

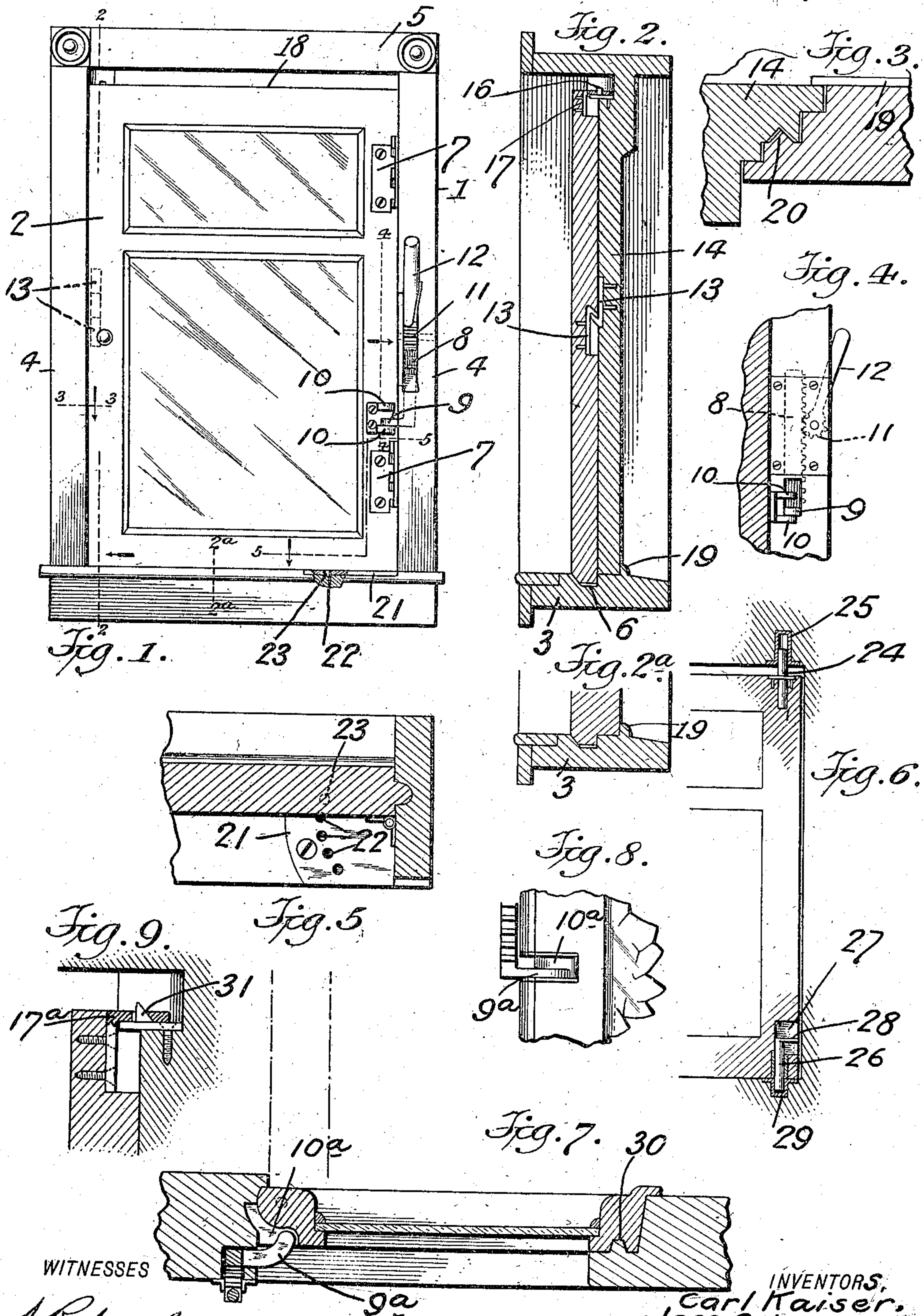
C. KAISER & J. C. JURGENSEN.

WINDOW.

APPLICATION FILED JUNE 25, 1907.

920,876.

Patented May 4, 1909.



WITNESSES

A. R. Appleman

A. M. Weeks

INVENTORS

Carl Kaiser,
Jess C. Jurgensen

BY

Charles Morton
ATTORNEY

UNITED STATES PATENT OFFICE.

CARL KAISER, OF NEW YORK, AND JESS C. JURGENSEN, OF TAPPAN, NEW YORK.

WINDOW.

No. 920,876.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CARL KAISER and JESS C. JURGENSEN, citizens of the United States, residing, respectively, in the borough of Brooklyn, county of Kings, city and State of New York, and at Tappan, county of Rockland, and State of New York, have invented a new and useful Improvement in Windows, of which the following is a specification.

This invention relates to windows, and more particularly to windows of the type in which the sash is mounted to turn on vertical pivots.

The invention contemplates the improvement of windows of this type in respect to the means for insuring a close fit of the sash within the frame, the means for fastening the sash in either open or closed position, and the means by which expansion and contraction of the sash is compensated for without affecting the fit of the sash in the frame.

The invention also contemplates the provision of improved means for securing pivoted sashes in window frames whereby the sashes are securely held but are readily removable without disturbing any of the permanent fittings of the window frame.

For convenience in illustration, we have shown the invention as embodied in a window having a single sash only; but it will be obvious that the invention is equally applicable to windows having a plurality of sashes. As the details of construction vary somewhat in windows in which the sashes swing outward from those in which the sashes swing inward, we have illustrated the invention as applied to windows of both types.

In the drawings, in which corresponding parts are designated by similar characters of reference: Figure 1 is an elevational view, from the inside, of a window embodying the present invention; Fig. 2 is a sectional view on the line 2—2 of Fig. 1; Fig. 2^a is a sectional view on the line 2^a—2^a of Fig. 1; Fig. 3 is a sectional view on the line 3—3 of Fig. 1; Fig. 4 is a detail view, partly in section, on the line 4—4 of Fig. 1; Fig. 5 is a sectional view on the line 5—5 of Fig. 1; Fig. 6 is a detail view illustrating a preferred mode of mounting the sash in a window frame without the use of hinges; Fig. 7 is a view in horizontal section through a window with the sash arranged to open outwardly and showing the modifications of the structure re-

quired when the sash opens in that direction; Fig. 8 is a detail view in elevation of the lifting arm and the socket formed in the sash to receive the lifting arm when the sash opens outwardly; Fig. 9 is a detail view on a plane corresponding to the line 2—2 of Fig. 1, but showing a modification of the fastening device at the upper margin of the sash.

Described in general terms, a window constructed in accordance with the present invention comprises a frame, a sash pivotally mounted in the frame, preferably at one side, and susceptible of a limited vertical movement in relation to the frame, a lifting mechanism whereby the sash may be raised and lowered through its limited range of vertical movement, and fastening devices for securing the sash in open or closed position which are made operative by lowering the sash.

In the drawings, 1 designates the frame of the window and 2 designates the sash, which is of such length that a certain amount of vertical movement of the sash in the frame is permitted. The frame comprises a sill 3, side standards 4 and head piece 5. A groove 6 is formed in the sill to receive the lower margin of the sash and is preferably of the cross section illustrated in Figs. 2 and 2^a, the side of the groove toward which the sash swings in closing being vertical and the opposite side being inclined. The sash is hinged or pivoted at one side, hinges 7 being shown in Fig. 1. These hinges are so constructed that sufficient vertical movement of the sash to clear the groove 6 is permitted. To facilitate the lifting of the sash out of the groove in the sill, lifting mechanism is provided on the window frame adjacent to the axis about which the sash turns. This lifting mechanism preferably comprises a sliding rack-bar 8 set in the side standard of the frame, and having a laterally projecting lug 9; a pair of spaced lugs 10 fixed on the sash between which the lug 9 on the rack-bar extends, and a pinion 11 for operating the rack-bar, this pinion being provided with a lever arm 12 for turning it. Two lugs 10 are provided on the window frame in order that the downward movement of the rack-bar under the action of the pinion may be made effective to force the sash positively downward so as to insure a close fit in the groove of the window sill, or so as to insure proper engagement of the sash fastening devices by which the sash is secured in open position.

To assist in holding the sash in closed position a pair of oppositely-arranged hooks 13 are provided on the sash and on an abutment 14 which is provided on the frame to limit the movement of the sash. The engaging portions of the hooks 13 meet in an inclined plane parallel to the inclined side of the groove 6 in the window sill. To hold the top of the sash securely, a plate 15 bearing a pin 16 is mounted on the head piece of the window frame, as best seen in Fig. 2, and an apertured plate 17 is mounted on the sash in suitable position to engage with the pin 16. To make the window weather-proof a number of structural features are provided. A wide bead 18 is provided on the head piece of the frame to form an abutment against which the upper margin of the sash lies when closed; and a smaller bead 19 rises from the sill in front of the lower margin of the sash and the abutment 14 extending along the side standard of the frame against which the sash closes is formed with a plurality of rabbets and a V-shaped groove to cooperate with corresponding formations along the free vertical margin of the sash. The V-shaped groove in the abutment on the window frame and the corresponding V-shaped bead 20 on the sash form a special feature of construction by which compensation is made for expansion and contraction of the sash or frame of the window.

It will be noted that a certain amount of clearance is provided between the non-abutting surfaces of the rabbets formed on the abutment piece 14 and the adjacent stile of the sash, so that expansion of the sash or contraction of the window frame can take place within certain limits without causing the sash to bind. When either of these phenomena occurs, one face of the bead 20 will always contact with the adjacent face of the groove. When the sash contracts or the frame expands, the other face of the bead will contact with the side of the groove adjacent thereto. Consequently, whatever change occurs in the relative sizes of the sash and frame, within certain limits, is without effect upon the contact of at least one face of the bead 20 with the corresponding surface of the groove.

The means employed for securing the window frame in open position comprises a socket plate 21 mounted on the sill and provided with a plurality of suitably placed sockets 22 which are provided to receive a pin 23 provided in the lower margin of the sash. The operation of this fastening device will be obvious from the drawings and the foregoing description. When the sash has been raised and swung open to the desired extent, the lever arm 12 is raised and the sash is allowed to descend under the influence of gravity until the pin 23 enters one of the sockets in the plate 21. When neces-

sary, the sash can be forced positively downward by engagement of the lug 9 on the rack-bar with the lower lug 10 on the sash.

When it is desired to dispense with hinges upon the sash and window frame, pivots, may be employed instead, as illustrated in Fig. 6. The upper pivot 24 is fixed in the upper margin of the sash and engages a socket 25 set in the head piece of the frame and of sufficient depth to permit the required amount of vertical movement of the sash. The lower pivot 26 is slidably mounted in a chamber 27 formed in the sash near its lower margin and is provided with a lug 28 which lies in a slot formed in the edge of the sash adjacent to the side standard of the frame. This slidable pivot pin 26 engages a socket 29 in the sill, from which it may be disengaged by simply raising the pin within the recess in which it is mounted. The raising of the pivot pin is easily effected by means of the lug 28 which is continually accessible in the slot formed in the stile of the sash. If it is desired to have the sash open outward, it will be found convenient to make use of the pivot pins for securing the sash in the window frame and the rack-bar must be provided with a lug 9^a which is considerably longer than the lug 9 illustrated in Figs. 1 and 4. This lug 9^a is curved and extends into a socket 10^a formed in the adjacent stile of the sash. The stile of the sash is so formed that the end of the lug 9^a will engage with the socket or recess 10^a in all positions of the sash. The extreme open position of the sash is indicated by dot and dash lines in Fig. 7, and it will be seen that the lug 9^a lies in the recess 10^a in all positions of which the sash is susceptible. When the sash is arranged to open outwardly, the form of the abutment on the window frame and the corresponding formations of the sash stile are varied somewhat, but the equivalent of the bead 20 is preferably retained in the bead 30 which is formed on the side standard of the frame and engages a suitable groove in the stile of the sash.

In order to secure a wedging action in the fastening at the upper free corner of the sash, the structure shown in Fig. 9 is employed. This consists in a block 31 in lieu of the pin 16, the block being provided with a wedging face inclined in a plane parallel to the inclined side of the groove in the sill and cooperating with the corresponding inclined face in the engaging plate 17^a.

While the invention has been described and illustrated as embodied in a single sash window, it will be obvious that it is equally applicable to a double window having sashes pivoted at both sides of the frame and meeting at their free edges. When the invention is embodied in a window of this character, the free edge of one of the sashes will present the structural features which

are presented in a single sash window by the side of the frame against which the sash abuts. For the purposes of this invention, therefore, it is immaterial whether these structural features are presented by one side of the window frame or by one side of a sash.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:

10 The combination in a window, of a frame, an outwardly swinging sash mounted therein and having limited sliding movement relatively thereto; one of the stiles of said sash

having a curved recess therein substantially concentric to the axis of movement of the sash, and a lifting lug cooperating with said recess and adapted to slide the sash in any relative position of sash and frame.

In testimony whereof, we have signed our names in the presence of two witnesses.

CARL KAISER.

JESS C. JURGENSEN.

Witnesses:

WM. BRADFORD,
A. M. WEEKES.