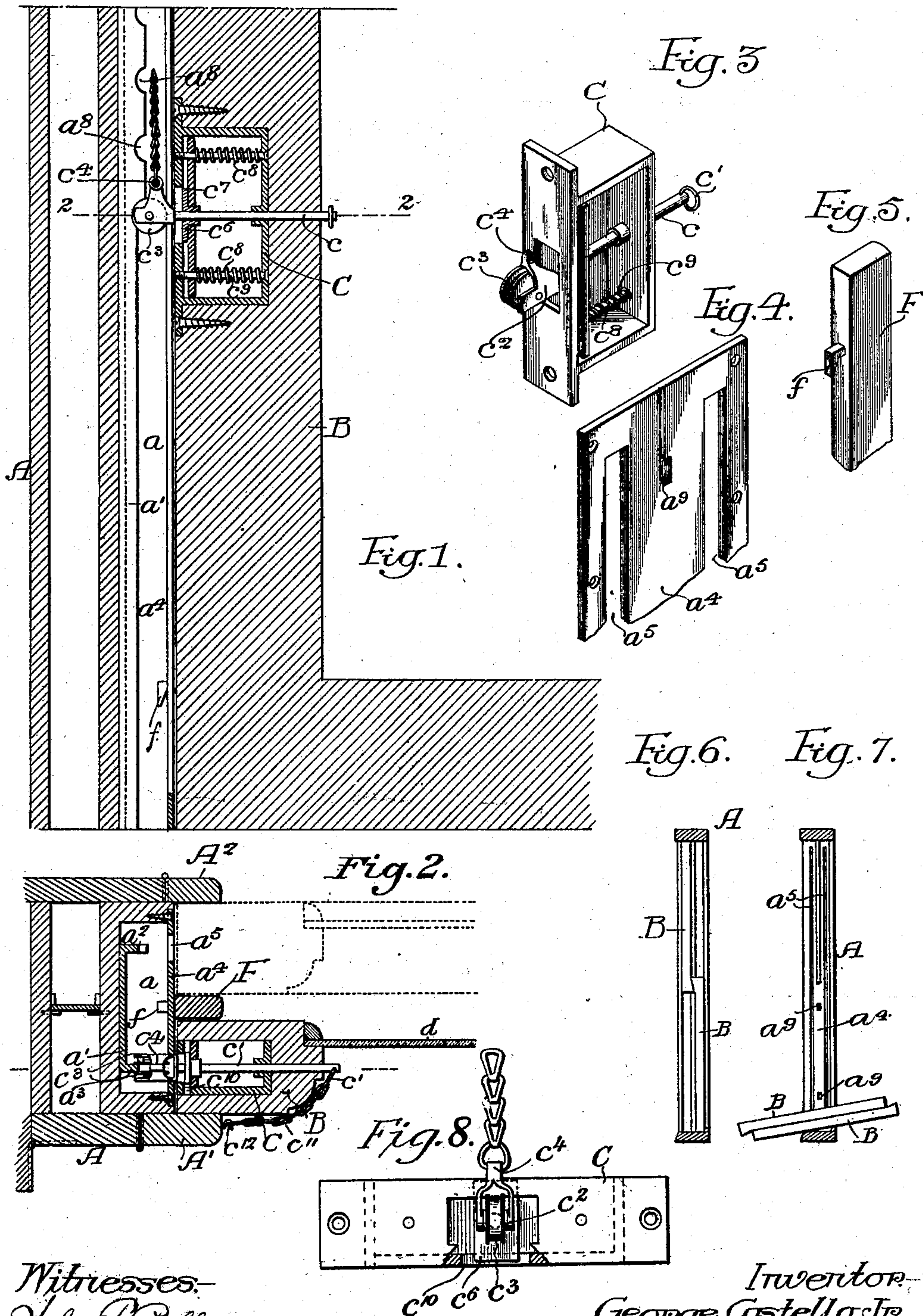


G. COSTELLO, JR.
WINDOW.

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923,628.

Patented June 1, 1909.



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UNITED STATES PATENT OFFICE.

GEORGE COSTELLO, JR., OF PHILADELPHIA, PENNSYLVANIA.

WINDOW.

No. 923,628.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE COSTELLO, JR., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Windows, of which the following is a specification.

One object of my invention is to provide the sashes of a window with devices of a relatively simple and inexpensive though substantial construction, whereby it shall be possible to conveniently and quickly swing either or both of said sashes upon a horizontal axis in order to easily clean both sides of the glass thereof.

I further desire to provide a window sash with a fixture whereby it may be retained at any of a number of different heights; the sashes being of such a nature as to be capable of swinging in the frame and having means whereby they are locked against removal from said frame when so operated.

Another object of the invention is to provide a sash with means whereby it is movably connected with its containing frame, which means shall be of such a nature as to permit the sash to turn on a horizontal axis and be so far lowered when so turned as to rest and be supported upon the sill of said frame.

The invention also contemplates certain detail features of construction as will appear hereafter.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a vertical section of portions of a window frame and sash illustrating my invention as applied thereto; Fig. 2, is a horizontal section taken on the line 2—2, Fig. 1; Fig. 3, is a perspective view illustrating one of the casings and its associated parts as constructed in accordance with my invention; Figs. 4 and 5, are fragmentary perspective views illustrating the cover plate for the recess in each inner face of the frame, and the sash parting strip, respectively. Figs. 6 and 7, are vertical sections on a reduced scale illustrating the window sashes in their closed and lowered positions respectively, and Fig. 8 is a side elevation partly in section illustrating the detail construction of certain of the parts of my invention and showing the same when they are turned out of their normal positions.

In the above drawings, A represents a window frame and B a portion of a window sash; it being understood that while in Figs. 1 to 3 inclusive I have illustrated my invention as applied to but a single sash, it may be employed in a double sash window as illustrated in Figs. 6 and 7, if this be desirable.

As shown in Figs. 1 and 2, I preferably form in each of the inner vertical sides or faces of the window frame an elongated slot or recess *a* extending vertically from the top to the bottom thereof and I mount in this recess a structure *a'* having one or more sets of teeth *a²* and *a³*, depending upon whether or not the frame is intended for use with one or two sashes. Each toothed portion of this structure preferably consists of a relatively narrow rib in which are formed a series of curved or other shaped depressions *a⁴*, as shown best in Fig. 1, spaced at certain distances apart, depending upon the number of positions in which it is desired that the sash shall be capable of being held. The recess *a* in each face of the frame is provided with a cover plate *a⁴* mounted so as to be substantially flush with the face of the frame in which it is placed and having longitudinally extending slots or openings *a⁵* immediately in front of the toothed portions *a²* and *a³* of the structure *a'*. In addition to the slots *a⁵* I also provide a suitable number of openings *a⁶* in that part of the plate *a⁴* between said slots, and mount on the parting strips F a corresponding number of hooks *f* whereby said strip is removably held in place between the sashes. It will be understood that the parting strips are of such a length or are so mounted that they may be moved longitudinally a sufficient distance to permit the hooks being disengaged when it is desired to remove them.

In each side of each sash B I set a casing C through which extends a rod *c* so mounted as to be free to turn. As shown in Fig. 1, this rod in each case passes completely through the side member of the sash and terminates on its inner edge inside of the glass *d*;—being provided at this inner end with an eyelet *c'* which may be pulled when it is desired to move the rod *c* longitudinally, as hereafter noted. The opposite end of said rod is provided with a bearing piece *c²*, in which is journaled a grooved roller *c³* designed to operate upon one of the toothed

portions a^2 or a^3 of the structure a' , the dimensions of the bearing piece c^2 being such as to permit it, with said roller, to extend through the slot a^5 of the cover plate a^4 into the recess a of the frame.

The bearing piece c^2 may, if desired, be provided with an extension c^4 or may be otherwise adapted for the attachment of a metallic cable or a sash cord of the well known form and arrangement.

As shown best in Figs. 1 and 3, the front face of the casing C has a relatively large opening through which passes the rod c and I rigidly fix to said rod immediately within this opening an elongated plate or bar c^6 . I also place loosely on said rod a second bar or plate c^7 extending the full length of the casing, and having confined between its ends and the opposite side of said casing a pair of springs c^8 preferably having supporting or guiding pins or rods c^9 .

One side of the casing C is notched or cut away at c^{10} for the reception of the end of the plate c^6 when the rod c is turned relatively to said casing, and as is obvious, when this plate has entered the notch, it is not possible for the rod c to move longitudinally and the sash is consequently locked in the frame.

As a result of the above described construction, a sash equipped on both sides with my invention is held in a raised position whenever its rollers c^3 engage one of the curved depressions or recesses in the toothed structure a^3 or a^2 , as the case may be; it being understood that the springs c^8 are of sufficient strength to accomplish this purpose in spite of the weight of the sash. If, however, it be desired to make the raising of the sash an easier matter than would otherwise be the case, I provide sash cords and weights, preferably attached to the bearing pieces c^2 as above noted.

The sashes are normally maintained in their proper positions within the frame by means of vertically extending strips A' and A^2 hinged respectively to its inner and outer vertical edges, as shown in Fig. 2, and also by the parting strip F. When it is desired to swing the sashes for cleaning or other purposes, these strips are swung on their hinges out of the way and the parting strips F are removed by raising them up for a short distance and then pulling them outwardly; the openings a^9 being of such size as to permit the removal of the hooks under such conditions.

After being brought to the desired position in the frame, either the bottom or the top of the sash may be moved inwardly so as to cause it to swing upon the rods c as an axis and when so swung the sash may be lowered to rest upon the window sill, in which position it may be conveniently cleaned or otherwise operated on by reason of the firm support thus given to it. From

Fig. 1, it will be seen that the lower parts of the toothed ribs a^2 and a^3 are plane or unnotched, so that it is possible for the rollers c^3 to operate upon them even though the sashes be turned out of their vertical positions.

As is obvious, where two sashes are provided in a frame they may both be equipped with my invention and the upper sash caused to rest upon the lower one as shown in Fig. 7, in order that it may be cleaned as above described. If it be desired to altogether remove the sashes from the frame, the rods c may be drawn inwardly by applying the necessary tension to their inner ends through chains c^{11} attached to the eyelets c' so as to cause the flanges of the rollers c^3 to disengage the toothed structures a^2 , and be drawn into the casing C. If it be desired to lock the sash in any desired position either raised or lowered, this may be accomplished by placing the free ends of the chains c^{11} over hooks c^{12} , so that the longitudinal movement of the rods c , which would be necessary in order to permit of the rollers c^3 moving out of the circular recesses, may be prevented.

As is obvious, when but a single sash is employed in the window frame, there will be but a single one of the toothed structures provided on each side thereof and each cover plate a^4 would have but a single longitudinally extending slot.

I claim:—

1. The combination of a window sash, a frame therefor, a casing set in each side of the sash, a pivot rod having a grooved roller and mounted in each casing, and guiding structures mounted in the faces of the window frame adjacent to said sides of the sash so as to co-act with the rollers, each of said guiding structures having its upper portion toothed and its lower portion plane, with means for locking the rods against longitudinal movement whenever the sash is swung on them.

2. The combination of a window sash, a frame therefor constructed to permit the sash to swing on a horizontal axis, a casing set in each side of said sash, a rod extending through each casing and the side of the sash in which it is set, a roller carried by said rod, and toothed structures mounted in the faces of the window frame adjacent to said sides of the sash so as to co-act with the rollers on said rods, with means for automatically locking said rods to prevent their longitudinal movement when the sash is swung in the frame.

3. The combination of a window frame having in each of its inner faces a vertically extending toothed structure, a window sash operative in the frame, a hollow casing set in each of the side members of the sash, a revolvable rod extending into each casing and serving as a horizontal axis for the sash, a

roller carried by each rod in position to engage the toothed structure of the adjacent face of the frame, and a transverse bar fixed to said rod and capable of automatically engaging the casing to prevent longitudinal movement of the rod when the sash is turned thereon, springs operative on said bar to yieldingly press the roller into engagement with the toothed structure of the frame.

4. The combination of a window frame having in each of its inner faces a vertically extending toothed guiding structure, a sash mounted in the frame and provided with means whereby it is permitted to swing on a horizontal axis, said means consisting of a rod in each of its side members, a roller carried by each of said rods so as to engage the guiding structure of the adjacent face of the frame, and a spring or springs acting on each rod, with means for locking the rods against longitudinal movement when their rollers engage the toothed parts of the guides and the sash is turned on its horizontal axis, a definite portion of said guiding structure being untoothed so as to permit bodily movement of the sash independent of the locking means.

5. The combination with a window frame having in each of its inner faces a vertically extending toothed structure, a sash mounted in the frame and provided with means whereby it is permitted to swing on a horizontal axis, said means consisting of a rod in each of its members, a roller carried by each of said rods so as to engage the toothed structure of the adjacent face of the frame, a spring or springs acting on each rod, a locking member connected to each of said rods and constructed to automatically prevent

longitudinal movement thereof when said sash is turned on its axis.

6. The combination of a frame, a sash movable therein, means for supporting said sash to permit of its turning on a horizontal axis, said means including a longitudinally movable rod in each side of the sash, with means for automatically preventing longitudinal movement of said rods when said sash has been turned out of its normal position.

7. The combination of a frame, a sash movable therein, a longitudinally movable rod on each side of the sash mounted so as to be free to turn relatively thereto but held from turning relatively to the frame, with means for automatically preventing longitudinal movement of said rods except when they occupy predetermined positions relatively to the sash.

8. The combination of a frame, a sash slidable therein, a longitudinally movable rod mounted in each side of the sash so as to be free to turn relatively thereto, and having means for engaging the adjacent portions of the frame so as to prevent axial turning of the rod relatively thereto, a transversely extending bar on each rod, and a member set in the sash adjacent to each rod so as to be engaged by the bar thereon when the sash is turned relatively to said rods and thereby prevent longitudinal movement of such rods.

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

GEORGE COSTELLO, JR.

Witnesses:

D. BRADFORD HORNER,
JAMES C. CARR.