Jan. 23, 1951 LE ROY S. GAMBLE 2,539,126

WINDOW SEAT

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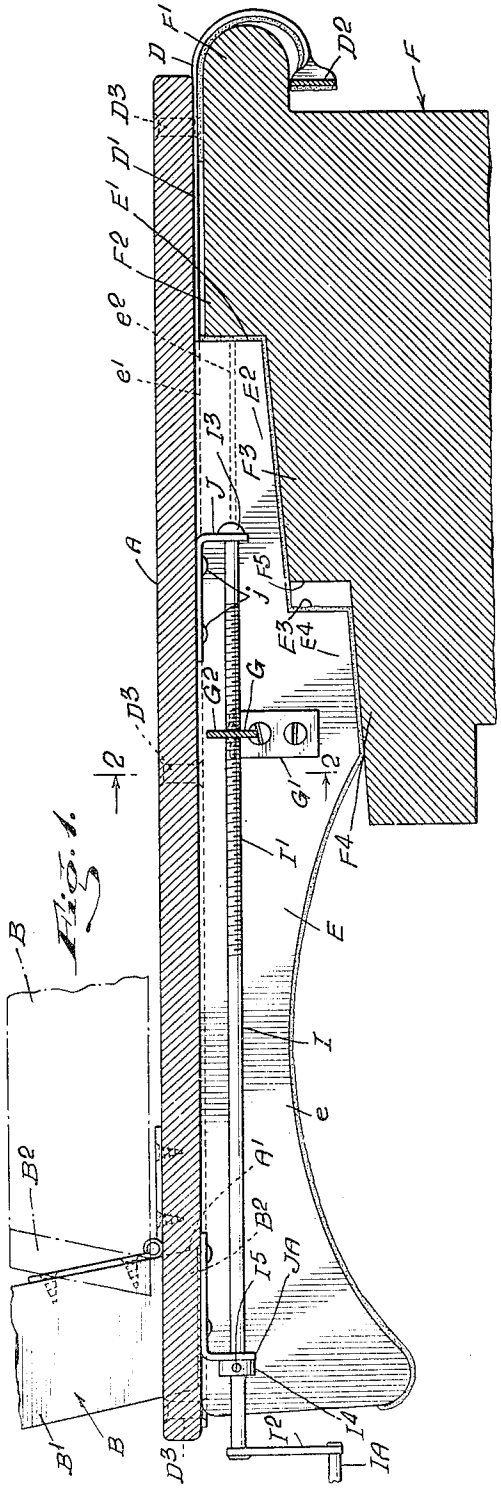

Fig. 1.

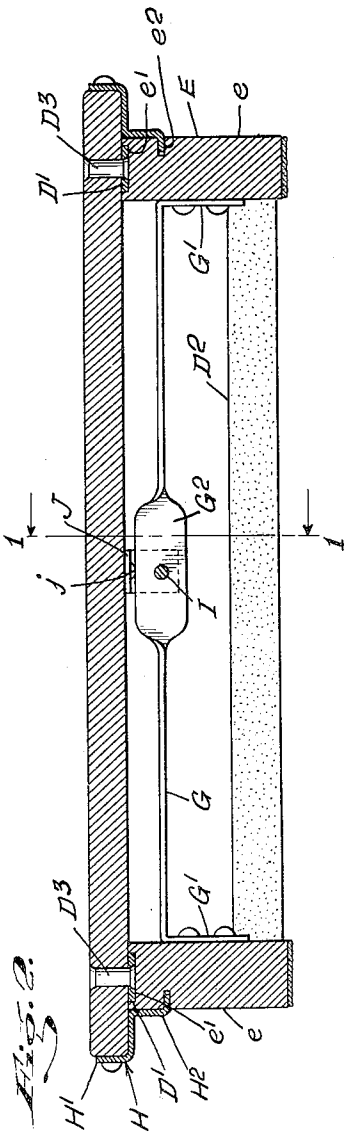

Fig. 2.

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Fig. 4.

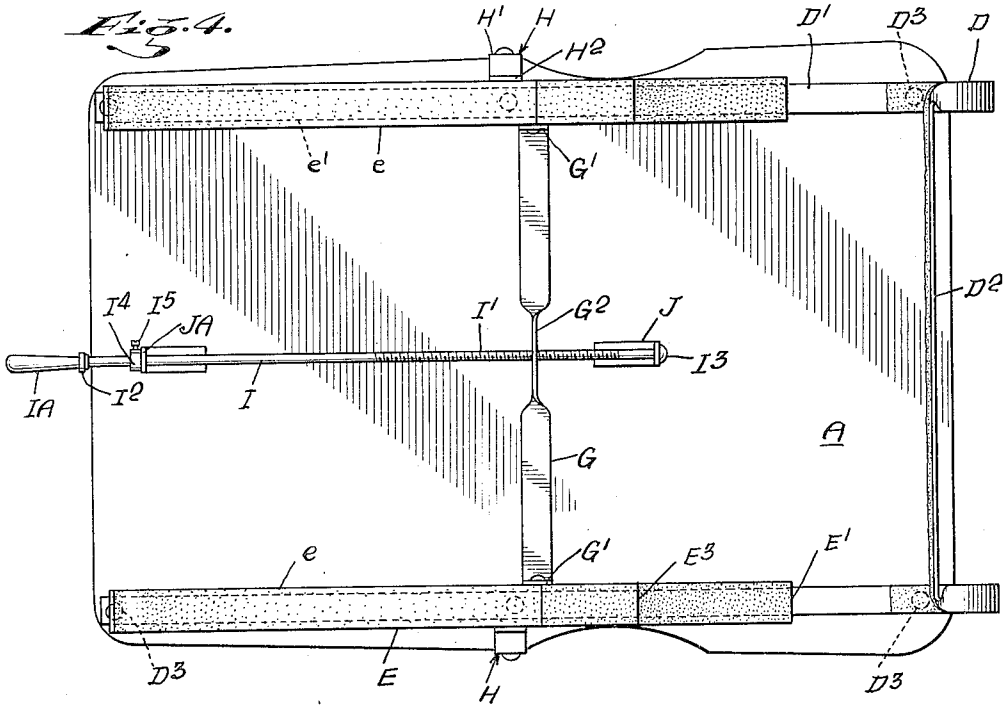
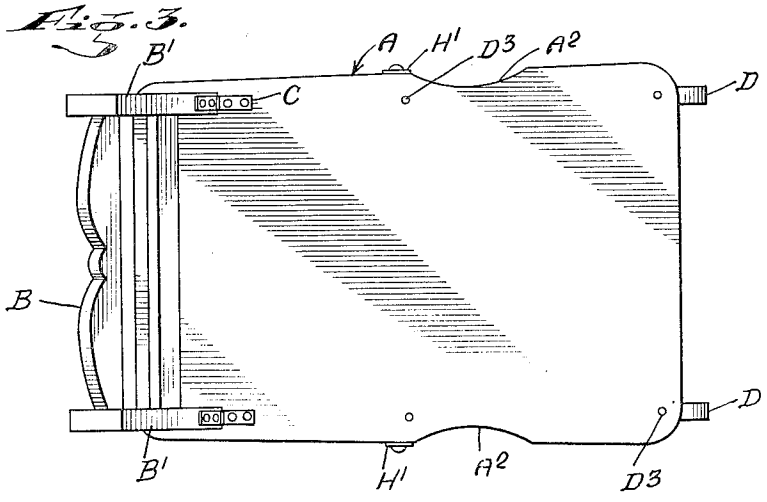


Fig. 3.



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WINDOW SEAT

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5 Claims. (Cl. 304—24)

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The general object of the present invention is to provide an improved window chair or seat of the type adapted for detachable mounting on the bottom or sill portion of a window structure, and primarily intended for use in washing windows or for analogous purposes by a user whose body is at the outer side and whose legs are at the inner side of the plane of the window.

More specific objects of the invention are to provide a window chair of the character mentioned which is of relatively simple and inexpensive construction; and which is of relatively light weight; and which may be readily attached to and detached from window structures having different dimensions; and which is characterized by its inherent strength and safety provisions.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, its advantages, and specific objects attained with its use, reference should be had to the accompanying drawing and descriptive matter in which I have illustrated and described a preferred embodiment of the invention.

Of the drawings:

Fig. 1 is an elevation of a window chair mounted in a window structure, in section on the line 1—1 of Fig. 2;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a small scale plan view of the window chair; and

Fig. 4 is an inverted plan view of the window chair.

My improved window chair, in the form shown in the drawings, comprises a seat portion A, a back portion B connected to the seat portion A by hinges C, a hook portion D at the front end of the chair and beneath and attached to the seat portion A, and a member or frame E connected to the underside of the seat A for guided movement toward and away from the hook D. As shown in Fig. 1, the hook D is adapted to hook around the undercut inner edge portion F′ of the inner sill of a window structure F, and to be held in engagement with said edge portion by the member E when the latter is adjusted relative to the seat A to bring vertical surfaces E′ or E^3 of the member E into clamping engagement, or into a suitable interlocking relation, with an outwardly facing vertical shoulder portion F^2 or F^5, respectively, of the window structure. In the conventional window structure

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shown, the shoulder F^2 is the vertical outer edge of the inner window sill and extends downward to the upper side of an intermediate window sill portion F^3 of said structure. The shoulder F^5 is the vertical outer edge of the sill portion F^3 and extends downward to the upper side of an outer window sill portion F^4 of the window structure. As is customary, the upper sides of the portions F^3 and F^4 are slightly inclined downward from the horizontal. In the closed position of the window, the shoulder F^2 is overlapped by the lower portion of the window sash. In normal use, the weight of the chair and its user is transmitted through leg portions E^4 of the frame E to the outer window sill portion F^4.

The chair back B comprises two side frame members B′ each connected to the seat A by a separate hinge C, so that the back B, when not in use, may be turned into its dotted line position shown in Fig. 1. A tenon B^2 at the lower end of each member B′ is received in a corresponding seat socket A′ when the chair is in use. The front end wall of each socket A′ is undercut for engagement along its length by the front edge of the tenon as shown in Fig. 1. The rear edge of the tenon then engages the rear end wall of the socket A′.

With the described tenon and socket arrangement, the chair back cannot turn backward away from its normal position to any significant extent in the unexpected event that either or both hinges break or become operatively disconnected from the chair seat or chair back.

In the preferred construction illustrated, the hook portion D of the window chair comprises two similar hook parts, each of which forms a curved front end extension of a straight steel bar D′. The two bars D′ are parallel to one another and extend away from the front end of the seat A, and are beneath and secured to said seat, adjacent the side edges of the latter. The hook ends D of the bars D′ are connected by a transverse bar portion D^2. Advantageously, and as shown, the two bars D′, the two hook parts D, and the connecting part D^2 are integral portions of the single bar or strip of steel bent into the shape described. Each of the straight bars D′ is securely fastened to the seat portion A. As shown, the latter is a wooden board to which each strip D′ is secured by a plurality of rivets D^3 extending through the seat and through the strip D′. Each rivet has an enlarged head at its upper end and has its lower end welded to the corresponding strip D′, or has its lower end upset

to anchor the rivet in said strip. The strips D' thus strongly reinforce the seat A and also serve as guide bars or rails along which a clamping frame E is longitudinally movable.

In the form shown, the frame E comprises two side by side elongated wooden bars *e* and a metallic cross-tie member G. Each bar *e* is formed with a longitudinal groove *e'* in its upper edge to receive the corresponding guide bar or rail D'. The front end surfaces of the bar *e* are the previously mentioned surfaces E'. The vertical surface E^3 of each member *e* forms the front end of a corresponding leg portion E^4 of the frame E. The leg portions E^4 and the front end portions E^2 of the bar *e* are normally directly above the window sill portions F^4 and F^3, respectively. The cross-tie member G is shown as a metal bar having transversely bent end portions G' which abut against the sides of the corresponding wooden bars *e* and are secured to said bars by means of screws or bolts. The member G has a central portion G^2 with its flat sides transverse to the seat A. Each side frame member *e* while movable longitudinally of its guide bar D' is prevented from movement vertically away from the guide bar by a bent metal arm or bracket member H which as shown, has an outturned upper end H' connected as by means of a screw to the underside of the chair A at a point intermediate the ends of the seat, and has its lower end H^2 parallel to the end portion H' but bent away from the body of the bracket in the opposite direction. The end H^2 of each bracket member or arm H extends into a longitudinal guideway or slot e^2 formed in the adjacent member *e* and parallel to the upper side of the latter. The two members H cooperate to hold the frame E including the two side members *e* and cross-tie member G, against movement away from the seat A in a direction perpendicular to the underside of the latter. As will be apparent, the guide members H are needed to hold the frame E in proper relation with the seat A when the latter is not mounted in a window structure as shown in Fig. 1. When mounted in the window structure, the weight of the seat portion A and the load supported by the seat, holds the strips D' in the slots *e'*.

My improved chair comprises means for adjusting the frame E longitudinally of the guide strips D' as required to establish and interrupt the clamping or interlocking engagement of the hook D and frame E with the window structure. In the form shown, the adjusting means comprises a metal rod I parallel to and approximately midway between the frame members *e*. The rod I has a front end portion journalled in a front bracket member J suitably secured as by screws *j* to the seat member A, and has a rear portion journalled in a rear bracket JA similar to the bracket J and similarly secured to the seat member A adjacent the rear end of the latter. An intermediate threaded portion I' of the rod I extends through and is in threaded engagement with the threaded wall of an internally threaded aperture formed in the portion G^2 of the member G. In consequence, the rotation of the rod I in its bearings in the brackets J and JA will move the frame E toward or away from the hook D, depending on the direction of rotation of the rod I. To facilitate the rotation of the latter, a crank arm I^2 is attached to the rod at the rear of the board A and is provided with a handle IA parallel to the rod. As shown, the rod I is held against

longitudinal movement toward the rear end of the chair by a head I^3 riveted or otherwise suitably secured to the front end of the rod in position to bear against the front side of the uprising bracket J, and is held against longitudinal movement toward the hook D by a collar I^4 secured by a set screw I^5 to the rod I at the rear of the bracket JA. The hook portion D, and the edges of each bar *e* which engage the window structure may advantageously be faced with heavy cloth or other non-metallic material which will prevent injury to the window structure surfaces engaged by the chair.

In practice my improved window chair is shaped and propertioned for use with window structures which are of the conventional form shown in the drawings and used in most houses and apartments. In such a window structure the general form and dimensions of the parts engaged by the window chair shown when the latter is in its operative condition shown in Fig. 1, are practically standardized. Thus the width of the horizontal inner sill portion of the window structure extending between the inner or room side of the ledge F' and the shoulder F^2, is seldom wider than 6'' or narrower than 4''. The vertical extent of each of the shoulders F^2 and F^5 is usually about 1''. The intermediate sill portion F^3 is customarily from about 3½'' to 4'' in width. The seat portion A of the window chair may well be about 15½'' wide at its front end and about 14'' wide at its rear end, and may be about 20'' or 21'' long, and may well be a wooden board ¾'' or so thick. The seat dimensions just noted are not critical but are stated by way of example, and to make it apparent that the form and dimensions of the window chair illustrated are such as to permit its use with window structures having dimensions considerably different from the standardized dimensions of the conventional window structure illustrated.

As will be apparent, the operation of putting the window chair in place as shown in Fig. 1, is a simple one. It consists essentially in extending the hooks D about the sill edge F' and in adjusting the frame E along the guide bars D' to bring the vertical surfaces E' or E^3 of the bars *e* into clamping or interlocking engagement with the shoulder F^2 or F^5, respectively, with the leg portions E^4 of the bars *e* resting on the outer window sill portion F^4 of the window structure. By suitable adjustment of the threaded rod I the vertical portion of the hook may be caused to exert a horizontal pressure against the sill portion F', while one or the other of the vertical frame surfaces E' or E^3 exerts horizontal pressure against the corresponding vertical shoulder F^2 or F^5, respectively, of the window structure. Such a clamping engagement is effected by rotating the rod I in its supporting brackets J and JA until the portion of the rod between the bracket J and the portion G^2 of the member G is under tension. Ordinarily, however, such a clamping or gripping engagement of the sort just described is not essential. The chair structure and the window structure may be effectively interlocked with the distance between the hook D and mmber E too great for the hook D and member E to simultaneously press horizontally on the window structure. For effective interlocking it is sufficient that said distance be small enough to insure that horizontal movement of the chair to the right from its position shown in Fig. 1, will cause the surface E' or E^3 to engage

the shoulder F^2 or F^5 before the lower portion of the hook D passes out from under the sill portion F'. So long as the hook extends under the edge portion F' the force of gravity will maintain the chair in place on the window sill structure.

As shown in Fig. 1, the horizontal distance between the window structure shoulders F^2 and F^5 is less than the horizontal distance between the vertical surfaces E' and E^3 of the bar *e*. In consequence, the end surfaces E' of the bars *e* engage the shoulder E' and the vertical surfaces E^3 are spaced away from the window structure shoulder F^5. When the horizontal distance between the shoulders F^2 and F^5 exceeds the horizontal distance between the vertical surfaces E' and E^3, as may happen, the surfaces E^3 will engage the shoulder F^5 and the surfaces E' will be spaced away from the shoulder F^2. If the two distances last mentioned are equal, the surfaces E' and E^3 will engage the shoulders F^2 and F^5, respectively. As shown, the vertical extent of the surface E^3 is so related to the vertical extent of the shoulder F^5 that the parts E^2 and E^4 engage the upper surfaces of the window sill portions F^3 and F^4, respectively. In some cases, however, the window dimensions are such that the lower edges of the portions E^2 will be above and out of engagement with the top surface of the window sill portion F^3.

Under all normal conditions, it is desirable that the weight of the chair and its load should be transmitted to the window structure through the legs E^4 rather than through the portions E^2, so as to keep the leverage with which the hooks D act on the window sill portion F' relatively small. If the relative dimensions of the window structure and chair make it necessary, a spacer may be placed between each vertical surface E^3 and the shoulder F^5 to thereby move the members *e* far enough to the left, as seen in Fig. 1, to prevent the portions E^2 of the member *e* from holding the legs E^4 out of engagement with the window portion F^4.

My improved window chair structure is characterized by its inherent strength and its safety characteristics. The portions of the window chair in which strength and reliability are essential from the safety standpoint, are the hook portions D, the sliding frame E, and the connections between said hook and frame portions and the seat portion A. With the bar end portions D' integrally connected to the hook portion D and connected to the seat portion A by rivets as described, and with the members *e* of the frame E rigidly connected by the metal bar G and with the latter connected to the chair seat through the threaded rod I as above described, ample strength is secured, and the risk of breakage of any part of the chair which will endanger the safety of the user is practically negligible. As previously explained, if either or both hinges C break while the seat is in use, the tenons B' will maintain the back in place, and failure of the brackets H occurring while the chair is in use will have no significant effect on the capacity of the chair for use or on the safety of the user, the primary purpose of these brackets H being to maintain the frame E in proper relation to the seat A when the chair is not in use. The storage of the chair, when not in use, is obviously facilitated by the hinging of the back B to the seat S so that those parts may be folded together as is indicated by dotted lines in Fig. 1.

While it is possible and may be practically

advantageous in some cases to make the seat A of aluminum or other light metal or of plastic, it is ordinarily economically desirable and practically satisfactory to make the seat A of wood as shown. A desirable characteristic of the seat is the provision of the seat with notches or cut away portions A^2, so located that in attaching the chair to a window structure, the operator, with one hand gripping the chair seat or back and the other hand rotating the rod I, is in position to visually observe whether the portions E^2 and E^4 of the frame E are in proper relation to the sill portions F' and F^3 and F^4.

While in accordance with the provisions of the statutes, I have illustrated and described the best form of embodiment of my invention now known to me, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus disclosed without departing from the spirit of my invention as set forth in the appended claims, and that in some cases certain features of my invention may be used to advantage without a corresponding use of other features.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A window chair adapted for detachable connection to a window structure comprising an inner sill undercut at its inner edge, a lower outer sill and a vertical shoulder extending between said sills, said chair comprising an elongated seat portion adapted to have its inner end portion extending over said inner and outer sill portions and its outer end portion extending outwardly away from the outer side of the window structure, parallel metallic guide bars secured to the underside of the seat portion, one adjacent each side edge of the latter and adapted to engage the upper side of the inner sill and be supported by the latter and each having a downwardly curved hook portion at its front end adapted to hook about said undercut inner sill edge, said seat portion being secured to portions of said bars directly above said inner sill and to portions of said bars of the outer side of said inner sill, a frame formed with guideways receiving said bars and extending downwardly therefrom at the outer side of said inner sill and movable along said bars toward and away from the hook ends of the latter, and formed at its front end with a positioning surface transverse to said bars and facing said hook portions, and formed with a bearing surface at its underside and at the opposite side of said positioning surface from said hook portions and adapted to seat on said outer sill portion, and a connection between said seat portion and frame adjustable to hold said frame at varying distances from said hook portions, and located in the space between the levels of said bars and bearing surfaces, and comprising a threaded rod parallel to said bars, bearings carried by said seat portion in which said rod is mounted for rotation about its axis, and an internally threaded element secured to said frame and in threaded engagement with said rod.

2. A window chair as specified in claim 1, comprising a chair back having side frame members connected to said seat, hinges connecting said chair back to said seat for turning movement from a position in which the back is above and alongside said seat and a normal operative position in which the back extends away from said seat, each side frame member terminating at its lower end in a tenon portion of reduced cross-

section and said chair seat being formed with a tenon receiving aperture having its front and rear walls so shaped relative to the front and rear walls of the corresponding tenon that said walls cooperate to prevent backward turning movement of said chair back away from its normal position in the event of hinge failure.

3. A window chair as specified in claim 1, in which the side edges of the chair seat are notched to facilitate visual inspection of the portions of the frame engaging the outer sill portion of the window structure by an individual engaged in connecting said chair to a window structure.

4. A window chair as specified in claim 1, in which said frame comprises two elongated side frame members each formed with a longitudinal groove at its upper side to receive the corresponding guide bar, and a cross-tie member connecting said side frame members and in which said connection between said seat and frame comprises a threaded rod parallel to said guide bars and in threaded engagement with said cross-tie member, and brackets attached to said seat

and formed with bearings in which said threaded rod is supported for rotative movement and is held against longitudinal movement.

5. A window chair as specified in claim 4, in which said bearing surfaces are formed by portions of the lower edges of said side bars and are inclined relative to their upper edges to maintain said seat substantially horizontal when attached to a window structure including an inclined outer window sill.

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