No. 820,027. PATENTED MAY 8, 1906.

C. D. TABOR.

CASEMENT AND SIMILAR WINDOW.

APPLICATION FILED OCT. 3, 1904. 4 SHEETS—SHEET 1.

Fig. 1.

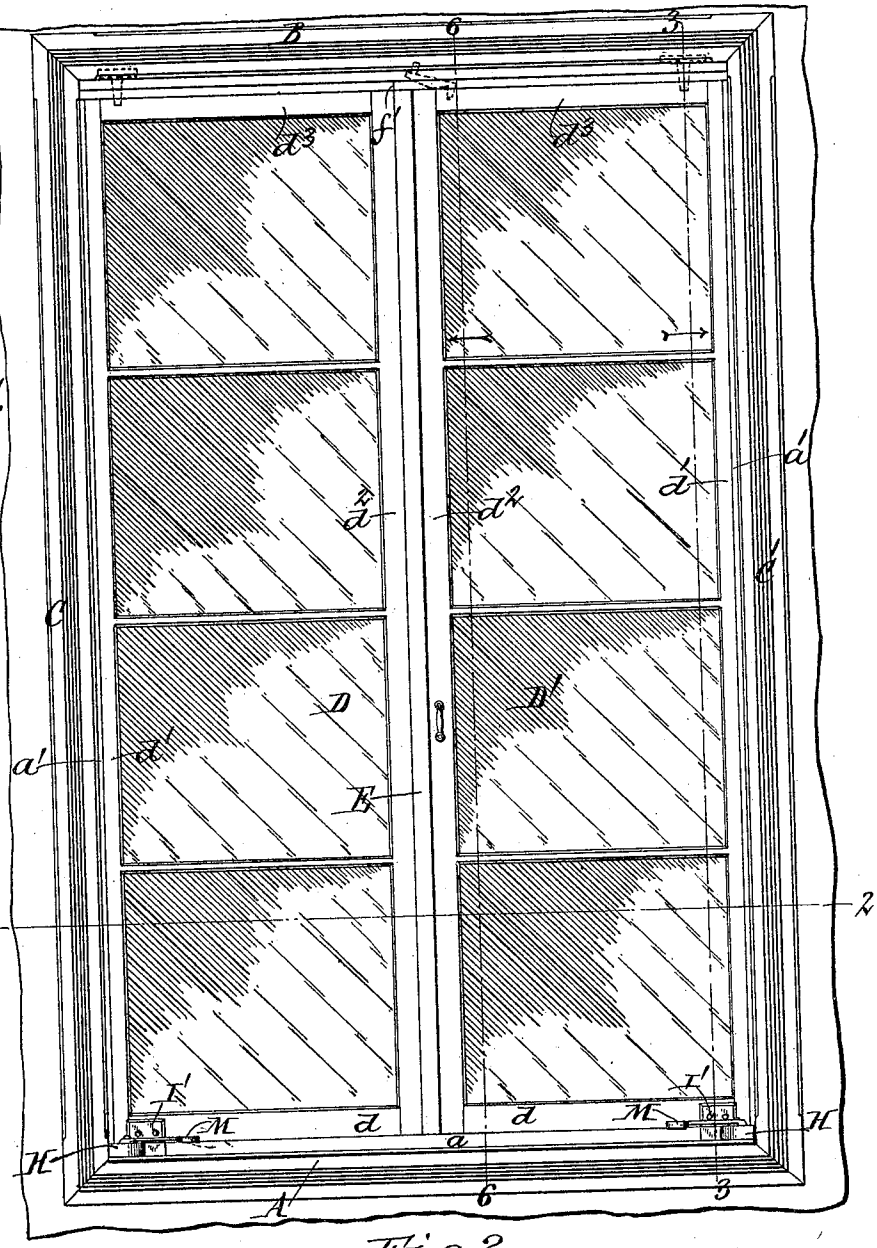
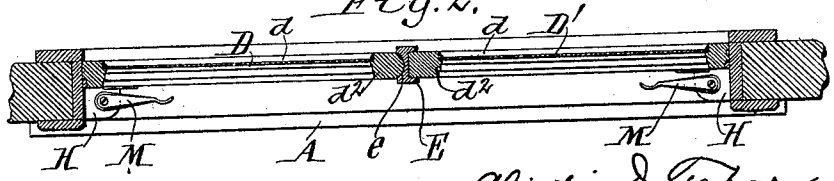


Fig. 2.



Witnesses:
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Clinton D. Tabor, Inventor
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4 SHEETS—SHEET 2

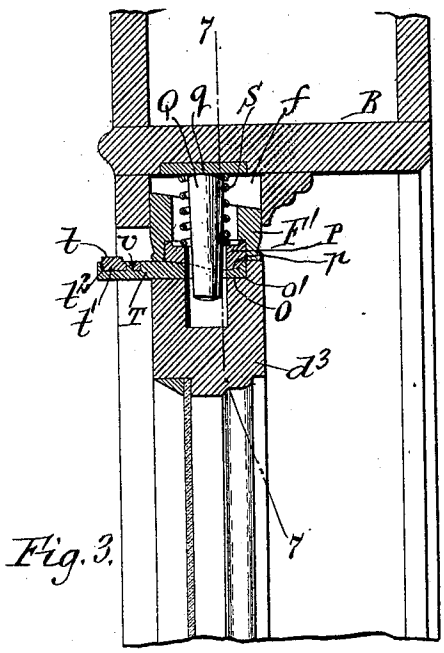


Fig. 3.

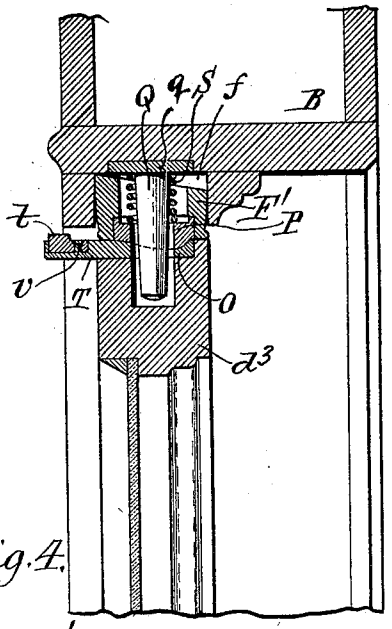
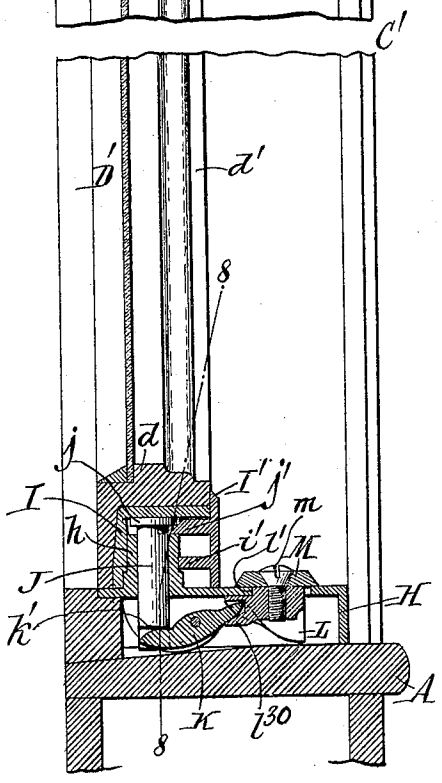
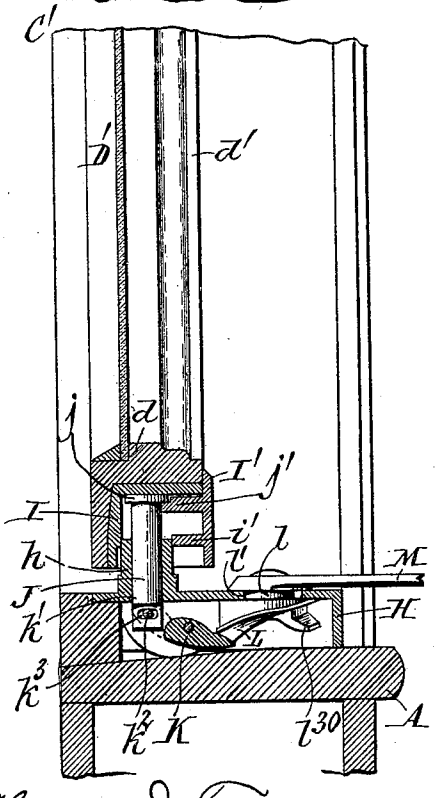


Fig. 4.





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4 SHEETS—SHEET 3.

Fig. 5.

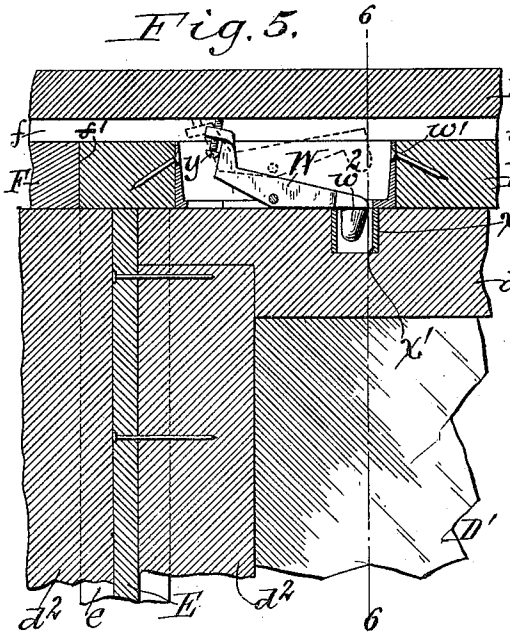


Fig. 7.

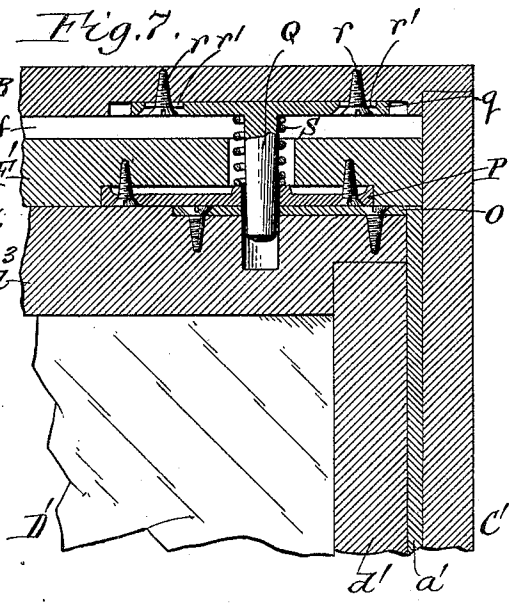


Fig. 6.

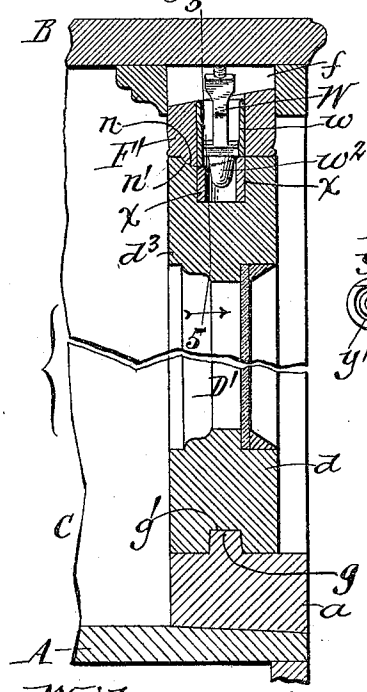


Fig. 9.

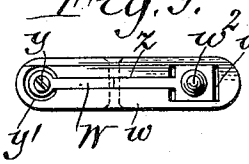
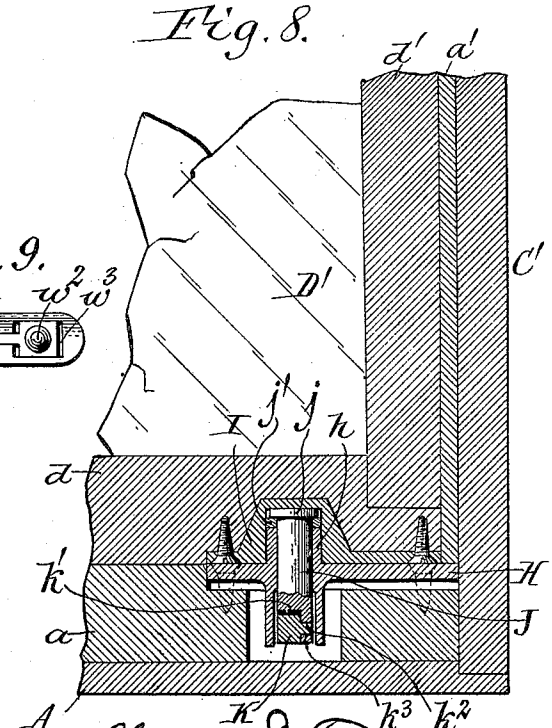


Fig. 8.



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4 SHEETS—SHEET 4.

Fig. 10.

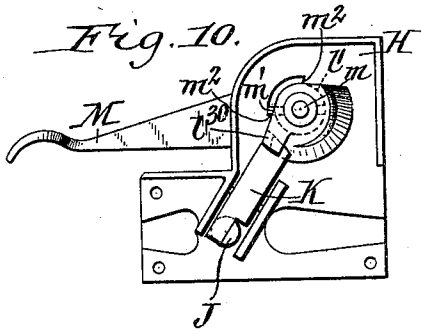


Fig. 11.

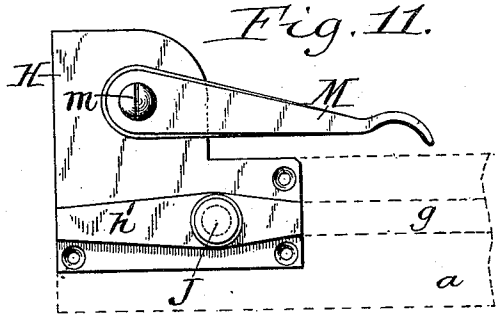


Fig. 14.

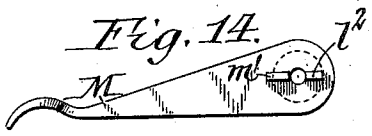


Fig. 12.

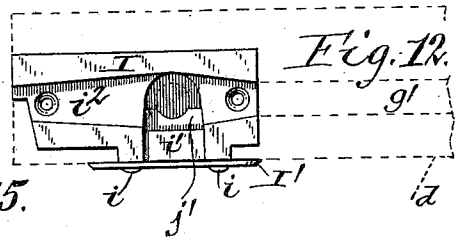


Fig. 13.

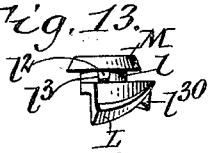


Fig. 15.

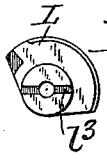


Fig. 16.

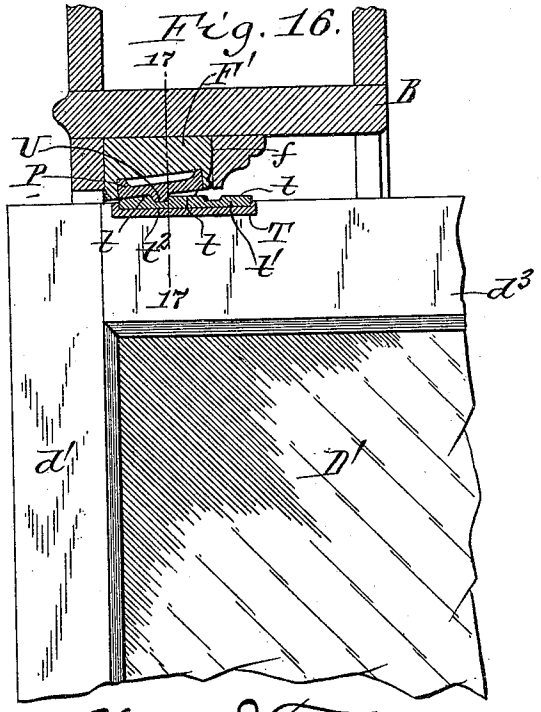


Fig. 18.

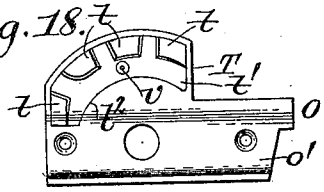


Fig. 19.

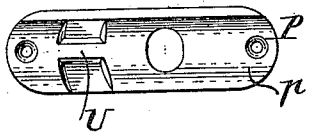
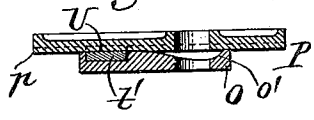


Fig. 17.



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UNITED STATES PATENT OFFICE.

CLINTON D. TABOR, OF NEWARK, NEW JERSEY, ASSIGNOR TO TABOR SASH COMPANY, OF NEWARK, NEW JERSEY.

CASEMENT AND SIMILAR WINDOW.

No. 820,027. Specification of Letters Patent. Patented May 8, 1906.

Application filed October 3, 1904. Serial No. 226,952.

To all whom it may concern:

Be it known that I, CLINTON D. TABOR, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Casement and Similar Windows, of which the following is a specification.

This invention relates to that class of windows in which the sashes are pivoted to turn horizontally in the frame and which are commonly known as "casement-windows."

The objects of this invention are to improve the pivotal connection between the sash and frame, to simplify and render more effective the means for lifting the sash and holding the same in its lowered position, to provide automatic means for holding the free ends of the sashes against horizontal movement when in their lowered and closed position, and to improve the window in other respects.

In the accompanying drawings, consisting of four sheets, Figure 1 is a front elevation of French casement-window containing a pair of sashes and embodying my improvements. Fig. 2 is a horizontal section thereof in line 2 2, Fig. 1. Fig. 3 is a fragmentary vertical section, on an enlarged scale, in line 3 3, Fig. 1, showing the sash in its lowered and closed position. Fig. 4 is a view similar to Fig. 3, showing the sash raised to permit of turning the same horizontally into an open position. Fig. 5 is a fragmentary vertical longitudinal section, on an enlarged scale, showing the automatic catch or lock for holding the free end of the sash against horizontal movement, said section being taken in line 5 5, Fig. 6. Fig. 6 is a fragmentary cross-section of the same, taken in lines 6 6, Figs. 1 and 5. Figs. 7 and 8 are views similar to Fig. 5, showing the pivot-fixtures at the upper and lower ends of one of the sashes. Fig. 9 is a bottom plan view of the automatic catch or lock for holding the free end of the sashes in place. Figs. 10 and 11 are detached bottom and top plan views of those parts of the sash-pivot and lifting-fixture which are applied to the frame. Fig. 12 is a bottom plan view of those parts of the same fixture which are applied to the sash. Fig. 13 is a detached elevation of the sash-lifting handle and cam. Fig. 14 is a bottom plan view of the sash-lifting handle. Fig. 15 is a top plan view of the sash-lifting cam. Fig. 16 is a fragmentary cross-section of the upper part of the window, showing the means for holding the sash in a more or less open position. Fig. 17 is a detached sectional view of said holding means, the section being taken in line 17 17, Fig. 16. Figs. 18 and 19 are top and bottom plan views of the two members of the sash-holding device which are applied, respectively, to the sash and frame.

Similar letters of reference indicate corresponding parts throughout the several views.

In the drawings my improvements are shown applied to a French casement-window which contains a pair of sashes; but the improvements are equally applicable to a casement-window having but one sash.

The frame of the window consists, essentially, of a lower horizontal member or sill A, an upper horizontal member or head B, and two vertical side jambs C C′, connecting the head and sill, which parts are constructed in any usual and well-known manner.

D D′ represent a pair of sashes which are arranged in the frame so that their inner free ends or vertical edges oppose each other, while their outer ends are pivoted on the adjacent parts of the frame, so that the sashes can move vertically for locking or unlocking the same and also turn horizontally for opening and closing the same.

When the sashes are closed and lowered, their lower rails d rest on a horizontal stool or bed a, which is secured to the sill, their outer stiles d' bear against vertical stops a' on the frame-jambs, their inner stiles d^2 are connected by an astragal joint consisting of a strip E, secured to the vertical inner edge of one sash and provided with a groove e, which receives the vertical inner edge of the other sash, and their upper rails d^3 engage with a weather-strip or follower which is arranged in a longitudinal channel or recess f in the under side of the frame-head and is preferably divided at or near the meeting-line of the inner vertical edges of the sashes, as shown at f', so as to form two sections F F′.

The lower rails of the sashes and the stool are constructed to form shoulders which interlock and prevent horizontal turning of the sash and also form a weather-tight joint between the frame and sashes in the lowered and closed position of the latter. This joint is preferably formed by means of a rib g, ar-

ranged on top of the stool and engaging with a groove g' in the under side of the lower-sash rails, as shown in Fig. 6.

Each of the sashes is provided at its lower end, adjacent to its outer side, with a pivoting and lifting device, which is constructed as follows: H represents a casing arranged on the stool next to the adjacent frame-jamb and projecting laterally inward therefrom. Extending upwardly from the top of this casing in line with the rib of the stool is a hollow stud h, which engages with a socket in the under side of the opposing sash-rail for producing a pivotal connection between the frame and sash. This socket consists of an inner section or box I, which is arranged in a recess formed in the under and inner sides of the lower-sash rail and opens downwardly and laterally, and an outer section or plate I′, secured to the inner face of the box-section by screws i or otherwise, so as to close the opening in the side of said box-section. The bearing for the stud h is formed by the semicylindrical back of the socket in the section I and a lug i', arranged on the inner side of the outer section I′, as shown in Fig. 12, said back and lug engaging with opposite sides of the stud, as shown in Figs. 3 and 4. The upper side of the casing H is provided with a longitudinal rib h', which engages with a corresponding groove i^2 in the under side of the socket when the sash is in its lowered and closed position, said rib and groove h' i^2 forming continuations of the corresponding rib and groove g g' of the stool and lower-sash rail. The device for lifting the sash comprises a lifting rod or stem J, a rock-lever K, a cam L, and a handle M. The lifting-rod is arranged vertically in the hollow stud and bears at its upper end against the bottom of the socket on the sash. The sash is free to turn horizontally relatively to the lifting-rod; but these parts are prevented from moving vertically independently of each other by engagement of the rod with the bottom of the socket, a collar j, formed on the upper end of the rod, and a lug j', formed on the inner side of the face-plate I′ and engaging with the under side of said collar. The rock-lever is pivoted on the casing H underneath the top thereof, so as to swing in a vertical plane and bears with its inner arm against a shoulder k' on the lower end of the lifting-rod. The rock-lever and rod are compelled to move together by a pin k^2, projecting laterally from the inner arm of the rock-lever into a horizontal slot k^3 in the lower end of the lifting-rod, as shown in Figs. 4 and 8. The cam L rotates in a horizontal plane and bears against the upper side of the outer arm of the rock-lever. This cam is so constructed that when turned forwardly one-quarter of a turn the rock-lever will be shifted and the lifting-rod and sash will be raised sufficiently to disengage the rib and groove of the sash and stool, permitting the sash to be turned open horizontally. The cam is pivoted by means of a cylindrical hub l, formed on the upper side thereof and journaled in a circular opening l', formed in the top of the casing. The cam is held in position in its bearing by means of the handle M, which is arranged on top of the casing and secured at its inner end to the upper end of the cam-hub by a screw m. The inner part of the handle is larger than the bearing and overhangs the top of the casing, thereby forming a shoulder which supports the cam from the top of the casing, as shown in Figs. 3 and 4. When the cam is turned into the position in which the sash is lowered, the handle M is arranged parallel with the sash, as shown in Figs. 1 and 2, in which position the handle is out of the way and not liable to be interfered with. When the cam is turned one-quarter for raising the sash, the handle projects from the sash at right angles thereto, as shown in Fig. 4. For the purpose of positively compelling the cam and handle to always turn together and remain in position relatively to each other these parts are interlocked by a radial feather or rib l^2, formed underneath the inner end of the handle and engaging with a corresponding groove l^3 in the top of the cam, as shown in Figs. 13 to 15.

Means are provided for arresting the movement of the cam and handle at the end of a quarter-turn in either direction. The preferred means for this purpose consists of a stop m', arranged on the under side of the handle and engaging with stops or shoulders m^2 on the casing H, said handle-stop being formed by an outward extension of the feather l^2 and said shoulders being formed by means of a segmental enlargement or recess in one side of the bearing in which the cam is journaled, as shown in Fig. 10.

In order to prevent the sash from being lifted from the outside when the same has been closed and lowered upon the stool, a locking lip or lug l^{30} is arranged below the highest part of the cam and connected with the hub thereof, preferably by casting the same integrally therewith. The space below the remaining portion of the cam is wholly unobstructed. During the last part of the closing or backward movement of the cam the lip l^{30} thereof passes underneath the elevated outer arm of the rock-lever, as shown in Fig. 3. The rock-lever is thus held against turning, and any attempt to raise the sash directly is prevented, thereby dispensing with the use of a separate lock for this purpose. If the handle of the lifting device should be inadvertently turned inwardly into its closed position while the sash is still swung open horizontally, the cam will be simply turned backward idly, inasmuch as the sash cannot descend, but remains resting in its elevated position on the rib of the stool. While thus turned backwardly idly the lip l^{30} of the cam

passes over the outer arm of the rock-lever instead of underneath the same and prevents the latter from turning in the direction for allowing the sash to close when the same is subsequently turned into its closed position. All that is necessary when this occurs is to turn the cam forwardly sufficiently to remove the locking-lip from above the rock-lever, when the lever is released and the sash is permitted to drop into its lowered position on the stool. Upon now again moving the cam into its rearmost position the lip l^{30} is carried underneath the rock-lever, and the sash is locked in its lowered position. By thus arranging a locking-lip only opposite the rear end of the cam the lifting device can be turned into its closed position without liability of breaking any parts, which would be liable to occur if the rock-lever were moved positively in both directions by a grooved cam engaging constantly with both sides of the rock-lever.

The weather-strip or follower F F′ is provided on its under side with a longitudinal tenon or rib *n*, which normally engages with a corresponding groove *n′* in the upper edge of the upper-sash rail, as shown in Fig. 6. The outer end of the top rail of each sash and the opposing part of the weather-strip are provided with metal face-plates O P, which are provided with a coöperating groove and tenon *o′ p*, respectively, forming continuations of the groove and tenon in the adjacent parts of the sash-rail and weather-strip.

Q represents the upper pivot-pins whereby the upper ends of the sashes are pivoted on the head of the frame. The pivot-pin of each sash is vertically in line with the companion lower pivot-stud and is provided at its upper end with a base-plate *q*, which is secured to the bottom of the channel in the frame-head. The lower end of each upper pivot-pin projects downwardly through coinciding openings formed in the weather-strip, sash-plate O, and strip-plate P and into a recess formed in the upper-sash rail below its plate O. The base-plate of the pivot-pin is preferably secured to the frame-head by screws *r* passing through longitudinal slots *r′* in the plate, as shown in Fig. 7. By this means the pivot-pin can be adjusted relatively to the lower pivot when installing the window or for the purpose of taking up wear.

S represents a spring surrounding the pivot-pin and bearing at its opposite ends against the base of the pin and the upper side of the strip-plate.

The upper side of the weather-strip is inclined inwardly, and the channel in the frame-head is of sufficient depth to permit the strip to be raised with the sash and also rocked or tilted by the wedge action of the coöperating rib and groove of the weather-strip and sash upon turning the latter horizontally.

In the lowered position of the sash the weather-strip rests with its rib in engagement with the top groove of the sash and is separated by an intervening space from the bottom of the channel in the frame-head, as shown in Fig. 3. Upon raising the sash by means of the lifting device the weather-strip is raised with the same until its high rear edge engages or nearly engages with the bottom of the channel, as shown in Fig. 4. By now turning the sash horizontally while thus elevated the inclined surfaces of the coöperating groove and rib of the sash and weather-strip cause the latter to be tilted or rocked in a vertical plane, as shown in Fig. 16, until the groove and rib are disengaged, said strip turning with its high part on the bottom of the channel as a fulcrum during this rocking movement.

For the purpose of holding the sash in position when turned horizontally into a more or less open position a holding or retaining device is provided which is constructed as follows: T represents a shelf extending horizontally outward from the sash-plate O and provided on its upper side with a segmental row or series of teeth or lugs *t*, forming a plurality of depressions or recesses between the teeth. U represents a single tooth formed centrally on the under side of the strip-plate P and adapted to coöperate with the teeth *t*. Upon turning the sash horizontally, so that one or another of the spaces between two teeth *t* are engaged by the tooth of the weather-strip, the sash will be yieldingly held in this position, owing to the pressure of the spring S, which constantly tends to move the weather-strip downwardly against the sash. Inasmuch as the retaining-teeth *t* are subjected to wear, the same are preferably so constructed that they can be made of harder material than the shelf supporting the same and can also be renewed when worn out. For this purpose the teeth *t* are formed on a separate plate *t′*, which is secured in a recess t^2 in the upper side of the shelf by any suitable means, but preferably by means of a teat *v*, projecting upwardly from the shelf through an opening in the tooth-plate and having its upper end riveted over said plate, as shown in Figs. 3 and 4.

For the purpose of securely locking the inner or free upper parts of the sash against horizontal movement when in their normal lowered position in the frame the following means are provided: W represents a locking-lever mounted on the weather-strip near the vertical joint between the sashes. This lever is arranged lengthwise of the weather-strip and pivoted to turn in a vertical plane in a casing *w*, which is seated in an opening *w′*, extending vertically through the respective strip-section. One arm of the locking-lever is provided with a locking nose or pin w^2, which projects downwardly through an opening w^3 in the casing and is adapted to engage with a recess *x* in the top of the sash

D′. This recess is lined with a metal thimble x' for preventing undue wear thereof and maintaining the lock in operative condition. The opposite arm of the locking-lever is adapted to bear against the bottom of the frame-channel preferably by means of an adjusting-screw y, the head of which is arranged at its lower end and is accessible through an opening y' in the bottom of the casing for adjusting the position of the screw relatively to the bottom of the channel. The lower side of the casing containing the locking-lever is preferably flush with the under side of the weather-strip, and the two openings w^3 y' at opposite ends thereof are connected by a longitudinal slot z, in which the locking-lever plays, as shown in Figs. 5 and 9. While the sash is in its closed and lowered position, the locking-lever is turned, so that the locking-pin on one of its arms projects downwardly below the weather-strip and into the thimble of the sash, and the screw on its opposite arm engages or nearly engages with the bottom of the channel in the frame-head, as shown by full lines in Fig. 5. The locking-lever has a constant tendency to move in this direction, this being effected by so constructing the lever that the weight of the arm carrying the locking-pin preponderates over the other arm; but, if desired, a spring may be employed instead of gravity for this purpose. While the pin of the locking-lever thus couples the weather-strip and the inner upper part of the sash, the latter cannot be turned by applying pressure horizontally to the same, thus rendering the window particularly safe against being opened from the outside by unauthorized persons. Upon raising the sash for disengaging its lower edge from the stool that arm of the locking-lever carrying the screw is held against upward movement by reason of its screw abutting against the frame-head, thereby causing the lever to be turned in the direction for raising its other arm and lifting the locking-pin out of engagement from the sash, as represented by dotted lines in Fig. 5. The sash can now be freely turned horizontally into an open position. The locking-lever remains in its inoperative position during the time the sash is swung open, and when the latter is again closed and lowered, together with the sash, the locking-lever is automatically turned into its operative position by gravity, in which it engages its pin with the sash and holds the same against turning. If desired, a locking device of this character may be employed on the inner end of each weather-strip section; but where the two sashes are connected by an astragal joint, as shown in the drawings, only one locking device is required, and this is preferably mounted on that section of the weather-strip which engages with the sash carrying the astragal strip E. When thus equipped, the single locking device holds the inner upper part of the sash F′ against swinging horizontally, and the latter in turn holds the other sash F against moving in the same direction by means of the astragal strip E, which couples the same.

I claim as my invention—

1. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, of a lifting device for the sash comprising a lever mounted on one of said members and operatively connected with the other member, and a cam for actuating said lever, substantially as set forth.

2. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, of a lifting device for the sash comprising a lever mounted on one of said members, a lifting-rod connecting said lever with the other member, and a cam for actuating said lever, substantially as set forth.

3. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a hollow stud arranged on one of said members and engaging with a socket in the other member for pivotally connecting the same, a lifting-rod sliding vertically in said stud and operatively connected at one end with one of said members and actuating means connected with the opposite end of said rod, substantially as set forth.

4. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a hollow stud arranged on one of said members and engaging with a socket in the other member for pivotally connecting the same, a rock-lever mounted on one of said members, a lifting-rod arranged in said stud and connecting said lever with the other member, and a cam for actuating said lever, substantially as set forth.

5. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising a stud secured to one of said members and a socket which receives said stud consisting of an inner section or box opening downwardly and laterally and seated in a downwardly and laterally opening recess in the lower end of the other member, and an outer section or plate secured over the lateral opening of said box, substantially as set forth.

6. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising an upright stud secured to the lower part of the frame, and a socket consisting of a box secured to the lower part of said sash and having a rounded back which receives one side of the stud and a plate secured to the side of said box and having a lug bearing against the opposite side of said stud, substantially as set forth.

7. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising a hollow stud secured to the frame, a socket secured to the sash and receiving said stud, and a lifting device for said sash comprising a rod movable vertically in said stud and bearing at its upper end against the top of said socket, a lug arranged in said socket and engaging underneath a shoulder or collar on said rod, and actuating means connected with the lower end of said rod, substantially as set forth.

8. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising a hollow stud secured to the frame, a socket secured to the sash and receiving said stud, and a lifting device for said sash comprising a rod movable vertically in said stud and engaging its upper end with the top of said socket, a rock-lever pivoted on the frame and bearing with one arm against a shoulder on the lower part of said rod and also provided on said arm with a pin which projects laterally through a horizontal slot in the lower part of said rod, and a cam engaging with the opposite arm of said rock-lever, substantially as set forth.

9. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising a hollow stud secured to the frame, a socket secured to the sash and receiving said stud, and a lifting device for said sash comprising a rod movable vertically in said stud and engaging its upper end with the top of said socket, a rock-lever connected at one end with said rod, a cam engaging over the opposite arm of said lever, and a locking-lip moving with said cam and arranged to engage with the under side of said last-mentioned arm when the latter has been turned into the position for lowering the sash, substantially as set forth.

10. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising a hollow stud secured to the frame, a socket secured to the sash and receiving said stud, and a lifting device for said sash comprising a rod movable vertically in said stud and engaging its upper end with the top of said socket, a rock-lever connected at one end with said rod, a cam engaging over the opposite arm of said lever, and a handle secured to said cam and interlocked therewith by a coöperating groove and feather formed respectively on the same, substantially as set forth.

11. The combination with a window comprising a frame member and a sash member capable of turning horizontally and also moving vertically, said members having their lower parts constructed to interlock in the lowered position of the sash, of a pivotal connection between said members comprising a hollow stud secured to the frame, a socket secured to the sash and receiving said stud, and a lifting device for said sash comprising a rod movable vertically in said stud and engaging its upper end with the top of said socket, a rock-lever engaging one of its arms with the lower end of said rod, a rotary cam engaging with the opposite arm of said lever, a handle secured to said cam, a casing supporting said stud, lever and cam, and a stop device for limiting the movement of said cam consisting of a lug formed on the handle and coöperating with shoulders formed by a segmental recess in the bearing in which the cam is journaled, substantially as set forth.

12. The combination of a frame, a sash turning horizontally in said frame, a weather-strip interposed between the top of the sash and the frame, and a segmental row of teeth mounted on the upper part of the sash and adapted to be engaged by a tooth on said strip upon turning the sash, substantially as set forth.

13. The combination of a frame, a sash turning horizontally in said frame, a weather-strip interposed between the top of the sash and the frame, a shelf arranged on the upper part of the sash and provided with a recess in its top, and a plate arranged in said recess and provided with a segmental row of teeth which are adapted to be engaged by a tooth on the weather-strip, substantially as set forth.

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14. The combination of a frame, a sash turning horizontally in said frame, a weather-strip interposed between the top of the sash and the frame, a pivot connecting the lower parts of the sash and frame, coöperating plates applied to the faces of the sash and weather-strip, a pivot-pin secured to the top of the frame and extending downwardly through openings in the strip and sash-plates, a shelf projecting outwardly from the sash-plate and having a recess in its upper side, a plate seated in said recess and provided on its upper side with a segmental row of teeth arranged concentrically relative to said pivot-pin, a tooth arranged on the strip-plate and constructed to coöperate with the row of teeth mounted on the sash, and a teat projecting upwardly from said shelf through an opening in said tooth-plate and having its upper end riveted over said plate, substantially as set forth.

15. The combination of a frame, a sash pivoted in the frame and also movable lengthwise of its pivot, a weather-strip interposed between the frame and sash and interlocking with the latter by a groove-and-rib joint, and a locking device constructed and operating to couple said sash and strip when these parts are moved in one direction lengthwise of said pivot and to uncouple said parts when the same are moved in the opposite direction lengthwise of said pivot, substantially as set forth.

16. The combination of a frame, a sash pivoted in the frame and also movable lengthwise of its pivot, a weather-strip interposed between the frame and sash and interlocking with the latter by a groove-and-rib joint, and a locking device for coupling and uncoupling the sash and strip comprising a lever pivoted on said strip and having one of its arms constructed to engage with a recess in the sash and its opposite arm constructed to engage said frame, substantially as set forth.

17. The combination of a frame, a sash pivoted in the frame and also movable lengthwise of its pivot, a weather-strip interposed between the frame and sash and interlocking with the latter by a groove-and-rib joint, and a locking device for coupling and uncoupling the sash and strip comprising a rock-lever pivoted on said strip and provided on one arm with a pin adapted to engage with a recess in the sash while its opposite arm is provided with a screw adapted to engage with said frame, substantially as set forth.

18. The combination of a window-frame having a channel in the under side of its head, a sash pivoted thereto at one edge to turn horizontally and also capable of vertical movement, the lower parts of said frame and sash being constructed to interlock by a groove-and-rib joint in the lowered position of the sash, a weather-strip arranged with its upper part in said channel and coöperating on its under side with the top of the sash by a groove-and-rib joint, and a device for coupling the strip with the free upper part of the sash comprising a casing secured in a recess in the strip and having openings at opposite ends, a locking-lever pivoted in said casing to turn in a vertical plane and having one of its arms provided with a locking-pin which normally projects downwardly through one of said openings in the casing and into a recess in the adjacent upper part of the sash while its opposite arm is provided with a screw arranged in line with the other opening of the casing and bearing against the bottom of the channel in the frame-head, substantially as set forth.

Witness my hand this 21st day of September, 1904.

CLINTON D. TABOR.

Witnesses:
THEO. L. POPP,
E. M. GRAHAM.