

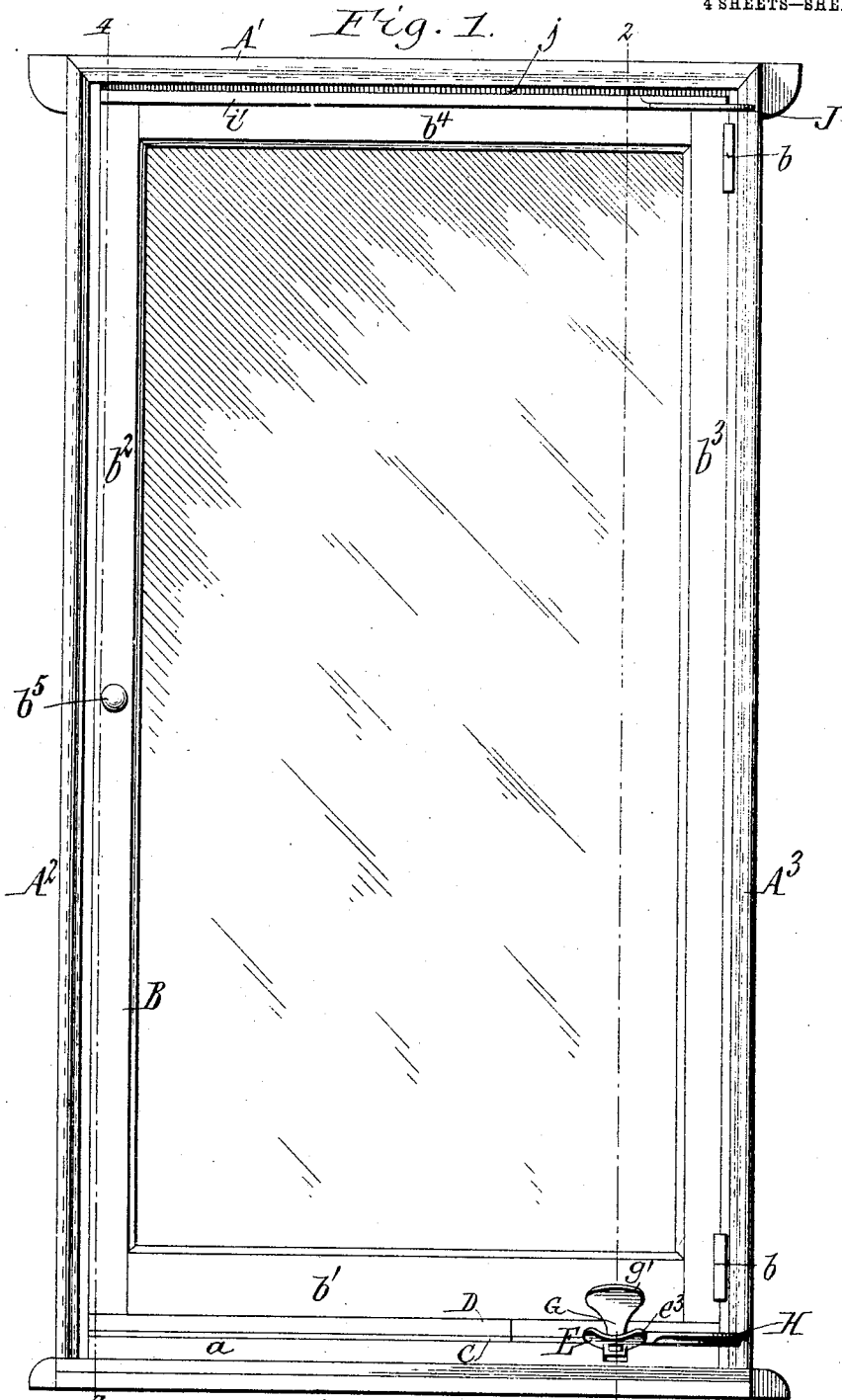
No. 785,778.

PATENTED MAR. 28, 1905.

C. D. TABOR.
WINDOW.

APPLICATION FILED OCT. 25, 1902.

4 SHEETS—SHEET 1.



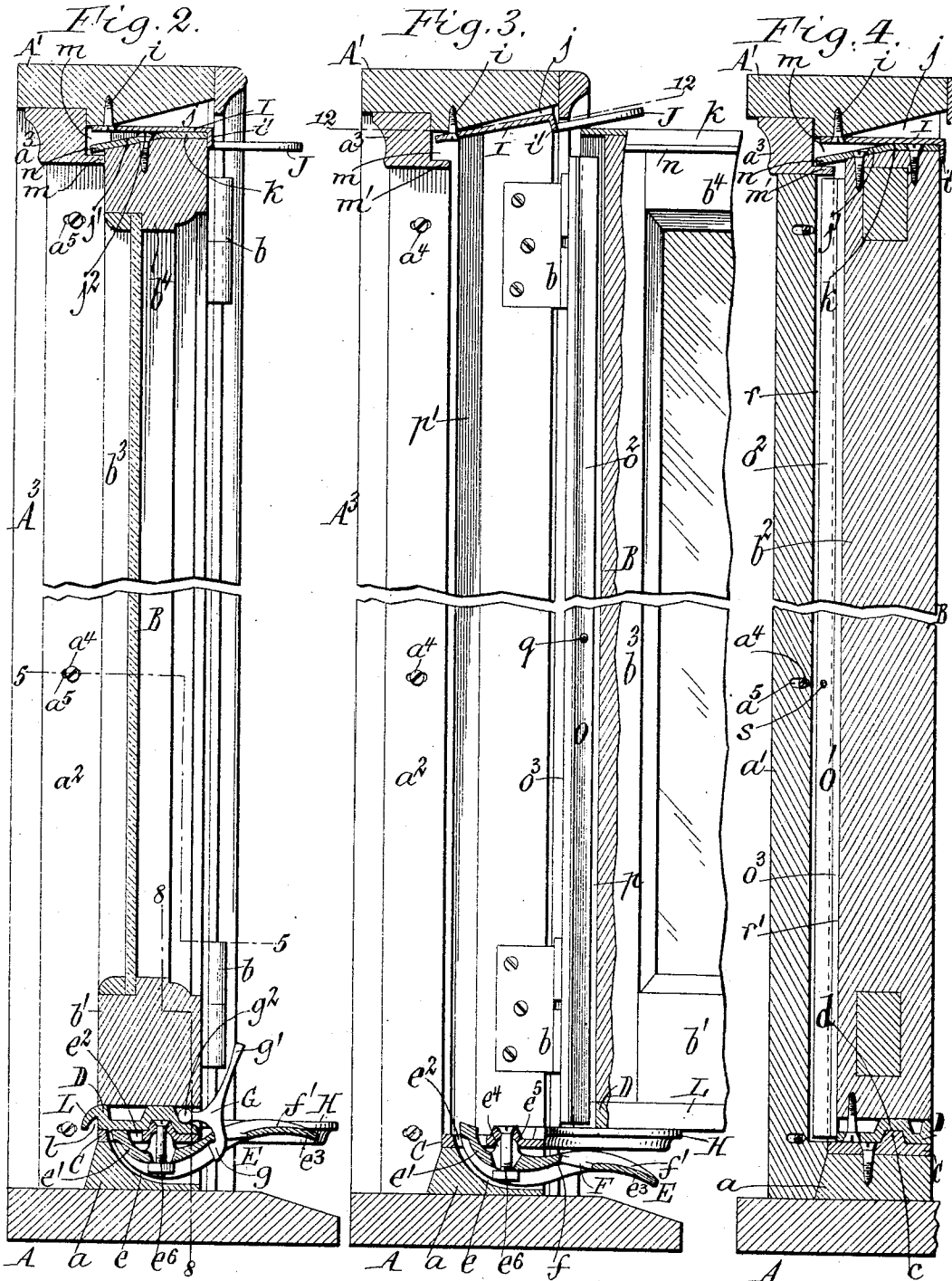
Witnesses:
Robert Weithnecht.
Emma M. Graham.

Clinton D. Tabor,
Inventor
By Geyer & Popp
Attorneys.

C. D. TABOR.
WINDOW.

APPLICATION FILED OCT. 26, 1902.

4 SHEETS—SHEET 2.



Robert Weiknecht
Emma Graham.

Witnesses.

Clinton D. Tabor, Inventor

By Geyer & Popp
Attorneys.

C. D. TABOR.
WINDOW.

APPLICATION FILED OCT. 25, 1902.

4 SHEETS—SHEET 3.

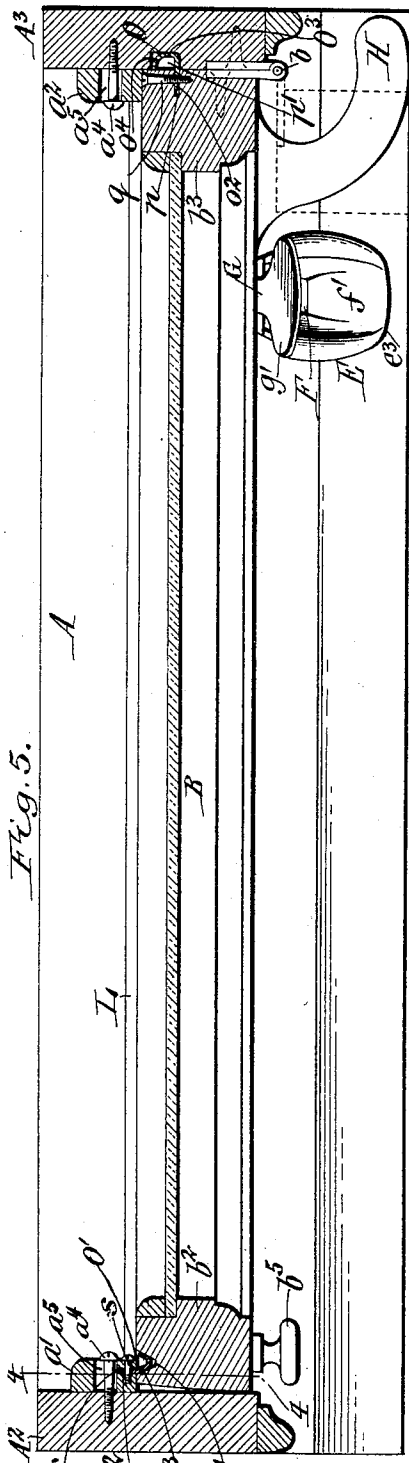


Fig. 5.

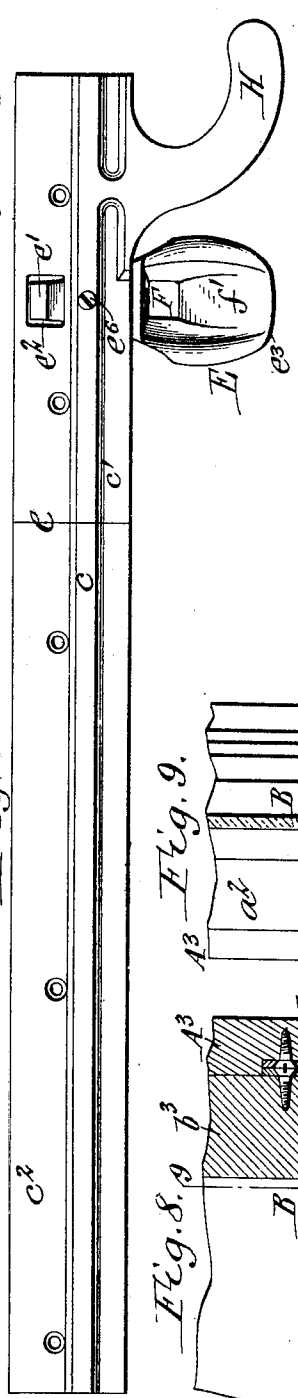


Fig. 6.

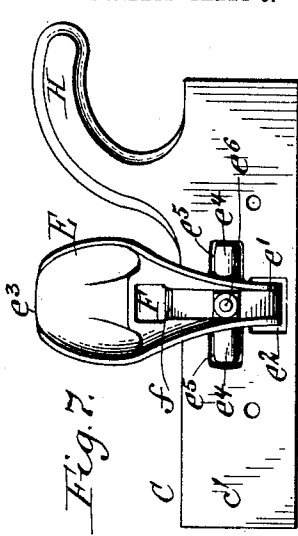


Fig. 7.

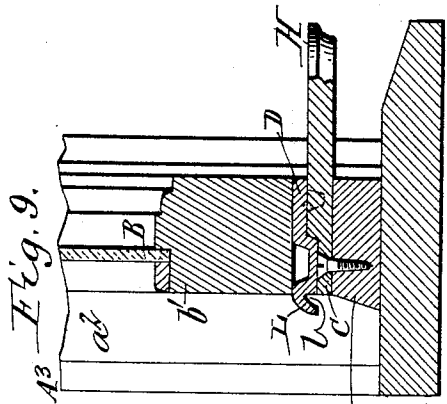


Fig. 9.

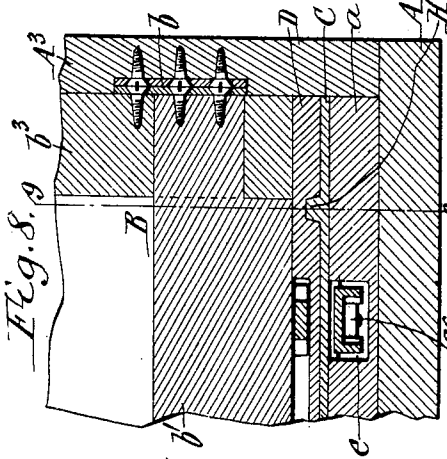


Fig. 8.

Robert Weiteknecht
Emma M. Graham } Witnesses.

Clinton D. Tabor, Inventor
By Eyer & Popp
Attorneys.

C. D. TABOR.
WINDOW.

APPLICATION FILED OCT. 25, 1902.

4 SHEETS—SHEET 4.

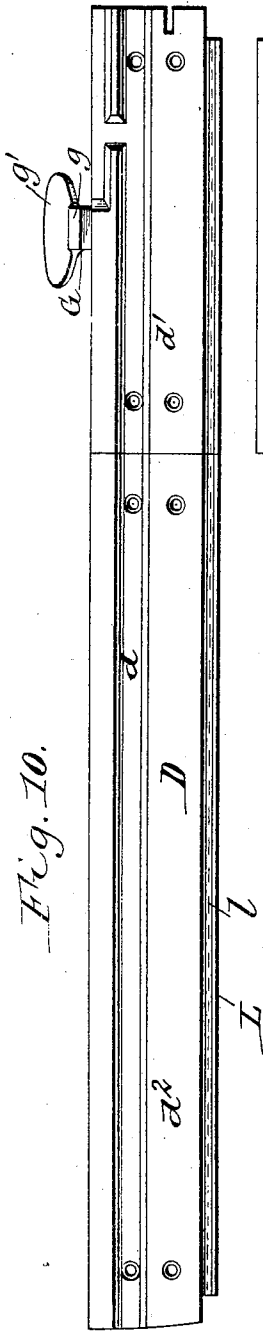


Fig. 10.

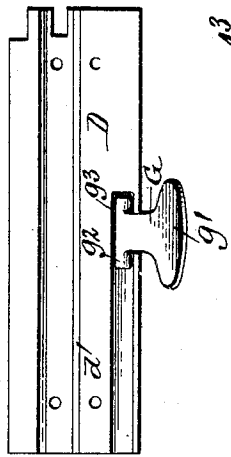


Fig. 11.

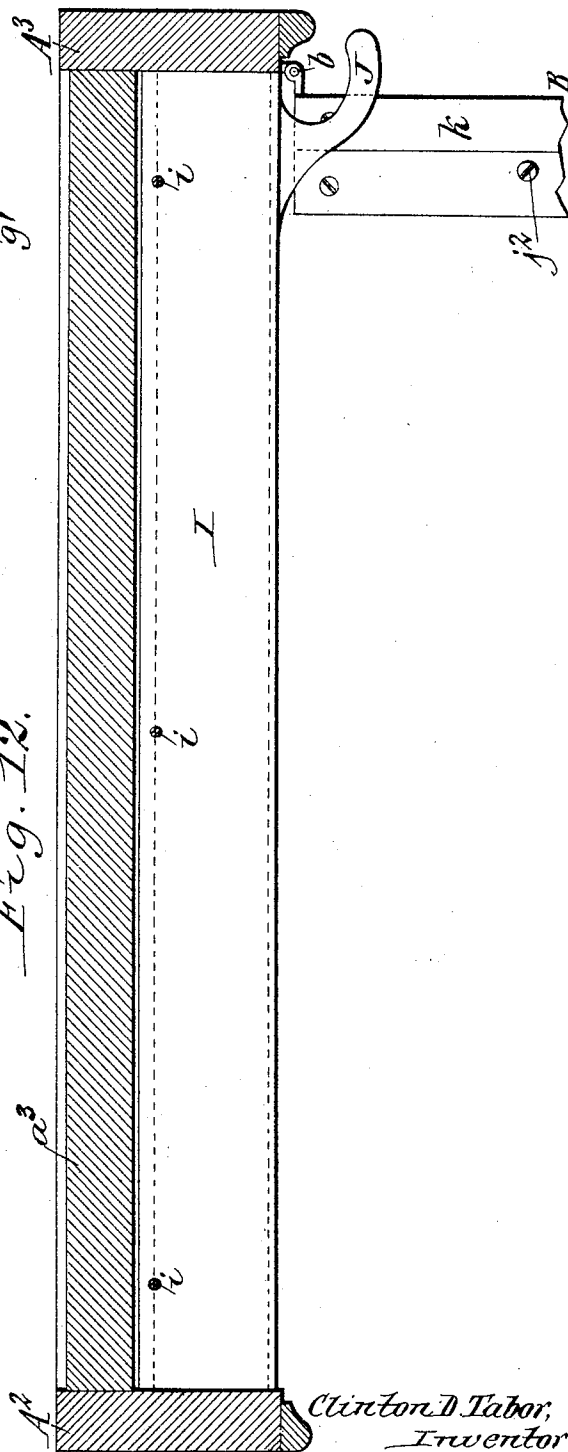


Fig. 12.

Witnesses:
Robert Wittnecht
Emmale Graham.

Clinton D. Tabor,
Inventor
By Geyer & Popp
Attorneys.

UNITED STATES PATENT OFFICE.

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

WINDOW.

SPECIFICATION forming part of Letters Patent No. 785,778, dated March 28, 1905.

Application filed October 25, 1902. Serial No. 128,791.

To all whom it may concern:

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

This invention relates more particularly to that type of windows which are known as "French-casement" windows, in which the sash is pivoted on one of its vertical edges to the frame, so that it can be turned in a horizontal plane for opening and closing the same.

The objects of this invention are to provide improved means whereby the sash is automatically and securely locked upon closing the same, to provide means whereby the sash can be easily unlocked from the inside of the window for opening the same, and to provide efficient means for rendering the joints between the same and the frame practically water and dust proof.

In the accompanying drawings, consisting of four sheets, Figure 1 is an inside elevation of a French-casement window embodying my improvements. Fig. 2 is a vertical section, on an enlarged scale, in line 2 2, Fig. 1, showing the sash closed. Fig. 3 is a similar section showing the sash open. Fig. 4 is a vertical section in line 4 4, Figs. 1 and 5, showing more particularly the weather-strip between the free end of the sash and the frame. Fig. 5 is a horizontal section in line 5 5, Fig. 2. Fig. 6 is a detached top plan view of the face-plate and connecting parts applied to the stool of the window-frame. Fig. 7 is a bottom plan view of one section of said plate and the sash-lifting lever mounted thereon. Fig. 8 is a fragmentary vertical section in line 8 8, Fig. 2. Fig. 9 is a vertical section at right angles to Fig. 8, taken in line 9 9 of the same. Fig. 10 is a bottom plan view of the face-plate applied to the under side of the sash. Fig. 11 is a top plan view of one section of said last-mentioned face-plate and the locking-catch mounted thereon. Fig. 12 is a horizontal section in line 12 12, Fig. 3.

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

The frame of the window consists, essentially, of a lower horizontal sill A, an upper horizontal jamb or head A', and vertical side jambs A² A³, connecting the head and sill.

B represents the sash, which fits into the frame and which is connected on one of its sides or stiles with the adjacent jamb of the frame by hinges *b*. These hinges are so constructed that the sash can swing in a horizontal plane for opening and closing the same and also slide vertically for locking or unlocking the same. The ordinary butt-hinge, in which the eye on one leaf is capable of turning and sliding on the pintle of the other leaf, answers this purpose, and such a hinge is shown in the drawings. In the normal closed position of the sash the same rests with its lower rail *b'* on a horizontal stool *a* on the sill, the outer sides of its stiles *b² b³* bear against vertical stops or strips *a' a²*, secured to the inner sides of the frame side jambs, and the outer side of its top rail *b⁴* bears against a horizontal stop or strip *a³*, secured to the under side of the frame-head A'. The side strips *a' a²* may be adjusted to the sash by screws *a⁴* passing through horizontal slots *a⁵* in said strips and entering the side jambs, as shown in Figs. 2, 3, and 5.

C represents a face-plate, preferably of metal, which is secured lengthwise to the upper side of the stool, and D is a similar face-plate secured lengthwise to the under side of the bottom rail of the sash. These plates are provided with cooperating shoulders which are adapted to interlock in the closed and lowered position of the sash for preventing the sash from swinging on its hinges. These shoulders are preferably formed by means of a longitudinal locking-rib *c*, arranged on the upper side of the stool face-plate, and a corresponding groove *d*, formed in the opposing sash face-plate.

E represents a lifting-lever whereby the sash is raised for disengaging its bottom groove from the locking-rib on the stool and permitting the sash to be turned. This lever is arranged in a recess *e* in the stool underneath its face-plate and is pivoted to the under side of the latter, so as to turn in a vertical

plane at right angles to the plane of the sash. The rear arm e' of the lifting-lever projects upwardly through an opening e^2 in the stool face-plate and into engagement with the under side of the sash face-plate D when the sash is closed, while its front arm e^3 projects laterally from the inner side of the stool, as shown in Fig. 2. The lifting-lever may be pivotally supported in any suitable manner, preferably by means of two cylindrical knuckles e^4 , arranged on its opposite sides and engaging with corresponding sockets e^5 in the under side of the stool face-plate, and a coupling-bolt e^6 , connecting the stool face-plate and the lifting-lever in line with the axis of its knuckles, as shown in Figs. 2, 3, and 7. The front arm of the lifting-lever is provided with an opening F, extending vertically through the same, a locking-shoulder f , arranged underneath the inner edge of said opening, and a guideway or face f' , extending lengthwise from the front end of the lever to the front edge of the opening therein.

G represents a catch whereby the sash is locked in its lowered and closed position. This catch is pivotally mounted on the lower portion of the sash above the lifting-lever, so as to turn in a vertical plane, and is provided with a downwardly and rearwardly projecting hook g , which is adapted to interlock with the shoulder f' of the lifting-lever, and also with an upwardly-projecting arm or toe-piece g' , whereby the catch may be turned for disengaging its hook from the shoulder of the lifting-lever. The preferred means for pivotally connecting the catch with the sash consists of a transverse knuckle g^2 , arranged on the rear side of the catch and seated in a socket g^3 in the upper side of the sash face-plate D, as shown in Figs. 2 and 11. While the hook of the catch is in engagement with the locking-shoulder of the lifting-lever, the front arm of the lifting-lever bears against the under side of the stool face-plate and is rigidly held in this position, thereby preventing the sash from being lifted and disengaging its bottom groove from the locking-rib on the stool face-plate. When it is desired to open the sash, the catch is first turned in the proper direction for disengaging its hook from the lifting-lever, so as to release the latter, and then the lifting-lever is turned in the proper direction for lifting the sash and disengaging its locking-groove from the locking-rib of the stool. The sash may now be swung inwardly on its hinges by taking hold of the knob or handle h^5 on the free end thereof. This unlocking device is located near the floor and can be conveniently operated by first moving the foot laterally against the toe-piece of the catch, thereby moving its hook forwardly out of engagement from the lifting-lever, and then pressing the foot downwardly on the front arm of the lifting-lever, thereby raising the rear arm thereof and the

sash resting thereon. Upon swinging the sash open after the same has been unlocked the catch is withdrawn from the opening of the lifting-lever. Upon swinging the sash shut the hook of its catch during the last part of this movement engages with the guideway f' of the lifting-lever and is directed by the same into the opening thereof. After the sash has been swung shut it drops and depresses the rear arm of the lifting-lever and elevates the front arm of the same. During this movement of the lever the rear edge of its locking-opening deflects the hook of the catch, and after this edge has passed above the hook the latter is automatically turned by its weight into engagement with the locking-shoulder of the lifting-lever, thereby automatically locking the sash in its depressed position.

H represents a stationary guide or supporting-arm whereby the sash is held in an elevated position while turned open. The upper side or bearing face of this guide is flush with the upper side of the locking-rib of the stool face-plate and extends forwardly from said rib at a point between the sash, hinges, and the locking device. The supporting-arm is preferably curved concentric with the hinges, as shown in Figs. 5, 6, and 7. Upon turning the sash open after being raised the sash rests with its lower face-plate on the supporting-arm, thereby preventing the sash from dropping to its lowermost position when the same is swung away from the face-plate of the stool and clears the same, as shown in Fig. 3. Upon swinging the sash shut it rides in its elevated position on the supporting-arm until it is closed and its locking-groove is in alignment with the locking-rib of the stool. When the sash reaches its closed position, it clears the supporting-arm and drops by gravity into its lowermost position, thereby engaging its locking-groove with the locking-rib and also operating the automatic lock, whereby the sash is held against rising and turning.

For convenience in manufacturing and applying the stool and sash face-plates each of these plates is made in two sections. The sections e' d' of these plates, applied to the stool and sash farthest from the hinges, are varied in length, according to the width of the sash; but the face-plate sections e^2 d^2 next to the hinges, which carry the sash locking, elevating, and supporting mechanism, are always of the same length and applicable to sashes of different widths. By thus making the face-plates in sections the cost of equipping windows of different widths with this fixture is reduced, because the lock-carrying sections can always be cast from the same pattern, while the plain sections can be stamped out of sheet metal and cut into the required lengths to suit different widths of windows.

In order to lock the upper part of the sash and prevent the same from becoming warped,

a locking and retaining device is provided, which is constructed as follows: I represents a locking-plate arranged lengthwise between the top of the sash and the under side of the upper jamb of the frame. This plate is pivoted at its rear longitudinal edge to the under side of the upper jamb, preferably by screws *i*, so that the plate can turn in a vertical direction. The front edge of this plate is provided with a depending longitudinal flange *i'*, which in the normal closed position of the sash engages against the front side of the same, as shown in Fig. 2. Upon raising the sash its upper edge bears against the under side of the locking-plate between its pivot and its locking-flange, whereby said plate is caused to swing upwardly. As the sash rises its upper rail bears against the locking-plate at a point which is nearer its pivot than its locking-flange, which causes the extent of movement at the free edge of the plate to be greater than the extent of the upward movement of the sash. The parts are so constructed that when the sash reaches its uppermost position it deflects the locking-plate upwardly sufficiently to carry its flange above the upper edge of the sash, so as to permit the latter to be swung inwardly from underneath the locking-plate. While the sash is thus swung inwardly into an open position clear of the locking-plate it engages against the under side of a supporting-arm J, as shown in Figs. 3 and 12, whereby the locking-plate is held in an elevated position. The supporting-arm J extends forwardly from the locking-flange and has its under side flush with the lower edge of the said flange. This arm is preferably curved concentrically with the sash-hinges and is of such extent that it will always rest on top of the sash in all positions of the latter. When the sash is again closed into alinement with the locking-plate, the latter drops by gravity upon the top of the sash and engages its locking-flange against the front side of the same, thereby locking the upper part of the sash and also holding the same in position so as to prevent warping thereof. As the locking-plate rises under the lifting-action of the sash this plate recedes into a recess *j*, which is formed in the under side of the upper jamb opposite the free end of the plate, the bottom of this recess being beveled from the pivot of the locking-plate toward the inner side of the frame. For the purpose of producing a compact construction the pivot of the locking-plate I is arranged adjacent to or in line with the outer side of the sash, and in order to permit of this arrangement of the pivot the top of the sash is beveled on its outer corner, as shown at *j'*, Figs. 2 and 4, thereby permitting the sash to be raised freely without cramping the locking-plate or lifting the same an unnecessary extent. To enable the throw of the locking-plate to be adjusted so as to insure lifting of its flange above the top of the sash prepara-

tory to opening the same, an adjustable bearing is provided on the upper edge of the sash for engagement with the locking-plate. This adjustable bearing preferably consists of a screw *j''*, which engages at its lower threaded end in the top of the sash and bears at its upper head end against the under side of the locking-plate, as shown in Fig. 2. Upon turning this bearing-screw so as to raise or lower the same on the sash the extent which the locking-flange overhangs the upper inner corner of the sash may be regulated for taking up wear, shrinkage, or sagging of the window and maintaining the same in working condition.

The top of the sash is preferably covered with a metal face-plate *k* for reducing the wear on the same, this plate being shaped to conform to the beveled top of the sash, as shown in Figs. 2 and 4.

In order to effectually prevent water and dust from passing through the joints between the sash and frame, weatherproof attachments are provided, which are constructed as follows: L represents a horizontal deflector-flange arranged lengthwise along the lower outer corner of the sash and projecting laterally beyond the joint between the lower edge of the sash and the stool. This flange is preferably formed in one piece with the face-plate on the lower side of the sash, as shown in Figs. 1, 2, and 10. The under side of this deflector-flange is provided between its outer edge and the joint between the sash and stool with a longitudinal groove *l*. The water running down the outer side of the sash strikes the flange L and is deflected outward from the joint between the sash and stool and caused to drip upon the sill beyond said joint. Any water which tends to pass around the lower edge of the deflector-flange to the joint between the sash and stool is checked by the groove *l* therein, because the water is unable to cross said groove and reach said joint. This grooved flange, together with the interlocking rib and groove between the stool and the sash, forms a double check, which effectually prevents water and dust from passing through this part of the window. The upper-sash stop *a*³ is provided on its inner side, which faces the sash, with a horizontal rabbet *m*, forming a horizontal inwardly-projecting flange *m'* on the lower inner corner of said stop. The upper outer corner of the sash is provided with a horizontal weather-flange *n*, which during the closed position of the sash extends over the stop-flange *m'*, as shown in Fig. 2. The cooperating flanges *m'* *n* form an obstruction which intercepts the incoming dust and water and prevents the same from passing through the joint between the upper end of the sash and the head of the frame. This obstruction, together with the locking-plate I, thus renders the joint between the top of the sash and the head of the frame

practically weatherproof. For convenience the weather-flange n is made in one piece with the face-plate k on the top of the sash. The joints between the sides or stiles of the sash and the side jambs of the frame are rendered weather-tight by means of sheet-metal weather-strips O O' . The weather-strip O is interposed between the back of the sash-stile b^3 next to the hinge and the adjacent side jamb of the frame, while the other strip, O' , is interposed between the sash-stile b^2 and the opposing stop a' . Each of these strips is of an angular form and consists of a flat attaching-web o^2 and a trough or gutter shaped bearing-web o^3 , which opens toward the attaching-web. The back of the stile nearest to the hinges is provided with a vertical slip p , and the opposing face of the adjacent side jamb is provided with a vertical groove p' .

The weather-strip O is arranged with its flat attaching-web in the slit p of the hinge-stile, and its trough in the closed position of the sash is arranged to engage with the groove p' of the strip O . The trough while engaging the groove p' opens toward that side of the joint between the sash and the frame which is opposite the hinge, and the edge of the trough is within the groove p' . The weather-strip O is pivoted centrally to its stile by a screw or pin q passing horizontally through the stile and web, and the free edge of the trough o^3 is preferably curved or rounded, as shown at o^4 , Fig. 5. By this construction the strip O can rock in a vertical plane and also be deflected upon engaging the groove in the frame for adapting itself to the latter and forming a tight joint between these parts of the sash and frame. Any dust or water which may be driven from the outside into the outer part of the joint between the hinge-stile and the frame is intercepted by the weather-strip O and directed into the trough thereof. This trough is of larger capacity than the joint between the sash and frame, whereby the dust and water entering the same are conducted downwardly and discharged upon the stool and sill and thence escape outside of the window. By this means the dust and water entering the hinge-joint between the sash and frame is carried away as fast as it enters this joint, thereby preventing the same from passing through the window. The stop a' is provided in its front side or face with a vertical slit r , and the outer opposing side of the sash-stile b^2 is provided with a vertical groove r' . The weather-strip O' is arranged with its flat attaching-web o^2 in the slit r , and its trough-shaped web o^3 is arranged to engage with the groove r' in the opposing sash-stile b^2 . The trough of the strip O' is on that side of the flat web so that upon closing the sash the trough opens toward the outer side of the adjacent stop a' , as shown in Fig. 5. The trough of the weather-strip O' is preferably of tapering or V-shaped form, and the groove r' , which receives the same, is

of corresponding form. The flat web of the weather-strip O' is pivoted centrally to the stop by a screw or pin s , passing through the attaching-web of the strip O' and the stop a' . The strip O' is thus capable of rocking in a vertical plane and adapting itself to the sash for forming a tight joint between the same. Any dust and rain which is driven between the stop a' and the stile b^2 is intercepted by the weather-strip O' and conducted by the trough thereof downwardly to the lower outer part of the window, where it escapes.

By the use of these improvements in a French-casement window the same may be locked securely and its joints closed tightly, thus overcoming the objections which have heretofore been urged against this kind of window and rendering the same as serviceable as any other style of window.

I claim as my invention—

1. The combination of a frame, a sash mounted in said frame to turn horizontally and slide vertically, the faces on the opposing lower parts of the frame and sash having shoulders which cooperate in the lowered or closed position of the sash, and an automatic locking device constructed to hold the sash in its lowered position and operated by the descent of the sash, substantially as set forth.

2. The combination of a frame, a sash mounted in the frame to turn horizontally and slide vertically, said frame and sash having shoulders which cooperate in the lowered or closed position of the sash, and a lifting-lever pivoted on the frame so as to turn in a vertical plane and having one of its arms movable into and out of engagement with the sash, substantially as set forth.

3. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, said frame and sash having shoulders which cooperate in the normal closed position of the sash, a lifting device for raising the sash and disengaging its shoulder from the shoulder of the frame, and a catch which engages with said lifting device and locks the sash in its lowered position, substantially as set forth.

4. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, said frame and sash having shoulders which cooperate in the normal closed position of the sash, a lifting-lever on the frame for raising the sash and disengaging its shoulder from the shoulder of the frame, and a catch on the sash for engaging with said lever and locking the sash in its lowered position, substantially as set forth.

5. The combination of a frame having a longitudinal rib on the upper side of its stool, a sash mounted on the frame to turn horizontally and slide vertically and provided in the under side of its lower rail with a longitudinal groove which is adapted to receive said rib, a vertically-swinging lever mounted on

the frame and adapted to raise the sash for disengaging its groove from said rib, and a vertically-swinging catch pivoted on the sash and adapted to engage with said lever for holding the sash in its lowered position, substantially as set forth.

6. The combination of a frame having a stool, a face-plate applied to said stool and provided on its upper side with a longitudinal rib, a sash mounted on the frame to turn horizontally and slide vertically, a face-plate applied to the lower rail of the sash and provided on its under side with a longitudinal groove which is adapted to receive said rib, a lifting-lever for raising the sash pivoted on the under side of the stool face-plate so as to swing in a vertical plane, and having a rear arm which projects upwardly through an opening in the stool face-plate into engagement with the sash face-plate and a front arm which is provided with an opening, a guideway leading to the front edge of the lever-opening and a shoulder underneath the rear edge of the lever-opening, and a catch pivoted on the inner side of the sash-plate so as to turn in a vertical plane and having an upwardly-projecting operating-arm or toe-piece and a depending hook which is adapted to pass over the guide of said lever into the opening thereof and engage with the shoulder of the same, substantially as set forth.

7. The combination of a frame, a sash mounted on the frame to turn in one direction and slide in another direction, said frame and sash having shoulders which cooperate in the normal or closed position of the sash, and an arm or guide which supports the sash in its abnormal or open position, substantially as set forth.

8. The combination of a frame, a sash connected on one side with the frame to turn horizontally and also sliding vertically, the stool of the frame and the lower rail of the sash having shoulders which cooperate in the normal lowered or closed position of the sash, and a supporting arm or guide curved concentric with the sash-pivot and supporting the sash while turned open, substantially as set forth.

9. The combination of a frame provided on the upper side of its stool with a longitudinal rib, a sash pivotally connected on one of its vertical sides with the frame so as to be capable of turning horizontally and also sliding vertically and provided on the under side of its lower rail with a longitudinal groove which is adapted to receive said rib in the normal closed and lowered position of the sash, and a stationary arm or guide which supports the sash while turned open in a raised position and which is curved from said rib concentrically with the sash-pivot and has its top flush with the top of said rib, substantially as set forth.

10. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, and a locking-plate resting on the top of the sash and pivotally connected

with the frame adjacent to one side of the sash and provided with a flange engaging with the opposite side of the sash, whereby upon raising the sash the latter turns said locking-plate and disengages its flange from the sash, substantially as set forth.

11. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, a locking-plate arranged lengthwise between the top of the frame and the sash and pivoted at one end on the frame adjacent to one side of the sash while its opposite end is provided with a flange engaging with the opposite side of the sash, and a vertically-adjustable bearing arranged on top of the sash and engaging with the under side of the locking-plate, substantially as set forth.

12. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, a locking-plate pivoted to the upper part of the frame and provided with a flange engaging with the sash, and a supporting-arm on said plate for engaging with the top of the sash when the latter is open for holding the plate in an elevated position, substantially as set forth.

13. The combination of a frame, a sash pivotally connected at one side to the frame so as to be capable of turning horizontally and sliding vertically, a locking-plate arranged between the top of the sash and the frame and pivoted at one end to the frame and provided at its opposite end with a flange engaging with the sash, and a supporting-arm on said plate arranged concentric with said pivotal connection and adapted to engage with the top of said sash when the latter is open for holding the plate in an elevated position, substantially as set forth.

14. The combination with a frame having the under side of its top provided with a recess, a sash mounted on the frame to turn horizontally and slide vertically and having the outer edge of its top beveled, and a locking-plate pivoted on the frame opposite the bevel edge on the sash and arranged at its free end between the opposite edge of the sash and said recess, substantially as set forth.

15. The combination of a frame, a sash mounted on the frame to turn horizontally and slide vertically, a rib arranged on the stool of the frame and interlocking with a groove in the bottom of the sash when the latter is in its lower closed position, a supporting-arm projecting from said rib and supporting the sash in its open turned position, a locking-plate pivoted on the upper part of the frame and engaging with the top of the sash, and a supporting-arm projecting from the locking-plate and engaging with the sash when the latter is swung open, substantially as set forth.

16. The combination of a frame provided on the under side of its head with a rabbet and a horizontal flange below the rabbet, and a vertically and horizontally movable sash

mounted on the frame and provided at its upper end with a horizontal flange which projects over the flange on the frame and into said rabbet in the closed position of the sash, said rabbet being of sufficient height to permit the sash to effect the requisite vertical movement, substantially as set forth.

17. The combination of a frame, a sash pivoted on the frame, one of said members having a groove and the other member a slit opposite said groove, and a weather-strip consisting of a plate pivoted centrally at one side in said slit and provided at its opposite side with a trough which engages said recess in the closed position of the sash, substantially as set forth.

18. The combination of a frame provided on the inner side of one of its side jambs with a vertical groove, a sash pivoted at one side to the grooved jamb of the frame and provided opposite said groove with a vertical slit, and a weather-strip consisting of a vertical plate pivoted centrally at one side in said slit and

provided at its opposite side with a trough which engages said groove and opens toward that side of the joint between the sash and frame opposite the pivotal connection between the same, substantially as set forth.

19. The combination of a frame provided on the inner side of one of its side jambs with a stop having a vertical slit on its face, a sash pivoted on one side to the opposite side jamb of the frame and having a vertical groove in its free end which faces said slitted stop, and a weather-strip consisting of a vertical plate pivoted centrally at one side in said slit and provided at its opposite side with a trough which engages said groove and opens toward the outer side of said stop, substantially as set forth.

Witness my hand this 6th day of October, 1902.

CLINTON D. TABOR.

Witnesses:

WM. OLDS WEBER,
G. D. HEDDEN.