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R. B. RINGLER

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POWER OPERATED JALOUSIE WINDOW STRUCTURE

Filed June 22, 1959

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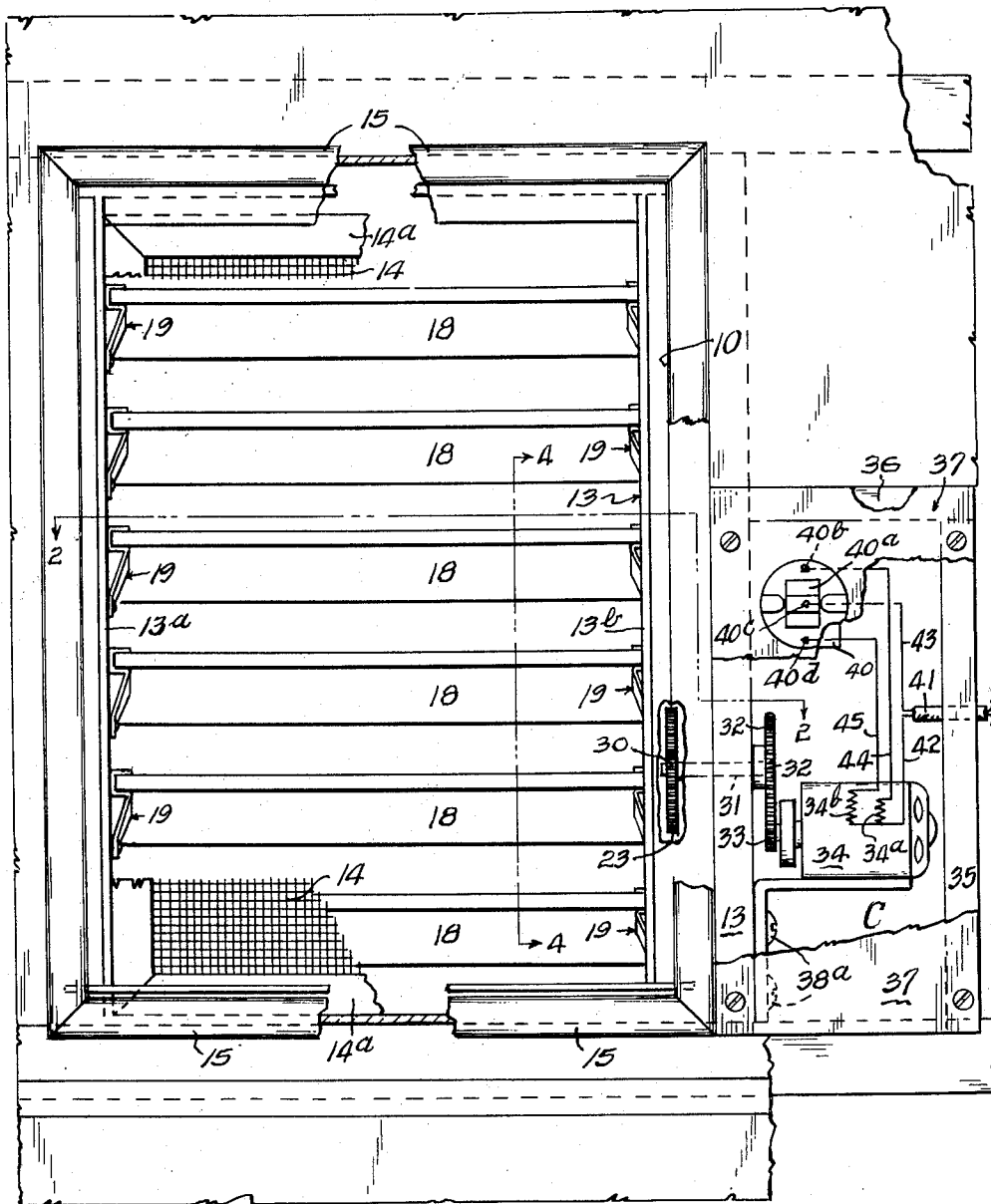


Fig. 1.

INVENTOR,

REUBEN B. RINGLER.

BY

Roy E. Ranney
ATTORNEY.

Dec. 18, 1962

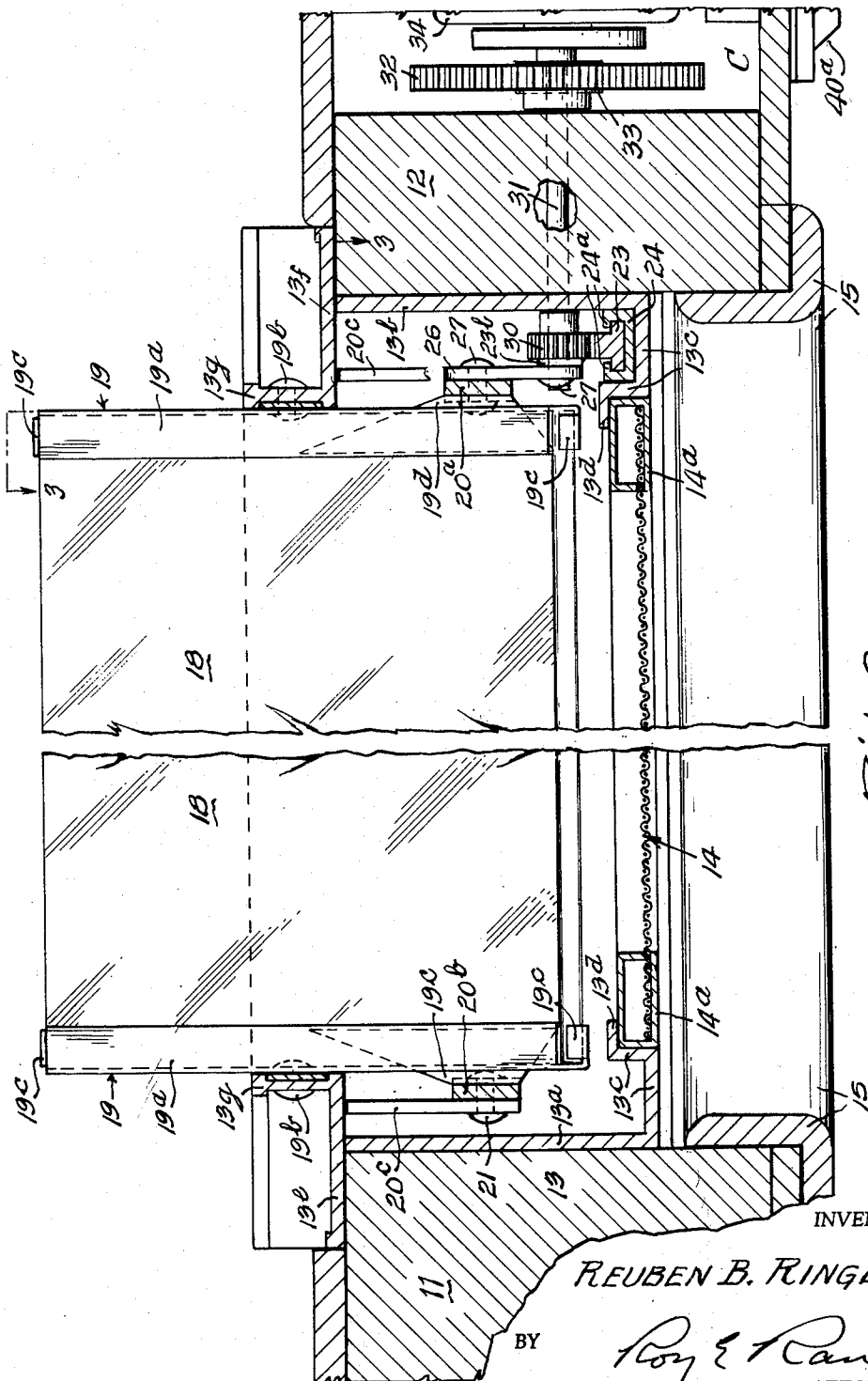
R. B. RINGLER

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INVENTOR.

REUBEN B. RINGLER.

BY

Roy E. Rana
ATTORNEY

ATTORNEY

Dec. 18, 1962

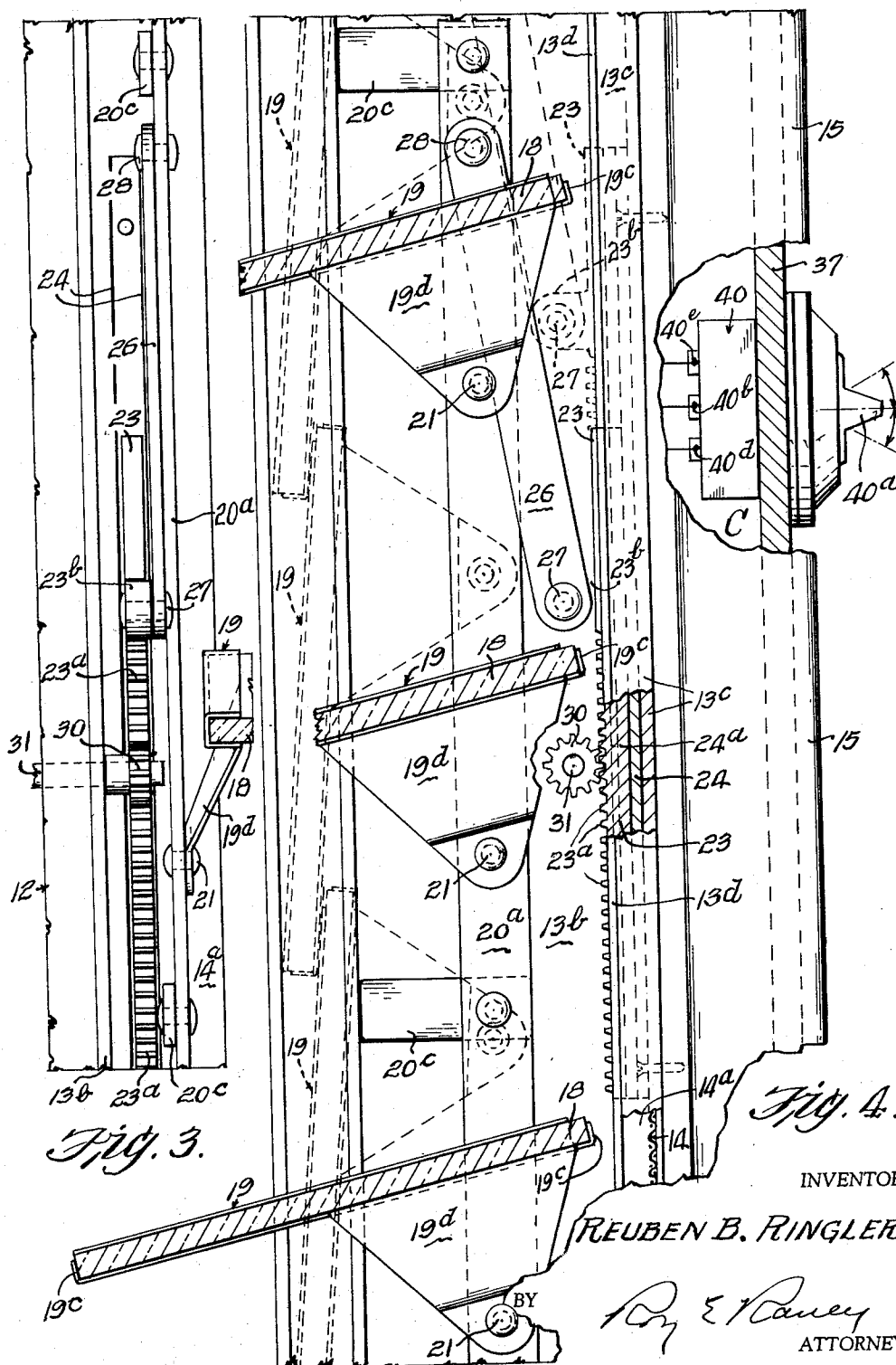
R. B. RINGLER

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3,068,971 POWER OPERATED JALOUSIE WINDOW STRUCTURE

Reuben B. Ringler, 2317 44th St. S., St. Petersburg, Fla.
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1 Claim. (Cl. 189—62)

The present invention relates to an improved electrical-ly operated jalousie window structure.

The principal object of the present invention is to provide an electrically motor driven jalousie window structure by which the louvered type window panes thereof can be positioned as desired by operation of an electrical switch, which may be adjacent or remote from the window and which may be manually or automatically actuated.

In carrying out the invention, a gear rack is slidably supported in a channel shape guide extending longitudinally of an upright side frame member of the jalousie structure, the gear rack being connected to a window pane tilting member and is moved vertically in the guide by a gear supported on a shaft extending from the side of the upright frame member and driven by a motor located in a compartment adjacent to the one side of the window frame. The combination of parts are inexpensive to manufacture and easily installed in existing jalousie type window structures. The operating mechanism is trouble free, long lasting and permits manual movement of the window panes in the event of electrical power failure.

Other objects and advantages of the invention will be apparent from the following description of a preferred form of the invention, reference being made to the accompanying drawings wherein

FIG. 1 is a front elevational view of a jalousie window embodying the invention, certain parts being shown broken away;

FIG. 2 is a fragmentary sectional view of the window structure taken substantially along line 2—2 of FIG. 1, but on a larger scale;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2; and

FIG. 4 is a sectional view taken along line 4—4 of FIG. 1, but on a larger scale.

Referring to the drawings, a conventional jalousie window 10 is shown which is installed in a window opening of a building, such as a house, the frame for which opening includes two scantlings 11 and 12 at opposite sides thereof. The jalousie structure comprises a rectangular metallic frame 13 which includes two upright side members 13a and 13b which lie alongside of and are attached to the scantlings as by screws, not shown. The inner edges of uprights 13a and 13b have channel shaped formations 13c, the inner side of which has a flange portion 13d cooperating with the main section of the uprights to form a recess to receive a rectangular frame member 14a of a screen 14. Preferably, a molding 15 is attached to the frame of the window opening to cover the joint between the window structure 10 and the walls of the building.

Frame 13 also includes two outer upright members 13e and 13f which extend at right angles to the outer edges of members 13a and 13b and which have outwardly turned flanges 13g. Uprights 13e and 13f may be suitably attached to uprights 13a and 13b to provide an integral frame, and they may be secured to scantlings 11 and 12 by nails or screws, for example, when frame 13 is installed in the window opening.

A plurality of spaced, parallel, horizontally extending window panes 18 are pivotally supported by frame 13 so that they may be swung from a substantially vertical position, in which the panes cooperate to close the frame opening, to a nearly horizontal position to provide openings between the parallel extending panes, as well known

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in the art. In the form of the invention shown, the edges of panes 18 are supported in channel shaped brackets 19, which include a channel shape portion 19a, the central portions of which are pivoted by pins 19b to flanges 13g so that the panes are each supported by a pair of brackets at opposite sides of frame 13 and each rotatable about a common axis. The ends of the window panes 18 are received in the channel portion 19a of brackets 19 and the ends of the channels have tabs 19c which retain the window panes in the channel. The brackets are interconnected to be rotated about pins 19b simultaneously, and for this purpose they each have a triangular shaped section 19d projecting laterally from the channel portions, and the apex of each bracket on the right hand side of the window, as viewed in FIG. 2, is pivotally attached to a vertically extending bar 20a by pins 21 and the apex of each section 19c on the opposite sides of the window are likewise pivotally attached to a similar bar 20b. These bars have stop blocks 20c attached thereto which engage the frame members 13e and 13f to limit rotation of brackets 19 about their pins, particularly in the window pane opening direction.

Bars 20a and 20b are raised and lowered by an electrically driven power mechanism which includes a gear tooth rack 23, which is T-shaped in cross section and which is arranged to slide vertically in a channel shaped guide member 24 attached to upright frame member 13b and located in channel formation 13c of the upright, as best seen in FIG. 2. The open side edge portions of channel shape member 24 are turned inwardly as at 24a to overlie the edges of the cross portion of rack 23 to retain the rack in the guide channel. Preferably, a suitable lubricant is placed on the sliding surfaces of the rack and channel. Rack 23 has gear teeth 23a along the edge projecting from the guide and which extend from the lower end somewhat beyond the central portion thereof, and a lug 23b is formed on the rack to which a link 26 is pivotally attached by a pin 27, the opposite end of the link being attached to a bar 20a by one of the pins 21. It will be seen that as rack 23 is moved in opposite directions in guide channel 24, link 26 raises and lowers bar 20a to cause tilting of the window panes to open and closed positions.

Rack 23 is driven in opposite directions longitudinally of the guide by a pinion gear 30 which meshes with teeth 23a and which is attached to a drive shaft 31 extending through openings through upright 13b and scantling 12, and which has a drive gear 32 attached to the end extending beyond the scantling. Drive gear 32 is driven by a pinion 33 connected to the drive shaft of a reversible electric motor 34 which is supported in the wall space adjacent to the window opening frame and within a frame or compartment C formed by a scantling 35 and a cross beam 36, interconnecting scantlings 13 and 35. The front side of the last described frame, i.e. the side facing into the room, is closed by a suitable removable panel 37 by which access can be gained to the drive mechanism for the window. Motor 34 may be of any suitable type and it is supported on an L-shaped bracket 38 attached to scantling 12 by screws 38a.

Motor 34 is controlled by a three-way switch 40, which may be of any suitable design, and it preferably includes a single control button 40a attached to a contact movable to one or the other of two fixed contacts 40b and 40c, and the button is normally urged to a neutral position in which the circuits controlled by the switch are open. When button 40a is raised upwardly, as viewed in FIGS. 1 and 4, a circuit is closed for driving motor 34 in a direction to lower rack 23 to open the windows, as shown in full lines in FIG. 4, and when the button is moved to the lower position a circuit is closed for driving the motor in the opposite direction to close the window, as shown in

dotted lines. Any suitable source of electrical power can be supplied, such as from the usual 115 v. A.C. supply, and, in the form shown, a conduit 41 carrying wires 42 and 43 is brought into compartment C and wire 42 is connected to one side of the motor windings and wire 43 is connected to terminal 40b for the movable contact of switch 40. The motor windings 34a and 34b are operative when energized to drive the motor in directions to open and close the window, respectively. Winding 34a is connected by wire 44 to a fixed contact 40c of switch 40 and a wire 45 connects winding 34b with fixed contact 40d of the switch.

It is to be understood that switch 40 could be located in any conventional position or another similar switch connected in parallel circuit therewith could be located at yet another position in order to provide for remote control of the window. Furthermore, the switch for controlling the motor circuit could be temperature or moisture responsive as well as manually operable.

In the event of a power failure, the gear rack mechanism can be easily operated by manually rotating one of the window panes on the pivot for the rack so that should power failure occur during an electrical storm, for example, the user could close the window or adjust it to any suitable position desired.

By the arrangement shown, the motor can be located adjacent to the window frame and the gear rack 23 and the guide therefor can be readily installed in the conventional type jalousie window side member with the power drive therefore located in a compartment adjacent to the side of the window frame. The parts may be easily formed of non-corroding materials so that they will provide long lasting life and trouble free operation.

It is to be understood that although but one form of the invention has been shown, other forms, modifications

and adaptations could be employed, all of which fall within the scope of the claim as follows.

I claim:

In a jalousie window structure, comprising a frame having two upright side members at opposite sides of the window, at least one side member having a channel formed along one edge thereof with the open side in a plane parallel to the plane of the window and extending vertically, a plurality of window pane support members pivoted to said side members and each including an arm projecting inwardly of said frame and adjacent to said upright side members, a vertically extending bar pivotally attached to said arms to cause said window pane support members to be pivoted in unison when said bar is moved longitudinally, a channel shaped guide nestingly supported in said channel, a gear rack slidably received in said channel shaped guide so that the teeth of said gear rack are exposed through the open side thereof, a pinion meshing with the teeth of said gear rack, a rigid link interconnecting said gear rack and said bar whereby said bar is moved longitudinally by movement of said rack through said link, a drive shaft supporting said pinion and projecting normal to and through an opening in said one side member, means for supporting said drive shaft, means to rotate said shaft including an electric motor disposed at the other side of said one side member and drivingly connected to said shaft, and means to control said motor.

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