

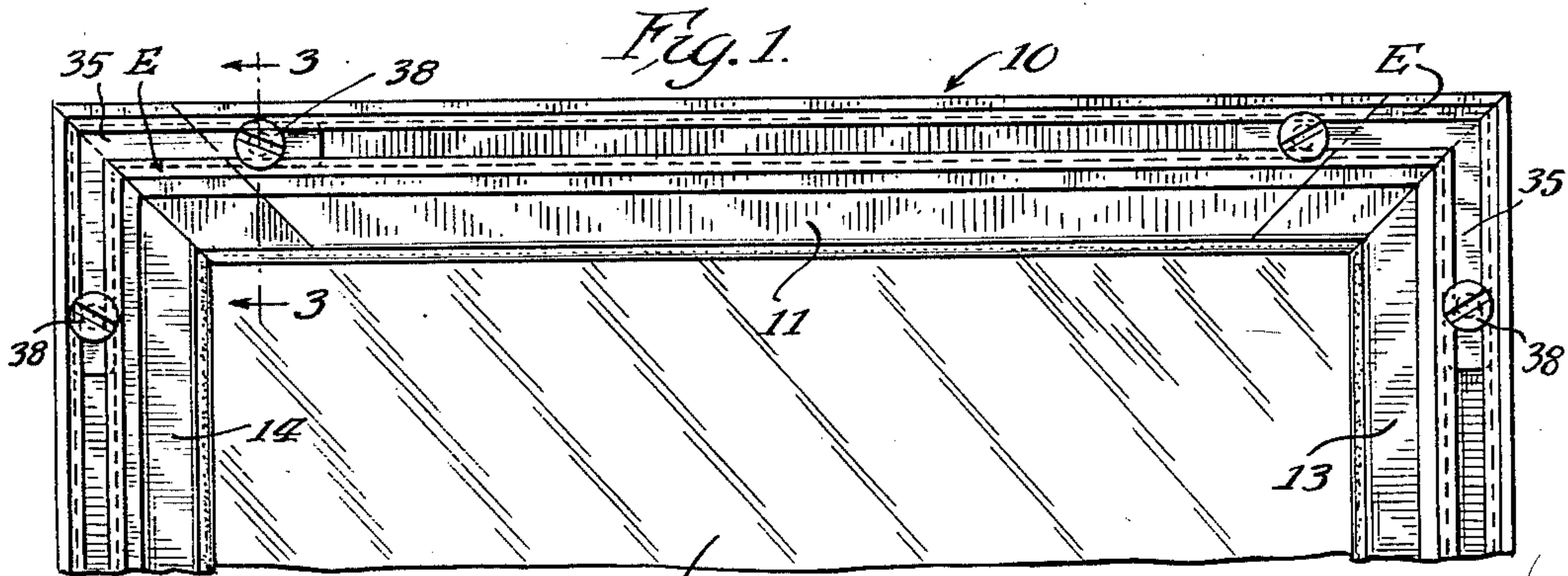
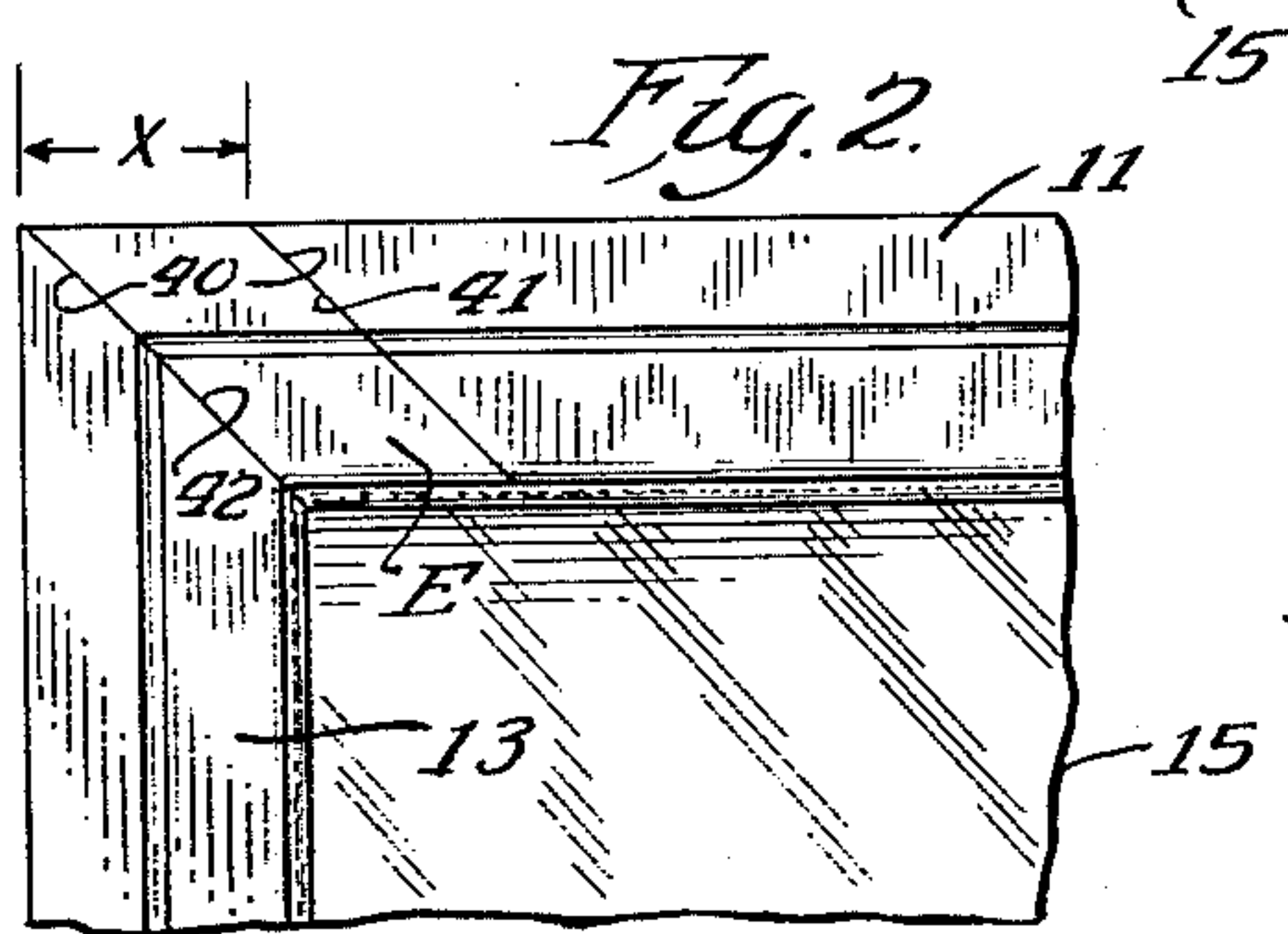
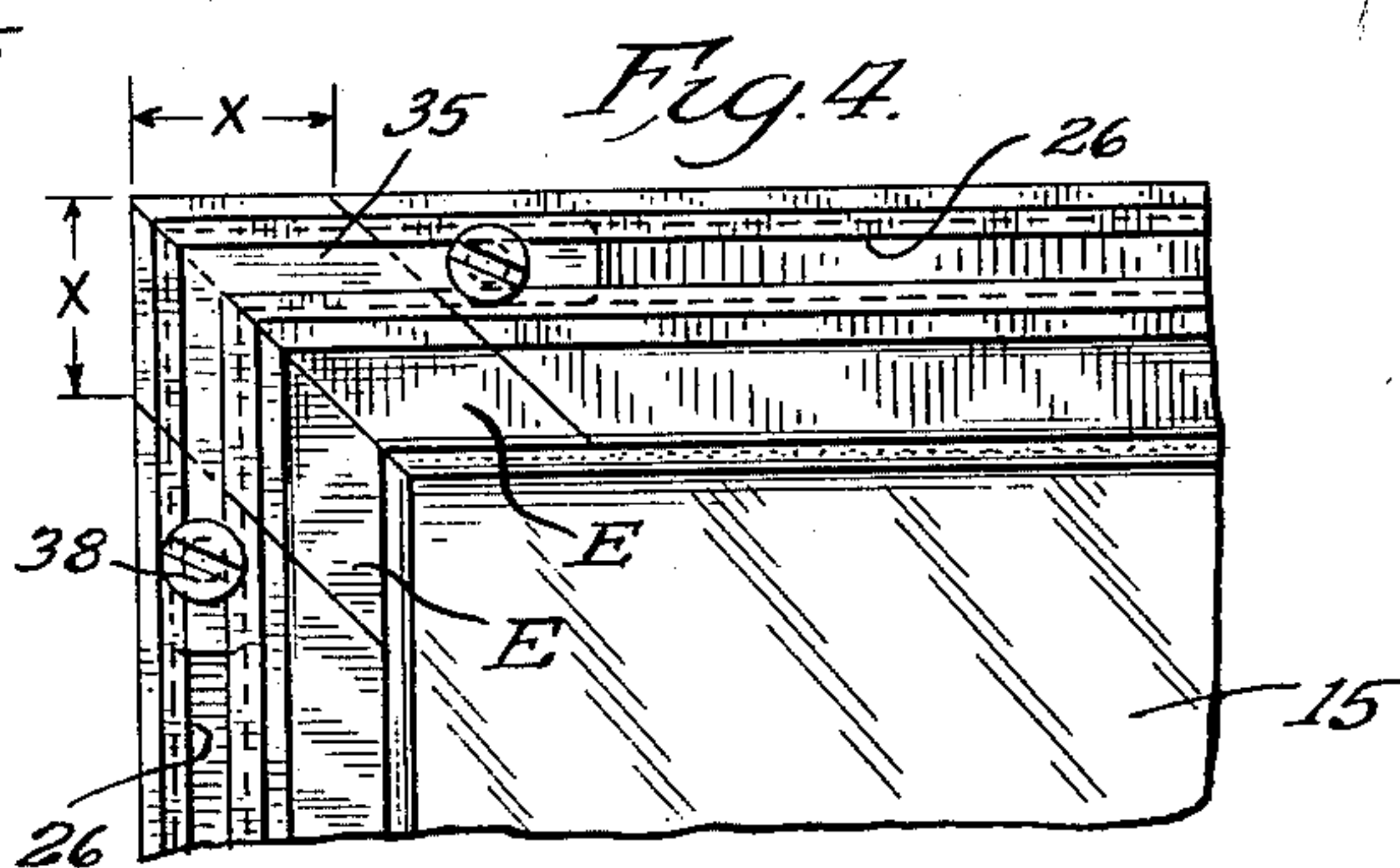
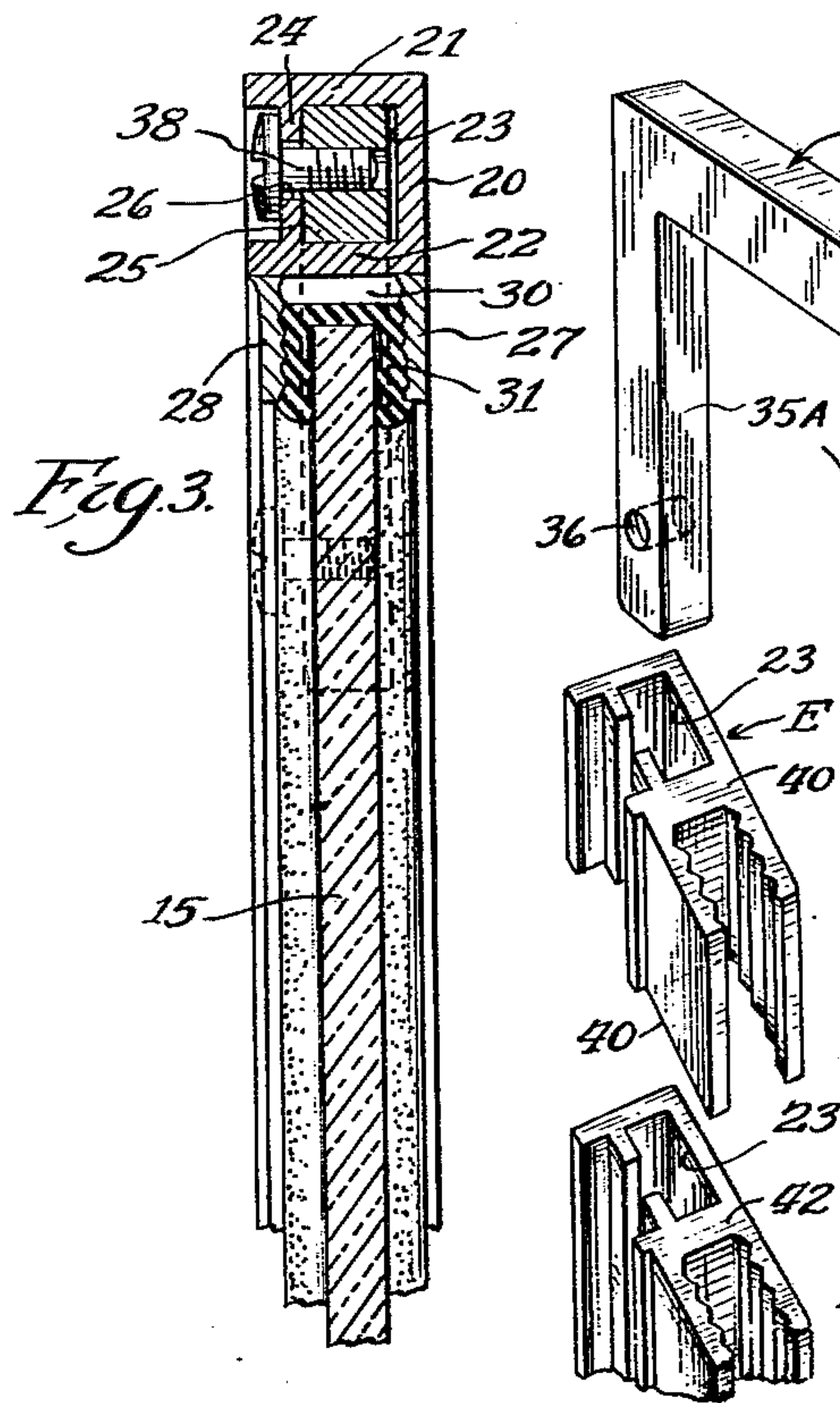
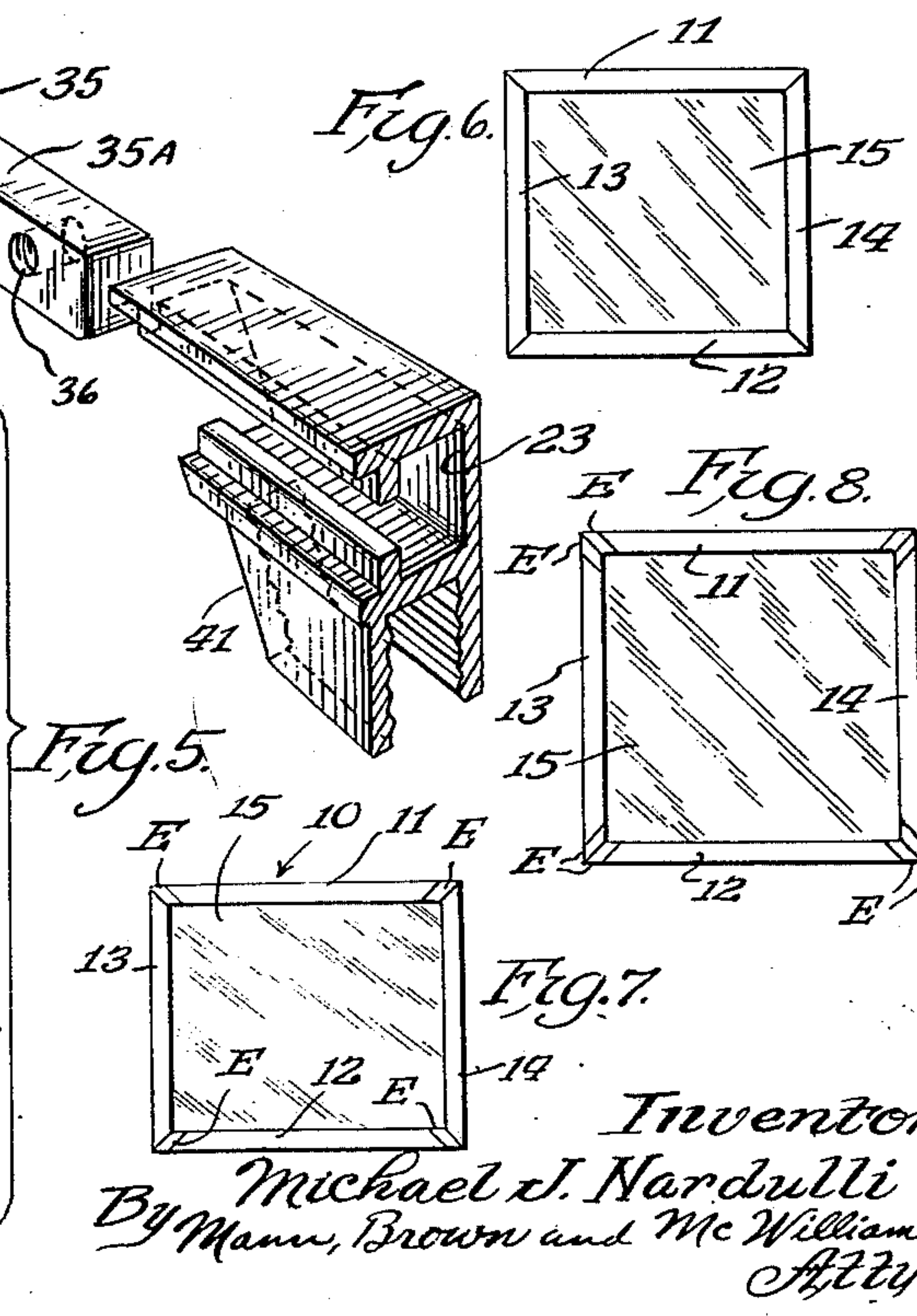
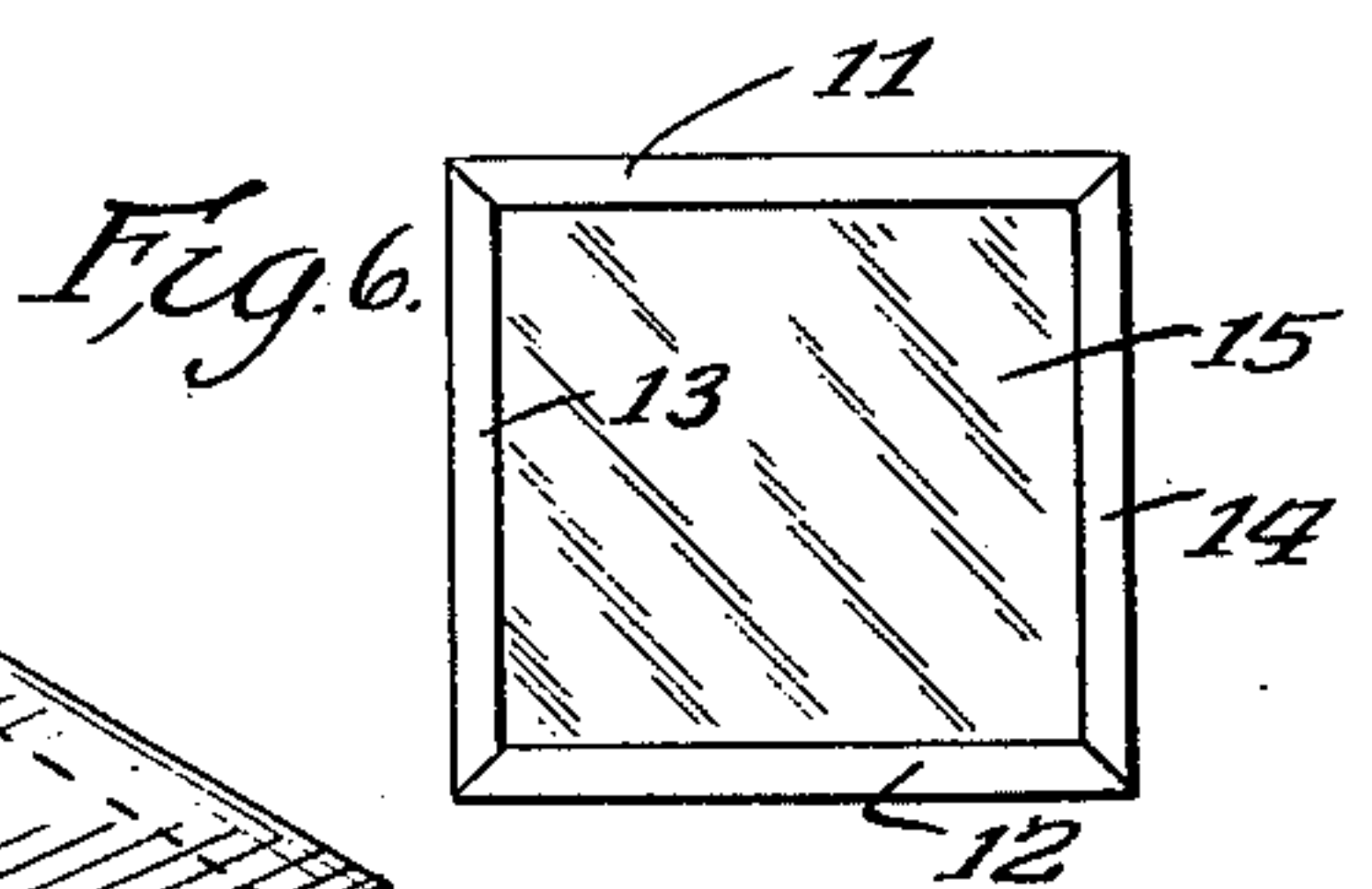
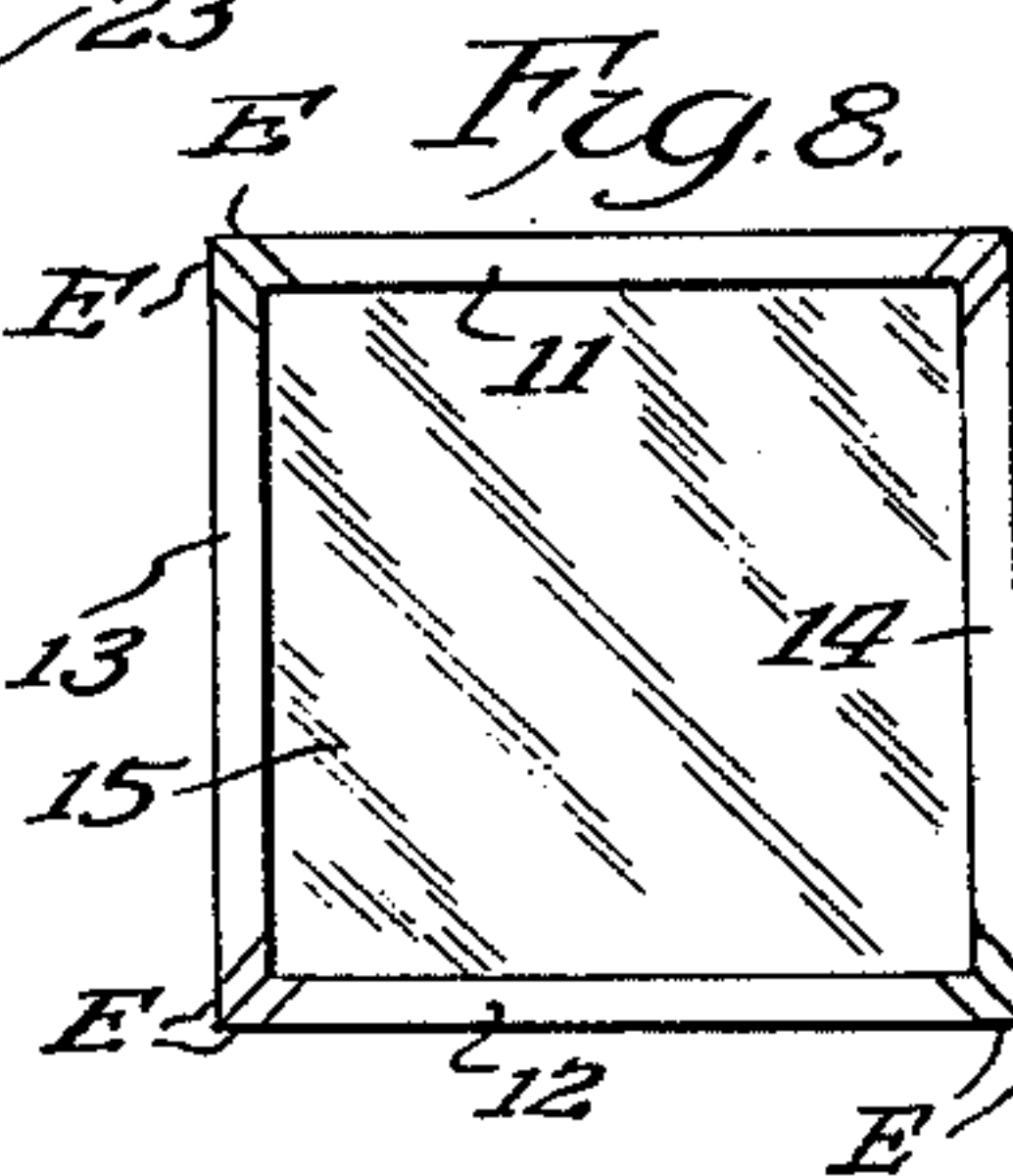
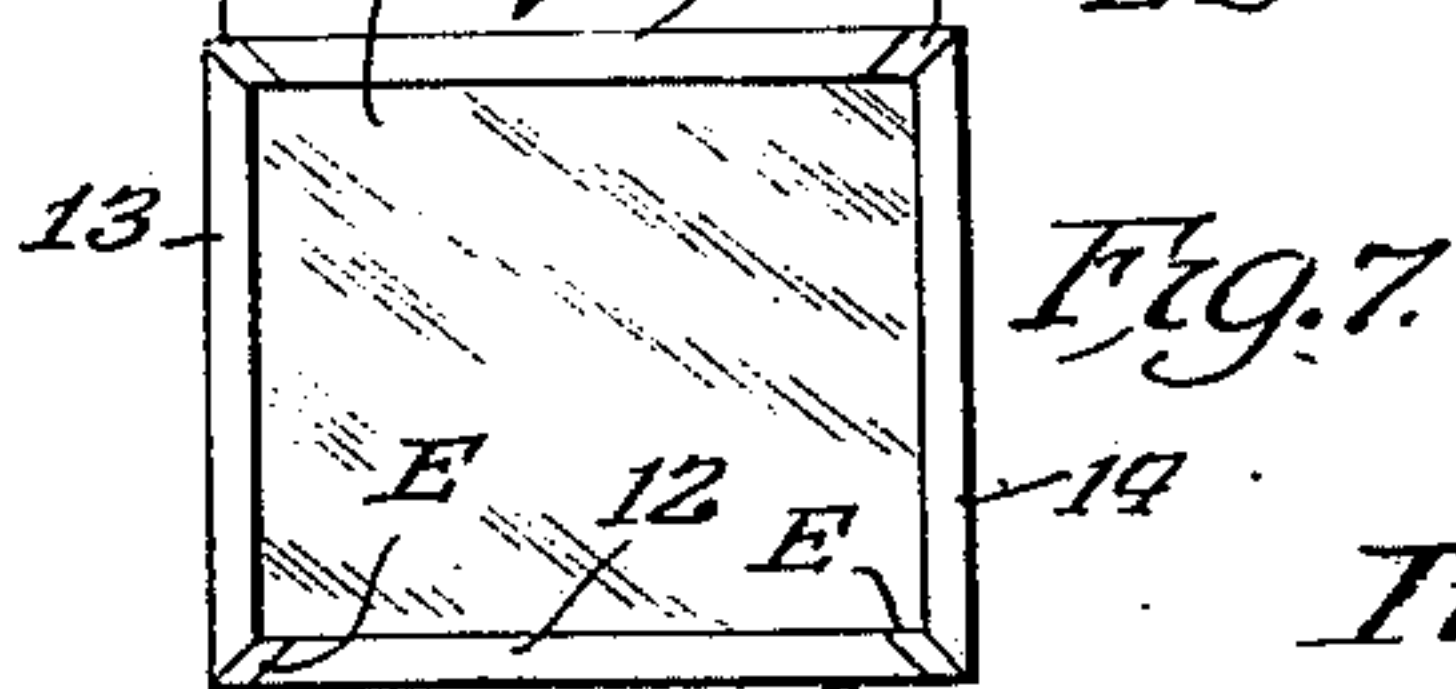
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2,816,632

AUXILIARY WINDOWS

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AUXILIARY WINDOWS

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3 Claims. (Cl. 189—76)

This invention relates to auxiliary windows such as storm sash or screen sash and particularly this invention relates to metal framed sash of this character.

Metal framed auxiliary sash of the aforesaid character are often constructed in such a way that the assembly thereof may be made by the home owner, thus to enable the elements of such sash to be made up in kits to be sold to the home owner who then purchases the requisite screen or glass panel and assembles the same with the various frame elements that are provided in the kit. One serious obstacle to the merchandising of storm sash and screen kits of the aforesaid character is that the sizes of windows vary throughout the country on what might be termed a territorial basis. Because of this, a kit that is adapted for use in a large section of the Midwest would not be capable of convenient use in other territories such as the territories surrounding some of the larger cities in Ohio or in the territory around Philadelphia, Pennsylvania. The greatest market for storm sash material sold as kits in the manner above described is found in connection with double hung window installations, and according to prior practice it has been necessary to produce different kits for use in different parts of the country.

In view of the foregoing it is the primary object of the present invention to enable storm sash and screen sash to be so constructed that kits may be provided which will be readily adaptable for use in different parts of the country, thus to enable the merchandising of kits of the aforesaid character to be materially simplified. More specifically, it is an object of the present invention to accomplish the foregoing in such a way that the resulting sash will have a neat appearance and will be of sufficient strength to withstand the handling and use that is required. Further and related objects of the invention are to accomplish such a wide adaptability in storm sash and screen sash kits by means that are simple in character, which do not involve appreciable increase in the cost of such kits, and which require no cutting and fitting operations by the user.

Other and further objects of the present invention will be apparent from the following description and claims, and are illustrated in the accompanying drawings, which by way of illustration, show a preferred embodiment of the present invention and the principles thereof, and what I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the invention.

In the drawings:

Fig. 1 is an elevational view of one face of a part of a storm sash embodying the invention;

Fig. 2 is an elevational view of the other side of one corner of the sash shown in Fig. 1;

Fig. 3 is a vertical sectional view taken substantially along the line 3—3 of Fig. 1;

Fig. 4 is a view similar to Fig. 1 and showing one

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corner of a sash in which the height as well as the width has been increased;

Fig. 5 is an exploded view of the elements utilized under the present invention; and

Figs. 6, 7 and 8 are views showing different sash size variations that may be accomplished.

For purposes of disclosure the invention is herein illustrated as embodied in a storm sash 10 that is partially shown in Fig. 1, and fully shown in Fig. 7 of the drawings, and it will be noted that this sash has an upper rail 11, a bottom rail 12 and a pair of side rails 13 and 14 and extension pieces E which serve as a frame for a panel such as a pane of glass 15.

The side rails and the extensions E are made from a metal such as aluminum which, in the present case, is extruded to the desired form, and while the present invention may be applied to rails made in different ways and of different cross sectional forms, I have found that the present invention is particularly adaptable for use with extruded aluminum rail members of the cross sectional form shown in Figs. 3 and 5. This particular cross sectional form is illustrated in my prior Patent No. 2,666,508, and the mitered ends of adjacent frame members are secured together by corner bracket and attachment means disclosed in the aforesaid patent, certain modifications being made to enable the objectives of the present invention to be fully attained as will hereinafter be described. Reference is made to the aforesaid prior patent for details of structure and operation not specifically described herein. Auxiliary sash of the aforesaid character may be readily and easily mounted on double hung window frames in the manner described in my co-pending application Serial No. 543,095, filed October 27, 1955.

Thus, as shown in detail in Figs. 3 and 5 of the drawings, the metal extrusion from which the rails and the extensions E are formed comprises an elongated body which in cross sectional form has a front wall 20 with two walls 21 and 22 projecting therefrom to define what amounts to a securing groove 23, and spaced inwardly from the open side of this groove, a pair of ledges 24 and 25 extend toward each other so as to define a narrow slot 26. The ledges 24 and 25 and the slot 26 serve to cooperate with the groove 23 to afford what may be termed an undercut fastening groove, while the space outwardly or to the left of the ledges 24 and 25 in Fig. 3 serves to afford a clearance space within which portions of fastening elements may be located in a protected portion as will be described. The wall member 21 constitutes the outer edge of the frame or rail when a sash is assembled, and inwardly of the wall 22, the metal of the extrusion is formed to receive the panel member that is to be used in the sash. In the form herein illustrated the sash are to receive glass panes 15, and therefore parallel walls 27 and 28 are extended in spaced relation and at right angles to the wall 22 to afford a glass mounting groove 30, the inner side wall surfaces of which are preferably serrated to exert a gripping action upon a resilient, U-shaped mounting strip 31 made from rubber or a plastic. This mounting strip embraces the edge of the glass pane 15 and supports the pane in a cushioned relationship within the mounting groove 30.

The ends of the frame elements or rails are mitered, and are secured together by corner brackets 35 that are made from metal so as to have a relatively snug fit within the undercut securing channels 23. Such snug fit is important with respect to the adjacent surfaces of the walls 21 and 22, but, if desired, a space may be permitted between the wall 20 and the adjacent surface of the corner bracket. The corner bracket 35 is of course made up of two relatively long arms 35A and it has screw threaded openings 36 formed therein relatively close to the ends of

the arms 35A so that binder head screws 38 may extend through the slot 26 and into the threaded openings 36. This positions the head of the screw 38 in the clearance space outwardly of the ledges 24 and 25, and by tightening the screws 38, the arms 35A of the corner brackets may be clamped firmly against the ledges 24 and 25, with the mitered ends of the rails in engaged relation. In this connection it is noted that when thus tightened, the inner end of the screw 38 is spaced from the wall 20.

In ordinary practice, the several rails that are to be used in making an auxiliary sash are cut to selected lengths that are determined by the dimensions of the window frame upon which the sash is to be used, and a highly advantageous way of merchandising the sash elements is to have the home owner measure the glass size of the sash upon which he wishes to provide a storm window or screen. Thus, for any particular window frame, the lengths of the rails for the auxiliary sash may be made in lengths that are mounted in the frame. It is found, however, that the relationship between the frame size and the glass pane size varies in different parts of the country. In the major markets of the country this variation in width and height of the frame for any particular glass pane size runs slightly more than $\frac{1}{2}$ " in each direction, and in order to distribute auxiliary sash kits throughout the country so as to meet the demands of the various major markets, provision must be made for assembling a particular kit in either one of two sizes, and in some instances of course additional sizes in the assembled sash will be required.

Under the present invention this is accomplished in a simple and economical manner through the use of the extension pieces E, which as will be evident in the drawings, are provided in right and left hand embodiments for cooperation with the right and left hand ends of the respective rails. In those instances where the frame dimensions are the minimum with respect to the particular glass size, the sash kit may be assembled in the manner illustrated in Fig. 6 of the drawings, or in other words, without the use of the extension pieces E. If the extension pieces have a longitudinal dimension X, Figs. 2 and 4, of $\frac{1}{2}$ ", then only one such extension piece E will be required in association with each of the rails to cover the range of variations that have thus far been encountered. However, an extension piece E may be provided at each end of a particular rail as shown in Fig. 1 to double the increase in length that is to be attained in the particular rail. Thus, as shown in Fig. 8, the frame may be made up with an extension piece at each end of the side rails, or the frame may be made up with an extension piece at each end of two of the opposite or top and bottom rails. Finally, where the minimum extension is required, such an extension E may be placed at but one end of each of a pair of opposite rails. The arrangement provided by this invention thus affords a wide range of adaptability of storm sash or screen sash kits.

The extensions E are provided with parallel mitered ends 40 so that an extension may be placed against the mitered end 41 of a rail such as the rail 11 in Fig. 2, and the other mitered edge 40 of the extension E will cooperate with the mitered edge 42 of the adjacent rail such as the rail 13 of Fig. 2. When the extension is put in this position, the related arm 35A extends through the undercut groove 23 of the extension E and extends for a substantial distance into the undercut groove of the aligned rail such as the rail 11 of Fig. 2. When thus related, the fastening screw 38 will be located in the aligned rail such as the rail 11, and when the fastening screws of the corner bracket 35 are tightened, the extension E will be held in accurately aligned relationship, and true mitered joints will be afforded between the assembled elements. These corner structures that include the extensions E have been found to possess exceptional strength that is far beyond the strength necessary to provide a proper sash frame, and the miter joint that is afforded at each end of the

extension has been found to be unobjectionable from an artistic standpoint.

The extensions E, being relatively small, may be provided quite economically because they may be made from what would otherwise be scrap material, and since their production requires merely the making of mitered cuts that are the same as those employed on the main rails, these extensions may be readily produced with great accuracy and at a low cost.

From the foregoing description it will be apparent that the present invention enables sash kits to be produced and merchandised throughout all sections of the country despite variations that are encountered in different markets. Under the present invention the assembly of these kits may be performed without cutting or fitting operations, and the resulting storm sash or screen sash have the requisite strength and are neat in appearance. Through the present invention the stocking requirements for wholesale and retail distributors have been greatly reduced, and these objectives have been accomplished without appreciable increase in the cost in such sash kits.

Thus, while I have illustrated and described the invention in a particular embodiment, it will be recognized that changes and variations may be made within the spirit and scope of the invention.

I claim:

1. In a metal framed window sash, a pair of side rails, top and bottom rails constituting a second pair of rails, all of said rails being of a predetermined cross sectional form having undercut longitudinal fastening grooves throughout their length and longitudinal mounting grooves throughout their length for mounting closure material in said frame, said rails having mitered ends, corner brackets extended into the respective fastening grooves, extension pieces of the same across section as said rails and having parallel mitered end edges, one of said pieces being disposed in aligned relation with at least one end of each of the rails of one of said pairs, said corner brackets having elements extended entirely through said pieces, and means securing said corner brackets to said rails to hold said pieces and said rails in assembled relation.

2. In a metal framed window sash, a pair of side rails, top and bottom rails constituting a second pair of rails, all of said rails being of a predetermined cross sectional form having longitudinal passages throughout their length and longitudinal mounting grooves throughout their length for mounting closure material in said frame, said rails having mitered ends, corner brackets extended into the respective passages, extension pieces of the same cross section as said rails having parallel mitered end edges, one of said pieces being disposed in aligned relation with at least one end of each of the rails of one of said pairs, said corner brackets having elements extended entirely through the passages in said pieces and into the passages of the aligned rails, and means securing said corner brackets to said rails to hold said pieces and said rails in assembled relation.

3. As an article of merchandise for assembly to produce a metal framed window sash for window frames of different dimensions, a pair of side rails, top and bottom rails constituting a second pair of rails, all of said rails being of a predetermined cross sectional form having undercut longitudinal fastening grooves throughout their length and longitudinal mounting grooves throughout their length for mounting closure material in said frame, said rails having mitered ends, extension pieces of the same cross section as said rails having parallel mitered end edges, corner brackets having arms of a length greater than the longitudinal dimension of said extension pieces and adapted to be extended into the respective fastening grooves, one of said pieces being adapted to be disposed in aligned relation with at least one end of each of the rails of one of said pairs with arms of the related said corner brackets extended entirely through said pieces, and

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means on said arms of said brackets near the ends thereof
for securing said corner brackets to said rails to hold said
pieces and said rails in assembled relation.

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