No. 806,471. PATENTED DEC. 5, 1905.

A. E. HULL.

CAR WINDOW.

APPLICATION FILED MAR. 31, 1905.

Fig. 1.

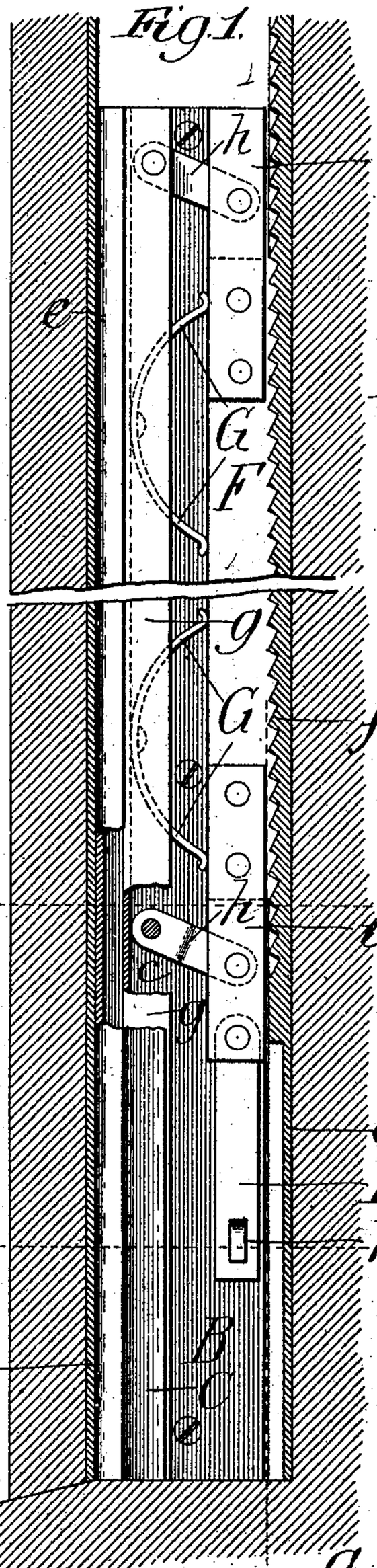

Fig. 2.

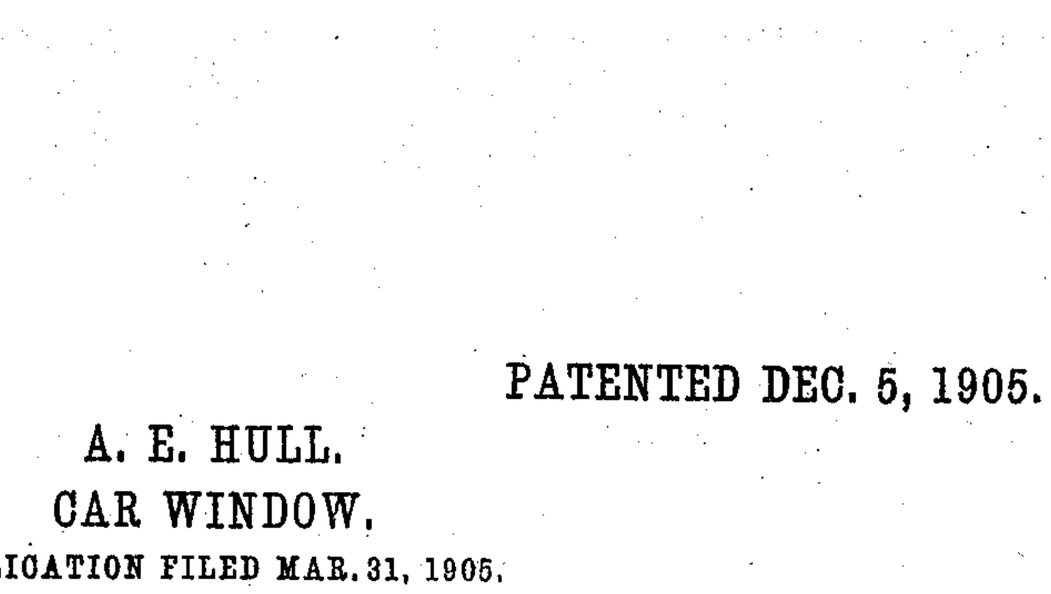

Fig. 3.

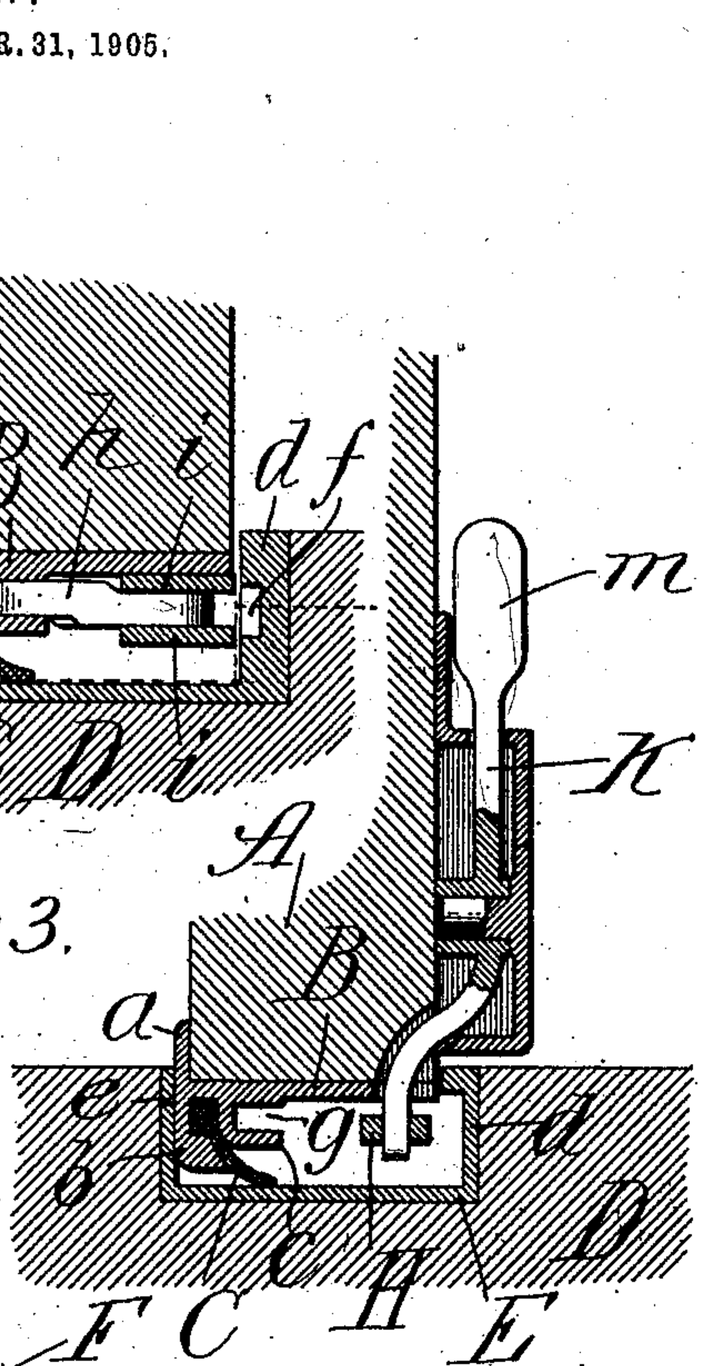

Fig. 4.

Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

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CAR-WINDOW.

No. 806,471. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed March 31, 1905. Serial No. 253,143.

To all whom it may concern:

Be it known that I, ARTHUR E. HULL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Car-Windows, of which the following is a specification.

My object is to provide an improved window construction adapted more especially for passenger-cars and which while being easy to open and close shall be free from danger of sticking or rattling.

It is also my object to render the construction weather and dust proof and capable of firmly supporting the sash at any elevation when opened.

In carrying out my invention I prefer to provide the opposite edges of the window-sash with metal shoes sliding against metal jamb-strips set into the window-casing, the shoes being shaped to form retaining and housing means for yielding rattling-preventing locking mechanism, as well as for dust-excluding weather-strips.

Referring to the drawings, Figure 1 is a broken vertical section, on irregular line 1 in Fig. 2, of a car-window casing at one edge of a sliding sash, which is shown in broken elevation; Figs. 2 and 3, broken plan sections, on different scales, taken, respectively, on lines 2 and 3 in Fig. 1; Fig. 4, a broken fragmental view, partly in section and partly in elevation, the section being taken on line 4 in Fig. 1; and Fig. 5, a horizontal section through a shoe and jamb-strip at one side of the casing and illustrating a modified construction of sash gripping or locking means.

The opposite vertical edges of the raising and lowering sash A are shod with metal strips B, each formed with flanges *a b* and a rib *c*, extending the full length of the shoe or strip B and sash and shaped as shown. The flange *a* overlaps the outer surface of the sash, and the flange *b* and rib *c* form between them a retaining-socket for an edge of a flexible weather-strip C, of rubber, canvas, or the like. Countersunk in the window-casing D at each vertical edge of the sash is a jamb-strip E, preferably of channel form to present the flanges *d e*. In the construction shown in Figs. 1, 2, and 3 the flange *d* is provided with a vertical rack *f*. The outer flange *e* forms a smooth bearing-surface for the smooth outer surface of the flange portion *a b* of the shoe B. Pivotally mounted at their ends in the sockets *g*, formed by the rib *c*, are vertically-swinging links *h*, pivotally secured at their opposite ends between extension-plates *i* on the upper and lower ends of a bar F. In the construction shown in Figs. 1, 2, and 4 the bar F is provided on its edge with teeth adapted to engage the teeth of the rack *f*. One or more springs G, mounted in the sockets *g*, bear against the straight or rear edge of the bar F. Pivotally fastened at its upper end between the lower plate extensions *i* is a depending link H, provided with an opening *k*. A casing or housing I is fastened against the inner face of the sash in the position indicated and is formed with an extension or shoulder *l*. A lever K, fulcrumed in the housing I, has an arm extending through an opening in one wall of the casing beneath the shoulder *l* and an arm extending through recesses in the housing and shoe B into pivotal engagement with the slot or opening *k* of the link H. The outer end portion of the lever K is expanded to form a thumb-piece or handle *m*. The bearing-surface *a b* of the shoe slides readily against the smooth bearing-surface *e* of the jamb-strip E, and the weather-strip slides readily upon the surface of the base of the jamb-strip. The springs G tend normally to press the bar F firmly against the rack *f*, binding the sash firmly between the said rack and the surface *e* at each edge of the sash. The engagement of the bars F with the parts *f* of the jamb-strips tend to lock the sash firmly to the casing, thereby preventing movement of the sash and closing the joints between the shoes and surfaces *e*.

It will be understood that a casing I and lever K, with attendant parts, are provided near each edge of the sash. When it is desired to raise or lower the sash, the levers K are pressed upward at their handle portions *m*, thus drawing down the links H and bars F to release the latter from the parts *f*. Release of the levers K causes the springs G to return the bars F to their normal positions of engagement with the parts *f*.

In the construction shown in Fig. 5 a vertically-extending V-shaped rib *f'* is provided in lieu of the rack *f* shown in the other construction, and the bar F is provided with a longitudinally-extending V-shaped recess in place of teeth. The operation of producing engagement between the V-shaped tongue-and-

groove gripping surfaces in the modified construction is brought about by movement of the bar F, the same as in the other construction.

The pressure of the bars F prevents all danger of rattling of the sash in its jambs and by pressing the surfaces *a b* closely against the surfaces *e* tend to exclude draft and dust. This exclusion is rendered still more certain by the weather-strips C.

While I prefer to provide the sash-locking gripping means described at each edge of the sash, it is within the spirit of my invention to provide the same at one edge only.

The metal shoes and jamb-strips prevent any swelling of the sash or contracting of the frame from causing sticking of the sash, which is one of the principal objections to car-windows as usually provided.

While I prefer to provide the jamb-strips with racks *f* to be engaged by movable rack-bars F because of the positive gripping they effect, in many cases the construction shown in Fig. 5 may be found preferable, because while the gripping between the bars may not be as effective the V-shaped tongue-and-groove construction tends further to prevent rattling of the sash. If desired, the V-shaped tongue or rib *f'* and the V-shaped groove in the bar F may be formed with shallow serrations to render the gripping effect more positive.

It will be obvious that where metal sashes A are provided the shoes B may form integral parts thereof.

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

1. In a car or other window, the combination of a raising and lowering sash provided on its opposite edges with longitudinally-extending metal shoes, longitudinally-extending metal jamb-strips against which the said shoes fit and slide, sash-locking gripping means between companion shoe and jamb-strips, and operating mechanism for said gripping means.

2. In a car or other window, the combination of a raising and lowering sash provided on its opposite vertical edges with longitudinally-extending metal shoes, longitudinally-extending metal jamb-strips against which the said shoes fit and slide, sash-locking gripping-means, and weather-stripping between companion shoe and jamb-strips, and operating mechanism for said gripping means.

3. In a car or other window, the combination of a raising and lowering sash provided on its opposite vertical edges with longitudinally-extending metal shoes, longitudinally-extending metal jamb-strips against which the said shoes fit and slide, spring-pressed sash-locking gripping means between companion shoe and jamb-strips, and an operating-lever for said gripping means on the sash.

4. In a car or other window, the combination of a raising and lowering sash provided on its opposite vertical edges with longitudinally-extending metal shoes, longitudinally-extending metal jamb-strips against which the said shoes fit and slide, companion shoe and jamb-strips being provided with sash-locking gripping means comprising a stationary rack on one and a movable spring-pressed rack on the other, and operating mechanism for said gripping means.

5. In a car or other window, the combination of a raising and lowering sash provided on its opposite vertical edges with longitudinally-extending metal shoes, longitudinally-extending metal jamb-strips against which the said shoes fit and slide, companion shoe and jamb-strips being provided with sash-locking gripping means comprising a stationary rack on the jamb-strip and a movable spring-pressed rack-bar on the sash, and an operating-lever for said rack-bar on the sash.

ARTHUR E. HULL.

In presence of—
J. H. LANDES,
E. P. RICH.