Nov. 11, 1930. E. W. CUMMINGS 1,781,272

COMBINATION SCREEN AND SASH MOUNTING

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Fig. 1.

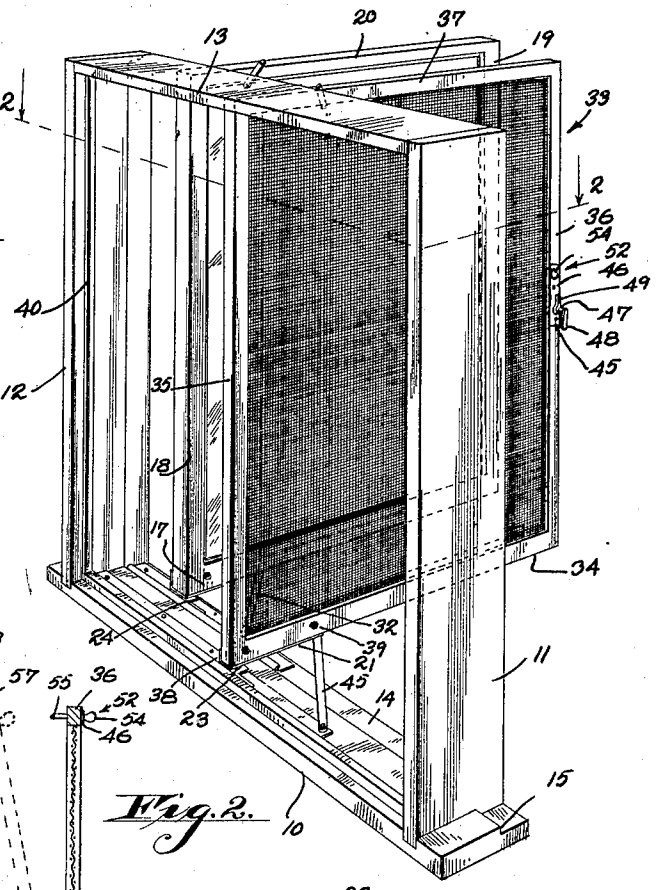


Fig. 2.

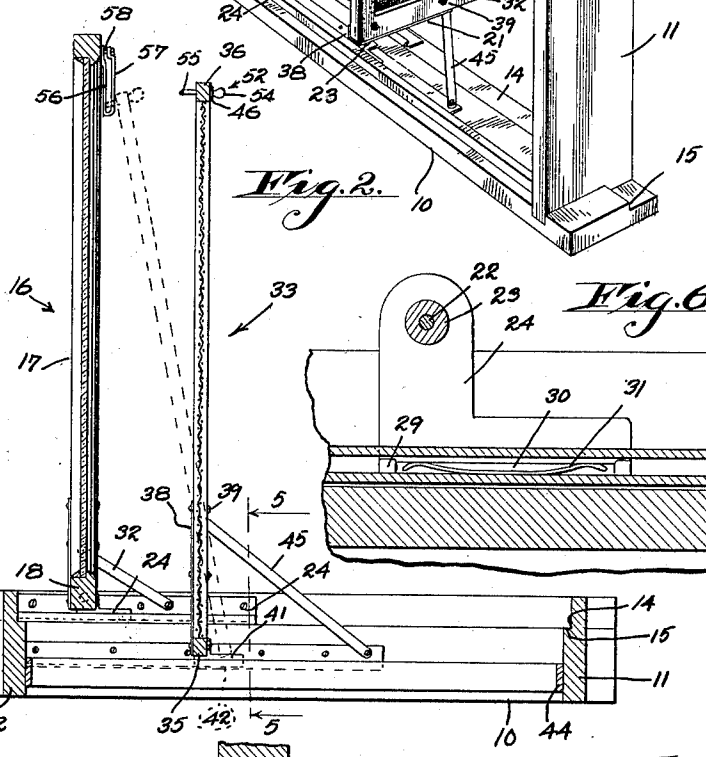
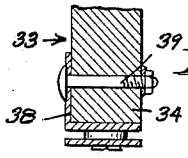


Fig. 6.

Fig. 7.



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Fig. 4.

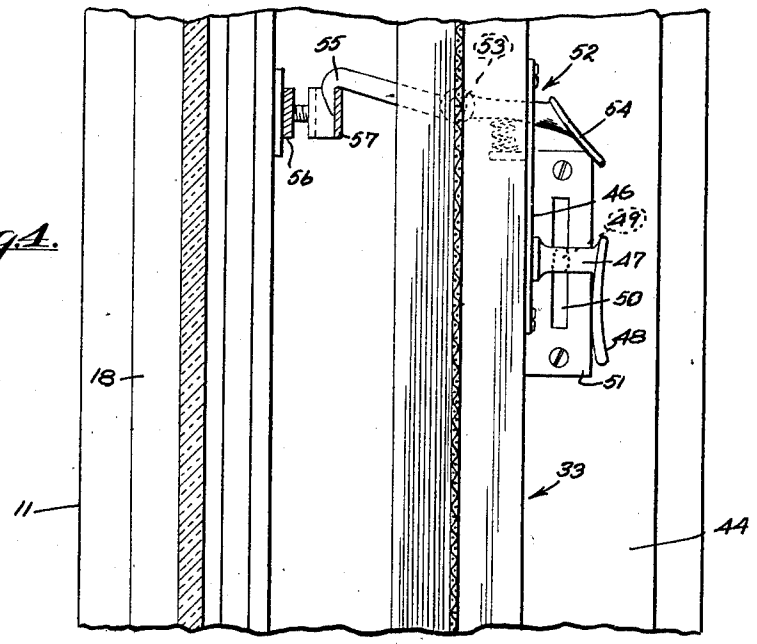
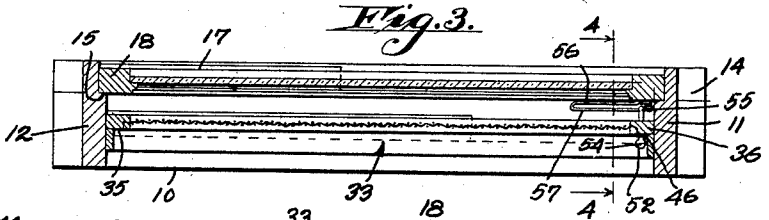


Fig. 3.



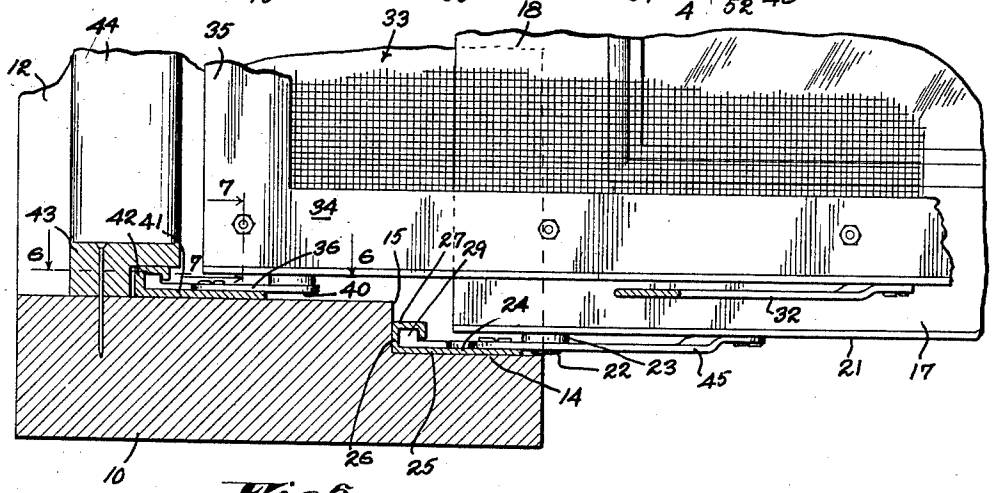


Fig. 5.

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UNITED STATES PATENT OFFICE

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COMBINATION SCREEN AND SASH MOUNTING

Application filed February 6, 1929. Serial No. 337,849.

This invention relates to improvements in combination screen and sash mountings.

An object of the invention is to provide an improved combined window sash and screen mounting of the casement window type wherein the sash may be swung outwardly into open position and the screen may also be swung out into open position or caused to assume a closed position so that the window opening may be practically completely opened, screened or completely closed.

Another object of the invention is to provide a combined screen and sash mounting wherein the sash is swingingly mounted in a window frame and a screen is also swingingly mounted in the frame and adapted to move the sash into open or closed position and then to be detached from the sash so that the screen can be moved into any adjusted position independently of the sash.

A further object of the invention is to provide a combined sash and screen mounting which is so constructed that when the sash and screen are both swung into open position both sides of the pane in the sash can be washed from the inside of the window.

Another object of the invention is to provide a combined sash and screen mounting having a swingingly mounted screen and means for locking the screen in closed position to the window frame and an adjustable connecting means for detachably connecting the screen to the sash so that when the screen is locked in closed position the connecting means, by reason of its adjustment will hold the sash tightly closed against the window frame.

Still another object of the invention is to provide a combined sash and screen mounting having a screen and sash, both of which are swingingly mounted in a window frame and which has means for detachably connecting the screen and sash together which is automatically operable on swinging the screen against the sash so that when the sash is in open position the screen can be swung open and into engagement with the sash and be automatically connected thereto so that the sash can be closed by the screen.

Another object of the invention is to provide an improved swinging sash construction wherein there is an improved friction device for holding the sash in any adjusted position.

With the foregoing and other objects in view which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Fig. 1 is a perspective view of the improved combined screen and sash mounting, illustrating the screen and sash in fully open position.

Fig. 2 is a horizontal section taken substantially upon the plane 2—2 upon Fig. 1.

Fig. 3 is a view similar to Fig. 2 illustrating the sash and screen in fully closed position.

Fig. 4 is a vertical section taken upon the line 4—4 upon Fig. 3 in the direction indicated.

Fig. 5 is a vertical section taken upon the line 5—5 upon Fig. 2 in the direction indicated.

Fig. 6 is a partial horizontal section taken substantially upon the line 6—6 upon Fig. 5.

Fig. 7 is a partial view in vertical section taken substantially upon the line 7—7 upon Fig. 5.

Referring to the accompanying drawings wherein similar reference characters designate similar parts throughout the improved construction comprises a window frame made up of a sill 10, jambs 11 and 12 and the lintel 13. The window frame is adapted to be mounted in any suitable wall opening. The sill, jambs and lintel have their outer edges rebated as indicated at 14, forming abutments 15 for the window sash generally designated at 16.

The window sash comprises a bottom rail 17, stiles 18 and 19 and a top rail 20. Against the bottom surface of the bottom rail 17 adjacent the stile 18 and on the top surface of the top rail 20 adjacent the stile 18 there are secured metal strips 21 through which screws extend which are indicated at 22, these screws passing through washers 23 and forming a pivotal connection between the sash 16 and slidable or movable shoes 24. Sheet metal guides or the like, indicated at 25 are

fastened in the rebated edges of the sill 10 and the lintel 13 adjacent the jamb 12. These guides have upstanding portions 26 and horizontal portions 27, the edges of which are bent toward the sill 10 and lintel 13 respectively so as to partially enclose the upstanding flange 29 on the shoes 24. The upstanding flanges 29 on the shoes 24 are recessed as indicated at 30 upon Fig. 6 and these recesses contain leaf springs 31 which bear against the upstanding portions 26 on the guides 25 thus forming a good frictional engagement between the shoes 24 and the guides 25, although the shoes 24 may be caused to slide laterally upon the guides 25. The lateral movement of the shoes 24 on the guides 25 causes the sash 16 to have a shiftable or movable pivot by virtue of the fact that the sash is pivotally connected to the shoes by the screws 22. Links 32 are pivotally connected to the guides 25 and to the bottom and top rails 17 and 20 of the safe respectively.

While the construction of the guides 25 and of the shoes 24 is shown in the preferred form, it is to be understood that any other suitable construction may be employed which provides a shiftable or movable pivot and if desired the guide 25 can be completely eliminated and a suitable groove formed in the sill 10 may serve to guide the lateral movement of the shoe thereon and a corresponding groove may be formed in the lintel 13 for its shoe.

A screen is also provided, generally designated at 33 having a bottom rail 34, stiles 35 and 36 and a top rail 37. The bottom and top rails 34 and 37 have positioned thereon adjacent the stiles 35, angle irons 38 to which the rails are detachably secured as by bolts or screws 39. The angle irons are pivotally connected as by screws or rivets indicated at 40 to slidable shoes 41. These shoes are similar in construction to the shoes 24 and are laterally movable upon guides 42 which are similar in construction to the guides 25 with their inner edges recessed in the jamb strips 43 which are fastened to the sill 10 and the lintel 13. Jamb strips 44 which are not recessed or under-cut are fastened to the sides of the jambs 11 and 12. Links 45 are pivotally connected to the guides 42 and to the angle irons 38, these links being somewhat longer than the links 32. By this construction it will be appreciated that the screen 33 is also provided with a shiftable or movable pivot.

The stile 36 on the screen 33 constitutes a lock stile against the inner face of which there is mounted a mounting plate 46 which has swiveled thereto or otherwise rotatably mounted thereon a shank 47 having a handle 48. The shank is provided with a laterally extending lug 49 which is receivable in the slot 50 in a keeper 51 mounted on the jamb 11 over a recess formed therein. When the screen is in closed position on rotating the shank 47 by the handle, the lug can be caused to enter the keeper, locking the screen in closed position. A latch 52, which is preferably spring actuated is pivotally mounted in the stile 36 as indicated at 53 with one end of the latch extending inwardly through a slot in the top of the mounting plate 46 where it is provided with a thumb plate 54. The other end of the latch extends outwardly through the opposite side of the stile 36 and is provided at its outer end with a hook 55 which has a rounded nose. On the inner side of the stile 19 on the sash there is mounted a keeper which is U-shaped in form having parallel arms 56 and 57. This keeper is preferably formed of resilient material such as spring steel or the like and has one end secured to the stile 19. A screw 58 extends through the ends of both arms and into the stile and on rotating the screw the screw can be caused to position the arm 57 with respect to the stile.

The operation and advantages of the improved combined sash and screen mounting are as follows: Assuming the sash and screen to be in the closed position shown in Fig. 3 if it is desired to open the sash the shank 47 is rotated to move the lug 49 out of the keeper and the screen can then be pushed open. Opening movement of the screen causes the sash to be pushed ahead of it and during the movement of the screen and sash the shoes 24 and 41 slide on their respective guides. When the sash is in the desired open position the screen can be left with it so that the window opening is completely open and there is a free ingree and egress of air. If it is desired to have the window screened the thumb plate 54 can be pressed to lift the hook 55 out of engagement with the arm 57 on the keeper on the sash thus disconnecting the screen from the sash. The screen can then be returned to closed position and locked in place if desired, leaving the sash in open position and frictionally held in such position by virtue of the springs 31 pressing against the guides 25 and thus holding the sash in such position even against influences of breezes. When it is desired to close the sash the screen is unlocked and swung outwardly and when the screen encounters the sash the rounded nose on the hook 55 will engage the arm 57 lifting the latch 52 and thus causing the screen and sash to be automatically connected to each other. On swinging the screen inwardly the sash will be brought inwardly into closed position with it. By virtue of the fact that the keeper on the sash has the arm 57 adjustable an important advantage is gained. In constructing the jambs 11 and 12 it frequently occurs that the abutment 15 is not accurately positioned but this is adequately taken care of by adjusting the position of the arm 57 with respect to the stile 19 so that when the screen is in closed posi-

tion when the keeper is properly adjusted the sash will be held tightly against the abutment 15, preventing rattling of the sash and drafts.

The bolts or screws 39 serve to detachably fasten the screen 33 to the angle irons 38 which is an important advantage. In sections of the country where storm sash are employed when it is desired to apply storm sash to the window the bolts or screws 39 can be removed, enabling the screen 33 to be taken out of the angle irons 38 and a storm sash substituted therefor. The storm sash is provided with the lock for locking it in closed position and with a latch 52 engageable on the keeper on the sash 16.

A feature of the invention resides also in the provision of a movable or shiftable pivot on the sash 16 and on the screen 33 or the storm sash which may be substituted therefor. By such a construction it will be noted that when the sash 16 is in open position the stile 18 moves away from the jamb 12 so that it is possible to clean or wash both sides of the pane P in the sash 16 from the inside of the window. To wash the outer surface of the pane the person washing the window merely reaches through the opening left betwen the sill 18 and the jamb 12 as shown in Fig. 2.

From the above described construction it will be appreciated that a novel and advantageous combined sash and screen mounting is provided which is of simple, yet durable construction and which enables a window opening to be easily and quickly closed, opened or cleaned. It will also be appreciated that it is possible to position the sash in any adjusted position easily and quickly by properly manipulating the screen and after the sash has been properly positioned the screen can then be detached from the sash and moved independently thereof into its own position.

Various changes may be made in the details of construction without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. A device of the class described comprising a frame, an outer closure swingingly mounted in the frame, an inner closure swingingly mounted in the frame, and means for detachably connecting the inner and outer closure together, said means being so constructed as to automatically connect the inner closure to the outer closure when the inner closure is swung against the outer closure.

2. A device of the class described comprising a frame, a closure swingingly mounted in the frame, a screen swingingly mounted in the frame, and means for automatically connecting the screen to the closure when the screen is swung against the closure, said means permitting the closure and screen to be disconnected from each other.

3. A device of the class described comprising in combination, a frame, an outer closure having a movable pivot mounted in the frame and adapted to be moved outwardly therefrom, an inner closure having a movable pivot mounted in the frame and adapted to be moved outwardly therefrom, and means for detachably connecting said closures to each other.

4. A device of the class described comprising in combination, a frame, an outer closure having a movable pivot mounted in the frame and adapted to be moved outwardly therefrom, an inner closure having a movable pivot mounted in the frame and adapted to be moved outwardly therefrom, and means for detachably connecting said closures to each other, and means for locking the inner closure to the frame when the screen is in closed position.

5. A device of the class described comprising a frame, an outer closure swingingly mounted in the frame, an inner closure swingingly mounted in the frame, means for detachably connecting the closures together, means for locking the inner closure to the frame when in closed position, said connecting means being adjustable as and for the purpose described.

6. A device of the class described comprising a frame, an outer closure for the frame, shoes movable upon the frame and pivotally connected to the outer closure, links pivotally connected to the outer closure and to the frame, an inner closure for the frame, shoes movable upon the frame and pivotally connected to the inner closure and to the frame whereby both closures may be opened and closed simultaneously or independently of each other.

7. A device of the class described comprising a frame, an outer closure for the frame, shoes movable upon the frame and pivotally connected to the outer closure, links pivotally connected to the outer closure and to the frame, an inner closure for the frame, shoes movable upon the frame and pivotally connected to the inner closure and to the frame whereby both closures may be opened and closed simultaneously or independently of each other, and means for detachably connecting the closures together whereby the outer closure may be opened and closed by the inner closure or the inner closure may be opened and closed independently of the outer closure.

8. A device of the class described comprising in combination a frame, an outer closure mounted for outward swinging movement in the frame, an inner closure mounted for outward swinging movement in the frame and located inwardly from the outer closure in

the frame when both closures are in closed position.

9. A device of the class described comprising in combination a frame, a closure mounted for outward swinging movement in the frame, a screen mounted for outward swinging movement in the frame and located inwardly from the closure in the frame when the screen and closure are in closed position.

10. A device of the class described comprising in combination a frame, a closure mounted for outward swinging movement in the frame, a screen mounted for outward swinging movement in the frame and located inwardly from the closure in the frame when the screen and closure are in closed position, said screen being removable so that a storm sash may be substituted therefor.

11. A device of the class described comprising in combination, a frame, an outer closure mounted for outward swinging movement in the frame, an inner closure mounted for outward swinging movement in the frame and located inwardly from the outer closure when both closures are in closed position, and means for detachably connecting both closures together, said means being operable from the inner side of the inner closure.

12. A device of the class described comprising in combination, a frame, an outer closure mounted for outward swinging movement in the frame, an inner closure mounted for outward swinging movement in the frame and located inwardly from the outer closure when both closures are in closed position, and means for detachably connecting both closures together, said means being operable from the inner side of the inner closure, and means for locking the inner closure to the frame when in closed position, said means being operable from the inner side of the inner closure.

13. A device of the class described comprising in combination a frame, a closure mounted for outward swinging movement in the frame, a second closure mounted for outward swinging movement in the frame, means for locking the second closure to the frame when in closed position, a keeper on the first mentioned closure, a latch on the second closure adapted to engage the keeper, and means providing for adjustment of the keeper whereby when both closures are in closed position the first mentioned closure will be held tightly against the frame.

14. A combined screen and sash mounting comprising a frame, a closure mounted for outward swinging movement in the frame, and a screen mounted for outward swinging movement in the frame and located inwardly of the closure when the screen and closure are in closed positions.

15. A combined screen and sash mounting comprising a frame, a closure mounted for outward swinging movement in the frame, and a screen mounted for outward swinging movement in the frame and located inwardly of the closure when the screen and closure are in closed positions, said screen being removable so that a storm sash may be substituted therefor.

16. A combined screen and sash mounting comprising a frame, a closure mounted for outward swinging movement in the frame, and a screen mounted for outward swinging movement in the frame and located inwardly of the closure when the screen and closure are in closed positions, said screen and closure having movable pivots enabling both sides of the closure to be cleaned from the inside.

In testimony whereof I have signed my name to this specification.

EARLE W. CUMMINGS.