

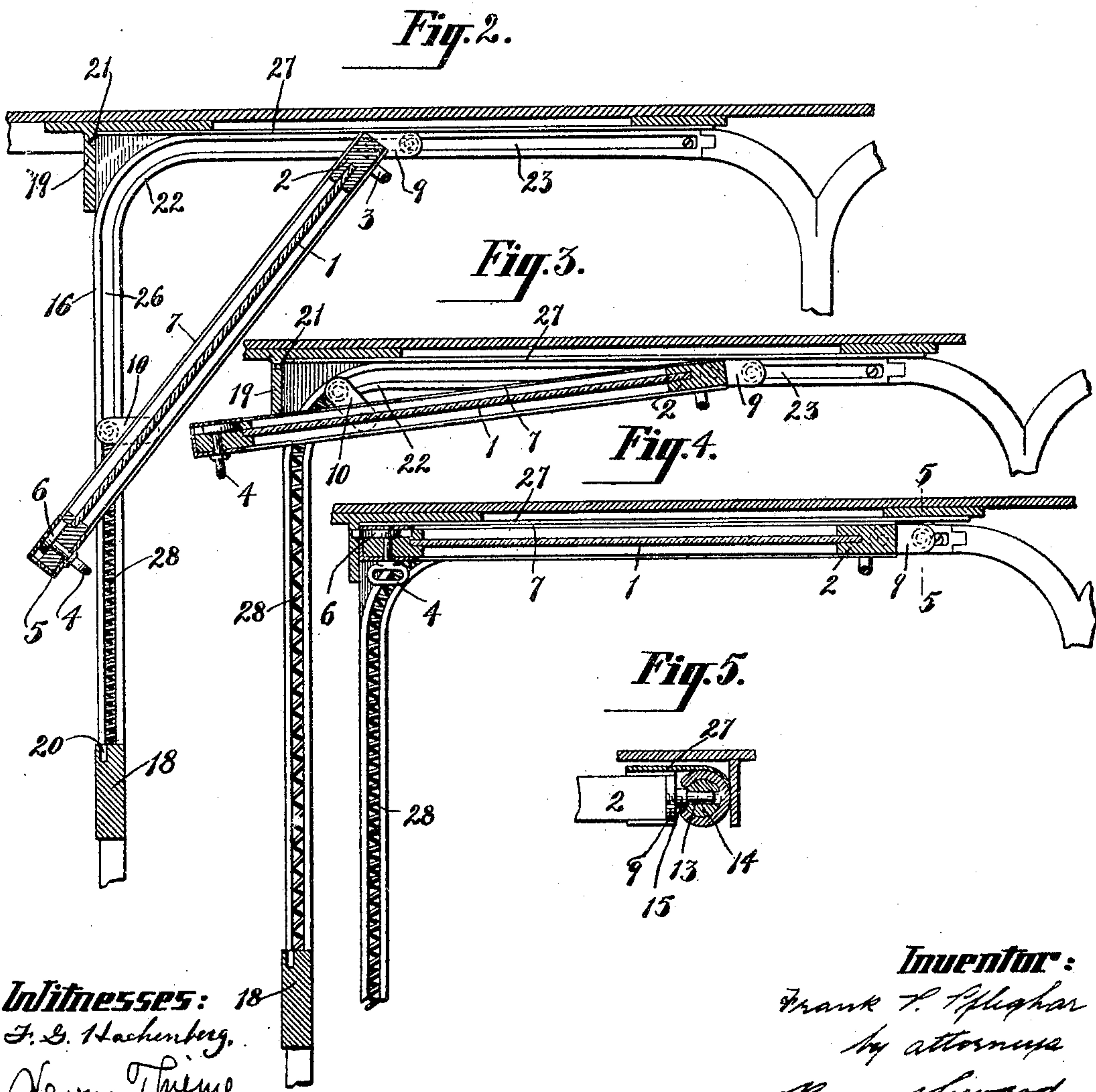
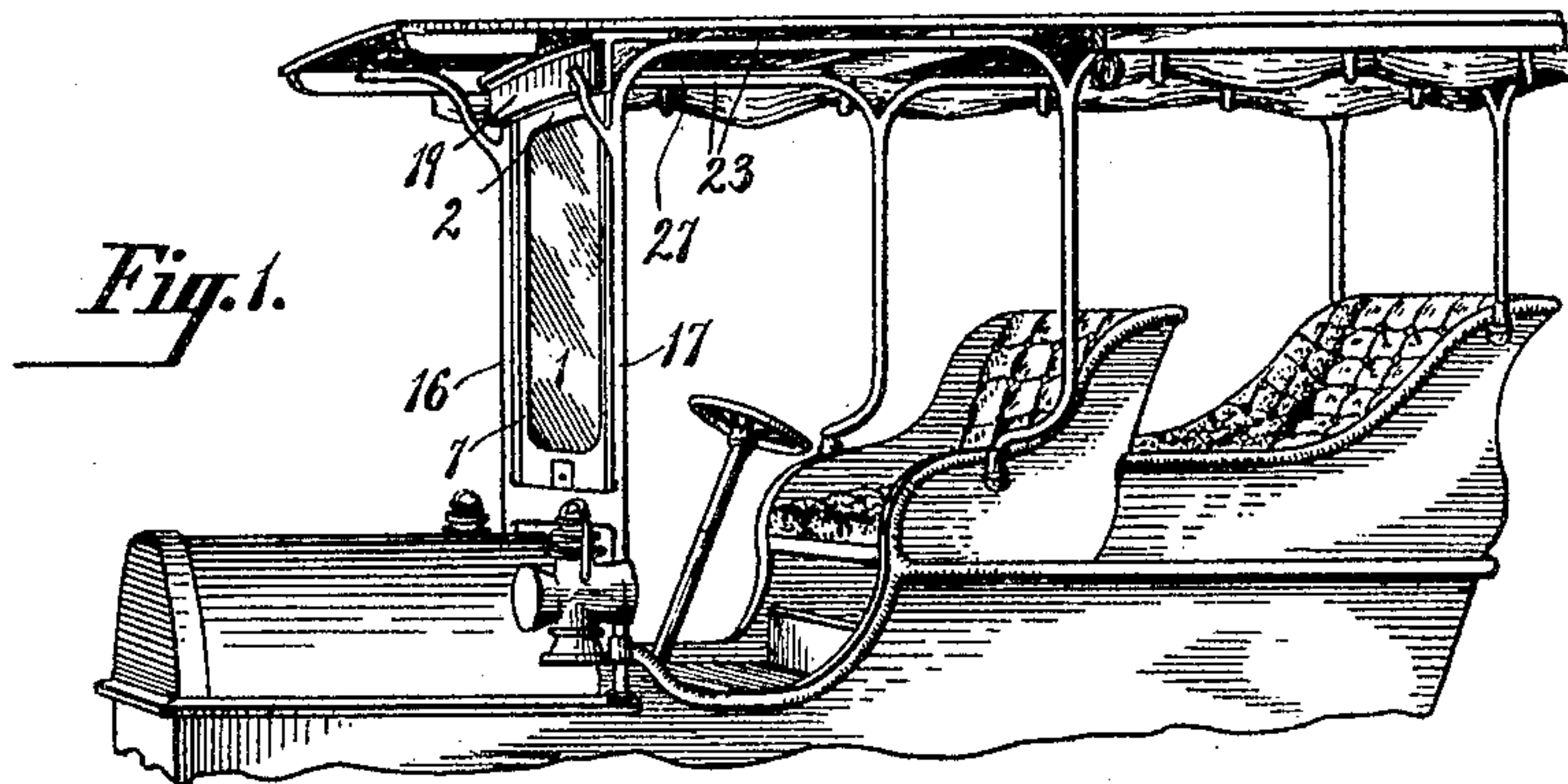
No. 798,447.

PATENTED AUG. 29, 1905.

F. P. PFLEGHAR.  
WINDOW.

APPLICATION FILED APR. 28, 1904.

2 SHEETS—SHEET 1.



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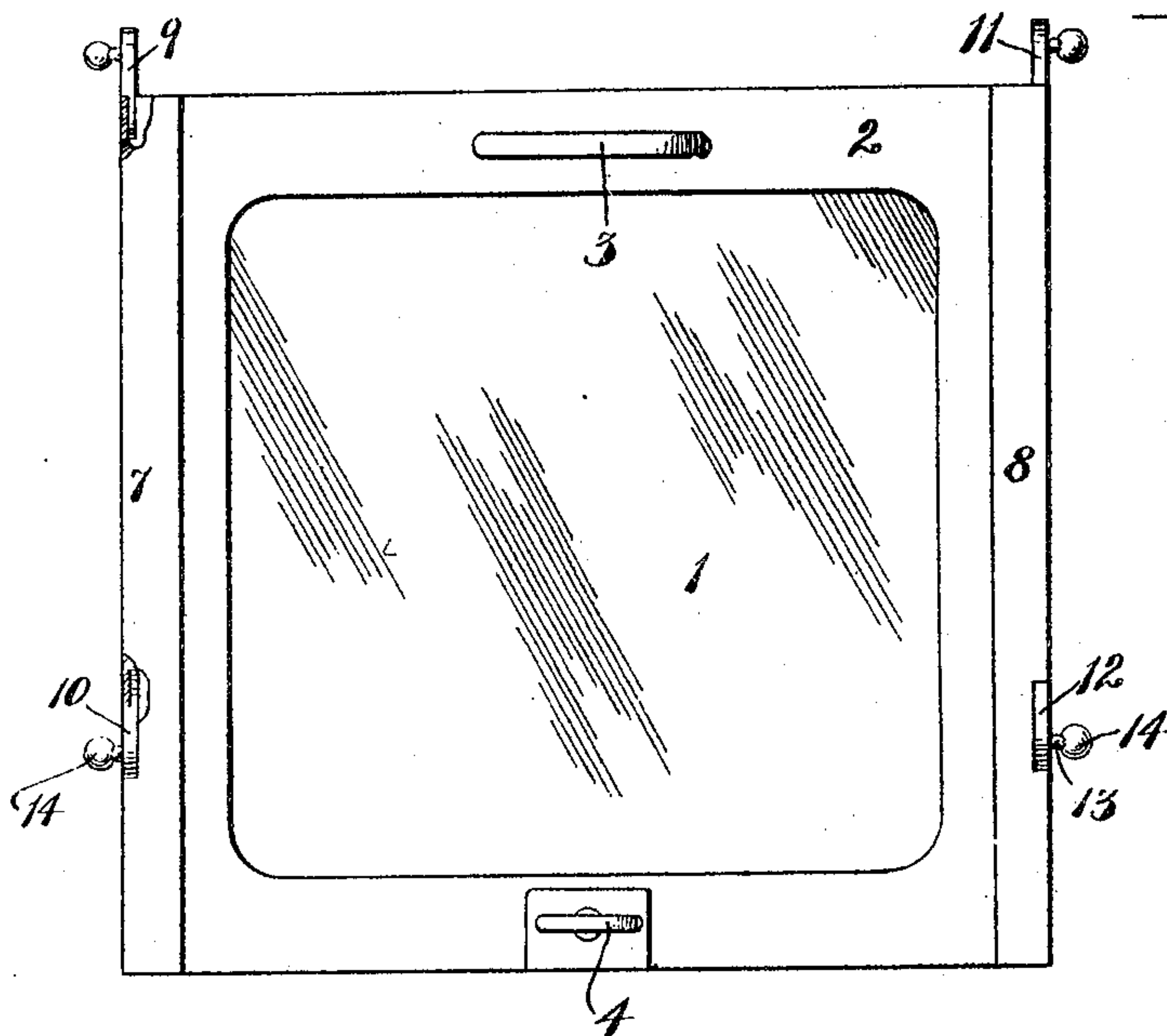
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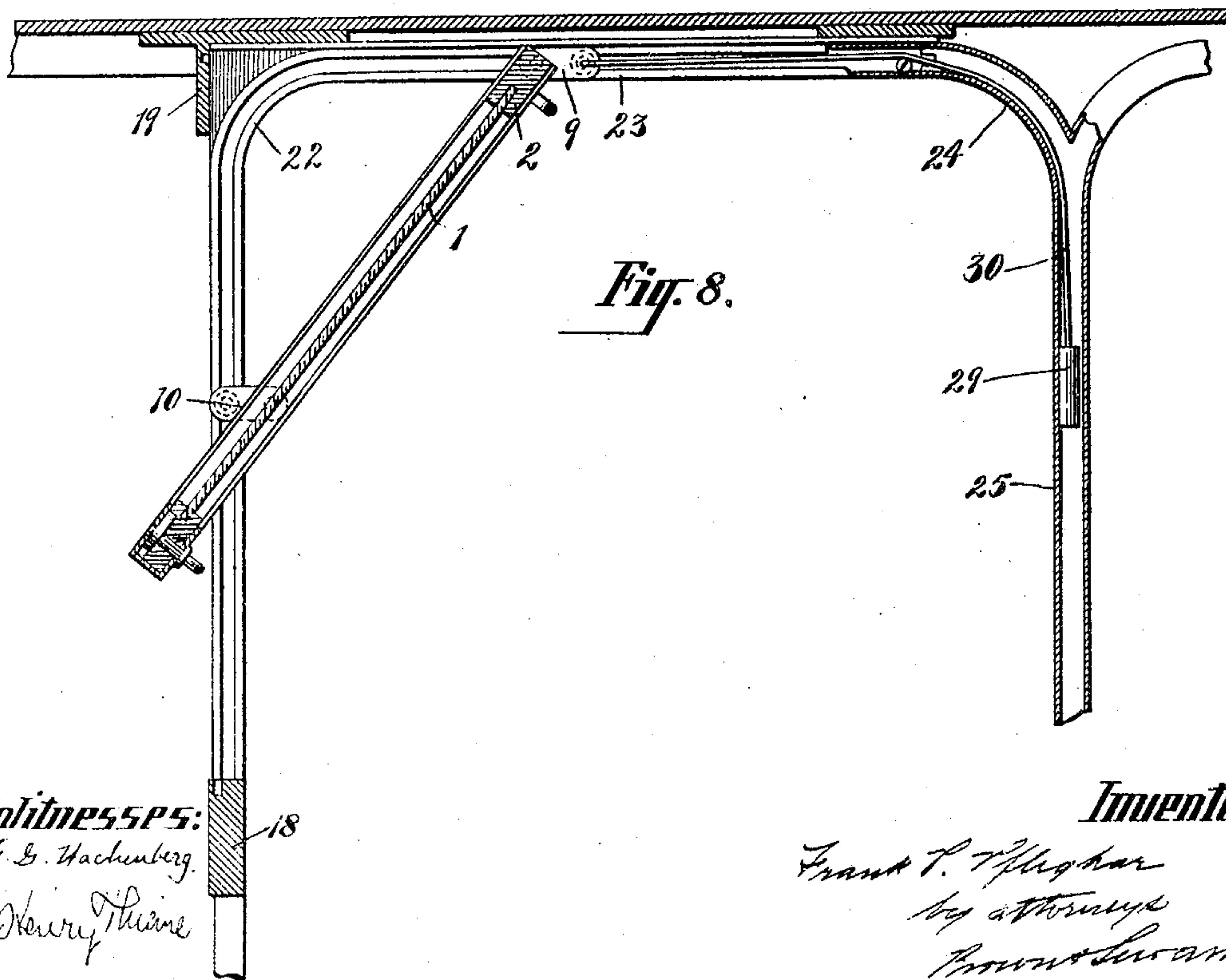
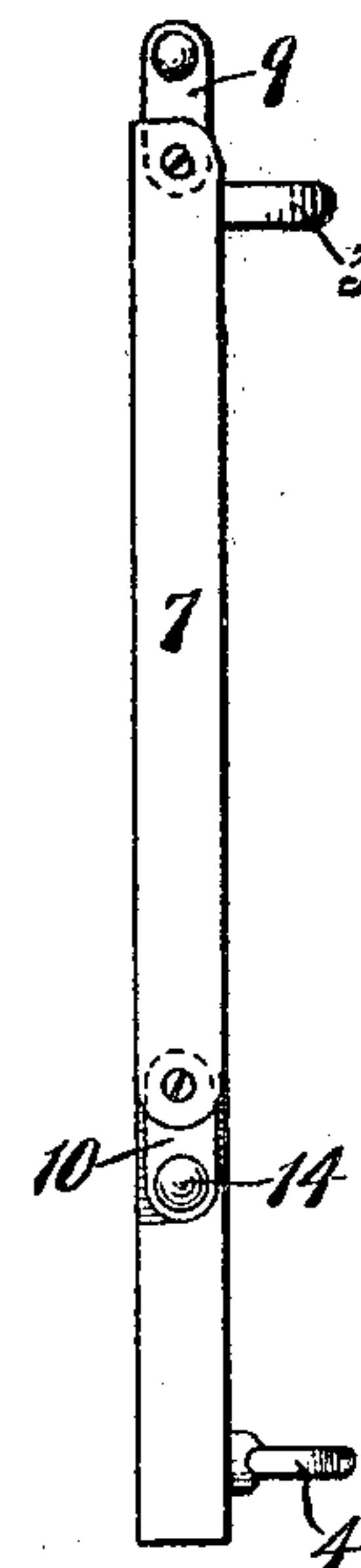
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2 SHEETS—SHEET 2

*Fig. 6.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

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## WINDOW.

No. 798,447.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed April 28, 1904. Serial No. 205,339.

*To all whom it may concern:*

Be it known that I, FRANK P. PFLEGHAR, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Windows, of which the following is a specification.

My invention relates to windows, and more particularly to windows for use in connection with automobiles or wherever it is desirable to lift a window-sash from its perpendicular position in use and store it in a horizontal position overhead to be returned to its perpendicular position for use at pleasure.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a partial view, in side elevation, of an automobile, showing the window as it appears in use at the front of the carriage. Fig. 2 is an enlarged view in detail, showing a partial vertical longitudinal section with the sash partly raised. Fig. 3 is a similar view showing the sash as it appears when nearing the raised position. Fig. 4 is a similar view showing the sash in its raised position. Fig. 5 is a view in detail, showing the transverse section in the plane of the line 5 5 of Fig. 4. Fig. 6 is an enlarged view in detail, showing the sash in side elevation as it appears looking at it from within the carriage. Fig. 7 is an edge view of the same; and Fig. 8 is a view similar to Fig. 2, showing the application of a weight for balancing the sash instead of the spring.

The window and its sash at the front of an automobile are commonly made heavy in order to stand the pressure upon them from high speed and jar, and my present invention is directed to providing means for readily lifting and lowering this sash while sitting within the vehicle and without requiring undue strain upon the operator. To this end in the form which I have chosen for illustrating my invention I utilize the hollow tubular posts which support the carriage-top as a housing for the actuating-spring or weight for counterbalancing the sash and also as a guideway along which the sash-supporting bearings are permitted to travel.

The glass part of the window is denoted by 1, and its frame by 2. On the side toward the occupant of the vehicle this frame is provided at its top with a handle 3 and at the bottom with a handle 4, the latter having attached

thereto a rocking spindle 5, (see Fig. 2,) carrying a latch 6, which is adapted to engage with suitable keepers at the bottom and top of the front post of the carriage-front to lock the sash in its normal or vertical position and in its lifted or horizontal position, as will hereinafter more particularly appear. The window-frame 2 has attached to its opposite sides bars 7 and 8, each carrying a pair of swinging links, those carried by the bar 7 being denoted by 9 10 and those carried by the bar 8 being denoted by 11 12. The links 9 and 11 are so pivoted to their respective bars that they will swing from a position in alinement with their respective bars, as shown in Fig. 7, inwardly at an angle to the bar, as shown in Fig. 2, while the links 10 and 12 are so pivoted to their respective bars 7 and 8 that they will swing from a position in alinement with the bars, as shown in Fig. 7, outwardly at an angle thereto, as shown in Fig. 2. Each of the single links carries in its free swinging end a laterally-projecting spindle 13, on which is mounted a ball 14. (See Fig 5.)

I prefer to construct the spindles 13 with an annular shoulder 15 at their bases, one face of which shoulder may bear against the link and the opposite may form a thrust-bearing for the ball 14.

The front posts of the carriage are denoted, respectively, by 16 and 17. They are connected at the lower portions by a cross-bar 18 and at the top by an angle-bar 19. The cross-bar 18 has a socket 20 for the reception of the catch 6 to hold the window in its vertical position for use, and the depending flange of the angle-bar 19 has a socket 21 for holding the window in its horizontal elevated position out of use. The posts 16 and 17 are continued along the roof of the carriage, on opposite sides thereof, making a rounded turn at 22 and then continuing horizontally, as at 23, for a distance sufficient to accommodate the window to permit it to lie flat against the roof, and in the event a weight is used, as shown in Fig. 4, to counterbalance the sash the tube forming the post and guideway along the top may be still further continued, forming a rounded turn 24 and continuing on downwardly in vertical position, as at 25. The tubular posts 16 and 17, as well as their extensions along the top of the carriage, are provided on their inner faces with a slit 26 through their walls to accommodate the spindle 13 or the annular enlargement 15 there-



on, but of less diameter than the ball 14, so that the latter will be held within the tube as it travels along therein.

Along the top of the carriage and on each side thereof there is formed a guide-plate 27, against which the top of the sash-frame 2 or of the side pieces 7 and 8 engage as the sash is raised and lowered and while the links 9 and 11 are rocked at an angle to the sash. The weight of the window-sash, or a great portion thereof, is sustained by spiral springs 28, one located in each of the posts 16 17 below the balls carried by the links 10 and 12.

When the sash is in its lowered position, as shown in Fig. 1, these springs 28 are compressed and their tension is exerted in a direction to lift the sash. As the sash is lifted the spring gradually expands, as shown in Figs. 2, 3, 4, and its tension tending to lift the sash becomes less as the weight of the sash is taken on the horizontal portion of its tubular guides. In lifting the sash the occupant of the carriage simply turns the handle 4 to unlock it at the bottom and then either lifts it by the handle 4 alone or, to make it easier, takes hold of the handle 3, as well as the handle 4, and slides it up with the greatest ease into the position shown in Fig. 4 and there locks it by simply turning the handle 4. In case the occupant wishes to lower the sash he may simply turn the handle 4, unlock it from its elevated position, and lead it down into its vertical position either by the handle 4 alone or by both the handles 3 and 4. It will be observed that the two handles 3 and 4 furnish an opportunity to lead the sash either in its upward movement or downward movement, and so render its motion easy. The balls 14, used as bearings, have no tendency whatever to cramp in their respective guides or bars, forming at all times antifriction - bearings. Instead of the springs 28 weights 29 may be employed and when so used may be located in the downward extension 25 at the rear of the front posts, and such weights may be connected by cords 30 with the spindles 13, which carry the ball-bearings.

What I claim is—

1. The combination with a pair of continuous guides, parts of each being arranged at an angle to one another, of a window-sash, links pivoted to the opposite edges of the window-sash, bearings carried by the links and engaged with the said continuous guides and means for counterbalancing the sash.

2. The combination with continuous tubular guides each having parts arranged at an angle to one another and each provided with a longitudinal slit through its wall, of a window-sash, bearings located within the tubu-

lar guides and connected through the slits with the opposite sides of the window-sash and springs housed in the tubular guides for counterbalancing the sash.

3. The combination with continuous tubular guides each having a portion extending in a vertical direction and a portion extending in a horizontal direction and each provided with a slit through its wall, of a pair of swinging links pivoted to each of the opposite sides of the window-sash, spindles carried by the links and projecting through the slits in the tubular guides, balls mounted on the spindles within the tubular guides and springs located within the tubular guides below the lower balls for counterbalancing the sash.

4. The combination with continuous tubular guides each having portions extending in a vertical direction and in a horizontal direction, balls arranged to roll along within the guides and a window-sash attached at its opposite sides to said balls, of handles attached to the window-sash at its upper and lower parts for leading the sash in each of two opposite directions.

5. The combination with continuous tubular guides each having a portion extending in a vertical direction and a portion extending in a horizontal direction, balls arranged to travel along the said tubular guides, a window-sash having its opposite sides connected with said balls, a handle connected to the sash, a rocking catch under the control of said handle, a frame connecting the said tubular guides at the foot of the vertically-extending portions, a frame connecting the tubular guides at the top of the vertical portions, the said frames being provided with keepers for engaging the catch carried by the sash to lock the sash in its vertical and horizontal positions.

6. The combination with continuous tubular guides each having a vertically-extending portion and a horizontally-extending portion, balls arranged to travel along within said tubular guides, a window-sash, swinging links connecting the opposite sides of the window-sash with said balls, guides located along said horizontal portions of the tubular guides for directing the top of the window-sash as it moves into and out of its horizontal position and means for counterbalancing the sash.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of April, 1904.

FRANK P. PFLEGHAR.

Witnesses:

F. P. PFLEGHAR, Jr.,  
IRENE J. McCARTY.