Aug. 10, 1926. 1,595,234

P. H. KUYPER

MOUNTING FOR ROLLING SCREEN CONSTRUCTION

Filed Dec. 2, 1925

Fig. 1.

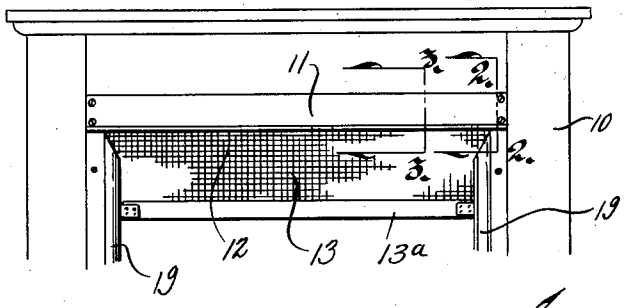


Fig. 2.

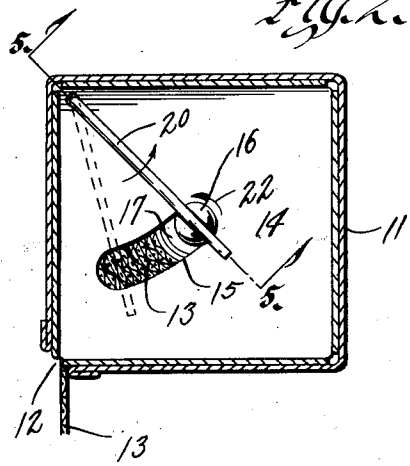


Fig. 3.

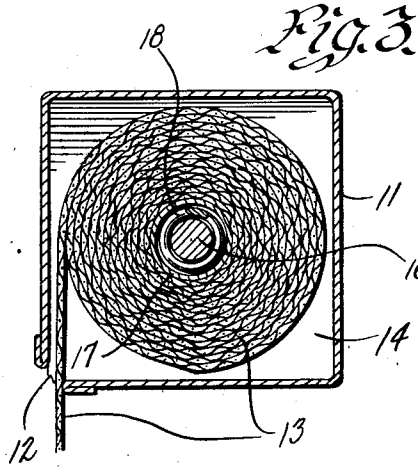


Fig. 4.

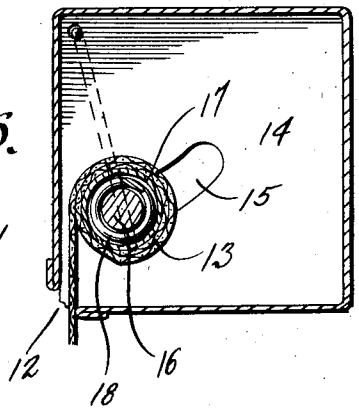


Fig. 5.

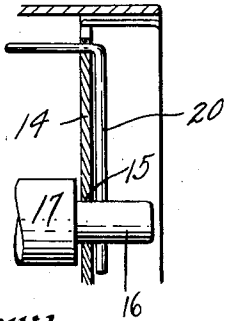
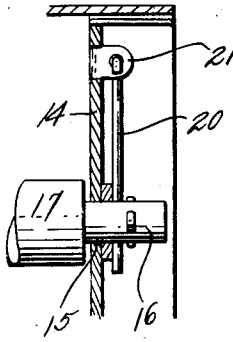


Fig. 6.



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UNITED STATES PATENT OFFICE.

PETER H. KUYPER, OF DES MOINES, IOWA.

MOUNTING FOR ROLLING SCREEN CONSTRUCTION.

Application filed December 2, 1925. Serial No. 72,659.

The object of my invention is to provide a mounting for rolling window screens which is simple, durable and comparatively inexpensive to manufacture.

More particularly, it is my intention to provide a bearing for a spring actuated roller adapted to have a flexible element or screen wire wound thereon wherein the roller may be moved within its bearings when the screen or flexible element is wound upon or unwound from the roller for permitting the flexible element or screen which extends from the roller to maintain a substantially, straight and unvarying line at all times.

Still a further object is to provide a casing adapted to contain a spring actuated roller upon which is wound a flexible element or screen wire, the roller being capable of bodily movement toward or from an opening formed in the casing through which the screen wire may be withdrawn, the movement of the roller permitting the screen wire which extends from the roller itself to the opening, to remain in a substantially straight unvarying line.

Still a further object is to provide a mounting for a spring actuated roller which mounting is of such construction as will permit the spring actuated roller to normally remain in one position and normally tend to move to this position.

My invention has to do particularly with the type of roller window screen construction shown in the Harry Dixson application for patent filed May 13, 1925, Serial No. 29,960.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1, is a plan view of a rolling window screen construction.

Figure 2, is a sectional view taken on line 2—2 of Figure 1, showing my improved mounting for rollers used in rolling window screen construction.

Figure 3, is a sectional view taken on line 3—3 of Figure 1, showing a considerable amount of screen wire or other flexible element, wound upon the roller.

Figure 4, is a similar sectional view showing only a small amount of the screen wire on the roller.

Figure 5, is a detail sectional view taken on line 5—5 of Figure 2 and

Figure 6, is a similar view of a slightly modified form.

In the accompanying drawings I have used the reference numeral 10 to indicate generally a window frame or casing, and 11 to indicate a casing in which is contained the screen wire when in rolled-up position.

The casing 11 is formed with an opening 12 in its bottom and along one of its sides through which the screen wire 13 may be withdrawn as I will hereinafter describe.

The casing 11 is formed with a pair of spaced bearing plates 14, formed with elongated bearing openings 15. The openings 15 are curved from end to end as shown in Figure 2 of the drawings.

A shaft 16 is mounted in the openings 15 and carries a hollow roller 17 thereon. Interposed between the roller 17 and the shaft 16 is a coiled spring 18. The shaft 16, the hollow roller 17 and the spring 18 are all termed in the explanation to follow a "spring actuated roller 18^a."

The screen 13 is designed to extend into a pair of guides 19 along the sides of the window frame 10 when the window screen is in withdrawn position.

At the free edge of the screen is the binder strip 13^a, one of the functions of which is to prevent this free edge from being drawn into the casing.

In order to guide the mounting of the spring actuated roller 18^a and to insure its movement towards one end of the bearing opening 17, I provide guide means in the form or rods or wires 20, which may be pivotally connected with the bearing plates 14. either by extending therethrough as shown in Figure 5 of the drawings or by forming ears 21 upon the bearing plates 14 and connecting the wires 20 thereto, for permitting slight pivotal movement of the wires 20.

The spring actuated roller 18^a, has a tendency to move in the direction indicated by the arrow 22 and this tendency causes the spring actuated roller 18^a to remain in the upward position of the bearing openings 15.

The ends of the shaft 16 are nonrotatably connected with the rods 20 and this permits movement of the spring actuated roller within the openings 15 relative to the wire 20.

One position of the wire 20 is shown in dotted lines in Figure 2 of the drawings. When the screen wire 13 is withdrawn from the casing 11, through the opening 12, there immediately becomes less screen wire or material upon the spring actuated roller 18ª, and in order to maintain a substantially straight unvarying line from the material upon the roller itself to the opening 12, I have the spring actuated roller mounted for movement within its bearings.

After the screen wire 13 is withdrawn the spring actuated roller 18ª moves toward the opening 12 and the screen wire when withdrawn will remain in a substantially straight unvarying line regardless of whether the amount of screen wire upon the roller is like that illustrated in Figure 3 of the drawings or that in Figure 4 of the drawings.

When the screen wire is permitted to roll up on the spring actuated roller 18ª, then the normal tendency of the spring actuated roller itself is to move to its upward position within the bearing openings 15. The spring actuated roller 18ª, becomes so positioned as to permit the entire cross sectional area of the casing 11 to be consumed as clearly shown in Figure 3 of the drawings.

The advantage of my invention resides in the fact that the spring actuated roller is mounted for movement within its bearings so that there is no danger of the screen wire or other flexible element from becoming worn out or torn as it passes over the edge of the casing adjacent to the opening 12. A straight line pull at all times is had by movably mounting the spring actuated roller 18ª.

A further advantage is the use of the spring actuated roller which not only serves to wind the screen wire up but also serves in connection with the guide rods 20 and the bearing openings 15, to cause the roller to move to its upward position within the openings 15 when the screen wire is wound upon the roller.

It will be noted that while I have described my device for use in connection with screen wire, that any other flexible element may be used in place of the screen wire, where it is desired to get a straight unvarying line from the material itself on the roller to the opening through which it is drawn at all times.

Some changes may be made in the construction and arrangement of the various parts of my invention, without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, and modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a device of the class described, a tubular roller, a screen secured thereto, a shaft in the roller, a coil spring on the shaft connected at one end with the shaft and at the other end with the roller, a casing for the roller having a slot through which the screen may pass, the ends of the casing having curved slots through which the shaft extends, rods connected with the ends of the shaft and pivotally supported at points spaced from the line of the axis of the shaft, whereby the tension of the spring tends to swing the shaft on such pivots away from the extended plane of the path of travel of the screen through the slot.

2. In a device of the class described, a tubular roller, a screen secured thereto, a member having an edge over which the screen travels in being unrolled or rolled up, a shaft in the roller, a coiled spring on the shaft, connected at one end with the shaft and at the other end with the roller, rods pivotally supported at points spaced from the shaft, the ends of the shaft being non-rotatably connected with said rods, whereby the spring tends to cause the shaft to swing away from the extended plane of the path of travel of the screen over the edge when the screen is being rolled up.

3. In a device of the class described, a tubular roller, a screen secured thereto, a shaft in the roller, a coiled spring on the shaft connected at one end with the shaft and at the other end with the roller, having a slot through which the screen may pass; rods connected with the ends of the shaft and pivotally supported at points spaced from the shaft, whereby the tension of the spring tends to swing the shaft on such pivots away from the plane of the path of travel of the screen through the slot.

4. In a device of the class described, a tubular roller, a screen secured thereto, a shaft on the roller, a coiled spring on the shaft connected at one end with the shaft and at the other end with the roller, rods connected with the shaft and pivotally supported at points spaced from the shaft to permit swinging non-rotary movement of the shaft.

5. In a structure of the class described, a mounting, a roller supported thereon for bodily movement, a screen wound on the roller and extended over an edge of the mounting, and means tending to yieldingly hold the roller away from such edge.

6. In a device of the class described, a support, a roller, a screen wound on the roller and extended over an edge of the support, said roller being mounted on the support for bodily movement toward and from such edge, said device having means for preventing further movement of the free edge of the screen when the screen is rolled up, and means tending to yieldingly hold the roller away from such edge.

7. In a device of the class described, a support, a roller, a screen wound on the roller and extending over an edge of the support, tension means connected with said roller adapted to rotate it for winding the screen thereon, a pair of rods pivoted to said support at the ends of the roller above such edge, said tension means being non-rotatably connected with said rods, said roller being mounted on and adapted to swing with the free ends of said rods in their pivotal movement.

PETER H. KUYPER.