Sept. 26, 1961 S. S. KENNY 3,001,250

WINDOW CONSTRUCTION AND CONTROL

Filed July 17, 1959 2 Sheets-Sheet 1

FIG_3

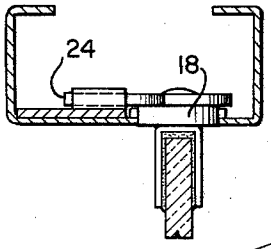

FIG_1

FIG_2

INVENTOR.
STANHOPE S. KENNY
BY Fleher & Sevain
ATTORNEYS

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FIG_4

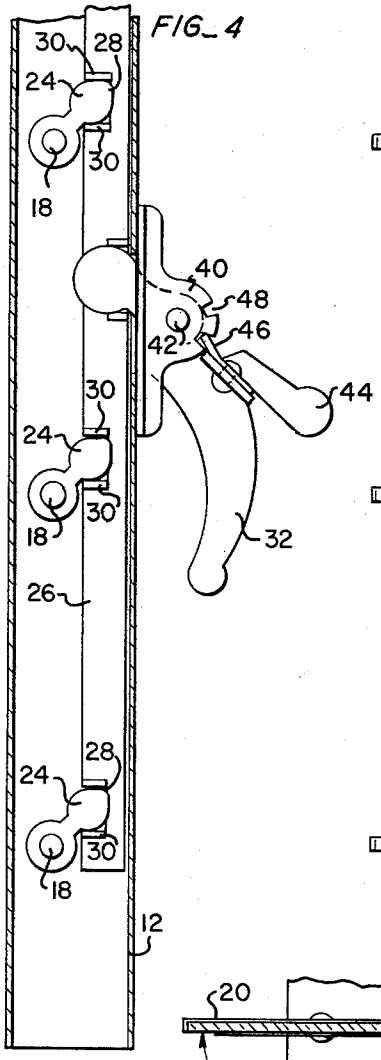

FIG_5

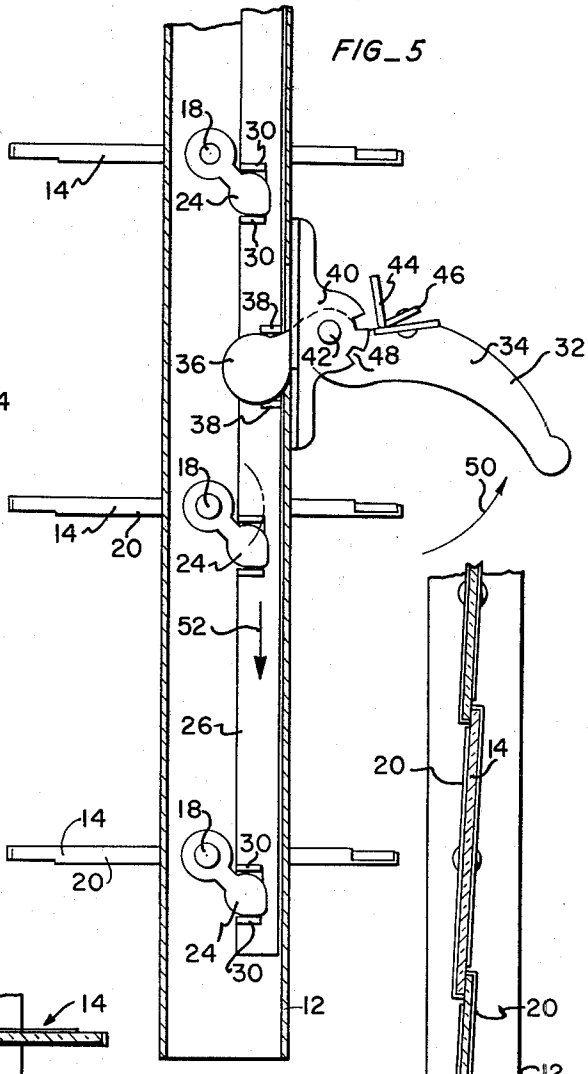

FIG_7

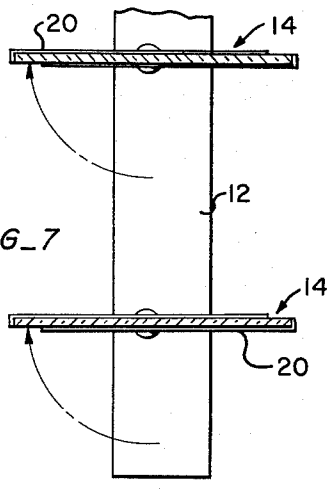

FIG_6

INVENTOR.
STANHOPE S. KENNY
BY Fleit & Swain
ATTORNEYS

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WINDOW CONSTRUCTION AND CONTROL

Stanhope S. Kenny, 1537 La Mesa Drive, Burlingame, Calif.

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4 Claims. (Cl. 20—62)

This invention relates to windows of the jalousie type, and more particularly to an improved control mechanism for such windows.

The jalousie window has recently found increasing favor with architects, contractors, and in the building industry in general. This type of window employs a plurality of window sections or panes each of which is adapted to be swung or rotated about a horizontally or vertically extending axis between open and closed positions. Although numerous types of control mechanisms have been employed with these windows, such mechanisms may be broadly classified according to whether the window sections are rotated about a central axis or are pivoted adjacent an end. In general, the rotary type control mechanism is to be preferred, primarily because of a greater ease of alinement of the individual sections of the window.

To date, control mechanisms of the rotary type have been subject to a number of shortcomings. Chief among these is the necessity of employing expensive gear or chain type operating mechanisms to provide the desired rotary action. A further difficulty has been the need for an excessive number of parts in the operating mechanism, making the windows uneconomical to manufacture.

The present invention is directed to a solution of these and additional problems, as will appear, and one object is to provide a control mechanism for a jalousie window which operates effectively with a minimum number of working parts.

Another object of the invention is to provide a control mechanism of such character which makes use of a slidable, rotary engagement between the operating parts with consequent elimination of gears, chain drives and like mechanisms of the prior art.

A further object of the invention is to provide a jalousie window and control mechanism that is simply and inexpensively manufactured, and which will be durable and useful throughout a prolonged period of use.

Other objects and advantages of the present invention will be apparent from the following description of an exemplary embodiment, and from the drawings in which:

FIGURE 1 is a view in perspective of a window construction embodying the principles of the invention;

FIGURE 2 is a detail view in section along the line 2—2 of FIGURE 1;

FIGURE 3 is a like view along the line 3—3 of FIGURE 1;

FIGURE 4 is a view in vertical section showing the position of the control mechanism when the sections of the window are in a closed position;

FIGURE 5 is a like view showing the position of the control mechanism when the sections of the window are in an open position;

FIGURE 6 is a detail view in vertical section along the line 6—6 of FIGURE 1 and showing a closed position of the window; and

FIGURE 7 is a like view showing the sections of the window in an open position.

Generally stated, the present invention is directed to a jalousie window including a plurality of window sections each having rotary end supports received in side frames of the window. The rotary supports on a common side of the window each carry crank means which are engageable with a vertically extending bar. Preferably this operating bar is provided with flange means slidably and

rotatably engaging extending ends of each of said cranks so as to coordinate simultaneous rotary movements of the cranks and the individual window sections. Movements of the operating bar are accomplished by an operating lever which is pivotally mounted on the side frame in such fashion that one of its ends extends inwardly through an opening in the side frame into engagement with the bar. In a preferred embodiment, the inner end of this lever is likewise engaged in slidable rotatable fashion by flange means on the operating bar. By virtue of this construction, simple pivotal movements of the operating lever, in the plane of the side frame, will be translated quickly and easily into rotary movements of individual window sections. If desired, locking means can also be provided to lock the lever and the window sections in any desired position of operation.

Referring to the drawings in detail, 10 indicates a jalousie window in accordance with the invention including side frames 12 and window sections 14. As illustrated, the side frames 12 can be substantially channel shaped and provided with recessed apertures 16 to receive rotary supports 18 for the window sections. The mounting brackets 20 for the latter can be rigidly attached to the rotary supports by any suitable means, for example, by welding at 22 (FIGURE 2). It will be noted that the mounting brackets 20 are constructed to permit a glass to glass contact between adjacent window sections so as to insure a proper weather seal without obstructing vision (FIGURE 6).

As illustrated in FIGURES 3 to 5, the rotary supports at one end of the window are provided with crank extensions 24. These crank extensions operatively engage and support a longitudinally extending bar 26, which is received within a side frame 12. In the illustrated apparatus, the crank extensions are relatively flat and have partially rounded and partially flattened cam surfaces terminating in the apex portions 28 so that in appearance the cranks generally resemble a heart shaped configuration. The operating bar 26 is movably supported and guided on the crank extensions 24 by means of flange-like projections 30 provided on either side thereof. As will be understood, longitudinal movement of the operating bar 26 will cause a sliding rotary movement of the crank means within the flanges 30, and a consequent rotation of the window sections 14.

Operating movements of the bar 26 are accomplished by means of the operating lever 32. In the illustrated apparatus, the operating lever includes an outer handle portion 34 and an inner end 36 adapted to pass inwardly through an opening in the side frame into a position of engagement with the operating bar 26. The latter can be provided with flange means 38 similar to those previously described, and adapted to slidably and rotatably receive the inner end 36 of the operating lever. The operating lever 32 can be pivotally mounted on the side frame 12 by means of the bracket 40 and pivot 42.

As clearly illustrated in FIGURES 4 and 5, pivotal movements of the operating lever will result in longitudinal movements of the operating bar 26, which in turn functions to rotate the window sections 14 in the manner previously described.

Since it is frequently desirable to lock the window in closed position, or the sections 14 at a particular angle of opening, I have found it desirable to provide a device for this purpose upon the operating lever and engageable with the mounting bracket 40. Thus, as illustrated, the operating lever can be provided with a simple thumb lever 44 having a warped end 46 engageable in the slots 48 provided in the mounting bracket.

The operation of the apparatus just described can be summarized as follows: Assuming a locked, closed position of the window, as illustrated in FIGURES 1 and 4,

the window is first unlocked by disengaging the locking lever 44. This can be accomplished by pivoting the lever so that the end 46 moves out of the slot 48 into a position as illustrated in FIGURE 5. The operating lever 32 can now be pivoted to open the window, as indicated by the arrow 50 in FIGURE 5. Pivoting of the operating lever causes the inner end 36 of the lever to slidably rotate within the flanges 38 and at the same time to urge the operating bar in a downward direction as indicated by the arrow 52. This in turn causes the flanges 30 to rotate the crank extension 24 in a clockwise direction and, simultaneously, the rotary supports 18 for the window section 14. Such movement of the cranks is illustrated in the successive position of FIGURES 4 and 5, while the resulting movement of the window sections is illustrated in FIGURES 6 and 7. As the crank elements rotate downward their rounded sides facilitate sliding rotary movements within the flanges 30. However, pivotal movements of the cranks beyond a desired degree are resisted by the apex portions 28. In effect, these apex portions provide surfaces on either side which act as stops tending to limit operating movements of the lever 32. User of the apparatus can therefore easily determine that he has reached a desired full open or full closed position.

From the foregoing, it will be apparent that the present invention makes possible a combination jalousie window and control mechanism which employs a minimum of operating parts. Moreover, the parts employed are easily constructed from inexpensive materials, and can be readily assembled in a simple manufacturing process. The resulting window construction, is rugged, durable, and operable to provide a full rotary movement of the window sections with a minimum of effort.

I claim:

1. In a jalousie window, a plurality of elongated window sections, rotary supports on the ends of said sections, side frame members having apertures to receive and support said rotary supports, crank means secured to each rotary support at a common end of said window sections, the extending ends of said crank means having partially rounded and partially flattened cam surfaces converging to form the apex and sides of a generally heart-shaped configuration, an operating bar extending in a direction parallel to said side frames and slidably mounted adjacent one of said frames, substantially planar flange means extending outwardly from said operating bar in a plane transverse to the slidable movement of said operating bar, said flange means slidably and rotatably receiving the extending ends of said crank means when in contact with said rounded surface and resisting further rotation of said crank means when in contact with said flattened surface, an operating lever pivotally mounted on a side frame, said operating lever having a rounded end protruding inwardly through an opening in said side frame, and means on said operating bar slidably and rotatably engaging the rounded end of said operating lever, whereby pivotal movements of said operating lever produce rotary movements of said jalousie window sections between extreme open and closed positions determined by said flattened cam surfaces and planar flange means.

2. A window as in claim 1 wherein said operating lever includes a locking lever and the pivotal mount for said operating lever has notched recesses adapted to receive said locking lever.

3. A window as in claim 2 wherein said locking lever is mounted for pivotal movements in a plane perpendicular to the plane of said operating lever.

4. In a jalousie window, a plurality of elongated window sections, rotary supports on the ends of said sections, side frame members having apertures to receive and support said rotary supports, crank means secured to each rotary support at a common end of said window sections, the extending ends of said crank means having partially rounded and partially flattened cam surfaces converging to form the apex and sides of a generally heart-shaped configuration, a substantially planar operating bar extending in a direction parallel to said side frames and slidably mounted adjacent one of said frames, substantially planar flange means extending outwardly from said operating bar in a plane transverse to the slidable movement of said operating bar, said flange means slidably and rotatably receiving the extending ends of said crank means when in contact with said rounded surface and resisting further rotation of said crank means when in contact with said flattened surface, said operating bar being disposed between said crank means and a side frame member, an operating lever pivotally mounted on a side frame, said operating lever having a rounded end protruding inwardly through an opening in said side frame, and means on said operating bar slidably and rotatably engaging the rounded end of said operating lever, whereby pivotal movements of said operating lever produce rotary movements of said jalousie window sections between extreme open and closed positions determined by said flattened cam surfaces and planar flange means.

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