

Dec. 19, 1944.

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2,365,239

COMBINATION STORM SASH AND SCREEN STRUCTURE

Filed Dec. 7, 1942.

3 Sheets-Sheet 1

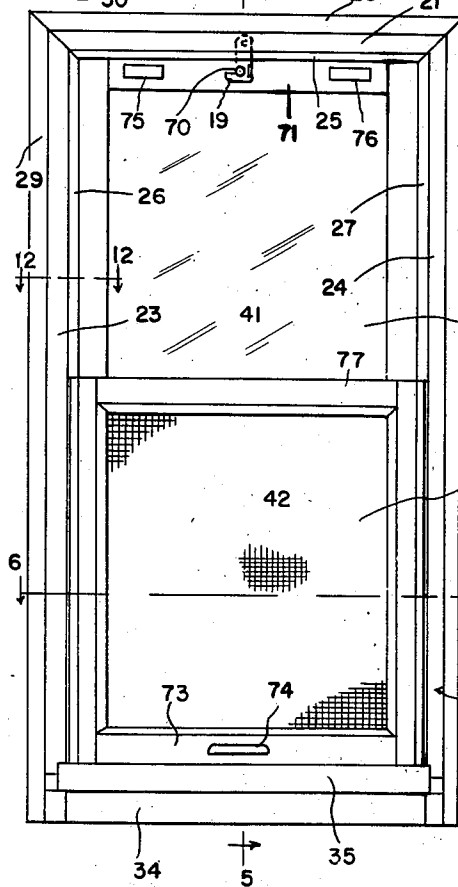
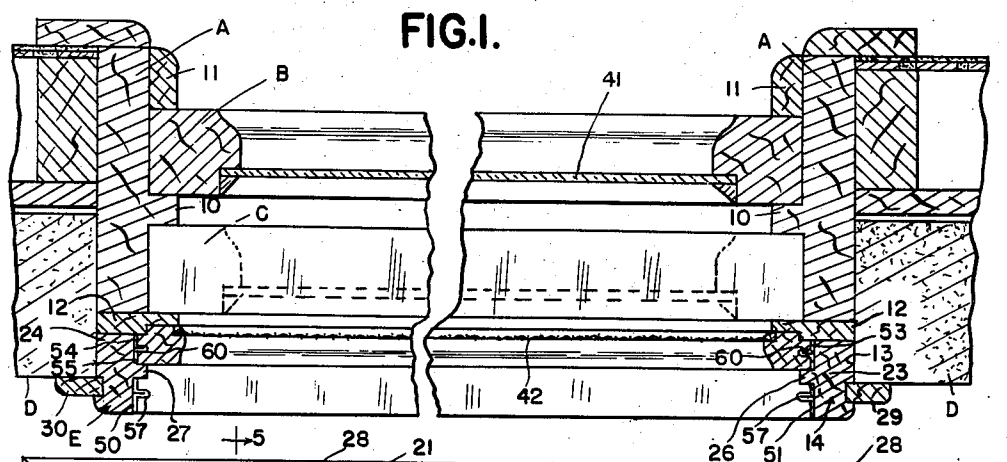


FIG.2.

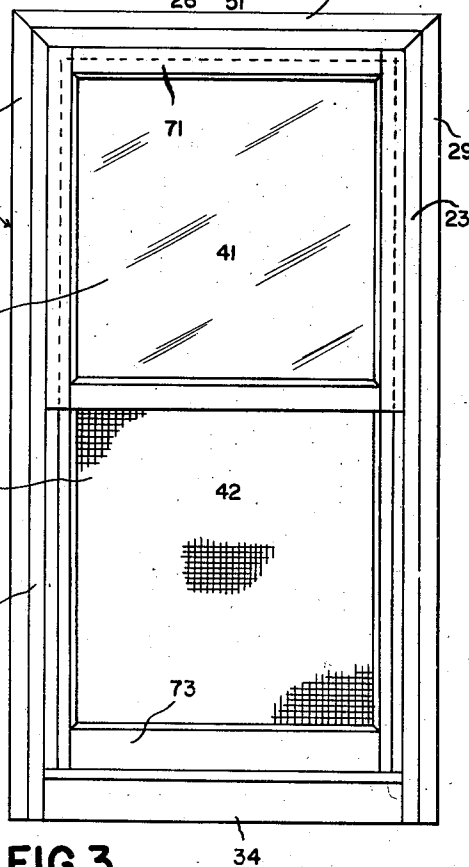


FIG.3.

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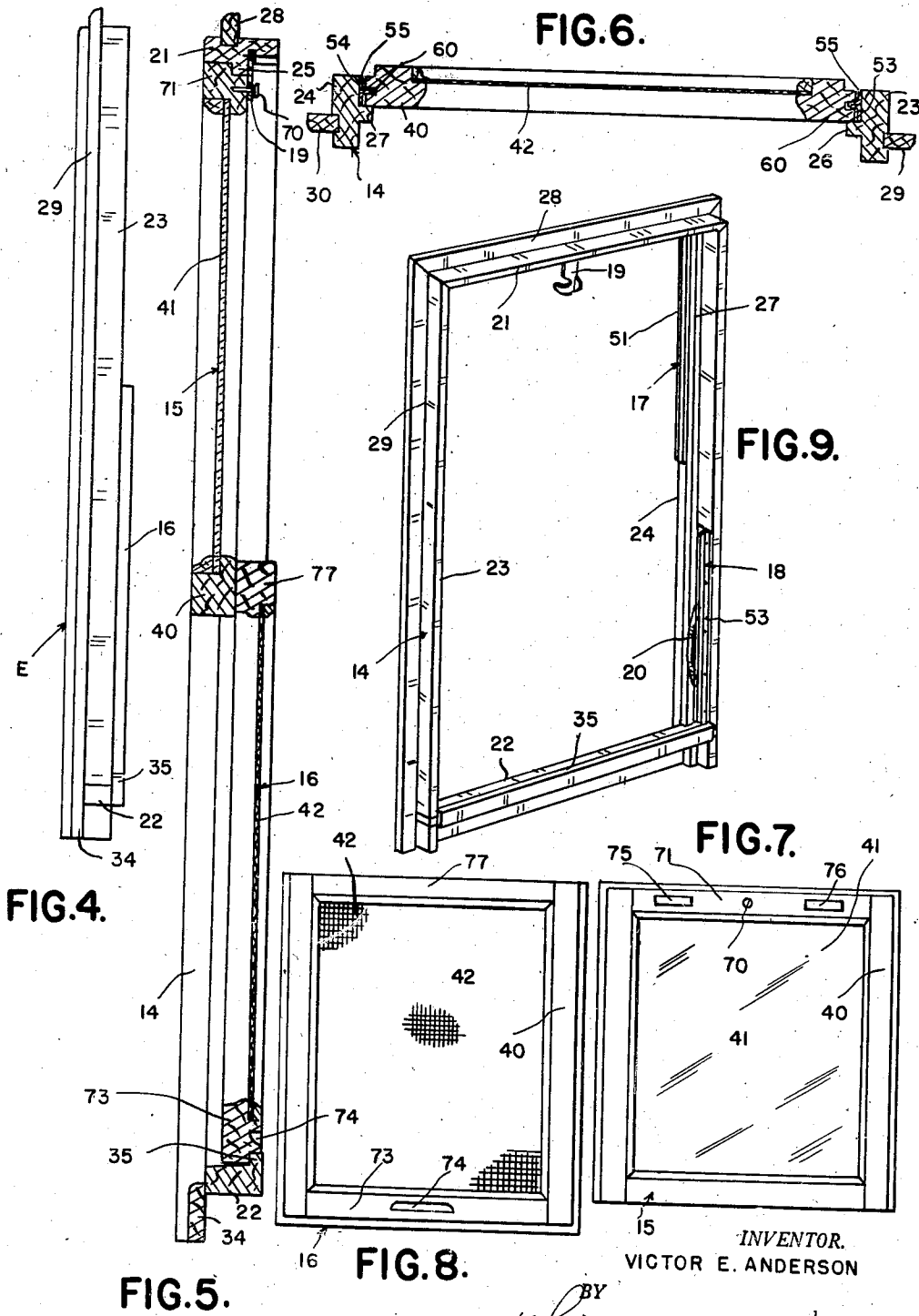
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COMBINATION STORM SASH AND SCREEN STRUCTURE

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3 Sheets-Sheet 2



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COMBINATION STORM SASH AND SCREEN STRUCTURE

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3 Sheets-Sheet 3

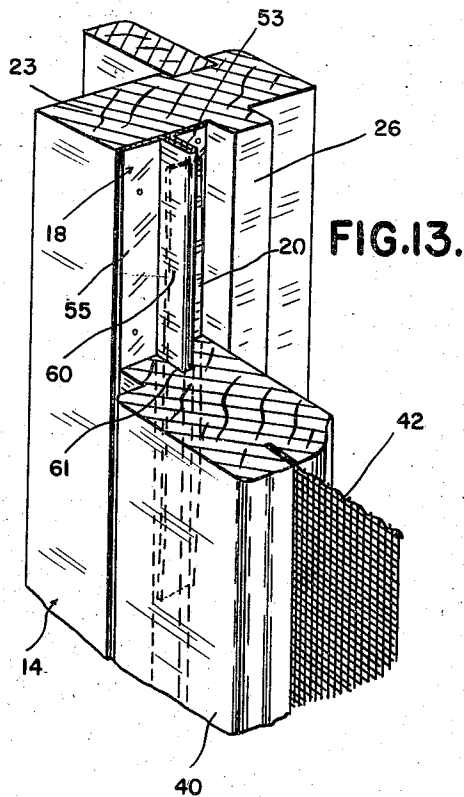
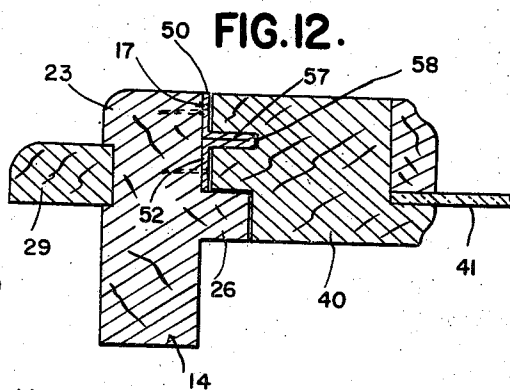
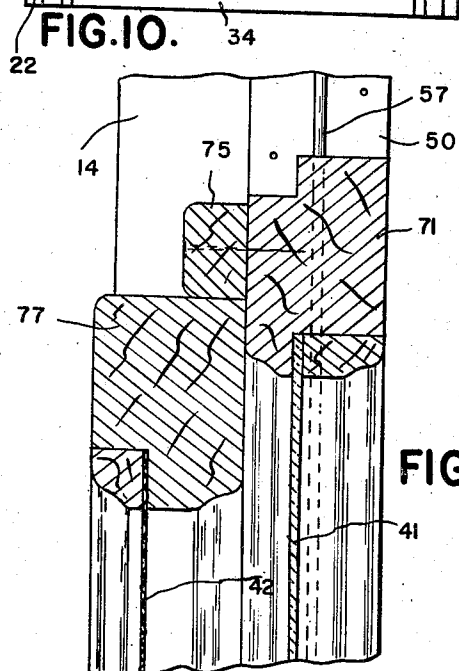
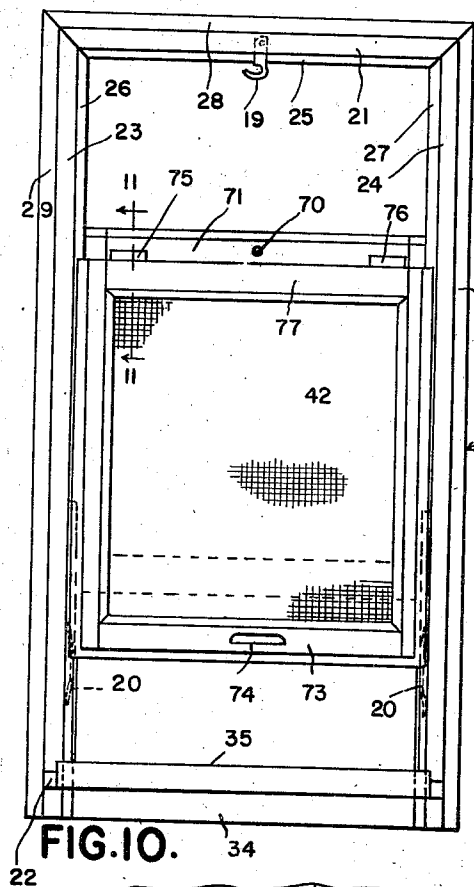


FIG. 11.

FIG. 13.

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COMBINATION STORM SASH AND SCREEN
STRUCTURE

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17 Claims. (Cl. 160—182)

Heretofore it has been the general practice to measure exactly each window opening to be equipped with storm sash or screens so that such equipment may be custom made, or to provide an oversize stock unit that in each instance may be trimmed or cut on the job to fit the window frame to which it is to be applied. Thus, a given window frame or opening may be provided with storm insulation and screening but in many cases the appearance of the original or regular window is not preserved or is disregarded. Moreover, such installations ordinarily had to be changed or removed from outside the building or dwelling upon which they were mounted and this usually required skilled labor, ladders, tools, etc.

In the present instance I have overcome the difficulties or objections of the structures just mentioned by the provision of a storm sash and screen combination that is adaptable to most window frames of like glass size; that is adapted to be mounted in the regular space provided in the casing or brick mold of a double sliding sash window structure for receiving storm sash or screens; that has glass and screen inserts which may be readily and easily removed and exchanged from the inside of the building upon which the storm sash combination is mounted; that may be applied or mounted in such a way that the original appearance of the double window structure may be retained; that may easily provide adequate ventilation whenever desired; that enables the inserts and glass panes of the double window structure to be readily washed and cleaned; and that are simple in construction, economical to manufacture, easy to install, and efficient in operation.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings, wherein:

Figure 1 is a horizontal sectional view through a double sliding sash window structure and storm sash and screen combination embodying my invention;

Figure 2 is a front elevation of the storm sash and screen combination;

Figure 3 is a rear elevation of the storm sash and screen combination;

Figure 4 is an edge elevation of the storm sash and screen combination;

Figure 5 is a vertical sectional view taken substantially on the line 5—5 of Figure 2;

Figure 6 is a horizontal sectional view taken substantially on the line 6—6 of Figure 2;

Figure 7 is a detail view of the upper insert;

Figure 8 is a detail view of the lower insert;

Figure 9 is a perspective view of the main frame of the combination with both inserts removed;

Figure 10 is a view similar to Figure 2 but showing the upper and lower inserts supported by the leaf springs in partially open position;

Figure 11 is a sectional view taken substantially on the line 11—11 of Figure 10;

Figure 12 is a sectional view taken substantially on the line 12—12 of Figure 2;

Figure 13 is a fragmentary perspective view of the frame and lower insert.

Referring now to the drawings, A is the frame, 15 and B and C respectively are the vertically sliding sash of an ordinary double sliding sash window structure. As usual, the frame A is provided at each upright side thereof with a parting strip 10 and window stops 11 and 12 respectively which collectively form guides for the vertically sliding sash B and C. Likewise, the customary brick mold or casing D for the window structure is upon the outer face of the frame A and provides a space 13 for a storm sash and screen combination.

E is a storm sash and screen combination embodying my invention and applied to the space 13 within the casing D upon the outer side of the window frame A. Preferably this combination has a frame 14, removable vertically slidable inserts 15 and 16 respectively, tracks 17 and 18 respectively for said inserts, a fastener 19 for the upper insert 15, and one or more bowed leaf springs 20 for exerting edgewise pressure against the lower insert 16.

As shown, the frame 14 of the combination is substantially rectangular shape and has top and bottom rails 21 and 22 respectively, side rails 23 and 24 respectively, integral parting strips 25, 26 and 27 respectively upon the inner edges of the top and side rails 21, 23 and 24 respectively, laterally projecting flanges 28, 29 and 30 respectively upon the outer edges of the top and side rails 21, 23 and 24 respectively, a depending flange 34 upon the outer face of the bottom rail 22, and an upstanding rib 35 upon the upper surface of the bottom rail 22 at its inner edge.

In practice the frame 14 of the storm sash combination is adapted to fit within the space 13 provided by the brick mold or casing D upon the outer side of the window frame A. Thus, as illustrated in Figure 1, the side rails 23 and 24 respectively of the frame 14 are beside the inner edges of the brick mold D and abut the outer face of the window stop 12 of the window

frame A, while the lateral flanges 28, 29 and 30 respectively of the frame 14 overlie the outer surface of the brick mold D.

Each insert 15 and 16 of the storm sash combination is a complete unit and has a rigid frame 40 of substantially square configuration. The frame 40 of the upper insert contains a pane 41 of glass, while the frame 40 of the lower insert contains wire mesh or screen material 42. However, it is contemplated that the lower insert 16 may contain a pane of glass instead of screen material 42, or may be exchanged with a similar insert containing a pane of glass. Likewise, the upper insert 15 may contain screen material instead of the glass pane 41, or such insert may be exchanged with a similar insert containing screen material. Preferably the frames 40 of the inserts as well as the main frame 14 of the combination are made of wood. However, it is apparent that any suitable material may be employed as desired. Likewise, the shape or configuration of the respective parts may be varied as desired.

In the present instance the tracks 17 and 18 for the inserts are made of metal and are rigid with the frame 14. Preferably the rails 50 and 51 respectively of the upper track 17 are substantially T-shape in cross section and have the bases 52 of the T's secured against the side rails 23 and 24 of the frame 14, while the rails 53 and 54 respectively of the lower track 18 are also substantially T-shape in cross section and have the bases 55 of the T's secured against the inner edges of the upright side rails 23 and 24 respectively of the frame 14 beside the parting strips 26 and 27. Preferably the rails 50 and 51 of the upper track extend downwardly from the top rail 21 of the frame 14 to points substantially midway the upper and lower ends of said frame, and the rails 53 and 54 respectively of the lower track 18 extend upwardly from the bottom rail 22 of the frame to points spaced below the lower ends of the rails 50 and 51 of the upper track 17. The webs 57 of the rails 50 and 51 of the upper track are engaged by vertically extending laterally opening open ended slots 58 in the upright side edges of the frame 40 of the upper insert 15 and guide the latter during vertical sliding movement thereof, while the webs 60 of the rails 53 and 54 of the lower track 18 are engaged by similar slots 61 in the upright side edges of the frame 40 of the lower insert 16 and serve as guides for said insert during vertical sliding movement thereof.

The fastener 19 for the upper insert 15 is preferably in the form of a hook pivoted upon the top rail 21 of the frame 14 and engageable with a headed element 70 on the top rail 71 of the frame 40 of the upper insert 15 to hold the latter in raised closed position.

The bowed leaf springs 20 for the lower insert 16 are located between the webs 60 of the rails 53 and 54 of the lower track 18 and the upright parting strips 26 and 27, and are fastened at one end, preferably at the upper end thereof, to the inner edges of the upright side rails 23 and 24 respectively of the frame 14. Preferably these springs 20 are located substantially midway the ends of the rails 53 and 54 of the lower track 18 so that they will be in the proper position or at the proper elevation to effectively hold the lower insert 16 in partially elevated or raised position for ventilation purposes; for example, when the lower insert 16 contains a pane of glass instead of screen material.

To facilitate upward sliding movement of the respective inserts 15 and 16, the bottom rail 73 of the lower insert 16 is provided with a finger recess 74, while the top rail 71 of the upper insert 15 is provided upon the inner side thereof with laterally spaced elongated inwardly projecting finger pieces 75 and 76 respectively. Preferably the construction and arrangement is such that the finger pieces 75 and 76 overlie and are adapted to rest upon the top rail 77 of the lower insert 16 when the upper insert 15 is lowered. Thus, the finger pieces 75 and 76 cooperate with the lower insert 16 to limit downward sliding movement of the upper insert 15. In fact, the arrangement is such that the engagement of the finger pieces 75 and 76 with the top rail 77 of the lower insert 16 precludes removal of the upper insert 15 from the frame until after the lower insert 16 is removed. Moreover, the construction is such that the upper insert 15 may be supported in fully lowered or partially lowered position by the lower insert 16 when the lower insert 16 is in fully closed lowered position or is held by the leaf springs 20 in raised partially open position. For example, when the upper insert 15 is lowered after the lower insert 16 is held by the springs 20 in raised partially open position, the finger pieces 75 and 76 on the upper insert will engage and rest upon the top rail 77 of the raised lower insert 16 and will be held indirectly by the leaf springs 20 in lowered partially open position. Thus, both inserts 15 and 16 may be in partially open position at the same time for ventilation purposes and will be held in such positions by the single set of leaf springs 20.

When it is desired to remove or exchange inserts of the storm sash combination, the lower insert 16 may be slid upwardly on the lower track 18 until it leaves the upper ends of the rails thereof, whereupon it may be bodily pulled forward from the frame 14. The upper insert 15 may then be slid downwardly on the upper track 17 until it leaves the lower ends of the rails thereof, whereupon it may be bodily tilted and pulled forward through the frame 14. Thus, the removal of both inserts 15 and 16 may be accomplished from inside the building or dwelling upon which the storm sash combination is mounted.

When it is desired to exchange a lower insert 16 having screen material for a similar insert having a glass pane, the lower insert 16 may be removed as aforesaid and then the new or substitute insert may be slid downwardly on the lower track 18 to replace the first mentioned lower insert 16. This may be accomplished without in any way affecting the upper insert 15. Likewise, the upper insert 15 containing a glass pane may be replaced by a similar insert containing screen material by simply removing the lower insert 16 as aforesaid, then removing the upper insert 15 as previously described, then sliding the new or substitute upper insert 15 upwardly on the upper track 17, and finally sliding the lower insert 16 downwardly on the lower track 18.

At the time of installation, any suitable means such as nails, screws and the like, or conventional hangers may be employed to hold the frame 14 of the storm sash combination in its proper mounted position within the casing D upon the outer side of the double sliding sash window structure of a building or dwelling. In fact, the storm sash combination E is constructed in such a way that it could be used alone as the

main window structure in a building, especially in temporary housing projects of the type now being carried out for factory workers. For example, the frame 14 of the combination could be fixed or mounted in a window opening in the housing structure to permit the inserts 15 and 16 respectively to be used as ordinary window sash or screens, as desired.

Thus, from the foregoing, it will be apparent that I have provided a storm sash combination that can be utilized as a stock unit to fit window openings and that is capable of making a better and tighter fit for weatherproofing purposes. In this connection the construction of the storm sash combination is such that insulating material (not shown) may be utilized between the frame 14 of the combination and the brick mold or casing D to make the installation more weather tight, however this is by no means necessary. The respective inserts 15 and 16 may be easily removed for washing and cleaning purposes or to afford access for any reason to the double sash of the regular window structure. The upper insert 15 overlaps the lower insert 16 its full thickness and with a meeting rail which may be considered the mechanical equivalent of a check rail of a regular window structure. If desired the frame 14 of the combination may be made in standard sizes or widths inasmuch as the lateral flanges 28, 29 and 30 respectively on the outer edges thereof cooperate with the frame 14 to provide a groove for the reception of auxiliary fitting strips or molding (not shown) which may be used in conjunction with the frame 14 of the combination for the purpose of sealing weather tight the entire combination to a regular window casing, and also to take up any variation that may exist in lengths, widths, etc., of the average run of window frames or casings.

Thus it will be apparent that I have provided an efficient all weather and all year protection which may be readily applied at low installation cost. In fact, the storm sash combination is so well constructed and easy to operate that any unskilled person may remove or exchange the inserts 15 and 16 in a very few minutes. The convenience of the change-over and the small storage space required for the inserts not being used are also important factors of my construction. Moreover, the change-over, i. e., the removal and exchange of inserts can always be made from inside the building, hence skilled labor, ladders, tools, etc., are unnecessary.

It is also contemplated that a storm sash and screen combination such as E may be combined at the factory with a regular or standard window structure such as the ordinary double sliding sash window structure illustrated in Figure 1 to provide a unit which may be subsequently installed within a window opening of a building or dwelling. Thus, the storm sash and screen combination E and the double sliding sash window structure may be assembled as a unit by the manufacturer and then shipped as such for installation wherever desired. In fact, if this procedure is followed the storm sash and screen combination and the ordinary window structure may be secured together by any suitable means at the factory so that they may be assembled as a unit for subsequent shipment or installation purposes.

What I claim as my invention is:

1. A storm sash and screen combination having a frame, two independent framed inserts mounted to slide in said frame, spring means carried by the frame and engageable with one of

said inserts to hold it in one position, and means for supporting the second insert in a predetermined position relative to the first insert including an element carried by the second insert and engageable with the first insert.

2. A storm sash and screen combination having a frame, upper and lower framed inserts slidable in said frame, means carried by the frame for holding the lower insert in an open position, and means for supporting the upper insert in an open position including a member carried by the upper insert and engageable with the lower insert.

3. A storm sash and screen combination having a frame, upper and lower framed inserts slidable in said frame, means for supporting the upper insert from the lower insert, and spring means on the frame engageable with the lower insert and operable when the upper insert is supported as aforesaid to support both inserts in a predetermined position.

4. A storm sash and screen combination having a frame, two inserts slidable in said frame, yieldable means carried by the frame for holding one of the inserts in a predetermined position relative to the frame, and means operable successively for supporting the second insert in different positions relative to the frame including a fastener carried by the frame and engageable with the second insert, and supporting means for the second insert carried thereby and engageable with the first insert.

5. In combination, a frame, upper and lower sash slidable within said frame, means carried by the frame for guiding the sash during sliding movement thereof, said means permitting removal of the sash from same frame, and means on the upper sash engageable with the lower sash to limit sliding movement of the upper sash in one direction and to preclude removal of the upper sash until removal of the lower sash is effected.

6. In combination, a frame, removable upper and lower sash slidable in parallel planes within said frame, tracks carried by the frame for guiding the sash during sliding movement thereof, said tracks being limited in length to facilitate removal of the sash from said frame, and a finger piece on the upper sash engageable with the lower sash to limit sliding movement of the upper sash in one direction.

7. In combination, a frame, upper and lower sash slidable within said frame, means carried by the frame for guiding the sash during sliding movement thereof, said means permitting removal of the sash from said frame, means carried by the frame for holding the upper sash in closed position, and means carried by the upper sash and engageable with the lower sash to limit sliding movement of the upper sash in one direction and to preclude removal of the upper sash from the frame until after the lower sash is removed.

8. In combination, a frame, removable upper and lower sash slidable in parallel planes within said frame, tracks carried by the frame for guiding the sash during sliding movement thereof, said tracks being limited in length to facilitate removal of the sash from said frame, means carried by the frame for holding the upper sash in closed position, and a finger piece carried by the upper sash and engageable with the lower sash to limit sliding movement of the upper sash in one direction and to preclude removal of the up-

per sash from the tracks therefor until after the lower sash is removed.

9. A storm sash combination having an upright open elongated frame, removable upper and lower sash inserts slidable in parallel planes lengthwise of said frame, tracks carried by the frame for guiding the inserts during sliding movement thereof, means carried by the frame for holding the lower insert in a raised position relative to the lower end of the frame, and means for supporting the upper insert in a lowered position relative to the upper end of the frame, including a member carried by one of said inserts and engageable with the other.

10. A storm sash combination having an upright elongated frame, removable upper and lower sash inserts slidable lengthwise of said frame, means for holding the lower insert in a raised position relative to the lower end of the frame, and means for supporting the upper insert in a lower position relative to the upper end of the frame, including a member carried by one of said inserts and engageable with the other.

11. A storm sash combination for use with a frame of a double sliding sash window structure, comprising an open elongated rigid frame substantially equal in area and attachable to the window frame, said elongated frame being formed of top, bottom and side rails, upper and lower tracks upon the opposed inner faces of said side rails, the upper tracks extending upwardly from points substantially midway the top and bottom rails to points adjacent the top rail, the lower tracks extending downwardly from points substantially midway the top and bottom rails to points adjacent the bottom rail, upper and lower sash inserts within said frame and slidable lengthwise of said upper and lower tracks respectively, means holding the upper insert in raised position against the top rail, said holding means being adjustable to permit the upper insert to be slid downward on and removed from the lower ends of the upper tracks, and means on the upper insert for sliding it downward when the holding means aforesaid is adjusted, the means for sliding the upper insert being engageable with the lower insert to limit downward sliding movement of the upper insert.

12. A storm sash combination for use with a frame of a double sliding sash window structure, comprising an auxiliary frame substantially equal in area and attachable to the window frame, removable upper and lower sash inserts slidable in parallel planes within said auxiliary frame, and tracks carried by the auxiliary frame for guiding the inserts during sliding movement thereof, said tracks being limited in length to facilitate sliding the inserts off adjacent ends of said tracks to effect removal of the inserts independently of the double sliding sash of the window structure, and a projection on the upper insert engageable with the lower insert to prevent removal of the upper insert until after the lower insert is removed.

13. A storm sash combination for use with a frame of a double sliding sash window structure, comprising an auxiliary frame substantially equal in area and attachable to the window frame, removable upper and lower sash inserts slidable in parallel planes within said auxiliary frame, tracks carried by the auxiliary frame for guiding the inserts during sliding movement thereof, said tracks being limited in length to facilitate slid-

ing the inserts off adjacent ends of said tracks to effect removal of the inserts independently of the double sliding sash of the window structure, and means preventing removal of the upper insert until after the lower insert is removed, including means carried by one of said inserts and engageable with the other.

14. A storm sash combination having an upright elongated frame, upper and lower sash inserts slidable lengthwise of said frame, means for holding the lower insert in a raised position relative to the lower end of the frame, means for holding the upper insert in a raised position relative to the upper end of the frame, said last mentioned holding means being adjustable to release the upper insert, and an operating finger-piece for the upper insert engageable with the lower insert when the upper insert is released as aforesaid for supporting the upper insert in a lowered position relative to the upper end of the frame.

15. A storm sash combination having an upright elongated frame, upper and lower sash inserts slidable lengthwise of said frame, means for holding the lower insert in a raised position relative to the lower end of the frame, means for holding the upper insert in a raised position relative to the upper end of the frame, said last mentioned holding means being adjustable to release the upper insert, and means operable when the upper insert is released for supporting the upper insert in a lowered position relative to the upper end of the frame, including a member carried by one of said inserts and engageable with the other.

16. A storm sash combination comprising an open elongated rigid frame formed of top, bottom and side rails, upper and lower tracks upon the opposed inner faces of said side rails, the upper tracks extending upwardly from points substantially midway the top and bottom rails to points adjacent said top rail, the lower tracks extending downwardly from points substantially midway the top and bottom rails to points adjacent the bottom rail, upper and lower sash inserts within said frame and slidable lengthwise of said upper and lower tracks respectively, means engaging the side rails of the frame and the lower insert for holding the lower insert in a raised position relative to the bottom rail, and means carried by the upper insert and engageable with the lower insert for supporting the upper insert in a lowered position relative to the top rail.

17. A storm sash combination comprising an open elongated rigid frame formed of top, bottom and side rails, upper and lower tracks upon the opposed inner faces of said side rails, the upper tracks extending upwardly from points substantially midway the top and bottom rails to points adjacent said top rail, the lower tracks extending downwardly from points substantially midway the top and bottom rails to points adjacent the bottom rail, upper and lower sash inserts within said frame and slidable lengthwise of said upper and lower tracks respectively, means for holding the lower insert in a raised position relative to the bottom rail, including means engaging the lower insert and side rails of the frame, and means supported by the lower insert for supporting the upper insert in a lowered position relative to the top rail.

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