July 13, 1943. C. B. WEEDON 2,324,447

WINDOW CONSTRUCTION

Filed May 11, 1942 5 Sheets-Sheet 1

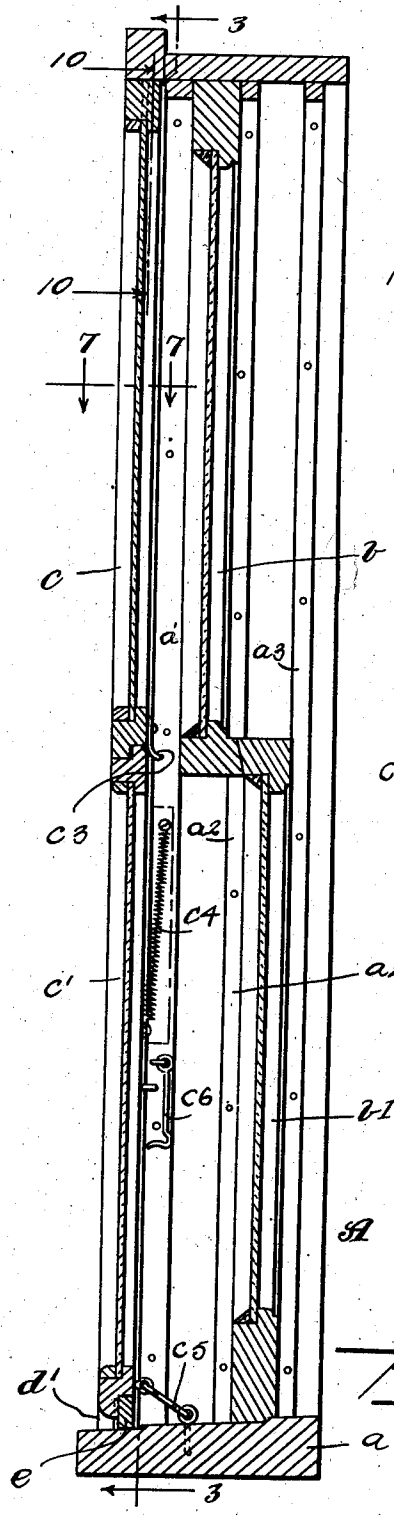
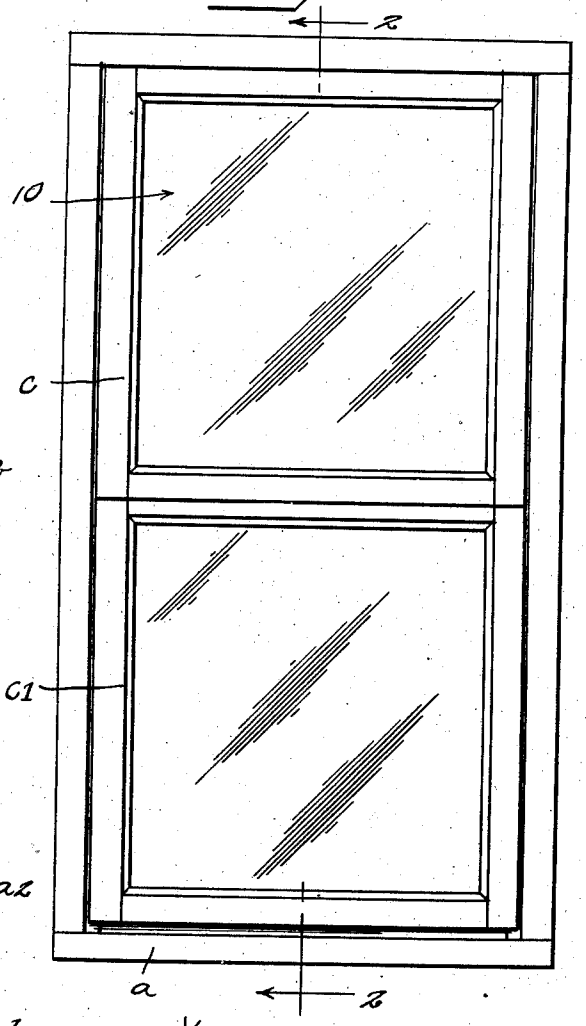


Fig. 1.



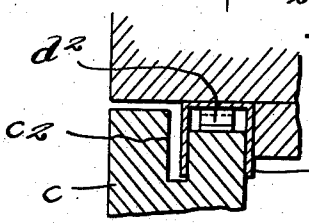


Fig. 7.

Fig. 2.

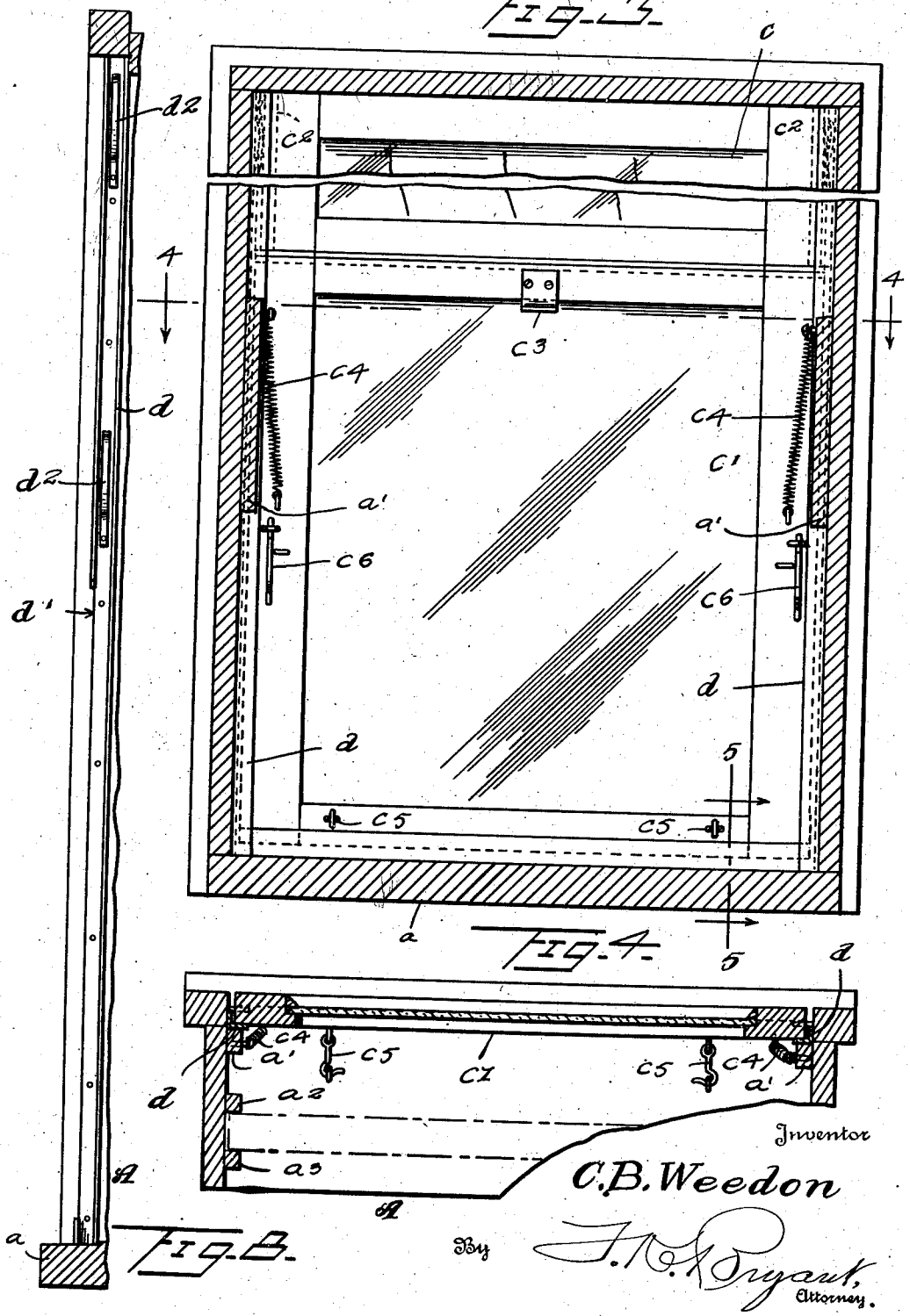
Inventor
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WINDOW CONSTRUCTION

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Fig. 3.



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WINDOW CONSTRUCTION

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Fig. 5.

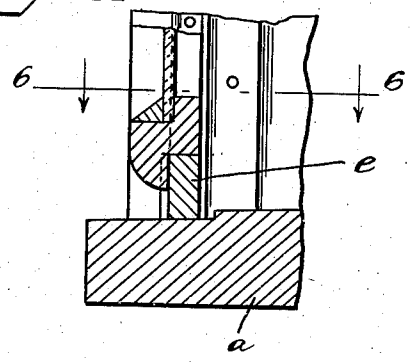


Fig. 12.

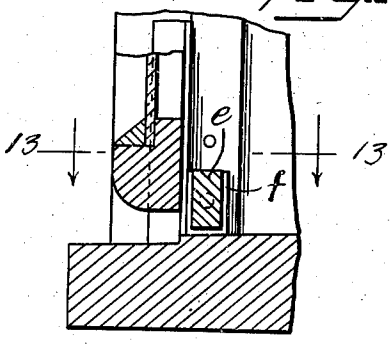


Fig. 6.

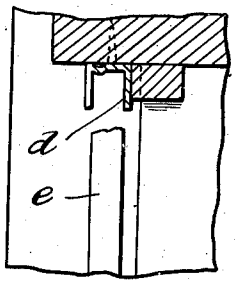


Fig. 13.

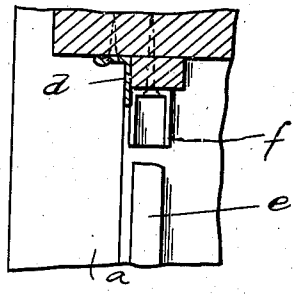


Fig. 11.

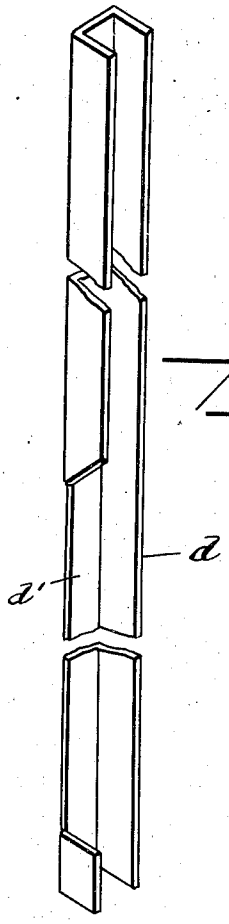
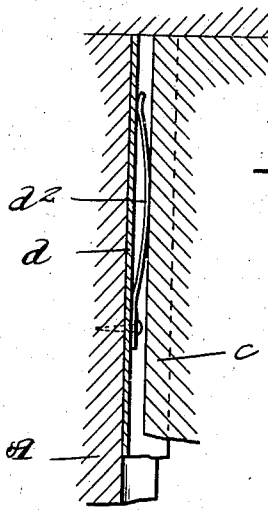


Fig. 10.



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WINDOW CONSTRUCTION

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Fig. 14

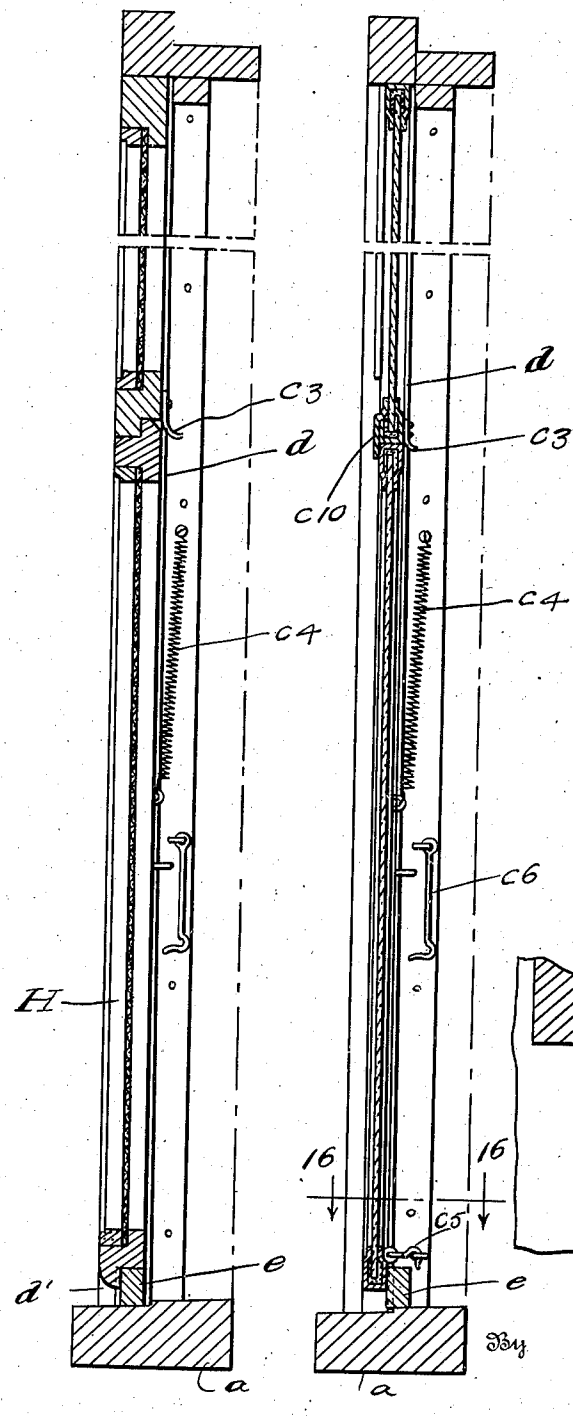


Fig. 15

Fig. 9

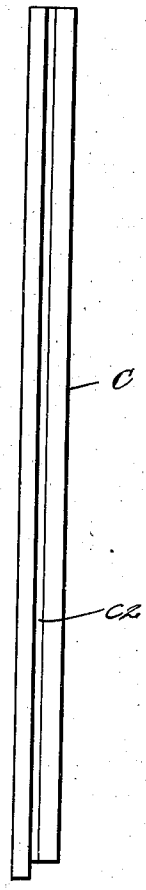
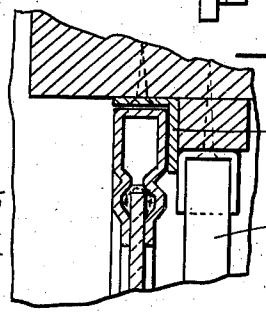


Fig. 16



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WINDOW CONSTRUCTION

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Fig. 21.

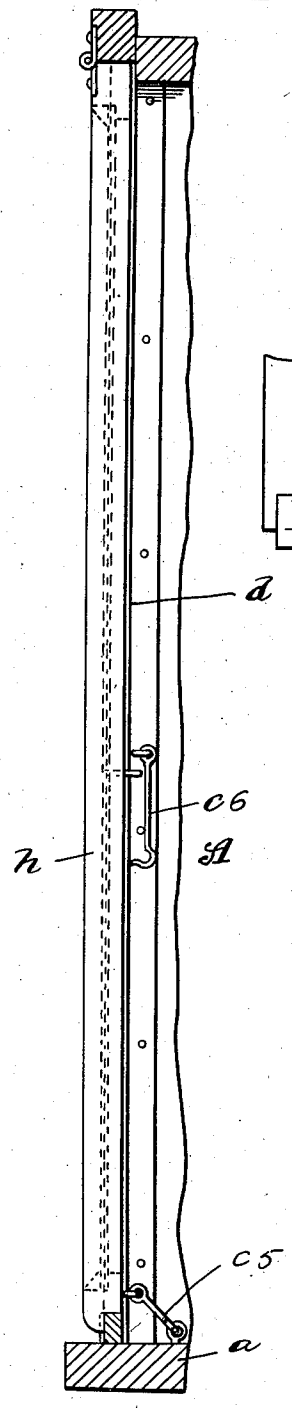


Fig. 17.

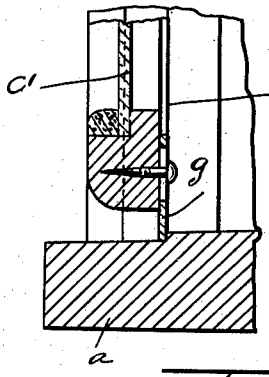


Fig. 18.

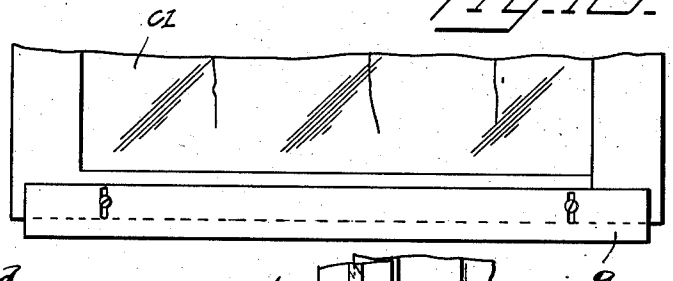


Fig. 19.

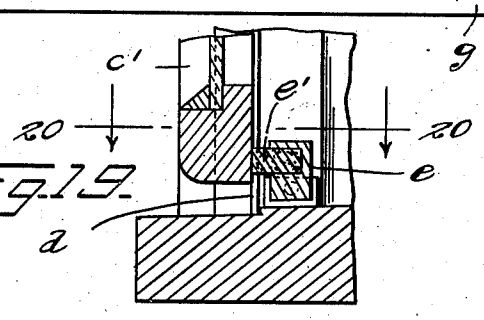
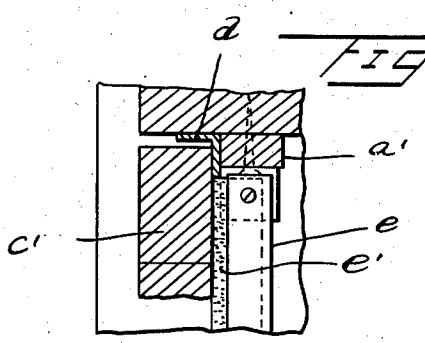


Fig. 20.



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2,324,447

UNITED STATES PATENT OFFICE

2,324,447

WINDOW CONSTRUCTION

Charles B. Weedon, Detroit, Mich.

Application May 11, 1942, Serial No. 442,496

7 Claims. (Cl. 160—215)

This invention relates to improvements in window construction, and pertains more particularly to structures of this type having the added protection of storm window formations.

The addition of storm window structures to windows to meet the conditions of severe cold weather, has been a practice followed for many years, the added structures being of many forms. For instance, where severe winter conditions are generally expected, the window casements are initially prepared to meet the problems which are generally solved by the addition of a temporary outer frame spaced from the normal window structure to form an intermediate air space designed to tend to insulate the outer cold frame from the warmer inner frame. A normal practice has been to provide an auxiliary frame fitting the casement, and arranging the frame with suitable glass pane effects, with one of the panes generally hinged to provide for ventilation purposes—the latter being opened for a short period and then closed. In such installations it has been the practice to make the normal window structures of the swinging sash type, since such structures offer an easier way in which to gain access to the ventilating panel.

The practice of adding storm windows has become increasingly prevalent during the later years due to the development of the metallic window constructions, these almost invariably utilizing the swinging sash idea as the basis for the construction. Composite window structures of this type are disclosed in the patent granted to me May 14, 1940, No. 2,200,568, and in my co-pending application filed November 25, 1939, Serial No. 308,172, these presenting structures which have proven highly satisfactory under service conditions. These utilize the metallic casement and window structures, with the windows operating on the swinging sash basis.

One of the results flowing from such use has been the creation of a demand for the equipment of window casements utilizing sliding sash, thus making possible the cold weather protection for this type of window as well as for windows of the swinging type. The source of the demand is mainly from occupants of buildings not initially prepared for storm window installations, thus increasing the difficulties of the problems involved; where storm window service is contemplated prior to building, the practice has been to utilize windows of the swinging type rather than of the sliding sash type. The present invention has been developed to meet these demands.

Applying storm window protection to windows of the sliding sash type involves a number of problems not present with the swinging sash type, due in part to the difference in operation of the two types. With the swinging sash form the swinging part of the window is generally a unit which swings into the room, making it possible to connect up a swingable member of the storm member to move therewith—indicated in the prior inventions above identified; in addition, the structure of the window is such that it is possible to produce the characteristics of a dead air space between the two windows, due to the ability to set up special sealing conditions for the storm window structure.

With windows of the sliding sash type, however, the conditions differ. Two sash are generally present with the normal window, these traveling in different and parallel grooves to permit each sash to have its complete individual sliding movement; as a result, the storm window can have no connection for movement with either sash. This is apparent from the fact that if the storm window be arranged similar to the normal window with corresponding sash connected together, it would not be possible to give either window its sliding movement.

In addition, the storm window cannot extend into the path of travel of either sash of the normal window and permit sash movement; hence, the storm window must be distinct from the normal sliding sash, thus leaving unequal distances between the storm window and the upper and lower sash—aside from the fact that the normal casement construction would not permit a storm window of dual sash slidable in separate grooves (duplicating the normal window sash formation), it would be difficult to obtain efficient closure against wind-pressures with such formations.

The problems are complicated by the fact that generally it is the practice to remove the storm window structure during the heated seasons of the year, and where the installations are on upper floors it becomes difficult to "take down" and "put up" the storm window assemblies. And when this is coupled with the fact that the storm window additions must be made with casements not designed to receive additional elements, the difficulty of applying storm window protection to sliding sash window installations and obtain efficient service is readily understood. There are additional problems present, and will be referred to hereinafter, but the above will sufficiently indicate reasons why prior practice has been to

generally limit storm window protection to window structures of the swinging type.

The present invention is designed to meet the problems presented by these conditions, and has for its general objects the provision of a storm window assembly applicable for service where the normal window formation is of the sliding sash type, and particularly where the installation is to be made for the purpose of converting a normal window construction into a storm-window protected assembly by simply adding to the former rather than changing structure of the prior installation; in other words, removal of the added assembly will leave the window installation substantially in its original form.

Several forms of the added assembly are disclosed herein, each designed to produce efficient service, and to provide the conversion at comparatively low cost. In producing the result a number of specific features are utilized each of which has its bearing on the general result—these will be discussed in detail hereinafter.

To these and other ends, therefore, the nature of which will be more particularly set forth as the invention is hereinafter disclosed, said invention consists in the improved constructions and combinations of parts set forth in detail in the following description, illustrated in the accompanying drawings, and more particularly defined in the accompanying claims.

In the accompanying drawings, in which similar reference characters indicate similar parts in each of the views—

Figure 1 is an elevation of a complete assembly looking from the outside of the window.

Figure 2 is a vertical sectional view of a complete window assembly, the section being taken on line 2—2 of Figure 1, the installation being of one of the forms of the invention.

Figure 3 is a sectional view taken on line 3—3 of Figure 2.

Figure 4 is a sectional view taken on line 4—4 of Figure 3.

Figure 5 is a detail sectional view taken on line 5—5 of Figure 3.

Figure 6 is a detail sectional view taken on line 6—6 of Figure 5 with the main unit of the storm window omitted for clearness.

Figure 7 is a detail sectional view taken on line 7—7 of Figure 2.

Figure 8 is a partial section similar to Figure 2 with the storm sash omitted.

Figure 9 is a side edge view of the upper storm sash.

Figure 10 is a detail sectional view taken on line 10—10 of Figure 2.

Figure 11 is a perspective view of one of the metallic guides or ways.

Figure 12 is a detail sectional view somewhat similar to Figure 5 but showing a modified arrangement.

Figure 13 is a detail sectional view on line 13—13 of Figure 12 with the storm sash omitted.

Figure 14 is a partial vertical section similar to Figure 2, but showing the substitution of a screen for the lower storm sash.

Figure 15 is a vertical sectional view of a window equipped with metallic storm sash.

Figure 16 is a detail sectional view taken on line 16—16 of Figure 15.

Figure 17 is a detail sectional view showing a metallic sealing strip applied to the lower storm sash.

Figure 18 is an elevational view of the arrangement of Figure 17.

Figure 19 is a detail sectional view showing a further modified form of sealing strip.

Figure 20 is a sectional view taken on line 20—20 of Figure 19.

Figure 21 is a vertical view partly in section and partly in elevation showing a one-piece main unit of the storm window.

The fact that window casements for the sliding-sash type of windows generally have no provision for the addition of external appliances—excepting possibly shutters and awnings, both of which are generally secured at the outer face of the casement—presents one of the characteristics of the problem which must be solved, due to the fact that the storm window must be located within the window casement, and the space outside the outer beading strip which defines the outer side of the channel for the normal outer sash is generally comparatively narrow. As a result, this condition practically limits the storm window construction to what may be termed a "one plane" arrangement—the entire window must extend practically in a single plane; obviously, therefore, the practice of securing the storm window element to a moving member of the normal window, followed in swinging sash practice, cannot be utilized through the use of twin sashes movable in parallel grooves. In addition, the narrow space must receive not only the storm window, but must additionally present the means used to provide the sealing or partial sealing condition that is requisite with efficient storm windows.

The need for setting up the "one-plane" arrangement indicates the possibility of providing a single window construction for the storm window—a result contemplated by the present invention as presently described—but the fact that such structures would generally need to be positioned from the outside, while most installations are in buildings of more than one story, makes it essential that the storm window assembly should be arranged in such manner as to enable positioning the structure from inside rather than from outside the house, this condition forming another characteristic of the problem to be solved.

Another characteristic of the problem flows from the fact that it is essential that provision be made for ventilation; while a storm window structure is designed to normally retain a window in practically sealed condition, it is desirable to ventilate the room at intervals, and provision must be made to permit the storm window being readily opened for ventilation purposes—a fact that necessitates a structure of storm window such as can be opened and closed from within the room, the normal sliding sash permitting ready ventilation through the normal window at will.

These factors are a few of those which must be met when attempting to apply a storm window assembly to windows of the sliding sash type, these being compulsory. To these should be added the fact that it should be possible to be able to pass the storm window through the normal window formation, in order to permit positioning from inside the room. It would be possible to expose the entire normal casement by removal of the sliding sash, but the need for external hinging (preferably at the top) of the storm window tends to reduce the use of the one-piece window to installations on the ground floor; on other floors it is preferred to utilize storm windows of the two-member type, and

arranged in such way as to permit positioning by simply raising the lower normal sash; such arrangement can obviously be used on all floors of the building.

In illustrating the invention in its varied forms, I have shown a normal window casement A having the sill *a*, with the usual outer beading *a'*, inner beading *a2*, and the intermediate parting strip *a3*, which produce the two parallel channels for receiving the two sashes, indicated as the upper sash *b* and lower sash *b'*. As is apparent, the space between the outer beading *a'* and the outer face of the casement A represents the space within which the storm window assembly must be found; this space is generally relatively narrow in depth and thus sets up one of the factors of the problem to be solved—the provision of an efficient storm window assembly within a space of small depth characteristic.

This result is obtained in several ways, as now to be described, but inasmuch as a preferred assembly is one that is applicable to windows regardless of location and offers the simpler methods of manipulation, the preferred form of the invention is that presented broadly in Figures 2 to 11, wherein two storm sash are utilized and located in the same plane to complete the storm window effect. In this form the sash is of wood with the usual pane or panes, and, for economical production these are of substantially similar dimensions. However, for reasons presently pointed out, the combined vertical length of the two sash is less than the length of the vertical length between the upper and lower inside dimensions of this outer portion of the casement A.

The small permissible dimensions for the assembly are such that it is not possible to utilize elaborate sealing structures for the storm window, and because of this the sealing effect is produced by the use of the principles of sinuous contacting faces—arrangement of opposing faces in such manner that any entering air must traverse a sinuous course in moving from the exterior into the space between the normal sash and the storm sash, and to provide this without materially affecting the configuration of the normal window structure, since the invention is designed as an addition rather than a substitution effect; hence, the sinuous path effect is set up herein mainly by the relation of added parts to the normal structure as well as by the relationships set up in the added parts. Such arrangement provides for efficient service, and yet does not prevent "breathing" action such as might be needed due to changes of the temperature within the space between the windows. For instance, with a strong sun the air between the windows may have a rise of temperature and thus cause air expansion; through the ability to "breathe" the higher pressure which would be set up by the expansion is relieved, and no damage occurs to either of the window structures. In the assemblies of this form, the parts are arranged to set up this sinuous effect.

The two sash of the storm window are indicated respectively as upper sash *c* and lower sash *c'*, these being arranged in vertical alinement. To retain the sash in position, a metallic U-shaped way *d*—shown in detail in Figure 11—is secured to the outer face of the outer beading *a'* at the sides of the casement A.

The overall length of the way *d* is equal to the interior vertical height of the casement—the inner leg which is the securing leg of the way, extends throughout this distance and forms a face against which the inner face of both sash *c* and *c'* rest, thus forming part of the sinuous path referred to. The opposite leg of the way, however, does not extend the full distance, but has a zone *d'* from which the metal is omitted, this zone being preferably in the lower half of the way. The length of zone *d'* is slightly greater than the vertical height of either sash, and the lower end of the zone may be spaced a short distance from the bottom of the way; in other words, the outer leg of the way has a zone of sufficient length such as will permit either sash *c* and *c'* to be passed, as presently described. The distance between the legs of the way is materially less than the width of the sash—see Figure 4—and upper sash member *c* is provided with an edge recess *c2* at each side to receive this outer leg of the way *d*. The inner face of the bottom of the way is preferably provided with several leaf spring structures *d2*—see Figure 8—these being located between the two legs and designed to frictionally support the upper sash *c* in position. The width of these sash *c* and *c'* is slightly less than the distance between the distance between the bottoms of the opposing ways *d*, to accommodate the springs *d2*, but leaving the latter under tension when the upper sash *c* is in position.

The two sash *c* and *c'* rest in contact with each other at their meeting faces, and to provide the sinuous path referred to, the lower edge of sash *c* and the upper edge of sash *c'* are complementally arranged with a rabbet joint *c2*, with the tenon rib of sash *c'* located inside. Hence, although there is presented a rabbet joint effect between the two sash—setting up the sinuous path—the joint is protected against entrance of rain through the joint into the space between the windows. To ensure a close joint, sash *c* carries one or more spring fingers *c3* at its lower edge and on the inner side, the fingers being flared outwardly as indicated, so as to facilitate proper mating when being assembled and in service.

As pointed out, the vertical length of each of sash *c* and *c'* is less than half the length of the distance between sill *a* and the upper inner face of casement A; hence, the combined vertical length of the two sash does not close the opening of the casement. Since, in practice, it is essential that the upper sash contact the upper wall of the casement, and that the lower sash have a close joint contact with the upper sash, it is necessary to provide for supporting the lower sash *c'* in such contacting position; this support is provided by the use of a pair of lengthy tension springs *c4*—one at each side of the sash—one end of the spring being secured to the outer beading *a'*, and the other end secured to the adjacent side of the sash, the spring being located on the inner side of the sash; one end of a spring, at least, is made readily removable from its fastening to enable ready assembling and disassembling of the spring mounting, the spring normally being under a desired tension when the two sash are in contact.

The upper end of zone *d'*, in practice, is preferably above the line of meeting between the two sash, so that the zone extends partially above the lower portion of sash *c*. The lower end of the zone *d'* in Figures 2 and 5, is spaced from sill *a*, but the arrangement of the lower edge of sash *c'* is such as to not conflict with the portion of this way leg which is retained at the bottom of the

way *d*. This permits the lower sash *c'* to swing outward, with the rabbet joint as a pseudo hinge, for ventilation, springs *c4* retaining the contact between the sash. Suitable securing means, illustrated by hooks and eyes *c5* at the bottom of sash *c'*, serve to retain such sash in its closed position; when it is desired to swing the sash for ventilation, this connection is broken, the sash swung outwardly, and held in the latter position by suitable means, the hook and eye structure *c6* illustrating a convenient means.

To close the space below the sash *c'* either of several means may be employed. For instance, in Figure 2—and in Figure 5—the lower reach of ways *d* which includes two legs may receive a strip *e* which extends across the window; this strip may extend above the lower end of zones *d'*—in which case the lower edge of sash *c'* is recessed on its inner side to receive a portion of the strip, and to complete therewith a sinuous path below the lower sash *c'*. Or, as indicated in Figure 12, special metallic pockets *f*, attached to the beading *a'*, may receive strip *e*, thus placing the strip completely inside of the sash *c'*—in which case the lower edge of the sash is not recessed. While not absolutely essential, I prefer in such case, to provide strip *e* with a cushioning or sealing element *e'*, as illustrated in Figure 19; the addition of the latter seals the space between the lower sash *c'* and strip *e*. Or, as indicated in Figure 17, the inner face of the lower portion of sash *c'* may carry a downwardly projecting plate *g*, preferably mounted for vertical adjustment, and which, when the window is closed, seats against a ledge in sill *a*. In the forms of Figures 12, 17 and 19, the zone *d'* of ways *d* preferably extends to the lower end of the way, to ensure freedom of swinging movement of the sash, the latter not being recessed in these forms.

In practice, it is apparent that after ways *d* have been installed, the upper sash can be passed out through an opened lower sash opening *b'* to a position outside of the ways, after which the sash is brought inward through zones *d'* into contact with the continuous leg of the ways, being below the upper end of zones *d'* at such time. By then sliding sash *c* upward, it passes into proper position with respect to both legs of the ways, and into engagement with springs *d2*, the latter retaining this sash in its upper position through frictional contact. Sash *c'* is then passed through the opened lower sash opening similar to the practice above described with respect to the upper sash member *c*, and brought into contact with the continuous leg of the ways, and then moved into contact with the lower edge of sash *c*. Springs *c4* are then secured in position to sustain the lower sash—and to aid in maintaining upper sash *c* in its upper position—after which the securing means *c5* is made active.

This firmly seats both sash in position, the upper sash being held against outward movement by the legs of the ways, while the lower sash is held against outward movement by the securing means *c5* and the rabbet joint with the upper sash; inward movement of either sash is prevented by the ways inner legs. Both sash will be retained in their upper positions by springs *c4*, with the upper sash assisted by springs *d2*, as well as by strip *e* when the form of Figure 2 is being used. When it is desired to ventilate, means *c5* is released, the lower sash swung outward about the rabbet joint, and securing means *c6* applied. Obviously, the storm sash can be removed by a reversal of the installation procedure.

While removal of the sash during the warm weather may be desirable, it is not essential. For instance, one of the features of the present invention includes the supply of an additional sash similar to sash *c'*, excepting that the glass pane of the latter is substituted by a wire screen formation—such a sash is indicated at H in Figure 14. Such screen sash can be substituted for sash *c'* during the summer months; and, if desired, a similar substitute for sash *c* could be provided, thus changing the complete storm-sash "set-up" to a screened condition for summer service.

As is apparent, the arrangement which places the vertical length of the storm window as less than the similar internal dimension of the casing, is in contrast with the universal storm window practice, since it leaves an opening at the bottom of the casement. However, the change does not affect the desired result, due to the fact that the strip *e* serves to close this space while the sinuous path thus set up serves to provide the sealing action that is desired. Several advantages are obtained through the arrangement shown. For instance, provision must be made for ventilation, and the simplest way of securing this is to permit swinging of all or a part of the storm window—the alternative would be to provide a door in the storm window itself, thus complicating the storm window construction since the door would need to swing outward due to space restrictions; the swinging action should be on an upper axis in order that the swung window would incline outwardly and downwardly to protect against rain or snow; with the lower edge contacting the sill, it is apparent that any accumulation of ice or snow on the sill outside of the window would tend to prevent ready swinging action. In addition, it is possible—especially with the forms of Figures 12 and 19—to provide for minor ventilating effects by simply raising strip *e* (or adjusting this strip in Figure 17) to a desired extent without opening the swinging sash. Again, raising of the strip *e* would permit any moisture—due to the entrance of rain or snow while the storm window were swung to an open position—to readily drain out over the sill *a*.

As indicated in Figures 15 and 16, the storm window arrangement need not necessarily be of the wood sash type, these views indicating the sash *c* and *c'* as being of metal frame type, in place of the wood frame type of the remaining disclosure. Since this permits of a narrower width of sash without loss of strength, the ways *d* used with this form have the distance between legs sufficient to receive the complete sash width. The ways would include the zone *d'*, with the latter continued to the lower end of the way. Since the rabbet formation of the meeting faces of the two sash—present with the wood form—is not convenient in the metallic form, a similar effect is produced by providing a downwardly-projecting plate formation *c10* at the lower edge zone of the upper sash *c* and located on the outer side of the sash, as indicated in Figure 15; the plate condition effect may be produced in any desired way. The lower sash *c'* is supported in similar manner to that of the wood form, and strip *e* is inside of the lower edge of the lower sash and arranged as in either of the forms of Figures 12 and 19.

As indicated in Figure 21, the storm window *h* may be of the one element type, in which case it is hinged at its upper edge to the casement A.

The way *d* in this form omits the outer leg, since the outward swinging movement is of the entire window. As in the remaining forms, the lower edge of the window is spaced from the sill *a*, either of the several types of mounting strip *e* being utilized to complete the closure effect. Since the window is supported from its hinges, springs *c4* are omitted, the securing means *c5* serving to retain the lower end of the window in position. While this form operates efficiently, the need for the hinge mounting on the outside practically necessitates securing in position from the exterior when being installed or removed, and for this reason this particular form is more particularly adapted for installation on windows readily accessible from the exterior.

As is apparent the protection effect is produced by what may be termed the "main unit"—which may be the two sash *c* and *c'* or the one member shown in Figure 21—and the closure strip *e* in either of its types or the plate *g*. In such assembly the portion protected by the strip *e* or plate *g* is but a relatively small percentage of the total height of the space to be protected, so that the two-member or the one member elements provide the main portion of the protection; since the vertical length of the main portion remains similar whether of one or two member formation, such main portion may be considered as the main unit of the assembly and is to be given this meaning in the present description.

As is apparent, each of the forms shown sets up the condition of a storm window formation capable of ready installation within the limitations of the narrow width of casement that is found external of the outer beading of sliding sash windows, and which will present the sinuous path type of sealing to produce efficient winter service conditions. In each form the assembly provides for ventilating possibilities in a simple manner. Each of the forms presents a simplified structure such as can be provided at low cost—a factor especially valuable where the installation is to be made on windows of older houses, where heavy outlays for large numbers of windows may not appear warranted.

As shown in the drawings, each of the forms shown involves the spacing of the lower edge of the storm window member or members from the sill *a* of the casement, together with the use of strip arrangement *e* as a means for substantially closing the opening thus provided; and in the above description some of the advantages due to the presence of the strip arrangement have been emphasized as a part of the disclosure of the structures employed. However, certain additional advantages are present for this arrangement and which are made manifest through comparative consideration with a structure or structures which do not utilize this idea.

For instance, with the storm window assembly extending the full height of the window, the lower rail of the lower sash *c'* would need to contact with the sill; with the lower sash used for ventilation, it would be necessary to swing such lower rail, and the need for this could make it difficult to obtain a good closure effect with the sill. But the greater difficulty would result from the fact that not only would there be a tendency to set up swelling of the lower zone of this sash, especially in inclement weather with the sill carrying snow or rain, but the fact that trapped moisture inside of the storm window (as when the latter is opened for ventilation) would not only tend to provide such swelling effect, but present the added possibility of producing a spongy and water soaked condition within such rail itself, resulting in rotting of the rail and the need for replacing the entire sash.

These conditions are avoided in the present structure due to the fact that the rail is spaced from the sill—thus providing a non-contacting relation with the sill as well as a drainage channel. While moisture trapping is possible with the present arrangement, the ability to raise strip *e* enables ready drainage; and even in the event of the trapped moisture affecting the strip itself, deterioration of the latter such as to require replacement would be the renewal of the small strip formation—inexpensive as compared with the cost of replacing a lower sash member in its entirety.

While I have illustrated and described various structural arrangements for carrying out the fundamental objects of the invention, it will be readily understood that changes and modifications therein may be found desirable or essential in meeting the various exigencies of installation and service, or the individual desires of users, and I reserve the right to make any and all such changes and modifications as may be found desirable or essential, insofar as the same may fall within the spirit and scope of the invention as expressed in the accompanying claims, when broadly construed.

I claim:

1. The combination with a window construction of the sliding sash type, wherein the construction includes a casement having a sill and the usual outer and inner beading together with the parting strips to provide the parallel channel formations for the sliding sash, of means for applying storm window protection for such window construction, said means comprising a main unit composed of a pair of vertically alined members and mounted within the casement, said members having an overall vertical dimension less than the distance between the casement sill and the upper inner face of the casement and located outside of and in proximity to the outer face of the outer beading when in storm protection position with the top of the upper member substantially in contact with such upper inner face of the casement to thereby position the lower zone of the lower member of the unit as spaced from the casement sill, said unit members having their opposed meeting edges of complemental rabbet formation wherein the inner zone of the lower member edge is of male characteristic to the similar zone of the lower edge of the upper member, means for supporting the members in such position with the two members free from securing relation with each other, and a closure strip of greater vertical dimension than the vertical distance between the planes of the lower edge of the lower member and the sill and with the strip mounted for vertical adjustment relative to the sill, said closure strip being mounted to co-operate with the sill and the rear face of the lower edge zone of the lower member of the unit to complete the protection closure of the casement interior with the closure external of the sliding sash.

2. A combination as in claim 1 characterized in that the closure strip is mounted with its inner face substantially in the vertical plane of the inner faces of the unit members, with the inner zone of the lower edge portion of the lower member of the unit recessed to receive strip portions.

3. As a means for applying storm protection

to window construction of the sliding sash type, wherein the window construction includes the usual casement with its sill and having the outer and inner beading with the interposed parting strip to provide the parallel channels for the sliding sash, a protection assemblage comprising a pair of metallic U-shaped ways secured respectively to the outer face of the outer beading at opposite sides of the casement, and with the bottom of each way in proximity to the casement side, the inner leg of each way having a length equal to the vertical distance between the sill and the upper inner face of the casement and having its outer leg length such as to provide an open zone for the ways, a removable upper member having a thickness greater than the distance between the legs of the U-shaped ways and having its side edges grooved intermediate the member side faces to receive the outer legs of the ways and insertible through such open zone and be slidable to upper position relative to said ways, a removable lower member of substantially similar thickness to the upper member also insertible through such open space and positionable in similar relation to the outer leg of the U-shaped means and with its upper edge in contact with the lower edge of the upper member with such meeting faces complementally presenting a rabbet configuration in which the male portion of the lower member is located at the inner side of the vertically alined members, the overall length of the positioned members being less than the vertical distance between the sill and the upper inner face of the casement to thereby provide a space between the sill and the lower edge of the lower member, means for supporting the two members in such position, and a closure strip of greater vertical dimension than the vertical distance of such latter space with the strip mounted for vertical adjustability relative to the sill, said closure strip being mounted to co-operate with the sill and the lower edge zone of the lower member to complete the protection closure of the casement with the closure external of the sliding sash.

4. An assembly as in claim 3 characterized in that the upper limits of the open zones of the outer legs of the ways is positioned above the meeting line of the members with such open zones having a length to thereby permit bodily swinging of the lower member outward at will about a horizontal axis provided by the rabbet configuration and with the lower edge zone of the member having the greater range of swinging movement.

5. An assembly as in claim 3 characterized in that the lower limit of the open zone of the ways is spaced from the sill to thereby present an end zone of the ways as a means for positioning the closure strip.

6. An assembly as in claim 3 characterized in that the supporting means for the members includes tensioning springs having their upper ends carried by the outer beading and their lower ends carried by the lower member, said springs serving to retain the lower member in contact with the upper member and the latter in contact with the upper inner face of the casement.

7. An assembly as in claim 3 characterized in that the closure strip is in the form of a flat plate carried by and adjustably secured to the inner face of the lower edge zone of the lower member and co-operative with the sill to complete the protection assembly.

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