

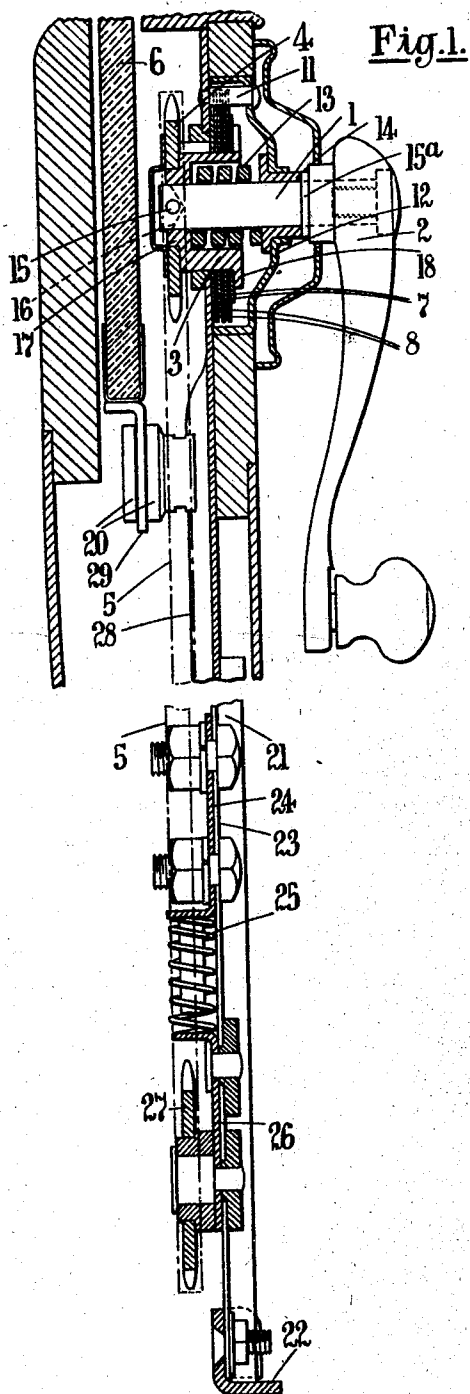
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W. QUICK ET AL
WINDOW CONTROL DEVICE

1,770,087

Filed May 28, 1927

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

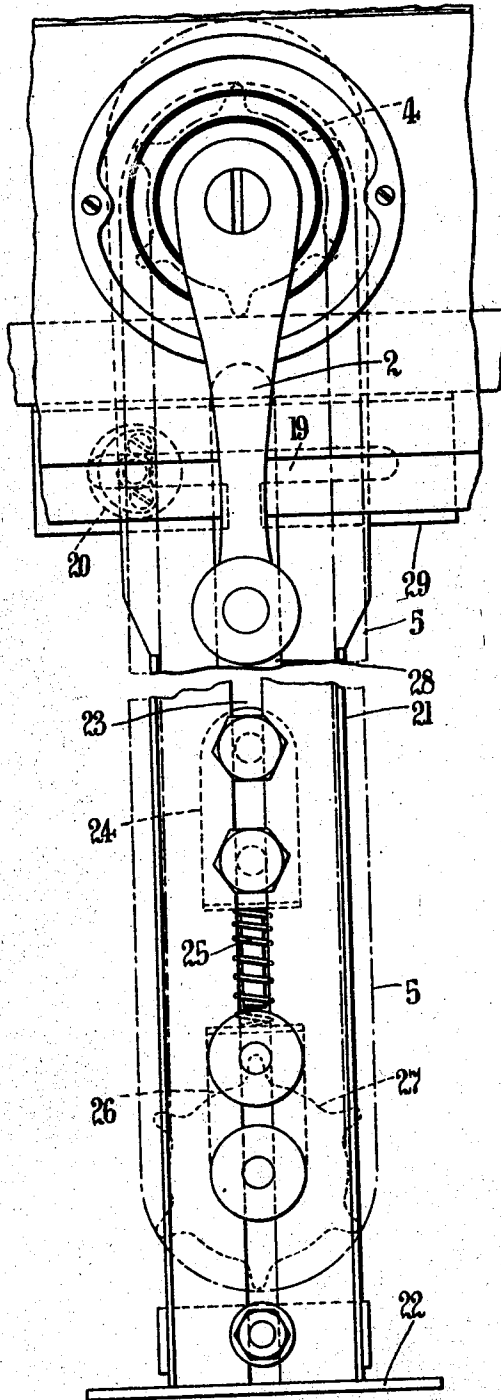


Fig. 2.

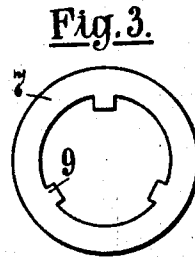


Fig. 3.

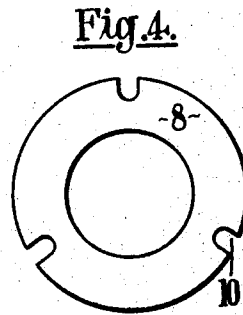


Fig. 4.

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UNITED STATES PATENT OFFICE

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WINDOW-CONTROL DEVICE

Application filed May 28, 1927, Serial No. 194,918, and in Great Britain June 25, 1926.

This invention relates to means for raising and lowering windows and has particular although not exclusive references to the means employed for raising and lowering the windows of automobile and other road vehicles as well as railway and tramway vehicles and ships.

The object of the present invention is to provide improvements in the means employed for checking movement of a window when an operating member is released and also to provide improvements in the arrangements whereby the various parts of the operating mechanism are mounted in position to enable the complete device to be inserted or removed as a unit.

According to the invention movement of an operating element and a window are checked by means of a multiple plate clutch when the operating element is released by the operator, the operating devices and upper sprocket wheel being preferably mounted in a supporting member which also has slidably mounted thereon the lower sprocket wheel connected to the upper sprocket wheel by a chain detachably connected to the window to be operated.

Reference will now be made to the accompanying drawings which illustrate by way of example a construction according to the invention and in which:—

Figure 1 is a longitudinal sectional elevation,

Figure 2 is a front elevation,

Figure 3 is an elevation of one of the movable clutch plates and

Figure 4 is an elevation of one of the fixed clutch plates.

In the construction illustrated there is disposed adjacent the open space through which a window is movable an operating spindle 1 which carries a handle 2 or hand wheel fixed thereto which may be detachable or adapted to be folded to an inoperative position. Fixed to the operating spindle 1 is a sleeve 3 carrying an upper sprocket wheel 4 over which passes a chain 5 connected to the window 6 at or near its lower edge. On the sleeve 3 which carries the upper sprocket wheel 4 is mounted a series of plate clutch

elements 7 in the form of metallic discs which alternate in position with a series of annular discs 8 fixed within the housing of the device. The plate clutch elements 7 are shown in detail in Figure 3 and comprise annular discs having on their inner edges inwardly directed lugs 9 which engage in longitudinal grooves formed in the sleeve 3. The clutch elements 8 shown in Figure 4 also comprise annular discs formed with peripheral notches 10 through which pass rivets, studs or screws 11 which retain a housing or cover 12 in position and prevent rotary movement of the clutch elements 8. The two sets of plates 7 and 8 are normally urged into cooperative engagement by means of a spring 13 coiled around the operating spindle 1 and bearing at one end against a bushing 14 on which the housing 12 is mounted and which in turn bears on a collar 15* on the spindle whilst the opposite end of the spring bears against the end of the sleeve 3. The inner end of the operating spindle 1 carries a transverse pin 15, the ends of which engage in inclined cam slots 16 formed in the end of the extension 17 of the sleeve 3, the effect of this arrangement being that when the operating spindle is rotated the pin 15 travelling along one of the inclined cam slots 16 forces the sleeve 3 along the spindle 1 towards the right, Figure 1 in a direction to compress the spring 13 and relieve the clutch plates 7 and 8 from pressure so that the spindle 1 can be freely rotated thereafter and its movement transmitted through the sprocket chain 5 to the window which is raised or lowered according to the direction of rotation imparted to the operating spindle. When the operating handle is released the spring 13 is free to expand and move the sleeve 3 towards the left, Figure 1 so that a flanged end 18 on the sleeve forces the clutch members into engagement which locks the window against further movement whatever its position may be.

The connection between the sprocket chain 5 and the base of the window comprises a slot 19 in which a member 20 on the chain engages and is of T-shape as shown in Figure 2 so that when the window reaches the limit of its travel in either direction continued rotation

of the handle 2 in the direction which has raised or lowered the window will then have the opposite effect the member 20 passing to the opposite arm of the slot thereby avoiding undue strain or possible breakage of the parts of the transmission mechanism.

The member comprises a flanged roller free to revolve on a pin projecting from the sprocket chain. The plate 29 in which the T-shaped opening is formed engages between the flange of the roller 20 which is thus maintained with its face parallel to the plate 29 and prevents twisting of the chain and consequent detachment from the sprockets.

To enable the device to be formed as a convenient unit capable of embodiment in relation to any size of window the housing 12 of the clutch mechanism may be mounted in one end of a space bar 21, the lower end of which has detachably secured thereto a flanged foot 22, adapted for example to be secured to the lower rail of an automobile door. This bar has a vertical slot 23 extending over the greater part of its length and in this slot is clamped adjustably a flanged stop member 24 beneath which bears one end of a coiled spring 25, the opposite end of which bears upon a similar member 26 slidably mounted in the said slot at a lower point than the fixed member 24 and having a bearing for the lower sprocket wheel 27 around and beneath which the sprocket chain 5 passes. In this manner the chain is maintained under constant tension and by altering the position of the flanged foot 22 and cutting the space bar 21 to the required length the device may be applied to windows or doors of any height. corresponding alterations being made in the length of the chain 5 and the position of the fixed stop members 24 and 26. The space bar 21 may be made in one piece and formed at its upper end with one or more ribs 28 or webs to preserve the necessary rigidity or alternatively may be made in two portions suitably interconnected, the upper portion of the bar being constructed to accommodate the clutch housing 12 and this portion is adapted to be secured to the framework of the window or door. The lower portion of the bar 21 is preferably of channel section.

The invention possesses the further advantage that the device may be assembled on the space bar and sold and positioned as a unit thereby reducing to a minimum the possibility of any of the component parts being omitted or incorrectly positioned.

We claim:—

In an arrangement for raising and lowering windows, a fixed bearing support, a sleeve rotatably and slidably mounted in said bearing support, a fixed bush coaxial with but spaced from said bearing support, an operating spindle journaled in said bush and projecting freely into a bore in said sleeve, stationary friction plates, rotatable friction

plates mounted on said sleeve and alternating with said stationary plates, a pressure spring mounted on said spindle and acting between said sleeve and said bush for pressing said stationary and rotatable friction plates into close engagement, a member fixed on said sleeve for transmitting motion to the window, a cam faced boss on said sleeve and a projection on said spindle cooperating with the cam face of said boss for releasing the frictional engagement between the stationary and movable plates.

In witness whereof we affix our signatures.

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