J. JOHNSTONE.

ROLLER SHADE.

APPLICATION FILED NOV. 25, 1919.

**1,344,448.** **Patented June 22, 1920.**

2 SHEETS—SHEET 1.

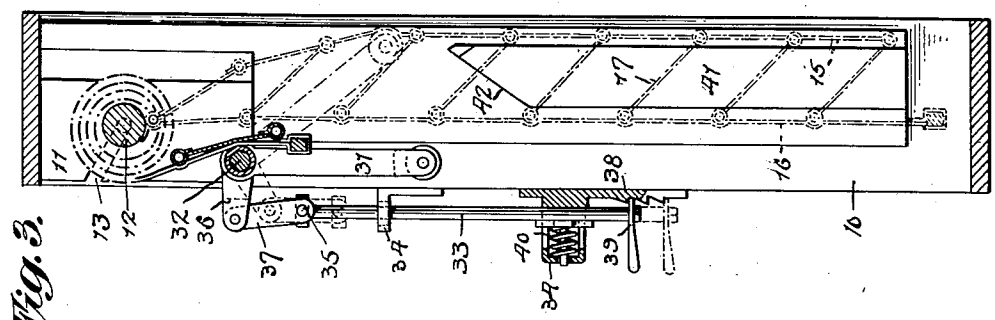


Fig. 3.

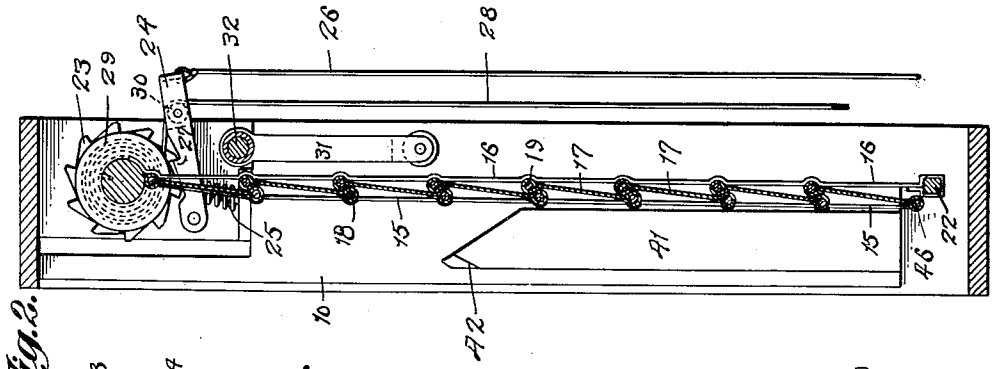


Fig. 2.

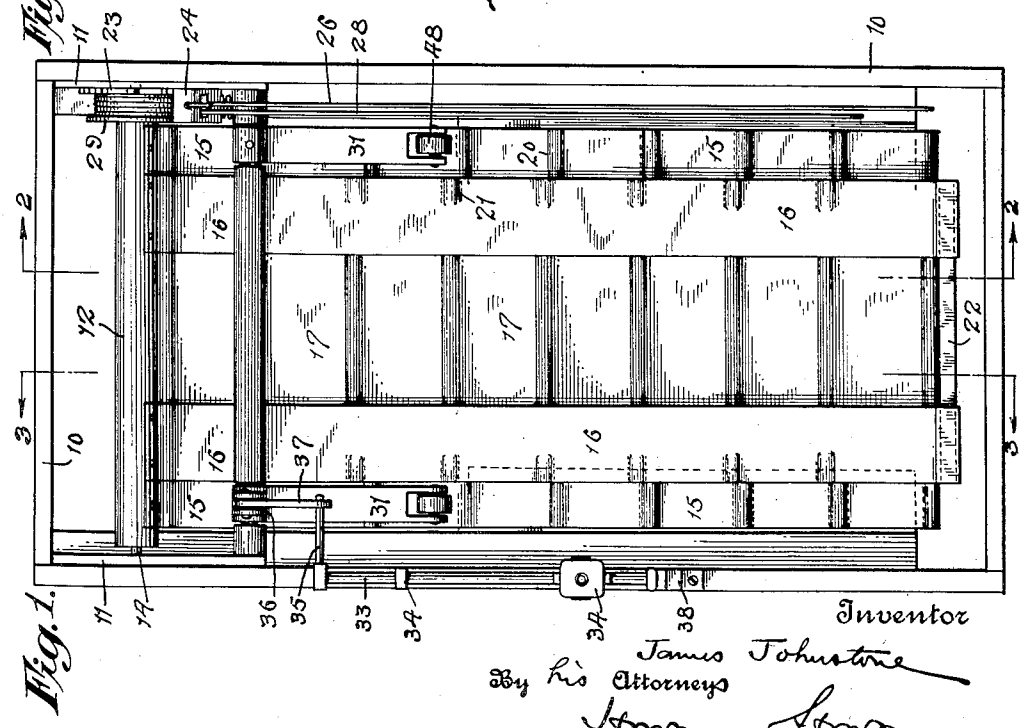


Fig. 1.

Inventor

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2 SHEETS—SHEET 2.

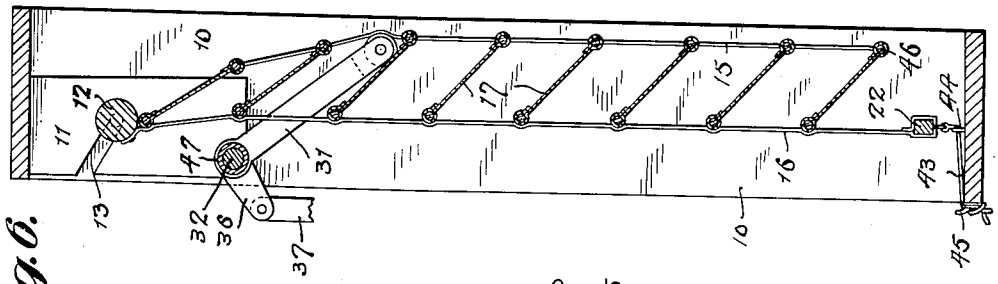


Fig. 6.

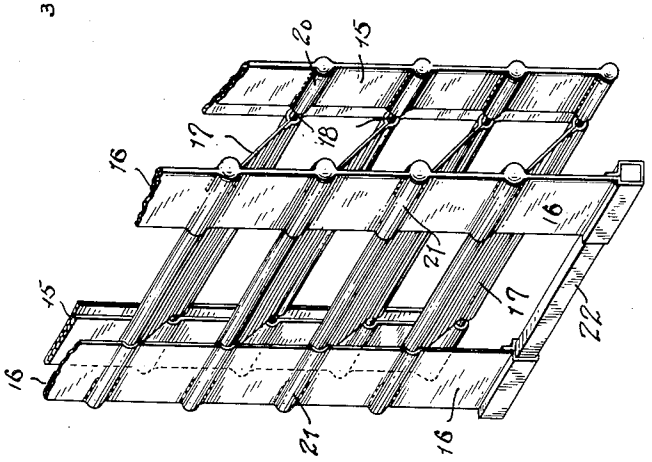


Fig. 5.

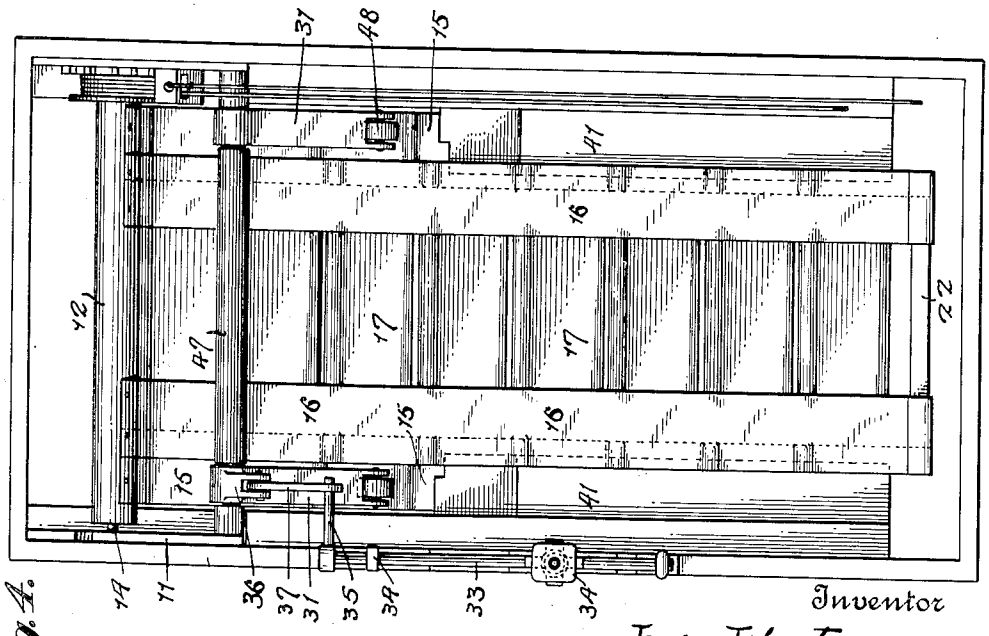


Fig. 4.

Inventor

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# UNITED STATES PATENT OFFICE.

JAMES JOHNSTONE, OF NEW YORK, N. Y.

## ROLLER-SHADE.

1,344,448. Specification of Letters Patent. Patented June 22, 1920.

Application filed November 25, 1919. Serial No. 340,561.

*To all whom it may concern:*

Be it known that I, JAMES JOHNSTONE, a citizen of the United States of America, residing at New York city, borough of Bronx, county of Bronx, and State of New York, have invented certain new and useful Improvements in Roller-Shades, of which the following is a specification.

My invention relates to roller shades, and particularly to a roller shade of the Venetian blind type, the object of my invention being to provide a shade of improved construction having also novel means for opening the slats when the shade is lowered.

In the accompanying drawings—

Figure 1 is an elevation of a shade in which my invention is embodied in one form;

Figs. 2 and 3 are vertical sections on the lines 2—2 and 3—3 Fig. 1, respectively;

Fig. 4 is an elevation of the shade with the slats opened;

Fig. 5 is a broken perspective of portion of the shade showing the slats open; and

Fig. 6 is a vertical section through a modified construction of the shade.

In the illustrative embodiment of my invention shown in Figs. 1 to 5, I have mounted the shade in a frame 10, although it will be understood that it may be mounted in any suitable support—for example on a porch. Supported in the upper portion of the frame 10 are brackets 11 of any suitable type, in which is journaled the shade roller 12. As indicated in Figs. 3 and 6, one of the brackets is preferably provided with a slot 13 through which the bearing stud 14 at one end of the roller 12 is freely inserted so that the roller may be readily removed.

Secured to each end of the roller 12 are front and back binder strips 15 and 16, respectively, transversely offset from each other, the back binder strips 16 being here shown spaced inwardly from the front binder strips 15. The slats 17 which constitute the shade proper are secured at their front and back margins to these binder strips, and their width is such that they do not project laterally beyond the back binder strips 16. The construction of the slats 17 may be variously modified, but I have shown each slat as comprising a front rod 18 and a back rod 19, between which the web 17 of any suitable flexible material, such as a fabric, is stretched to form the body of the slat. The front rod 18 is of a length greater than that of the back rod 19, and its ends are engaged at 20 in the front binder strips 15. The back rod 19 is of less length and its ends are similarly engaged at 21 in the back binder strips 16. A weight bar 22 may be provided to give the shade stability and insure its operation by gravity, this bar being supported at the lower ends of the back binder strips 16. In view of the flexibility of the slat 17 the shade may be wound up on the roller 12 as indicated in Fig. 3.

To hold the shade in its raised position I provide at one end of the roller 12 a ratchet wheel 23, with which coöperates a ratchet lever 24 normally pressed by the spring 25 into engaging position. A cord 26, attached to the outer end of the lever 24, is provided to pull down the lever 24 and thus break the engagement between its dog 27 (Fig. 2) and the ratchet wheel, whereupon the shade drops by gravity. To wind the shade on the roller 12 a cord 28 is engaged on the drum 29 adjacent the ratchet 23, and also fast with the end of the roller. This cord is led over a sheave 30 journaled in the ratchet lever 24 and automatically depresses the latter and breaks the engagement with the ratchet wheel 23 when the cord 28 is pulled. Upon release of the cord 28 the spring 25 returns the ratchet lever 24 into engagement with the ratchet wheel 23 and holds the shade in its rolled up position.

When the shade is lowered it normally occupies the position shown in Fig. 2, in which the slats are closed. To admit air and light by opening the slats, I have here shown a pair of bell crank levers 31 fast on a transverse shaft 32 extending between the brackets 11. These levers are spaced apart sufficiently to clear the back binder strips 16, but may be swung into engagement with the front binder strips 15 by a push rod 33 mounted in guides 34 on one side of the frame 10 and having a top pin 35 which actuates the short arm 36 of the bell crank levers 31 through an interposed link 37. By pulling the rod 33 down the crank arm 31 is moved forward and, engaging the front binder strips 15, forces the latter away from the back binder strips 16 and thus opens the slats 17, as indicated in dotted lines in Fig. 3. The position of the opening lever 31 is maintained by a ratchet plate 38 engaged by a dog 39 at the lower end of the bar 33. A spring 40 tends to force the dog inward against the ratchet 38, while nevertheless

permitting the same to be readily disengaged to actuate the lever 31.

In order to maintain the slats in their opened position and prevent the swaying of the shade in the wind, I may provide spacer blocks 41 on opposite sides of the frame 10. These blocks are loosely engaged between the front and back binder strips 15 and 16 when the shade is lowered with the spreading lever 31 in operative position, and serves to hold the shade in substantially vertical position. It will be noted from Fig. 3 that as the shade unrolls, the front binder strips 15 are displaced forward by the spreading lever 31 and pass in front of the beveled ends 42 at top of the spacer blocks, while the rear binder strips 15 slide down behind the blocks. After the shade has been lowered, either wholly or partially, the opening between the slats in the lowered portion of the shade, may be varied by altering the position of the spreading levers 31. It is to be understood, of course, that the thickness of the spacer blocks 41 may be considerably less than that shown in the drawing, which merely illustrates the construction. Other types of spreaders will readily occur to those dealing with the problem.

In some instances it may not be desirable to utilize a spacer block such as 41, and in such case the spreading lever 31 and the weight of the shade are depended upon to maintain the slats open. Such a construction is shown in Fig. 6. The shade may be anchored in lowered position by a cord 43 secured to the cross bar 22 and carried down through an eye 44 to a binding post 45 to hold the shade against swaying in the wind. The bar 46 at the bottom of the front binder strips 15 may be made heavier if desired to assist in holding the slats open. This is more necessary when the fabric of the slats is of light weight than when it is of canvas, pantasote, or other relatively heavy or stiff material, in which case no additional weight is required. Of course a second anchor cord (not shown) could be attached to the cross rod 46 and passed through an eye spaced in front of the eye 44, to further anchor the shade and hold the slats open.

In both constructions, whether with or without the spacer blocks, the opening of the slats may be adjusted after the shade is lowered, but of course a greater variation is possible where no spacer block is used. It will be noted, furthermore, that the slats may be opened when the shade is only partially lowered, and that the portion of the shade which is down is the only portion affected by the opening device.

The cross shaft 32 of the opening lever 31 may be provided with a roller sleeve 47 to minimize wear at this point during the raising and lowering of the shade, while the levers 31 may have antifriction rollers 48 at their ends to bear on the binder strips 15 for the same reason.

Various modifications of construction will readily occur to those dealing with the problem, and I do not limit what I claim as my invention to the precise details illustrated. Moreover, it is to be understood that the drawing is more or less diagrammatic, and that in a commercial structure the length of the slats between the binder strips is much greater than that illustrated. Similarly, a commercial shade has a much greater number of slats than are here shown.

I claim—

1. The combination with a roller, of a shade attached thereto and rollable thereon, said shade comprising a group of interconnected slats, together with means engaging the marginal area of the shade to open the slats when the shade is lowered.

2. The combination with a roller, of a shade attached thereto and rollable thereon, said shade comprising a group of interconnected slats, together with a spacer engaged between the front and back margins of the slats when the shade is lowered.

3. The combination with a roller, of a shade attached thereto and rollable thereon, said shade comprising a group of interconnected slats, together with a device engaging the shade to open the slats as the shade is lowered.

4. The combination with a roller, of a shade attached thereto and rollable thereon, said shade comprising a group of interconnected slats, together with a spreading device to open the slats during the lowering of the shade, and a spacer engaging the margins of the slats to hold the same in opened position.

5. In a shade, a series of slats, vertical binding strips respectively connected to the front and back edges of the slats, and means engaging certain of said binder strips to effect the opening of the slats.

6. In a slatted shade having elements spaced transversely of the shade, means engaging certain of said transversely spaced elements to effect the opening of the slats.

7. In a slatted shade having elements spaced transversely of the shade, means operable at will to engage certain of said transversely spaced elements to effect the opening of the slats.

8. In a roller shade, a roller, a slat shade attached thereto and rollable thereon, and means independent of the roller for opening the slats when the shade is lowered.

9. In a roller shade, a roller, a slat shade attached thereto and rollable thereon, and means independent of the roller for opening the slats when the shade is lowered, together with means engaging the lowered portion of the shade to hold it in substantially fixed position.

10. In a roller shade, a roller, a slat shade attached thereto and rollable thereon, in combination with means operable in the partially lowered position of the shade to open the slats of said lowered portion of the shade.

11. In a roller shade, a roller, a slat shade attached thereto and rollable thereon, in combination with means independent of the roller for opening the slats of only the lowered portion of the shade.

12. In a shade, a roller, a slat shade attached thereto and rollable thereon, and means independent of the roller for opening the slats when the shade is lowered, together with means for maintaining the shade in substantially fixed position when lowered, together with a ratchet device for holding the shade in partially lowered position.

In testimony whereof I have signed my name to this specification.

JAMES JOHNSTONE.