April 10, 1945. H. N. RENTON 2,373,416

BLACK-OUT SCREENING

Filed Jan. 19, 1942

FIG. 2.

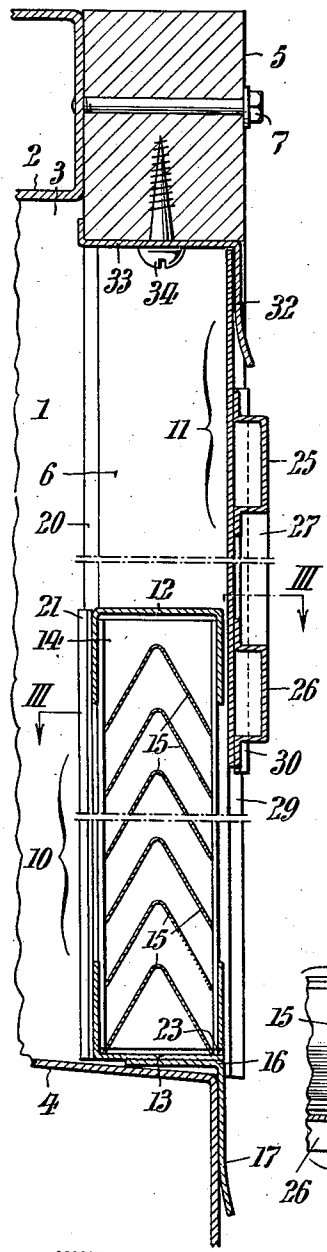


FIG. 1.

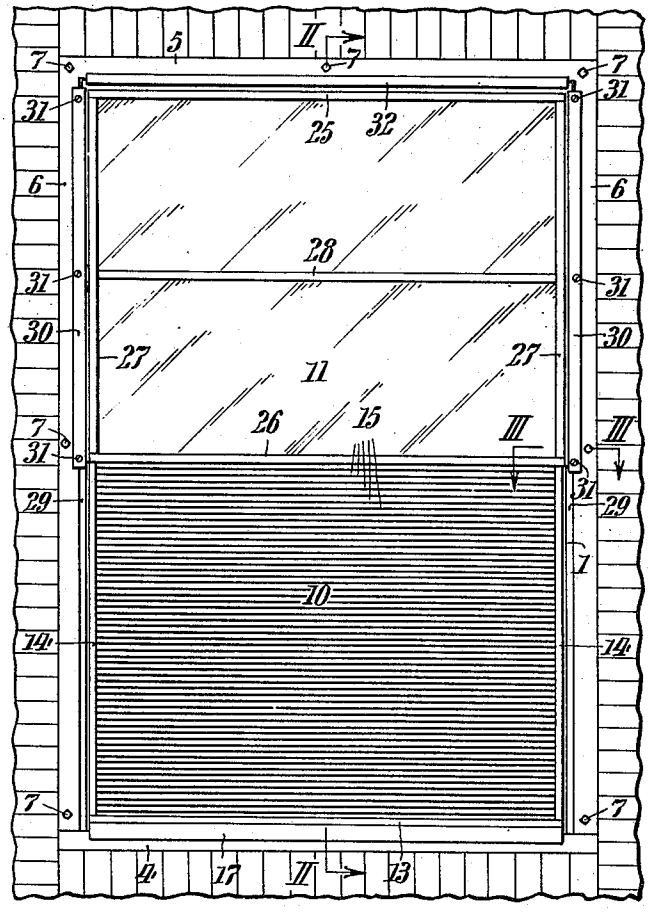
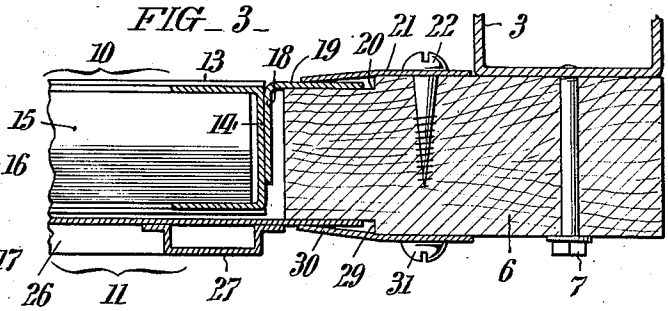


FIG. 3.



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BLACK-OUT SCREENING

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7 Claims. (Cl. 20—61)

This invention relates to auxiliary screening for windows, and has reference more particularly to black-out screening to prevent egress of light from the interiors of buildings through window and door apertures during bombing air-raids.

My invention has for its chief aim to provide an auxiliary screening means which lends itself to ready and expeditious manufacture in quantity at relatively small cost, and which can be applied to or removed from existing windows in a minimum of time and without necessitating the exercise of any special skill or the use of special tools.

Other objects and attendant advantages will appear from the following detailed description of the attached drawings; wherein, Fig. 1 is an outside elevation of a window which is supplemented by an auxiliary screening structure conveniently embodying my invention.

Fig. 2 is a vertical sectional view with intermediate portions broken out, taken as indicated by the angled arrows II—II in Fig. 1; and

Fig. 3 is a detail cross sectional view taken as indicated by the angled arrows III—III in Figs. 1 and 2.

With more detailed reference first more particularly to Figs. 1–3 of these drawings, the numeral 1 comprehensively designates a window opening in a building into which is set a metallic window frame of well known construction, whereof the lintel is indicated at 2, the side jambs at 3 and the sill at 4. The screening means with which the present invention is more especially concerned is in this instance in the form of a supplemental or auxiliary structure applied to the outside of the window. As shown, it comprises a frame with a top bar or lintel 5 and with side verticals or jambs 6, which may be of wood and which may be secured by machine screws such as shown at 7 threadedly engaging tapped holes in the lintel and side jambs of the permanent window frame.

Slidable in the supplemental frame are lower and upper sashes 10 and 11. The lower sash 10 is in the form of a louver constructed throughout from thin but stiff sheet material, preferably metal, with a frame whereof the upper, lower and side rails 12, 13 and 14 are of square channel cross section and secured together at corners in any convenient manner, as by welding. The infield area of the lower sash is closed by a series of louver bars 15 which are of hollow channel cross sectional configuration and horizontally arranged in parallel one above the other in spaced relation and which have their ends suitably engaged and fixed within the hollows of the side bars 14 of the sash. The louver bars are preferably made to plain chevron or triangular cross section as shown in Fig. 2 with their sides spaced by an angle somewhere between fifty and seventy degrees, and their surfaces coated with dark light-absorbing paint or otherwise treated so as to be non-reflecting, the vertical spacing of said bars being such that substantially one-half the side area of one is overlapped by the one directly above it. With the vanes constructed and arranged as just described, it will be seen from Fig. 2 that neither direct nor reflected light can possibly pass through the intervals between adjacent bars.

Secured to the lower rail of the sash 10 is a strip 16 of right angular cross section whereof the pendent flange 17 overlaps the sill 4 of the main window frame when the sash is in closed position, to light-seal the window at that region. From Fig. 3 it will be noted that angle strips 18 are also secured to the side rails 14 of the sash 10, the lateral flanges 19 of these strips engaging shouldered marginal recessions 20 along the inner side faces of the corresponding jamb members 6 of the supplemental frame. The lower sash is held in the assembly by retaining strips 21 which are secured by screws 22 to the side rails 6 of the supplemental frame and which in conjunction with the shouldered recessions 20 form guide grooves in which the lateral flanges 19 of the sash 10 slide. As shown in Fig. 2, the strips 21 extend only half way of the height of the auxiliary frame so that the sash can be inserted or withdrawn from above. As also shown in Fig. 2, the lower frame rail of the sash 13 is provided as at 23 with water drainage apertures.

The upper sash 11 is in the form of a panel of sheet metal which is reinforced by box-like perimetric stiffening bars 25, 26 and 27 welded or otherwise secured together at corners and attached to the panel at the outside. If desired, the panel may be medially reinforced by an auxiliary stiffening bar 28 which may be like the others above referred to. As instanced in Fig. 3, the edge margins of the panel extend beyond the reinforcing bars 27 and engage shouldered marginal recessions 29 along the out-side faces of the corresponding supplemental frame jambs 6, the upper sash being retained in the assembly by retaining strips 30 which are secured by screws 31 to said jambs, and which, in conjunction with the shouldered recessions 29, form guide grooves for said edge margins. From Fig. 2 it will be observed that the strips 30 extend down to about the middle of the supplemental frame so that the upper sash 11 can be inserted or withdrawn from

below. The top edge of the upper sash 11 is light-sealed when in closed position by the overlapping pendent flange 32 of a head strip 33 secured by screws 34 to the lintel 5 of the supplemental frame. Any suitable means, such as slide bolts (not illustrated) may be employed to retain the lower and upper sashes 10 and 11 in raised position. The surfaces of the component parts of the upper sash 11, like those of the upper sash, are made non-reflecting, preferably by coating them with dark light-absorbing paint.

While for convenience of illustration herein I have shown the supplemental structure as applied to the out-side of a window, it is of course to be understood that, if desired it may be applied to the in-side without sacrifice of any of the advantages hereinbefore pointed out.

Having thus described my invention, I claim:

1. Screening for windows and the like in the form of an auxiliary unit intended for application over the usual permanent window of a building including a supplemental frame with a top horizontal bar, vertical side or jamb bars, and with means for detachably securing said bars to the corresponding members of the permanent window; removable flat strips of sheet material forming, in conjunction with shouldered marginal recessions along corresponding side faces of the jamb bars of the supplemental frame, sash guiding grooves; and a sliding sash having outwardly extending flanges along its opposite side edges to engage the guide grooves formed in the jamb members of the supplemental frame as aforesaid.

2. Screening for windows and the like in the form of an auxiliary unit intended for application over the usual permanent windows of buildings including a supplemental frame with a top horizontal bar, vertical side or jamb bars, and with means for detachably securing said bars to the corresponding members of the permanent window; removable flat strips of sheet material forming, in conjunction with shouldered marginal recessions along opposite side faces of each jamb bar of the supplemental frame, inner and outer sash guiding grooves; and sliding sashes having their opposite side edges engaged in the corresponding pairs of guide grooves formed in the jamb members of the supplemental frame as aforesaid.

3. Black-out screening for windows and the like in the form of an auxiliary unit intended for application over the usual permanent windows of buildings including a supplemental frame with a top horizontal bar, vertical side or jamb bars, and with means for detachably securing said bars to the corresponding members of the permanent window; detachable flat strips of flexible sheet material forming, in conjunction with shouldered marginal recessions in corresponding side faces of the jamb bars of the supplemental frame, sash guiding grooves; a sliding ventilating sash having a series of louver bars of downwardly-open channel cross section arranged with the sides of one extending well below the hump or crest of its immediate neighbor so as to preclude traverse of either direct or reflected light from the interior of the building while permitting ventilation through the intervals between bars, said sash also having outwardly extending flanges along its opposite side edges to engage the guide grooves formed in the jamb members of the supplemental frame as aforesaid.

4. Black-out screening for windows and the like according to claim 3 in which detachable flat strips of flexible sheet material are also attached to the opposite side faces of the respective jamb bars of the supplemental frame to provide another pair of parallel sash guiding grooves; and further including a second sash in the form of an opaque panel of stiff sheet material with its opposite side edges engaging the other pair of corresponding guide grooves of the supplemental jamb bars.

5. An auxiliary sash frame of inverted U shaped configuration for application over permanent windows, comprising side or jamb bars and a connecting top bar to abut the corresponding elements of the frame of the permanent windows; and flexible strips of sheet material forming, in conjunction with shouldered marginal recessions along corresponding side faces of the jamb bars, guide grooves for retainment of a sliding sash.

6. An auxiliary sash frame of inverted U shaped configuration for application over permanent windows, comprising side or jamb bars and a connecting top bar to abut the corresponding elements of the frame of the permanent window; and flexible strips of sheet material forming, in conjunction with shouldered marginal recessions along opposite side faces of the jamb bars, parallel pairs of grooves for inner and outer sliding sashes.

7. An auxiliary sash frame of inverted U shaped configuration for application over permanent windows, comprising side or jamb bars and a connecting top bar to abut the corresponding elements of the frame of the permanent window; flexible strips of sheet material forming, in conjunction with shouldered marginal recessions along opposite side faces of the jamb bars, parallel pairs of grooves for inner and outer sliding sashes; and a head strip secured to the lower face of the top bar, said strip being fashioned from flexible sheet material and providing a pendent flange to overlap the outer sash when the latter is in closed position.

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