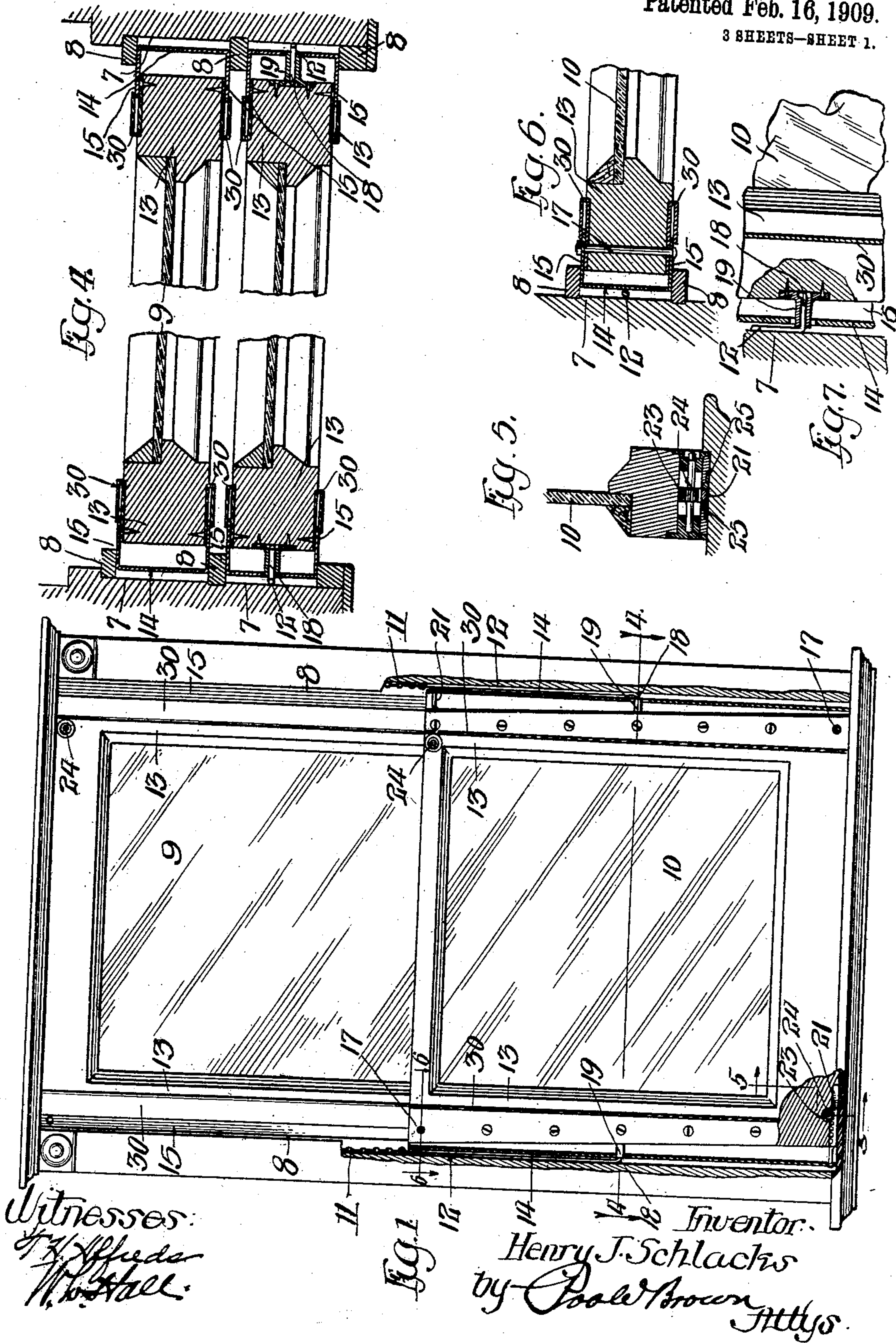


H. J. SCHLACKS.
 SWINGING WINDOW.
 APPLICATION FILED JAN. 25, 1908.

Patented Feb. 16, 1909.
 3 SHEETS—SHEET 1.

912,623.



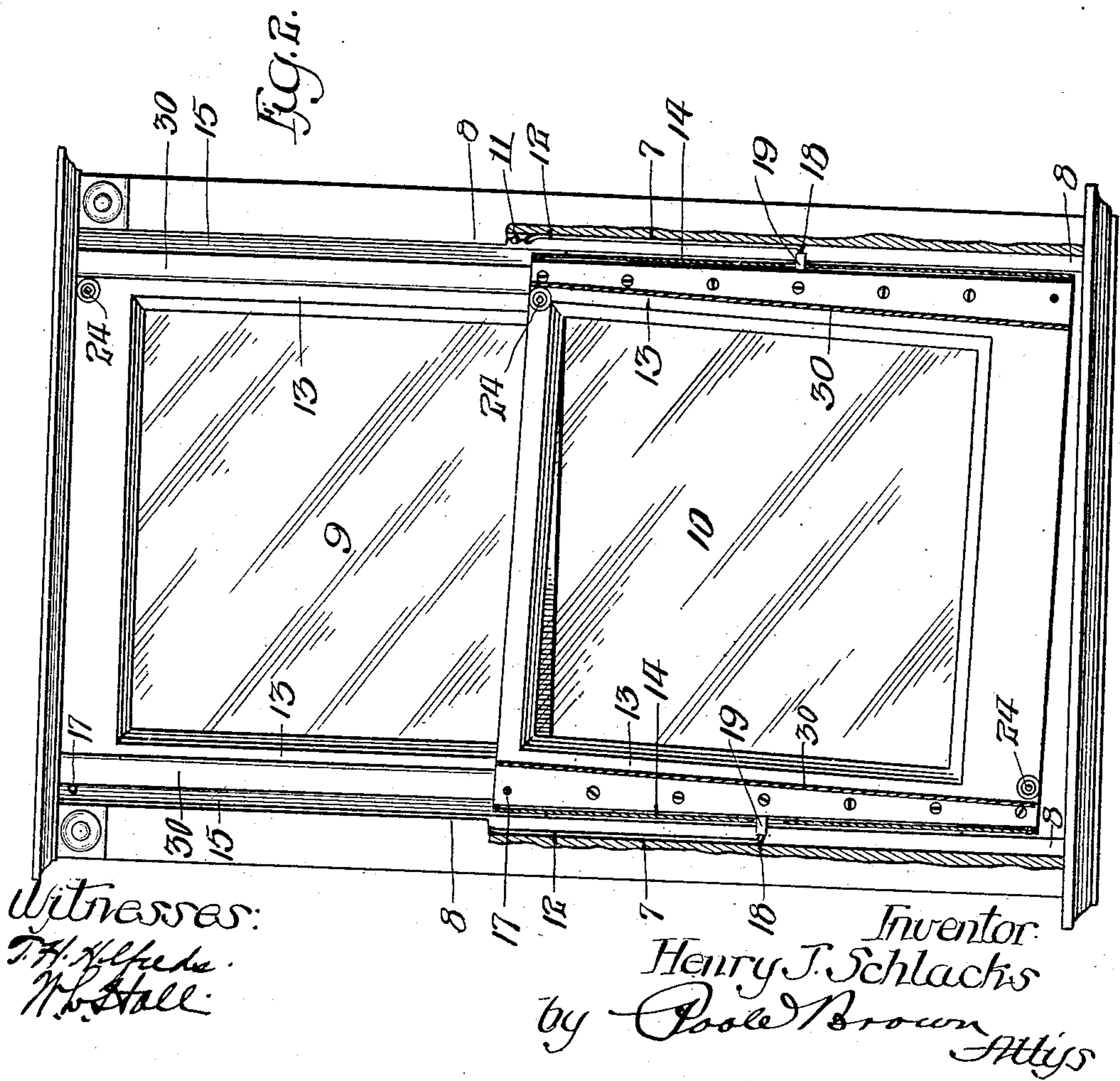
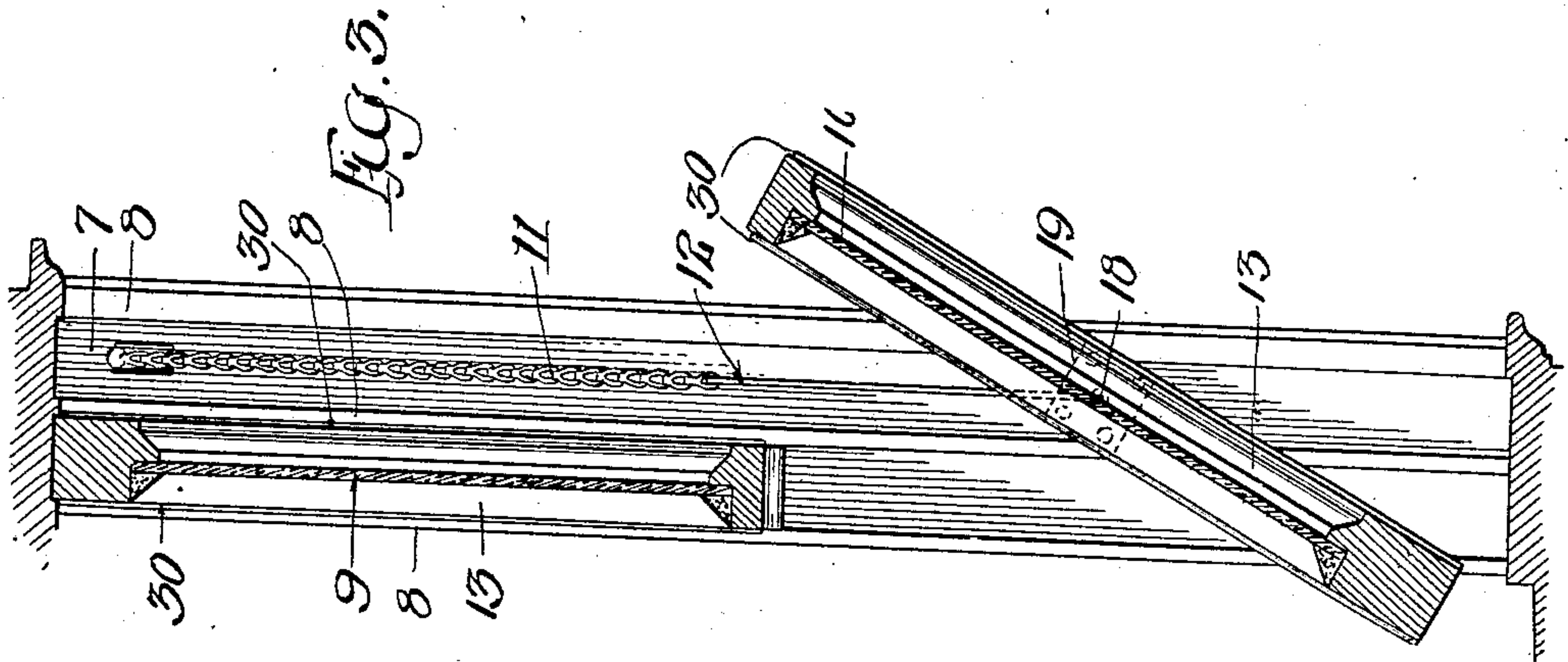
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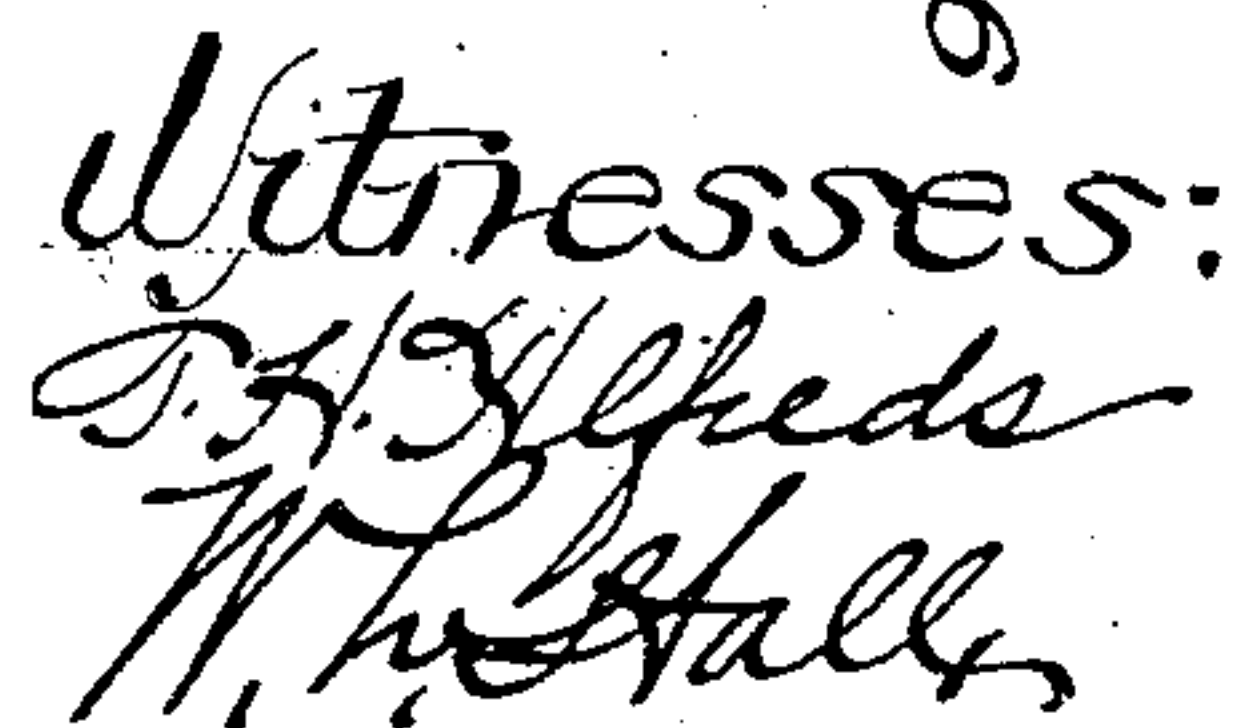
912,623.

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 3 SHEETS—SHEET 2.



912,623.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HENRY J. SCHLACKS, OF CHICAGO, ILLINOIS.

SWINGING WINDOW.

No. 912,623.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed January 25, 1908. Serial No. 412,549.

To all whom it may concern:

Be it known that I, HENRY J. SCHLACKS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Swinging Windows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to improvements in window sashes and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the accompanying drawings,—Figure 1 is a view in elevation of a double sash window equipped with my improvements, the window casing or frame being partially broken away. Fig. 2 is a similar view showing some of the parts in changed relation. Fig. 3 is a transverse vertical section through the window frame and window sash, showing the window swung out of its vertical position. Fig. 4 is a section taken on line 4—4 of Fig. 1. Fig. 5 is a section taken on line 5—5 of Fig. 1. Fig. 6 is a section taken on line 6—6 of Fig. 1. Fig. 7 is a detail elevation with parts in section, showing the manner of suspending the window sash from the counterweight cords or chains. Fig. 8 is a fragmentary elevation of a window sash and frame, partially in section, showing a modification of the invention. Fig. 9 is a vertical section, taken on line 9—9 of Fig. 8. Fig. 10 is a fragmentary view of the window sash and frame, illustrating the sash pivots employed in the structure shown in Figs. 8 and 9. Fig. 11 is a section, taken on line 11—11 of Fig. 13. Fig. 12 is a vertical section taken on line 12—12 of Fig. 11. Fig. 13 is a plan view of one of the sash rails, illustrating a modified mechanism for swinging the stile guides on their pivots. Fig. 14 is a horizontal section through the sash stile and pulley stile, illustrating a further modification of the guide.

My improvements are shown herein as applied to that class of swinging window sashes in which the sash is fitted to the window frame or casing to slide up and down therein, and is pivotally mounted to swing on a horizontal axis. In the following description, this construction is specifically de-

scribed, but it will be understood that certain features of the invention may be applied to windows of other types.

As shown in Figs. 1 to 7 of the drawings, 7, 7 designate pulley stiles, and 8, 8 the window stops and parting strips of a window frame of common form, and 9 and 10 designate, respectively, the upper and lower window sashes arranged to slide in grooves formed between the stops and strips. Said sashes are connected with and supported when opened by cords or chains 11, 11 which are attached at their lower ends to vertical rods 12, 12 lying between the outer faces of the stiles and the pulley stiles 7. Said rods at their lower ends are bent horizontally inwardly to constitute pivots 18 which engage with bearing members or sockets 19 attached to the outer faces of the stiles. The inner ends of the horizontal portions of said rods are bent upwardly in order to prevent their disengagement from said bearing members. The horizontal portions 18 of said rods constitute pivots about which the sash may be vertically swung to facilitate access to the window panes for the purpose of cleaning the same. In accordance with my invention, said sashes are provided with guide members which are fitted to the stiles and engage the grooves formed between the stops and parting strips 8, and said guides and the window stiles are so formed, and the sashes are so arranged in the frame, that the guides may be freed from the stops and parting strips in a manner to permit the sashes to be swung vertically out of the plane of the window frame for the purpose described.

The construction of the upper and lower sashes is the same and in the following description only the lower sash will be referred to.

The stiles 13 are tapered from end to end in their opposite outer faces, one of the stiles being tapered downwardly and the other tapered upwardly. 14, 14 designate the guides referred to which are fitted longitudinally to the stiles. As herein shown, said guides are made of channeled cross-section and the flanges 15, 15 thereof embrace the lateral faces of the stiles. The guides are pivoted by means of pivot pins 17 to the wider ends of the stiles and are movable towards and from the narrower ends of the stiles. The pivot pins 17 constitute also means for holding the guides

endwise immovable relatively to the sashes. The taper of the stiles is such that the stiles overlap the window stops at their wider ends but are inside the planes of said stops at their narrower ends. The guides 14, in their normal positions, are swung away from the narrower ends of the stiles and are parallel with each other and the bottoms of the sash grooves of the window frame, whereby the sash is guided in its vertical movement in the frame in the same manner as an ordinarily rectangular sash. When it is desired to release the sash from the stop to permit it to swing vertically about the horizontal axis of the pivot rods 18, the said guides are swung inwardly towards the narrower ends of the stiles, whereupon the sash, as a whole, including the guides, loses its rectangular shape so that if the sash be tilted about a horizontal axis transverse to the horizontal axis about which the sash swings, as shown in Fig. 2, the guides are freed from the stops throughout the length thereof, whereupon the sash may be swung about the horizontal axis of the pivot rods 18, as shown in Fig. 3. The sash will be usually raised or lowered slightly from its closed position before tilting the same in the manner described. When it is desired to close the sash it is swung to its vertical position in the plane of the window frame by properly tilting the same to bring the guides at the wider ends of the stiles into overlapping engagement with the window stops, after which the guides are swung away from the narrower ends of the stiles to bring the same likewise into overlapping engagement with said stops. The guides at this time are parallel and constitute parts of the stiles which overlap and have guiding engagement with the stops from end to end of the sash in the manner of an ordinary window sash.

The guides are moved outwardly and inwardly by means of a rack and pinion mechanism constructed as follows: A longitudinally arranged rack bar 21 is connected in any suitable manner to the swinging end of each of said guides and is arranged to extend inwardly into a groove or recess in the adjacent rail of the sash. Within said recessed portion of each rail is arranged a pinion 23 which engages with the teeth of said rack-bar and is non-rotatively fixed on a shaft 24 which extends inwardly through an opening in said rail and is provided with an angular end adapted for engagement by a suitable key by means of which the pinion may be rotated. The side faces of said rack-bars may be beveled to engage correspondingly beveled guide surfaces of plates 25, 25 seated in said grooves or recesses, thus holding said rack-bars engaged with said pinions. Conveniently, said recesses may open upon the upper and lower faces of the sash rails as indicated in Figs. 1 and 5.

The bearing members 19 are fixed to the sash stiles in the manner shown in Fig. 7 and extend loosely through openings in the webs of the guides whereby the guides are movable relatively thereto. A sufficient space is provided between the guides and bottoms of the sash grooves to receive the counterbalancing rods 12 and chains or cords 11.

The flanges 15 of the channeled guides may engage grooved plates 30, formed of sheet metal, and fixed to the lateral faces of the sash stiles, as shown in Fig. 4, thereby providing weather-proof joints between said guides and the stiles.

In the modified form of construction shown in Figs. 8 to 13, inclusive, the pulley cords or chains 11 are attached at their lower ends to the upper ends of thin plates 40, 40 lying between the outer faces of the guides and the pulley stiles. Said plates are formed with widened lower ends 41 made of a width to substantially fill the space between a stop and an adjacent parting strip. The widened portions of the plates are apertured to receive pivots or journals carried by lugs 42 attached to and extending laterally from the stiles, said lugs extending freely through openings in the webs of the channeled guides 43, which latter are made of slightly different form from the guides heretofore described. The outer ends of said lugs are hollow and interiorly screw-threaded, adapting them to receive pivot screws 44 which extend through the apertures in the suspending plates 41. The bores of said trunnions are of such depth that the pivot screws engage the bottoms thereof to constitute stops to prevent the pivot screws from clamping the suspending plates against the ends of the lugs. The openings in said suspending plates through which the pivot screws extend are sufficiently large to permit of a small angular displacement between the screws and the suspending plates necessitated by the tilting of the window sash to free it from the stops. The widened lower ends of the suspending plates prevent the sash from swinging horizontally inwardly and outwardly on the pulley cords or chains when the sash assumes the position shown in Fig. 9.

A modified form of rack and pinion mechanism for swinging the stile guides on their pivots is made as follows: 50 designates a flat plate which is fixed to the outer (the upper or lower) face of one of the horizontal rails of the sash, flush with said outer face. The said rail is recessed beneath said plate to receive two laterally separated, vertical lugs 51 integral with the plate, which lugs form bearings for a pinion 52 located in said recess, said pinion being provided with trunnions 53 which engage the bearings formed in said lugs. As herein shown, the plate

is provided with an opening of a size and shape to permit the trunnioned pinion to be inserted therethrough into place, and the lugs are slotted above the bearing portions thereof to permit the trunnions to pass there-
 5 through to engage with said bearings of the lugs. Preferably said plate 50 is provided at its outer end with a flange 54 which is fitted against the adjacent outer face of the
 10 stile and is secured thereto by screws or like fastening means. 55 designates a rack bar which is located between said plate and pinion and extends at its outer end out-
 15 wardly from the stile and is attached to the adjacent end of the guide 43, in the manner shown in Figs. 11 and 13. When the flange 54 is employed said rack bar extends through an opening in said flange. The teeth of said
 20 rack bar face downwardly (as here shown) and mesh with said pinion, and the rack bar is held in place by engagement with the under face of said plate. Said rack bar thus arranged also serves to hold the pinion in its bearings. The pinion is rotated by
 25 means of a key 60 which is inserted through an opening in the lateral face of the rail and has an angular inner end to engage with an angular opening in one of the trunnions of said pinion.

30 In the last described form of construction, the web portions 70 of the guides 43 are curved or arched, as viewed in end elevation (Fig. 13) the concave side facing out-
 35 wardly. The flanges 71, 71 of said guides are likewise curved, being arranged with their convex sides facing outwardly. The inner or free margins of said flanges bear against the lateral faces of the stiles with sufficient pressure to provide weather-proof
 40 joints between the same and the stile. The curvature of said flanges gives to the outer sides of the guides a tapered form, as shown in Fig. 13, whereby said guides may readily
 45 enter the grooves between the stops and parting strips. When the guides are swung away from the stiles by means of the rack and pinion mechanisms, the final thrust of the rack bars against the guides acts to
 50 straighten the arch and force the flanges of the guides firmly into contact with the stops and parting strips, thus providing a fit between the parts which prevents the sash from rattling and also affording close
 55 weather-proof joints between the guides and the stop and parting strip. Moreover, such spreading of the flanges at their connected margins acts to draw their free margins to-
 60 ward each other and force them more firmly into contact with the lateral faces of the stiles. When said last described construction is employed, the grooved plates 30 may be omitted, as shown in Fig. 13, and the free
 65 margins of the flanges 71 rolled or turned to constitute smooth edges which are adapted for sliding contact with the lateral faces of

the stiles; or said grooved plates may be re-
 tained, as shown in Fig. 14.

The construction described is an exceed-
 ingly simple and effective one and may be
 applied equally well to a new window con- 70
 struction as to an old window to convert the
 latter to a swinging window. The said con-
 struction is applicable also to a non-sliding,
 horizontally swinging window. An ad-
 vantage of the construction described is that 75
 it may be readily applied to window sashes
 already in use as well as made a part of a
 new sash and that the construction and ar-
 rangement of the guides constitutes effective
 weather-proof joints between the sash and 80
 the window frame and may be fitted to the
 frame with the same nicety of adjustment as
 an ordinary sash. A further general ad-
 vantage of the construction described is the
 facility with which an ordinary sliding win- 85
 dow sash may be converted into a swinging
 window sash and thus enable the window
 glass to be washed with less expense and ac-
 companied by less danger than in the case of
 the ordinary sliding window sash. 90

It will be understood that the guides and
 the manner of applying them to the sash
 may be varied within the spirit of my in-
 vention.

I claim as my invention:

95 1. The combination with a window sash,
 of longitudinal guide members carried by
 the stiles thereof, each guide member being
 hinged at one end directly to its associated
 stile and free to swing at its other end to- 100
 ward the stile, said hinged ends being lo-
 cated at diagonally opposite corners of the
 sash, and means for swinging the free ends
 of said guide members toward and from the
 stiles and locking them in their outer po- 105
 sitions.

2. The combination with a window sash,
 of longitudinal channel guide members car-
 ried by the sash, the flanges of which em-
 brace the lateral faces of the sash stiles, each 110
 guide member being hinged at one end di-
 rectly to its associated stile, said hinged ends
 being located at diagonally opposite corners
 of the sash, and means connected with the
 free ends of said guide members for swing- 115
 ing said free ends toward and from the
 stiles and for locking them in their outer
 positions.

3. The combination with a window sash,
 of longitudinal guide members carried by 120
 the stiles thereof, said guide members hav-
 ing flanges which embrace the lateral faces
 of the stiles, and grooved plates fixed to the
 said lateral faces of the stiles and receiving
 said flanges, each guide member being 125
 hinged at one end directly to its associated
 stile and free to swing at its other end to-
 wards and from the stile, said hinged ends
 of the members being located at diagonally
 opposite corners of the sash, and means for 130

swinging the free ends of said guide members toward and from the stiles and for locking them in their outer positions.

4. A window sash, the stiles of which are
5 longitudinally and reversely tapered on
their outer opposite faces, and longitudinal
guide members carried by said stiles, said
guide members being hinged to the wider
ends of the stiles and movable towards and
10 from the narrower ends thereof.

5. A swinging sash, the stiles of which are
longitudinally and reversely tapered on
their outer opposite faces, and longitudinal
guide members carried by said stiles, said
15 guide members being hinged to the wider
ends of the stiles and movable towards and
away from the narrower ends thereof, and
means located at the narrower ends of the
stiles for swinging the guide members to-
20 wards and from the stiles and for positively
locking them in their outermost positions.

6. The combination with a window sash,
of longitudinal, channeled, sheet metal guide
members carried by the stiles thereof, the
25 flanges of said guide members being curved
outwardly and engaging the lateral faces
of the stiles, and the intermediate or web
portions of the guide members being arched
with their concave sides facing outwardly,
30 and means for moving said guide members
towards and from the stile arranged to
straighten the arched members of the guides
when in their outer positions.

7. The combination with a window sash,
35 of longitudinal, channeled, sheet metal
guide members carried by the stiles thereof,
the flanges of said guide members being
curved outwardly and engaging the lateral
faces of the stiles, and the intermediate or
40 web portions of the guide members being
arched with their concave sides facing out-
wardly, each guide member being hinged at
one end directly to its associated stile, and
free to swing at its other end towards and
45 from the stile and the hinged ends of the
members being located at diagonally oppo-
site corners of the sash, and means carried

by the sashes and connected with the arched
portions of said guide members for moving
the free ends of the guide members towards 50
and from the stiles, said means being ar-
ranged to straighten the arched members of
the guides when the latter are in their outer
positions.

8. The combination with a window frame 55
embracing side frame members and longi-
tudinal stops fitted to said side members, of
a swinging window sash engaging grooves
in the frame between said stops, and longi-
tudinal guide members carried by the stiles 60
of said sash, each guide member being
hinged at one end to its associated stile and
movable toward and from the stile at its
opposite end, and the hinged ends of the
members being located at diagonally oppo- 65
site corners of the sash, and means whereby
said sash, including said guide members, may
be tilted about a horizontal axis to free said
guide members from the window stops to
permit the window to be swung out of the 70
plane of the window frame.

9. The combination with a window frame
and its stops and parting strips between
which are formed grooves to receive a sash,
of a sash engaging said grooves, longitu- 75
dinal guide members carried by the stiles
of said sash, means whereby said guide
members may be moved towards and from
the stiles to clear the stops and parting
strips, counterweight cords for suspending 80
the sash, suspension plates carried by said
cords and made of a width substantially
equal to the thickness of the sash frames,
and pivotal connections between said stiles
and suspending plates. 85

In testimony, that I claim the foregoing
as my invention, I affix my signature in the
presence of two witnesses, this 31st day of
October A. D. 1907.

HENRY J. SCHLACKS.

Witnesses:

E. R. BATTLE,
M. L. DE BEST.