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D. G. FREEMAN.

COMBINED HOLDER AND LOCKING DEVICE FOR WINDOW SASHES.

APPLICATION FILED MAY 29, 1905.

Fig. 1

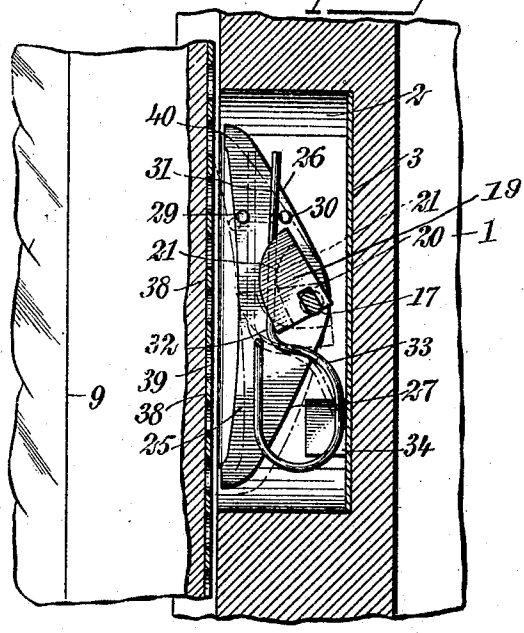


Fig. 2

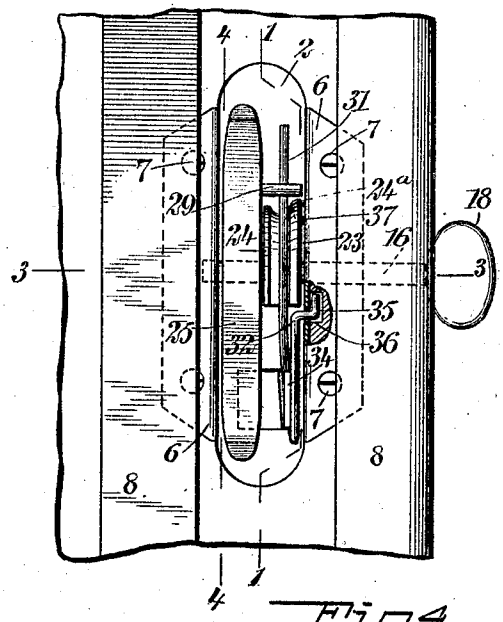


Fig. 3

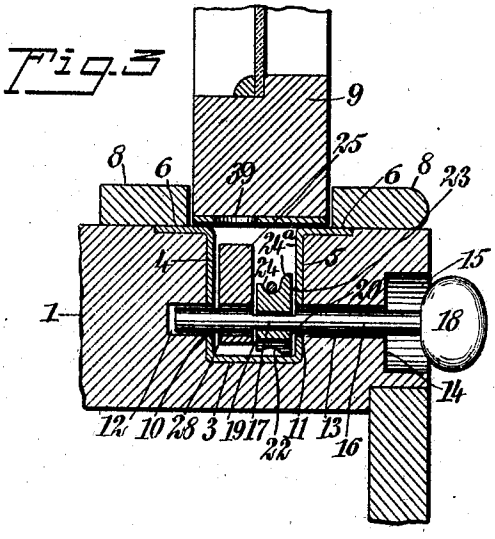


Fig. 4

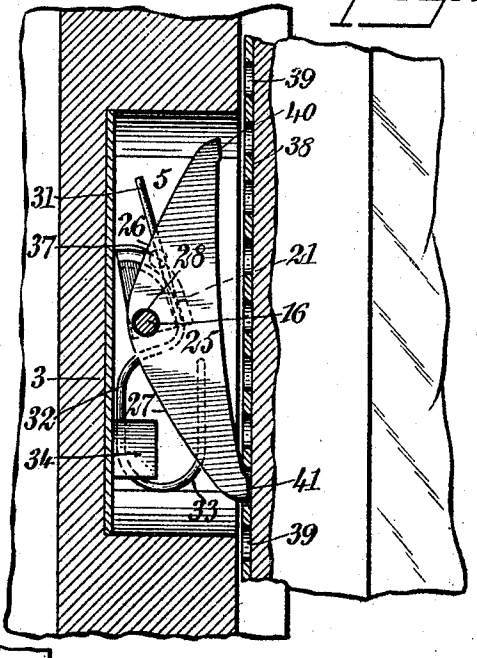
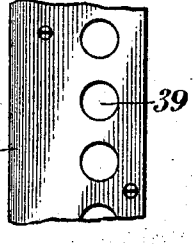


Fig. 5



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COMBINED HOLDER AND LOCKING DEVICE FOR WINDOW-SASHES.

No. 805,907. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed May 29, 1905. Serial No. 262,826.

To all whom it may concern:

Be it known that I, DORUS GRIFFITH FREEMAN, a citizen of the United States, and a resident of Canastota, in the county of Madison and State of New York, have invented a new and Improved Combined Holder and Locking Device for Window-Sashes, of which the following is a full, clear, and exact description.

This invention relates to combined holding and locking devices for window-sashes; and it consists, substantially, in the details of construction and combinations of parts hereinafter more particularly described, and pointed out in the claims.

One of the principal objects of the invention is to provide a device of this kind of an embodiment to overcome numerous disadvantages and objections encountered in the use of many other contrivances hitherto devised for similar purposes.

A further object is to provide a device of the character specified which may be set or adjusted to automatically engage and lock the window-sash to prevent either the lowering of the same after being raised or the raising thereof after being lowered, irrespective of the position originally occupied thereby.

A further object is to provide a device of this character which may be set or adjusted to automatically engage and lock the window-sash to prevent either the lowering of the same after being raised or the raising thereof after being lowered, while still permitting it to be further raised or lowered from any intermediate position to which it may have been carried or moved in the first instance.

A still further object of the invention is to provide a device for the purposes specified which is simple in construction and comparatively inexpensive to manufacture, besides being thoroughly effective and reliable in operation and possessing the capacity for long and repeated service.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation, in part section, on the line 1 1 of Fig. 2, illustrating portions of a window frame and sash having my improvements embodied in connection therewith. Fig. 2 is a front view of Fig. 1 minus the portion of the window-sash therein. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a similar view to Fig. 1, the position of the parts being reversed and the section being on the line 4 4 of Fig. 2, the position of the locking-bolt in this figure being such as to catch and lock the window-sash against movement in an upward direction; and Fig. 5 is a detail view of a portion of the member employed on the window-sash for enabling the locking engagement of the bolt to be effected.

Before proceeding with a more detailed description it may be stated that in the form of my improvements herein shown I employ a specially-constructed supporting frame or case for the operative members or elements of the device, which is suitably secured within a mortise or recess therefor formed in the inner face of one of the side members of an ordinary window-frame. Mounted within said frame or case is a specially-constructed double-acting bolt, combined with which are specially-constructed members coöperating with each other and with the bolt for maintaining the latter normally in a neutral position and permitting the window-sash to be freely raised or lowered to any desired height or position. Said members are also of special organization and are capable of being operated to cause the bolt to be carried or swung to either one of two positions, so as to catch and lock the window-sash either when raised or when closed to prevent movement thereof in the opposite or reverse direction until a proper release of the bolt has been effected. Special means are employed on the adjacent face of the window-sash by which to secure the desired locking engagement of the bolt with the sash, and while I have herein represented my improvements in a certain preferred embodiment it will be understood, of course, that I am not limited thereto in precise detail, since immaterial changes therein may be resorted to coming within the scope of my invention.

Reference being had to the drawings by the designating characters thereon, 1 represents a portion of one of the upright members of an ordinary window-frame, having formed in the inner face thereof at the proper height a mortise 2, in which is seated or located a suitable supporting frame or case for the movable or operative members of the structure, said frame comprising a back section 3, lying flatly against the base of the said mortise 2, together with parallel side sections 4 and 5, each of which is formed at the forward or outer edge thereof with an integral substantially

right-angled flange 6, which is secured to the face of the upright member 1 on either side of the vertical edges of the said mortise 2 therein by means of screws 7 or in any other suitable way, these flanges being partially covered by the vertical parallel guides 8 for the window-sash 9, and which guides incidentally add to the security of the fastening for the said supporting frame or case within the mortise, it being understood that the parallel side sections 4 and 5 of the supporting frame or case closely fit against the adjacent sides of the said mortise 2. The said side sections 4 and 5 of the supporting frame or case are formed with corresponding openings 10 and 11, the former of which coincides or registers with a socket 12, leading from the forward side of the mortise 2, and the latter of which registers or coincides with an opening 13, leading from the opposite side of the said mortise 2 and terminating outwardly, preferably at the base 14 of a recess 15, formed in the outer face of the said member 1 of the window-frame. Working in the coinciding or registering openings referred to and having the inner end thereof received in the socket 12 is a rotatable shaft 16, having a flattened portion 17 at a suitable part of the length thereof and provided at its outer end with an operating-button 18, preferably of oval form, so as to serve as an indicator for denoting the position which the concealed members of the structure may occupy at any time. Mounted upon the said shaft 16 and rotatable therewith is a cam 19, having in the under side thereof a transverse groove 20, between the sides of which are snugly received the sides of the said flattened portion 17 of the shaft, the forward or operative face of this cam being struck on a curve (indicated at 21) and having therein a circumferentially-disposed groove 22, the sides 23 and 24 of which are disposed vertically, the upper extremity of the said side 24 extending somewhat higher than the corresponding extremity of the said side 23, (indicated at 24^a,) for the purpose presently to be explained. Also mounted upon the shaft 16, beyond the said cam 19, is a double-acting bolt 25, having independent swinging movement relatively to the shaft, and the inner edges 26 and 27 of which converge toward and intersect with each other directly adjacent to the opening 28 therein, through which the shaft passes, this construction furnishing a convenient pivotal support for the said bolt or catch on the shaft, as will be apparent. At a convenient elevation with respect to the shaft and on the side thereof adjacent to the said cam 19 this double-acting swinging bolt or catch 25 is provided with duplicate parallel projections or abutments 29 and 30, between which is disposed the upper free extremity 31 of a spring-lever 32, the lower extremity of which is curved inwardly to form a bow 33, which extends within or is received into the space formed between the adjacent side section 5 of the supporting frame or case referred to and a forwardly-extending projection 34, struck up from the back section 3 of said frame or case, the terminal 35 of said bow 33 being introduced within an opening 36 in said side section 5 and bent in such manner as to retain the said spring-lever in its desired working relation with the aforesaid cam 19 and double-acting bolt 25. As thus constructed and disposed within the supporting frame or case the said spring-lever 32, in addition to its function as such, also tends, through the aforesaid upper free extremity 31 thereof, to press laterally against the lip formed at 24^a by the aforesaid extended upper portion of the side 23 of the groove 22 in the aforesaid cam 19. By means of the said forwardly-extending projection 34 the said spring-lever 32 is also held properly within the intended position therefor, and the said upper free extremity 31 of this spring-lever also tends to prevent any binding between the adjacent sides of the cam 19 and the bolt 25, thus permitting the said bolt to freely operate in the manner intended when not held under restraint by said spring-lever.

The inner face of the side section 5 of the supporting frame or case for the structure is provided with a projection 37, (see Fig. 2,) which serves normally to retain the cam 19 in such position as that the said double-acting swinging bolt 25 will be held in a neutral or inoperative position to enable the window-sash 9 to be freely raised or lowered without any engagement or locking thereof taking place. To provide for the locking engagement of the sash by the bolt, either to prevent the sash from being raised or lowered, as will be presently explained, the adjacent edge or face of the sash is provided with a plate 38, formed with a series of equidistant vertically-disposed openings 39, in which either the upper or lower end of the bolt 25 is received, according to the particular position to which the bolt may be caused to be thrown or adjusted. The said projection 37 on the inner face of the side section 5 of the supporting frame or case also operates as an obstruction to the cam 19 for preventing the latter from being carried too far inwardly or backwardly from a position corresponding with the neutral or normal position of the bolt, and thus also indirectly serves to retain the shaft 16 in such position as will bring the sides of the operating-button 18 thereof in vertical planes; but it will be understood that by applying sufficient force to the shaft through the medium of said button the cam 19 may be carried inwardly or backwardly past the said projection, by which the lower operative end of the bolt 25 will be thrown outwardly to be engaged in the openings 39 of the plate 38 on the window-sash, whereby the latter will be prevented from being raised until the re-

lease of the bolt has been effected by proper manipulation of the operating-button 18.

From the foregoing description, and as indicated more particularly in Fig. 1, it will be seen that the double-acting bolt 25 is in such position vertically as that neither of the ends 40 nor 41 thereof will be in engagement with any one of the openings 39 in the aforesaid plate 38 on the adjacent face of the window-sash, this being what has been termed the "neutral" position of the said bolt. The upper end portion of the bolt is constructed to be top-heavy, so that normally the same will tend to pitch forwardly or outwardly in the direction of said window-sash, it being noted, however, that the bolt is held under restraint from such action by pressure of the free upper extremity 31 of the spring-lever 32 against the inner projection or abutment 30 from the adjacent side of the bolt. At this time the cam 19 and the said spring-lever 32 will be in the position also indicated, and the window-sash may be raised to any desired extent within the guides therefor, as will be apparent. To lock the sash in its raised position, it is simply necessary to turn the operating-button 18 of the shaft 16 in the left-hand direction, whereupon by virtue of the sides of the flattened portion 17 of the said shaft fitting between the sides of the groove 20 in the under side of the cam 19 the latter will be rotated forwardly in such manner as to carry the free upper extremity 31 of the spring 32 away from the projection or abutment 30 of the bolt, thereby causing the upper and heavier end portion of the bolt to gravitate or tip forwardly or outwardly in the manner already suggested, so that the upper flattened portion 40 of the bolt will be received in one of the openings in the plate 38. This operation of the bolt 25 is indicated in dotted lines in Fig. 1, and it is apparent that whenever it is desired to release the sash from engagement by the bolt it is simply necessary to restore the operating-button 18 of the shaft 16 to its first position, which action will cause the upper free extremity 31 of the spring-lever 32 to be moved inwardly or backwardly with the corresponding movement of the cam 19 and thus again be carried into contact with the aforesaid projection or abutment 30 on the bolt.

After lowering the window-sash in order to lock the same in its lowered position it is simply necessary to turn the operating-button 18 of the shaft 16 in the right-hand direction past a vertical position, whereupon the turning force applied to the shaft will be communicated to the cam 19, and the latter will be forced past the projection 37 on the inner side of the side section 5 of the supporting frame or case, the inward pressure then exerted by the aforesaid upper free extremity 31 of the spring-lever 32 against the said projection or abutment 30 of the bolt causing the upper end of the latter to be carried inwardly or backwardly, which of course carries the lower end 41 of the bolt in the reverse direction or outwardly, the said end thereof also entering one of the openings 39 in the said plate 38. In this position of the parts the window-sash cannot be raised until the operating-button 18 of the shaft 16 has been again operated reversely and carried to its first or original position. It will be understood that each time the parts are operated by turning the shaft in one direction or the other through the medium of the button 18 they are temporarily locked in the intended operative positions therefor by coöperative action of the cam and the spring-lever, all of which, it is thought, will be fully understood without further detailed explanation.

My improved device is capable of being applied for use in connection with window frames and sashes as ordinarily constructed, and it will be seen that the same possesses many advantages as a security device for preventing raising or lowering of the window-sash except when the devices are operated in a certain or predetermined manner.

It will be understood that the upper end portion of the bolt may be rendered top-heavy either by sufficiently increasing the amount of material thereof or by mounting the bolt somewhat below a transverse plane passing centrally therethrough between its ends or in any other way; but it has been found that the projections or abutments 29 and 30 thereon sufficiently add to the weight thereof for all practical purposes.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A sash-fastener comprising a double-acting swinging bolt on the window-frame, an engaging device therefor on the sash, and means for normally maintaining the bolt in neutral position and for causing either end thereof to be carried into operative relation with said engaging device, at will, embodying a rotatable shaft, a cam and a spring-lever, said cam having a circumferentially-disposed groove therein, and the spring-lever having an extremity thereof located within said groove.

2. A sash-fastener comprising a double-acting swinging bolt on the window-frame, an engaging device therefor on the sash, and means for normally maintaining the bolt in neutral position and for causing either end thereof to be carried into operative relation with said engaging device, at will, embodying a rotatable shaft, a cam and a spring-lever, said cam having a circumferentially-disposed groove therein, one side of which has an extended portion, and the spring-lever having an extremity thereof working within the groove and exerting lateral pressure against said extended portion.

3. A sash-fastener comprising a double-act-

ing top-heavy swinging bolt on the window-frame, a device on the sash for engagement therewith of an end thereof, and means for normally maintaining the bolt out of engagement with said device and for releasing the bolt to cause the upper end thereof to gravitate to operative relation with the device, comprising a rotatable shaft, a cam thereon and a spring-lever.

4. A sash-fastener comprising a double-acting top-heavy swinging bolt on the window-frame, a device on the sash for engagement therewith of an end thereof, and means for normally maintaining the bolt out of such engagement and for releasing the bolt and carrying the lower end thereof into operative relation with said device, comprising a rotatable shaft, a cam thereon and a spring-lever.

5. A sash-fastener comprising a double-acting top-heavy swinging bolt on the window-frame, a device on the sash for engagement therewith of an end thereof, means for normally maintaining the bolt out of engagement with said device and for releasing the bolt to cause the upper end thereof to gravitate to operative relation with the device, comprising a rotatable shaft, a cam thereon and a spring-lever, and means for preventing the cam from being carried past a predetermined position inwardly until pivotally operated from said shaft.

6. A sash-fastener comprising a double-acting swinging bolt on the window-frame, an engaging device therefor on the sash, and means for normally maintaining the bolt in neutral position and for causing either end thereof to be carried into operative relation with said engaging device, at will, embodying a rotatable shaft, a cam, and a spring-lever coöperating therewith and formed with a bow, the latter maintaining operative relation between said cam and lever.

7. A sash-fastener comprising a double-acting swinging bolt on the window-frame, an engaging device therefor on the sash, and means for normally maintaining the bolt in neutral position and for causing either end thereof to be carried into operative relation with said engaging device, at will, embodying a rotatable shaft, a cam and a spring-lever, said shaft having a flattened portion and the cam having a groove in its lower edge, the sides of which embrace the sides of said flattened portion.

8. A sash-fastener comprising a supporting-frame seated in a mortise therefor in the window-frame and constructed of a back section and side sections, the former having a forward projection therefrom and of the latter having an opening therein, and also provided with a projection, a rotatable shaft working in openings therefor in each of the frames referred to, a cam mounted to turn with the shaft, a double-acting bolt on the shaft having independent swinging movement and formed at one side thereof with projections, a spring-lever formed with a bow having its extremity fastened in said opening, said bow being held between said forward projection and one of said side sections, and the free extremity of the lever having coöperative relation with the cam, and a plate on the sash having means for engagement by the ends of said bolt.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DORUS GRIFFITH FREEMAN.

Witnesses:
H. W. Rowe,
M. E. Barlow.