

March 17, 1942.

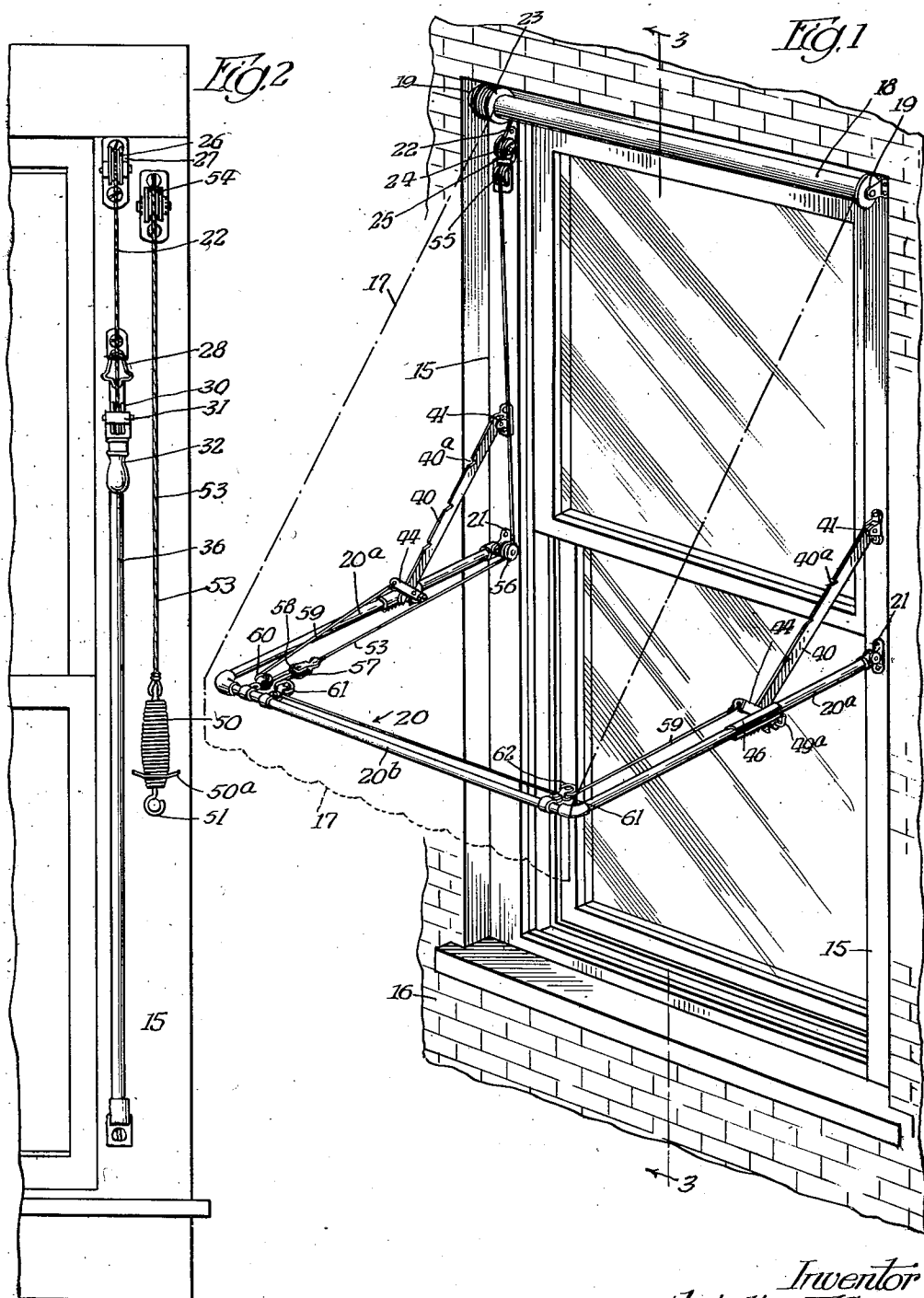
C. E. SKYUM

2,276,550

AWNING

Filed Feb. 26, 1941

3 Sheets-Sheet 1



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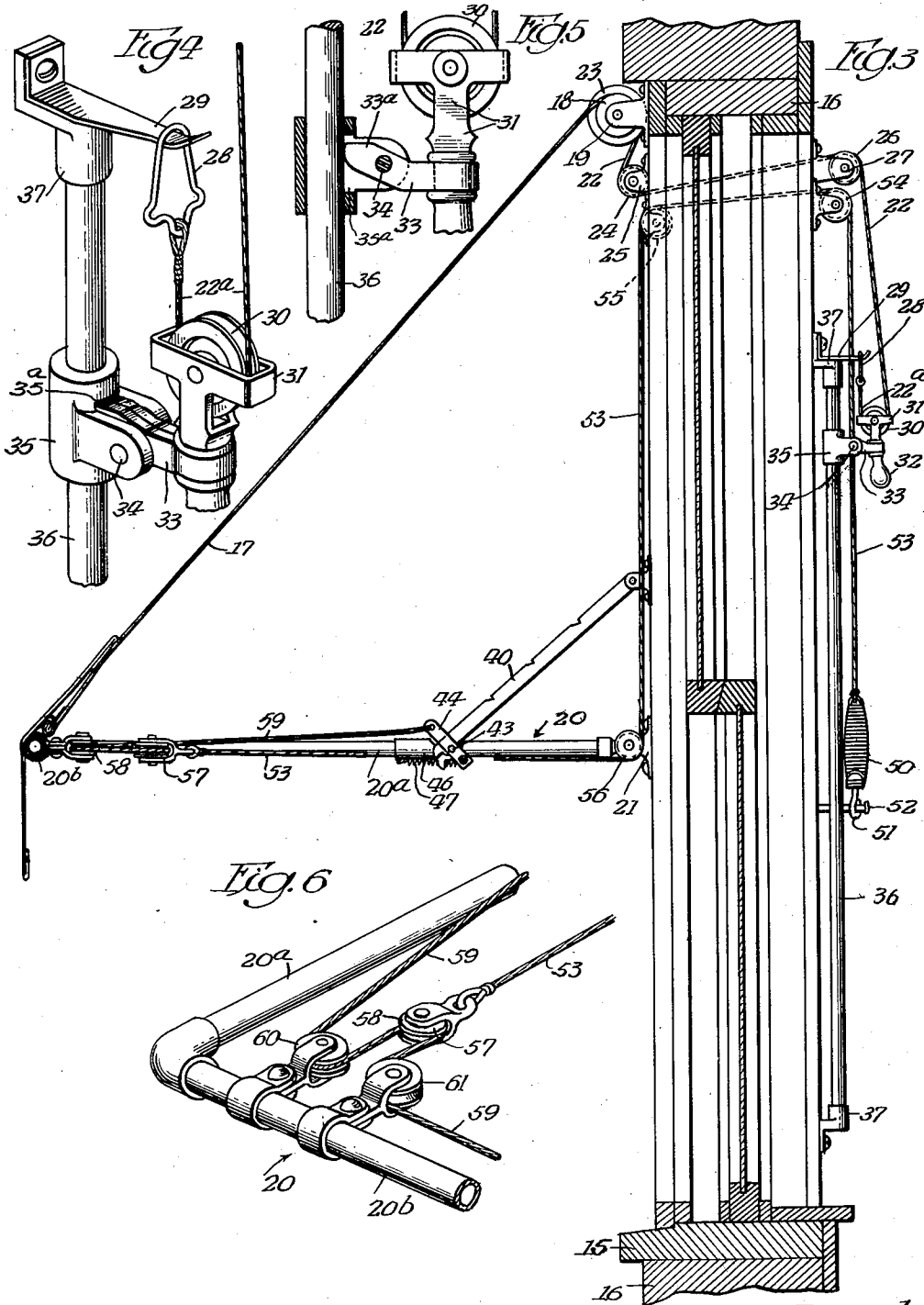
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3 Sheets-Sheet 2



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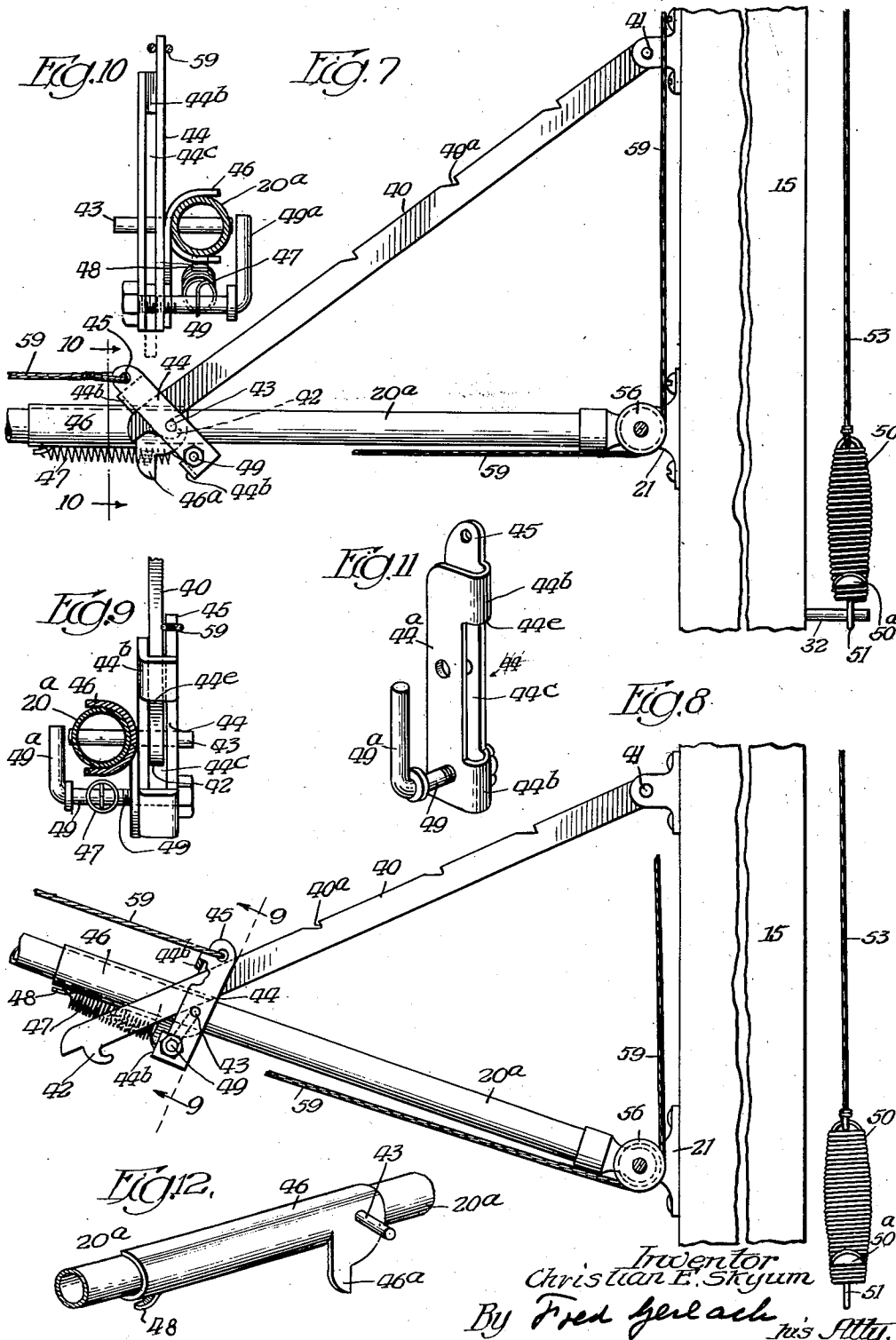
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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AWNING

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7 Claims. (Cl. 156—44)

The invention relates to awnings.

One object of the invention is to provide an easily operable device for winding the awning curtain on a roller and raising the pivoted frame to which the lower end of the curtain is attached, which device is self-locking to support the frame in different positions.

Another object of the invention is to provide improved means for locking the pivoted frame against upward movement by wind pressure.

Other objects of the invention will be apparent from the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawings: Fig. 1 is a perspective of a structure embodying the invention, the curtain being shown in dotted lines. Fig. 2 is an elevation of the device for operating the cord for winding the curtain on the roller and the manually operable device for releasing the locking device for the pivoted frame. Fig. 3 is a vertical section taken on line 3—3 of Fig. 1. Fig. 4 is a perspective of the device for operating the cord which rotates the curtain roller to raise the curtain. Fig. 5 is a side elevation of said device, the guide sleeve being shown in section. Fig. 6 is a perspective of a portion of the pivoted awning frame and a portion of the cord for releasing the locking means from said frame. Fig. 7 is a view of the pivoted frame and its locking device in locking position. Fig. 8 is a similar view illustrating the pivoted frame partially raised and the locking device released. Fig. 9 is a section taken on line 9—9 of Fig. 8. Fig. 10 is a section taken on line 10—10 of Fig. 7. Fig. 11 is a perspective of the pivoted latch of one of the locking devices for the pivoted frame. Fig. 12 is a perspective of one of the stop members on the side arms of the pivoted frame.

The invention is exemplified with a window casing or frame 15 which is secured in a building wall 16. The window sashes are slidably mounted in said frame in the usual manner. A curtain 17, preferably of suitable light fabric, has one of its ends secured to a roller 18 which is rotatably mounted in brackets 19 which are secured to the outside of frame 15. This roller is mounted adjacent the top of frame 15 and is adapted to wind and unwind the curtain for raising and lowering it. The lower end of the curtain is connected to a bail or frame 20 which comprises side arms 20^a having their inner ends pivoted to brackets 21 which are fixed to the

outer face of the sides of frame 15 and a cross-bar or member 20^b which rigidly connects the outer end of arms 20^a. Frame 20 is adapted to be raised by the winding of the curtain on roller 18 and to be lowered by its own weight or gravity as the curtain is unwound from said roller. Frame 20 is also adapted to unwind the curtain from roller 18 when the latter is released or free to rotate.

The improved device for operating roller 18 to wind the curtain 17 thereon and raise its lower end to swing frame 20 upwardly, comprises a cord 22 which is wound around a spool 23 which is fixed to roller 18. The cord is adapted, when pulled, to rotate the roller to wind the curtain thereon. When cord 22 is released it is wound on roller 18 as the frame 20 is lowered. Cord 22, from spool 23, passes around a small guide-sheave 24, which is rotatably supported in a bracket 25 fixed to the outer face of frame 15; thence through a hole in said frame to the inner side thereof and around a guide-sheave 26 rotatably supported in a bracket 27 which is fixed to and projects inwardly from the inner face of frame 15. From sheave 26, cord 22 extends downwardly to form a pendant loop 22^a, the upwardly extending terminal of which has connected thereto a hanger 28 formed of a loop of wire. A hook 29, formed of plate metal, is fixedly secured to and projects inwardly from the face of window frame 15 and is adapted to extend through hanger 28. Hook 29 and hanger 28 form a connection for stationarily supporting the terminal of the cord 22 from the window frame 15.

A manually shiftable grooved pulley 30 engages the bottom of the loop 22^a of cord 22 and is adapted to exert pull upon the end of the cord which is connected to spool 23 to wind the curtain 17 on roller 18 when said pulley is moved downwardly to lengthen the loop and to permit the curtain to be unwound from roller 18 by the frame 20 when the pulley 30 is raised. Pulley 30 is journaled in a bracket 31 which is provided with a pendant handle 32. An arm 33, which is rigid with handle 32 and bracket 31, is fulcrumed on a cross-pin 34 which is carried by a collar 35. Arm 33 fits between a pair of lugs on collar 35. Collar 35 is slidable on a vertical guide-rod 36. Brackets 37, which are fixed to the inner face of one side of window frame 15, fixedly support rod 36. Arm 33 is provided with an abutment or cam 33^a which extends from pin 34 through a slot 35^a in collar 35 and is adapted to clutch or engage and grip rod 36 to lock collar

35 and the device for operating cord 22 against upward movement. Pin 34 serves as a fulcrum for arm 33 and bracket 31. When the handle 32 is released the pull on cord 22 caused by the weight of the pivoted frame which tends to unwind the curtain 17 from roller 18, will be applied through cord loop 22^a and pulley 30, to swing arm 33 on pin 34 as a fulcrum so that the abutment or cam 33^a will be jammed against the stationary guide-rod 36 and thereby lock collar 35 and the pulley against upward movement. When handle 32, which is rigid with arm 33 and cam 33^a, is swung on pin 34 toward the window frame 15, cam 33^a will move away from rod 36 and release collar 35 for upward sliding movement on said rod. This will permit pulley 30, under control of handle 32, to move upwardly so as to release cord 22 any extent desired for unwinding the curtain 17 from roller 18. This construction serves as an automatic one-way clutch which is easily releasable by the operator when it is desired to raise or lower the curtain for holding pulley 30 as soon as handle 32 is released. Cam 33^a is fulcrumed so it will slip downwardly along rod 36 when the handle is pulled downwardly and the curtain is raised but as soon as said handle is released said cam will clutch or grip guide-rod 36 and lock collar 35 against further upward movement. A characteristic of this curtain raising and lowering device is that the handle 32 and pulley 30 act upon the pendant loop 22^a of the cord 22. This results in the travel of the cord 22 at spool 23 being approximately twice the travel of handle 32.

The pivoted awning frame 20 is supported in its lowered position by a pair of braces 40 which are respectively pivoted at 41 to the sides of window frame 15. Each brace is provided at its outer end with a hook 42 which is adapted to be engaged by a stud 43 which is rigid with one of the side arms 20^a of frame 20. When frame 20 is in its lowered or horizontal position, studs 43 will be seated in the hooks 42 of the braces 40 and the frame will be locked thereby against downward movement. It is also desirable to lock frame 20 against upward movement by the pressure of the wind against the under side of the curtain and automatic locking devices which are manually releasable from the inside of the window are provided for this purpose between the side arms 20^a and braces 40, respectively. Each of these locking devices comprises a latch 44 which is pivoted on stud 43 which is fixed in a side arm 20^a. The latch 44 is formed of plate metal bent to form parallel sides 44^a with a space between them in which the brace 40 is slidably confined transversely and a connecting wall 44^b between side walls 44^a having a slot 44^c through which the brace extends. One side wall 44^a of latch 44 is extended, as at 45, to form an ear to which is connected a releasing cord 59 for the latch. The lower edge 44^e of the upper portion of cross-wall 44^b serves as an abutment or detent for engaging the upper edge of the brace 40 when the stud 43 is seated in hook 42 on the brace and locks the brace and side arm 20^a against relative movement so that the frame 20 can not swing downward. A sheath-like sheet metal member 46 is fixedly secured on side arm 20^a and is provided with a stop 46^a engageable by a stud 49 which is carried by the lower end of latch 44, for limiting the pivotal movement of the latch in one direction, so that when the latch is released the brace 40 can slide through the latch 44. A spring 47 is connected to a hook

48 on the outer end of member 46 and to stud 49, for pressing the latch 44 into its releasing position so that when the latch is released, stud 49 will engage stop 46^a and the latch will permit the brace to slide therethrough. Stud 49 has an upturned end 49^a for sliding the latch on the pivot stud 43.

The latches 44 are each adapted to be held in locking position and are manually releasable by a device on the inside of the window. This device comprises a coil spring 50 which is provided at its lower end with an eye 51 whereby the spring can be coupled to a stud 52 which is fixed to the inside of the window frame; a cord 53 which is connected to the upper end of spring 50, extends upwardly to a sheave 54 mounted on the inside of the window frame, thence through a hole in said frame, and around a sheave 55 on the outer side of the window frame, and thence around a sheave 56 which is coaxial with the pivot of the awning frame 20; a pulley-block 57 to which the outer end of cord 53 is connected; a pulley 58 journaled in block 57; and a cord 59 looped around pulley 58. One branch of cord 59 from the loop around pulley 58 extends around a guide-sheave 60 carried by bar 20^b and is connected to ear 45 on the latch 44 on one arm 20^a of frame 20. The other branch of said loop extends around guide-sheaves 61, 62 carried by bar 20^b and is connected to the latch 44 on the other side arm 20^a. When spring 50 is connected to stud 52 it will be placed under tension and exert sufficient pull on cord 53 to move pulley 58 inwardly so that cord 59 will be pulled sufficiently to hold the latches 44 at both sides of frame 20 in the locking position shown in Fig. 7 against the force of springs 47. The frame will then be locked against upward movement by the detent or abutments 44^e on the latches 44. When spring 50 is uncoupled from stud 52 and freely suspended from cord 53, there will be no tension on cords 53, 59 and latches 44 will be free to be swung by springs 47 into the releasing position shown in Fig. 8. The latches 44 will be arrested in releasing position by studs 49 and stops 46^a. When the latches 44 are in their releasing position the detents or abutments 44^e will permit the braces 40 to slide through the latches. Braces 40 are provided with notches 40^a in their upper edges which are adapted to be engaged by the detents or abutments 44^e of latches 44 when the curtain frame is in intermediate positions and to lock said frame against upward movement in such positions. When it is desired to lock the frame in one of the intermediate positions the operator will couple spring 50 to stud 52 when the frame has been raised to any point where the detents 44^e of latches 44 will enter one of the notches 40^a. The tension on cord 53 will then shift latches 44 into locking engagement with the notches 40^a. The upper end of notches 40^a are parallel to the contiguous inner faces of detents 44^e when the latches are in locking position so they will arrest the upward movement of the latches and the frame 20. The bases of the notches 40^a are inclined to permit the frame 20 to be lowered without uncoupling spring 50 from stud 52. Spring 50 is provided with a finger-piece 50^a for convenience in putting the spring under tension and coupling it to stud 52 and disconnecting it therefrom.

The operation will be as follows: assuming the curtain and frame 20 are in lowered position for use, as illustrated in Figs. 1 to 7, spring 50 will

be under tension and coupled to stud 52. Cord 53 will then hold pulley 57 in position to exert an equalized pull on the ends of cord 59 so that they will hold latches 44 in their locking position (Fig. 7) against the force of latch-releasing springs 47. At such time the abutments 44^e will engage the upper edges of braces 40 and the hooks 42 and studs 43 will be held engaged by the tension on cords 59 so that the distal ends of the braces will be gripped between studs 43 and abutments 44^e so the braces are locked against pivotal movement, as illustrated in Fig. 7. Frame 20 will then be locked against upward and downward movement by the braces 40 which are then locked to the side arms 20^a by latches 44. The detents or abutments 44^e will be pressed against the upper edges of latches 44 and coact with hooks 42 and studs 43 to lock the braces 40 against relative movement with respect to frame 20. When the curtain is to be raised, spring 50 will be first uncoupled from stud 52. Latch-releasing springs 47 will then swing latches 44 on studs 43 into position to release the braces, as shown in Fig. 8. The braces 40 will then be free to slide through the latches 44. The latches 44 will be arrested by studs 49 and stops 46^a on members 46. The operator will then grasp handle 32 and pull it downwardly until the frame 20 and curtain 17 have been raised. The handle is free to be rotated downwardly because the cam 33^a is effective to clutch the guide-rod 36 only to prevent upward movement of collar 35 while permitting downward movement of said collar and the parts carried thereby. The downward pull on handle 32 lowers the pulley 30 and elongates the loop 22^a in cord 22 below hook 29 and unwinds said cord from spool 23, which rotates the roller 18 and winds up the curtain 17 to raise the frame 20. As soon as the handle 32 is released the upward pull of cord 22 on pulley 30 produced by the weight of frame 20, swings arm 33 on fulcrum 34 to automatically force cam 33^a into clutching engagement with guide-rod 36, so that pulley 30 will hold cord 32 and prevent lowering of the curtain and frame 20. This clutching effect occurs at any point in the range of travel of collar 35 on rod 36 so that the frame 20 may be raised to its upward limit or to intermediate points. If it is desired to lock the frame 20 at intermediate points the spring 50 will be coupled to stud 52 to shift, through cords 53, 59, the latches 44 so the detents or abutments 44^e will pass into corresponding notches 40^a in braces 40 and lock frame 20 against upward movement from the intermediate position. The lower edges of the braces 40 will then engage studs 43 and the tension on cables 59 will swing the latches so their abutments 44^e will pass into notches 40^a. The upper ends of the notches 40^a will then engage the inner faces of the walls 44^b at the upper ends of the latches 44 when upward pressure is applied to the frame. The clutch device between handle 32 and rod 36, through cord 22, roller 18 and curtain 17, then holds frame 20 against downward movement. When the curtain 17 and frame 20 are to be lowered the operator will grasp handle 32 and swing it slightly toward the window casing. This will swing arm 33 on fulcrum 34 so that cam 33^a will be disengaged from guide-rod 36 and pulley 30 will be free to be raised through cord 22 and roller 18 by the weight of the awning frame 20 under control of handle 32. As soon as handle 32 is released, the clutch cam 33^a will automati-

cally grip rod 36 and lock collar 35 against further upward movement. At the end of the downward movement of frame 20, spring 50 will be coupled to stud 52 which will operate, through cords 53, 59 and pulley 57, the latches 44 into locking position (Fig. 7) so the frame will be locked against upward or downward movement. The sheave 56 for cord 53 is coaxial with the pivot for frame 20 so that the operative relation between spring 50 at the inside of the window and the latches 44 which are carried by the side arms 20^a of the awning frame, will not be changed by the swinging movement of the frame 20.

The invention exemplifies a device for operating the curtain roller to raise and lower the curtain and the pivoted frame, which is simple in construction and which can be easily and smoothly operated. The invention also exemplifies improved locking means for securing the awning frame against upward movement which provides for locking the frame in its lowered and intermediate positions.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination with an awning structure comprising a frame pivoted to an awning support, a curtain connected to said frame and a roller on which the curtain is wound, carried by the awning support, of a cord having one of its ends connected to a fixed support and its other end connected to rotate the roller, the cord having a pendant loop adjacent its fixed end, a vertically movable element engaging the bottom of the loop and adapted to vary its length to rotate the roller and raise the curtain and frame, and means for holding the element to retain the lower end of the loop in different vertical positions.

2. The combination with an awning structure comprising a frame pivoted to an awning support, a curtain connected to said frame and a roller on which the curtain is wound, carried by the awning support, of a cord having one of its ends connected to a fixed support and its other end connected to rotate the roller, the cord having a pendant loop adjacent its fixed end, a vertically movable element engaging the bottom of the loop and adapted to vary its length to rotate the roller and raise the curtain and frame, a vertical guide, and a one-way clutching device movable vertically with said element and adapted to grip the guide for holding the element to retain the lower end of the loop in different vertical positions.

3. The combination with an awning structure comprising a frame pivoted to an awning support, a curtain connected to said frame and a roller on which the curtain is wound, carried by the awning support, of a cord having one of its ends connected to a fixed support and its other end connected to rotate the roller, the cord having a pendant loop adjacent its fixed end, a vertically movable element engaging the bottom of the loop and adapted to vary its length to rotate the roller and raise the curtain and frame, a vertical guide-rod, a collar slidable on said rod and on which said element is mounted, and means for securing the collar on the rod

to hold said element so as to retain said element in different vertical positions.

4. The combination with an awning structure comprising a frame pivoted to an awning support, a curtain connected to said frame and a roller on which the curtain is wound, carried by the awning support, of a cord having one of its ends connected to a fixed support and its other end connected to rotate the roller, the cord having a pendant loop adjacent its fixed end, a vertically movable element engaging the bottom of the loop and adapted to vary its length to rotate the roller and raise the curtain and frame, a vertical guide rod, a collar slidable on the rod, a bracket carrying said element and pivotally supported by the collar, and provided with one-way clutching means for engaging the rod so as to retain the collar in different positions on the rod.

5. The combination with an awning structure comprising a frame pivoted to an awning support, a curtain connected to said frame and a roller on which the curtain is wound, carried by the awning support, of a cord having one of its ends connected to a fixed support and its other end connected to rotate the roller, the cord having a pendant loop adjacent its fixed end, a vertically movable pulley engaging the bottom of the loop and adapted to vary its length to rotate the roller and raise the curtain and frame, a vertical guide, a bracket on which the pulley is mounted, and means for holding the bracket in different vertical positions on the guide.

6. The combination with an awning structure comprising a frame pivoted to an awning support and including side arms and a cross-bar,

braces for supporting the frame, pivoted to the support, and means for raising and lowering the frame, of latches pivoted to the side arms and provided with means for locking the braces to the side arms to prevent upward movement of the frame, a cord connection for shifting the latches into locking position, including a spring, means for holding the spring under tension to hold the latches in locking position, the spring being releasable to remove the tension and to render the latches ineffective to lock the braces, and means for shifting the latches into releasing position when the tension of the spring is removed.

7. The combination with an awning structure comprising a frame pivoted to an awning support and including side arms and a cross-bar, braces for supporting the frame, pivoted to the support, and means for raising and lowering the frame, of latches pivoted to the side arms and provided with means for locking the braces to the side arms to prevent upward movement of the frame, a pulley, a cord having one of its ends connected to shift the pulley, a cord extending around the pulley and having its ends connected to the latches, respectively, a spring suspended from the other end of the cord which is connected to the pulley, and means on a stationary support to which the spring is connectable so as to hold it under tension to shift and hold the latches into locking position and from which the spring is releasable to remove the tension, for rendering the latches ineffective to lock the braces, and means for shifting the latches into releasing position when the tension of the spring is removed.

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