

March 8, 1932.

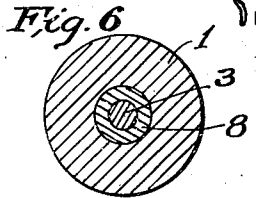
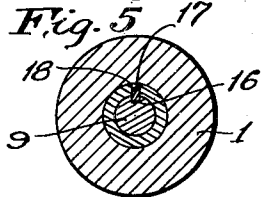
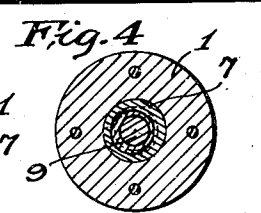
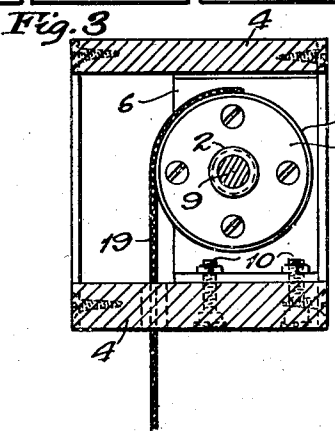
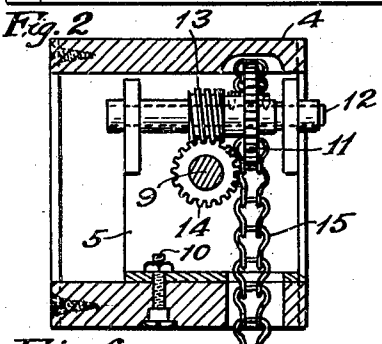
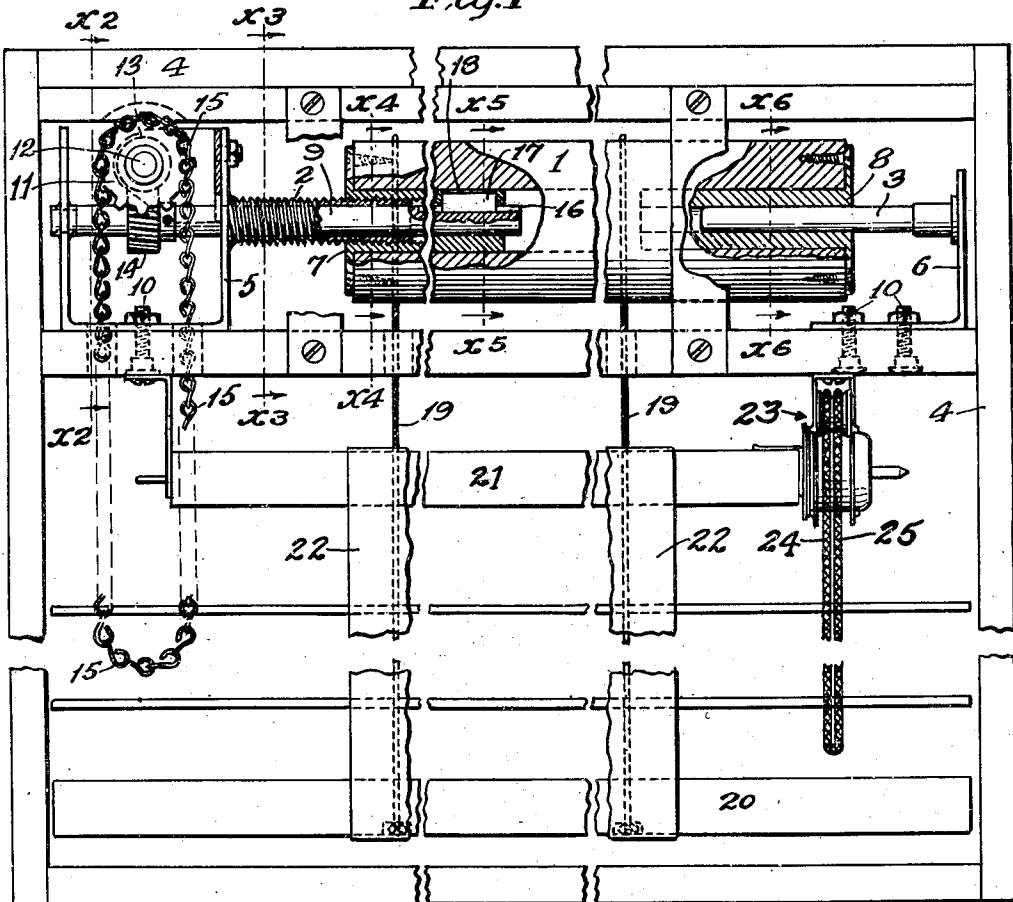
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1,848,742

VENETIAN BLIND CONTROL

Filed Dec. 8, 1930

Fig. 1



Witness  
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# UNITED STATES PATENT OFFICE

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## VENETIAN BLIND CONTROL

Application filed December 8, 1930. Serial No. 500,837.

This invention relates to an appliance by which a Venetian blind may be readily raised and lowered bodily by simply drawing a chain, and will remain stationary at whatever position it is left by the chain manipulation, and in which, during manipulation, the roller that raises and lowers the slats of the Venetian blind will shift endwise to prevent the turns of the slat supporting cords from winding over each other.

A principle of this invention is that the cord winding roller is slidingly splined to a driving stub shaft at one end and is revolvably and slidingly journalled to a stub shaft at the other end.

That is to say, the roller that takes up and lets out the line which raises and lowers the slats of the Venetian blind is shiftingly journalled at its ends by means of two stub shafts, on one of which the roller revolves and the other of which, revolves with the roller; and we provide means to be manipulated by the operator to revolve the spline shaft; and we also provide a screw arrangement by which the roller is shifted to cause the cord to be wound in a compact spiral without crowding or climbing upon or over itself.

In former constructions the operation of the take-up roller was effected by means of a rope wound around a spool when the blind was fully down and which operated through cords connected to the bottom rail of the blind so that by pulling down on the rope the cords were drawn up, and by fastening the rope to a cleat or stationary means, the bottom rail of the blind is held at a desired height, against gravitational descent.

An objection to such former contrivance is that at all times, except when the blind is fully down, there is an extra length of rope that has to be disposed of until the blind is again fully lowered.

An object of this invention is to provide a construction in which the operation of raising and lowering the bottom rail can be produced by an endless chain that always remains at the same length and does not get in the way.

Another difficulty arises in cases where the Venetian blind is long and heavy, as for

wide plate glass windows, so that the raising and lowering of the blind requires considerable manual force and such blinds can not well be operated by the hands of females or slight persons, and an object of this invention is to provide simple and easily operated mechanical means by which the power required to lift the bottom rail and slats is comparatively small; and it is well within the ability of children or frail people; and such mechanism is so constructed that the load will be sustained at any elevation without fastening the endless chain.

Another object is to minimize the housing in which the operating mechanism is mounted.

Other objects are simplicity and ease of installation.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

The accompanying drawings illustrate the invention.

Figure 1 is a fragmental inside elevation of a Venetian blind mounted according to this invention, broken at parts to show various portions in axial section, and showing the housing and the lower rail and a few of the slats; portions of the frame of the window also being shown; portions of the window, the blind and the handling device being broken away to contract the view.

Fig. 2 is a vertical section on line  $\alpha 2$ , Fig. 1, looking to the right.

Fig. 3 is a vertical section on line  $\alpha 3$ , Fig. 1, looking to the right.

Figs. 4, 5 and 6 are cross-sections on lines  $\alpha 4$ ,  $\alpha 5$ , and  $\alpha 6$ , respectively, in Fig. 1.

The centrally bored blind operating roller 1 is revolvably supported by a non-revolvably externally threaded sleeve 2, extending into one end of the roller, and a spindle 3 extending into the other end of the roller, and said roller is revolvable on, and shiftable along said sleeve and spindle, both of which are axially alined with each other and with the roller which is supported by a frame 4 through brackets 5, 6.

The threaded sleeve is practically integral

with the bracket 5, and for convenience of manufacture, may be fixed thereto by solder, or by welding, or otherwise, so that the sleeve is non-revolvable.

5 A nut 7, screw threaded onto the sleeve 2 is mounted inside the bore of the roller so that when the roller is rotated, it is shifted endwise the width of a thread at each revolution of the roller.

10 The roller is provided with a bearing 8 which is freely slidable and rotatable on the spindle 3.

A roller revolving stub-shaft arbor 9 is journalled in the main mounting 5 and the threaded sleeve 2, and extends into the roller beyond the end of the sleeve, and is arranged for relative endwise shifting and non-rotation with respect thereto.

20 The brackets 5 and 6 are fixed to the frame 4 by bolts 10 and the head bracket 5 carries the mechanism by which the arbor is operated to raise and lower the blind.

25 The chain wheel 11 is journalled on a shaft 12, the axis of which is in a plane above the arbor 9; and the vertical planes of the axes of the shaft and arbor are at right angles to each other, and the wheel is geared to the arbor by the worm gears 13 and 14.

30 The endless power chain 15 is adapted to drive the wheel 11 and thereby revolve the worm 13 fixed thereto, and the worm nut 14 in mesh therewith, thus to revolve the arbor 9, which in turn revolves the roller to which it is engaged by the keyway 16 and the key 17 engaging the key seat 18 in the nut 7.

35 The cords 19 fixed to the roller to be wound thereon when the roller is rotated, are attached to the weight bar 20 and are equal in diameter to the width of the screw threads of the sleeve so that the cords wind on the roller without over-lapping.

40 By the arrangement shown, this mechanism is brought into a small compass and the power applied through the chain is so effective that the strength required for handling a heavy blind is practically negligible.

45 There is no extra take-up to the hand operated connection and the heavy duty worm gear arrangement can not be operated by the weight of the shade and therefore the shade will remain stationary at whatever height to which it is adjusted, until moved by means of the endless chain.

50 In Fig. 1, the standard slat adjusting arrangement is shown including the adjusting roller 21, the slat operating straps 22 connecting the roller to the weight bar 20, and the adjusting roller operating device 23 controlled by the cord loop having the limbs 24, 25.

55 We claim:—

60 1. In combination with a Venetian blind roller, of a stationary threaded sleeve; a nut fixed to the roller and threaded on the sleeve, and an arbor extending through the sleeve

and slidably engaging the roller to rotate the same to shift the nut and the roller along the sleeve.

2. In combination with a Venetian blind roller including a frame, of a bracket, a stationary threaded sleeve integral with said bracket; a nut fixed to the roller and threaded on the sleeve, and an arbor extending through the sleeve and slidably engaging the roller to rotate the same to shift the nut and the roller along the sleeve; and worm gear to revolve the arbor.

3. The combination with a Venetian blind roller, of a stub shaft on which one end of the roller is endwise shiftably and revolvably mounted; an arbor on which the other end of the roller is splined to revolve the roller; a nut fixed to the roller; a stationary screw-threaded sleeve with which the nut is engaged to shift the roller endwise as it is revolved; a bracket integral with one end of said sleeve for holding it stationary and a heavy duty worm gearing to revolve the arbor and a nonkinkable chain and a chain wheel to drive said gearing.

In testimony whereof, we have hereunto set our hands at Los Angeles, California, this 13th day of November, 1930.

STEWART B. OULSMAN.  
ELMER V. CRAYNE.

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