Jan. 17, 1939. D. H. APPLEGATE 2,144,282

FLEXIBLE WINDOW SCREEN

Filed Aug. 7, 1936

Fig. 1.

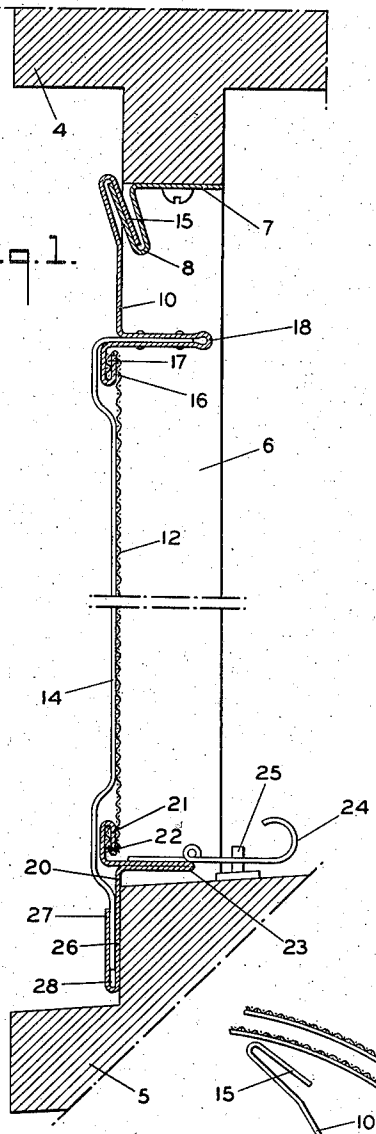


Fig. 2.

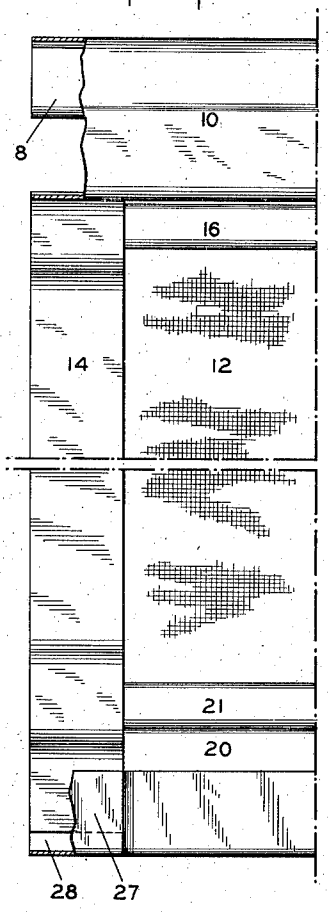
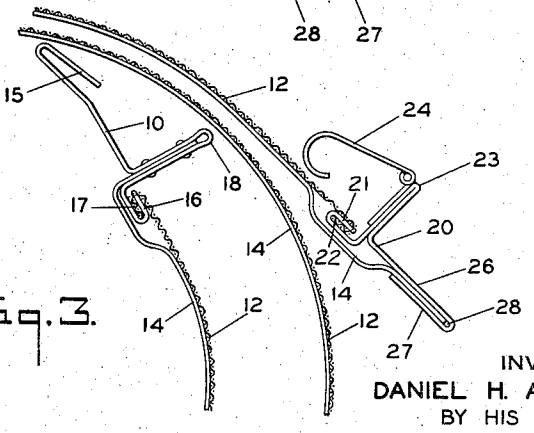


Fig. 3.



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FLEXIBLE WINDOW SCREEN

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12 Claims. (Cl. 156—14)

This invention relates to flexible window screens, and has for its main object to provide a device of this character with longitudinally resilient retainer members mounted for relatively slidable movement with respect to the screening material, which may be rolled up with the screening material into a compact bundle, without buckling or tearing the screening material.

Other objects and features of novelty will be apparent from the following description and the accompanying drawing, in which—

Figure 1 is a vertical section through the frame of an opening, showing the preferred embodiment of the present invention in use;

Figure 2 is a partial front elevation of the screen shown in Figure 1; and

Figure 3 is a detail partial end elevation of the screen and its retainers rolled up together.

The frame of the opening is shown in Figure 1 as comprising a lintel 4, a sill 5 and a side member 6. A bracket 7 is secured to the lintel 4, and in the form shown comprises a strip of sheet metal having a longitudinal fold 8, which preferably extends the full width of the opening.

The screen proper, or the demountable structure comprises a supporting member 10, from which screening material 12 extends down over the opening, with the side margins of the screening material overlapping the side members 6 of the frame. A flexible retainer member 14 extends from each side of the supporting member 10 over the screening material overlap and is secured at a point spaced from the supporting member under lateral strain, to clamp the screening material against the frame member therebetween under compression. In the form shown, these retainers 14 constitute stiles of the screen.

In the preferred embodiment shown, the supporting member 10 comprises the upper rail of the screen which is constructed of sheet metal, and has an upper longitudinal flange 15 folded down to fit in the fold 8 of the bracket 7. The lower longitudinal flange 16 of the member 10 is folded to form a slot in which the edge or margin 17 of the screening material may be slipped or otherwise secured.

The retainer members 14 each comprise a transversely flat longitudinally curved strip of spring metal, the upper ends of which are permanently secured to the supporting member 10. Preferably these upper ends are fitted into a longitudinal fold 18 in the upper rail and riveted through the same. The fold 18 between the retainers in addition to strengthening the upper rail, also constitutes a convenient handle for holding the screen, in mounting the same by fitting the flange 15 into the fold 8.

The lower rail 20 is also preferably of sheet metal, having a longitudinal fold 21 by which the lower edge or margin 22 of the screening material is held. A further longitudinal fold 23 strengthens the rail and also has secured thereto a latch or hasp 24 which is preferably hinged and having an opening or notch to cooperate with a pin or button 25 secured to the sill 5 but it may be arranged to cooperate with other types of fastening means. The lower flange 26 of the lower rail 20 fits against the outside of the sill, and is folded up as at 27 forming pockets 28 which slidably receive the ends of the spring strips 14.

The screen constructed and arranged as described above is installed for use by securing the upper and lower rails to the lintel 4 and sill 5, with the side margins overlapping the frame side members 6. Preferably the fold 18 of the upper rail is grasped by hand and the flange 15 inserted in the fold 8, from which the screening material and the flexible strips 14 hang down in a more or less curved or curled condition, determined by a balance between the weight of the screen and the permanent set of the spring strips. The screen is unrolled or flattened and the hasp 24 is grasped and pulled inward. This action not only brings the flange 26 of lower rail into tight contact with the sill 5, but also holds the spring strips 14 to maintain them under pressure contact with the screening material margins by beam action between the upper and lower rails, and clamp the screening material therebetween against the frame thereunder under resultant compression. Thus a tight contact is secured all around the frame of the opening to be screened.

At the same time, removal and storage of the screen is greatly facilitated. When the hasp 24 is unlatched, the screen can be merely lifted to free the flange 15 from the fold 8.

The screen may be rolled up from the bottom before or after the flange 15 is unhooked, Figure 3 showing the position in which the screen is rolled down from the top after unhooking, and it is obvious that the same could be rolled to an even tighter roll if desired, the more open condition shown being for convenience in illustration. The screen forms a compact bundle for handling, which can be stored in a small space.

It should be noted that the strips 14 are free of any attachment to the screening material 12, at least the parts most remote from the com-

mon supporting member constituted by the upper rail 10. Also the pocket 28 in the lower rail does not interfere with relative longitudinal movement of the strips 14 and the lower rail. Hence when in rolling up the screen the strips 14 and the screening material 12 assume different curvatures, the necessary relative sliding movement is provided and any buckling or other interference with rolling up the screen is avoided.

The invention embraces such modifications of the disclosed structure as fall within the scope of the appended claims.

I claim:

1. A screen comprising spaced frame members and screening material extending therebetween, and flexible strips extending from one of said spaced frame members over said screening material in contact therewith and connected to the other for longitudinally sliding movement of said strips, relative to said other frame member.

2. A screen comprising spaced frame members and screening material extending therebetween, and flexible strips extending between said frame members and over said screening material, said strips and frame members being constructed and arranged to permit relative sliding movement of said strips and screening material for the greater part of their common length and for longitudinally sliding movement of said strips, relative to one of said frame members.

3. A screen comprising spaced frame members and screening material extending therebetween, and spaced resilient strips secured to one of said spaced frame members and extending transversely thereof over said screening material and slidably connected to the other of said frame members for relative movement thereof longitudinally of said strips.

4. A screen comprising rails and flexible screening material extending therebetween, and flexible stiles secured to one of said rails and having a sliding connection with the other of said rails, whereby said stiles may be rolled up with said screen.

5. A screen comprising flexible stiles and a strip of flexible screening material and means for connecting one end of each stile with one margin of said strip of screening material, said stiles being otherwise unattached to said screening material, whereby said stiles are free to move longitudinally with respect to said screening material when rolled up therewith about an axis transverse to said stiles.

6. In screen structure, a rail of sheet metal and a strip of screening material, the margin of said screening material strip being secured in a longitudinal fold of said sheet metal rail, and flexible retainer strips having their ends secured in longitudinal folds of said sheet metal rail and extending therefrom over said strip of screening material but otherwise unattached thereto for the greater part of their common length.

7. In a screen structure, a pair of rails of sheet metal and a strip of screening material, the margin of said screening material strip being secured in a longitudinal fold of one of said sheet metal rails, and flexible retainer strips extending over said strip of screening material and having their ends slidably mounted in folds of the other sheet metal rail the other end portions of said strips being constructed and arranged for being held in contact with said other rail.

8. In a screen structure for use with a frame having an opening therein, a supporting member adapted to be secured to a portion of the frame of the opening to be screened, and screening material extending from said supporting member and having a portion adapted to overlie a portion of said frame, and a resilient retainer extending from said supporting member adapted to overlie the overlap of said screening material and hold it against the frame under pressure, and means for securing said retainer under lateral strain at a point spaced from said supporting member to maintain said retainer under pressure contact with said screening material by beam action between said point and said supporting member.

9. In a screen structure for use with a frame having an opening therein, a supporting member adapted to be secured to a portion of the frame of the opening to be screened, and screening material extending from said supporting member adapted to extend over said opening, a strip of transversely flat spring material extending from said supporting member over said screening material, and means for securing said spring strip at a point spaced from said supporting member to clamp the screening material against the frame portion therebetween under resultant compression.

10. In a screen structure for use with a frame having an opening therein, a supporting member adapted to be secured to a portion of the frame of the opening to be screened, and screening material extending from said supporting member adapted to extend over said opening, a strip of spring material extending from said supporting member and having a longitudinal curvature, and means for securing said spring strip at a point spaced from said supporting member to hold the screening material against the frame portion therebetween under resultant compression.

11. In a screen structure for use with a frame having an opening therein, a supporting member adapted to be secured to a portion of the frame of the opening to be screened, and screening material extending from said supporting member over the opening, a strip of transversely flat spring metal extending from said supporting member over said screening material and having a longitudinal curvature, and means for securing said spring strip at a point spaced from said supporting member to hold the screening material against the frame portion therebetween under resultant strain, said securing means being constructed and arranged to release said strip for relative sliding movement of said screening material longitudinally of said strip.

12. A screen comprising a rectangular strip of flexible wire mesh screen fabric, a top rail and a bottom rail of sheet metal each having a fold in which the upper and lower margins of said fabric are respectively secured, a pair of strips of flat spring metal each having one end permanently secured to the upper rail and extending transversely therefrom over said screen fabric and convex toward the same, the free ends of said spring strips being slidably connected to the lower rail and free of any attachment to said screen fabric for the greater part of their length from said lower rail, whereby said screen and strips may be rolled up together.

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