No. 651,145. Patented June 5, 1900.

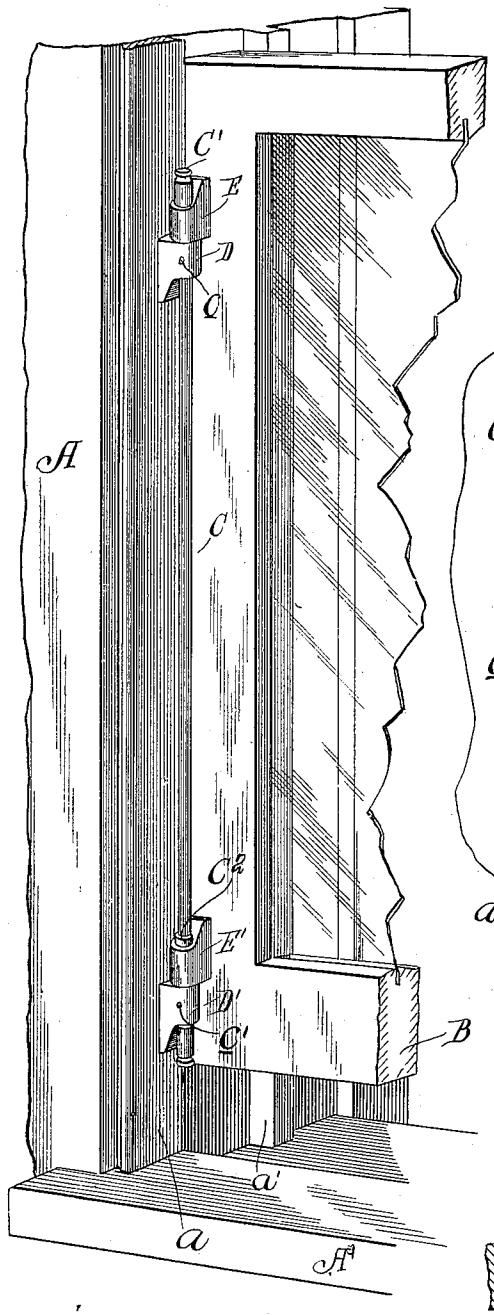
G. H. PARKER.

DETACHABLE HINGE.

(Application filed Jan. 26, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1



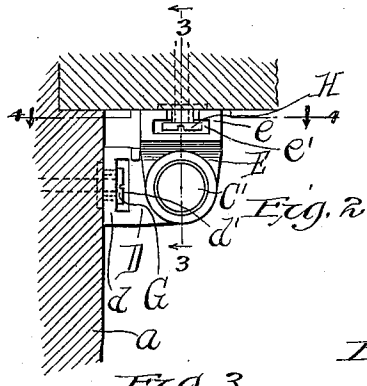


Fig. 2

Fig. 3

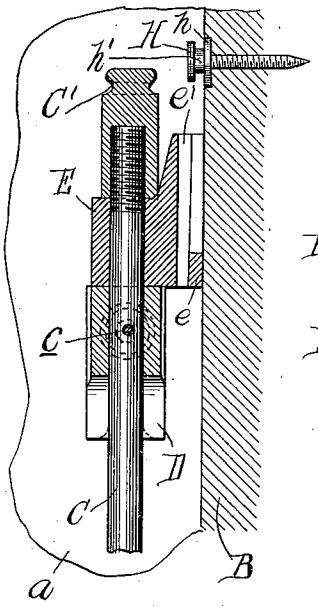


Fig. 4

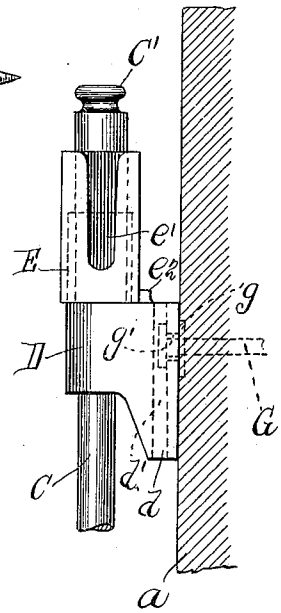
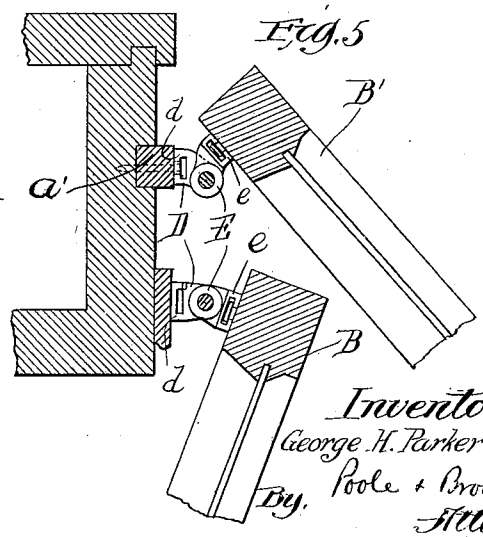


Fig. 5



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No. 651,145. Patented June 5, 1900.

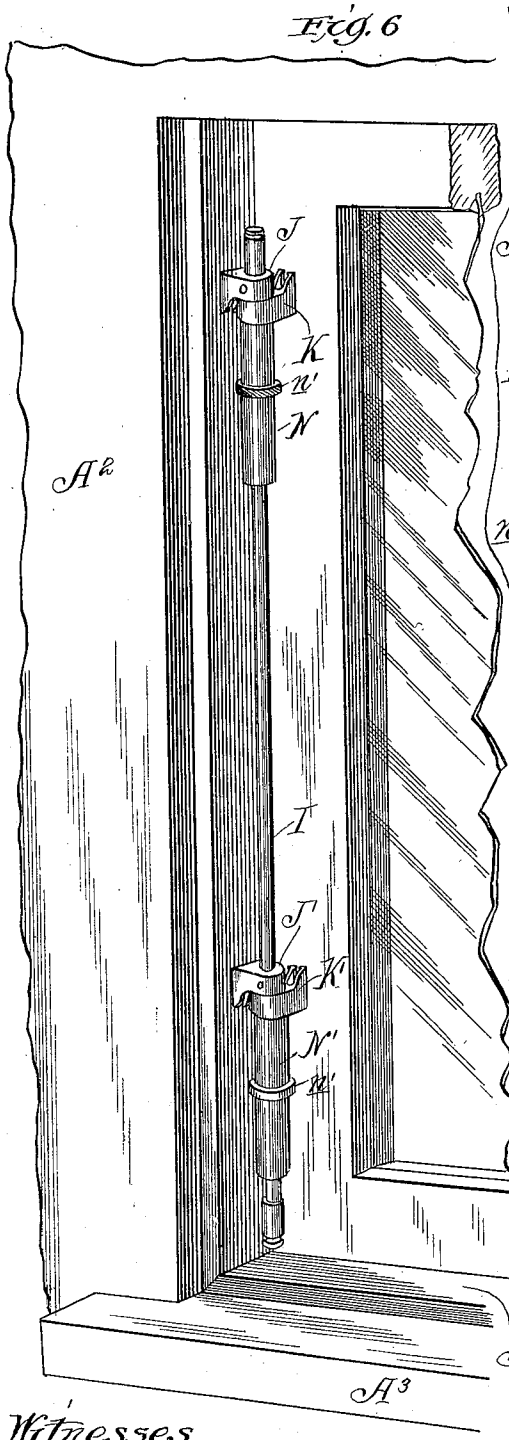
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(Application filed Jan. 26, 1899.)

(No Model.) 3 Sheets—Sheet 2.

Fig. 6



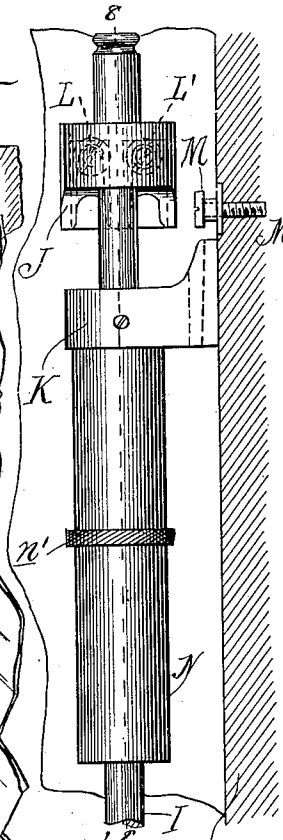


Fig. 7

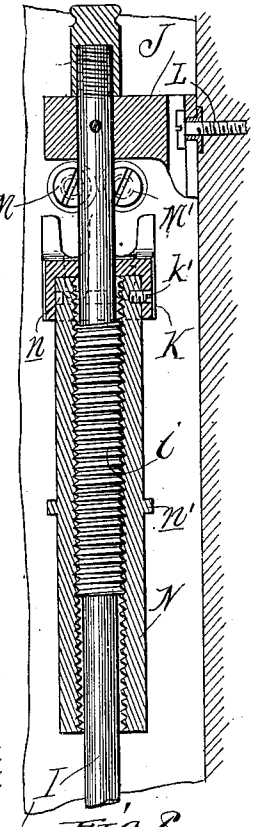


Fig. 8

A2 A2

Fig. 9

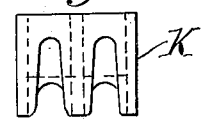
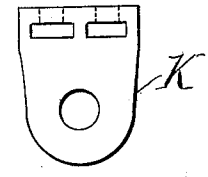


Fig. 10



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(Application filed Jan. 26, 1899.)

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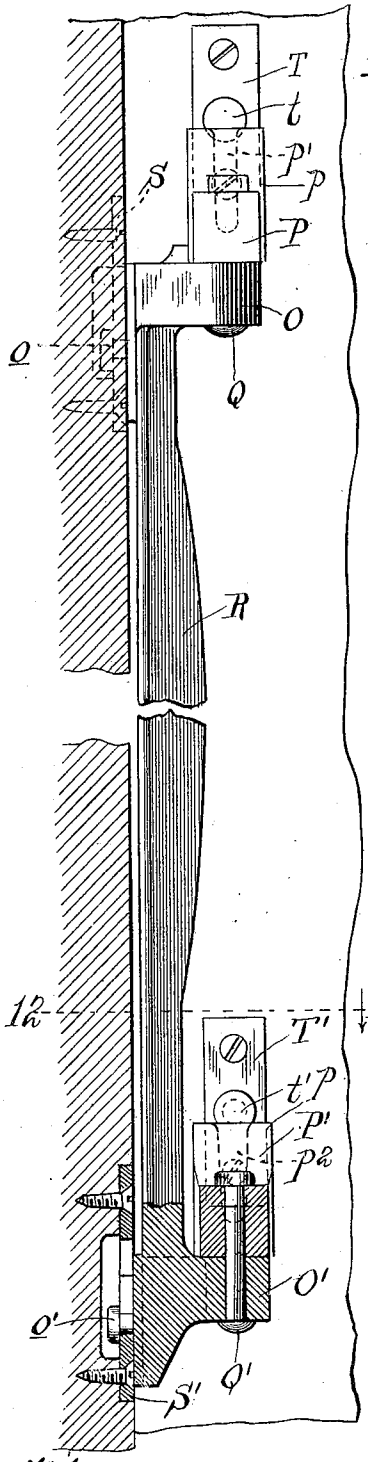


Fig. 11

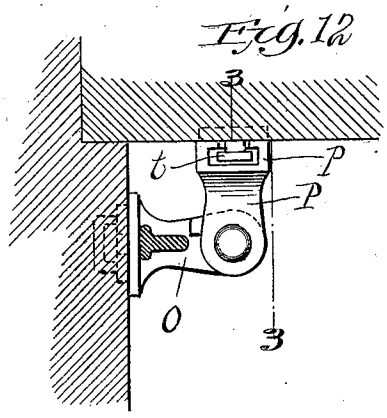


Fig. 12

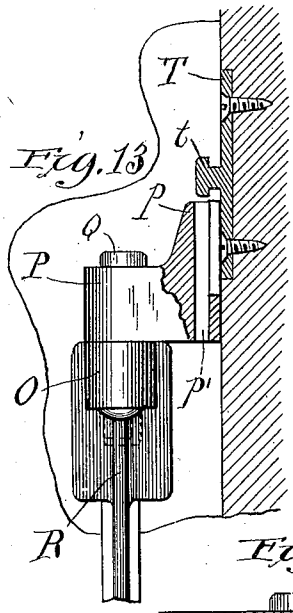


Fig. 13

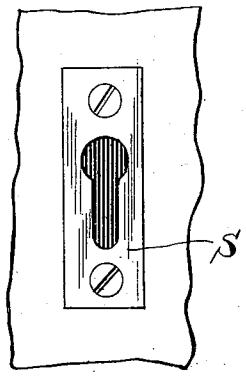


Fig. 14

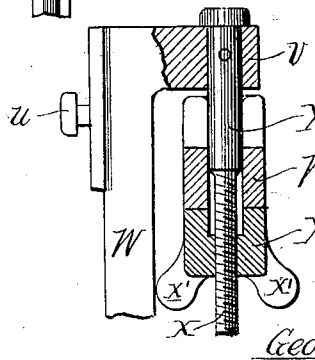


Fig. 15

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UNITED STATES PATENT OFFICE.

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DETACHABLE HINGE.

SPECIFICATION forming part of Letters Patent No. 651,145, dated June 5, 1900.

Application filed January 26, 1899. Serial No. 703,430. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PARKER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window-Swinging Devices; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel device for affording temporary pivotal support to a window-sash, door, or the like sliding, stationary, or non-pivotal object, by which such object may be pivotally sustained, as on hinges, while being moved or swung out of its natural position.

A device embodying my invention is mainly intended for attachment to a window jamb and sash, so that the latter may be swung out of the jamb to admit of cleaning both sides of the same; but the same features of construction may be employed to pivotally support other objects.

As shown in the accompanying drawings, Figure 1 illustrates an apparatus embodying one practical form of my invention applied to a sliding window-sash. Fig. 2 is a sectional view taken through the window jamb and sash shown in Fig. 1, showing in plan view the supporting device therein illustrated. Fig. 3 is a vertical section taken on line 3 3 of Fig. 2, showing the upper part of the device illustrated in Fig. 1. Fig. 4 is a sectional elevation of the same parts, taken on line 4 4 of said Fig. 2. Fig. 5 is a plan section through the jamb of a window and the upper and lower sash thereof, illustrating the use of two devices such as are shown in Fig. 1 as applied for supporting both sash. Fig. 6 is a perspective view showing the devices embodying my invention as applied to a stationary sash or object which has no vertical or up or down movement. Fig. 7 is a view in side elevation of one end of the supporting device shown in Fig. 6. Fig. 8 is a central vertical section taken on line 8 8 of Fig. 7. Fig. 9 is an inner face view of one of the brackets shown in Figs. 6, 7, and 8. Fig. 10 is a plan view of the same. Fig. 11 is a view in elevation of another form of device embodying the main features of my invention. Fig. 12 is a plan section of the same, taken on line 12 12 of Fig. 11. Fig. 13 is a side view of the brackets shown at the top of Fig. 11. Fig. 14 is a face view of a holding-plate attached to the jamb. Fig. 15 is a sectional view of a modified form of the device when provided with a vertically-movable bracket or hinge member.

As shown in the said drawings, Figs. 1 to 5, A indicates the jamb, and A′ the sill, of a window, said jamb being provided with a stop *a* and parting-strip *a′* in the usual manner.

B indicates the vertically-sliding lower sash, and B′ the similarly-arranged upper sash, of the window.

C indicates a vertically-arranged connecting bar or rod, on the ends of which are mounted hinge members or brackets D D′ E E′, of which the brackets D D′ are adapted for attachment to the jamb and the brackets E E′ are adapted for attachment to the sash. The pairs D E and D′ E′ of the brackets are located at opposite ends of said rod. One bracket of each pair of brackets is affixed to the pivot-rod, while the other bracket is adapted to rotate or turn thereon, the fixed brackets in the instance illustrated being those marked D D′, which engage the jamb. To now describe in detail the construction of said brackets, the same are illustrated more clearly in Figs. 2, 3, and 4, which show the upper brackets D and E, and the same will be described in connection with said upper brackets, it being understood that the lower ones D′ E′ are similarly constructed. The said brackets have base or back plates *d e*, which are provided with vertically-arranged open-ended slots *d′ e′*, adapted to receive the headed studs G H upon the jamb and sash. Said studs, as shown in these figures, are formed by screws inserted into the jamb and sash. The slot *e* on the upper bracket E, which engages the sash, opens upwardly, while the slot *d′* of the lower bracket D, which engages the jamb, opens downwardly. The back plates *e d* are, moreover, herein shown as made integral with the main parts of the brackets and as joined to the brackets by integral side walls, the body parts of the brackets, together with the bottom plates and connecting side walls, forming

vertical recesses in the bases of the brackets, adapted to receive the heads of the studs when the shanks thereof are inserted into the slots *e' d'*. The said back plates are preferably made thicker at the inner than at the outer ends, or, in other words, taper slightly toward the inner end of the slots *d' e'*, so that they will act with a slightly-wedging action to bring the heads of the studs in close contact with said back plates when the brackets are engaged with said studs. In engaging the brackets thus constructed with the jamb and sash the sash is first raised until the stud H therein is above the stud on the jamb, and the lower bracket D is then drawn downwardly over the head of the stud on the jamb until the latter reaches the inner end of the slot *d'* and the flat face of the bracket is brought in firm contact with the jamb. The sash is then lowered, so as to bring the head of the stud thereon downwardly into the slot *e'* of the upper bracket E, it being of course understood that when the sash is thus engaged with the upper bracket the weight of the sash is carried by the upper bracket resting on the lower one, the two parts of the bracket acting like the members of a hinge.

In order to protect the face of the jamb and sash from wear or injury by contact of the brackets D and E therewith when the studs G and H are formed by screws, as shown, said screws are provided with washers *g h*, which are countersunk in the jamb and sash, so as to be flush with the surface thereof. Said washers are, moreover, preferably provided with integral sleeves *g' h'*, which surround the shanks of the screws adjacent to its head and come in immediate bearing against the sides of the slots *d' e'*. Said sleeves not only prevent wear from coming directly on the shanks of the screws, but also operate to accurately determine the distance of the screw-heads from the face of the jamb and sash at the time of inserting the screws, while making stiffer and stronger the projecting portions of said screws.

The rod C in the construction shown forms the pivots for both pairs of brackets, and both brackets D and E and D' and E' may turn on said rod; but as herein shown and preferably constructed the brackets D D' are rigidly attached to the rod, preferably by means of cross-pins *c c'* inserted through the parts, this construction serving to retain the said brackets D D' constantly in alinement with each other, so that they will always project at the same side of the rod, and avoiding the necessity of adjusting them by hand when engaging them with the studs on the jamb. To retain the upper bracket E from endwise movement on the rod, a thimble C' is secured to the upper end of the rod, preferably by a screw-threaded joint, the lower edge of said thimble forming a shoulder which bears against the bracket to hold it in place on the rod. To retain the lower bracket E' from endwise movement on the rod, the latter is shown as provided with a collar C^2, Fig. 1, located above the said lower bracket E'. A stop projection e^2 is provided on the lower bracket of each pair in position for contact with the upper bracket when the latter is in position at right angles with the lower brackets. By turning both upper brackets by hand until in contact with said stop the said upper brackets will be brought into position for engagement with the sash before the parts are applied to the jamb. Both sets or pairs of brackets being permanently connected with the rod C and being also adapted for detachable engagement with the headed studs on the jamb and sash, it is obvious that the supporting device described, consisting of the said brackets and connecting-rod, constitutes a complete device having no detachable parts, which is placed in its operative position only when required for use, the only parts which need to remain permanently on the jamb and sash being the headed studs. Moreover, a number of windows may be provided with the headed studs, and one supporting device only need be employed for operating on all of the several windows.

The operation of the device described is as follows: It being desired to swing the sash out of the jamb for washing the window or any other purpose, the lower sash is raised a short distance and the device is placed against the jamb with the brackets D and D' above the studs therein. The rod is then moved downwardly, carrying the brackets with it, until the said brackets are properly engaged with said studs. The swinging brackets E E' having been placed with their base-plates in contact with the sash, if the sash be now lowered the headed studs therein will be similarly brought into engagement with the base-plates of said last-mentioned brackets. The window-stops at the side of the window opposite to that at which the supporting device is applied may now be removed to release the same. The cords connecting sash-weight with the sash may then be disconnected from the sash and the released edge of the sash then swung outwardly into the room, the weight of the sash at this time being sustained by the supporting device in an obvious manner.

The connecting-rod C, arranged as described, not only affords permanent connection of the pairs of brackets with each other, but also serves as an important aid to the studs in holding the brackets in alinement with each other under the strain arising from the weight of the sash, which in the absence of said rod would obviously bring a heavy strain on the studs, due to the leverage of the brackets thereon, it being obvious that the said rod, by rigidly connecting the brackets, prevents the same from acting independently on their respective studs in a manner to draw them outwardly from the jamb and sash. The rod being engaged with the movable brackets, which are attached to the sash, obviously holds the same in alinement equally with the

other brackets, which are rigidly attached to the said rod. Said rod, moreover, serves to permanently connect the upper and lower brackets, so as to constitute a supporting device having no loose or separable parts to be handled in the use of the device, while at the same time greatly simplifying the operation of applying the device to the window, because enabling both the upper and lower brackets to be secured at one operation to the jamb by merely moving downwardly both the said brackets when the same are pressed against the jamb at points over the studs.

In Fig. 5 I have shown in plan view supporting devices such as have been described as applied for supporting both the upper and lower sash of the window, both supporting devices being alike, except that to adapt them to windows as usually constructed in the case of the device for the upper sash the brackets which engage the jamb are inclined or curved to give an offset position of their bases, so that the brackets may fit against the parting-strip a' when their pivotal axis is located at a proper distance outwardly from the face of the sash. In the drawings, Fig. 5 shows both brackets D and E as made of the same shape; but obviously the bracket E in the case of the support for the upper sash may be made of the same shape as that shown in connection with the support for the lower sash.

A pivotal supporting device made as described (shown in Figs. 1 to 5) is adapted principally for use in connection with the vertically-sliding sash or like object, which has vertical movement in a manner permitting the studs therein to be brought into engagement with the swinging brackets after the stationary brackets have been secured to the jamb. Where the sash or other similar object to be pivotally supported is a fixed one or has no vertical movement, it is necessary in order to produce engagement of the hinge members with the sash that one of said hinge members should have vertical movement with respect to the other one. A construction of this kind is shown in Figs. 6 to 10, the same being illustrated in Fig. 6 as applied to the left-hand side of a large stationary window. As shown in said figures, A^2 indicates the window-jamb, and A^3 the sill thereof, said sill being provided with a removable strip or stop A^4, which may be taken off, along with the vertical stop on the opposite or right-hand side of the jamb, to permit the sash to be swung outwardly or into the room when sustained by the supporting device. As shown in said Figs. 6 to 10, I indicates a connecting-rod, J J' stationary hinge members secured to the upper and lower ends thereof, and K K' swinging brackets which are pivoted on the rod I and are located beneath the brackets J J'. Said brackets K K' are movable vertically on the rod, so that they may be engaged with and disengaged from holding studs or screws M M', secured in the sash. The means for giving movement to said brackets K K' is shown in Figs. 7 and 8 in connection with the uppermost brackets J and K and is constructed as follows: The rod I is provided below the bracket K with a screw-threaded portion i, which is engaged by a screw-threaded sleeve N, the upper end of which has bearing against and supports the said bracket K. To afford connection between said sleeve and the bracket K, by which the bracket will be moved in both directions with the sleeve, said bracket is provided with a cylindrical recess adapted to receive the upper end of the sleeve, and the said sleeve is provided with an annular groove n, which is engaged by a screw-stud k', inserted through the bracket and entering the said groove. The sleeve N is desirably provided with a knurled collar n' to facilitate the turning thereof by hand.

When applying to a window or like object the device last described, the sleeve N at the top of the rod and the corresponding sleeve at the lower end thereof are turned on the rod until the brackets K K' are carried downwardly a distance greater than the depth of the locking-slots therein. The brackets J J' are then engaged with the studs L L' on the jamb and the brackets K K' brought beneath the studs on the sash. The sleeves N N' are then rotated to carry the brackets K K' upwardly until they are brought into contact with the brackets J J', and the studs on the sash are inserted in the slots of said brackets. When this is done, the sash may be swung outwardly upon the pivotal support afforded by the parts in the same manner as hereinbefore described.

The brackets J J' K K', as shown in the figures last referred to, are provided with two sets of slots, while two sets of studs L L' M M' are provided on the jamb and sash, this construction being employed where the sash is a heavy one, as is usually the case with stationary or non-sliding windows.

In Figs. 11 to 14 I have shown a form of pivotal supporting device differing somewhat from those illustrated in the preceding figures, but containing some of the principal features of my invention. In these figures, O O' P P' indicate pairs of brackets which are connected by separate pivots Q Q'. The brackets O O', which are adapted for attachment to the jamb, are in this instance connected by a rod or bar R, which is permanently attached at its ends to or cast integral with the said brackets. The rod or bar thus arranged obviously serves the same general purpose as the connecting-rod hereinbefore described, although in this instance it does not serve to afford pivotal connection between the brackets, it being obvious that such rod R affords permanent connection between the upper and lower pairs of brackets and serves to hold said brackets in alinement with each other, and to thereby aid in maintaining them in proper position under the strains due to the weight of the sash. It is also obvious that by reason of the pivotal

connection between the brackets said connecting-rod serves to hold the swinging brackets which are connected with the sash also in alinement with each other, although the rod in this instance is not directly engaged with the last-mentioned brackets, as in the devices shown in Figs. 1 to 10, inclusive. The means for connecting the brackets with the jamb and sash illustrated in said Figs. 11 to 14 is somewhat different from the construction illustrated in the other figures of the drawings. Such means in the case of the brackets O O′ consist of headed lugs *o o′* on said brackets engaging slotted plates S S′, Fig. 11, secured in the jamb flush with the surface thereof. In the case of the brackets P P′ studs *t t′* are affixed to plates T T′, secured in the face of the sash flush with the surface thereof, said studs being adapted to engage vertical slots p' p^2, formed in back plates *p* of said brackets in the same manner as before described. Obviously in the case of the brackets which are attached to the jamb the interlocking devices on the bracket and jamb may be of a form having projections or studs on the brackets adapted to enter recesses in the jamb; but in the case of the brackets which are to be connected with the sash it is desirable that the interlocking part on the sash should project from the same, because the engagement of the brackets with holding device on the sash is accomplished by a sliding movement of the brackets along or in contact with the face of the sash, this being true both with respect to the form of supporting device especially adapted for sliding windows, as shown in Figs. 1 to 5, and for non-sliding windows, where one bracket is movable vertically with respect to the other bracket, as shown in Figs. 6 to 10.

In Fig. 15 is shown a modified construction of the form of support illustrated in Figs. 6 to 10, which is adapted for use in a construction where one or both brackets of the upper and lower pairs of brackets are directly joined by a connecting-rod, so that a device applied to give vertical movement to the vertically-movable bracket of one pair of brackets will act on the corresponding bracket of the other pair through the rigid connection afforded by said connecting-rod. In this instance U indicates a bracket adapted for attachment to the jamb by means of a headed stud *u*, and which is joined to a corresponding bracket by a vertical connecting-rod W. V indicates a lower vertically-movable bracket which is pivotally connected with the bracket U by means of a pivot X. Said pivot X is affixed in the upper bracket U and is provided in its lower end with a screw-threaded part *x*, on which is placed a screw-threaded sleeve or nut X′, said nut being provided with wings *x′*, by which the nut may be easily turned by the fingers. Obviously the nut X′ will operate to elevate the lower or movable bracket V in the same manner as the sleeve N. (Shown in Figs. 6 to 10.)

So far as the general features of my invention are concerned the same may be carried out by the employment of any suitable parts on the brackets adapted to interlock with complementary holding devices on the jamb and sash, where such interlocking means are adapted to be brought into their interlocked position by relative vertical movement of the brackets and the holding devices on the jambs and sash. Such relative movement of these parts in the case of the form of support shown in Figs. 1 to 5 is accomplished by a downward movement of the sash to bring the holding devices into engagement with the brackets, and in the case of the form shown in Figs. 6 to 10 by the upward movement of movable brackets into engagement with the holding devices on the stationary sash.

An important feature of my invention is embodied in a construction in which two or more pairs of pivotally-connected brackets are joined by a bar or rod in the manner and with the advantages hereinbefore described, and so far as this feature of the invention is concerned said rod may form pivots for the brackets, as shown in Figs. 1 to 11, or may be separate from the pivots, as shown in Figs. 11 to 15. Moreover, such a connecting-rod may be attached to either or both sets of brackets. The construction shown, in which the connecting-rod forms the pivots for the brackets, has, however, the advantage of greatly simplifying the construction of the device, and this feature is herein claimed as part of my invention.

While the main features of the invention herein claimed may be carried out by the employment of details of construction differing from the specific ones illustrated, yet certain of the details and features of construction shown are in themselves novel and are herein claimed as a part of my invention.

While I have shown a supporting device as provided with two sets of brackets or hinge members, yet it will be understood that my invention would be equally embraced in a construction having three or more sets of brackets connected by a rod, it being obvious that the results described will be equally secured whether there be two or more than two sets or pairs of brackets employed, as all of the brackets may in any case be engaged at the same time with the holding devices attached to jamb and sash. Obviously in the case of a very large or heavy window-sash, shutter, door, or the like it may be desirable to employ three, four, or even more sets of brackets with a single rod in order to avoid making the brackets themselves unduly large or heavy, so as to withstand the weight of the part to be supported.

I claim as my invention—

1. In a device for the purpose set forth the combination with a jamb and sash, of holding devices thereon, two brackets having permanent pivotal connections with each other one of said brackets being movable vertically with

respect to the other, said brackets being provided with flat faces for contact with said jamb or sash, and means affording interlocking engagement with the holding devices on said jamb and sash by vertical movement of the bracket with respect to the said holding devices; said interlocking means in the case of the bracket which is adapted for engagement with the sash or part to be pivotally supported being within the flat contact-face of said bracket.

2. In a device for the purpose set forth the combination with a jamb and sash or the like, of two pivotally-connected brackets one of which is movable vertically with respect to the other, said brackets being provided with base-plates having vertical, open-ended slots, which on one bracket opens upwardly and on the other, opens downwardly and headed studs attached to said jamb and sash and constructed for engagement with said slots.

3. In a device for the purpose set forth the combination with a jamb and sash, of holding devices thereon, a plurality of pairs of pivotally-connected brackets, a rod rigidly secured to a like bracket of each pair of brackets, and means on each bracket affording interlocking connections thereof with the holding devices on the jamb and sash, by relative vertical movement of the interlocking parts.

4. In a device for the purpose set forth the combination with a jamb and sash or the like, of holding devices thereon, a plurality of pairs of pivotally-connected brackets, a connecting-rod rigidly secured to a like bracket of each pair, said brackets being provided with flat faces for contact with the jamb and the sash or the like, and with means affording interlocking connections thereof with said holding devices on said jamb and sash or the like by vertical movement of said bracket with respect to said holding devices.

5. In a device for the purpose set forth the combination with a jamb and sash or the like, of holding devices thereon, a plurality of pairs of brackets, and a connecting-rod on which said brackets are mounted, said rod being rigidly secured to a like bracket of each pair and affording pivotal connections between the brackets of each pair, and means on each bracket affording interlocking engagement thereof with the holding devices on the jamb and sash or the like.

6. In a device for the purpose set forth, the combination with a jamb and sash or the like, of headed studs thereon, a plurality of pairs of brackets, a connecting-rod which is rigidly secured to a like bracket of each pair and which affords pivotal connection between the brackets of each pair, said brackets being provided with base-plates having flat faces for contact with the jamb and sash or the like, and having also vertical open-ended oppositely-directed slots adapted for engagement with the headed studs on said jamb and sash.

7. In a device for the purpose set forth, the combination with a jamb and sash or the like, of holding devices thereon, a plurality of pairs, of pivotally-connected brackets, a connecting-rod which is rigidly secured to a like bracket of each pair, and affords pivotal connection between the brackets of each pair, one of which is movable vertically with respect to the other, and means for giving vertical movement to the movable bracket, said bracket being provided with means affording interlocking connections thereof with said holding devices on the jamb and sash, or the like, by vertical movement of the said brackets with respect to the said holding devices.

8. In a device for the purpose set forth, the combination with a jamb and sash or the like, of headed studs thereon, a plurality of pairs of pivotally-connected brackets, a connecting-rod rigidly secured to a like bracket of each pair, and which affords pivotal connection between the brackets of each pair, one of the said brackets of each pair being movable vertically with respect to the other, and means for giving vertical movement to the movable bracket, said bracket being provided with flat-faced base-plates having vertical, open-ended slots, which open upwardly in one bracket and downwardly in the other and are adapted to receive said headed studs on the jamb and sash or the like.

9. A device for the purpose set forth, comprising a plurality of pairs, of pivotally-connected brackets, a connecting-rod rigidly secured to a like bracket of each pair of brackets, and affording pivotal connection between the brackets of each pair on which pivot one of the brackets of one of the pairs of brackets has vertically-sliding movement and a sleeve having screw-threaded engagement with said rod and acting on said movable bracket.

10. A device for the purpose set forth comprising a plurality of sets of brackets, a connecting-rod pivotally connecting the brackets, and means affording endwise movement of one of the brackets of each pair upon the rod toward and from its coacting bracket comprising a sleeve having screw-threaded engagement with the pivot and swiveling connection with the movable bracket.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 23d day of January, A.D. 1899.

GEORGE H. PARKER.

Witnesses:
C. CLARENCE POOLE,
R. CUTHBERT VIVIAN.