(No Model.)

A. L. WILKINSON.

COMBINED SASH HOLDER AND TIGHTENER.

No. 418,633. Patented Dec. 31, 1889.

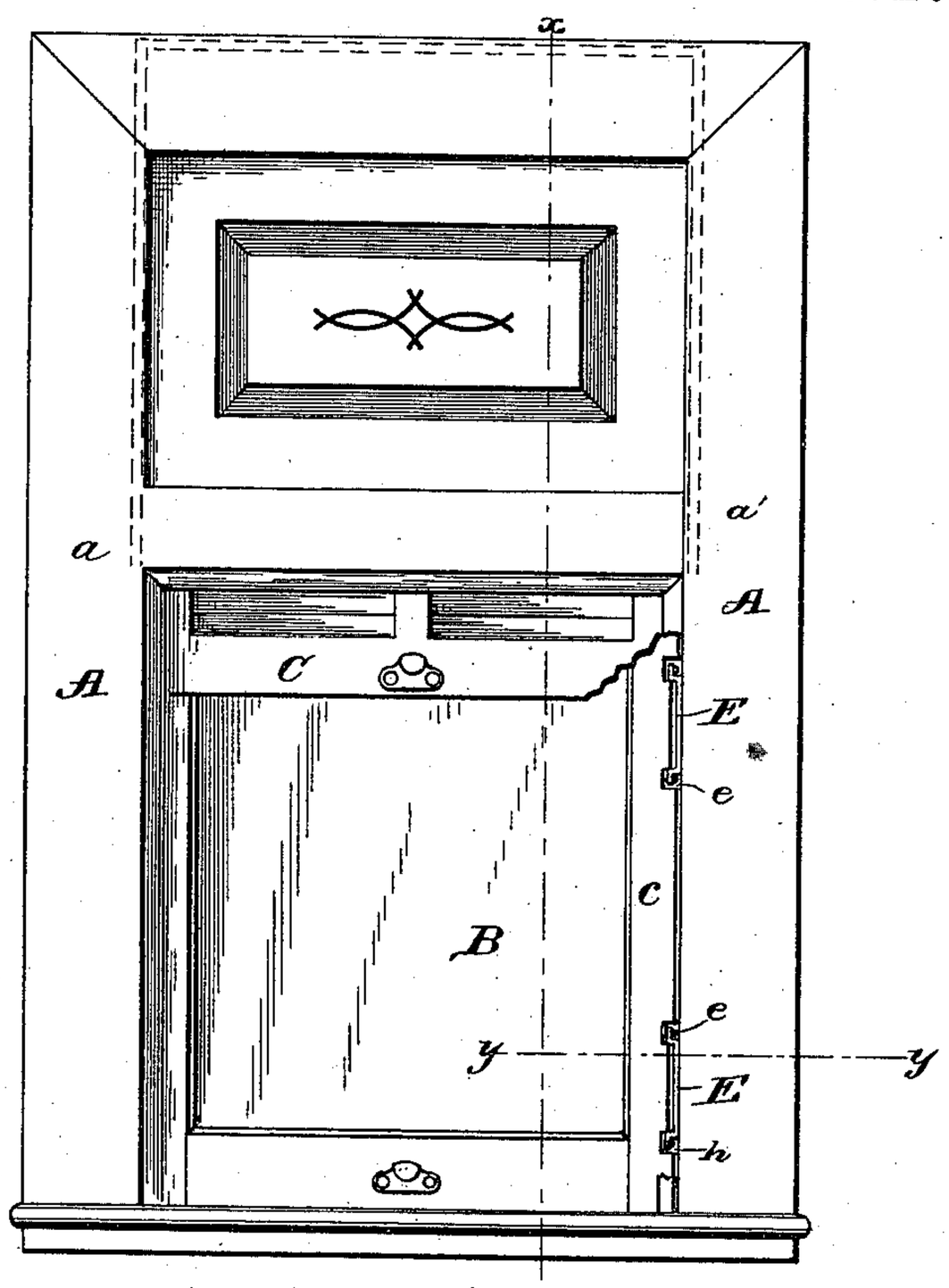

Fig. 1.

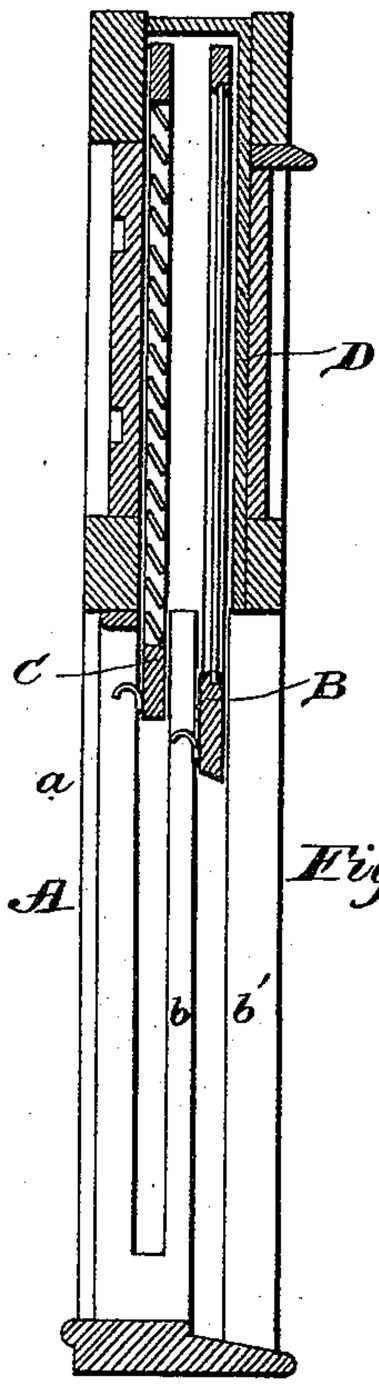

Fig. 2.

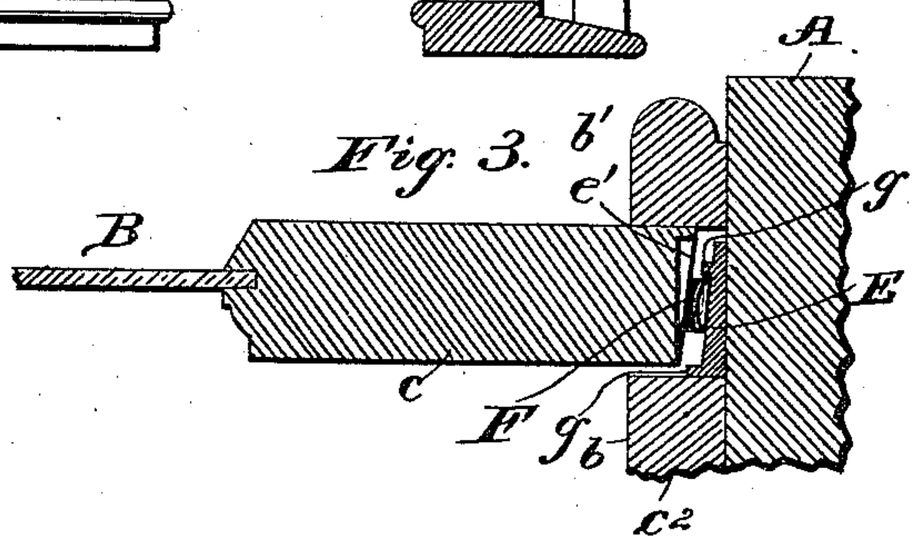

Fig. 3.

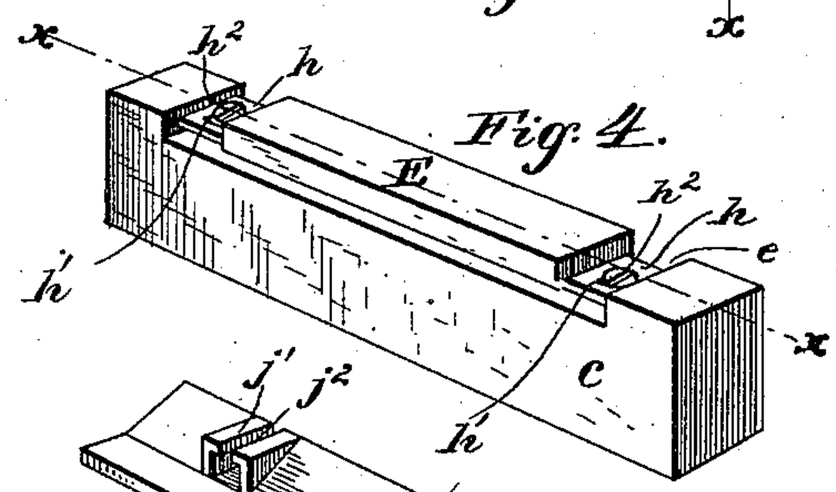

Fig. 4.

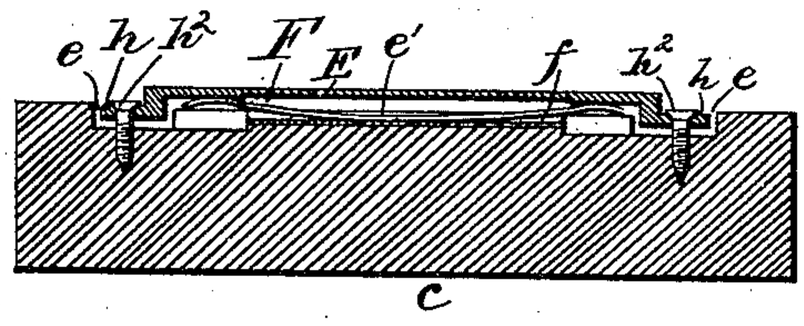

Fig. 5.

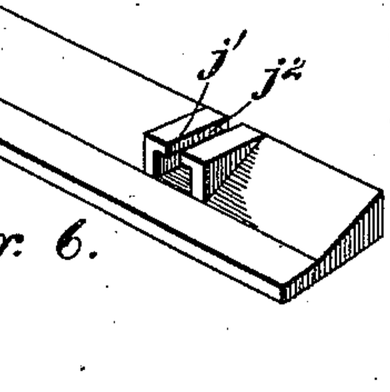

Fig. 7

Fig. 6.

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ALGERNON L. WILKINSON, OF RICHMOND, VIRGINIA.

COMBINED SASH HOLDER AND TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 418,633, dated December 31, 1889.

Application filed April 9, 1889. Serial No. 306,555. (No model.)

To all whom it may concern:

Be it known that I, ALGERNON L. WILKINSON, a citizen of the United States, and a resident of Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Sash-Holders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in car-windows and sash-holders therefor; and it consists of the peculiar combination and arrangement of devices and novel construction of parts, as will be hereinafter fully described and claimed.

The object of my invention is to combine and arrange in a novel manner a series of yielding-pressure devices in connection with a sash of a car-window, so as to force or press the sash laterally against one of the guides and sides of the frame or jamb, and thus practically maintain tight joints therewith, which thereby serves to effectually exclude air and dust from entering the car through the joints between the sash and jamb, effectually overcomes the effects of expansion and contraction, and prevents the sash from rattling. These yielding-pressure devices also serve to hold the sash at any desired elevation in the window-jamb, and they have means for regulating the tension of the spring and protecting the latter and tension-regulating devices from displacement and injury.

A further object of my invention is to provide an inclosing case or box permanently fixed in the side of the car, above the plane of the sash when it is lowered, and into which the sash slides when it is raised. The vertical walls of this box are arranged out of the vertical plane of movement of the sash, and the upper end and sides of the case are closed to effectually overcome the annoying objection of having dust drawn into the car when it is in rapid motion.

With these ends in view the first part of my invention consists in the combination, with a jamb and a sliding sash, of spring-controlled friction devices carried by the sash at the corner or angle of the stiles thereof and normally bearing against the sides of the jamb and the vertical guide-strips of the jamb, whereby the sash is normally held in position to form tight joints with the jamb and guide-strips.

My invention further consists of the combination, with the sash, of a laterally-movable friction-plate carried by and connected to the sash in such a manner that it can move a limited distance laterally of the stile to which it is connected and a spring interposed between the friction-plate and sash and held in position and concealed by said parts, whereby the spring normally presses the friction-plate against one side of the jamb and one of the guide-strips.

My invention further consists of the peculiar construction and arrangement of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of so much of a car-window as is necessary to a proper understanding of my invention. Fig. 2 is a vertical transverse sectional view thereof on the line $x\,x$ of Fig. 1. Fig. 3 is a horizontal sectional view on the line $y\,y$ of Fig. 2. Fig. 4 is a detached perspective view of a portion of one of the stiles of the sliding sash, showing one of the friction-plates removed therefrom. Fig. 5 is a longitudinal sectional view on the line $x\,x$ of Fig. 4. Fig. 6 is a detail perspective of a modified form of friction-plate for the sash, and Fig. 7 is a cross-sectional view through the friction-plate shown in Fig. 6 and the sash.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the jamb, B the sash, and C a slatted screen, of an ordinary car-window. The sash and screen are adapted to slide vertically, as is usual, between two parallel side walls or jambs $a\,a'$ of one side or end of the car, and in the space between the walls $a\,a'$, I provide a box or housing D, in which the sash and screen are housed when raised. The upper end and sides of this housing are closed to prevent dust, &c., from being drawn by suction into

the car, which is objectionable to the ordinary windows of railway-cars. The lower end of the box or housing is open for the sash and the screen to slide freely therein, and said open end of the housing terminates on the plane of the upper end of the window, as clearly shown in Fig. 2, thus entirely concealing the housing from view.

The sash B slides between vertical guide strips or beads *b b'*, between which it is capable of a lateral play or movement in a plane at right angles to and independently of its vertical sliding movement.

In one or both of the vertical stiles or sides *c* of the sash B, I provide two or more friction strips or plates E, each of which is located at one of the corners or angles of the stile *c*, so as to press edgewise and laterally against the guide strips or beads *b b'* and the sides or jambs of the window-frame, whereby tight joints are secured between the sash and said guide-strips, which effectually prevents dust, cinders, &c., from entering between the joints, and also prevents the sash from rattling.

Vertical longitudinal recesses *e* are formed at suitable intervals in one angle or corner of the stile *c* of the sash, the plane or face of each recess being oblique or inclined, as shown in Fig. 3, to the right angle formed by the meeting exposed faces of the sash, so that a single flat spring can be used with advantage in forcing the friction-plate, so that its right-angled exposed faces will be forced in contact with the jamb and guide-strips, and in each of these recesses is arranged one of the friction strips or plates E, which is normally pressed or forced to an equal extent throughout its entire length laterally away from the sash and in contact with the jamb A and one of the guide-beads c^2, as clearly shown in the detail view, Fig. 3, of the drawings. Each friction strip or plate is widened at one edge to thereby provide two faces of sufficient width to bear against the jamb and guide-strip, and each plate is arranged to have its broad lateral face and widened edge bear, respectively, against the jamb and the guide-strip c^2. Between each friction-plate and the edge of the sash within the recesses *e* is interposed a pressure-spring F, that is concealed from view by the plate and sash, and held in position by and between said parts.

In my preferred construction I incline the wall or edge *e'* of the sash within the recess *e*, and against this inclined edge is secured a metallic plate *f*, on which rests the center or middle of the spring F, which is bowed or curved longitudinally, so as to bear or press at both ends against the friction-plate, near the ends thereof. In its rear side this friction-plate is hollowed out or recessed, and near each end in said rear side I provide the plate with integral flanges or ribs *g*, between which is fitted one end of the pressure-spring, whereby the ends of said spring are held in place against endwise displacement and at the same time are free to move or play when the spring and plate are moved laterally.

To connect the friction plate or strip to the sash in a secure manner and at the same time allow for the necessary play or movement of said plate both edgewise and sidewise of the sash under the pressure of the spring, I resort to the use of the flanges *h*, which are located at the ends of the friction-plates on a plane in rear of or below the lateral exposed face of said plate, the flanges having transverse slots *h'* therein, through which are passed headed screws h^2. It will be noted that the heads of the screws lie below the exposed faces of the plates which bear against the jamb and guide-strips c^2, whereby the screws are out of contact with the jamb or guide-strips.

By reference to Figs. 1 and 3 it will be observed that the spring-controlled friction-plates are normally in contact both with the two sides or jambs and the guide-strips c^2 of the window-frame, and they force the sash against the strips *b'* and hold the same between themselves in such a perfect manner that the sash is effectually prevented from rattling, and tight joints are secured between the sash, the jamb, and guide-strip *b'*, whereby dust, cinders, &c., as well as drafts of air, are prevented and excluded.

I will now proceed to describe the modified construction of my invention shown in Figs. 6 and 7 of the drawings. Near opposite ends of the inclined edge or wall in the recess *e* of the sash I provide notches or depressions *i*, which receive headed pins or set-screws *j*, that are fitted in slotted bosses *j'*, cast on the rear side of the friction-plate. The headed pins or screws *j* are located in the recesses *i*, formed in the inclined face or edge of the recesses, and the bosses *j'* fit in said notches or pockets, as indicated in Fig. 7, to allow the friction plate or strip to have the desired play or movement. The bosses of the friction plate or strip are made hollow, and they have slots j^2 formed therein, which open into the chamber of the boss and through the ends thereof. The shanks of the headed pins or screws *j* pass through the slots in the bosses, while the heads of said pins or screws are housed in the chambers of the bosses, thus securely connecting the friction-plate to the sash and permitting it to have the required play or movement. The pins ride easily in the slots of the hollow bosses and the heads of the pins prevent the separation of the bosses and pins. The friction strip or plate is held from endwise movement by the headed pins or screws and by the abrupt shoulders at the ends of the recesses *e e*.

The operation of my invention will be readily understood from the foregoing description taken in connection with the draw-

ings. The springs F normally force or press the friction plates or strips, one of which is provided near the upper and lower end of each stile of the sash, at one angle or corner thereof, away from said angles or corners of the stiles *c* of the sash, and so that the right-angled exposed faces of the plates are projected beyond the corresponding faces of the stile *c*, and are forced in contact with one side of the jamb and one of the vertical guide-beads c^2. This pressure of the springs reacts to move the sash laterally, so that one face of the sash is pressed against the opposite guide-beads *b b'*, thus forming tight joints therewith, which effectually exclude cinders, dust, &c. These friction-plates and springs also hold the sash between themselves to prevent rattling thereof, and they also serve to hold the sash at any desired elevation, either partially or wholly raised, as the strength of the springs is sufficiently great to insure the necessary frictional contact between the jamb and friction-strips to overcome the weight of the sash.

The sash can be easily and readily raised and held at the desired elevation without manipulating catches or other contrivances, as the friction-plates slide readily against the jamb and the bead c^2 when an upward pull is exerted on the sash, and are firmly pressed against said parts to hold the sash in place when the pull ceases. These friction plates or strips furthermore overcome the effects of any expansion or contraction that is liable to take place during exposure, &c., and they hold the sash so firmly in place that no rattling noise can arise when the car is in motion.

I do not desire to confine myself to the precise details of construction and form and proportion of parts herein shown and described as an embodiment of my invention, as I am aware that changes can be made therein without departing from the spirit or sacrificing the advantages of my invention. I would also state that I do not restrict myself to the use of the four friction-plates on the stiles of the sash, as it is evident that two friction-plates can be applied at one of the angles or corners of one of the stiles of the sash, whereby the sash is moved edgewise to force the opposite stile against the adjoining jamb and laterally against the guide-beads *b'*.

I am aware that heretofore a sash-holder has been provided with a longitudinal slot or recess formed midway of the width of the sash, and the sides thereof forming a right angle with each other, a plate fitted loosely in the slot, and a spring interposed between the sash and the plate; also, that cavities have been made in the sash in rear of the recess to receive guide-pins on the plate and coiled pressure-springs; but such is not my invention, and hence I disclaim the same.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a jamb and the fixed guide-strip thereon, of a sliding sash having a longitudinal recess formed in one of its angles or corners, the face or plane of said recess being oblique to the angle formed by the edges or faces of the sash, a friction-plate located in the recess of the sash and connected thereto, and a single leaf-spring arranged longitudinally between the sash and friction-plate, within the recess of the sash, to force both of the right-angled exposed faces of the friction-plate beyond the corresponding faces of the sash and directly in contact with the jamb and the guide-strip, substantially as and for the purpose described.

2. The combination of a sash having in the corner of one of its stiles a recess whose plane or face is oblique to the angle formed by the exposed faces of the stile, a friction-plate loosely connected to the sash and capable of a limited play thereon, both edgewise and laterally of said sash, and a single leaf-spring interposed longitudinally between the sash and the friction-plate, substantially as described, for the purpose set forth.

3. The combination of a sash having longitudinal recesses at suitable intervals in one angle or corner of the stile thereof, a slotted laterally-movable friction-strip loosely connected by suitable devices to the sash, within each recess thereof, and held from endwise movement in said recess, and a spring interposed between the sash and each friction-strip to normally force said friction-plate away from the sash, so that its right-angled exposed faces extend beyond corresponding sides of the sash, substantially as and for the purpose described.

4. The combination of a sash having a recess in one of its angles or corners, a friction-plate fitted in said recess and having transverse slots which are formed in parts thereof that lie in rear of or out of line with the exposed right-angled faces of the plate, a spring interposed between the sash and friction-plate, and fixed screws which pass through the transverse slots of the friction-plate, whereby the heads of the screws lie in rear of the exposed faces of the friction-plate and are prevented from coming in contact with the jamb, substantially as and for the purpose described.

5. The combination of a sash having at one of its angles or corners a longitudinal recess whose plane is oblique to the angle formed by the exposed faces of the sash, a friction-plate fitted in said recess and capable of play both edgewise of itself and laterally of the sash, a single leaf-spring interposed between the plate and sash, and adjustable devices fixed to the sash and connected to the friction-plate whereby the friction-plate can be positively forced toward or from the

sash to vary the tension of the spring, and at the same time is capable of the necessary play, substantially as described.

6. The combination, with a recessed sash, of a laterally-movable friction-plate carried by the sash at one angle or corner of the stile thereof and having the ribs on its rear face, and a spring interposed between said friction-plate and sash and having its free ends fitted between the ribs on the plate, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ALGERNON L. WILKINSON.

Witnesses:
H. I. BERNHARD,
ARTHUR L. BRYANT.