Aug. 25, 1931. W. SENIOR 1,820,503

WINDOW SHADE

Filed Feb. 21, 1931 2 Sheets-Sheet 1

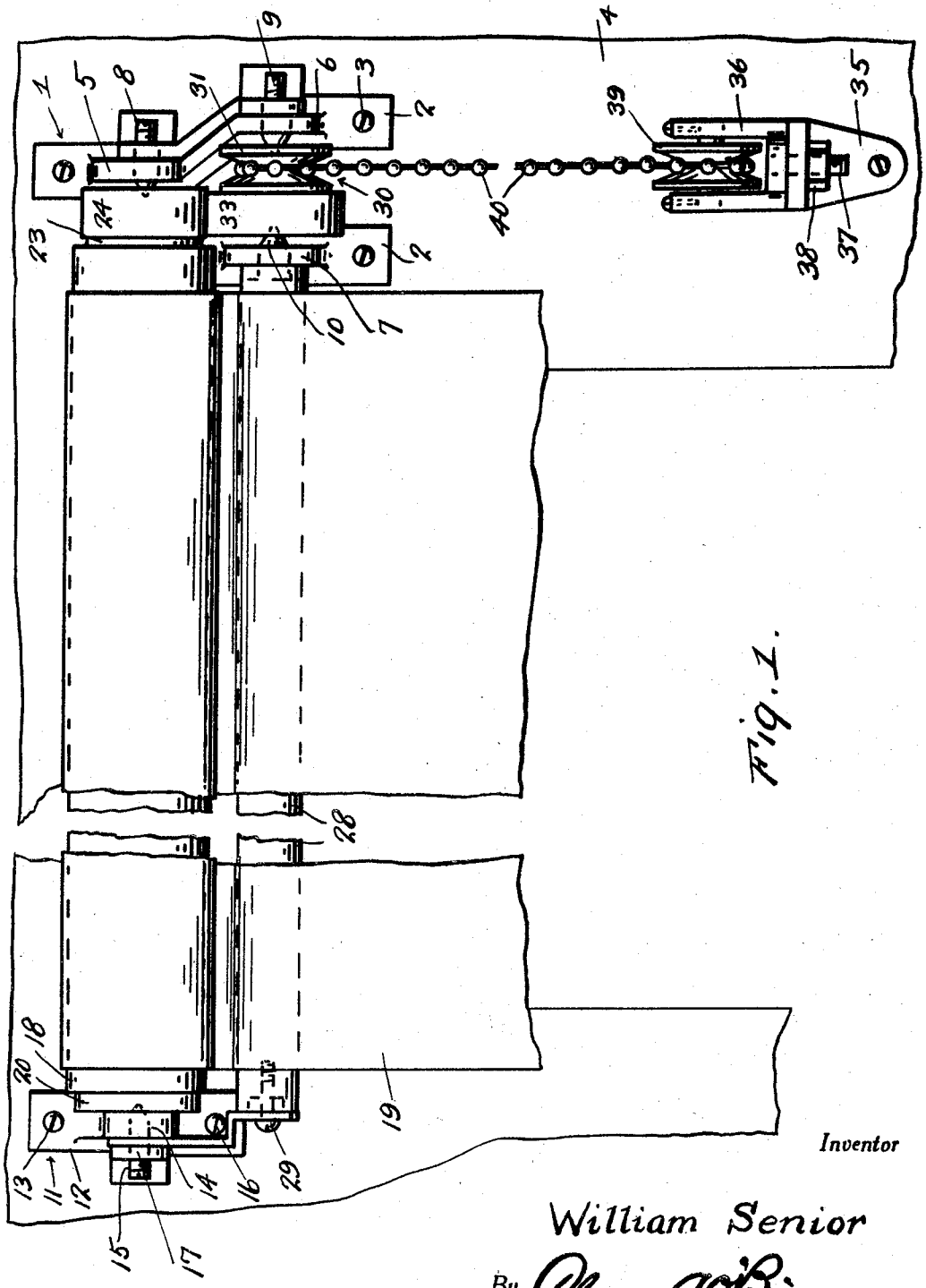


Fig. 1.

Inventor

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WINDOW SHADE

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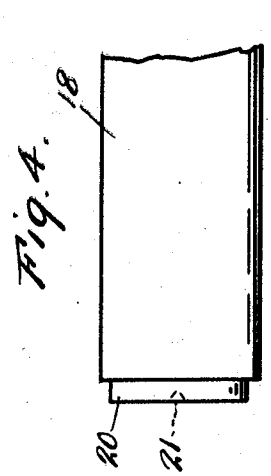


Fig. 4.

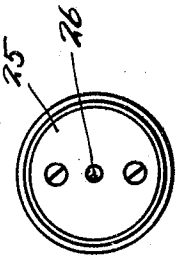


Fig. 6.



Fig. 9.

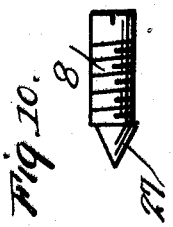


Fig. 10.

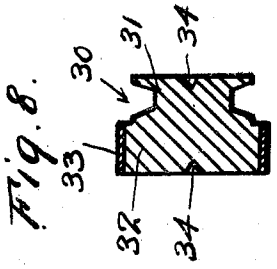


Fig. 8.

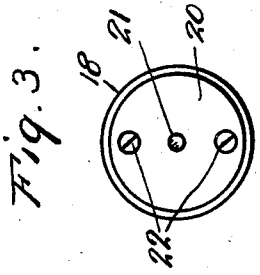


Fig. 3.

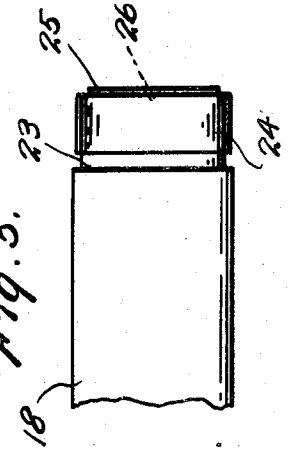


Fig. 5.

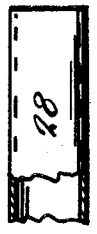


Fig. 7.

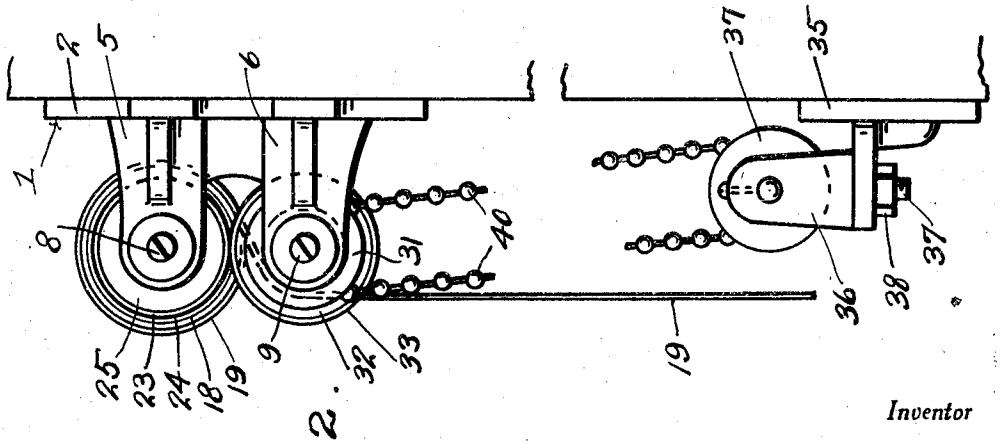


Fig. 2.

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Patented Aug. 25, 1931 1,820,503

UNITED STATES PATENT OFFICE

WILLIAM SENIOR, OF BEDFORD, INDIANA

WINDOW SHADE

Application filed February 21, 1931. Serial No. 517,565.

This invention relates to a window shade and has for one of its important objects to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction and arrangement of parts whereby wrinkling of the shade when the same is wound on its supporting roller will be eliminated, thus maintaining the good appearance of the shade and materially prolonging the usefulness or life thereof.

Another important object of the invention is to provide a window shade of the character described embodying novel means for mounting the same on a window frame and for actuating the roller for winding or unwinding the shade without the necessity of touching said shade with the hands.

Other objects of the invention are to provide a window shade of the character set forth which will be simple in construction, strong, durable, efficient and reliable in use, attractive in appearance and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in front elevation showing a shade constructed in accordance with this invention.

Figure 2 is a view in end elevation thereof.

Figure 3 is a view in elevation looking at one end of the shade roller.

Figure 4 is a view in side elevation showing the end portion of the shade roller which is illustrated in Figure 3.

Figure 5 is a view in side elevation showing the other end portion of the shade roller.

Figure 6 is a view in elevation looking at the end of the shade roller which is illustrated in Figure 5.

Figure 7 is a detail view partly in elevation and partly in longitudinal section showing one end portion of the stationary guide rod or tube.

Figure 8 is a detail view in section through the compound pulley.

Figure 9 is a detail view of one of the pintles.

Figure 10 is a detail view of the pintle which adjustably supports one end of the shade roller.

Referring to the drawings in detail, it will be seen that the reference numeral 1 designates generally a bracket which includes the base portion 2 having openings therein for the passage of screws 3 for rigidly securing the bracket 1 in position on one side of the upper portion of the window frame 4. The bracket 1 further includes the outwardly projecting arms 5, 6 and 7, having threaded apertures in their free end portions for receiving the threaded tapered pintles 8, 9 and 10, respectively. It may be well to here state that the bracket 1 is formed of a single piece of metal which is preferably cast.

The reference numeral 11 designates generally a supporting bracket which is mounted on the upper portion of the other side of the window frame 4 and includes a base portion 12 having apertures therein for the passages of screws 13 for rigidly securing the bracket 11 to the window frame. The bracket 11 further includes an outwardly projecting arm 14 having a threaded aperture in its free end portion for the reception of the threaded pintle 15. The aperture in the arm 14 is aligned with the aperture in the arm 5 of the bracket 1. An angular arm 16 is detachably secured on the arm 14 and is provided with apertured free end portion which is aligned with the apertured free end portion of the arm 7 of the bracket 1. The pintle 15 passes through the other end portion of the arm 16 and has threaded thereon a lock nut 17 which provides means for securing the arms 16 in position and also secures the pintle 15 in adjusted position.

The reference numeral 18 designates the shade roller which is of circular cross section and uniform diameter from one end to a point adjacent the other end. The shade is designated by the reference numeral 19 and is, of course, windable on the roller 18. A

bearing disk 20 is fixed coaxially on one end of the shade roller 18 and is provided with a centrally disposed tapered socket 21 in its free side for the reception of the pintle 15. As best seen in Figure 3 of the drawings, the disk 20 is secured to the roller 18 by screws 22.

At its other end the roller 18 is provided with a reduced extension 23 of circular cross section which is encircled by a rubber band 24 of suitable width. The free end of the extension 23 has secured co-axially thereon a bearing disk 25 (see Figure 6) which is provided with a centrally disposed tapered socket 26 for the reception of the tapered end portion 27 of the pintle 8. From a consideration of Figure 10 of the drawings, it will be seen that the tapered end portion 27 is offset with respect to the threaded portion of the pintle 8 for a purpose which will be presently set forth. It will thus be seen that the shade roller 18 is supported for rotation between the arms 5 and 14 of the brackets 1 and 11 respectively.

The pintle 10 which is threaded through the arm 7 of the bracket 1 is anchored in one end portion of a stationary guide tube 28 which is disposed in spaced parallelism beneath the shade roller 18 and which extends between said arm 7 and the arm 16 on the bracket 11. The other end of the guide tube 28 is detachably secured to the free end portion of the arm 16 by suitable means such as a screw 29 which is inserted through the arm 16 and anchored in the adjacent end portion of the guide tube 28. The pintle 10, of course, provides means for supporting said first named end of the guide tube 28 on the arm 7 of the bracket 1. A compound pulley designated generally by the reference numeral 30 is journaled for rotation between the pintles 9 and 10 and comprises a circumferentially grooved portion 31 and a disk portion 32 which is encircled by a rubber band 33 which, in turn, is frictionally engaged with the rubber band 24 on the extension 23 of the shade roller 18 for operatively connecting the shade roller to the pulley 30 for actuation thereby. The ends of the pulley 30 are provided with tapered sockets 34 for the reception of the tapered end portions of the pintles 9 and 10.

A bracket 35 is rigidly mounted on the window frame 4 in spaced relation beneath the bracket 1 and includes an outwardly extending horizontally disposed leg upon which is mounted a yoke 36. The yoke 36 is adjustably secured to the bracket 35 through the medium of a threaded shank 37 extending through the horizontal leg of the bracket 35 and having threaded thereon a nut 38. A grooved pulley 39 is rotatably mounted in the yoke 36. An endless, beaded drive chain 40 is trained around the pulleys 39 and 31 and said chain constitutes means for actuating the shade roller 18, as will be apparent.

In operation, the chain 40 is moved in the desired direction to actuate the compound pulley 30 which, in turn, rotates the shade roller 18 for winding or unwinding the shade 19. When the shade 19 is wound on the roller 18 said shade is dragged over the stationary tubular guide rod 28 before being wound on the roller with the result that any wrinkles therein will be eliminated and the shade will be evenly wound on the roller. The frictional contact between the rubber bands 24 and 33 may be expeditiously regulated by simply rotating the pintle 8 which, through the medium of the offset end portion 27 will pull the adjacent end portion of the shade roller upon which the band 24 is mounted toward or away from the band 23 on the compound pulley 30. The tension of the chain 40 may also be regulated by threading the nut 38 in either direction on the shank 37 for raising or lowering the yoke 36 on the bracket 35. It will further be readily apparent that the device may be expeditiously disassembled for repairing or replacing any of the elements thereof without the necessity of removing the brackets 1 and 11 from the window frame 4 by simply removing or backing off the pintles or by removing the arm 16.

It is believed that the many advantages of a window shade in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction may be had which will fall within the scope of the invention as claimed.

What is claimed is:—

1. A window shade structure of the character described comprising a pair of spaced supporting brackets, a shade roller journaled between the brackets upon which the shade is windable, one of the brackets further including a pair of spaced, opposed arms, a resilient band encircling one end portion of the shade roller, a compound pulley journaled for rotation between the opposed arms of said one bracket, said pulley including a disk portion and a circumferentially grooved portion, a resilient band encircling the disk portion of the compound pulley and frictionally engaged with the band on the shade roller in a manner to operatively connect the shade roller to the compound pulley for actuation thereby, and means for manually actuating the compound pulley.

2. A window shade structure of the character described comprising a pair of spaced supporting brackets, a shade roller journaled between the brackets upon which the shade is windable, one of the brackets further including a pair of spaced, opposed arms, a resilient band encircling one end portion of the shade roller, a compound pulley journaled for ro-

tation between the opposed arms of said one bracket, said pulley including a disk portion and a circumferentially grooved portion, a resilient band encircling the disk portion of the compound pulley and frictionally engaged with the band on the shade roller in a manner to operatively connect the shade roller to the compound pulley for actuation thereby, means for manually actuating the compound pulley, said means comprising a bracket mounted on the window frame in spaced relation beneath said one bracket, a yoke mounted for vertical adjustment on the third named bracket, a grooved pulley mounted for rotation in the yoke, and an endless chain trained around the last named pulley and the circumferentially grooved portion of the compound pulley.

3. A window shade structure of the character described comprising a pair of spaced supporting brackets, aligned arms extending from the brackets and having apertured free end portions, a shade roller disposed between the arms, bearing disks mounted co-axially on the ends of the shade roller, said bearing disks being provided with centrally disposed tapered sockets, pintles threaded through the arms and engageable in the sockets in a manner to rotatably mount the shade roller on the arms, one of the brackets being provided with a pair of spaced opposed arms, a compound pulley journaled for rotation between the pair of opposed arms and including a disk portion and a circumferentially grooved portion, a resilient band encircling the adjacent end portion of the shade roller, a resilient band encircling the disk portion of the compound pulley and frictionally engaged with the band on the shade roller for operatively connecting said shade roller to the pulley for actuation thereby, one of the pintles being provided with an offset end portion engaged with the shade roller in a manner to move said shade roller toward or away from the compound pulley upon rotation of said one pintle, and means for manually actuating the compound pulley.

In testimony whereof I affix my signature.

WILLIAM SENIOR.