Sept. 27, 1932. J. SCHMIDT 1,879,534

WINDOW SCREEN

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Fig. 1.

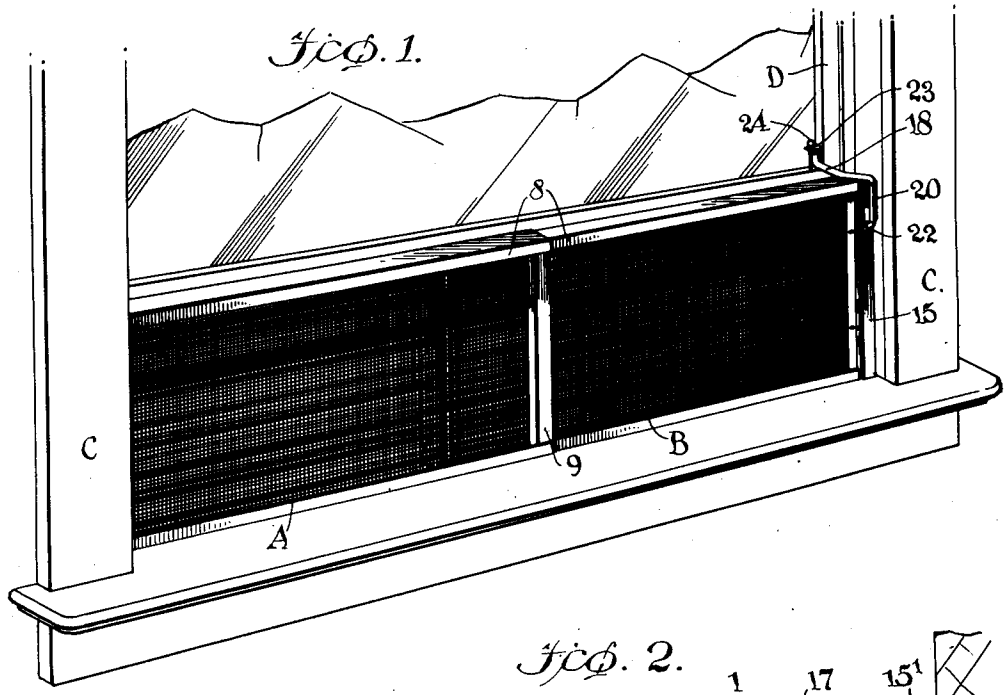

Fig. 2.

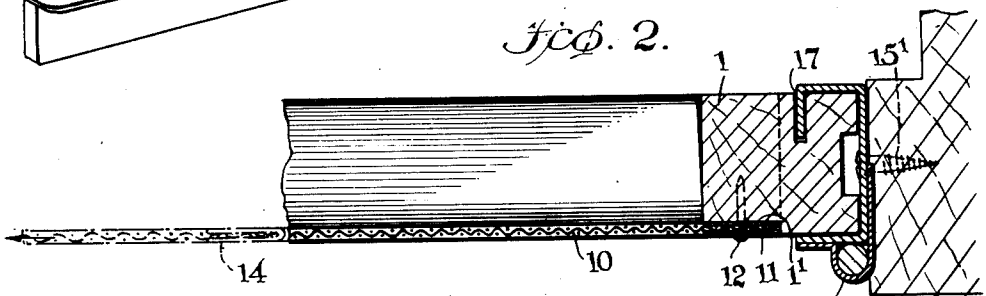

Fig. 3.

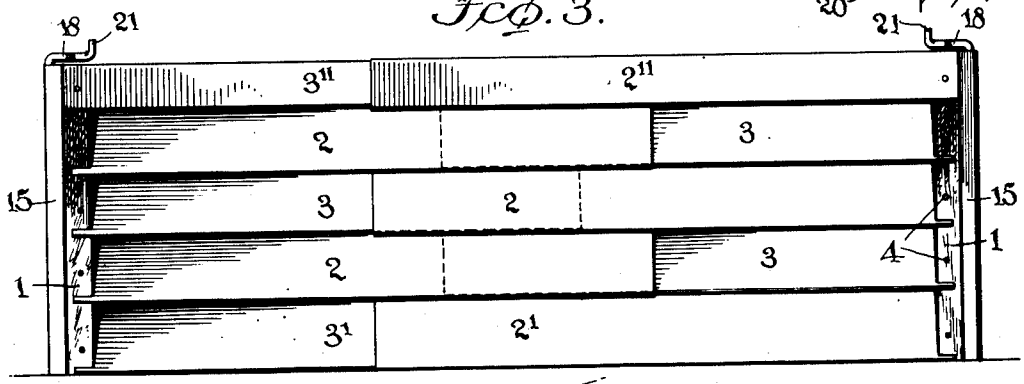

Fig. 6.

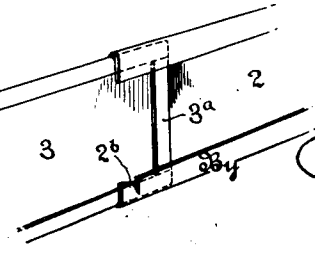

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Fig. 4.

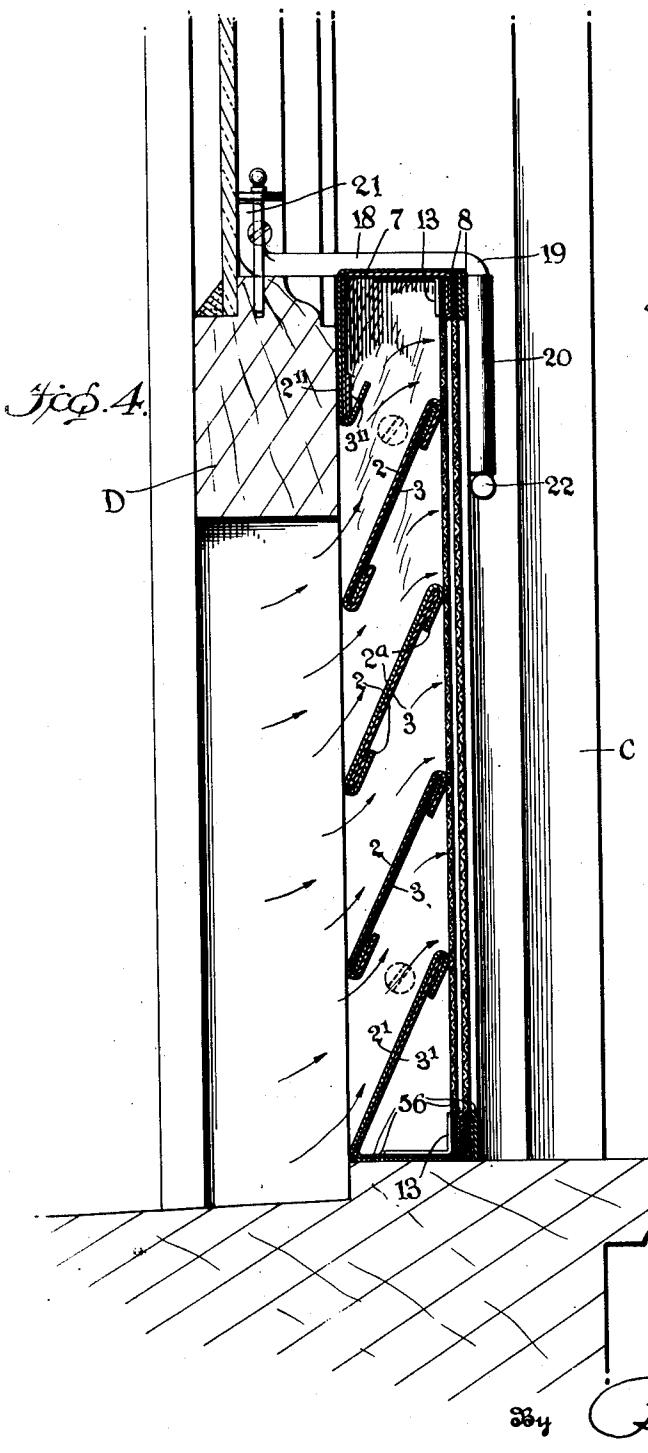
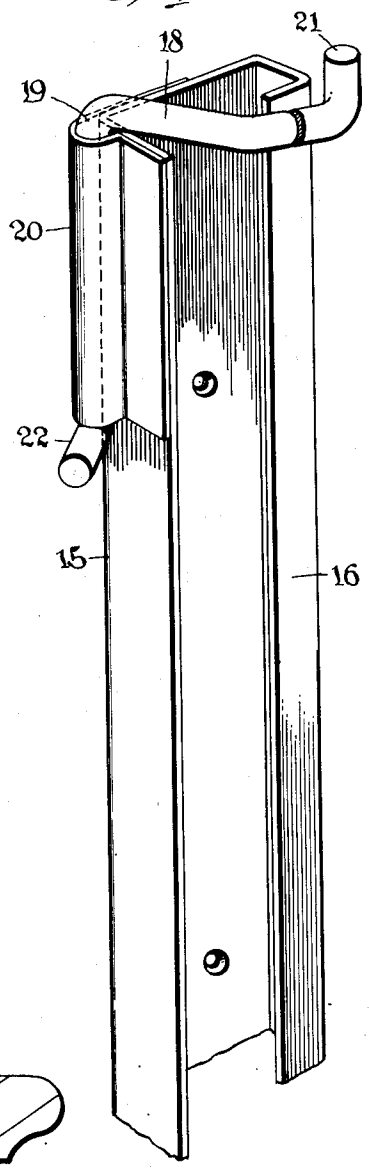


Fig. 5.



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UNITED STATES PATENT OFFICE

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WINDOW SCREEN

Application filed March 4, 1930. Serial No. 433,065.

This invention relates primarily to a window screen embodying ventilator features for obstructing vision therethrough.

Extensible screens have been devised for insertion in the window frame for obtaining a proper amount of ventilation in the room, and in order to provide a blind or shutter functioning of the screen it has also been proposed to incorporate or embody in the screen make-up a series of overlapping slats or louvers which are also extensible in their nature, whereby vision-obstruction is obtained without materially affecting the desired ventilation. Usually these extensible screens or ventilators have been removably inserted in the sash guideways in the window frame and are readily removable from the exterior as well as the interior thereby providing an easy means of anyone gaining unauthorized entrance into the room. Furthermore, by reason of the nature of the device, the extensible screen is of a light construction and soon breaks down or becomes distorted after short usage.

The present invention has for its objects to provide an improved structure of a stronger and more durable construction; to provide a construction of this character in which the foraminous screen or filler is readily removable as a unit for purposes of repair; and to provide improved means for securing the screen against unauthorized displacement and the window against further opening from the outside.

The invention further resides in the arrangements and combinations of parts hereinafter more fully described, and the salient features of construction, reference being had to the accompanying drawings wherein:

Fig. 1 is a perspective view of my improved combined window screen and ventilator operatively disposed within a window frame.

Fig. 2 is a fragmentary horizontal sectional view therethrough.

Fig. 3 is an outside elevation of the structure.

Fig. 4 is a vertical sectional view through the screen.

Fig. 5 is a fragmentary perspective view of one of the screen retainers.

Fig. 6 is a detail perspective of the slat interlock.

In proceeding in accordance with the present invention the combined screen and ventilator comprises sections A and B telescopically related and each section having at its outer end an upright frame member 1 having in its inner face a series of inclined seats into which are secured the outer ends of the slats 2 and 3. These slats may be secured in their seats in any convenient manner such as by fastening devices 4, and the lower slats 2′ and 3′ combined to form a tubular lower frame member of the screen, the same having their lower edges extended to form base portions 5, giving depth to the screen frame, and turned upwardly along their free or inner edges to provide marginal flanges 6.

The upper or top frame member of the screen body is also hollow, having depending slat-forming flanges 2″ and 3″ with top portions 7 terminating along their free or inner edges in flanges 8 in opposition to the flanges 6. The slats are telescopically related to each other with the male or hollow slat parts 3, 3′ and 3″ being received by the female slat parts 2, 2′ and 2″, the alternate slat parts carried by each upright being of a different type than the intermediate slat parts. In other words, the adjacent slat parts 2 on each upright 1 are interposed by a slat part 3, and vice versa. This provides a construction in which the adjacent composite slats overlap in opposite directions so that the breaks in the adjacent slats will occur in offset or staggered relation and thereby provide for a greater rigidity at the central portion of the screen body. Further, the male slats are preferably shorter than the female slats to avoid binding of the former in the latter at their attached ends, when the screen is fully contracted. The slat parts 2 may be referred to as being tubular or hollow, incomplete though they are, being preferably formed from sheet metal with marginal flanges 2a bent backwardly in spaced relation with the body portion of their respective slats so as to form channels or guideways to receive the slats 3 which are marginally reinforced by having their longitudinal edge portions

bent backwardly upon themselves. Complete separation or withdrawal of one screen section from its companion section is avoided as by turning down a stop lug 2b on one of the slats to engage a stop shoulder 3a on its companion slat. The stop lug 2b is inclined outwardly to facilitate the insertion of the slat 3 beneath the same. An intermediate upright 9 is provided to connect and brace the flanges 6 and 8 of each screen section (A and B) at its inner end.

The numerals 10 denote foraminous frames or fillers consisting of a wire mesh fabric bordered by channeled strips 11. The fillers are slidably received through the open inner ends of the screen sections and are secured in rabbetted seats 1' against displacement by fastening elements 12 piercing the border 11 and entering the adjacent upright 1. The section B is provided with guiding stops 13 to cooperate with the inner flanges 6 and 8 in receiving its screen filler 10 of said section while the spaced pairs of inner and outer flanges 6 and 8 define guideways for outer screen filler 10 of the section A. When it becomes necessary to renew the mesh 10 the fasteners 12 are removed and the screen filler withdrawn through the inner end of the section as indicated at 14 in Fig. 2. After repair the filler is replaced in its section and secured by its fastening elements.

Means are also provided for mounting the screen in a window frame against unauthorized displacement and also in a manner to permit the sash being raised or lowered without removing the screen. Preferably such means contemplates the establishment of an interlock between the screen sections and the window frame C so as to prevent unauthorized collapsing of the extensible screen. In the present showing this means embodies a pair of guides or channeled retaining members 15 fixedly secured to the opposite sides of the window frame and having an inturned locking flange 16 slidably received in a groove 17 formed in the outer face of the adjacent upright 1. This interlock is effected by introducing the upright through the upper end of the retaining channel 15 with the flange 16 interlocked slidingly with the groove or slot 17. This provides a construction in which the screen sections are held against collapsing movement without first withdrawing the screen body upwardly from their retaining members.

To prevent unauthorized displacement of the screen from its retaining members there is provided a keeper or locking member 18 which is movable into the path of the screen to obstruct upward movement thereof. In the present embodiment this keeper member is pivotally mounted, having a pintle 19 journaled in a bearing member 20, and is arranged for swinging over the upper end of the adjacent upright 1. The bearing member 20 may be separate from but is preferably carried and secured to the window frame by the same attaching elements or screws 15' which are employed in mounting the retaining member in place.

The keeper member 18 has its free end upturned to form a knob 21 by which the lock may be readily swung to and from an operative position. The pintle 19 is held against displacement from its bearing member 20 by its angularly disposed lower end 22 which constitutes a limit stop for confining the swinging movement of the keeper 18 within prescribed limits.

In order to hold the window sash D against being raised unauthorizedly the keeper 18 is extended to overlie the bottom rail of the sash as indicated clearly in Fig. 4 while lowering of the sash is prevented by an overlying keeper plate 23 which is mounted on the sash. A retaining pin 24 may be inserted through an opening in the keeper plate and behind the keeper 18 to secure the same fixed.

In use, the retaining members 15 are secured to inner stop strips at the opposite sides of the window frame C and to the inner side of the path of movement of the sash D, and with the keepers 18 swung to their inoperative position and the screen extended to the proper width, the latter is inserted downwardly through the retainers 15 with the locking flange 16 entering the groove 17. The keepers 18 are now swung to a position overlying the screen and, if desired, to a position overlying the bottom rail of the sash D and beneath the keeper plates 23, following which the pins 24 are positioned, so that the screen is thereby locked in position against unauthorized displacement either upwardly or by telescoping the sections, and the window sash is secured against being raised above the top of the screen or lowered from a set position. The telescoping slat arrangement with the staggered overlaps provides an extensible ventilator of the slat type which possesses durability and rigidness, and the removability of the screen fillers permits the ready repair of the mesh, whereby the entire assembly is capable of being used over a long period of time.

What is claimed is:

1. A window screen comprising a pair of relatively slidable sections having uprights at their remote ends, alternately arranged male and female slats carried by each of the uprights and telescopically related with the female and male slats of the companion upright, said male slat being shorter than the female slat to avoid binding in the latter, and cooperating parts carried by said slats for preventing total displacement of one slat from the companion slat.

2. In combination with upright channeled retaining members secured to the opposite sides of a window frame, of a window screen

having its opposite sides engaged with said retaining members and removable therefrom upon vertical movement of the screen, and a keeper carried on one of the retaining members, said keeper being pivotally mounted on the retaining member for swinging into engagement with the screen to secure the latter against vertical displacement from the retaining members.

3. In combination with upright channeled retaining members secured to the opposite sides of a window frame, of a window screen having its opposite sides engaged with said retaining members and removable therefrom upon vertical movement of the screen, a keeper carried on one of the retaining members, said keeper being pivotally mounted on the retaining member for swinging into engagement with the screen to secure the latter against vertical displacement from the retaining members, the free end of the keeper being extended to engage with a sash in the window frame, and means for connecting the free end of the keeper to the sash to thereby hold the latter against unauthorized movement.

4. In combination with a window frame having a sliding sash, an extensible screen arranged within the frame, a pair of opposed retaining members secured to the opposite sides of the frame adjacent the sash and receiving the screen, means interlocking the screen with said retaining members against collapse, and means carried by the retaining members for locking the screen against displacement therefrom and for holding the sash against movement.

5. In combination with a window frame having a sliding sash, an extensible screen arranged within the frame, a pair of opposed retaining members secured to the opposite sides of the frame, means slidably interlocking the screen with said retaining members against collapse and displaceable therefrom upwardly, and a keeper member pivoted on each retaining member for swinging to a position to overlie the screen to prevent unauthorized displacement thereof.

6. A window screen comprising relatively slidable sections, and channeled retaining members attachable to the window frame at opposite sides and each receiving the adjacent sections and having an inturned flange for interlocking therewith to hold the sections against contraction.

7. A window screen comprising a pair of relatively slidable sections having male and female slats telescopically related, one of the female slats being of channeled formation with one of the flanges of the channel provided with a stop lug, and a cooperating shoulder carried by the cooperating male slat for coacting with the stop lug to prevent complete separation of the slidable screen sections, said stop lug being yieldable and inclined outwardly toward the open end of said female slat to permit said stop lug riding over said stop shoulder upon assembling said screen sections.

8. A window screen comprising a pair of frames, guideways formed on the frames adapted to telescope one with the other, and removable mesh filler frames slidably positioned in the guideways of the first mentioned frames.

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