Aug. 28, 1934. W. W. WATSON 1,971,360

CASEMENT WINDOW OPERATOR

Filed July 23, 1930 2 Sheets-Sheet 1

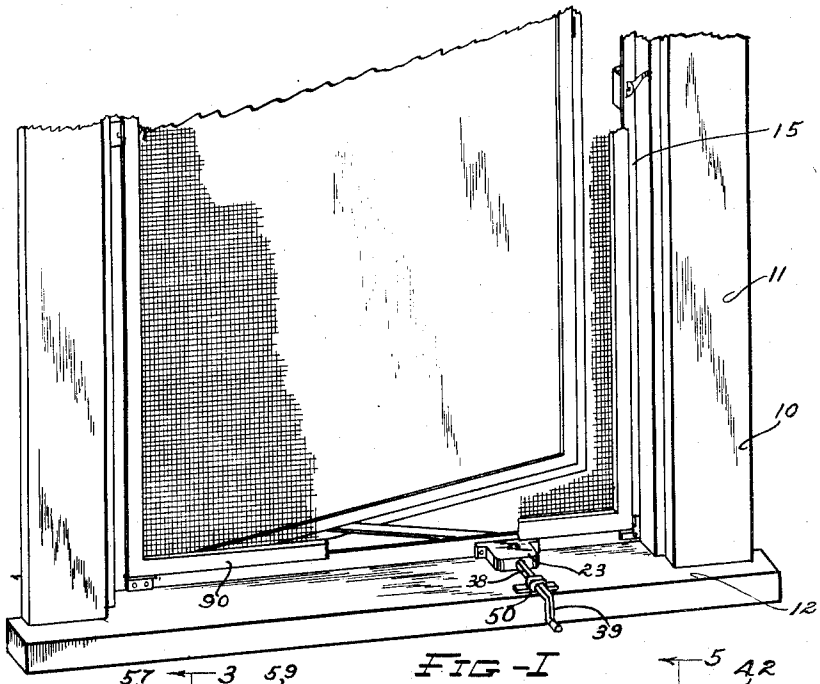


FIG-1

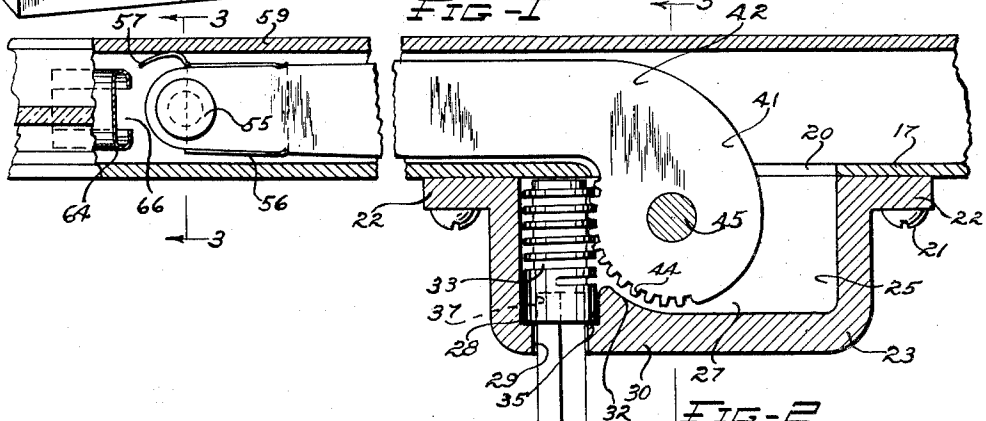


FIG-2

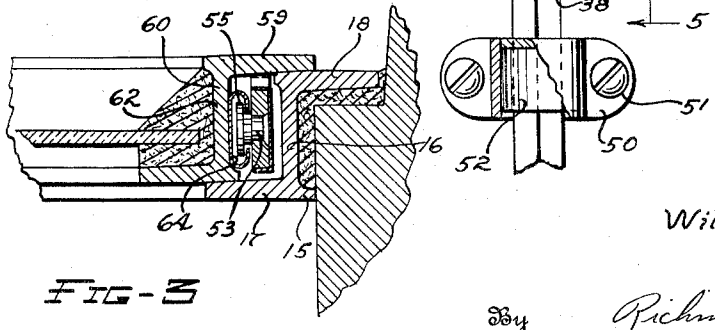


FIG-3

Inventor
William W. Watson

By Richmond S. Hayes
His Attorney

Aug. 28, 1934. W. W. WATSON 1,971,360

CASEMENT WINDOW OPERATOR

Filed July 23, 1930 2 Sheets-Sheet 2

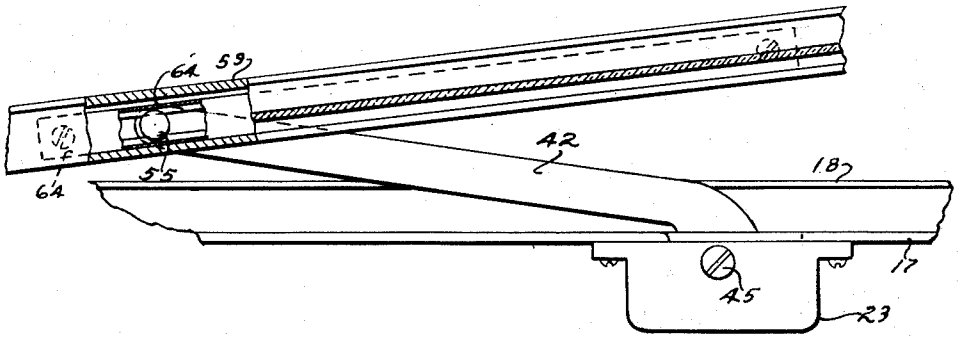


FIG - 4

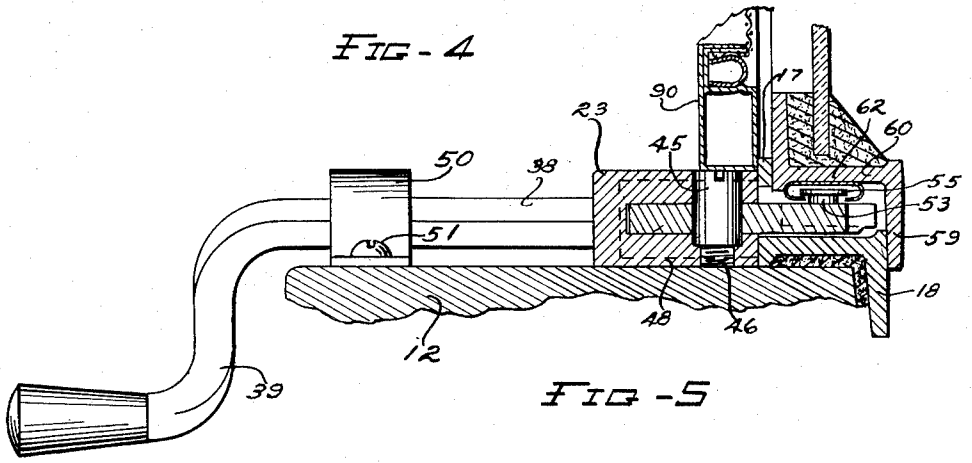


FIG - 5

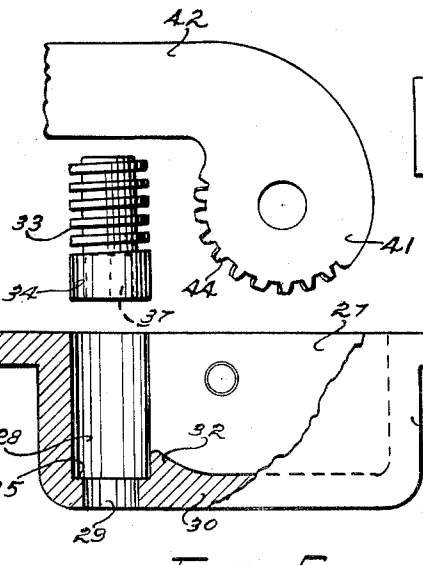


FIG - 6

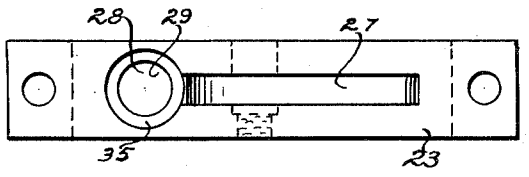


FIG 7

Inventor
William W. Watson

By Richmond S. Hayes
His Attorney

Patented Aug. 28, 1934 1,971,360

UNITED STATES PATENT OFFICE

1,971,360

CASEMENT WINDOW OPERATOR

William W. Watson, Jamestown, N. Y.

Application July 23, 1930, Serial No. 469,970

4 Claims. (Cl. 268—119)

This invention relates to an improvement in casement windows and more particularly to an adjusting and fastening means therefor.

In its preferred embodiment this invention discloses a casement window having adjusting and fastening members attached thereto in a manner to permit operation of the sash without opening or removing a screen mounted adjacent the face of said casement.

Prior to this invention, the various methods of mounting sash adjusters on a casement sill have not lent themselves readily to the installation of insect screens. The practise of attaching an adjuster to a window sill is contrary to good practise only when it is contemplated to enclose the casement opening with a screen. It must then be determined where the screen is to be located relative to the sash adjuster, that is, either between the pivotal element of the adjuster and the sash or directly upon said pivotal element. In the first type mounting a laterally extending slot must be provided in the screen frame to permit lateral movement of the adjuster operating arm and, in the second type mounting, a recess is generally necessary to receive the pivotal element. The above types of adjusters require special screen frames or necessitate the removal of the screen each time the adjuster is manipulated. By reason of the above, it may be readily understood that arrangement as well as structure is of major importance to the correct installation of a casement window adjuster adapted to receive a standard screen.

The following specification describes a casement window adjuster attached to a casement frame and operably connected with a sash. The adjuster is so located that a standard screen may be installed directly against the casement frame, with total disregard for the adjuster. The principal object of this invention, therefore, lies in the provision of a casement window adjuster which permits standard screen installations.

Another object of this invention is to provide a casement window adjuster which operates and locks the sash in the adjusted position without interfering with the screen.

A further object of this invention lies in the provision of a simple arrangement of parts which may be easily installed with a minimum of labor.

Other and further objects of the invention may be more clearly understood from a consideration of the following specification which is taken in conjunction with the accompanying drawings, and in which

Fig. 1 is a perspective view of one modification of this invention in position of use on a casement window;

Fig. 2 is an enlarged horizontal sectional view, showing the details of the closure operator;

Fig. 3 is an enlarged fragmentary view taken substantially on the line 3—3 of Figure 2 and shows the method of connecting the closure arm with the sash rail;

Fig. 4 is an enlarged view, partly in section, showing the position of the elements when the sash is partly open;

Fig. 5 is a vertical sectional view through the casement and adjuster, taken substantially on the line 5—5 of Figure 2;

Fig. 6 is an exploded view of the elements mounted on the casement; and

Fig. 7 is a front elevation of the housing for the adjuster mechanism.

Reference is now had to the drawings wherein is shown a window opening defined by a frame, generally indicated by the reference numeral 10. The frame is comprised of vertical members 11 and sill 12. Mounted in the frame 10, and secured thereto in any conventional manner, is a metal casement frame 15, having a web portion 16 connecting the flanges 17 and 18. The flange 18, or any portion thereof, is supported in the window frame 10 in any suitable manner.

Formed in the upstanding flange 17 of the lower casement rail 15 is an opening 20. Adjacent the opening 20, drilled and tapped openings are provided to receive screws 21. Mounted upon the flange 17 and secured thereto, through the flanges 22, by screws 21, is a unit box-like housing 23 which is formed with a chamber 25 opened along one side of said box. The chamber 25, for the purpose of description, may be considered as divided into compartments 27 and 28. The cylindrical compartment 28 is disposed transversely of the box 23, being directly connected with the exterior at one end and through a small opening 29 in the outer wall 30 at its other end. The compartment 27 is a narrow rectangular opening having a sloped wall 32 which reduces the size of the opening connecting the compartment 28. Mounted in the compartment 28, is a worm gear 33, the head 34 of which abuts the shoulders 35 formed by the walls of the opening 29. The worm gear 33 is substantially cylindrical in shape and is supported throughout its entire length by the walls of compartment 28. A rectangular opening 37 is made in the head 34 with which the shaft 38, of an operating lever 39, may be removably engaged. The shaft 38 is of a size adapted to freely enter the opening 29. Mounted

in the compartment 27, is the pivoted end 41 of an adjusting arm 42. This end is formed with a plurality of teeth 44 which engage the teeth of the worm gear 33. The end portion 41 of the arm is supported upon a pin 45 which, being formed with a reduced end 46, is threaded into the lower wall 48 of the box 23. By rotating the lever 39, the worm gear 33 is caused to rotate and move the adjusting arm 42 from one position to another as desired.

In order that the lever 39 may be properly supported during operation of the device, a bracket 50 is secured to the sill 12 by means of screws 51. A suitable adjustable bushing 52 encircles the rectangular shaft and bears against the walls of the bracket 50.

The swinging portion of the arm 42 is fitted with a pin 53, having a head 55 spaced from the upper face of said arm. Secured to the end of the arm is a clip 56, having an outwardly curved finger 57. The clip being of spring steel, the finger thereof exerts pressure against the flange 59 of the sash rail 60 in order to prevent rattling of the connected parts. Secured to the under face of the web 62, which forms a part of the lower sash rail 60, is a channel member 64. The channel opening 66 projects downwardly, thus permitting the head 55, of the pin 53, entry into said channel. As the arm 42 moves outwardly from the position indicated in Figure 2 of the drawings, the head 55 of the pin 53 will move in the channel 64, causing the sash, to which the channel is attached, to open.

Attention is directed to the fact that the adjuster, above described, is so located on the lower rail of the casement frame as to provide clearance on the rail between said member and its edge. Against this rail surface, a screen 90 is located (see Figure 5). It will be understood that the structure above described, while particularly adapted for use with casement windows on which it is desired to mount standard screens, is extremely simple in construction, assembly and, involving a minimum of moving parts, thereby assures proper functioning over a long period of time.

While applicant has shown and described but one modification of his improved casement window adjuster, it is understood that other modifications or adaptations may be made without departing from the spirit and scope of the invention as set forth in the hereunto annexed claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. In an adjusting mechanism for a casement window sash, a unit housing joined to the lower rail of the casement frame, connected compartments opening on one side of said housing, walls defining an opening in said frame rail, said opening registering with the opening in one of said compartments, a cylindrical worm gear supported its full length by the walls of one of said compartments, a sash operating arm projecting through said rail opening into the other of said compartments, a pin pivotally joining said arm to said housing, and a gear segment formed on said arm in mesh with said worm, whereby rotation of said worm causes horizontal movement of said arm through said casement rail.

2. In a casement window structure, a frame having horizontal and vertical rails, a sash pivotally mounted on said frame, a sash adjuster comprising a unit housing mounted on the lower rail of said frame, walls defining cylindrical and rectangular compartments which are open at one side of said housing, walls defining a slot in said rail registering with the open end of said rectangular compartment, a cylindrical worm gear mounted in said cylindrical compartment, an operating arm, a gear segment integral with and projecting at right angles from said arm, said segment being pivotally mounted in said rectangular compartment, and in mesh with said gear, the free end of said arm being frictionally engaged with the under edge of said sash, said arm being entirely concealed when said sash is in closed position.

3. In a casement window structure, a frame having horizontal and vertical rails, a sash pivotally mounted on said frame, a sash adjuster comprising a unit housing mounted on the lower horizontal rail of said frame, walls defining open ended cylindrical and rectangular compartments in said housing, a cylindrical worm gear mounted in said cylindrical compartment, said lower rail closing one end of said cylindrical compartment, walls defining an opening in said lower rail, registering with the opening of said rectangular compartment, an operating arm projecting through the opening in said rail, a gear segment terminating one end of and projecting at right angles from said arm, said segment being pivotally mounted in said rectangular compartment and in mesh with said worm gear, the free end of said arm being frictionally engaged with the lower edge of said sash, said arm being entirely concealed when said sash is in closed position.

4. In a casement window structure, a frame having horizontal and vertical rails, a sash pivotally mounted on said frame, a sash operator comprising a unit housing mounted on the lower rail of said frame, walls defining cylindrical and rectangular compartments which are open at one side of said housing, a cylindrical worm gear in said cylindrical compartment, an operating arm, a gear segment terminating one end of and projecting at right angles from said arm, said segment being pivotally mounted in said rectangular compartment and in mesh with said worm gear, walls defining a slot in the lower rail of said frame, said arm projecting through said slot, a pin mounted on the free end of said arm and in frictional engagement with the under edge of said sash, said arm being entirely concealed when said sash is in closed position.

WILLIAM W. WATSON.