Oct. 4, 1960 E. DYNNER 2,954,590

WINDOW STRUCTURES

Filed June 10, 1952 4 Sheets-Sheet 1

FIG. 1.

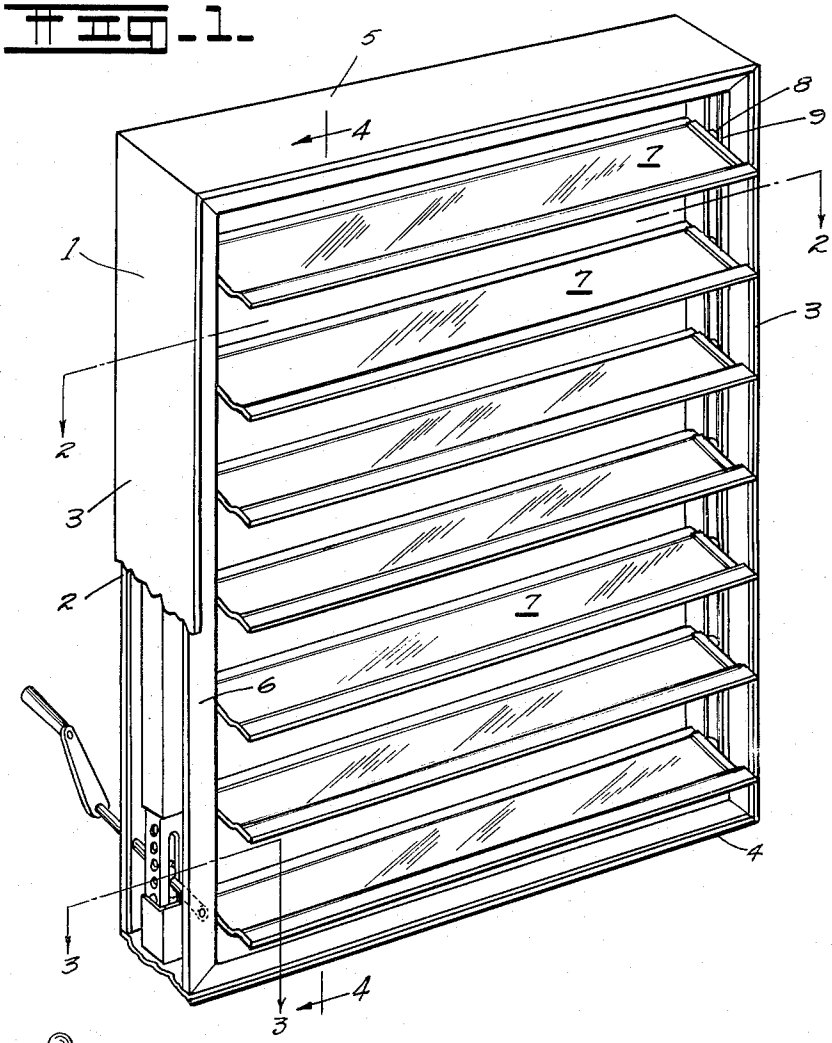
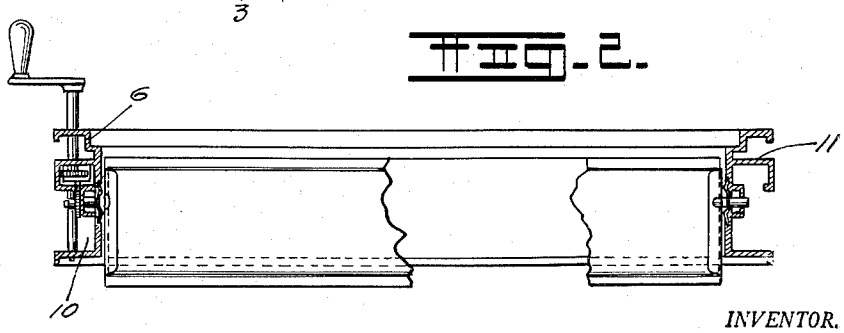


FIG. 2.



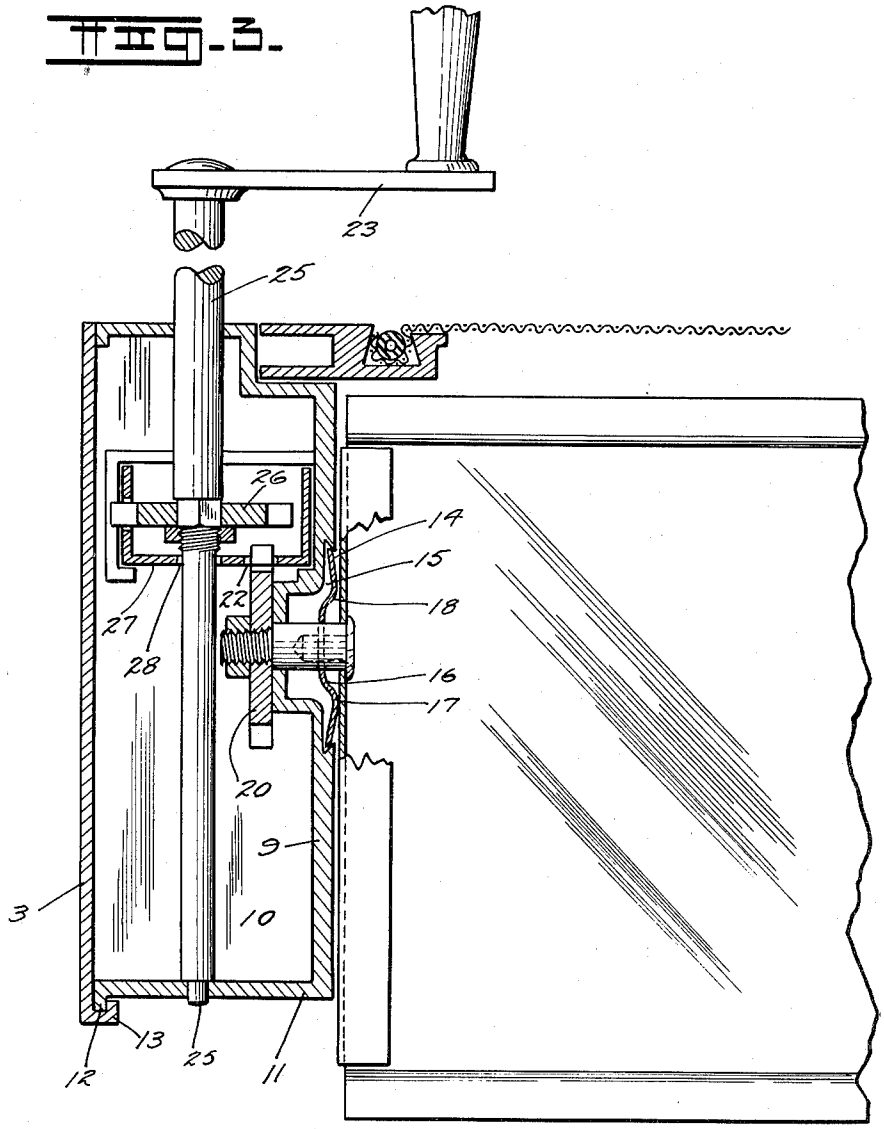
INVENTOR.
Eugene Dynner.
BY
Sol Shapiro
ATTORNEY.

Oct. 4, 1960 E. DYNNER 2,954,590

WINDOW STRUCTURES

Filed June 10, 1952 4 Sheets-Sheet 2

FIG. 3.



INVENTOR.
Eugene Dynner.
BY
Sol Shapiro
ATTORNEY.

Oct. 4, 1960 E. DYNNER 2,954,590

WINDOW STRUCTURES

Filed June 10, 1952 4 Sheets-Sheet 3

FIG. 4.

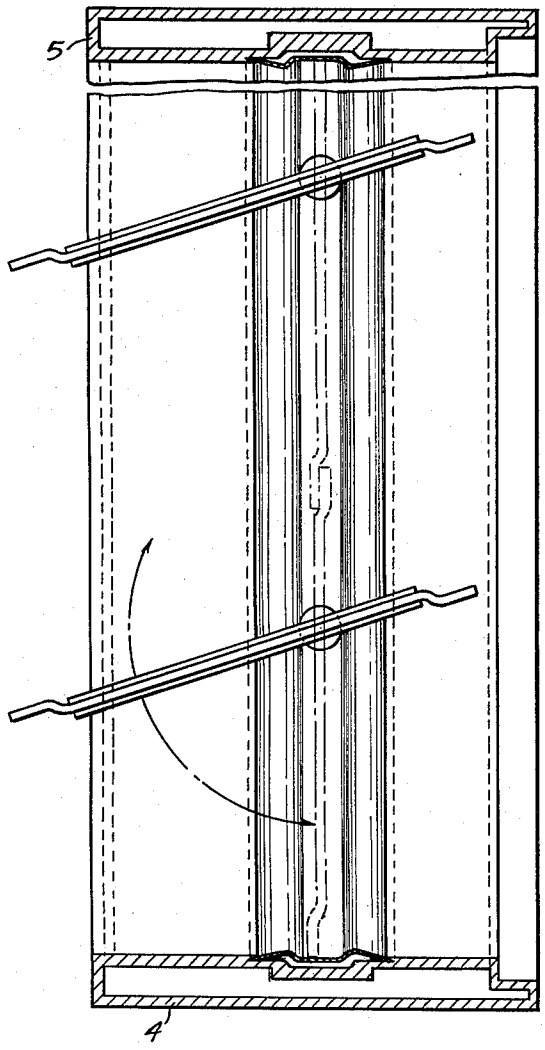


FIG. 5.

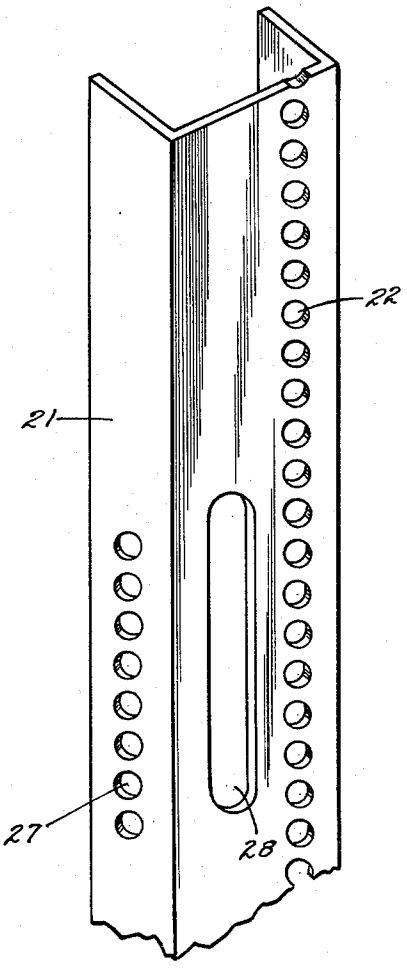


FIG. 6.

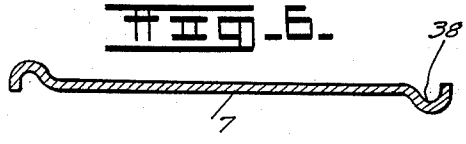


FIG. 8.

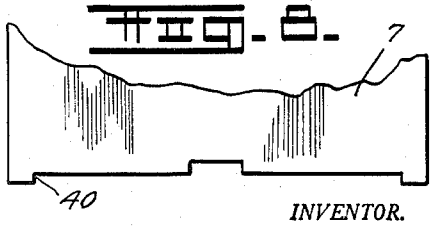
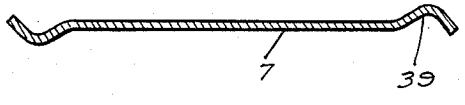


FIG. 7.



INVENTOR.
Eugene Dynner.
BY
Sol Shappiro
ATTORNEY.

Oct. 4, 1960 E. DYNNER 2,954,590

WINDOW STRUCTURES

Filed June 10, 1952 4 Sheets-Sheet 4

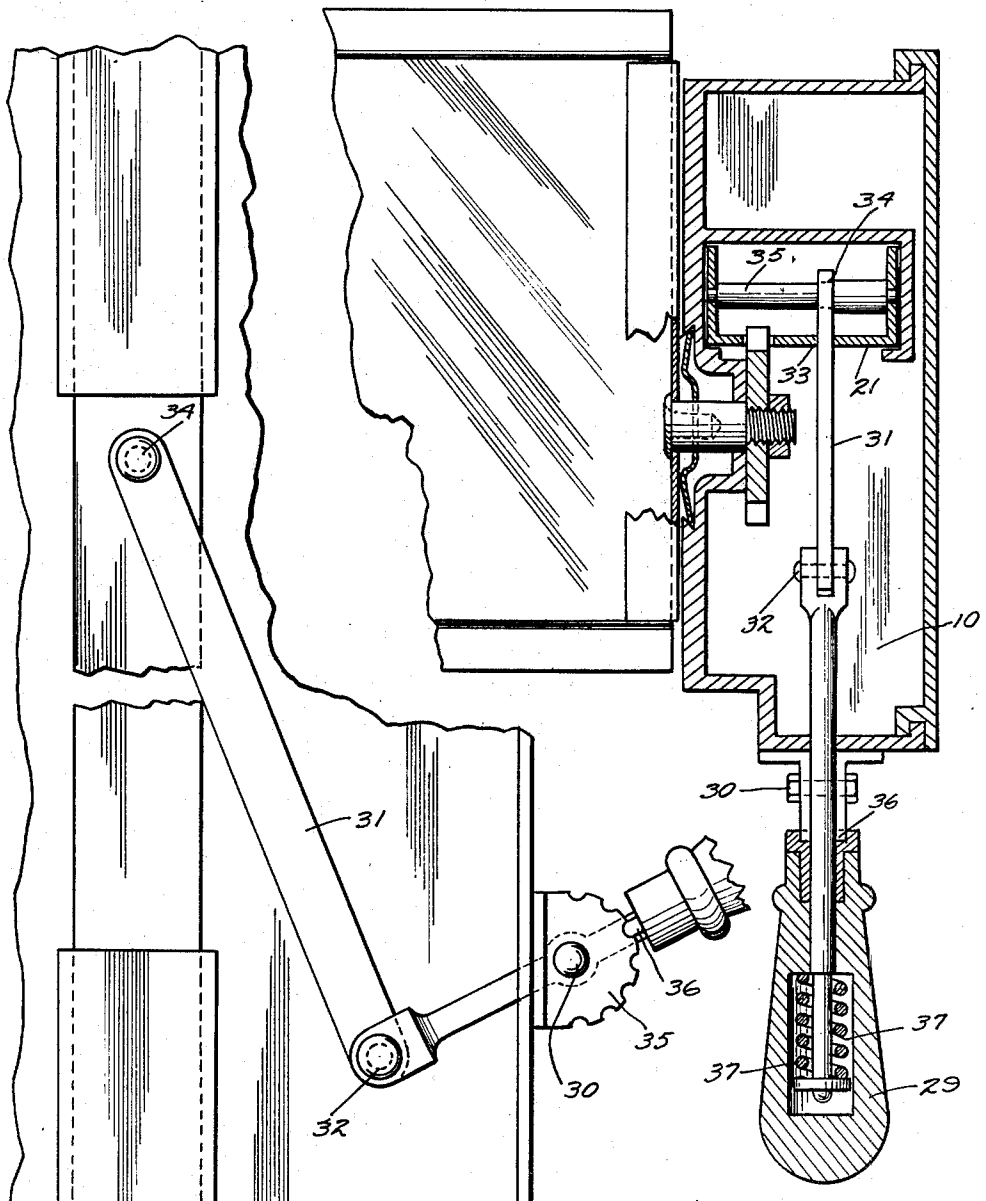


FIG. 9.

FIG. 10.

INVENTOR.
Eugene Dynner.
BY
Sol Sharpiro
ATTORNEY.

United States Patent Office

2,954,590

Patented Oct. 4, 1960

2,954,590

WINDOW STRUCTURES

Eugene Dynner, Youngstown, Ohio
(1520 Ancona Ave., Coral Gables, Fla.)

Filed June 10, 1952, Ser. No. 292,671

11 Claims. (Cl. 20—62)

This invention relates to window structures particularly of the Venetian or jalousie type, to structures utilizable for closures of the stated type as well as for other types of closures, and elements and operating mechanism particularly useful in the production of such windows or other closures.

The prior art exhibits a large number of different types of window structures including Venetian or jalousie type windows or similar closures. Many of the prior art structures require the use of rather complicated mechanism and such mechanism is usually exposed to the elements where it is subject to weathering, accumulation of dirt, and exposed mechanism which interferes with aesthetic appeal. Further the structures of the prior art are of such character, that it has been difficult to weatherproof the windows against air currents and to produce non-rattling vanes etc.

Among the objects of the present invention is the production of relatively simple but effective closures of the Venetian or jalousie window type that are economical to build, to install, and to maintain.

Other features include simple but positive acting mechanism concealed to protect such mechanism against weathering, dirt accumulation, and structures which do not interfere with aesthetic appeal.

Further objects include such closures capable of utilization as a unit which may be installed or removed as unitary structures.

Still further objects include vanes of particular character of material and structure particularly useful for production of closures of this type.

Still further objects and advantages of the present invention will appear from the more detailed description set forth below, it being understood that such more detailed description is given by way of illustration and explanation only, and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In connection with that more detailed description there is shown in the accompanying drawings, in

Figure 1 a perspective view, with some parts broken away illustrating the present invention; in

Figure 2, a transverse section on line 2—2 of Figure 1; in

Figure 3, a transverse section of operating mechanism on the line 3—3 of Figure 1; in

Figure 4, a longitudinal section on line 4—4 of Figure 1; in

Figure 5, a perspective view of one type of operating rack that may be employed in the mechanism; in

Figure 6, a transverse section through one form of vane; in

Figure 7, a transverse section through another type of vane; in

Figure 8, a fragmentary detail of the end of a vane; in

Figure 9, a fragmentary detail of a modification of operating apparatus; and in

Figure 10, a fragmentary detail of certain portions of the apparatus of Figure 9.

In accordance with the present invention, closures for openings in building walls such as windows or doors, are provided so that they are simple in character, economical to install, and present operating and maintenance advantages not heretofore obtainable in structures of this character.

The invention is particularly useful in connection with Venetian or jalousie type windows and such structures will be utilized to illustrate the present invention although as indicated, the invention is capable of use in other structures as for example door closures of this general type. A particularly useful feature of the present invention includes a unitary structure whereby the entire closure such as Venetian window or jalousie including all operating mechanism forms a unit that may be inserted within the window or other opening in the wall of a building. Such structures may be made to standard sizes for utilization in this way. Desirably a base frame is provided in the window or other opening within which the separable operator frame unit carrying all of the window structure and mechanism, may be inserted and attached to such base frame. Many advantages attach to structures utilized in this way. As indicated above, they may be of standard sizes and utilized where desired. They are easily removed to permit repairs if necessary. Installation is simple and other operating and maintenance advantages appear. In addition by utilizing a base frame which remains in the window opening, and a removable unit including all of the window structure and operating mechanism therefor, the base frame and operator frame unit may be adapted to fit together to form a channel between the base frame and the separable operator frame unit which channel lies between and is enclosed by the corresponding portions of the said frames. Such channel enables the window operating mechanism carried on the operator frame to be protected from the weather and from dust and other material coming in contact therewith. Such concealment not only protects the operating mechanism, but it gives a pronounced aesthetic improvement to structures of this character, and also concealment in this way enables effective weather-proofing to be obtained.

Other features to which general references may be made in connection with the present invention include novel operating elements of simplified character as well as new structures for melting the louvers in position to effect tight closures which obtain a weather-proofed structure while at the same time enabling the vanes to be readily operated and retained in open position against rattling or other undesired effects. Included also and particularly mentioned in this connection are vanes for utilization in structures of this type produced from glass fiber reinforced polyester plastics that given unique features to structures employing such material. The louvers may be made with V or U edges which on contact serve to give tight, weather-proofed structures, particularly when produced from plastic and more specifically glass fiber reinforced polyester plastic materials. The utilization of the latter type of plastic enables any desired structures to be readily produced which retain their shape enabling the tight fit and weather-proofing to be retained over long periods of time. These materials will not warp and always remain in proper position for effective weather-proofing at adjacent and interlocked edges. They are shatter-proof and make the safest possible window eliminating frequent accidental breakage of glass louvers or breakage by storms. A high degree of light transmission even with translucent materials affords a combination of maximum light with maximum privacy. Such materials also are heat insulating in character due to the

fiber glass reinforcement, filtering out heat from sun light in summer and also insulating against cold when louvers are in closed position. Structures of this character thus produce a combination of features of window, awning, and Venetian blind all in the one.

Referring more particularly to the illustrative drawings in Figure 1 the base frame 1 is shown partly cut away as illustrated at 2 to expose some of the operating structure. The base frame 1 is positioned in the window or other wall opening for reception of the operator frame unit. Such base frame may include jambs 3, sill portion 4 and head portion 5. The base frame may be made of any desired material such as wood, steel, etc.

The operator frame unit is generally indicated at 6 and carries all of the window structure per se and operating mechanism therefore as a unitary structure. Such operator frame unit may carry vanes 7 pivotally mounted as at 8 in the jamb portions 9 of the operator frame. The operator frame unit is adapted to fit within the base frame 1 to form a channel 10 between and enclosed by corresponding portions of said frames in which channel 10 the window operating mechanism may be carried. For this purpose the operator frame may be formed with side members 11 of channel shaped cross section, the outside edges 12, 12 interlocking with projection 13, carried on the jamb portions 3 of the base frame 1 and secured together in any desired way. A structure of this character enables the operator frame unit to be installed or removed from the base frame unit as desired for any of the purposes set forth above, while still producing a structure in which all operating mechanism is substantially concealed and protected, weather-proofing also being obtained.

The jamb portion 9 of the operator frame is desirably provided with a recess 15 extending desirably for the entire height of the jamb member 9. Such recess 15 is adapted to receive a flattened spring member 14 interposed between the end of each vane 7 and the adjacent portion of the jamb 9 of the operator frame. The spring member 14 has a centrally disposed depression 16 for reception of the end of the vane 7 when the latter is in closed position thereby to weather-proof the closure, the walls 17 which define the depression 16, are adapted to engage yieldingly against the ends of each of the louvers when the latter are in open position. Such spring members exert a constant horizontal tension upon the louvers, balancing them and preventing rattling either because of strong winds or vibration transmitted to the structure. In order to complete the weather-proofing of the structure, it is desirable also to place an elongated flattened spring member similar to that of the spring member 15 between the top of the upper-most louver and the head portion of the operator frame and another flattened spring member between the bottom of the lowermost louver and the sill portion of the operator frame, the elongated flattened spring members also having centrally disposed longitudinal depression for reception of the adjacent portion of the louvers in contact therewith when in closed position thus to complete the weather-proofing of the closure.

While any type of operating structure may be employed, a particularly simple and economical structure is shown in the drawings. As illustrated there, the pivot 8 on which each louver is mounted, extends through the jamb 9 of the operator frame into the channel between the frame units and carries a gear sector 20 within said channel 10 between the frames. It is of course only necessary to have the pivots 8 extend into the channels for such gear sectors on one side only of the operator frame unit. The gear sector is of course keyed to the pivot 8 so that movement of the gear sector will operate the vane 7 joined thereto.

For operating the various gear members an elongated rack 21 desirably U-shaped in cross section is provided within channel 10 and adapted to move vertically within the channel. The rack 21 is provided with a series of perforations 22 running substantially over the length of the rack on one of its walls which series of perforations are adapted to mesh with the gear members 20 on pivots 8, so that all of the gear members may be operated simultaneously by reciprocating movement of the rack 21. To produce such reciprocating movement of the rack 21, a handle 23 carried on shaft 24 is provided, the shaft extending externally from the operator frame structure through an opening 25 inwardly into and through the channel 10 pivotally mounted on the opposite side member 11 of the operator frame as at 26. The shaft 24 carries a gear 26. One of the walls of the U-shaped rack is provided with a series of perforations 27 near the bottom thereof adapted to mesh with the gear 26 on shaft 24 and a slot 28 is provided in the base of the U-shaped rack 21 so that as movement of gear 26 meshing with perforations 27 raises or lowers the rack 21 the shaft 24 may ride within the slot 28.

An alternative rack operating mechanism is shown in Figures 9 and 10. For this purpose the operating handle 29 extends through the operator frame structure on which it may be pivoted as indicated at 30, extending inwardly into the channel 10. A link member 31 is pivotally connected to the inner end of the handle 29 as indicated at 32, the other end of the link member 31 being attached to the elongated rack 21. An opening or slot 33 may be provided in the rack 21 through which the link member 31 may pass to be pivotally attached as shown at 34 on rod 35 mounted within the channel of the U-shaped rack 21. In order to maintain the handle and associated mechanism in any set position, means may be provided to retain the handle 29 in set position. For this purpose a ratchet 35 may be mounted on the frame to engage a spring pressed finger 36 carried on the handle, the finger 36 being spring pressed outwardly by the spring 37 within the handle.

The structures described above may be utilized with any type louvers desired and such louvers may be made of any material such as wood, metal, plastic. However glass fiber reinforced polyester plastic louvers are particularly useful enabling a more weather tight closure to be obtained than is possible with rigid material such as glass, metal, or wood. Such louvers will not warp or become distorted under the heat of the sun, therefore always remain in proper position for effective weather-proofing at adjacent and interlocked edges, are shatter-proof for safety, eliminate frequent accidental breakage, and secure many of the other advantages referred to above. Furthermore they may be readily formed or molded to any desired shape and particularly may be produced of V- or U-shaped longitudinal edges which are adapted to interlock to produce a tight closure. The U-shaped longitudinal edges are indicated at 38 in Figure 6 while the V-shaped longitudinal edges are indicated at 39 in Figure 7. The indicated shapes are of course at the cross section of the material at such point. The U-shaped in cross section, longitudinal edge 38 may really be looked upon as a rounded V-shaped cross section as shown at 39. Where the louvers are used for interlocking contact on each edge, then the U-shaped or V-shaped structure may be employed along each longitudinal edge. Where the louvers are used at the extreme top or bottom of the structures, then of course the U-shaped or V-shaped edge may be provided along one edge of the louver. Further, as shown in Figure 8, the vane or louver 7 may have its end shaped as by cutting or other operation to provide a smooth, uniform surface for contact with the flattened spring members interposed between the ends of the louvers and the operator frame structure. Where no clip is employed, the louver may carry a slotted stud or a slot in the end of the operating pivot. This is particularly of use with thin louvers such as those made of plastic or of metal because the louver material may snap into the weather-strip tension spring member and the projecting fastener

can be recessed in the frame. Where a clip is employed, the louver end may be cut as indicated in Figure 8 so that a clip when positioned will be held in place in the recess **40** in the end of the louver as shown in Figure 8 and thus prevent a smooth surface for contact with the flattened spring member.

The operation of the structures will be readily understood. It will be apparent that the operation of either of the handle members in Figures 1 and 9 will move the rack to operate the several gears carried by the pivots on the vanes or louvers so that they may be positioned in any way desired and to give closures which are tight and remain so. The assembly of the structures will be readily understood from what has been set forth above and very economical but effective structures are produced in this way.

Having thus set forth my invention, I claim:

1. In a Venetian or jalousie window, a base frame unit including a jamb member on each side of the frame unit, the unit being adapted to be attached within an opening of a building wall, a separable operator frame unit retractible in said base unit and having a centrally disposed depression, said frame unit being adapted to fit within said base frame to form a channel concealed between and enclosed by said jambs and corresponding portions of said operator frame unit, said centrally disposed depression being adapted to receive the end of a louver when in closed position, and window operating mechanism carried on said operator frame and extending into said channel, whereby the operating mechanism is concealed within said channel between said frame units.

2. A structure as in claim 1 including louvers pivotally mounted on said operator frame, louver pivoting mechanism carried on said louvers and extending within and concealed by said channel, the pivoting mechanism being operatively connected to said operating mechanism whereby all operating mechanism is concealed within said channel between the frames but is insertable and removable with the operator frame and louvers as a unitary structure.

3. A structure as in claim 2 in which a flattened spring member is interposed between the end of each louver and the adjacent portion of the operator frame, each spring member having a centrally disposed depression extending longitudinally thereof for reception of the end of the louver when in closed position, to weatherproof the closure, the walls forming said depression yieldingly engaging against the ends of each of the louvers when the latter are in open position, to prevent rattling.

4. A structure as in claim 3 in which an elongated flattened spring member is interposed between the top of the uppermost louver and the head portion of the operator frame, and between the bottom of the lowermost louver and the sill portion of the operator frame, each spring member having a centrally disposed longitudinal depression for reception of the adjacent portions of the louvers in contact therewith when in closed position to weatherproof the closure.

5. In a Venetian or jalousie window, a frame member, a louver pivotally mounted on said frame member, a flattened spring member interposed between each end of the louver and the adjacent portion of the frame member, each spring member having walls defining a centrally disposed depression for reception of the end of the louver adjacent thereto when in closed position to weatherproof the closure, the walls of spring member forming the depression yieldingly engaging against the ends of the louver when the latter is in open position, to prevent rattling.

6. A structure as in claim 1, the operating mechanism including an elongated rack of U-shaped cross section movable vertically within said channel.

7. A structure as in claim 1 including, louvers pivotally mounted on said operator frame the pivots on one side of the louvers extending through said operator frame into the channel between the frame units, a gear member on each of said extending pivot members all within said channel, an elongated rack of U-shaped cross section movable vertically within said channel, said rack having a series of perforations therein meshing with each gear adjacent thereto whereby movement of the rack will pivot the louvers.

8. A structure as in claim 7 in which the operating mechanism includes an operating handle on the outside of the structure extending through the frames to within the channel and a gear within the channel on the inner end of said handle, the rack including a series of perforations meshing with said handle operated gear.

9. A structure as in claim 7 in which a flattened spring member is interposed between the end of each louver and the adjacent portion of the operator frame, each spring member having a centrally disposed depression for reception of the end of the louver when in closed position to weatherproof the closure, the walls forming said depression yieldingly engaging against the end of each of the louvers when the latter are in open position, to prevent rattling.

10. A structure as in claim 1 the operating mechanism including an elongated rack of U-shaped cross section movable vertically within said channel, an operating handle on the outside of the structure and extending through the frames to within the channel, the handle being pivoted on the operator frame member, a link member connecting the inner end of the handle with the rack, and a spring pressed locking element carried on the handle for holding the handle in any set position.

11. A structure as in claim 10 including louvers pivotally mounted on said operator frame the pivots on one side of the louvers extending through said operator frame into the channel between the frame units, a gear member on each of said extending pivot members all within the channel, the rack having a series of perforations meshing with each gear adjacent thereto whereby movement of the rack will pivot the louvers.

References Cited in the file of this patent

UNITED STATES PATENTS

100,118	Clark	Feb. 22, 1870
126,713	Kelly	May 14, 1872
1,695,768	Kelly	Dec. 18, 1928
1,830,487	Samberg	Nov. 3, 1931
2,142,616	Otto	Jan. 3, 1939
2,199,562	Griffin	May 7, 1940
2,228,439	Cerny	Jan. 14, 1941
2,257,056	Huff	Sept. 23, 1941
2,510,122	Lomholt	June 6, 1950
2,545,874	Brothers	Mar. 20, 1951
2,577,072	Cotner	Dec. 4, 1951
2,583,230	Peters	Jan. 22, 1952
2,649,629	Baxter	Aug. 26, 1953