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HANDLE ASSEMBLY FOR JALOUSIES AND VENETIAN WINDOWS

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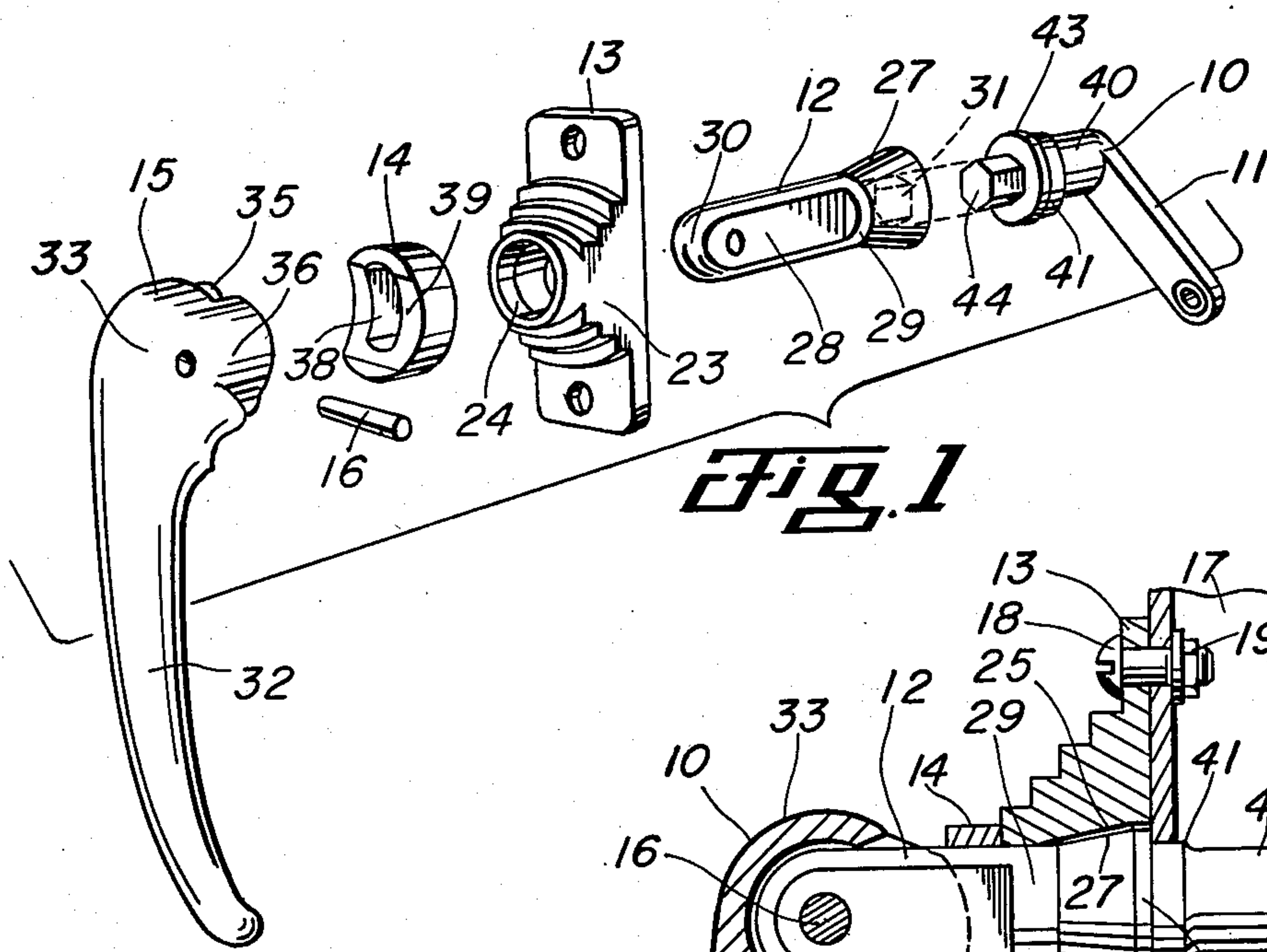


Fig. 1

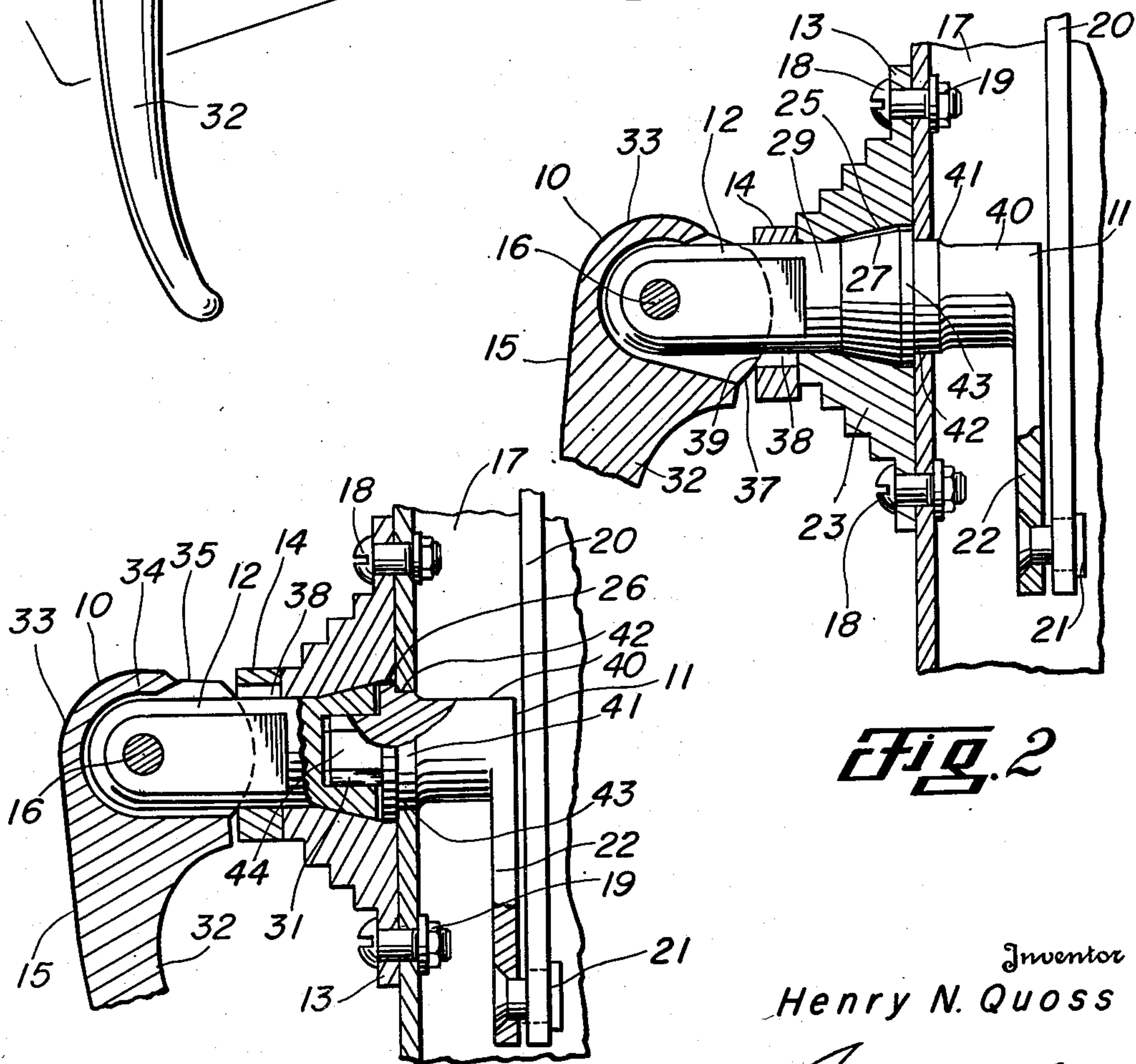


Fig. 2

Fig. 3

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HANDLE ASSEMBLY FOR JALOUSIES AND  
VENETIAN WINDOWSHenry N. Quoss, Fort Lauderdale, Fla., assignor to  
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7 Claims. (Cl. 74-528)

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This invention relates to new and useful improvements in operating handles and more particularly to handle assemblies for operating and locking jalousies and Venetian windows in adjusted positions.

One object of the invention is to provide an improved handle for operating a jalousie and Venetian window and of such construction that the handle may be locked readily in any desired position to prevent operation of the jalousie or blind.

Another object of the invention is to provide an improved handle assembly for operating and locking jalousies and Venetian windows in adjusted positions which includes a pivoted rotatable lever and cam means rotatable with and actuated by pivotal movement of the lever for moving conical surfaces into engagement so as to lock said lever against rotation, together with means for connecting said lever to an operating link.

A particular object of the invention is to provide an improved handle assembly, of the character described, which includes an angular member journaled in and extending through a support for connecting the lever to an operating link whereby the member is rotated by said lever so as to reciprocate the link and functions as a bearing for said lever.

A further object of the invention is to provide an improved handle assembly, of the character described, wherein the angular member has a shoulder overlying the inner surface of the support and disposed in the bore of a base plate secured to said inner surface whereby said member is confined therebetween and is insertable inwardly of said support, the lever being connected to said member by an element rotatably and slidably mounted in said bore.

A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the specification and by reference to the accompanying drawing, wherein an example of the invention is shown, and wherein:

Fig. 1 is an exploded, perspective view of a handle assembly constructed in accordance with the invention,

Fig. 2 is an enlarged, transverse, vertical, sectional view of the handle assembly, shown mounted on a frame member and in its unlocked position, and

Fig. 3 is a view, similar to Fig. 2, showing the locked position of the assembly.

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In the drawing, the numeral 10 designates a handle assembly for operating or tilting or locking the louvers of a jalousie or Venetian window (not shown) in open, closed or intermediate positions. The assembly 10 includes an angular arm or member 11, a connecting element or spindle 12, a base or an escutcheon plate 13, a cam member or ring 14 and an actuating lever 15 which is adapted to be pivotally connected to the spindle by a transverse pin 16. As shown in Figs. 2 and 3, the plate 13 is substantially flat and rectangular and is adapted to be secured in overlying relation to the inner surface of a support or frame member 17, which is angular in cross-section, by suitable screws 18 and nuts 19. An operating link 20 is pivotally connected by a rivet 21 or other suitable means to the lateral portion or leg 22 of the arm 11.

It is noted that the spindle 12, plate 13, cam ring 14 and lever 15 are shown in the co-pending application of Sanderlin and Grant filed July 18, 1949, Serial No. 105,384. A transversely-extending boss 23 is formed on the plate and has a cylindrical opening or bore 24 for receiving the spindle. The major portion of the bore 24 is tapered or flared outwardly toward the inner side of the plate so as to provide a conical counterbore or wedge surface 25. An annular recess 26 is provided at the extremity of the conical counterbore 25 adjacent the inner side of the plate. The spindle 12, while generally cylindrical, has flat sides 28 and is of a length considerably greater than the length of the bore 24, its counterbore, and recess, so as to project beyond the boss 23 when engaged in said bore. A conical enlargement or wedge surface 27, complementary to the conical counterbore, is formed on the inner end portion of the spindle for coacting with said counterbore to lock or grip said spindle against rotation. Intermediate the conical and flattened surfaces 27 and 28, a circular portion 29 is provided for coacting with the cylindrical bore 24 in maintaining the spindle in axial alignment with said bore. It is preferable to round or bevel the outer end of the spindle as shown by the numeral 30. A polygonal socket 31 is formed in the inner end of the spindle (Fig. 3).

The lever includes a curved handle portion 32 and an enlarged head 33 having a deep, rectangular recess or socket 34 complementary to the outer end portion of the spindle, said spindle portion being confined in the socket by the connecting pin 16. Limited pivotal movement of the lever about the axis of the pin and relative to the spindle is permitted by a slot 35 cut in the



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wall of the head 33 opposite the handle portion 32. A pair of inwardly-directed, parallel ears or extensions 36 are formed by the provision of the recess and the slot and the inner ends of these ears are curved or bevelled outwardly and longitudinally to provide cams or cam faces 37 for coacting with the cam ring 14.

The cam ring is preferably circular externally and has an elongate opening or slot 38 through which the flattened portion 28 of the spindle extends, whereby said ring is rotatable with said spindle; the slot being generally complementary to the cross-sectional shape of the spindle. It is noted that the slot 38 is of a length greater than the largest diameter of the spindle portion 28 so that the ring may slide or move transversely relative to the lever and spindle. Arcuate, undercut cams or cam faces 39 are formed in the outer end surface of the ring parallel to the longitudinal axis of its slot for coacting with the cam faces 37 to draw the conical wedge surfaces 25 and 27 into tight engagement. By offsetting the slot longitudinally toward the inner or head end of the lever, the low points of the cam faces 39 move past the high points of the cam faces 37 upon inward swinging of the lever so as to increase the locking action of said faces (Fig. 3). Outward swinging of the lever moves the cam faces into registration so as to disengage the conical wedge surfaces (Fig. 2).

The arm 11 includes a substantially cylindrical body portion 40 carrying the lateral portion or leg 22 and having an enlarged annular bearing 41 which is adapted to be journaled in an opening 42 formed in the support 17. An enlargement in the form of a radial shoulder or flange 43 is formed externally of the bearing 41 for engaging the inner surface of the support in overlying relation to the opening 42. The enlargement 43 is disposed within the recess 26 of the plate 13 so as to be confined between said plate and the support. A polygonal stud or shank 44 is formed on the inner extremity of the body 40 for slidable engagement with the socket 31.

In operation, the lever is swung outwardly to unlock the spindle and permit rotation thereof by turning of said lever. The cam faces 37 and 39 are moved into registration by outward swinging of the lever and the cam ring 14 is slid toward the outer end of said lever (Fig. 2). This permits inward movement of the spindle and disengagement of the conical surfaces 25 and 27, whereby the lever, spindle and angular arm may be freely rotated to swing the leg 22 of said arm and reciprocate the link 20. Whenever it is desired to lock the link in an adjusted position, which may be closed, open or intermediate positions, the lever is swung inwardly (Fig. 3). It is noted that the ring 14 has a transverse sliding movement and that the arcs, on which the cam faces 37 and 39 are struck, do not have their centers in the bolt pin 16 on which the lever 15 swings. In the locked position, the handle is swung inwardly and the ring 14 is moved upwardly (Fig. 3); thus, fastening the parts against rotation; but when the handle is swung outwardly, the cam ring is moved downwardly (Fig. 2) thereby freeing the parts for rotation. Due to the registration of the cam faces, the cam ring slides toward the inner end of the lever and into axial alinement with the spindle. Upon continued inward swinging of the lever, the cam faces 37 ride slightly past registration with the cam faces 39 so as to force the spindle outwardly and tightly engage the conical

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cal surfaces of the bore and spindle. In this manner, the spindle is locked against rotation so as to maintain the link in the desired position.

It is noted that the length of the conical surface 25 is greater than the length of the conical surface 27 of the spindle so as to permit movement of the spindle relative to the arm. As shown in Fig. 3, the socket 31 and shank 44 provide a slidable connection between the arm and spindle so as to permit relative longitudinal movement of said spindle. The bearing 41 serves to support the spindle for maintaining the same in axial alinement with the bore 24. Due to the provision of the shoulder 43, the arm 11 is confined by the coaction of the base plate 13 and the support 17 and is insertable inwardly of said support.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. A handle assembly for operating and locking jalousies and Venetian windows in adjusted positions and adapted to be mounted on a support including, a base fastened to the support, an element rotatably confined in the base, a lever pivotally connected to the element, said base and element having coacting wedge surfaces adapted to be engaged for locking said element against rotation, a cam member carried by and rotatable with said element and adapted to coact with the lever for urging the wedge surfaces into engagement upon pivotal movement of said lever relative to said element, and an angular rotatable member journaled and confined in and extending through the support and connected to said element so as to be rotatable therewith.

2. A handle assembly for operating and locking jalousies and Venetian windows in adjusted positions and adapted to be mounted on a support including, a base fastened to the support, an element rotatably confined in the base, a lever pivotally connected to the element, said base and element having coacting wedge surfaces adapted to be engaged for locking said element against rotation, a cam member carried by and rotatable with said element and adapted to coact with the lever for urging the wedge surfaces into engagement upon pivotal movement of said lever relative to said element, and an angular rotatable member journaled and confined in and extending through the support and connected to said element so as to be rotatable therewith and an enlargement on the member confined in said base so as to overlie the support.

3. A handle assembly for operating and locking jalousies and Venetian windows in adjusted positions and adapted to be mounted on a support including, a base plate having a bore, a portion of the bore being conical, a spindle rotatably mounted in said bore and having a complementary conical portion, a lever pivotally connected to the spindle, a cam ring confined upon said spindle between the plate and lever so as to be rotatable with said spindle, the cam ring being engaged by the lever upon pivotal movement of said lever for urging the conical portion of said spindle into tight engagement with the conical portion of said bore to lock said spindle against rotation, and an angular rotatable arm



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journaled and confined in and extending through the support and connected to said spindle so as to be rotatable and locked against rotation therewith.

4. A handle assembly for operating and locking 5 jalousies and Venetian windows in adjusted positions and adapted to be mounted on a support including, a base plate having a bore, a portion of the bore being conical, a spindle rotatably mounted in said bore and having complementary conical portion, a lever pivotally connected to the spindle, a cam ring confined upon 10 said spindle between the plate and lever so as to be rotatable with said spindle, the cam ring being engaged by the lever upon pivotal movement of said lever for urging the conical portion of said spindle into tight engagement with the conical portion of said bore to lock said spindle against rotation, an angular rotatable arm journaled and confined in and extending 15 through the support and connected to said spindle so as to be rotatable and locked against rotation therewith, and a radial flange on the arm, said bore being recessed to receive and confine the flange in overlying relation to the support.

5. A handle assembly for operating and locking jalousies and Venetian windows in adjusted positions and adapted to be mounted on a support including, a base fastened to the support, 20 an element rotatably confined in the base and mounted to undergo limited longitudinal movement, said base and element having surfaces adapted to engage for locking said element

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against rotation upon longitudinal movement of said element, a lever pivoted to said element and having a locking face, a member movably confined on said element engaging said base and 5 having a locking face co-acting with the locking face of the lever to move the element longitudinally to frictionally fasten the surfaces of the base and element together upon pivotal movement of said lever relative to said element, and means extending through the support and rotatably confined in said base by the support and connected with said element so as to be rotatable therewith.

6. A handle assembly as set forth in claim 5, 15 wherein the means has an enlargement confined in the base so as to overlie the support.

7. A handle assembly as set forth in claim 5, wherein the means has a bearing confined in the support for maintaining the element in alignment with the base.

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