Aug. 13, 1946. J. OTTI 2,405,899

LOUVER OPERATING MEANS

Original Filed Aug. 26, 1941

Fig. 1.

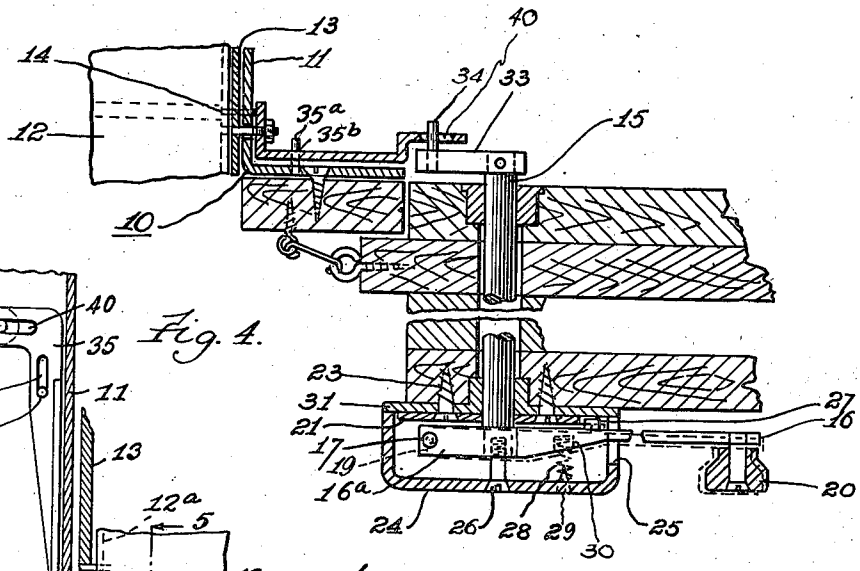


Fig. 4.

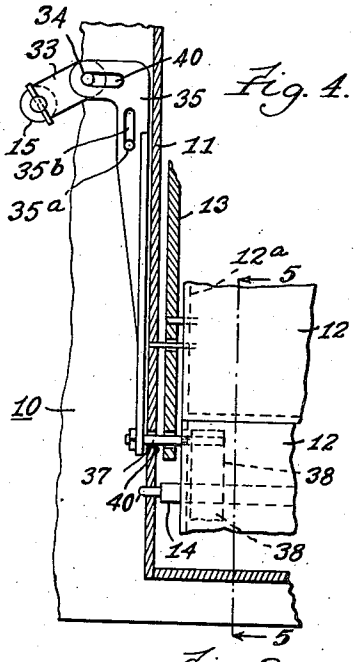


Fig. 2.

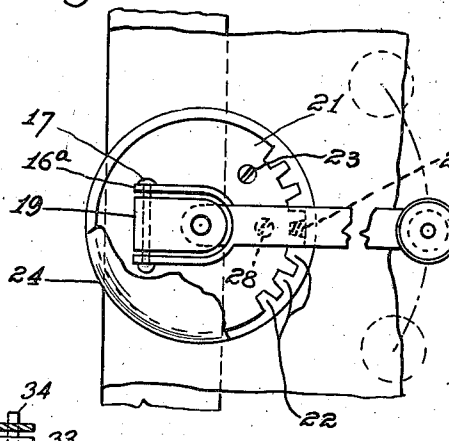


Fig. 3.

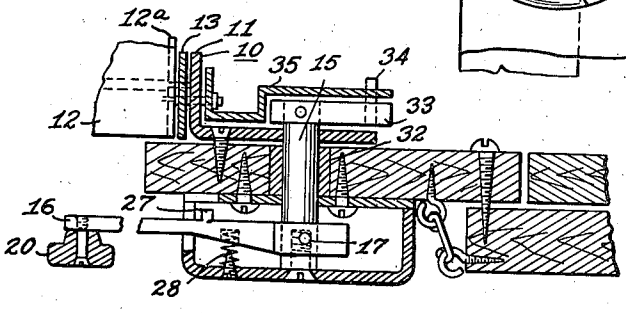
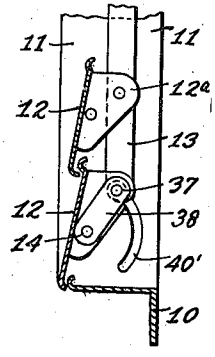


Fig. 5.



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UNITED STATES PATENT OFFICE

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LOUVER OPERATING MEANS

Joseph Otti, Oklahoma City, Okla.

Original application August 26, 1941, Serial No. 408,312. Divided and this application November 16, 1942, Serial No. 465,664

5 Claims. (Cl. 268—96)

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My invention is directed to novel means and to a novel device for manually operating, adjusting and moving louvers of awnings or window shades having movable parts which are adapted to regulate light, air, sunlight, wind, dust, etc.

It is an important object of my invention to provide means for manually adjusting the same to any one of a plurality of desired positions and which embodies features which overcome the objectionable features of rattling, insecure means of mounting and present inadaptability for mounting upon either removable screens or upon stationary window frames.

A further object of my invention is the provision of a novel manually controllable means and mechanism adapted to be mounted either in a side member of a removable screen frame or in a side member of a stationary window frame in combination with a louver connecting link connecting said operating mechanism and the connecting member which moves the respective louvers to desired position.

A further object of my invention is the provision of novel means for transmitting manually actuated movement from one side, usually the inside, of the window to the pivotally mounted louvers of an adjustable awning of the described class.

Other and further important objects of my invention will be apparent from the following description and appended claims.

This application is a division of my presently pending application Serial No. 408,312, filed August 26, 1941.

On the drawing:

Fig. 1 is a cross sectional view taken on a horizontal plane showing my device in one typical installation in a stationary window frame, and showing only a fragment of the awning.

Fig. 2 is an elevation of the inside portions of my adjustable operating device, with the cover or shield removed from over the handle.

Fig. 3 is a cross sectional view taken on a vertical plane of my device, as installed directly in a side member of a window frame which is either permanently or removably mounted on the house wall frame.

Fig. 4 is an enlarged view illustrating one form of lever and arm elements through which the movement is transmitted to the louvers.

Fig. 5 is a cross sectional and partially fragmentary view with parts broken away taken on line 5—5 of Fig. 4.

Reference numeral 10 designates one side member of a rectangular frame preferably made

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of metal, and which has its inner longitudinal edge bent at right angles and outwardly to form a mounting flange 11. Numeral 12 designates the louvers, only a fragment of one of which is shown, and each of which louvers have their opposite ends bent at right angles to form end wings or mounting flanges. A fragment only of one of said louvers is shown in Fig. 1.

The louvers are pivotally mounted at suitably spaced positions by rivets or the like (not shown), which pass through suitable apertures of the respective end wings and into apertures (not shown) in mounting flanges 11 of the side members 10. The respective louvers of the awning are connected together to operate and move in unison by a suitable metal link 13 shown in cross section in Fig. 1 which has rivets or pins (not shown), passing therethrough and through suitable apertures in those end wings of the louvers at one side of the awning frame. The louvers are thereby operatively connected together to move in parallelism and unison.

One of the wings of one louver carries a stud pin or pintle 14 which extends horizontally a short distance. Such pin or pintle may, if desired, extend through the length of one of the louvers and beyond both end wings thereof to thereby provide pivoting means for such louver and to thereby move both sides or louver ends in unison.

The awning may be permanently or stationarily mounted on the window frame, on the screen frame or in any suitable manner upon the window opening.

Numeral 15 designates a metal shaft of any desired length to meet the requirement of the particular installation. For example, said shaft 15 may be relatively short where the unit is installed in a side frame member of a screen or separate frame such as illustrated in Fig. 3, and in instances where said unit is installed in the stationary window frame of a building, said shaft is substantially longer to extend from within the inside surface to points a short distance outside the frame.

A hand lever 16 is pivotally connected at one end to the inner end of said shaft 15 by means of a suitable pin 17 which passes through the inner end of shaft 16. In Figs. 1 and 2, I illustrate said lever 16 as having an integral yoke 16a whose arms have aligned passages and through which passages the transverse pin 17 passes to pivot said hand lever 16 upon a short transversely passaged extension, arm or mounting block 19. Where said optional mounting

block 19 is utilized, it may be secured in any suitable manner upon the end of the shaft 15, i. e. by welding, or formed from a bent portion of the shaft 15 itself.

The free end of hand lever 16 may carry an optional knob or handle 20 which may be secured to said lever 16 by a suitable pin or screw as indicated.

A metal washer-like disk or plate 21 having a plurality of spaced screw apertures and a plurality of spaced peripheral serrations or recesses 22 forming teeth is preferably secured by screws 23 to the inner frame member upon which the unit is mounted. Said plate 21 has a central aperture through which the shaft 15 passes. A cup-like metal cap housing or cover 24, which has a portion of its annular wall cut away to form an arcuate recess 25, is removably mounted over said disk or plate 21 and over the inner portion of hand lever 16 by any suitable means, as for example by an optional screw 26 which passes through a central aperture therein and threads into a threaded passage in the end of shaft 15, or in instances where mounting block 19 is used, the same threads into a threaded passage in such block.

The cover cap 24 rotates with shaft 15, plug 19 and lever 16. Lever 16 is adapted to be engaged and disengaged from serrations in plate 21 to allow said rotary movement to effect adjustment of the louvers to desired positions and to retain them in any position.

Hand lever 16 is preferably though not necessarily provided with an integral extension or stud 27 on its intermediate portion which extends inwardly and which seats in recesses or serrations 22. An optional spring 28 is preferably though not necessarily interposed between the inner face of cover 24 and said hand lever 16, said spring normally exerting its force to hold said lever so that its extension 27 seats in one of the recesses 22 to thereby releasably lock said shaft and lever in any one of a number of positions. The intermediate part of said lever may have an optional recess 30 to receive the inner end of said spring 28, and also an inwardly projecting element 29, i. e. a screw or pin, may be mounted on the inner face of cover 24 whereon said spring, when of the coil type, may be more securely mounted.

In Figs. 1 and 2 I illustrate an optional separate metal disk 31 beneath serrated plate 21 which is concentric with shaft 15 and which is also secured to a frame member by screws 23 passing through apertures therein. When it is desired to rotate the shaft 15 and hand lever 16, the operator merely pulls the outer end of lever 16 toward the operator and against action of spring 28, and thereupon rotates said lever to the desired position and then permits the spring 28 to relock the lever by engagement of stud or extension 27 in one of the recesses 22.

Reference numeral 32 designates an optional metal sleeve or bushing which is mounted in the passage in the frame on which the unit is mounted and which forms an optional bearing for shaft 15. Suitably secured on the outer end of shaft 15 is a relatively short crank arm or crank lever 33 which has secured thereon a pivot element 34, which may assume the form of a screw or metal pin.

A novel and advantageous feature of this construction is that the size and shape of the pivot element 34 is less than the narrowest and transverse dimension of the slot 40 so that the connecting link 35 may be easily moved on and off

the pivot element 34, both in installation and assemblage as well as in instances where the awning is hinged along either vertical side edge to the window frame. It will be apparent that by making the connection between the slot 40 and pivot element 34 removable, the awning may be hinged along either side edge to the window frame and swung outwardly in an arcuate path like a shutter for convenient access in cleaning, painting, and the like.

As shown in Fig. 4 a connecting arm or connecting link 35 has its upper end operatively connected to the pivot element 34 which element 34 is secured in the outer end of crank lever 33. The upper end of link or arm 35 has a transversely extending slot 40 therein in which pivot element 34 slides and moves. Said connecting arm 35 has its lower portion bent or twisted so that such lower portion thereof lies in a plane substantially perpendicular to the plane of the upper slotted portion of said arm, substantially illustrated in Fig. 4. The lower end of said arm 35 is apertured and is operatively connected to the end portion or end flange 12*a* of the louver 12 by means of a pivot element 37 which may be either a headed pin or screw. Pivot element 37 passes through the aperture in the lower end of connecting arm 35 and has its inner end secured by welding or the like in an aperture in end mounting flange 12*a* of louver 12 and optionally to one end of a reinforcing angular extension or arm 38 which is secured adjacent to the end flange 12*a* of louver 12 by welding or the like. Th extension 38 may be integral with the end portion of pintle 14 or may compose a perpendicularly bent end of said pintle 14. Said extension 38 provides a sufficiently strong "arm," and reinforces the end flange 12*a* to transmit the downward and upward movement of connecting link 35 to partially rotate the pintle 14 and rock the respective louvers. As clearly shown in the upper portion of Fig. 1, a headless guide screw 35—*a* has one end thereof mounted in the intermediate portion of frame member 10 so that said screw 35—*a* extends perpendicularly and projects through the longitudinally extending guide slot 35—*b* formed in connecting link 35 so that as said link 35 is moved upwardly or downwardly, it is guided in said movement by the cooperating action of said guide screw 35—*a* and said guide slot 35—*b*. I have illustrated in the cross sectional view in Fig. 5 the normally vertically extending part of the frame side flange 11, with other parts in side elevation and cross section. The lower portion of the side flange 11 which is nearest the operating mechanism has formed therein an arcuate slot 40' through which the pivot element 37 extends, and in which it moves upon the rocking movement herein described. An end portion of said slot 40' is illustrated in Fig. 4, a part of each thereof being defined by the upper and lower cross lines on the cross-hatched frame flange 11 above and below the pivot element 37.

As illustrated in Figs. 1 and 4, the corresponding ends of the respective pivotally mounted louvers are connected to operate in unison and in parallelism by a metal connecting bar 13, which usually assumes the form of a straight metal bar with a plurality of holes in it spaced apart so that rivets or pins pass through said holes and suitably spaced holes in those end flanges or wings which are at one end of each louver. Connecting bar 13 lies adjacent and substantially parallel to and just inside of the vertically ex-

tending mounting flange 11 at one side of the awning frame, substantially as partially illustrated in Figs. 1 and 4. In instances where said connecting bar 13 is of substantial width, suitable openings or slots may be formed in it at spaced apart points so that the pivoting rivets (not shown) of the louver end flanges pass through said connecting bar slots and thereby said connecting bar may move in a substantially upward and arcuate path.

In many instances, particularly where awnings of this general type are mounted on the stationary window frames of a building, the regular awning frame is hingedly secured to the building window frame by a plurality of hinges which are secured at suitably spaced apart points to one side member of the awning frame to permit the awning to be hinged into an outward position over the window. Such installations particularly have the advantage of permitting convenient access to the window and window frame in cleaning, painting, or the like. The novel operating mechanism is of such construction that the awning itself may be hingedly mounted along its vertically extending lateral edge, optionally being the edge adjacent to the end connecting link of my construction. Utilization of my operating mechanism with a connecting link and a headless pivoting pin such as the aforedescribed pivoting pin 34 which slides in and engages a slot in the upper end of connecting link 35 permits the awning to be hingedly mounted at the left hand edge and permits such awning to be swung outwardly on said hinges due to the fact that upon such swinging movement, the connecting link 35 will merely move outwardly in an arcuate path and disengage the pivot element 34 from the uppermost slot 40 in said connecting link 35. When the shutter is desired to be closed against the window, the pivot element 34 will again be received by the upper slot of link 35 to thereby re-establish operative relation.

It will be apparent that my operating mechanism for controlling from a remote point movable elements such as hinged or pivoted members, includes the adjustable and releasably lockable lever or crank with its locking means; the shaft normally journalled in either a stationary or removable frame; the crank arm on an end of the shaft and the connecting link and pintle and pintle arm, the latter being operatively connected together, all the foregoing cooperating together to transmit rotative movement of the shaft to a pintle or similar rockable element to which pintle or rockable element one of the awning louvers may be secured or connected.

I desire it to be understood that either form of my herein described and claimed invention can be satisfactorily installed and used either in a portion of a stationary window frame or in a movable, swinging or removable frame such as used for screens, windows or the like.

My illustrated invention may also be adapted for use in closing shutters, blinds, windows and various other hingedly mounted elements in instances where the manual actuation is or may advantageously be imparted and initiated from either the inside of a wall, partition or the like or from a remote point conveniently accessible to the operator.

I am aware that various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall

be construed as limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof.

I claim as my invention:

1. In an operating mechanism for controlling pivoted louvers of a window awning, a pivotally mounted pintle connected to and along one of said louvers; a crank arm mounted on one end of said pintle; a shaft adapted to be journalled in a window frame and in a position spaced from said pintle; a crank lever on the outer end of said shaft; a link having one end portion operatively connected to said pintle crank arm and having a separable operative connection with said crank lever whereby rotation of said shaft will normally rock said pintle; a grippable pivotal lever on the other end of said shaft; and releasable locking means mounted adjacent said grippable lever for selectively holding said lever in desired positions, said separable operative connection between said link and said crank lever providing for quick outward movement of said window awning away from said crank lever of said shaft to permit access to the window adjacent to which said awning is mounted.

2. In combination with a window awning adapted to be removably mounted on a normally stationary window frame; an operating mechanism for controlling pivoted louvers of said window awning; a pintle pivotally mounted in said awning and operatively connected to and along one of said louvers; an arm mounted on one end of said pintle; a shaft journalled in said window frame; a crank lever on the end of said shaft; a link having a removable connection with said crank lever and having its other end connected to said pintle, said removable connection between said link and said crank lever permitting removal or outward swinging movement of said awning; the rotation of said shaft being adapted to rock said pintle; a grippable pivotal lever on the end of said shaft at the inside of said window frame; a serrated plate mounted at the inner end of said shaft, said plate having serrated teeth, and a projecting element on said lever adapted to engage said teeth to hold said lever and said louvers in desired position.

3. In a mechanism for controlling pivotally mounted louvers of a window awning adapted to be mounted on a window frame, said louvers being connected to move in unison; a rotatable shaft adapted to be journalled in a normally stationary window frame; a crank arm on the normally inner end of said shaft; a connecting link separately pivoted at one end to said crank lever and having its other end operatively connected to one of said louvers; a grippable hand lever on the inner end of said shaft; and a serrated plate adjacent said hand lever, the serrations of said plate being adapted to releasably engage said hand lever whereby said hand lever and the louvers may be releasably mounted in one of a number of desired positions, the said separable pivoting of said connecting link providing for quick separation of the window awning from said shaft and the shaft crank arm.

4. In combination with a normally stationary window frame a removable awning having a plurality of louvers pivotally mounted therein and operatively connected together by a connecting link and having a rockable member operatively connected to said link; a crank arm secured on one end of said rockable member; a manually operable mechanism adapted to be mounted upon the inside of a frame for selectively operating said

louvers and including a shaft; a hand lever connected to said shaft; releasable locking means for said hand lever adapted to releasably lock the same in any one of a number of desired positions; a crank arm on the outer end of said shaft; and a link connected at one end to said crank arm on said rockable member and said crank arm having a removable connection to said shaft whereby the rocking movement of said shaft is transmitted to pivot said louvers, said removable connection between said shaft crank arm and said link permitting quick removal or opening of said window awning.

5. In a mechanism for controlling pivotally mounted louvers of a window awning, said louvers being connected to move in unison; a rotatable shaft; a grippable hand lever on the one end of said shaft; a serrated plate adjacent said

hand lever, the serrations of said plate being adapted to releasably engage said hand lever whereby said hand lever and the louvers may be releasably mounted in one of a number of desired positions; a spring engaging said hand lever adapted to normally hold said hand lever in locked engagement with said serrations; a crank lever mounted on the outer end of said shaft; a connecting link pivoted at one end to said crank lever and having its other end operatively connected to one of said louvers and adapted, when moved longitudinally, to pivot said louvers, said link having an intermediate guide slot therein; and a screw mounted adjacent said link and projecting through said guide slot, the cooperation of said screw and said guide slot being adapted to guide the longitudinal movement of said link.

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