

Dec. 17, 1940.

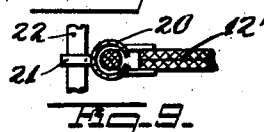
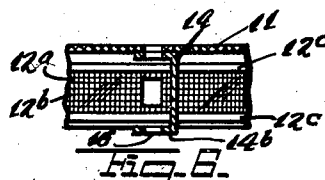
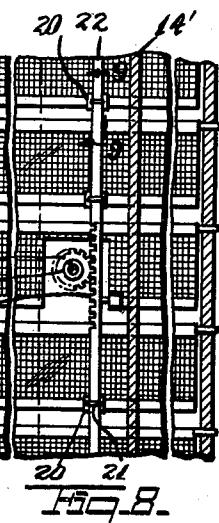
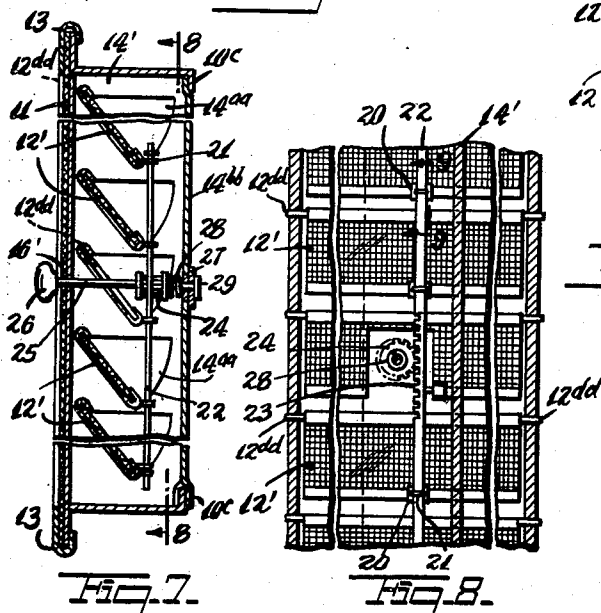
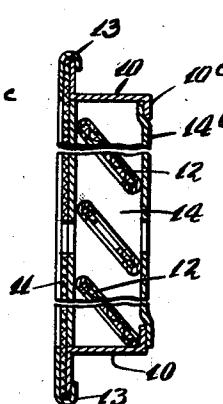
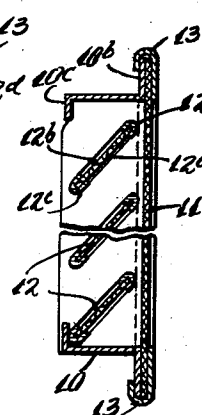
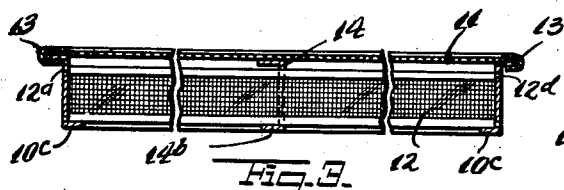
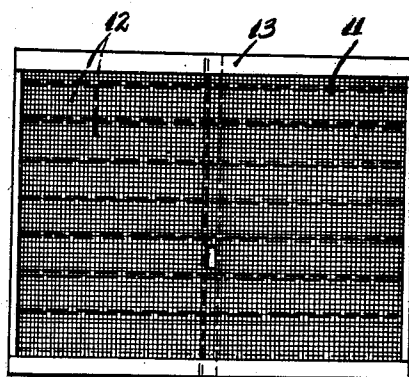
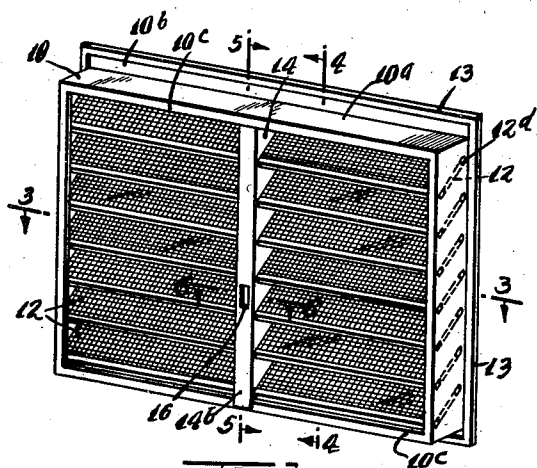
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2,225,332

COMBINATION SCREEN AND WINDOW

Filed Sept. 24, 1938

2 Sheets-Sheet 1



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COMBINATION SCREEN AND WINDOW

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2 Sheets-Sheet 2

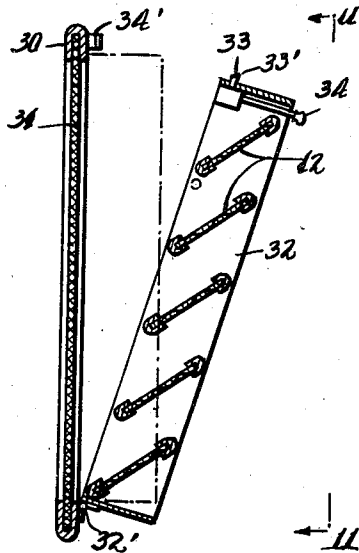


Fig. 10.

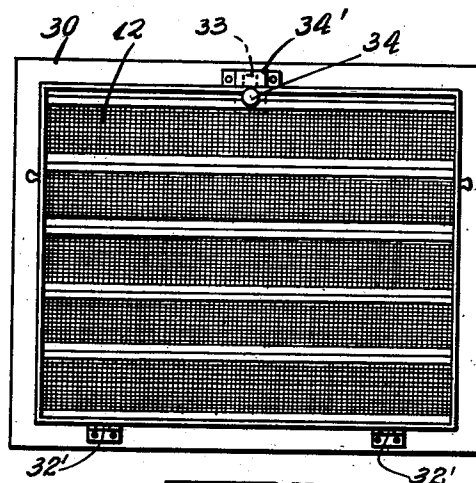


Fig. 11.

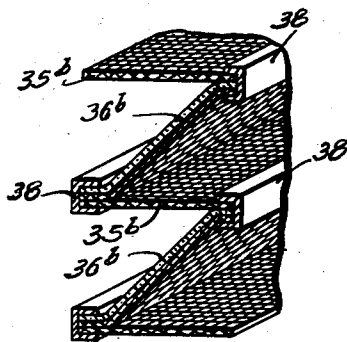


Fig. 15.

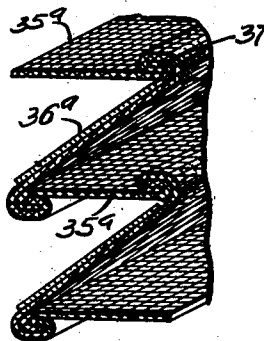


Fig. 14.

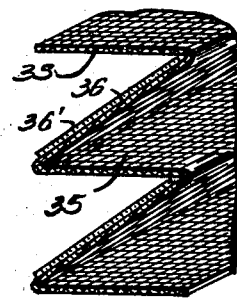


Fig. 13.

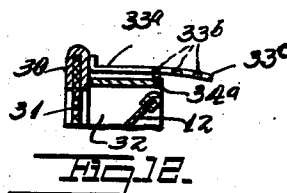


Fig. 12.

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UNITED STATES PATENT OFFICE

2,225,332

COMBINATION SCREEN AND WINDOW

William A. Collins, Crewe, Va.

Application September 24, 1938, Serial No. 231,533

4 Claims. (Cl. 98—110)

This invention relates to new and useful improvements in a combination window and screen. The present application is a refile of my abandoned application, filed on August 23, 1937, Serial No. 160,397.

The invention has for an object the construction of a device as mentioned which is adapted to be engaged into a window opening and which will exclude rain, permit air currents to enter, and direct these air currents upwards; restrict drafts, add to the privacy of the home, and allow ultra violet rays to pass.

The invention contemplates the provision of a frame adapted to engage in the window opening, a screen mounted across the front side of the frame, and a plurality of inclined panels of translucent material mounted between the sides of the frame. It is these panels which direct the air upwards, which enters the room or house. It is proposed to characterize these panels by constructing them of screen material to which "cello-glass" is applied. This "cello-glass" is translucent to permit the passage of light, but serves to arrest vision through the window and so adds to the privacy of the home.

Still further the invention proposes a novel arrangement by which the inclined panels may be adjusted to various inclinations in a specific advantageous manner.

Another object of the invention resides in arranging the combination window and screen in a manner so that the panel portion may be separated from the screen portion. Preferably, it is proposed to hingedly associate these parts together for this purpose.

Still further the invention proposes to construct a modified form of window and screen which is characterized by a continuous strip of zig zag material having horizontal panels, and outwardly and downwardly inclined panels, and arranging the horizontal panels of screen material, and the outwardly and downwardly inclined panels of "cello-glass" material.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a combination window and screen constructed according to this invention and seen from the outer side.

Fig. 2 is a front elevational view of Fig. 1.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary horizontal sectional view taken on the line 6—6 of Fig. 1.

Fig. 7 is a sectional view similar to Fig. 5 but illustrating a modification of the invention.

Fig. 8 is a fragmentary transverse sectional view taken on the line 8—8 of Fig. 7.

Fig. 9 is a fragmentary sectional view taken on the line 9—9 of Fig. 8.

Fig. 10 is a transverse sectional view of a combination window and screen constructed according to a modification of this invention.

Fig. 11 is an elevational view looking in the direction of the line 11—11 of Fig. 10 but illustrated with the panel section closed.

Fig. 12 is a fragmentary view, similar to Fig. 10, but illustrating a further modified form of the invention.

Fig. 13 is a fragmentary vertical transverse sectional view of a combination window and screen constructed according to a modification of this invention.

Fig. 14 is a sectional view similar to Fig. 13 but showing another embodiment thereof.

Fig. 15 is another sectional view similar to Fig. 13 but showing a still further embodiment.

The combination window and screen, according to this invention, comprises a frame 10 for engagement into a window opening. A screen 11 is mounted across the front side of the frame 10. A plurality of inclined panels 12 of transparent material are mounted between sides of the frame 10.

The frame 10 is formed from sheet material. It has sheet metal sides 10^a, the front edge of which is bent outwards. A clamp strip 13 is clamped upon each of these edges 10^a and engages over the edges of the screen 11 to fixedly hold the screen in position. The outer edges 10^c of the sides 10^a are bent inwards to form a finished edge for the frame.

A transverse partition 14 is mounted transversely across the frame from the front to the back along the central area. The panels 12 are arranged horizontally of the frame. Each panel comprises a sheet of screen material 12^a, one side of which is covered with a sheet of "cello-glass" 12^b, and the edges of the panels are finished with sheet metal binding 12^c clamped thereon. The panels 12 engage through slots 14^a formed in the

partition 14. At the ends each of the panels 12 have end portions 12^a which project through openings in the sides of the frame 10 and are riveted over the outer sides of the frame to hold the panels in position.

The partition 14 has its outer side formed with a flange portion 14^b. An opening 16 is formed through this flange portion 14^b and through the panel 12 at this location (see Fig. 6) and through the screen 11, (see Fig. 2). Through this opening an anchorage or fastening element may be engaged for securely holding the combination window and screen in position in a window opening.

In Figs. 7 to 9 inclusive a modified form of the invention has been disclosed which distinguishes from the prior form in several respects. Each of the panels 12' have trunnion elements 12^{da} at their ends, along one of their edges only, by which the panels are free to pivot. The partition 14' is formed with openings 14^{aa} through which the panels 12' pass. These openings permit the panels to pivot from the inclined position shown in Fig. 7 upwards to substantially horizontal positions.

Each of the panels has a clip 20 turnably mounted on an outer edge portion thereof. Each clip 20 is provided with a lug 21. These clips are superimposed and bar 22 passes through the lugs 21. A portion of this bar is formed with teeth 23 which mesh with the teeth of a pinion 24 fixed on a spindle 25 rotatively supported through the combination window and screen. This spindle 25 passes through an opening 16' in the screen 11 and at its inner end is provided with a handle 26 by which it may be turned. At the outer end the spindle 25 passes through a bearing 27 mounted through the flange portion 14^{bb} of the partition 14'.

An expansion spring 28 is interposed between the bearing 27 and the gear 24 for normally urging the spindle 25 inwards. The outer end of the spindle is provided with a friction disc 29 which is adapted to engage against the side of the bearing 27 under the action of the spring 29 to frictionally hold the spindle 25 in various turned positions.

The inclination of the panels may be changed by gripping the knob 26, forcing it slightly inwards to disengage the friction disc 29 from the bearing 27, and then turning the knob to cause the gear 24 to move the rack teeth 23 and so raise or lower the bar 22 as desired. Each of the lugs 21 is frozen upon the rod 22 so that as the rod moves upwards, it will move the panels 12' upwards and so change their tilt. It should be noted that the gear 24 is of exceptional width so as to continuously mesh with the rack teeth 23 in all positions of the bar 22. This bar moves in an arcuate path since the panels 12' are pivoted by the trunnion elements 12^{da}.

The operation of the device is as follows:

It is engaged into a window opening in a manner so that the frame 10 fits snugly into the window opening. The screen side 11 is arranged inside of the room or house. Rain, snow and similar weather elements will strike the inclined panels 12 and will roll off to the exterior of the house. Since each of the panels 12 includes a screen and "cello-glass" (a translucent sheet material) the light rays will be permitted to enter through the window, but vision rays will be arrested. The violet rays of the sun are capable of passing through the "cello-glass."

In Figs. 10 and 11 a modified form of the in-

vention has been disclosed which distinguishes from the prior form essentially in the fact that the combination window and screen is formed by sections which may be separated when desired. According to this arrangement there is a frame 30 adapted to be mounted within a window opening. A screen 31 is transversely supported in the frame 30.

An outer frame 32 is hingedly connected by hinges 32' to the frame 30. In this outer frame there are a plurality of inclined panels 12 of transparent material mounted between the sides thereof. A lock 33 is mounted on the outer frame 32 and is cooperative with a keeper 34' on the inner frame 30 by which the frames may be locked together. This lock 33 is provided with an operator knob 34 by which the bolt 33' thereof may be operated. The details of the lock form no part of the invention.

A feature of the construction resides in the fact that the frame 32 may be opened if it is desired to swing down the outer frame so that the screen 31 is unobstructed.

In Fig. 12 a leaf spring 33^a is secured to the frame 30. This spring is provided with a plurality of apertures 33^b, adapted to be engaged by a pin 34^a projecting from the outer frame 32. By lifting the free end 33^c of leaf spring 33^a the hinged frame 30 may be inclined on the hinges 32', illustrated in Figs. 10 and 11 and locked in such inclined position.

In Fig. 13 another embodiment of the invention has been disclosed in which the window and screen comprises a continuous zig-zag structure having horizontal panels 35 connected respectively by outwardly and downwardly inclined panels 36. The horizontal panels 35 are of conventional screen material. The panels 36 are of transparent or translucent material, preferably screen materials upon which "cello-glass" material 36' has been attached. The continuous zig-zag structure is adapted to be supported across a window opening and serves the dual function of permitting the entrance of screened air and obstructing certain light rays from entering.

In Fig. 14 another embodiment of the invention shown in Fig. 13 is disclosed. In this form of the invention there are horizontal panel screens 35^a connected by outwardly and downwardly inclined panels 36^a. The adjacent edges of these panels are connected together by a double turned seam 37.

In Fig. 15 another variation of the invention has been disclosed in which the combination window and screen comprises horizontal panels 35^b connected with outwardly and downwardly inclined panels 36^b. The panels 35^b are of regular screen material, while the panels 36^b are of light transparent or translucent material. The adjacent edges of these panels are held together by binding material 38 which is clamped thereon.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a device of the class described, a frame, a plurality of panels having a width equal to the inside width of said frame and a depth substantially equal to the depth of said frame, trunnion

elements formed on the ends of said panels adjacent one edge thereof and freely engaged into openings formed in the sides of said frame for pivotally supporting said panels, means for pivoting said panels about said trunnions, and a partition extended between the top and bottom walls of said frame for reinforcing the same and being formed with openings through which said panels extend, said panels being adapted to strike the material of said partition at the top of said openings to limit upward pivoting of said panels to the horizontal and to strike the material of said partition at the bottom of said openings to limit downward pivoting of said panels to a downwardly inclined position, said means, comprising a clip turnably mounted upon the edge of each of said panels opposed to the edge having said trunnions, said clips being superimposed one above the other and having openings, a bar extended through said openings, teeth formed upon one edge of said bar, a rotative spindle extended at right angles to said bar and in the vicinity of said teeth, and a gear mounted on said spindle and meshing with said teeth to cause said bar to move substantially vertically upwards and downwards when said spindle is rotated for changing the adjusted positions of said panels.

2. In a device of the class described, a frame, a plurality of panels extended across said frame, trunnion elements formed on the ends of said panels adjacent one edge thereof and freely engaging openings formed in said frame for pivotally supporting said panels, a clip turnably mounted upon the edge of each of said panels opposed to the edge having said trunnion elements, said clips being superimposed one above the other and formed with vertically aligned openings, a bar extended through said vertically aligned openings and formed with rack teeth along one edge thereof, a rotative spindle extended at right angles to said bar on the side thereof having said teeth and in the vicinity of said teeth, and a gear mounted on said spindle and meshing with said teeth to cause said bar to move substantially vertically upwards and downwards when said spindle is manually rotated to correspondingly pivot said panels to change the angle of inclination thereof.

3. In a device of the class described, a frame, a plurality of panels extended across said frame, trunnion elements formed on the ends of said panels adjacent one edge thereof and freely en-

gaging openings formed in said frame for pivotally supporting said panels, a clip turnably mounted upon the edge of each of said panels opposed to the edge having said trunnion elements, said clips being superimposed one above the other and formed with vertically aligned openings, a bar extended through said vertically aligned openings and formed with rack teeth along one edge thereof, a rotative spindle extended at right angles to said bar on the side thereof having said teeth and in the vicinity of said teeth, and a gear mounted on said spindle and meshing with said teeth to cause said bar to move substantially vertically upwards and downwards when said spindle is manually rotated to correspondingly pivot said panels to change the angle of inclination thereof, and means for holding said spindle against accidental rotation to maintain said panels in their adjusted positions.

4. In a device of the class described, a frame, a plurality of panels extended across said frame, trunnion elements formed on the ends of said panels adjacent one edge thereof and freely engaging openings formed in said frame for pivotally supporting said panels, a clip turnably mounted upon the edge of each of said panels opposed to the edge having said trunnion elements, said clips being superimposed one above the other and formed with vertically aligned openings, a bar extended through said vertically aligned openings and formed with rack teeth along one edge thereof, a rotative spindle extended at right angles to said bar on the side thereof having said teeth and in the vicinity of said teeth, and a gear mounted on said spindle and meshing with said teeth to cause said bar to move substantially vertically upwards and downwards when said spindle is manually rotated to correspondingly pivot said panels to change the angle of inclination thereof, and means for holding said spindle against accidental rotation to maintain said panels in their adjusted positions, comprising a bearing supporting one end of said spindle, a friction disc mounted on said spindle on one side of said bearing, and an expansion spring operating between the adjacent faces of said bearing and said gear for urging said spindle into a position in which said disc will bear rigidly against said bearing to prevent rotation of said spindle.

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