

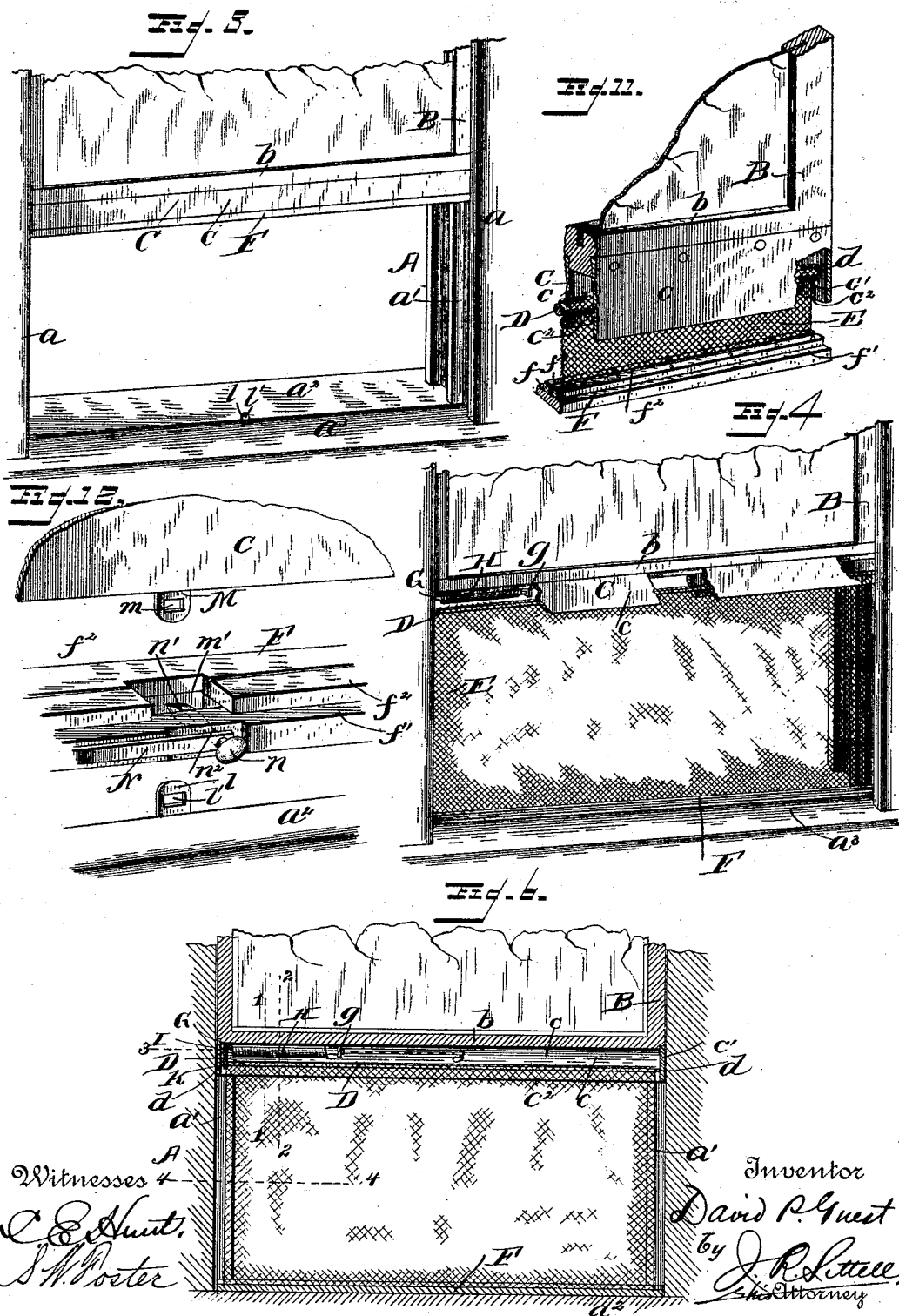
(No Model.)

2 Sheets—Sheet 2.

D. P. GUEST.
WINDOW SCREEN.

No. 496,781.

Patented May 2, 1893.



UNITED STATES PATENT OFFICE.

DAVID PORTER GUEST, OF NORFOLK, VIRGINIA.

WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 496,781, dated May 2, 1893.

Application filed October 7, 1892. Serial No. 448,156. (No model.)

To all whom it may concern:

Be it known that I, DAVID PORTER GUEST, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Window-Screens; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to

which it appertains to make and use the same. This invention relates to window screens, and has for its object to provide a simple and improved screen of this class, which will be especially adapted for efficient and convenient use in railway car windows and also in house windows having vertically sliding sashes; and which will possess advantages in point of inexpensiveness, convenience in arrangement, adjustment and operation, appearance, durability, and general efficiency.

A further object of my invention is to provide a simple and improved screen in which the adjustment will be virtually automatic, the automatic relation being such that the screen will close the window-opening at whatever height to which the sash may be raised or lowered.

In the illustration of my invention embodied in the accompanying drawings, I have shown the invention adapted for operation in connection with a railway-car window, but it is obvious that the invention is adapted for corresponding use in all house windows or in similar positions and arrangements where a sliding sash is employed.

In the drawings—Figure 1 is a perspective view, from the inside, showing the sash partly raised and the screen in open operative position. Fig. 2 is a corresponding view showing the screen closed. Fig. 3 is a perspective view, from the outside, showing the screen closed. Fig. 4 is a corresponding perspective view, showing the screen in open or operative position and having the rear side of the screen casing broken away. Fig. 5 is a vertical transverse sectional view, on the line $x-x$, Fig. 1. Fig. 6 is a vertical longitudinal sectional view, on the line $y-y$, Fig. 5. Figs. 7 and 8 are detail vertical sectional views, on the lines 1 and 2, Fig. 6, Fig. 7 showing the screen open and Fig. 8 showing the screen

closed. Figs. 9 and 10 are detail horizontal sectional views, on the lines 3 and 4, Fig. 6. Fig. 11 is a detail perspective view, showing one of the lower corners of the sash, parts being broken away. Fig. 12 is a detail perspective, with parts broken away, illustrating the securing catch at the bottom of the screen.

Corresponding parts in all the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the window frame, comprising the side portions, $a a$, having the vertical grooves or recesses, a' , for the accommodation of the sash, and the sill, a^2 , which in the case of a railway car window has its top surface inclined or beveled toward the outer edge, as shown at a^3 . The window frame A may be of any usual or adapted construction.

B designates the window sash, which may be in any ordinary or adapted construction, the bottom cross-bar of the sash being designated by b .

In carrying out my invention, a box or casing, C, is secured across the lower end of the sash B and projects downwardly therefrom, as shown. This box or casing forms substantially a continuation of the bottom cross-bar b of the sash and comprises longitudinal side pieces, $c c$, and end pieces, $c' c'$, the sides c and ends c' being secured, by mortising or in any other suitable manner, to the bottom cross-piece b of the sash. The casing C moves with the sash in the grooves or recesses a' of the window frame, as the sash is raised or lowered, and normally entirely conceals the screen and screen-operating mechanism, thereby securing a neat and attractive arrangement by which the normal appearance of the window and sash is approximately preserved. I prefer to construct the box or casing C of plate metal, but it may be constructed in any suitable and desired manner. Through the open bottom, c^2 , of the casing C, the screen proper is adapted to move downwardly or upwardly, as hereinafter fully set forth.

D designates a longitudinal shaft or rod mounted in the casing C and having bearings, $d d$, at the end pieces $c' c'$. The upper edge of the screen, E, is secured to the shaft or rod D and the screen is rolled or wound upon the latter.

The screen proper, E, is of a flexible nature, and I prefer to construct it of a suitable metallic cloth or other adapted fabric. The screen extends entirely across the sash, so that its end edges project into the grooves or recesses a' of the window frame, and is provided at its bottom with a longitudinal strip, F, the ends of which move in the grooves or recesses a' and are guided thereby. This strip F forms the bottom of the casing C when the screen is in normal position and thus closes the open bottom c^2 of the latter. When the screen is in "open" or operative position, the strip F rests against the sill a^2 , and to provide a tight joint with the sill the bottom surface of the strip is correspondingly beveled or inclined, as shown at f . The strip F is preferably provided with longitudinal shoulders $f' f'$ at its front and rear top edges, which shoulders correspond to and are adapted to receive the lower edges of the side pieces $c c$ of the casing C. The screen fabric E may have its lower edge secured to or connected with the strip F in any suitable or desired manner, but this connection is preferably formed by having the lower edge of the fabric E secured under longitudinal strips, $f^2 f^2$, secured to the top of the strip F and serving to form the shoulders $f' f'$ these securing strips $f^2 f^2$ being received within the casing C when the screen is closed.

It will be noted that the strip F corresponds in width to the casing C, and that the casing (being mortised to the cross-bar b) is flush with the surface of the cross-bar b , thus forming a neat and uniform appearance which does not detract from the usual form or construction of the sash.

In the casing C, at one end, above the shaft or rod D, is provided a shaft or rod, G, having its ends respectively bearing in the end piece c' of the casing and in a cross-piece, g , secured at the proper point between the sides cc of the casing. Upon this shaft G is mounted longitudinally a coiled spring, H, having one end fixed to the shaft, as shown at h , and the other end secured to the cross-piece, as shown at h' . This spring is constantly under tension, and therefore constantly exerts its tension to turn the shaft or rod G.

Upon the end of the shaft G adjoining the end c of the casing is fixed a gear, I, meshing with a gear, K, fixed upon the adjoining shaft or rod D which carries the screen E. The action of the spring H is thus communicated to the shaft D and is therefore continually exerted to effect the winding up of the screen fabric upon its shaft.

It will be obvious that a power shaft G with its spring H, and the gears and dependent mechanism may be provided at each end of the casing C, or that the position and location of this spring mechanism may be otherwise varied without departing from the spirit and scope of my invention. While I prefer to employ the spring mechanism herein described and illustrated, it is also obvious that any other suitable mechanism for operating

the shaft or rod D carrying the screen E may be employed in the practical construction and use of my invention, if desired.

Upon the sill of the window frame, a plate, L, carrying an upwardly projecting ear or lug, l , provided with an eye or opening, l' , is provided. A similar plate or ear, M, is secured to the inner side piece c of the casing C and projects downwardly through the open bottom c^3 of the latter, this plate being also provided with an eye or opening, m . For the accommodation of the plates M and L a slot, m' , is provided in the cross-bar F, and upon the inner edge of the cross-bar is secured a spring plate, N, having a knob or projection, n , upon its free end and provided with a pin or stud, n' , which projects inwardly through an eye or opening, n^2 , in the bar F and enters the slot m' , this projecting pin or stud upon the spring plate being also adapted to enter the eyes or openings of the plates L and M. I prefer to employ the catch and securing mechanism just described, but it is obvious that any other suitable mechanism may be employed for the same purpose, in carrying out my invention.

The operation and advantages of my invention will be readily understood. When the spring catch upon the cross-bar F is engaged with the plate L upon the sill of the window frame, the window sash may be raised or lowered to any desired point and the screen fabric E will operate automatically to always close the opening between the lower end of the sash and the sill, the spring actuating or operating mechanism serving to wind up the screen when the sash is lowered and permitting the unwinding of the same as the sash is raised. Any pressure upon the screen, accidentally or otherwise, when it is in "open" or lowered position, is met by the tension of the spring, and when such pressure is removed the screen automatically returns to normal stretched position, thus obviating any accidental damage or displacement of the screen proper. When the screen is rolled up and contained entirely within the casing C, the bar F closes the bottom of the casing and the spring catch upon the bar may be engaged with the plate M to retain the screen in closed or locked position and thus permit raising or lowering of the sash without the use or operation of the screen, as desired. The securing mechanism is entirely inclosed within the sash, and is carried by the same, thus forming a convenient, simple, and neat arrangement, and at the same time the screen may be pulled down to close the window opening when the sash is raised, and when the screen is secured in "open" or operative position it will then automatically operate in conjunction with the sash as the latter is raised or lowered to any desired height.

I do not wish to be understood as limiting myself to the precise construction and arrangement herein shown and described, as numerous manifest variations and modifica-

tions in structure and details may be employed without departing from the spirit and scope of my invention, for instance: any suitable form of spring catch and securing mechanism or spring operating mechanism may be employed in connection with the general features of construction, arrangement and operation embodied in my invention. I therefore reserve the right to all such variations or modifications as properly fall within the terms of the claim.

Having thus described my invention, I claim—

In a device of the class described, the combination, with the spring actuated screen, the screen-casing, and actuating mechanism for the screen, of the bottom cross-bar of said screen having central slots therein, a spring

plate bolted at one end to said cross-bar and provided at its free end with a knob on one side and an inwardly projecting pin or stud on the other, a plate secured to the window sill and provided with an upright ear having an eye or opening therein, and a plate on the screen casing provided with a similar perforated lug; the two ears or lugs of the upper and lower plates being designed to be locked together to the cross-bar by the stud on the spring-plate, substantially as set forth.

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

DAVID PORTER GUEST.

Witnesses:

J. REED LITTELL,
E. L. WHITE.