June 16, 1925. 1,542,373

J. COUPLAND

WINDOW

Filed June 12, 1924 4 Sheets-Sheet 1

Fig. 2.

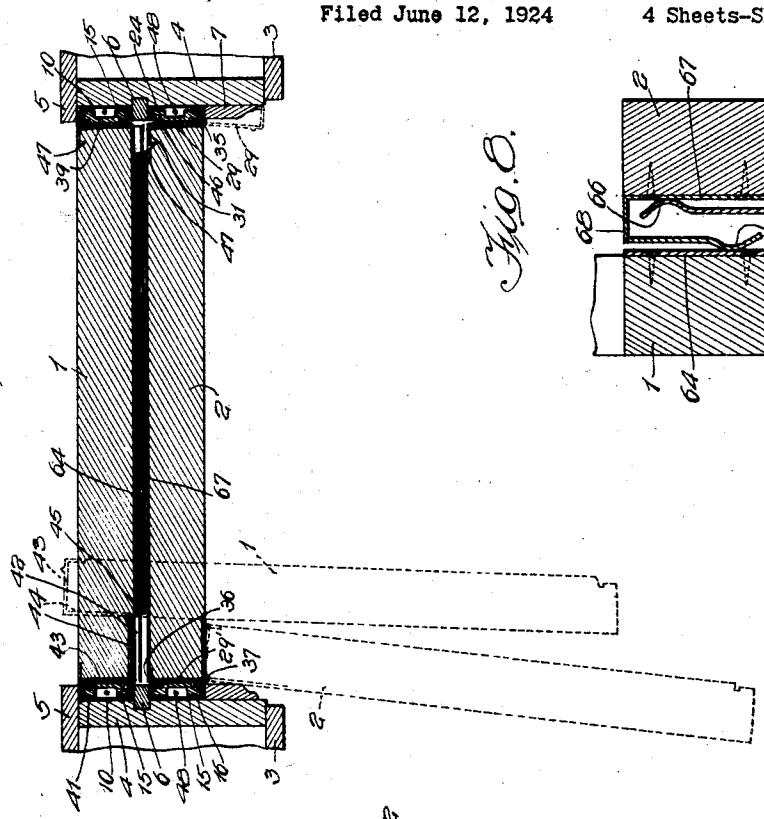
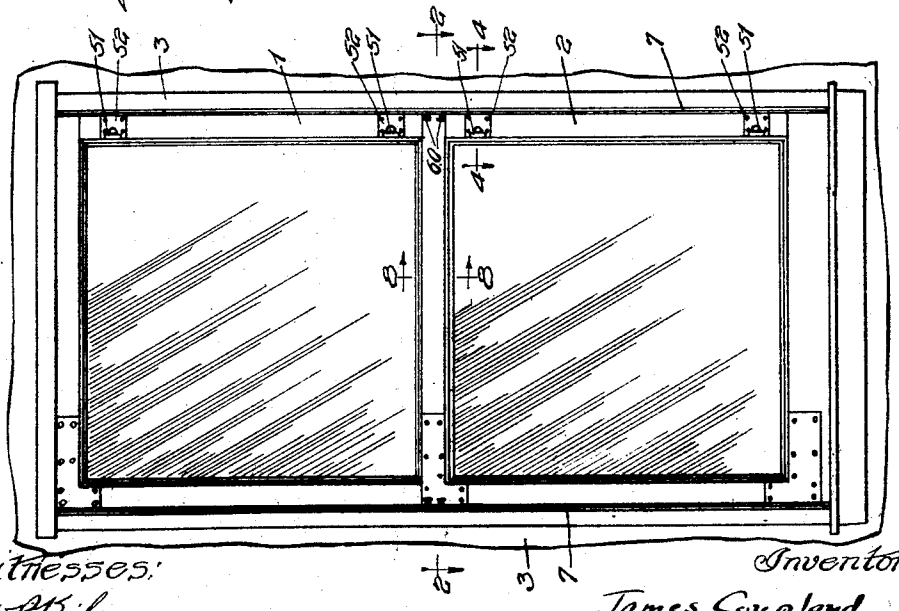


Fig. 6.

Fig. 1.



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Harry R. Lachite

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June 16, 1925. 1,542,373

J. COUPLAND

WINDOW

Filed June 12, 1924 4 Sheets-Sheet 2

Fig. 3.

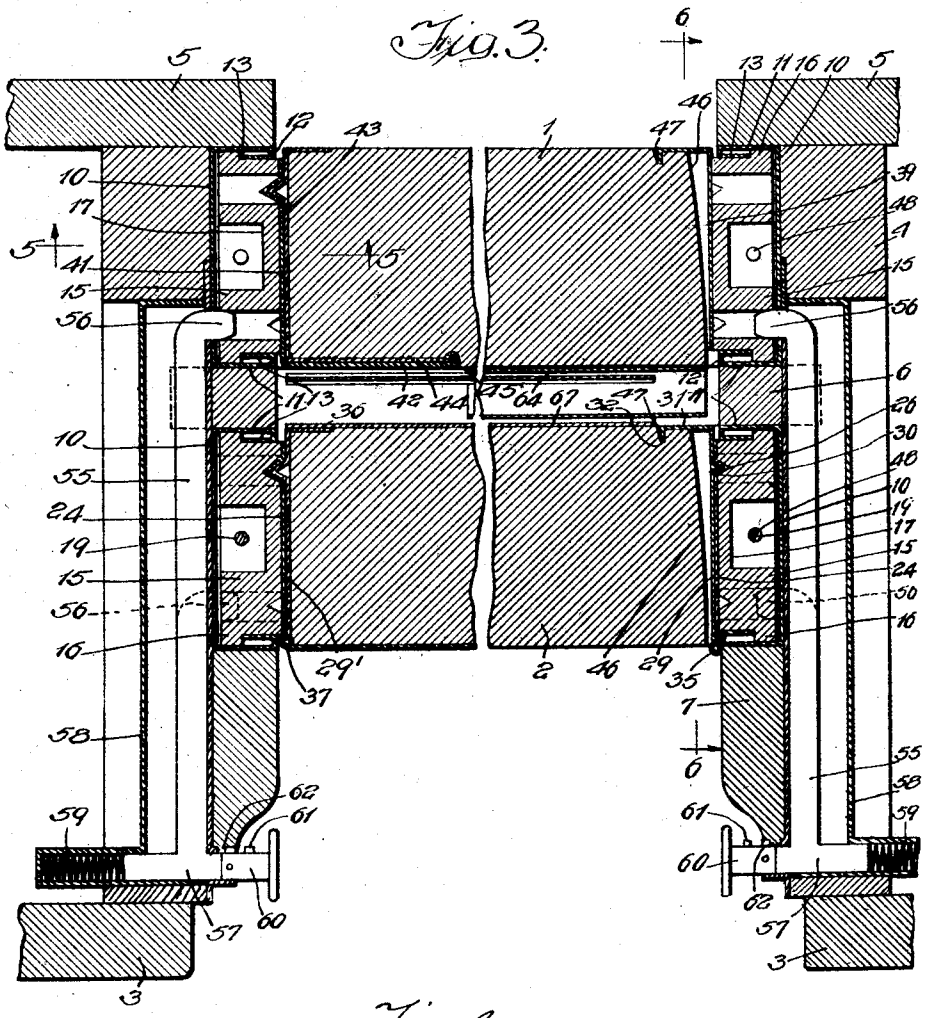
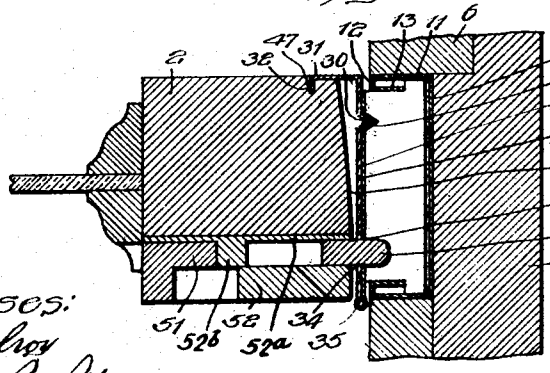


Fig. 4.



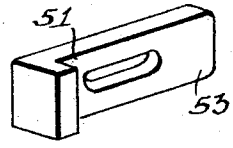


Fig. 9.

Witnesses:
W. F. Tilroy
Harry R. L. White.

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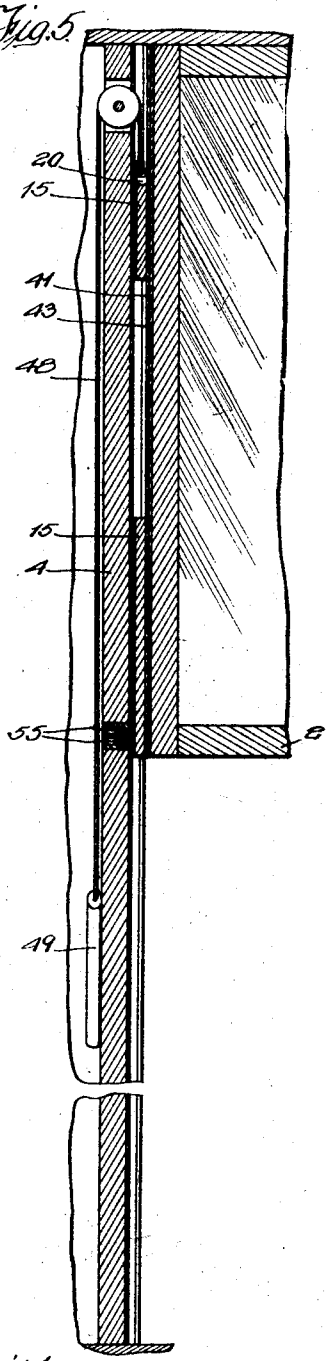
June 16, 1925. 1,542,373

J. COUPLAND

WINDOW

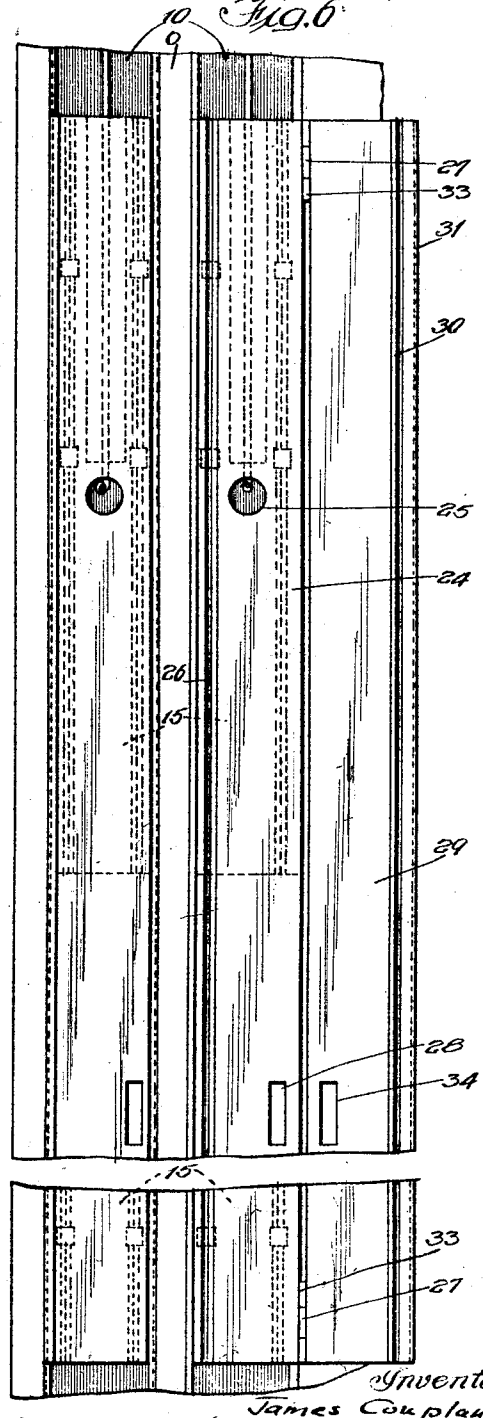
Filed June 12, 1924 4 Sheets-Sheet 3

Fig. 5



Witnesses:
W. F. Kilroy
Harry R. LeWhite

Fig. 6



Inventor:
James Coupland
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Atty.

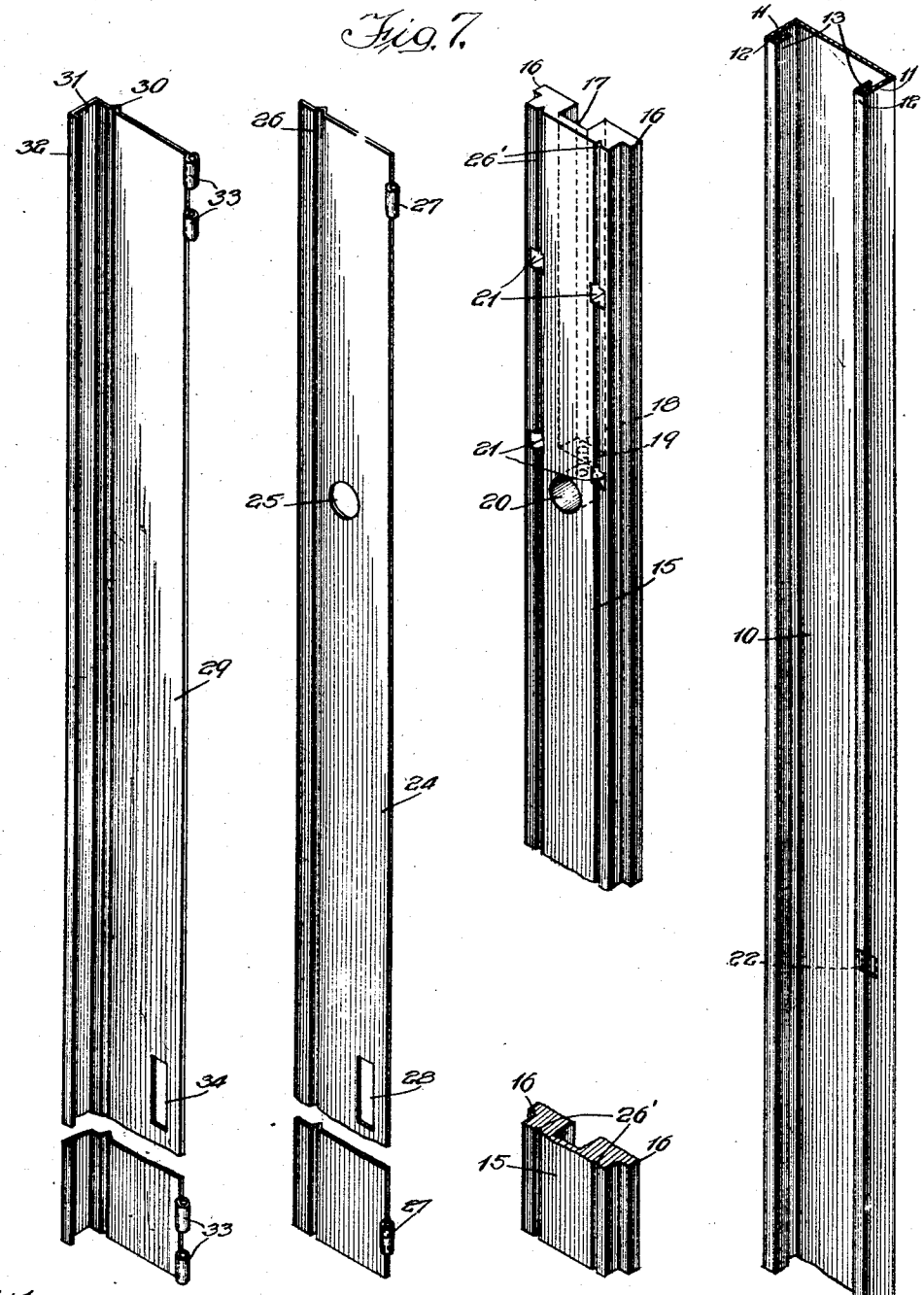
June 16, 1925. 1,542,373

J. COUPLAND

WINDOW

Filed June 12, 1924 4 Sheets-Sheet 4

Fig. 7.



Witnesses:
W. F. Tilroy
Harry R. L. White

Inventor:
James Coupland
By Hill & Hill Attys

Patented June 16, 1925. 1,542,373

UNITED STATES PATENT OFFICE.

JAMES COUPLAND, OF CHICAGO, ILLINOIS.

WINDOW.

Application filed June 12, 1924. Serial No. 719,564.

To all whom it may concern:

Be it known that I, JAMES COUPLAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Windows, of which the following is a description.

My invention belongs to that general class of devices known as windows, and relates more particularly to an improved type of window provided with combination sliding and swinging sash, particularly adapted for installation in new building construction or in old building construction to replace the present window installations. The invention has among its other objects the production of a device of the kind described which is simple, convenient, durable, efficient, attractive and satisfactory for use wherever found applicable. The invention has particularly among its objects the production of a window of the kind described in which the sash may be raised or lowered in the usual manner for ventilation or other purposes, or which may be swung open for ventilation, or to facilitate cleaning the windows, to permit the entrance or removal of articles through the window which cannot conveniently be taken through a door, or for any other desired purpose. It has among its further objects the production of a window with improved details of construction which is weatherproof, substantially burglarproof, and which does not reduce the area for the passage of light. Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosures herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a view in elevation of my improved type of window;

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 1;

Fig. 3 is an enlarged portion sectional view similar to Fig. 2, showing more clearly the details of construction;

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 1;

Fig. 5 is a vertical sectional view taken substantially on line 5—5 of Fig. 3;

Fig. 6 is a sectional view taken substantially on line 6—6 of Fig. 3;

Fig. 7 is a perspective view of the associated guide slide and hinge parts at the free edge of the outer upper sash; and

Fig. 8 is a sectional view taken substantially on line 8—8 of Fig. 1.

Fig. 9 is a perspective view of a bolt, which forms a part of the improved construction.

Referring to the drawings, in which the preferred embodiment of the invention is shown as embodied in a two sash window, 1 and 2 represent two sliding and swinging sash of the desired size and preferably arranged to swing inwardly of the structure. These sash are arranged in a frame construction which I have illustrated by the frame part 3 and 4, as well as 5, which is shown also serving as an outside stop. It may be mentioned, however, that the frame construction itself may be as desired, but regardless of the construction it is preferably provided with a stop 5 at the outside, a parting stop or strip 6 and an inside stop 7, there being suitable guides and slides and cooperating parts disposed between the stops. A portion of the mechanism is common to both sash and both sides, the endeavor being, so far as possible, to make the parts so that they are interchangeable, thereby avoiding requiring pieces to be made in lefts and rights.

Referring first to Fig. 7, 10 represents a guide arranged at either side of each sash between the stops and secured in place. These guides 10 extend from top to bottom of the window frame, and are constructed with the flanges 11 which are turned over at the outer edges as indicated at 12 and 13, forming engaging members for the slides, as well as stiffening the guide. The guides may be secured in place by screws, nails, or any equivalent fastening means. There is also provided a slide 15 for each guide, arranged one on each side of each of the sash. These I prefer to make the same length as the height of the sash and when locked to the sash form substantially a unitary structure therewith. As shown in Fig. 7, each slide 15 is provided with a flange portion 16 adapted to engage with the edges of the turned over portions 13 (see Fig. 3) and retain the same in place. It may be mentioned

that when the sash are swung open, the slides remain in the guides and are locked therein so that when the window is swung shut they register properly with the free edge of the sash and may be locked thereto. Each slide is provided with a groove 17 at the top for the sash cord, the same extending the desired distance where it is shown as terminated by the shoulder 18, 19 being a hole extending through the guide and opening into the opening 20. The sash cord is threaded through the opening 19 and then knotted, the knot being pushed into the enlarged opening 20.

I have illustrated in Fig. 7 the construction for the free edge of the inner or lower sash 2, and will first explain this and then the other details, this particular construction requiring an additional hinge so that the parts engaging and holding the sash may be swung out of the way when the upper sash is swung to open position. As shown, 24 represents a plate which is secured to the slide 15, either by riveting, brazing or in any equivalent manner, or the same may in some instances be made integral with the slide. This plate is shown provided with an opening 25 arranged to register with the opening 20 so that the sash cord may be knotted in the manner described. The same is also shown grooved, as at 26, and formed with hinge parts 27 and an opening 28. It will be noted by referring to part 15 in Fig. 7 that the slide is notched as indicated at 26′ so as to receive the bead formed by 26 on the part 24. Part 15 is also shown with a plurality of openings 21 which are normally closed on the front side by the plate 24, but which may register with openings 22 in the guides 10, as will be hereinafter described. Hinged to the plate 24 is a plate 29 which I provide with a rib 30 arranged to seat in the groove 26 and with a flange 31 turned over at the free edge as indicated at 32. This part is also shown provided with cooperating hinge parts 33 and with an opening 34 arranged to register with the opening 28 in part 24. When the parts are assembled, they are as shown in Fig. 3, but when the sash 2 is swung to its open position, as will be described, part 29 may be swung out of the way so as not to interfere with the swinging of the full sized upper sash, as is shown in the dotted lines in Fig. 2.

The guide and slide at the opposite side of the sash is substantially similar, plate 24 being secured to the slide 15 while plate 29′, corresponding to plate 29, is secured to the sash, the parts being hinged at 37 as shown. In this case, the flange 36 on part 29′ is merely folded over to engage the sash and moves with the sash.

As shown in the figures, 35 and 37 represent the pivotal connections of the plates 29 and 29′ to the slides 15. The sash itself pivots about 37 when it is swung to the open position shown in dotted lines in Fig. 2, after which part 29 at the free edge of the window may be turned out of the way as mentioned. On the outer sash, plate 39 (see Fig. 3) corresponds to the plate 29 previously described, but in this case plate 39 is secured directly to the slide as it is not necessary to hinge the same thereto as in the case of the lower sash. Also, in this case, 41 corresponds to the plate 24 on the lower sash at the pivoted edge thereof, but I prefer to build the same as indicated at 42, the hinge part 43 corresponding to part 29′ being also flanged over as indicated at 44, and the two are pivoted together at 45. By making the hinge offset, as shown, the upper or outer sash may be swung further back as indicated in Fig. 2 when the same is opened. Generally, I prefer to cut the free edges of the sash back as indicated at 46 in Fig. 3, and also groove the sash as indicated at 47 for the reception of the turned over flanged portion 32 of the parts 29 and 39. The sash cord is shown in Fig. 3 and indicated by the reference numeral 48, the same generally extending up and over a pulley as indicated in Fig. 5, the sash weight 49 secured at the free end within the casing formed by the window framing.

It is not considered necessary to illustrate the framing construction in detail.

Locking means are shown for locking the free edges of the two sash to their respective slides. As shown, 51 represents a lock bolt slidably mounted between the plates 52 and 52ª which are fixed to the sash, the end 53 of the bolt being adapted to slide and engage in the holes 28 and 34 of the plates 24 and 29, so that the windows are locked in their closed positions. A lug 52ᵇ formed upon the plate 52ª limits the movement of the bolt 51. Generally, it is preferred to provide two or more locking means for each sash, although the number largely depends upon the size of the sash, and consequently may be varied in various installations. I have shown locking means at each side of each sash for locking the sash in the desired position. This locking means also has another function in that it locks the slides and the guides and maintains them in proper place when the sash are swung to their open position. While it is not so essential to lock the slide at the hinged edge of the sash in so far as itself is concerned, it is desirable to lock it in relation with the locked slide at the other side so that when the windows are closed, i. e., swung shut, the parts will interengage and the lock bolts properly engage to lock the windows to their respective slides at the free edges.

As shown, 55 represents a lock bolt having portions 56 adapted to fit into one of the openings 21, depending upon the position of the window sash. These locking bolts are

shown provided with an extending portion 57, the parts being arranged within a casing 58. A spring 59 for each bolt tends to normally maintain the same in operative position while the outwardly projecting portion 60 permits manipulation of the bolt. As shown, I have provided a semi-rotatable knob portion 60, which may be provided with means for locking the same so that the bolt 55 is inoperative. As illustrated, 61 represents a lug adapted to engage in a notch 62 when the knob 60 is pushed in and then turned. As illustrated, this is what is known as a bayonet joint and need not be explained in detail, the operation being obvious. While any suitable stop may be provided between the two sash at the top of the inner sash and bottom of the outer sash so as to seal the opening thereat caused by the spacing of the sash, owing to the parting strips or stops 6, a simple and very effective construction is shown in Fig. 8. Referring to this figure, 64 represents a plate secured to the sash and flanged as at 65—66, while 67 represents a plate secured to the lower sash and formed as indicated at 68—69. These members are preferably of spring metal or the like, and the same may be formed as substantially shown, so that the same will readily engage without interference and yet will tightly seal the space between the two sashes. This makes the same not only weather and windproof, but also keeps out dust and dirt.

The whole window construction described is designed not only to be operative in the manner set forth, but also to serve as weather stripping and effectively seal the window so that when the same is closed, wind, water, dirt and insects are kept out, and the window prevented from rattling or working loose. The same is not affected by the warping or shrinking of the wood, and consequently the windows always move easily and freely and yet are tight.

In the operation of the construction, assuming that the windows are shut, as shown in Fig. 1, and it is desired to slide the same up or down, as the case may be, if they are locked by the bolts 55, these are moved to inoperative position, after which either window may be raised or lowered at will, similar to any window. They may be locked partially open or in full open position, as the case may be, by the members 55.

In this connection, it should be noted that there may be just as many openings 21 for engagement with the parts 56 on the bolts 55, as may be preferred. Generally, these openings are so arranged that the window is locked shut or may be locked in a partially open position, but not to exceed an open position where a burglar or prowler might gain access through the window opening.

When it is desired to open the windows, that is, swing them open for cleaning purposes or to pass any object through the windows, or for ventilation, or otherwise, sash 2 is closed and then the lock bolts 51 moved to their inoperative position, after which the window may be swung open. The hinge part 29 is then moved to open position, as shown in Fig. 2. The two slides 15 are locked in the guides and kept locked until the sash is again closed. After the lower sash has been swung open, the upper sash, if not already in its lower position, is preferably lowered and the slides 15 thereof locked in their guides, then the free edge of the sash unlocked and the sash swung on its pivot pins 45. Obviously, the upper sash may be so designed that it may be locked in any desired position, but generally I prefer to have the same so that it may be locked for swinging when in its lowest position. By lower position, I mean that the two sash are locked sufficiently above the window sill so that the sill does not prevent the opening of the two sash.

It will be noted that the parts are all substantially interchangeable. By arranging plates 29 with the ribs 30 arranged to seat in the groove 36, the two plates are sealed thereat throughout their line so that dust or snow or the like cannot enter between the two plates. Grooves 26′ and openings 21′ being in duplicate on opposite parts of the slides make these parts interchangeable for lefts or rights and for either sash so that the same is more or less standardized. This not only makes the cost less expensive, but it also simplifies the installation, and does not require sorting out with the rights, lefts, and parts for the inner and outer sash. While the same hinge construction may be employed on the upper sash as the hinge construction of the lower or outer sash, the advantage of the construction illustrated is the permitting of the upper sash to be turned more out of the way when in its open position. In other words, it lies more flat against the lower sash in its open position.

It may be mentioned that the hinges (see Fig. 1) reinforce the sash frames at the hinged sides, so that when the same are swung to open positions and the weight of the sash carried by the hinges, the sash frames do not sag and are not warped out of true. Generally, I prefer to use butt hinges with removable pins so that the sash may be conveniently removed for any desired purpose, for example, for reglazing, painting, etc. These hinges are generally recessed or countersunk in the frames, as shown. The locking means in the window frame may, of course, be varied as different building window constructions make desirable or necessary.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each guide, means for securing one edge of the window sash to one of the slides, means for detachably securing the other edge of the sash to the other slide, and movable closure means interposed between the latter slide and the sash.

2. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each guide, means for securing one edge of the window sash to one of the slides, means for detachably securing the other edge of the sash to the other slide, and closure means interposed between the latter slide and the sash, the closure means being hinged to the latter slide.

3. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each guide, means for securing one edge of the window sash to one of the slides, means for detachably securing the other edge of the sash to the other slide, movable closure means interposed between the latter slide and the sash, and means for locking the slides against movement on the guides.

4. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each guide, means for securing one edge of the window sash to one of the slides, means for detachably securing the other edge of the sash to the other slide, closure means interposed between the latter slide and the sash, the closure means being hinged to the latter slide, and means for locking the slides against movement on the guides.

5. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each of the guides, means for securing one edge of the window sash to one of said slides, means for detachably securing the other edge of the sash to the other slide, and a plate hinged to the latter slide and having a portion thereof arranged to engage the outer side of the sash.

6. In a window construction of the kind described comprising a window frame, a pair of sliding sash, and means for slidably and swingingly securing said sash to the frame consisting of a pair of guides for each sash arranged on the frame at each side of the window, slides for said sash arranged one at each side edge thereof and slidably mounted in said guides, the inner sash provided with a plate at one edge overlapping a portion of the outer face of the sash and hinged to the guide at the inner edge of the sash, the opposite side of the sash provided with a plate overlying a portion of the sash at the outer face and hinged to the guide thereof at the inner face, whereby the inner sash may be swung inwardly together with the plate at its free edge.

7. In a window construction of the kind described comprising a window frame, a pair of sliding sash, and means for slidably and swingingly securing said sash to the frame consisting of a pair of guides for each sash arranged on the frame at each side of the window, slides for said sash arranged one at each side edge thereof and slidably mounted in said guides, the outer sash provided with a plate at its edge overlying the outer face of the sash and hingedly connected to its slide at the inner side of the sash at a point spaced from the edge, and a plate secured to the other slide at the free edge of the sash and overlying the outer face of the sash thereat, whereby the inner sash may be swung inwardly together with the plate at its free edge and the outer sash swung inwardly substantially flat against the open inner sash, means for locking said sash and slides in operative positions on opposite sides of the sash, and means for securing the free edges of the sash in their closed positions.

8. In a window construction of the kind described comprising a window frame, a pair of sliding sash, and means for slidably and swingingly securing said sash to the frame consisting of a pair of guides for each sash arranged on the frame at each side of the window, slides for said sash arranged one at each side edge thereof and slidably mounted in said guides, the inner sash provided with a plate at one edge overlapping a portion of the outer face of the sash and hinged to the guide at the inner edge of the sash, the opposite side of the sash provided with a plate overlying a portion of the sash at the outer face and hinged to the guide thereof at the inner face, the outer sash provided with a plate at its edge overlying the outer face of the sash and hingedly connected to its slide at the inner side of the sash at a point spaced from the edge, and a plate secured to the other slide at the free edge of the sash and overlying the outer face of the sash thereat, whereby the inner sash may be swung inwardly together with

the plate at its free edge and the outer sash swung inwardly substantially flat against the open inner sash, means for locking said sash and slides in operative positions on opposite sides of the sash, and means for securing the free edges of the sash in their closed positions.

9. In a device of the kind described and in combination, a window frame, a window sash, guides arranged at the side edges of said sash and secured to the frame, slides for each side edge of said sash slidably mounted on said slides, the slide at one edge of the sash provided with an extending part on the inner face of the sash, a plate secured to the said edge of said sash and overlying the inner and outer faces thereof, means for pivotally connecting the inner extending portion of said plate to said extending portion of the slide at a point spaced from the edge of the sash, and a plate at the opposite edge of the sash arranged to detachably engage the sash edge, said last-mentioned plate secured to the slide thereat.

10. In a device of the kind described and in combination, a window frame, a window sash, guides arranged at the side edges of said sash and secured to the frame, slides for each side edge of said sash slidably mounted on said slides, the slide at one edge of the sash provided with an extending part on the inner face of the sash, a plate secured to the said edge of said sash and overlying the inner and outer faces thereof, means for pivotally connecting the inner extending portion of said plate to said extending portion of the slide at a point spaced from the edge of the sash, and a plate at the opposite edge of the sash arranged to detachably engage the sash edge and with the outer face thereat, said last-mentioned plate secured to the slide thereat, means for locking said free edge to its slide, and means for locking said slides against movement in their guides.

11. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each of the guides, means for securing one edge of the window sash to one of said slides, means for detachably securing the other edge of the sash to the other slide, one of the guides and one of the slides having aligned apertures, and locking means mounted and embedded in the frame and held against movement with the slides, said locking means having a bolt extension movable into and out of said aligned apertures.

12. The combination with a window frame of a sliding and swinging window sash, a plurality of guides mounted on the window frame, a slide for each of the guides, means for securing one edge of the window sash to one of said slides, means for detachably securing the other edge of the sash to the other slide, one of the guides and one of the slides having aligned apertures, locking means mounted and embedded in the frame and held against movement with the slides, said locking means having a bolt extension movable into and out of said aligned apertures, and yielding means for holding said bolt extension in said aligned aperture.

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

JAMES COUPLAND.

Witnesses:
ROY W. HILL,
RUTH M. EPHRAIM.