March 29, 1932. C. BOCK 1,851,616

SCREEN

Filed July 2, 1930 3 Sheets-Sheet 1

Fig. 1.

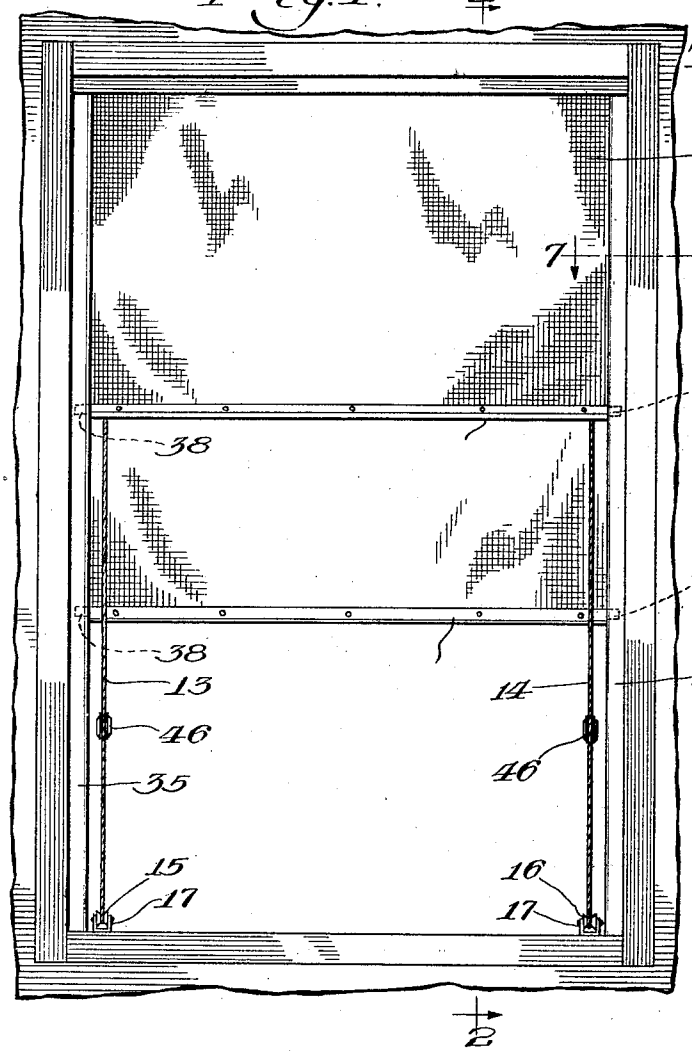


Fig. 2.

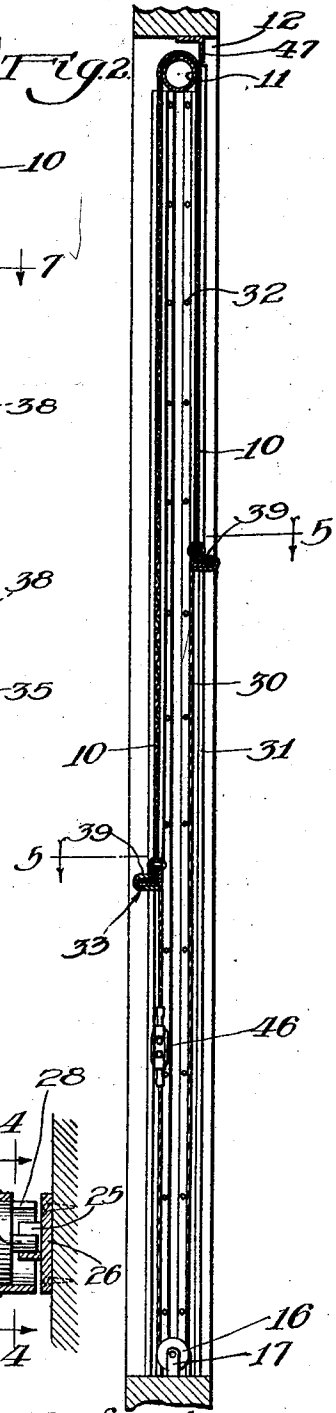


Fig. 3.

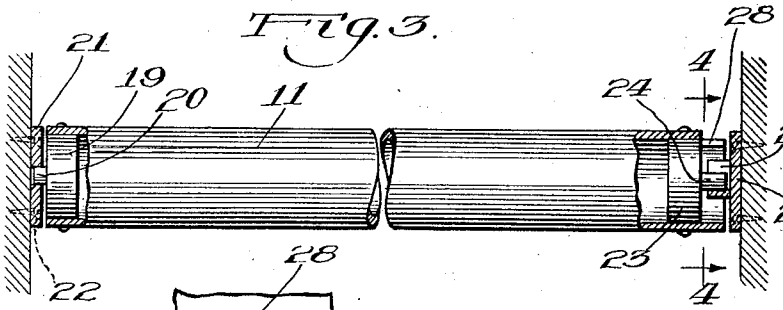
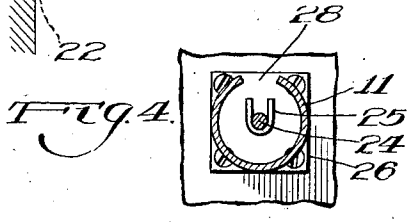


Fig. 4.



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March 29, 1932. C. BOCK 1,851,616

SCREEN

Filed July 2, 1930 3 Sheets-Sheet 2

Fig. 5.

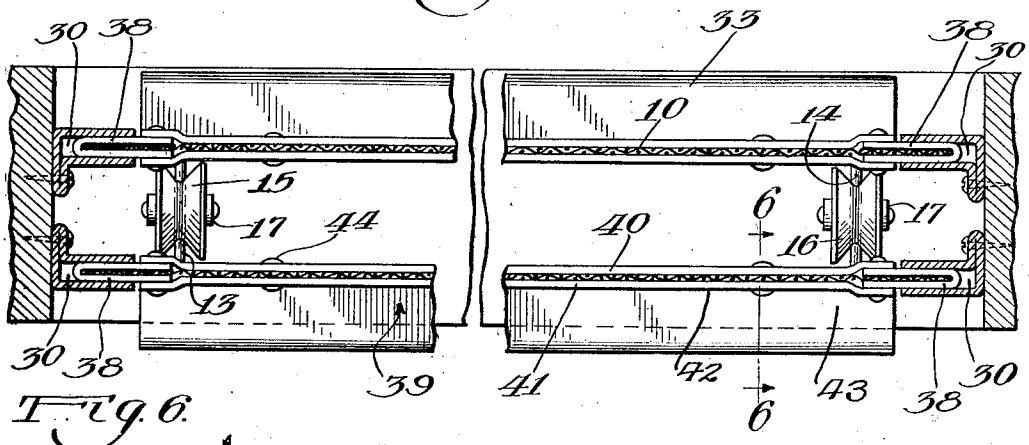


Fig. 6.

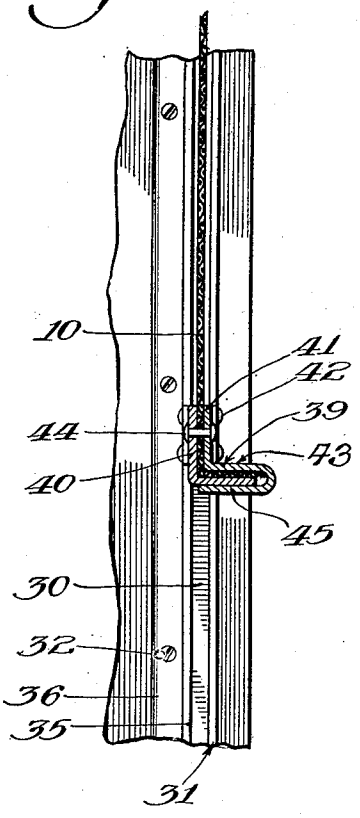
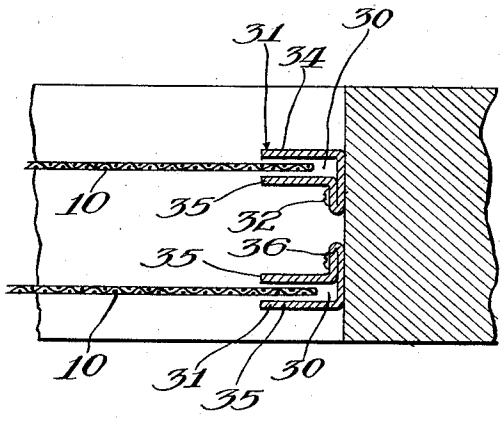


Fig. 7.



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March 29, 1932. C. BOCK 1,851,616

SCREEN

Filed July 2, 1930 3 Sheets-Sheet 3

Fig. 8.

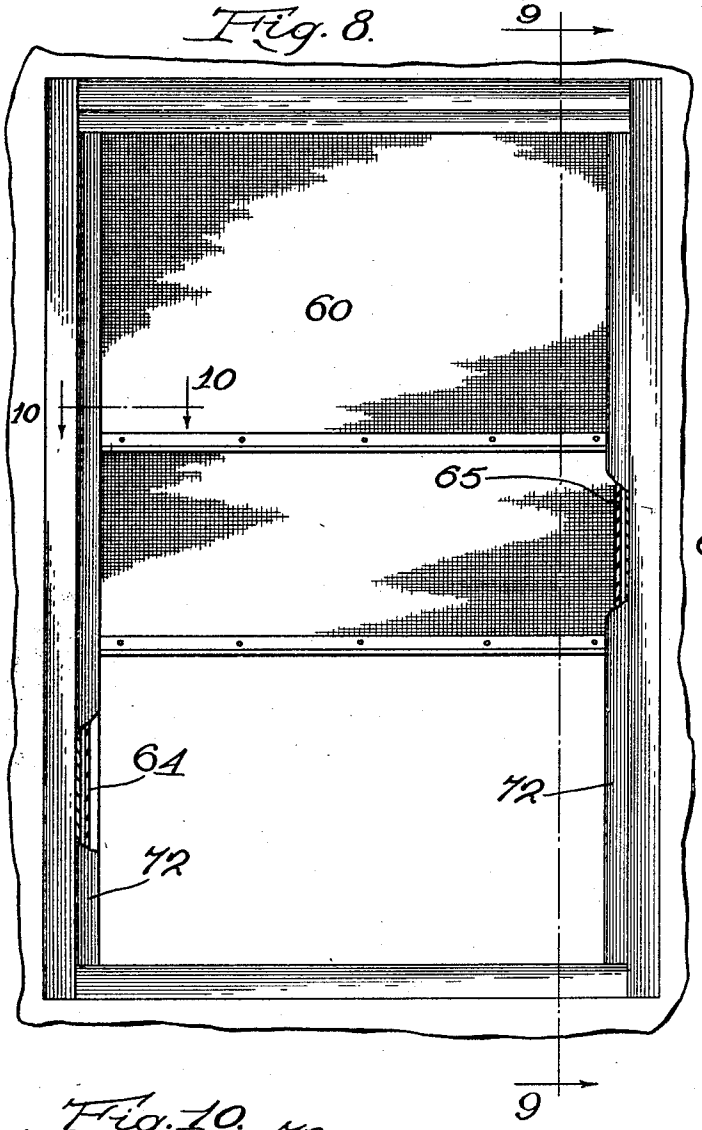


Fig. 9.

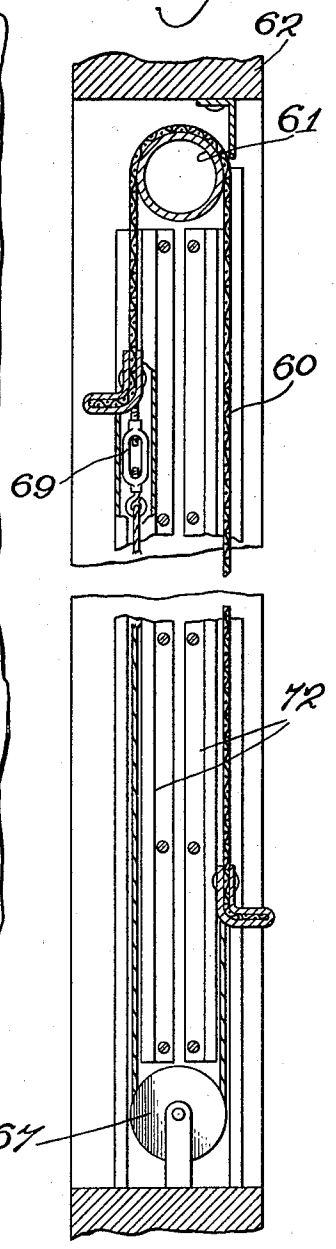
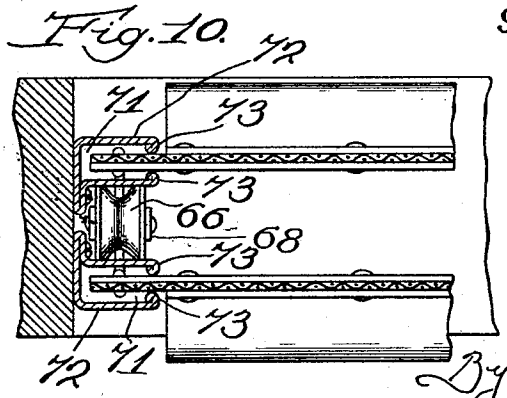


Fig. 10.



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Patented Mar. 29, 1932 1,851,616

UNITED STATES PATENT OFFICE

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SCREEN

Application filed July 2, 1930. Serial No. 465,437.

The invention relates to screens, and more particularly to roller screens for windows, or the like.

A primary object of the invention is to provide improved means for tensioning a screen of the character described.

Another primary object of the invention is to provide improved means for mounting the roller of the screen so that it may be relatively long to permit the use of a screen nearly as wide as the window opening.

One form of the invention is embodied in a window screen comprising a roller rotatably mounted in the upper end of the window frame; a screen or mesh trained over the roller so that both ends of the screen may be alined with each other when the screen is not in use; sheaves or pulleys mounted in the lower ends of the window frame; cables attached to the ends of the screen and trained over the sheaves or pulleys; and turnbuckles in the cables for tensioning the screen longitudinally. Improved means for journaling the roller so that the screen may be nearly as wide as the window opening.

Another form of the invention is embodied in window screen construction in substantially the same manner as that construction described above but arranged so that the cables are concealed in guide members in which the side edges of the screen or mesh ride.

Many other objects and advantages will appear as this description progresses, reference being had to the accompanying drawings, wherein:

Figure 1 is an elevation of a window screen which embodies the invention as mounted in a window frame, the view being taken looking from the inside of the window frame.

Fig. 2 is an enlarged section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged vertical longitudinal section taken through the upper end of the screen and the means for rotatably journaling it, the roller being shown partly in elevation.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

Fig. 5 is a section taken on line 5—5 of Fig. 2.

Fig. 6 is a section taken on line 6—6 of Fig. 5.

Fig. 7 is a section taken on line 7—7 of Fig. 1.

Fig. 8 is an elevation of a window screen which embodies another form of the invention, the view being taken looking from the inside of the window frame.

Fig. 9 is an enlarged section taken on line 9—9 of Fig. 8, and

Fig. 10 is an enlarged section taken on line 10—10 of Fig. 8.

Referring to the drawings, wherein I have shown a preferred form of the invention embodied in a roller screen for a window, the screen proper or mesh is designated by the reference character 10, and is trained over a roller 11 mounted in the upper end of a window frame 12. Cables 13 and 14 have their ends attached to the ends of the screen or mesh 10 and are trained over sheaves or pulleys 15 and 16, respectively, which are rotatably journaled in brackets 17 mounted in the lower end of the frame 12.

The roller 11 is preferably tubular in form, as best illustrated in Figs. 3 and 4. A plug 19 rigidly secured in one end of the roller 11 is provided with a projecting pin 20 rotatably journaled in an apertured disk 21 secured to the window frame by screws 22, or the equivalent. A plug 23 is rigidly secured in the other end of the roller 11, the plug 23 being spaced from that end of the roller, as shown in Fig. 3. Projecting outwardly from the plug 23 is a pin 24 which is rotatably journaled in a U-shaped bearing bracket 25, preferably formed with a disk 26 rigidly secured to the window frame 12. It will be noted that the pin 24 is disposed within the roller 11 and that the length of the roller 11 is nearly equal to the width of the window opening. This construction permits the use of a screen or mesh 10 which is only slightly less in width than the width of the window opening.

The roller 11 is provided with a slot or notch 28 adjacent the plug 23 so that the roller may be mounted between the members 21 and 26, or removed from between them by passing

the bearing member 25 through the slot or notch 28.

As best shown in Fig. 7, the side edges of the screen or mesh 10 ride in grooves 30 formed in sheet metal members 31 which are rigidly secured to the frame 12 by screws 32, or the equivalent.

It will be noted that each sheet metal guide 31 comprises integral flanges 34 and 35 projecting inwards from the sides of the window opening, the flanges 35 being bent to provide a bracket portion 36 through which the screws 32 project.

At each of the four corners of the screen or mesh 10, a substantially U-shaped metallic clip 38 is provided, the clips 38 being adapted to ride in the slots or grooves 30 (see Fig. 5).

A reinforcing bar 39 is provided at each end of the screen or mesh 10. (See Figs. 2 and 6.) Each reinforcing bar 39 is preferably fabricated from an angle member 40 formed from sheet metal and a member 41, which is also formed from sheet metal and comprises flanges 42 and 43, the flanges 42 and 43 being adapted to clamp the end of the screen between them and the flanges of the angle member 40. Rivets 44 preferably secure the flange 42 to the angle member 40. The member 41 also preferably comprises a flange 45 forming an extension of the flange 43 and enclosing a flange of the angle member 40. This construction is employed to give a neat finished appearance to the reinforcing bar.

As shown in Fig. 5, the inner ends of the U-shaped clips 38 preferably project into the space between the flanges 42 and the angle member 40.

The cables 13 and 14 are preferably secured to the reinforcing bars 39 instead of directly to the ends of the screen or mesh 10. Turnbuckles 46 provided in the cables 13 and 14 may be manipulated to tension the screen so that it will not buckle when it is drawn up or down. It will be readily understood that this construction is exceedingly advantageous as any slack in the screen resulting from continued use thereof may be taken up. With such construction, the wide edges of the screen will not tend to work out of the slots or grooves 30 and the screen will have a neat appearance at all times.

When the screen is in use, the lower end thereof may be pushed upwards until it is alined with the upper edge thereof which moves downward when the upper edge is moved upward. The screen will then only cover the upper half of the window opening.

The space between the roller 11 and the upper cross-member of the frame 12 may be closed by an angle iron 47, or the equivalent.

Referring now to Figs. 8 to 10, inclusive, wherein I have shown another preferred form of the invention, the screen proper or mesh is designated by the reference character 60 and is trained over a roller 61 mounted in the upper end of a window frame 62. Cables 64 and 65 have their ends attached to the ends of the screen or mesh 60 and are trained over sheaves or pulleys 66 and 67, respectively, which are rotatably journaled in brackets 68, mounted in the lower end of the frame 62. The cables include turn-buckles 69, and the end edges of the screen or mesh 60 are reenforced in the same manner as the edges of the screen or mesh 10 described above.

It will be noted that the side edges of the screen or mesh 60 travel in grooves 71 formed in sheet metal guide members 72 vertically disposed in the frame 62 and secured thereto. The guide members 72 are provided with inwardly extending flanges 73 between which the side edges of the mesh 60 project, the space within the guide members 62 being relatively large to accommodate cables 64 and 65 which also travel in the grooves 71.

Window screens embodying this form of the invention are neat and attractive as the cables are not exposed.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as possible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. Apparatus of the kind described comprising a roller, a screen trained over the roller, sheaves, cables attached to the ends of the screen and trained over the sheaves, and turnbuckles in the cables for tensioning the screen.

2. Apparatus of the kind described comprising a roller, a screen trained over the roller, sheaves, and cables including tension means trained over the sheaves and attached to the ends of the screen.

3. In a roller screen, a roller having a notch in one end thereof and provided with a pin in said end, substantially the entire length of said pin being within said roller, a bearing bracket for journalling said pin, said bearing bracket being adapted to pass through said notch when said roller is being assembled with said bracket, and means for rotatably journalling the other end of the roller.

4. Apparatus of the kind described comprising, a rotatably journaled roller, a rectangular screen trained over said roller, clip members secured to the corners of the screen, reinforcing bars extending between the clips, sheaves, cables trained over the sheaves and attached to said bars, and means for tensioning the screen longitudinally.

5. Apparatus of the kind described comprising a rotatably journaled roller, a screen trained over said roller, cables attached to both ends of the screen, means constrained to move with the cables for tensioning the screen sheaves over which said cables are trained, and guide members for the side edges of said screen, said guide members forming housings for said cables.

6. Apparatus of the kind described comprising a rotatably journaled roller, a screen trained over said roller, cables attached to both ends of the screen, means carried by the cables for tensioning them, sheaves over which said cables are trained, and guide members for the side edges of said screen, said guide members forming housings for said cables.

7. Apparatus of the kind described comprising a rotatably journaled roller, a screen trained over said roller, cables attached to both ends of the screen, turn-buckles for tensioning said cables, sheaves over which said cables are trained, and guide members for the side edges of said screen, said guide-members forming housings for said cables.

8. Apparatus of the kind described comprising a roller, a screen trained over the roller, cables attached to the ends of said screen, and turn-buckles secured to said cables for tensioning the screen.

In witness whereof, I hereunto affix my signature, this 20th day of June, 1930.

CHARLES BOCK.