

Jan. 13, 1925.

C. H. GRINGS

1,523,014

ADJUSTABLE SCREEN

Filed July 16, 1923

Fig. 1.

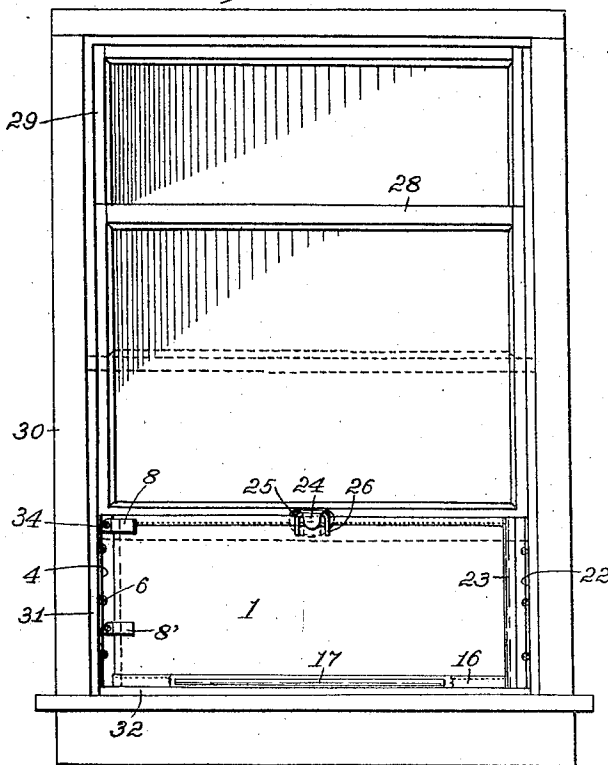
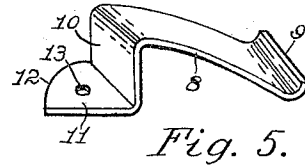


Fig. 5.

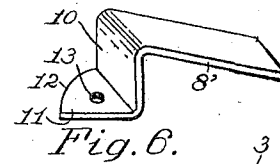


Fig. 6.

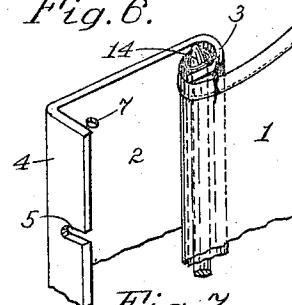


Fig. 7.

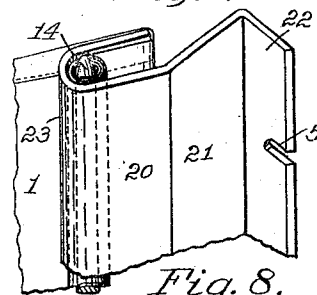


Fig. 8.

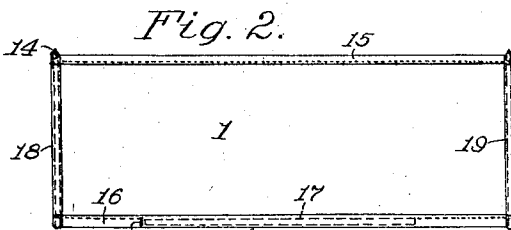


Fig. 2.

Fig. 3.

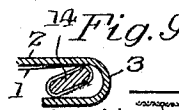


Fig. 9.



Fig. 11.

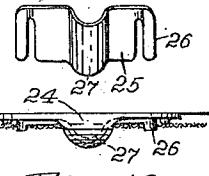


Fig. 10.

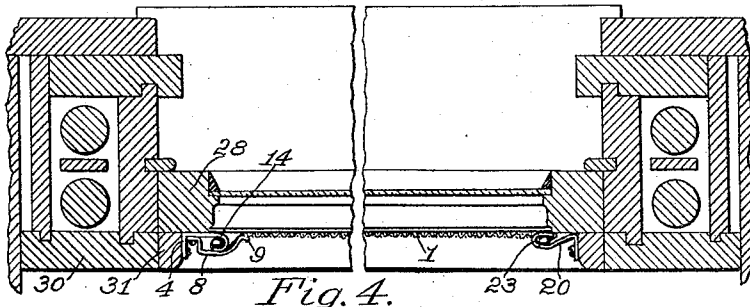


Fig. 4.

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UNITED STATES PATENT OFFICE.

CASPER HUGO GRINGS, OF WATERLOO, IOWA.

ADJUSTABLE SCREEN.

Application filed July 16, 1923. Serial No. 651,695.

To all whom it may concern:

Be it known that I, CASPER HUGO GRINGS, a citizen of the United States of America, and a resident of Waterloo, Blackhawk County, Iowa, have invented certain new and useful Improvements in Adjustable Screens, of which the following is a specification.

My invention relates to improvements in adjustable screens, and the object of my improvement is to supply for wall apertures including windows having movable sashes, a flexible screen element, which may or may not be of reticulated material, and cooperating holding and supporting elements for keeping the screen in a proper position covering such an aperture, the screen coacting with the said elements in such a manner as to be adjustable therein in the direction of its length.

I have accomplished this object by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In said drawings, Fig. 1 is an elevation of the inner face of a sashed window, showing the lower sash partially elevated and my improved adjustable screen mounted within the casing to close the opening beneath said sash. Fig. 2 is an elevation of the screen member only as unrolled before adjustable mounting thereof in a window casing. Fig. 3 is a top edge view of the screen member showing its tubular stile receiving ends placed in appropriate positions relative to the main body of the screen for conveniently mounting these tubular ends in grooved holding devices mounted on the opposite jambs of said casing. Fig. 4 is a horizontal section on a larger scale of a window casing and of the lower sash therein, showing my improved screen mounted across the casing, parts being broken away. Fig. 5 and Fig. 6 are respectively enlarged perspective views of the upper and lower clips of the device. Figs. 7 and 8 are perspective views of the upper ends of the screen holders, showing the rolled ends of

the flexible screen member mounted in the grooves thereof. Fig. 9 is an enlarged perspective view of the fastener used to secure the upper longitudinal edge of the screen member under and to a finger-lift on the lower sash. Fig. 10 is a top plan view of the said fastener in use securing said screen to said finger-lift. Fig. 11 is a horizontal section of an end stile and of the holding element therefor.

It is well known that even in the same building or other structure window openings often vary in width, so that it is desirable that a screen member to properly cross and fit any of the openings should be adjustably adaptable thereto and then supported under proper tension in such a manner that it will closely contact with the adjacent structures to prevent ingress or egress of air otherwise than under the conditions for which the screen is designed.

With this end in view, I supply a flexible screen sheet 1, which may be impervious to air if desired, or may be made of reticulated material to permit a gentle transpiration through its substance. The horizontal longitudinal margins 15 and 16 are turned over tubularly and hemmed, as are also the opposite end margins at 18 and 19. As shown in Fig. 2, a short vertical slit may be made in the lower tubular part 16 at 33 to permit either the introduction or the removal of a metal rod 17 which thus serves as an elongated weight to keep the lower margin of the screen 1 straight as also drawn down to contact closely with the sill member 32 underneath.

When the rod 33 has been removed the screen may, together with flat sticks or stiles 14 in the end tubes 18 and 19, be rolled up to occupy but little space.

I supply the following described holding devices for the ends of said screen. The left-hand device shown in Figs. 1 and 7 is an elongated vertically disposed plate of metal 2 having one vertical margin bent to one side at a right angle at 4, the outer edge of which is notched at 5 for the adjustable placing of screws 6 to secure the holder to the jamb 31 with the body 2 closely abutting the inner face of the lower sash 28 cross-bar when the sash is raised. This holder 2 has its right-hand margin curvilinear

early bent over to the same side to form a groove or channel at 3. The body 2 has holes as at 7 to receive pivot-screws 34 on which spring-clips 8 and 8' having registering holes 13 are pivotally mounted.

The right-hand holder 20 has its inner margin curvilinearly grooved or troughed at 23 toward the window to abut closely upon the sash, the holder being bent slopingly at 21 toward the outwardly directed marginal part 22 to thus mount the holder in position.

The ends of the screen 1, as shown in Fig. 3 may be bent around in opposite directions loopwise with their stiles 14 so as to permit the tubes 18 and 19 with said stiles to be respectively slipped endwise downwardly into the holder grooves or inturned margins 3 and 23 after the screen in case of need has had its ends rolled one or more times around the stiles to effect the proper longitudinal tension in the screen. This disposition of the rolled extremities of the screen is best illustrated in said Figs. 7 and 8. When the screen has been thus flatly stretched and end-secured in said holders, additional tension may be made therein to take up any residual slack by means of the said spring-clips 8 and 8'. These clips are alike, except that the upper clip 8 has its free terminal bent away from the screen at 9. Each clip is bent toward the holder 2 in an offset at 10 and 11, to override the bent margin 3 with sufficient clearance, when swung downwardly to engage the free extremity with the screen adjacent the holder as shown in Fig. 4. This bends the screen against the sash closely, while at the opposite end of the sash the screen is held in contact with the latter by the holder bent margin 23. Each pivoted terminal 11 of the clips has a curved cam edge 12, which clears the abutting part 4 of the holder when the clip is swung upwardly to disengage it from the screen 1, but to engage the part 4 when swung downwardly to hold the clip longitudinally directed relative to the screen.

When one or more lifting handles 24 are provided on the lower cross-bar of the sash frame 28, the upper longitudinal margin of the screen may be kept in close contact with this cross-bar by the following device. The device is a small metal plate 25 whose middle part is curved semicircularly at 27 and its end parts partially separated by slots to provide the spring fingers 26. The device is mounted with its middle raised part 27 under and engaging the lifter hook 24, the upper margin of the screen being inserted in said slots back of the fingers 26 which latter thus hold the screen tightly in place against the sash cross-bar.

This type of screen is thus readily adjustable in its length to window openings of varying widths, so only one size of screen need be carried in stock.

The stiles 14 are preferably flattened, as more leverage is thereby obtained in the winding of the screen thereon to adjust or vary the length of the latter; and also when inserted in a grooved holder 3 or 23 the flat stiles cannot rotate while under tension, within the groove narrower than the stile's width.

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

1. In combination, a flexible screen, flat stiles connected to the ends thereof, and grooved holding devices whose grooves are narrower than the widths of said stiles adapted to be removably mounted on the jambs of a window-casing to releasably receive and retain under longitudinal tension the stiles interlockingly and non-rotatably and said screen.

2. In combination, a flexible screen having tubular ends, stiles removably mounted in said tubular ends, grooved plates removably mounted on supporting-means to receive said tubular ends and stiles interlockingly and non-rotatably, and resilient pressure fingers mounted pivotally on one of said plates to engage and tension said screen adjacent the plate.

3. In combination, a flexible screen having tubular ends, stiles removably mounted in said tubular ends, the screen being windable at its ends around said incased stiles to shorten its length adjustingly, and means mounted removably on opposite window jambs to releasably and interlockingly receive and hold said incased stiles non-rotatably with the screen wound thereon under lengthwise tension.

4. In combination, a flexible screen having at the bottom a tubular margin and having tubular ends, flattened stiles removably incased in said tubular ends, an elongated weight removably incased in said bottom tubular margin, and means removably mounted on opposite jambs of a window-casing or the like to receive said incased stiles interlockingly and non-rotatably to hold the screen flatwise abutting a window sash mounted movably in said casing.

5. In combination, a flexible screen, means for releasably connecting the ends of the screen to opposite jambs of a window-casing to tension and hold the screen abutting the lower sash in said casing, said sash having a medial lifting hook thereon, and a clip-plate detachably inserted under and engaging said hook and having clefts producing spring-fingers thereon which releasably clamp parts of the margin of the screen at each side of said hook to hold the screen at that place flatwise against the sash.

6. In combination, a flexible screen, flattened stiles upon which the opposite ends of the screen are mounted, securing-plates

adapted to be fastened upon opposite window-jambs, said plates being bent lengthwise to provide grooved stile-seats of which the grooves are narrower than the widths of the stiles, whereby the stiles may be seated in the grooves interlockingly and non-rotatably, in fulcruming the stiles upon the marginal edges of the grooved parts while seating them to thus place the screen under longitudinal tension when the stiles are seated in the grooves. 10

Signed at Waterloo, Iowa, this 7th day of July, 1923.

CASPER HUGO GRINGS.