

W. J. HALL.
Car-Window.

No. 220,756.

Patented Oct. 21, 1879.

Fig. 1.

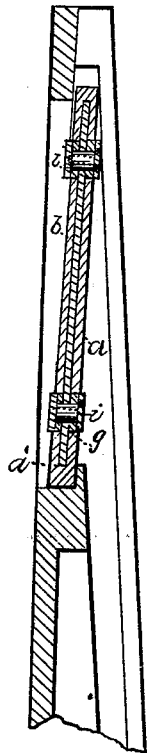
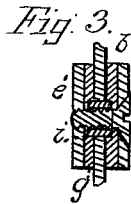
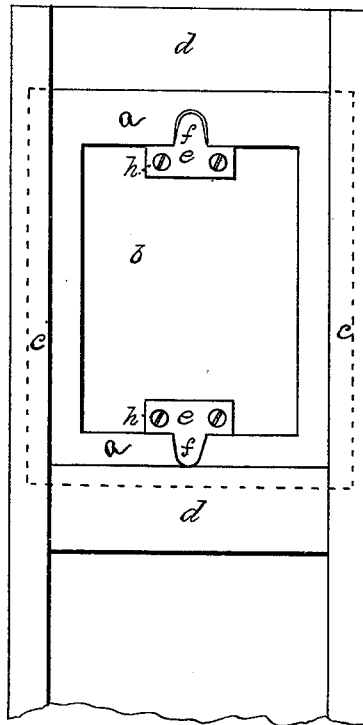


Fig. 2.



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IMPROVEMENT IN CAR-WINDOWS.

Specification forming part of Letters Patent No. **220,756**, dated October 21, 1879; application filed September 15, 1879.

To all whom it may concern:

Be it known that I, WILLIAM J. HALL, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Windows for Cars, Coaches, and other Conveyances, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates more particularly to that class of windows for railway-cars, coaches, &c., which are constructed with but one sash. Heretofore the sashes of such windows have been made of wood, or wood and metal, and various devices have been employed, such as the interposition of a spring or a strip of elastic material between the sash and glass, or sash and jamb, to prevent the continual rattling and jarring caused by the movement of the car; but all the methods now in practice have failed to overcome this difficulty.

The object of my invention is to provide a sash of such material and construction that the glass can be immovably held therein by pressure without the necessity of molding or other securing means, and also can be retained in such tight contact with the window-jamb as to effectually avoid any rattling sound when the vehicle is in motion.

The invention consists in constructing the sash entirely of rubber or equivalent elastic material, and it also consists in the peculiar method of securing the lifts to the sash or glass.

In the accompanying drawings, Figure 1 is a vertical sectional view of the sash and sash-frame. Fig. 2 is an inside view of the same, and Fig. 3 is an enlarged section of the lift-plates.

a is the sash, which is molded or cast from a single piece of india-rubber to conform to the size or shape of the glass. It is provided with a deep groove, *a'*, extending around its inner edge, into which is inserted the glass *b*. I prefer that the rubber should be about three-eighths of an inch in thickness; but I do not limit myself in this respect.

c c are the jambs; *d d*, top and bottom of the frame. *e e* are metal plates, provided, in the usual manner, with finger-lifts *f f*, for raising and lowering the window.

When the lifts are placed on the glass, as

shown in the drawings, I interpose a thin strip of elastic material, *g*, between the metal and the glass, thus forming a cushion for the metal to bear upon; but when placed on the sash, which in practice is found to be preferable, this is unnecessary, as the rubber constituting the sash serves the same purpose.

h h, &c., are screws which secure the lift-plates to the glass or sash. These screws pass through the glass into a corresponding metal plate, *e'*, on the outside of the window.

In order to avoid any frictional contact with the glass, or liability of cracking in tightening the screws, I provide a tubular piece, *i*, of requisite width, of soft elastic rubber, which is slipped over the screw at the point where it would, if unprotected, come into contact with the glass.

Inserting the glass in the sash is quickly and easily accomplished. It is only necessary to extend the groove, when, by a slight pressure, the glass can be sprung into the groove, and the reaction of the material, by its elasticity, will retain it in place. The pressure exerted to force the glass into the groove is such that when inserted it is held in a permanent state of compression, and in such close contact with the sides of the sash that all tendency to vibrate or rattle is absolutely impossible.

In raising or lowering the sash the rubber is slightly compressed, and the sides of the sash are made to bear so closely against the window-frame that even when subjected to sudden and violent concussions no rattling can take place.

The primary object of my improvement is to furnish a perfectly noiseless window for all kinds of land conveyances, and this I have accomplished in my present construction. My invention, however, possesses several other important advantages. It is desirable in all cases that the sash and sash-frame should be made as light as possible, in order that they may not obstruct the passage of air into the car. In making my sash of rubber I am enabled to materially reduce its width, it being necessary that it should be only about one-half as wide as those made of wood.

When the window is closed the sash fits

snugly against the frame, thus insuring in cold weather a protection against drafts, which are a source of much discomfort to passengers.

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

1. A window-sash for cars, carriages, &c., composed wholly of rubber or equivalent elastic material, substantially as set forth.

2. In a window-sash constructed wholly of rubber or other equivalent elastic material, the means herein described of attaching the

lift-plates to the window, consisting of rubber washers interposed between the plate and glass, and tubular sleeves of elastic material between the contact edges of the glass, enveloping the screws which bind the whole together, as and for the purpose specified.

WILLIAM J. HALL.

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