LEVER TYPE REVERSIBLE RIGHT OR LEFT JALOUSIE OPERATOR

Robert S. Cline, Bradenton, Fla., assignor to V. E. Anderson Manufacturing Company, Inc., Bradenton, Fla., a corporation of Kentucky

Application June 3, 1957, Serial No. 665,169
9 Claims. (Cl. 74—491)

This invention relates generally to operators for the operating mechanism for pivoted closures, and refers more particularly to an operator for jalousie operating mechanism. One of the essential objects of the invention is to provide a construction which is mountable in operative condition on either the right hand or left hand side of a jalousie frame and which is quickly exchangeable from one side to the other. It is a further object to provide a construction which may be used as a replacement for other types of operators and without disfigurement in appearance. Still further it is an object to provide a construction which is composed largely of cast aluminum alloy elements and which has all the required strength for taking care of the stresses to which it is subjected.

With these objects in view the invention consists in the construction as hereinafter set forth. In the accompanying drawings:

Fig. 2 is a fragmentary elevation of the member K, pin 10 and actuating bar G with a portion of the latter broken away.

Jalousie windows are controlled by various types of operators, some of which are movable in a vertical slot in the frame. In my invention the mechanism is actuated by a rotatively movable lever handle located in a convenient position on the jalousie frame. If such construction is used as a replacement for another type of operator, and one in which the jalousie frame is slotted, it is desirable to conceal this slot. I have therefore devised a construction in which the operator unit is mounted on a side rail of the jalousie frame to engage and conceal a slot or cutaway portion therein and to form a rigid attachment to the side rail. As above stated, the operator is composed largely of cast aluminum alloy elements, but as it is subjected to some considerable stress in its operation, it is reinforced by stronger metal. Generally described, the operator includes a cast aluminum alloy lever handle A pivotally mounted on a bearing member C having a portion C' fitting within a slot or cutaway portion B' in a side rail B of the jalousie frame. The side rail B is formed of an extruded aluminum channel bar which receives and conceals portions of the operating mechanism and the bearing member C for the lever handle A. The member C is mounted on an arm D of said side rail adjacent to a transversely extending web portion B thereof. To impart the requisite strength to the handle A, it has cast within a hub portion A' thereof a polygonal pin D that is preferably hexagonal and is formed of harder metal. Such pin D is coaxial with the hub portion A' has a polygonal portion D' extending outward beyond the same and constituting an endwise extension thereof. The pin D has a portion D3 of reduced diameter within the hub portion A', and a part B of said hub portion encircles the reduced portion D3 and forms an anchor for holding said pin D from axial displacement. Beyond the polygonal portion D' is an end portion D4 that is further reduced in diameter and is threaded. Non-rotatably sleeve on the polygonal portion D' of the pin D is a bushing E which interiorly conforms to and fits about the polygonal exterior of the portion D' of the pin, but is externally cylindrical as indicated at E', to rotate within a bore C5 in the hub C4 of the bearing member C. A rock arm F is rigidly secured to the outer projecting end portion 9 of said bushing E so that when the latter is engaged with the polygonal portion D' of the pin D, as just described, a torque transmitting mechanism is engaged between the handle A and said rock arm F. The bearing member C is of a length somewhat greater than that of the slot B' in the rail B and has at opposite ends thereof portions C3 which overlap the side rail B and are attached thereto by screws C5. However, the portion C5 within the slot B' in the side rail B will receive the maximum operating stresses and not the screws C5. To mount the handle A on the bearing member C projecting polygonal portion D' of the pin D is first inserted from the outside of the side rail B into the bore C5. The bushing E is then sleeved upon the polygonal portion D' of said pin from the inside of the side rail B and is held against displacement by a nut D4 engaging the threaded end portion D3. The rock arm F is connected by a substantially aligned flat actuating bar G to the jalousie operating mechanism. The construction of the latter is not a part of the instant invention, but generally described, is of the following construction:

The separate panes H, H' of the jalousie are mounted in metallic end members I which are pivotally attached at I' to the side rail B. Actuating arms P extend on the opposite side of the pivots and are connected to the back of a channel-shaped common connecting bar J. Thus a movement of said bar J longitudinally will simul-
taneously turn each of the members I on its pivot from the closed position where the panes H, H' overlap each other, as shown in Fig. 2, to the open position, shown in Fig. 1 or vice versa as desired. Without further description of the jalousie, its connection to the operator is through the actuating bar G, the lower end of which is pivotally connected at 10 to the rock arm F, while its upper end is pivoted at 11 to an adapter member K mounted on the connecting bar J. Thus the rocking movement of the handle A will be transmitted through the rock arm F, actuating bar G, and member K to the connecting bar J to operate the end members I and panes H and H' of the jalousie window.

As my improved operating mechanism is sometimes used as a replacement for that of a previously installed jalousie, it is desirable to provide adjustment for the connections. Thus, as shown in Fig. 11 the connecting bar J may have a bore J' therethrough for engaging a pivot of the old operator and this bore is utilized for the attachment of the member K. However, its position may not be right to fit the new installation. I have, therefore, provided a headed pin K' having a cylindrical portion 12 for engaging said bore J' wherever located, and having a threaded Shank K2 for passing through a longitudinally extending elongated slot K3 in the member K. The nut K4 is on one side of a longitudinally extending flange K5 thereof which holds said nut K4 from turning while guiding the movement of the nut K4 lengthwise of the flange K5, and thereby guiding the pin K' lengthwise of said elongated slot K2. The nut K4 is provided at one side thereof with a cylindrical axial extension K5 which is initially inserted through a circular opening K7 at the upper end of the slot K3, and then engages the elongated slot K2. This extension K5 has an annular groove K6 therein that receives a guide flange K8 that extends along the edges of said slot K3 at opposite sides and at the bottom thereof, but terminates below said circular opening K7. Thus the nut K4 may be assembled with the member K by first inserting the cylindrical extension K5 in the circular opening K7 and then moving the extension K5 longitudinally of the slot K3 so that the groove K8 will receive the guide flange K5. To prevent accidental disengagement of the nut K4 from the member K after engagement of the annular groove K6 with the flange K8, the upper edge of the opening K7 is pinched or otherwise distorted to provide a projection K10 that serves as an abutment for the cylindrical extension K5 and effectively prevents subsequent registration or alignment of said cylindrical extension K5 with the circular opening K7. However, the cylindrical extension K5 of the nut K4 is then free to slide lengthwise of the slot K3 between the projection K10 and the lower end of said slot K3. Thus the projection K10 prevents the return of the cylindrical extension K5 to its position of entry in the opening K7. Lugs 13 and 14 respectively at the upper and lower ends of the member K engage the channel of the connecting bar J to guide the member K lengthwise of said bar J. The assembled parts just described, together with the other portions of the operator may be shipped as a unit to wherever it is to be installed and without danger of loss of any part through accidental disengagement. To attach the operator to the jalousie, the pin K' is unscrewed and detached from the nut K4 so that said pin K' may be inserted in the bore J' of the connecting bar J. The threaded Shank K2 is then reengaged with the nut K4 which can then be slid lengthwise of the slot K3 to the proper location, and then tightening the pin K' the parts will be clamped in this assembled position.

When the end members I and panes H and H' of the jalousie are closed it is desirable to lock them in such closed position. This may be accomplished as illustrated in Fig. 9 in which the rock arm F is turned by the lever handle A into a position where the upper end of the rock arm F abuts and is stopped by the web portion B' of the frame rail B. In this position, the pivotal connection 10 has passed beyond its dead center, and the end members I of the jalousie window are in closed position. Actually, the arrangement of the bushing E and the pivotal connections 10 and 11 is such that the upper end portion of said rock arm F will be held in contact with the web portion B' after the pivotal connection 10 is beyond its dead center, and accordingly the actuating bar G and jalousie operated mechanism will be locked in closed position. A change of the operator from one side to the other of the jalousie frame, such for example from the right side to the left side of the jalousie frame, would cause the lever handle A to be in the wrong angular relation or position to the rock arm F, bearing member C, and side rail B. To avoid such result, the lever handle A and the rock arm F are relatively positioned with an included angle therebetween which is one-half the angular magnitude between adjacent sides of the polygonal portion D' of the pin D. Also the lever handle A and rock arm F are relatively positioned with an included angle therebetween which is one-half the angular magnitude between adjacent sides of the polygonal portion D' of the pin D so that the lever handle A may be changed from a given angle on one side of the rock arm F to an equal angle on the opposite side thereof, by first disassembling or withdrawing the polygonal portion D' of the pin D from the bushing E fixed to the side of the operator and then reassembling the lever handle A from one side to the opposite side of the rock arm F, so that the polygonal portion D' will be turned or shifted from one side to the next, and then assembling or inserting the turned or shifted polygonal portion D' in the bushing E to retain the lever handle A in its new angular position relative to the rock arm F. The different positions in which the lever handle A and rock arm F may be assembled are illustrated in full and in dotted lines respectively in Fig. 6. Thus, the locations of the lever handle A in open and in closed positions of the end members I and panes H and H' of the jalousie may be made the same relative to opposite sides of the frame when mounted on the right and left sides respectively thereof.

The operator as above described may be easily applied for operation of any jalousie construction. If it is used to replace operators which necessitate the slitting or cutting away of the side rails B of the jalousie frame, the bearing member C will be in the in the cutaway portion. If the rails on both sides of the frame have been or are slitted, the bearing member C may be used to cover the slot in the side rail where the operator is mounted, and a solid blank L similar in shape to the bearing member C may be used, as illustrated in Fig. 8, for closing the slot or cut-out in the other side rail on which the operator is not mounted.

What I claim as my invention is:

1. An operator assembly for a jalousie operating mechanism; comprising a bearing member having a bore there through, a handle having a hub upon one side of said bearing member, a pin attached thereto, said pin having a polygonal portion extending axially of said bore, said pin being provided beyond the other side of said bearing member with a projecting port, a bushing at one end of and separate from said hub, said bushing having a portion extending axially of said bore and nonrotatably sleeved upon the polygonal portion of said pin, the axially extending portion of said bushing being rotatable within said bore and constituting the pivot for said handle, said bushing having said other side of said bearing member with a projecting end portion, a rock arm nonrotatably mounted on the projecting end portion of said bushing and having a portion attachable to an actuating bar for the jalousie operating mechanism for operating the same from said bushing, and means engaging the projecting end portion aforesaid of said pin adjacent said rock arm and cooperating with said hub for retaining the axially extending
2,980,251 5 polygonal portion of said pin in assembled relation with the axially extending portion of said bushing.

2. An operator assembly for a jalousie operating mechanism comprising a bearing member attachable to a side rail of a jalousie frame and having a bore therethrough, a handle having a hub upon one side of said bearing member, a pin anchored within said hub and having a polygonal portion extending axially of said bore, said pin being provided beyond the other side of said bearing member with a projecting threaded end portion, a bushing at one end of and separate from said hub, said bushing having a portion extending axially of said bore and nonrotatably sleeved upon the polygonal portion of said pin, the axially extending portion of said bushing being rotatable within said bore and constituting the pivot for said handle, a rock arm nonrotatably mounted upon the other side of said bearing member with a projecting end portion, a bushing at one end of and separate from said hub, said bushing having a portion extending axially of said bore and nonrotatably sleeved upon the polygonal portion of said pin, the axially extending portion of said bushing being rotatable within said bore and constituting the pivot for said handle, a rock arm nonrotatably mounted upon one of the axially extending portions aforesaid whereby said rock arm may be moved by said handle, said rock arm having a pivotal connection with a substantially aligned actuating bar for the jalousie operating mechanism, said rock arm being adapted to abut and be stopped by a portion of said side rail during movement of said rock arm in one direction, the pivotal connection aforesaid being movable beyond its dead center when said rock arm is moved into abutting stopped relation with the portion aforesaid of said rail to lock said actuating bar in a predetermined position, and means engaging the projecting end portion aforesaid of said pin adjacent said rock arm and cooperating with said hub for retaining the axially extending polygonal portion of said pin in assembled relation with the axially extending portion of said bushing.

3. An operator assembly for a jalousie operating mechanism comprising a bearing member having a bore therethrough, a handle having a hub upon one side of said bearing member, a pin anchored within said hub and having a polygonal portion extending axially of said bore, said pin being provided beyond the other side of said bearing member with a projecting end portion, a bushing at one end of and separate from said hub, said bushing having a portion extending axially of said bore and nonrotatably sleeved upon the polygonal portion of said pin, the axially extending portion of said bushing being rotatable within said bore and constituting the pivot for said handle, a rock arm nonrotatably mounted upon one of the axially extending portions aforesaid and having a portion attachable to an actuating bar for the jalousie operating mechanism for operating the same from said handle, and means engaging the projecting end portion aforesaid of said pin adjacent said rock arm and cooperating with said hub for retaining the axially extending polygonal portion of said pin in assembled relation with the axially extending portion of said bushing.

4. An operator assembly for a jalousie operating mechanism comprising a separate bearing member attachable to a side rail of a jalousie frame and having a bore therethrough, a handle having a hub upon one side of said bearing member, a pin anchored within said hub and having a polygonal portion extending axially of said bore, said pin being provided beyond the other side of said bearing member with a projecting threaded end portion, a bushing at one end of and separate from said hub, said bushing having a portion extending axially of said bore and nonrotatably sleeved upon the polygonal portion of said pin, the axially extending portion of said bushing being rotatable within said bore and constituting the pivot for said handle, a rock arm nonrotatably mounted upon one of the axially extending portions aforesaid and having a portion attachable to an actuating bar for the jalousie operating mechanism for operating the same from said handle, and means engaging the projecting end portion aforesaid of said pin adjacent said rock arm and cooperating with said hub for retaining the axially extending polygonal portion of said pin in assembled relation with the axially extending portion of said bushing.

5. An operator assembly for a jalousie operating mechanism comprising a separate bearing member attachable to a side rail of a jalousie frame and having a bore therethrough, a handle having a hub upon one side of said bearing member, a pin anchored within said hub and having a polygonal portion extending axially of said bore, said pin being provided beyond the other side of said bearing member with a projecting end portion, a bushing at one end of and separate from said hub, said bushing having a portion extending axially of said bore and nonrotatably sleeved upon the polygonal portion of said pin, the axially extending portion of said bushing being rotatable within said bore and constituting the pivot for said handle, a rock arm nonrotatably mounted upon one of the axially extending portions aforesaid whereby said rock arm may be moved by said handle, said rock arm having a pivotal connection with a substantially aligned actuating bar for the jalousie operating mechanism, said rock arm being adapted to abut and be stopped by a portion of said side rail during movement of said rock arm in one direction, the pivotal connection aforesaid being movable beyond its dead center when said rock arm is moved into abutting stopped relation with the portion aforesaid of said rail to lock said actuating bar in a predetermined position, and means engaging the projecting end portion aforesaid of said pin adjacent said rock arm and cooperating with said hub for retaining the axially extending polygonal portion of said pin in assembled relation with the axially extending portion of said bushing.

6. An operator assembly for a jalousie operating mechanism comprising a bearing member attachable to a jalousie frame and having a transversely extending substantially horizontal bore therethrough, a handle having a hub upon one side of said bearing member, a pin having a portion anchored within said hub and having a polygonal portion extending axially of said bore, a bearing member beside and separate from said hub, said bearing member having a portion nonrotatably sleeved upon the polygonal portion of said pin and extending axially of said bore, the axially extending portion of said bushing being rotatable within said bore and constituting a pivot for said handle, a rock arm nonrotatably mounted upon one of the axially extending portions aforesaid and attachable to actuating means for the jalousie operating mechanism for operating the same from said handle, said pin being provided beyond said rock arm with a free end portion, and means cooperating with said hub for retaining the axially extending portions aforesaid in assembled relation with each other and with said bearing member, including an element engaging the free end portion of said pin adjacent said rock arm.

7. An operator assembly for a jalousie operating mechanism comprising an elongated bearing member attachable to a jalousie frame, said bearing member having an intermediate portion adapted to fit within either of two openings respectively in said jalousie frame to transmit operating stresses directly to said frame and having end portions adapted to overlap the adjacent edges of the selected opening and attachable to said jalousie frame, said bearing member having a transversely extending substantially horizontal bore therethrough, an operating handle upon one side of said bearing member, a rock arm upon the other side of said bearing member and attachable to actuating means for the jalousie operating mechanism, a torque transmitting connection between said handle and rock arm including an extension of said handle having a polygonal portion extending axially of the bore in said bearing member, and a bushing separate from said handle nonrotatably sleeved on the polygonal portion of said extension and rotatable within the bore in said bearing member.

8. An operator assembly for a jalousie operating mechanism comprising a bearing member attachable to a jalousie frame and having a transversely extending substantially horizontal bore therethrough, an operating handle upon one side of said bearing member, a rock arm upon the other side of said bearing member and having a pivotal connection with a substantially aligned actuating
2,930,261

7

bar for the jalousie operating mechanism, a torque transmitting connection between said handle and rock arm extending axially of the bore in said bearing member and operable to move said rock arm in opposite directions about the axis of said torque transmitting connection, said rock arm being adapted to abut and be stopped by a portion of said jalousie frame during movement of said rock arm in one direction, the pivotal connection aforesaid being movable beyond its dead center when said rock arm is moved into abutting stopped relation with the portion aforesaid of said jalousie frame to lock said actuating bar in a predetermined position.

9. An operator assembly for a jalousie operating mechanism; comprising a bearing member attachable to a jalousie frame and having a transversely extending substantially horizontal cylindrical bore therethrough, an operating lever handle upon one side of said bearing member, a rock arm upon the other side of said bearing member and attachable to actuating means for the jalousie operating mechanism, a torque transmitting connection between said lever handle and said rock arm including an extension of said lever handle having a polygonal portion extending axially of the bore in said bearing member, and a bushing separate from said handle, interiorly conforming to and fitting about the polygonal portion of said extension, and exteriorly conforming to and rotatable within the cylindrical bore in said bearing member, said lever handle and said rock arm being relatively positioned with an included angle therebetween that is approximately one-half the angular magnitude between adjacent sides of the polygonal portion of said extension, said polygonal portion of said extension being adapted to be removed from and replaced in said bushing whereby the lever handle may be changed from an angular position relative to one side of said rock arm to an equal angular position relative to the opposite side thereof by shifting the engagement of the polygonal portion of said extension from one side to the next thereof with said bushing.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 23,961 Sanderlin et al. Mar. 8, 1955
414,564 Morse Nov. 5, 1889
806,140 Helm Dec. 5, 1905
1,128,129 Gilmore Feb. 9, 1915
1,408,908 Roth Mar. 7, 1922
2,561,482 Schostak July 24, 1951
2,637,547 Schotteneberg May 5, 1953
2,761,673 Cline Sept. 4, 1956
2,778,630 Pearson Jan. 22, 1957
2,800,322 Tracy July 23, 1957