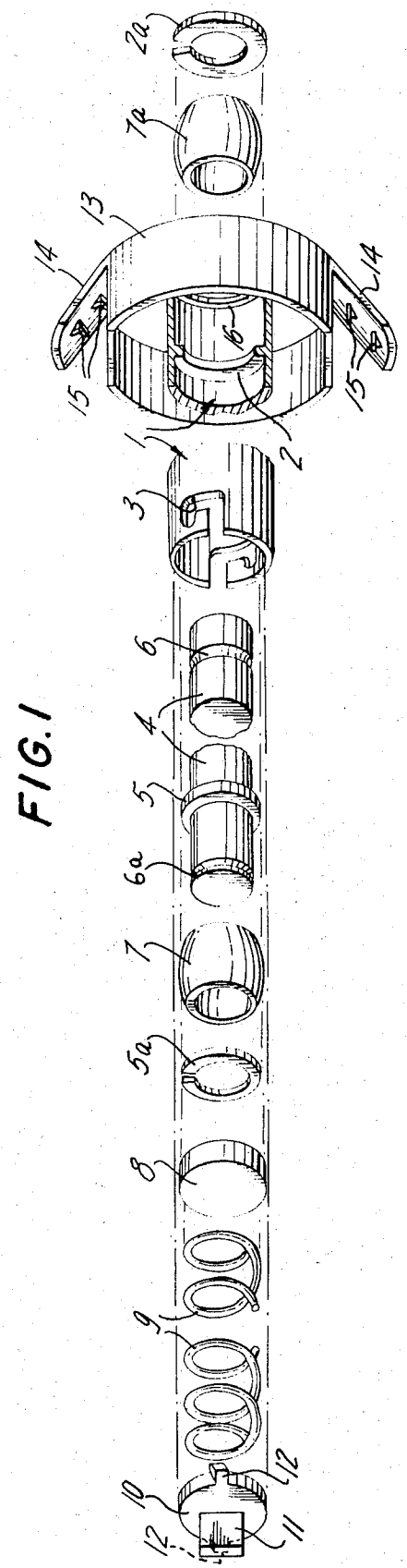


FIG. 1

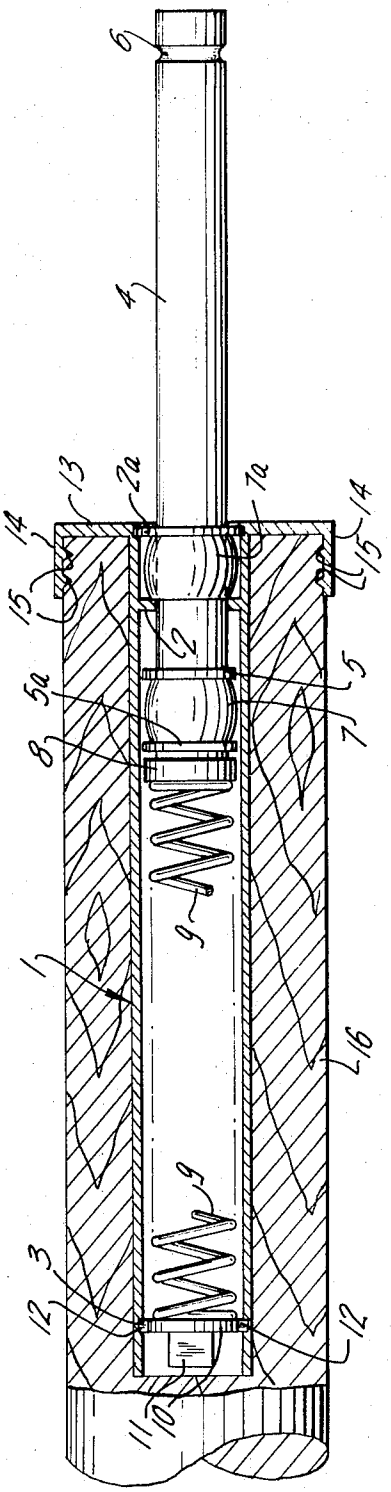


FIG. 2

INVENTOR.

BERNARD BARETTELLA

# SHADE ROLLER APPARATUS

This invention relates to window shade mechanisms and pertains more particularly to a shade roller holding device or an axle apparatus which is extensible and retractable. This device is necessary, in order to fit a window shade roller to a particular length, to remove the axle apparatus, cut the shade and roller, and replace the axle apparatus.

It is of primary concern in connection with the present invention to provide an extensible and retractable roller bearing axle apparatus, which in general, is of great simplicity, and effective in nature.

More particularly, it is an object of this invention to provide a roller bearing axle apparatus wherein the housing of said apparatus are roller bearing mounted on the axle for extension and retraction, wherein a simple snap ring retainer means to position the bearings. Also a twist lock device which is held into position by the means of cut keyway slots in the end of said bearing housing which is used to retract the extension spring when the shade roller is being used outside the window frame.

Other objects and advantages of this invention will appear from the description herein below and the accompanying drawing wherein:

FIG. 1 is a segmental view of the present invention.

FIG. 2 is an open expanded view of construction according to the present invention.

Referring now to FIG. 2 an end portion of a window shade roller **16** is illustrated.

Therein which can be seen, fitted firm within the cavity of the shade roller **16**, is a bearing housing **1**. Said housing is used for the cage and control of the roller bearings **7**,**7***a* by the means of its inner circumference. It is also used for the locking of the circular twist lock **11**, and to reinforce the flange **13** which is of all one.

Within said housing is a roller bearing **7***a* at the face end of the shade roller within a cage by the means of the internal snap rings **2**,**2***a* which controls the circular rotation and alignment of the axle **4**, and the rotation within said housing. Parallel of said bearing on the inner side of said bearing is another roller bearing **7**, which is positioned at the inner end of the axle **4** by the means of external snap rings **5**,**5***a* which enter the concave groves **6***a* as in FIG. **1**. Said bearing rotates around and travels with the extensible and retractable axle **4**, which controls the circular rotation and alignment of said axle and the rotation against the inner side of said housing. The inner external snap ring **5** on said axle, and the inner internal snap ring **2**, control the extensible position of the axle **4**.

At the inner end of said axle is a circular pivot disc **8** which is held into position flush against said axle by the extension of the spring **9**. The purpose of said pivot disc is to be free at that point to rotate, to keep the alignment of the spring **9**, and prevent all restriction between the outer end of the spring **9** and the inner end of the axle **4**.

Within said housing, at the most inner end is positioned a circular twist lock **11**, which is held into position by turning the lock **11** so that the keys **12** can enter the key locks **3**. The circular base **10** becomes the stop and pivot for the extention spring **9**. As aforsaid, the circular lock is used for the purpose of retracting the spring **9** from the housing **1** when the shade roller is to be used on the outside of the window frame on the casing. Thus, as aforsaid other objects and advantages of this twist lock will appear herein below.



Referring now at the face end of the shade roller, attached of one piece to the face of the housing **1** is a flange **13** which is equipped with protruding points **15** on the extended grip wings **14**. When the shade roller has been cut to the desired length, the roller bearing apparatus is put into the cavity of the shade roller, where then the face of the shade roller meets the inner side of the flange **13** where then the grip wings **14** are pressed down so that the points **15** will inject into the roller and hold the apparatus stationary.

From above, the apparatus is relatively simple and effective. For example, it will be noted that when the shade roller is to be used outside the window frame the spring **9** can be extracted by the use of the twist lock **11**. This device is because of the spring **9** and the axle **4** will be long in length for the proper extention, extraction, and pressure, which is necessary in order to hold the shade roller in the window frame, and to take the pressure from the normal winding spring and the take down of the shade to the bottom of the window at the sill. Whereby when the roller is used outside the window frame the pressure of the spring **9** will extend the axle **4** outward to an undetermined position compared to the winding end of the roller and will not be in the proper position for the brackets on the window casing. Also, the outward pressure of the axle would damage the brackets and the wooden casing or the like. In this device, when the spring is extracted the grove **6** of the axle **4** can be placed at the desired position of where the bracket is placed without any pressure on the brackets or casing.

It will also be noted that the roller bearings **7**, **7***a* are rotating around the axle **4** and at the same time can rotate freely around the inner wall of the housing **1** which makes it of restriction proof. Due to the rotation in the housing, there is no contact with the wooden shade roller which will distort and wear.

Also noted of this apparatus is the flange **13** which has protruding points **15** on the grip wings **14** that can be easily pressed into locking position without having to use a criming device or the like at marketing.

I claim:

**1.** In combination with a shade roller having a hollowed recess at one end:

a shade roller apparatus having a hollowed cylindrical elongated-tube type bearing housing fitted firmly within said recess of said shade roller, said bearing housing having at its inner tube end L-shape locking means preforated from said bearing tube wall, the outer end of said housing having

an integral circular holding cover extending laterally of said bearing housing, said cover having a circular recessed inner wall mounted against the face end of said shade roller and said cover inner wall having a central opening for access to the hollow of said bearing housing, said holding cover having an outer circular wall having extending flexible grip press ears being pre cut sections of said outer wall, said press ears being provided with pre punched V-type injecting holding points whereby said grip press ears are pressed inward into said shade roller end,

a circular extractable twist lock having an outer flat side and of the same circumference of said housing tube hollow, and having on the circumference edge thereof protruding square peg keys, and on the inner face side of said twist lock an outstanding box shaped griping twist handle for interlocking said square peg extending keys into said L-shaped locking channels within the wall of said housing tube,

an extension spring expanding within said tube hollow between the outer flat side of said twist lock and the inner face side of a circular pivot disc, said pivot disc being of sufficient solid thickness and of the same circumference size of said housing tube hollow and being the inner surface of a retractable axle, said axle being retractably mounted within said hollow tube, and retained therein by snap rings and bearing means, whereby the axle may be retracted and extended to mount the shade roller.

* * * * *