

P. J. A. SMITH.

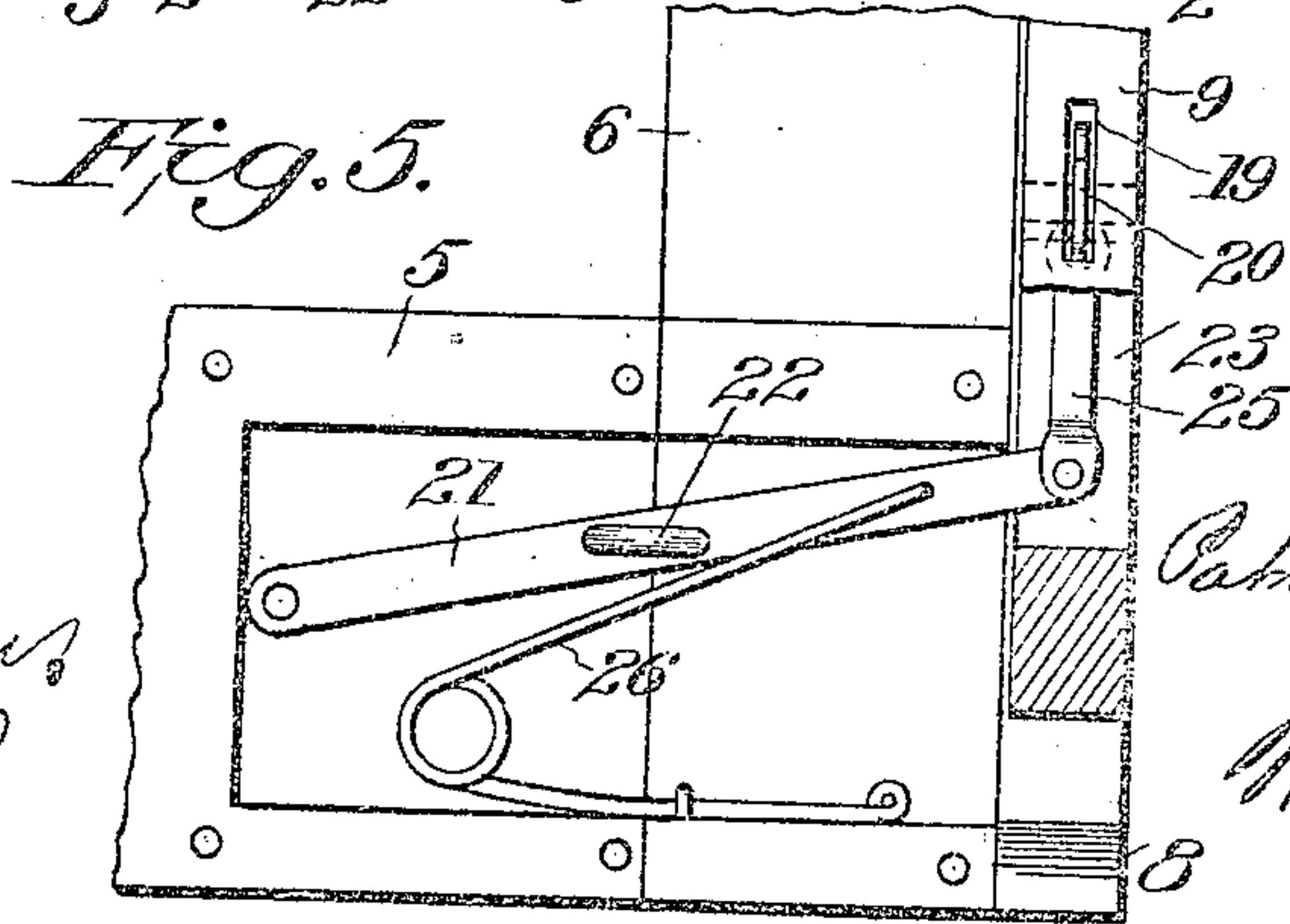
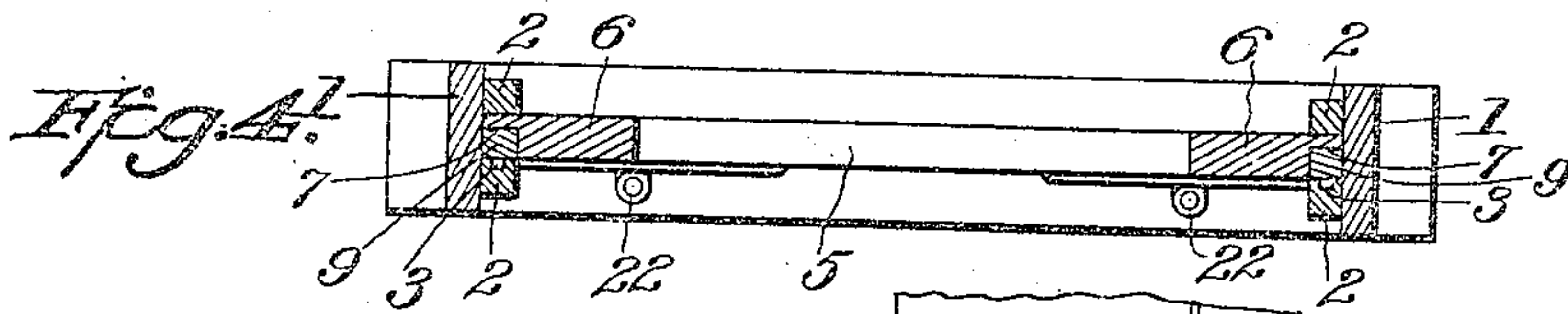
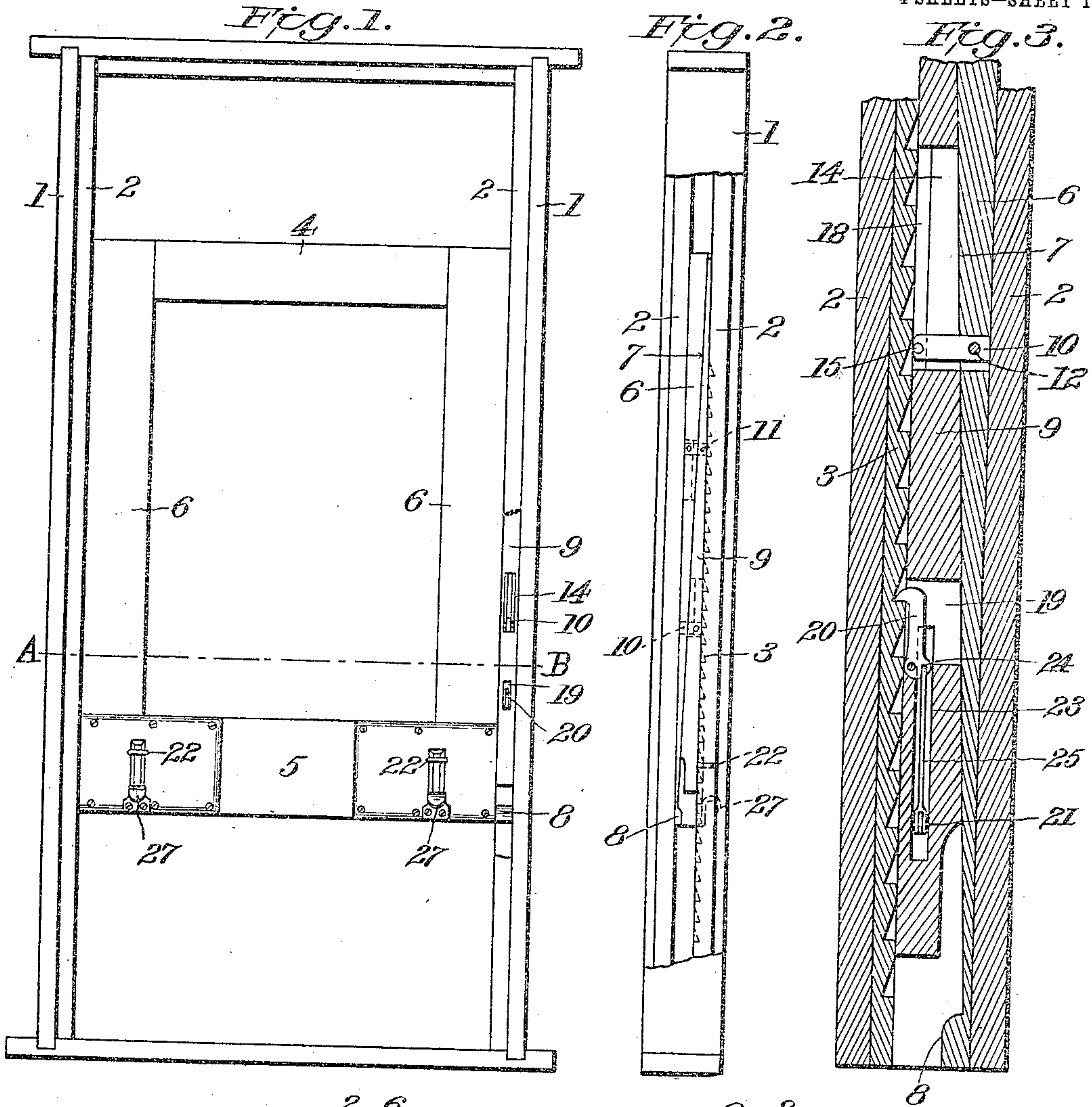
WINDOW.

APPLICATION FILED MAY 28, 1909.

952,689.

Patented Mar. 22, 1910.

4 SHEETS—SHEET 1.



Witnesses  
*C. H. Walters*  
*E. J. Pinner*

Inventor  
*Patrick J. A. Smith*  
by  
*Wm. H. Finckel*  
Attorney

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4 SHEETS—SHEET 2.

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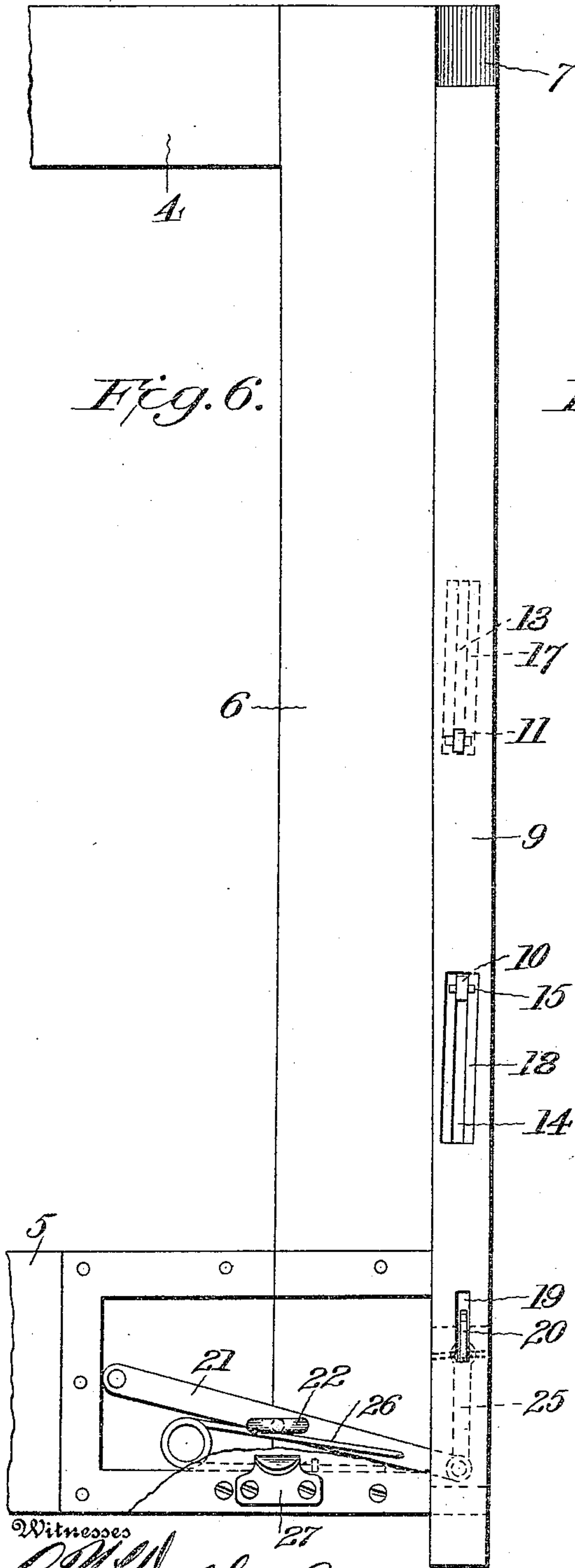


Fig. 6.

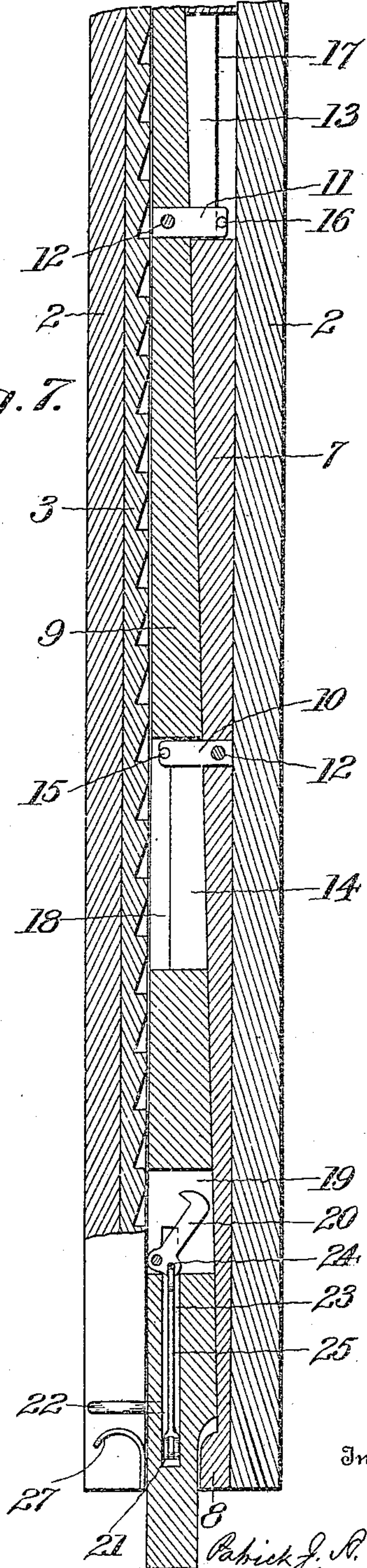


Fig. 7.

Witnesses  
*C. C. Walker*  
*E. A. Ginnell*

Inventor  
*P. J. A. Smith*  
By *W. M. Finckel*  
Attorney



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4 SHEETS—SHEET 3.

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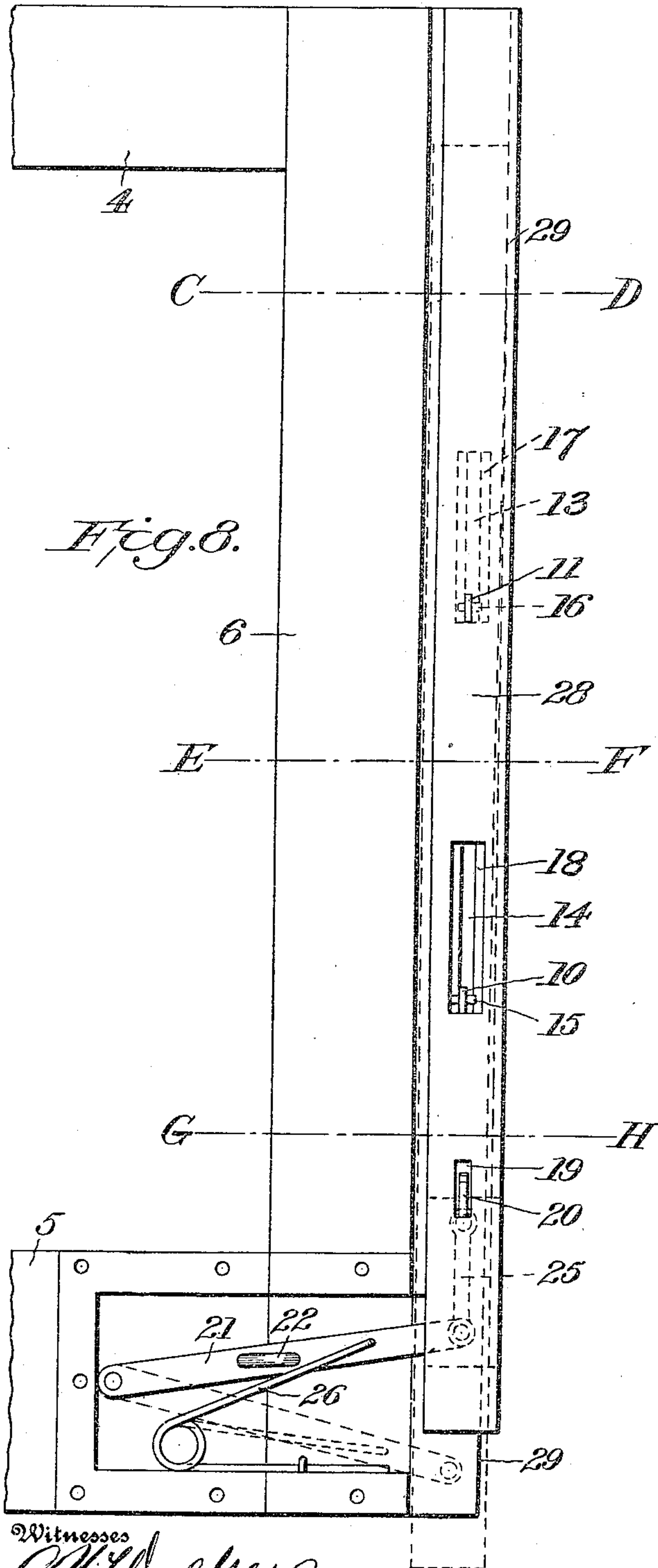


Fig. 8.

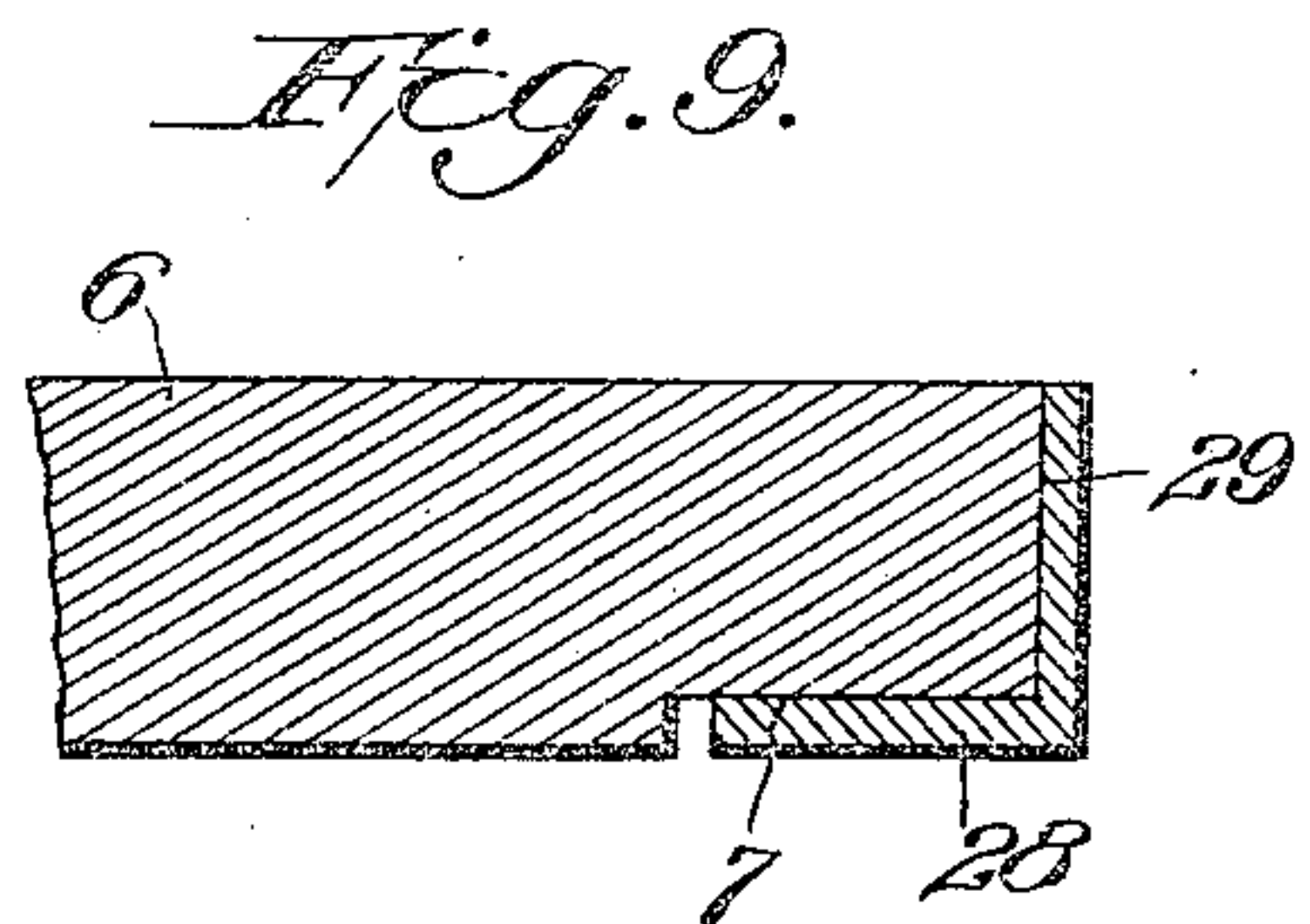


Fig. 9.

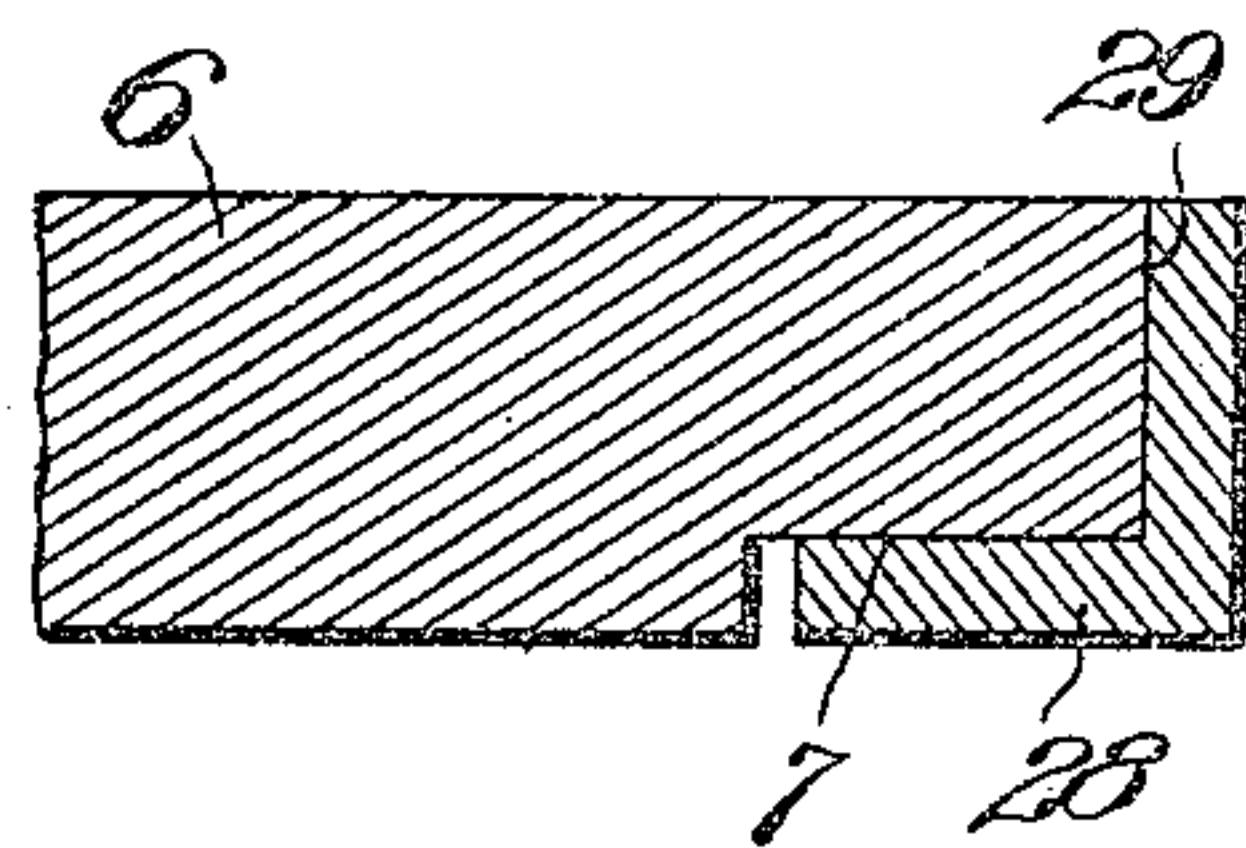
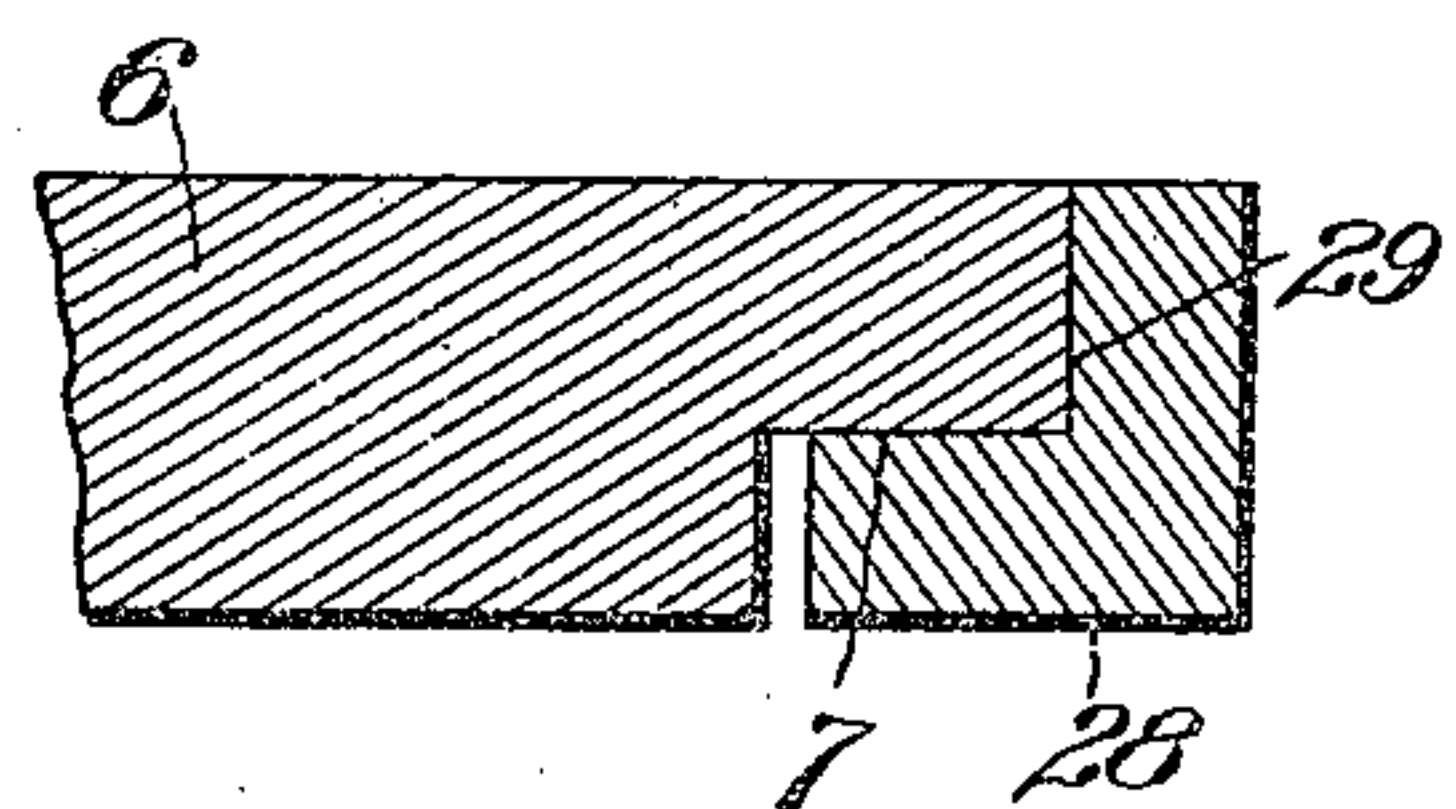


Fig. 10.



Inventor

Patrick J. A. Smith

by  
Wm. H. Finckel

Attorney

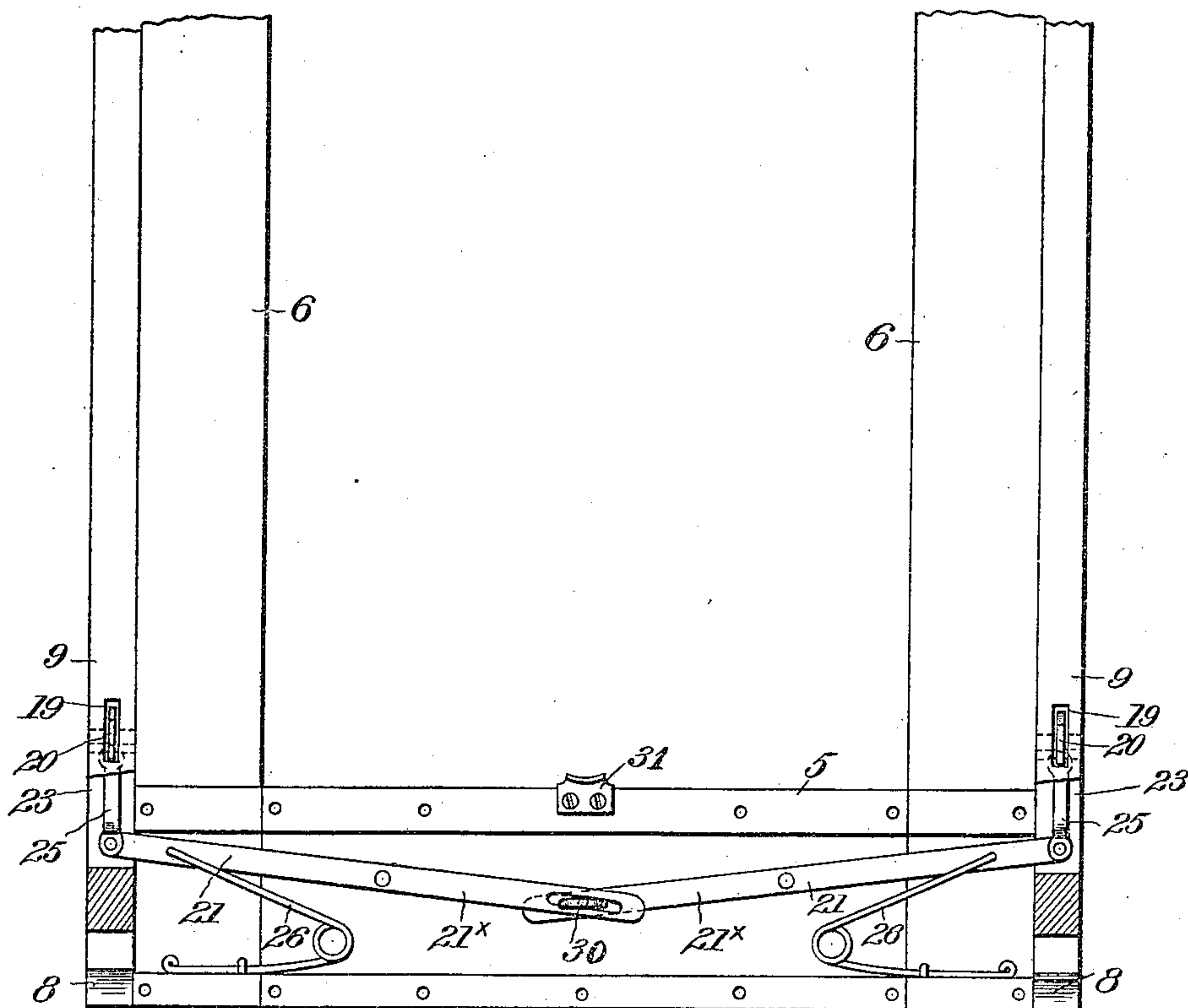
Witnesses  
C. H. Baker  
E. A. Finckel

952,689.

P. J. A. SMITH.  
WINDOW.  
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4 SHEETS—SHEET 4.

*Fig. 12.*



Witnesses  
M. V. Finckel Jr.  
Lillie M. Perry.

Inventor  
Patrick J. A. Smith  
by M. V. Finckel  
Attorney



# UNITED STATES PATENT OFFICE.

PATRICK J. A. SMITH, OF WASHINGTON, DISTRICT OF COLUMBIA.

## WINDOW.

952,689.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed May 28, 1909. Serial No. 499,028.

*To all whom it may concern:*

Be it known that I, PATRICK J. A. SMITH, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a certain new and useful Improvement in Windows, of which the following is a full, clear, and exact description.

The object of this invention is to provide a window, for use upon railway cars, of such character that it may be easily and readily raised and lowered, and be positively locked in any open position and when closed, and be tightly held in its frame to prevent rattling, and be practically dustproof.

The invention consists of a window, having its sash supplied with a fixed wedge and a sliding wedge, arranged upon and connected with the edge of each stile, and means to change the position of the sliding wedges in such way that the sash will be held in its casing in whatever open position it may be given, may be readily moved into another position, or closed, and in all cases will be held against rattling, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a front elevation with the window partly open and a portion of the right-hand side of the casing broken away to show the groove-engaging portion of the sash. Fig. 2 is an edge view with one side of the casing broken away. Fig. 3 is a vertical section, on a larger scale, of a portion of the sash showing the locking-dog in engagement with the toothed rack and the sliding connection between the wedge and rabbeted edge of the sash. Fig. 4 is a horizontal section, taken substantially in the plane of line A B, Fig. 1. Fig. 5 is a detail view, partly in section and partly in elevation, showing the wedge and dog operating means in position when the wedge and dog are in their normal or locking engagement. Fig. 6 is a plan view, on a larger scale, of one side of the window sash, showing the wedge and dog operating means actuated to place the wedge and dog in position to permit raising or lowering the window. Fig. 7 is a vertical section, on a still larger scale, of a portion of one edge of the window sash, showing the parts in the position indicated in Fig. 6. Fig. 8 is a plan view, on a larger

scale, of one side of the sash, showing a modified form of sliding wedge. Figs. 9, 10 and 11 are cross-sections, on a still larger scale, taken substantially in the planes of lines C D, E F, and G H, respectively, Fig. 8. Fig. 12 is a front elevation of the lower portion of the window showing a modified arrangement of the operating levers for the wedges and locking-dogs.

1 is the window casing of any usual or approved construction, provided with the stops 2, forming the grooves in which the sash is adapted to slide. The inner stop on each side is provided with a toothed rack 3, which may be constructed of metal and secured in place in any suitable manner, and may constitute all or part of one wall of each groove in which the sash slides. It is obvious that the stop itself may be notched or toothed to constitute the rack, although it is preferred that said rack be constructed of metal to better stand the wear to which it is subjected by the locking-dog to be hereinafter described.

The sash comprises the upper rail 4 and lower rail 5, and the stiles 6. Each stile has its edge made as or provided with a rabbet 7, tapering from the bottom to the top and terminating at the bottom in a lug or projection 8, serving as a stop for a correspondingly tapered sliding wedge 9, fitted to said rabbet and cooperating therewith to form the edge of the sash to fit and slide in the groove in the window casing. Studs 10 and 11 are fixed, as by transverse pins 12, to the rabbeted edge 7 and sliding wedge 9, respectively, and pass through slots 13 and 14 in the rabbeted edge and wedge, respectively, and are provided with laterally-projecting pins 15 and 16, engaging counter-sunk portions 17 and 18 in said slots, to hold the wedge in place and allow it a limited longitudinal movement upon the rabbeted edge of the sash.

Pivoted in a slot 19 in the lower end of the wedge 9 is a locking-dog 20, adapted to be thrown to engage the rack 3 and to be retracted to disengage the rack.

21 is a lever, suitably mounted in the lower rail, and provided with an operating thumb-piece 22, said lever 21 projecting into a suitable mortise 23 in the lower end of the wedge 9, and connected with a tail-piece 24 of the locking-dog 20 by a link 25. A spring, such as 26, or of any other suitable



construction is connected with the lever 21 for the purpose of normally holding said lever in an elevated position.

A sash-lift 27 is secured to the lower rail 5 of the sash just below the thumb-piece 22 in such relation that they may be grasped by one hand in manipulating the window.

As shown in Fig. 1, the slots 13 and 14 in the wedge and rabbeted edge of the stile are 10 constructed substantially parallel with the edges of the wedge and stile and hence the movement of the wedge with relation to the stile is substantially parallel therewith. As shown in Fig. 6, the slots 13 and 14 are 15 constructed on a slight angle, or inclined with relation to the edges of the wedge and stile, and by this construction it will be observed that the wedge will not only have an up and 20 down movement parallel with the stile to effect its lateral movement, but also will be caused to have a slight edgewise movement and be projected beyond the outer edge of the stile.

As shown in Figs. 8, 9, 10 and 11, the 25 sliding wedge 28 is constructed as a right-angled wedge, and the edge of the stile of the sash is correspondingly rabbeted, and tapered on its outer edge 29 to fit the angle of the wedge, and by this double wedge con- 30 struction, in the movement of the wedge upon the correspondingly double tapered edge of the stile the wedge will be caused to move laterally to bind against the stop of the window casing, and also will be 35 caused to move edgewise of the sash and thus also to bind against the casing. In this form of the device, the slots 13 and 14 in the wedge and stile are made slightly wider than the thickness of the studs 10 and 11 to 40 permit the edgewise movement of the wedge upon the stile.

In Fig. 8 I have shown by full and dotted lines the respective positions of the wedge.

The wedge and locking-dog operating 45 means may be incased, and secured to the bottom rail of the sash in any suitable manner, as by mortising or otherwise, the thumb-piece 22 projecting outside of the casing, as shown in Fig. 1.

The parts above described are duplicated 50 upon opposite sides of the window, and when it is desired to raise or lower the sash, it is only necessary to place the fingers and thumbs upon the sash-lifts 27 and thumb- 55 pieces 22, respectively, and by forcing down the thumb-pieces and locking-dogs 20 will be disengaged from the racks 3, and simultaneously the wedges 9 will be drawn down- 60 ward, and consequently moved inwardly, due to the coöperating inclined surfaces of the wedges and rabbeted edges of the sash, and thereby decrease the relative thickness of the edges of the sash in the grooves in the casing, and thus permit the ready and easy 65 movement of the sash to adjust it to any

desired position. When the sash has been moved to the desired position, the pressure of the thumbs is removed from the thumb- 70 pieces 22, and by the action of the springs 26, the parts of the operating mechanism are returned to their normal position, and the wedges 9 caused to slide upwardly upon the inclined or tapered edges of the sash and thus be forced outwardly or laterally with 75 relation to the sash and caused to bind against the walls of the grooves in the window casing and thus hold the sash tightly in its frame against rattling, and simultaneously the locking-dogs 20 will return to 80 their locking position and engage the rack 3, and thus positively lock the window in its adjusted position.

In the case of the modifications shown in Figs. 6 and 8, the wedges 9 and 28 will not 85 only have a lateral movement with relation to the sash, but also will be caused to move edgewise with relation to the sash, and thus effect a binding action on the bottom of the grooves in the casing as well as on the side 90 walls or stops thereof. Furthermore, when the sash is in the closed position, it will be positively locked in such position, and the wedging or binding action between the sash and casing will produce a practically dust- 95 proof fit aside from preventing the sash from rattling, and thus overcome difficulties heretofore experienced with windows, particularly on railway cars.

Although I have herein described my in- 100 vention as especially designed for use upon railway cars, I wish to be understood as not limiting my invention to such use, as the same is equally applicable for use in dwelling houses or other structures. Fur- 105 thermore, I do not wish to be understood as limiting my invention to the exact details of construction herein shown and described, as the same may be altered in various particu- 110 lars and still be within the scope of the invention. And as one instance of such al- teration, it is noted that the levers 21 might be extended, as indicated at 21\*, Fig. 12, and 115 connected in such way as to be operable from a single finger-piece 30 arranged about midway of the sash, with the sash-lift 31, to be engaged by the thumb, arranged above the finger-piece, whereby an upward pull is exerted on the finger-piece to release the 120 locking-dogs and wedges when it is desired to adjust the sash.

What I claim is:—

1. In a window, a casing having grooves and racks in said grooves, combined with a sash having the edges of its stiles tapered and rabbeted, and wedges slidably fitted 125 upon said tapered and rabbeted edges adapted to fit in the grooves in said casing, locking-dogs pivoted in said wedges and adapted to engage said racks, and means for simul- 130 taneously moving said wedges and locking-



dogs to cause them to engage and disengage said grooves and racks, respectively, and thereby frictionally and positively lock the sash in said casing and permit it to be raised and lowered.

2. In a window, a casing having grooves and racks in said grooves, combined with a sash having the edges of its stiles tapered and rabbeted, and wedges slidably fitted upon said tapered and rabbeted edges, adapted to fit in the grooves in said casing, locking-dogs pivoted in said wedges and adapted to engage said racks, connections between said stiles and wedges for shifting said wedges edgewise of the sash, and means for simultaneously moving said wedges and locking-dogs to cause said wedges to move laterally and edgewise of the stiles to engage and disengage the side walls and bottoms of the grooves in the casing, and also to cause said locking-dogs to engage and disengage the racks, respectively, and thereby frictionally and positively lock the sash in said casing and permit it to be raised and lowered.

3. In a window, a casing having grooves, combined with a sash having the edges of its stiles tapered and rabbeted, wedges fitted upon said tapered and rabbeted edges, and adapted to engage the grooves in said casing, studs fixed to said stiles and wedges and engaging inclined slots respectively in said wedges and stiles, and means for moving said wedges longitudinally of said stiles to thereby effect a lateral and edgewise movement of the wedges to cause said wedges to engage and disengage the side walls and bottoms of the grooves in the casing to respectively bind the sash in the casing and permit its easy movement therein.

4. In a window, a casing having grooves and racks in said grooves, combined with a sash having the edges of its stiles tapered and rabbeted, and wedges slidably fitted upon said tapered and rabbeted edges adapted to fit in the grooves in said casing, locking-dogs pivoted in said wedges and adapted to engage said racks, levers pivoted to said sash, links connecting said locking-dogs and levers, and means for moving said levers to simultaneously move said wedges and locking-dogs to cause them to engage and dis-

engage said grooves and racks, respectively, and thereby frictionally and positively lock the sash in said casing and permit it to be raised and lowered.

5. In a window, a casing having grooves and racks in said grooves, combined with a sash having the edges of its stiles tapered and rabbeted, and wedges slidably fitted upon said tapered and rabbeted edges adapted to fit in the grooves in said casing, locking-dogs pivoted in said wedges and adapted to engage said racks, levers pivoted to said sash, links connecting said locking-dogs and levers, springs for operating said levers to cause said wedges and locking-dogs to engage the grooves and racks in said casing, respectively, and thereby frictionally and positively lock the sash in said casing, and means for operating said levers to move said wedges and locking-dogs and thereby disengage them from said grooves and racks, respectively, to permit the raising and lowering of the sash.

6. In a window, a casing having grooves, combined with a sash having the edges of its stiles tapered and rabbeted, wedges fitted upon said tapered and rabbeted edges and adapted to be moved laterally with relation to the sash to bind against the side walls of said grooves, means for moving said wedges edgewise of the sash to cause them to bind against the bottoms of the grooves, and means for shifting said wedges upon the stiles to cause said lateral and edgewise movement thereof.

7. In a window, a casing having grooves, combined with a sash having its stiles provided with double tapered and rabbeted edges, double right-angular wedges slidably fitted upon said double tapered rabbeted edges, and means for moving said wedges to cause them to move laterally and edgewise with relation to the sash and to be engaged with and disengaged from the side walls and bottoms of the grooves in the casing.

In testimony whereof I have hereunto set my hand this 28th day of May, A. D. 1909.

PATRICK J. A. SMITH.

Witnesses:

LILLIE M. PERRY,  
WM. H. FINCKEL.

It is hereby certified that in Letters Patent No. 952,689, granted March 22, 1910, upon the application of Patrick J. A. Smith, of Washington, District of Columbia, for an improvement in "Windows," an error appears in the printed specification requiring correction as follows: Page 2, line 56, the word "and" should read *the*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of April, A. D., 1910.

[SEAL.]

C. C. BILLINGS,  
*Acting Commissioner of Patents.*