May 3, 1932. K. A. BENZEE 1,856,742

CURTAIN ROLLER

Filed Jan. 5, 1931

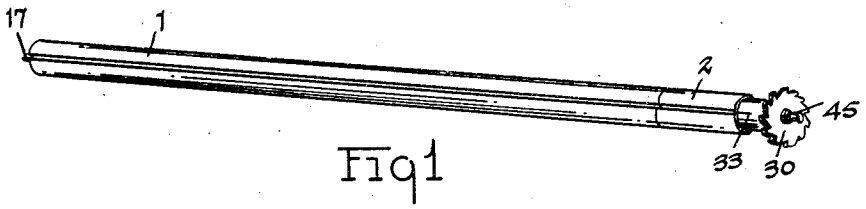

Fig 1

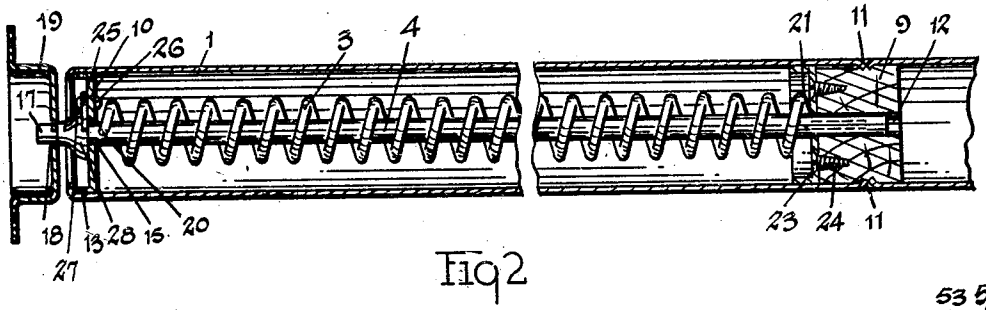

Fig 2

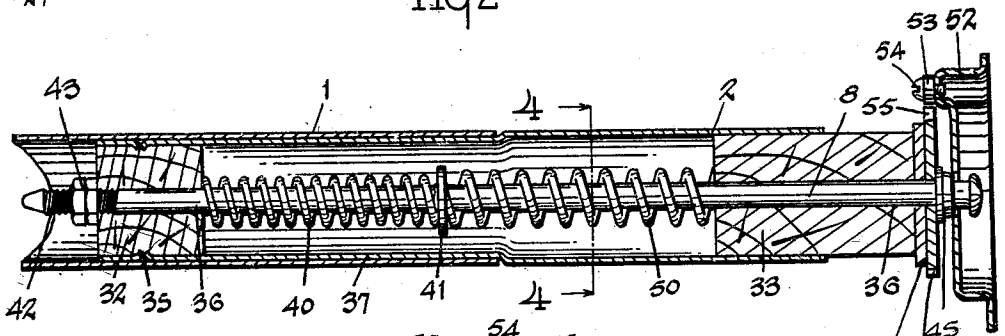

Fig 3

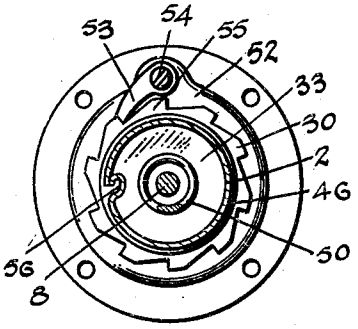

Fig 4

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UNITED STATES PATENT OFFICE

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CURTAIN ROLLER

Application filed January 5, 1931. Serial No. 506,599.

My invention has for its object to provide a curtain roller which may support curtains for windows and the like. My invention particularly provides a curtain roller which may be readily adjusted by operation of the curtain roller to any degree of rotation thereby locating the curtain sheeting at any desired level with respect to the window. The invention also provides a curtain roller which may be used in such places where the curtain sheeting and curtain roller are subjected to almost constant use and continual wear, such as in railway cars, motor busses, and public conveyances necessitating frequent repairs, over-hauling and adjusting in order to maintain the curtain and curtain roller in a usable condition. A curtain roller containing the features of my invention may be easily removed from its socket, repaired or adjusted, and replaced in its socket in a comparatively short time thereby eliminating a great part of the expense and time which has heretofore burdened the maintenance of such curtain and curtain roller.

The invention may be contained in curtain rollers that vary in their details of construction and to illustrate a particular application of the invention I have selected an improved curtain roller as an example of the construction containing my invention and shall describe it hereinafter. The curtain roller selected is illustrated in the accompanying drawings.

Fig. 1 illustrates a perspective view of the curtain roller. Fig. 2 illustrates a longitudinal section of one end of the curtain roller showing the counter balancing spring. Fig. 3 illustrates a longitudinal section of the opposite end of the curtain roller. Fig. 4 illustrates a view of a section taken on the plane of the line 4—4 indicated in Fig. 3.

A curtain roller partaking of the features of my invention has an auxiliary ratchet which is frictionally engaged by other parts of the roller to off-set the torsional force of the main counter balancing spring of the curtain roller when the auxiliary ratchet is engaged by a dog located on the supporting frame of the roller. Thus, the curtain sheeting attached to the roller may be located at any desired level of the window after the ratchet has been engaged by the dog. The frictional engagement of the parts of the roller with the auxiliary ratchet also prevents the roller from rotating rapidly upward to tear or injure the curtain sheeting when the dog controlling the counter balancing spring does not make contact with its cog or slips from contact with the cog in lowering or raising the curtain sheeting.

Curtains and curtain rollers which are located in public places are subject to constant abuse and wear necessitating repeated repairs and adjustments. Such curtain rollers have been heretofore of uniform length having a central shaft about which the roller rotates, the length of the shaft being slightly adjustable by means of set screws or nuts. The adjustments of the central shaft as to length are made usually through conjecture or by trial and error indulged in by the mechanic repairing or installing the roller. By the use of my invention, this trial and error method is eliminated and the consequent saving of time is effected in the maintenance of curtains in a workable condition.

The curtain roller shown for the purpose of illustration is made up of two units, the main shell unit 1, and an end shell unit 2. The unit 1 surrounds and supports within itself a counter balancing spring 3 and a shaft 4 which motivates the curtain roller after a manner well known in the art. The end shell unit 2 is adapted to move telescopically within one end of the main shell unit 1 and supports within itself a spindle 8.

The shaft 4 is supported within the shell 1 by means of a block 9 and a disc 10. The block 9 is firmly secured within the shell 1 by means of inwardly punched portions 11 of the shell 1. The block 9 has a central opening 12 adapted to rotatably support one end of the shaft 4. The disc 10 may be suitably sealed about its edge portions 13 to the shell 1 which thereby closes the interior of the shell 1 and seals it against the invasion of dust particles and the like. The disc 10 has a suitable central opening 15 in which the end of the shaft 4 is rotatably supported. The shaft 4 has flattened end portions 17

which extend beyond the edge of the shell 1 and are adapted to fit a slot 18 formed in a suitable supporting member 19 which prevents the rotation of the shaft 4 when the shell 1 is being rotated.

In order to cause the rotation of the shell 1 a counter-balancing spring 3 is located about the shaft 4 and is connected to the shaft 4 at 20 in a suitable manner. The other end of the spring 3 is connected to the block 9 such as by the plate 23 and screws 24. Thus, it will be seen as the shell 1 is rotated about the shaft 4 the spring 3 will be increasingly wound about the shaft 4 which will cause the shell 1 to rotate in the opposite direction when the shell 1 is released.

As it is often desired to maintain the shell 1 at a certain degree of rotation and consequently a certain height of the curtain sheeting, while the spring 3 is in a wound condition about the shaft 4, a dog 25 may be pivotally supported on the disc 10 by means of a pin 26 so that it will engage a slot 27 formed in a collar 28. The collar 28 is keyed to the shaft 4. Thus, it will be seen that when the dog 25 is inserted within the slot 27 of the thimble member 28 the shell 1 will be held as against rotation caused by the spring 3 about the shaft 4. In order to effect variations in the degree of rotation of the shell 1 less than the degree of rotations which can be obtained by the use of the dog 25 and collar 28 an auxiliary ratchet 30 is provided which is pivotally supported on the spindle 8.

The spindle 8 is supported in the unit 2 by means of a pair of blocks 32 and 33. The block 32 is located in the shell 2 and held as against movement by suitable inwardly punched portions 35 formed in the shell 2. The block 33 is adapted to telescopically move within the shell 2. The blocks 32 and 33 have central openings 36 which are substantially the same diameter as the diameter of the spindle 8 which is located in the openings so as to permit endwise movement of the spindle through the openings. The shell 2 has reduced end portions 37 which are adapted to fit within the end of the shell 1.

A spring 40 is located about the spindle 8 and is adapted to press against the block 32 and against a washer 41 which is suitably locked on at substantially the middle of the spindle 8. The spring 40 tends to force the spindle 8 outwardly and away from the block 32. Thus the spindle may be elastically held as against inward endwise movement and will be readily adaptable to vary the effective length of the spindle so that the curtain roller will be easily adjustable within its supporting members. In order to adjust the tension of the spring 40, one end of the spindle may be provided with threaded portions 42 adapted to receive nuts 43 which may be tightened to increase the distortion of the spring.

The auxiliary ratchet 30 is pivotally supported at the end of the spindle 8 and may be held in position by the head 45 which may be formed on the spindle 8. The block 33 which is slidable on the spindle 8 is adapted to press against the ratchet 30 to frictionally engage the surface of the ratchet. In order to increase the frictional engagement between the ratchet 30 and the block 33, a washer 46 may be located between the block 33 and the ratchet 30 which may be formed of frictional material, such as rubber or fiber. In order to maintain the frictional engagement of the block 33 and ratchet 30, a spring 50 is preferably located about the spindle 8, one end of which presses against the block 33, and the other end against the washer 41. The head 45 of the spindle 8 is supported by a brace member 52 located on the window frame. A dog 53 is pivotally supported on the supporting member 52 by means of a pin 54. The dog 53 is adapted to make contact with the teeth 55 of the auxiliary ratchet 30 and to hold it as against rotation in a direction such as to roll up the curtain sheeting.

Thus, it will be seen that the curtain roller may be rotated and the curtain lowered or raised to that degree where the cog 25 does not engage the slot 28 in the thimble member 27 and the curtain roller will be held as against further rotation by the dog 53 engaging the auxiliary ratchet 30. The frictional resistance offered by the block 33, as against the auxiliary ratchet 30, will be sufficient to resist the torsion force of the spring 3 to cause rotation of the curtain roller thereby permitting the roller to be located at any degree of rotation.

A suitable curtain sheet material may be attached to the roller by being inserted and secured within the channel portions 56 which is formed in the shell 1 and shell 2 in a manner well known in the art.

I claim:

1. In a curtain roller, a pair of interconnected shell units, one of the pair of shell units having a shaft, a counter-balancing spring connected to the shaft and to the shell for moving the roller, the other of the pair of shell units having a spindle, an elastic element located within the last named shell unit connected to the spindle for moving the spindle endwise with respect to the shell, a frictional washer, a second elastic element located in the last named shell for causing engagement of the curtain roller with the frictional washer for controlling the rotative movements of the curtain roller produced by the counter-balancing spring.

2. In a curtain roller having a shell, means for causing rotation of the shell, a block located in the end of the shell adapted to telescopically move within the shell, a spindle extending through the block, a ratchet located on the spindle, a pair of elastic elements lo-

cated in the shell, one of the said pair of elements adapted to yieldingly resist endwise movement of the spindle, the other of the said pair or elastic elements adapted to press the block towards the ratchet irrespective of the endwise movement of the spindle relative to the shell.

In witness whereof I have hereunto signed my name to this specification.

KARL A. BENZEE.