Oct. 30, 1962 E. O. CLAY 3,060,529

SCREENING DEVICE

Filed March 15, 1960

FIG. 1.

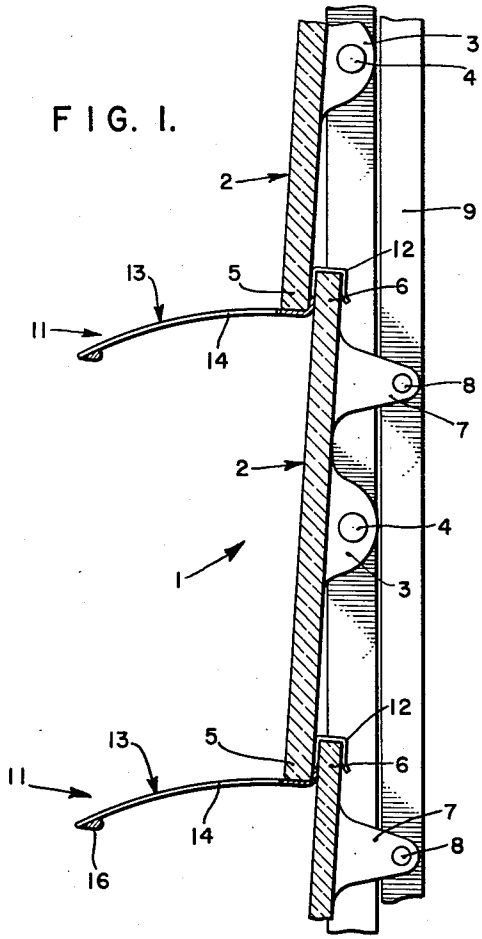
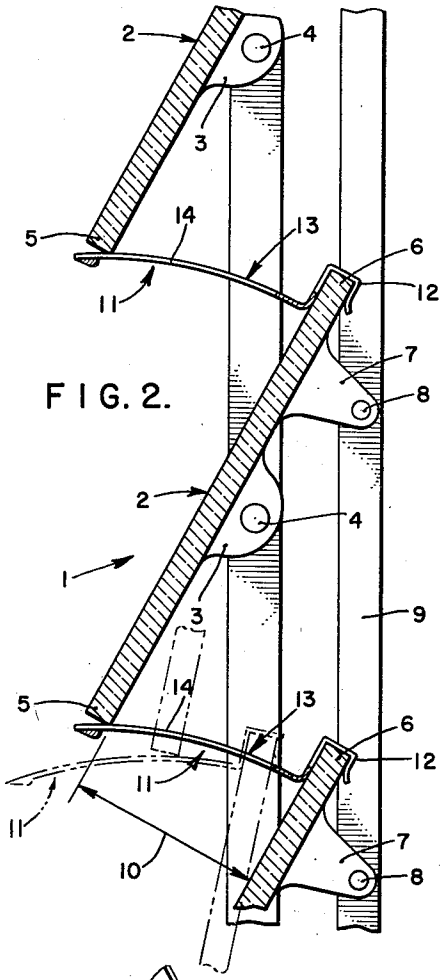


FIG. 2.



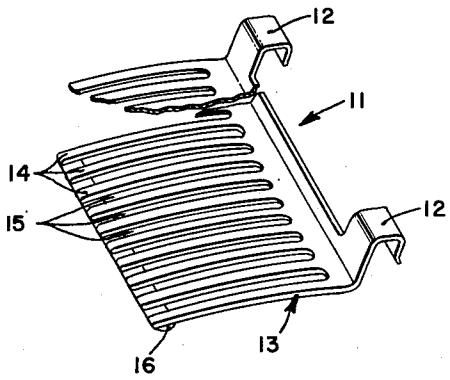


FIG. 3.

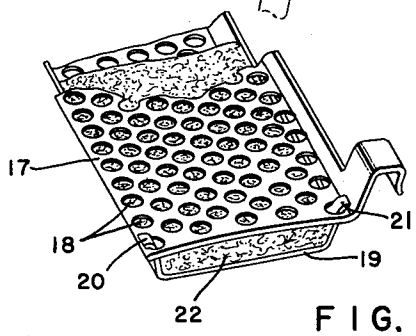


FIG. 4.

INVENTOR.
EUGENE O. CLAY

BY Richard F. Carr

ATTORNEY.

United States Patent Office 3,060,529 Patented Oct. 30, 1962

3,060,529

SCREENING DEVICE

Eugene O. Clay, 3717 Floresta Way,
Los Angeles 43, Calif.

Filed Mar. 15, 1960, Ser. No. 15,158
7 Claims. (Cl. 20—62)

This invention pertains to a window screening device especially usable for louvered windows.

Installations of louvered windows have become increasingly prevalent in recent times. This is true for newly constructed houses, office buildings and the like, as well as for remodeling older structures. Louvered windows possess many advantages from the standpoint of appearance and convenience of use.

However, louvered windows have suffered from the inherent disadvantage of being difficult to screen. This is because the individual louvers pivot outwardly from the plane of the window when the window is opened. Hence, a conventional screen interferes with the movement of the louvers and cannot be used. To correct this, it has been proposed that the wire screen be extended outwardly from its normal position adjacent the window, in order to provide sufficient room for clearance to allow the movement of the louvers. This has resulted in installation difficulties, particularly for units where a conventional window is being replaced. Also, the outwardly projecting screen is unsightly and may mar the entire appearance of the installation. In addition, it is necessary to provide some sort of structural support for the screen in its projected position, which tends to obstruct the view and further detract from the apparence. As a result, in many instances louvered windows are left unscreened which gives an obviously unsatisfactory result.

According to the provisions of this invention, a screen element is attached by a simple clip to the top edge of each louver of the window assembly. These screen elements are given a predetermined contour so that when the louvers are pivoted to the open position, the screen elements remain in contact with the bottom edge of the adjacent louver. As a result, the air gap between the louvers is fully screened. At the same time, the screen elements at normal eye level are virtually undetectable so that while the window is fully screened, there is less obstruction to vision than is the case with normal screens.

Therefore, it is an object of this invention to provide a screening arrangement for louvered windows.

Another object of this invention is to provide a screening element for louvered windows which covers only the gap between adjacent louvers when the window is opened.

A further object of this invention is to provide a screening arrangement for louvered windows which includes the use of preformed elements attached to the top edge of each louver and arranged to remain contiguous with the bottom edge of the adjacent louver.

Yet another object of this invention is to provide a screening element which may act, in addition, as a sunshading device.

An additional object of this invention is to provide a screening arrangement for louvered windows that is constructed at low cost and installed without difficulty by unskilled labor.

These and other objects will become apparent from the following detailed description taken in connection with the accompanying drawing in which:

FIG. 1 is a sectional view of a typical louvered window assembly utilizing the invention, with the window in the closed position,

FIG. 2 is a sectional view similar to FIG. 1 with the window pivoted to the open position,

FIG. 3 is a fragmentary perspective view of a screening element of this invention, and

FIG. 4 is a fragmentary perspective view of a modified screening element, plus the use of a filtering medium.

With reference to the drawing, a typical louvered window assembly **1** may be seen in FIG. 1. This includes a plurality of identical glass elements **2** of elongated rectangular configuration. At either end of each of these glass elements a hinge plate **3** is provided, extending inwardly to receive a hinge pin **4**. The hinge pins provide the pivotal axes for the louvers shown, laterally displaced from the glass elements **2**. When the louver assembly is closed, as shown in FIG. 1, the bottom edges **5** of the louvers overlap and lie adjacent the top edges **6** of the adjoining louvers.

In addition, an actuating mechanism is included to effect simultaneous and equal pivoting of the louvers. While this arrangement may take a variety of forms, in the embodiment illustrated hinge plates **3** include laterally projecting bracket portions **7** which are pivotally connected by pins **8** to a vertically extending bar **9**. This couples the louvers together so that when bar **9** is pulled downwardly from the position of FIG. 1 it serves to pivot the louvers to the opened position of FIG. 2. Therefore, the louvers describe equal arcs as they are opened.

According to the provisions of this invention, the openings **10** defined when the louvers are moved to the open position are screened by individual members **11** which are clipped to and extend throughout the length of the top edges of the louvers. The detailed arrangement of members **11** may be seen in FIG. 3. Each of these members includes a substantially U-shaped clip portion **12** for receiving the top edge **6** of a glass louver in securing the member **11** to it. Generally, two or more spaced clips **12** will be provided. Projecting outwardly from the end of one leg of the clip **12** is an arcuate section **13**. It is the latter portion that screens the opening **10** and allows ventilation through the window. In accomplishing this, the arcuate portion **13** is made up of a plurality of elongated tines **14** equally spaced to provide gaps **15** therebetween. This gives the arcuate section **13** somewhat the appearance of a comb.

When the screening element is installed, arcuate portion **13** is arranged to present its convex surface upwardly adjacent the bottom edge **5** of the next adjacent louver. Portion **13** projects outwardly from the window, spaced inwardly a slightly amount from the top edge surface of the louver. Part of the clip **12** is interposed between the overlapping lower surfaces when the window is closed.

The radius and center of curvature for portion **13** are selected so that as the louvers are moved to the open position, the bottom edge **5** of each louver will follow the upper surface of the screening element **11**. In a typical example, the curvature will be relatively slight, as indicated, and even when the louvers are opened a considerable amount as shown in FIG. 2, the bottom edge **5** will be in contact with the top surface of the screening device. This is true, also, for all intermediate positions of the louvers, such as the one indicated in phantom in FIG. 2. The selection of the curvature for portion **13** depends upon the size of the louvers and the position of the pivot pin **4** about which the louvers rotate. This is readily selected when the kinematics of the assembly are laid out. Production versions of louvered windows are very nearly standardized in this regard so that it is a simple matter to provide screen elements that will fit practically all louvered window without modification.

It can be seen by this arrangement it is unnecessary to provide a clumsy, unsightly screen extending outwardly from the plane of the window which is to be protected. The individual screening elements are installed without difficulty, and provide an effective screen for all normal movement of the window louvers. In addition, the shape and position of these screening elements makes their

presence virtually undetectable. That is to say, the elements project almost straight outwardly from the louvers at eye level. Therefore, only a narrow edge is presented to the eye, and whether the windows are open or closed the screening elements are almost invisible.

In order to assure rigidity to the screening members **11** it is preferred to include a bead **16** at the outer edge of arcuate portion **13**, extending the length of the unit. Element **16** is secured to and interconnects the ends of tines **14**.

For resistance to corrosion, attractive appearance, ease of installation and maintenance, and economy of production, elements **9** normally are constructed of plastic by a molding process. However, other materials such as aluminum, may be utilized if desired. When the screening elements are made of plastic, they may be given a color tint to provide shading as well as a screening function. With the sun striking the window generally from above, the substantially horizontally extending screening elements can be made to filter out undesired light. The shading function is also accomplished, of course, when the screening elements are made of metal or other opaque material.

While the device is illustrated in FIG. 3 as constructed with outwardly extending tines, it may take other forms as desired. Even conventional screen wire may be employed, although this usually will necessitate the use of a relatively heavy wire, or an auxiliary frame to provide sufficient stiffness. Another version of the screen ultilizes perforated metal such as the element **17**, seen in FIG. 4. A plurality of small apertures **18** extends through this member and will allow the passage of air while also serving as screen. If desired, the invention also may include a filtering medium for removing undesired substances from the air passing through the window. This also may be seen in FIG. 4 where an additional perforated metal plate **19** defines a substantially U-shaped channel depending from plate **17**, provided with tabs **20** and **21** to secure it to the upper plate **17**. In between the plates **17** and **19** is the filter **22** which may be any of a variety of well known filtering substances. Thus, the version of FIG. 4 may be used either with or without the second perforated metal plate and the filtering substance. Where filters are necessary, this invention provides a means whereby a substantial thickness of filtering material may be used, yet the window will have relatively little obstruction to light and vision. In conventional filter installations, the results are unsightly and the window opening becomes opaque.

It can be seen from the foregoing that this improved screening arrangement for louvered windows is attractive in appearance, economical in construction, unobstrusive when installed, yet effective in screening the gap resulting from the opening of louvered wnidows. This is accomplished by means of individual elements attached to the top edges of the louvers and formed to follow the arc described by the bottom edges of the adjacent louvers when the window is opened.

The foregoing detailed description is to be clearly understood as given by way of illustration and example only, the spirit and scope of this invention being limited solely by the appended claims.

I claim:

1. In combination with a plurality of louvers arranged to pivot equally and simultaneously, a screening device for said louvers comprising an elongated screen element attached to the top edge of each louver so as to be carried thereby and movable therewith, each of said screen elements having an upper surface in contact with the bottom edge of the adjacent louver and having a contour such that said upper surface remains in contact with said bottom edge during such pivotal movement of said louvers.

2. A device as recited in claim 1 in which said screen elements are provided with substantially U-shaped brackets receiving the top edge of said first mentioned louver in providing said attachment thereto.

3. A device as recited in claim 1 in which said screen elements are defined by a plurality of elongated closely spaced tines projecting outwardly from said first mentioned louver edge.

4. A device as recited in claim 1 in which said screen elements are constructed of plastic tinted to filter out portions of the light transmitted therethrough.

5. In combination with a window having a plurality of equally pivotal louvers, a screening device comprising

an elongated arcuate segment of screening material for each of said louvers,

each of said arcuate segments being curved in one plane only at a relatively slight radius of curvature,

and spaced clip means on one edge of each of said arcuate segments securing said arcuate segment to the top edge of a louver,

each of said arcuate segments presenting an outwardly projecting upwardly convex surface contoured to remain in juxtaposition with the lower edge of the next adjacent louver upwardly during pivotal movement of said louvers.

6. In combination with a jalousie window having a plurality of simultaneously and equally rotatable louvers pivotal to provide openings therebetween, said device comprising a screening member attached to and carried by the top edge of each of said louvers and projecting outwardly therefrom, each of said screening elements presenting a convex upper surface of a radius such that said upper surface is in juxtaposition with the bottom edge of the next adjacent louver throughout such movement.

7. In combination with a louvered window having a plurality of louvers arranged to pivot equally and simultaneously about an axis laterally displaced from the planes of said louvers, and overlapping at adjacent edge portions of said louvers when said louvers are closed, a screening device comprising an elongated member extending along said overlapping portion, said elongated member having convex upper surface in juxtaposition with the bottom edge of one louver, said elongated member further having spaced clip portions for engaging the upper edge portion of the adjacent louver, said clip portions being substantially U-shaped in contour and receiving said edge portion of said adjacent louver with one segment for said clip interposed between said overlapping portions of said louvers, whereby said elongated member projects outwardly from said adjacent louver at a location spaced inwardly from the end surface thereof, said surface having a predetermined contour such that said bottom edge of said one louver remains in juxtaposition therewith for all rotational positions of said louvers within the range of width of said elongated member.

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