Sept. 29, 1925. 1,555,645

H. R. ELLIS

SECTIONAL WINDOW SCREEN

Filed Jan. 18, 1924

Fig. 1.

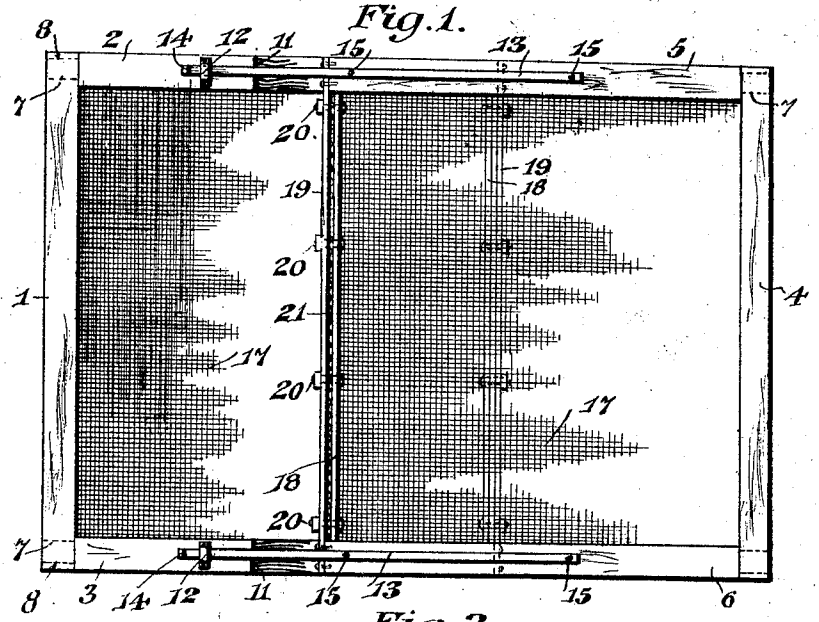


Fig. 2.

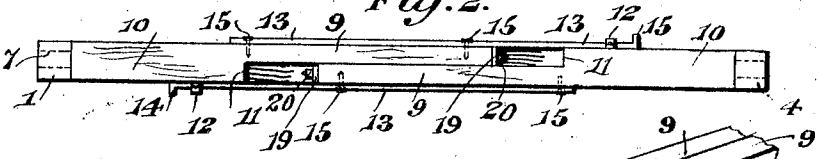
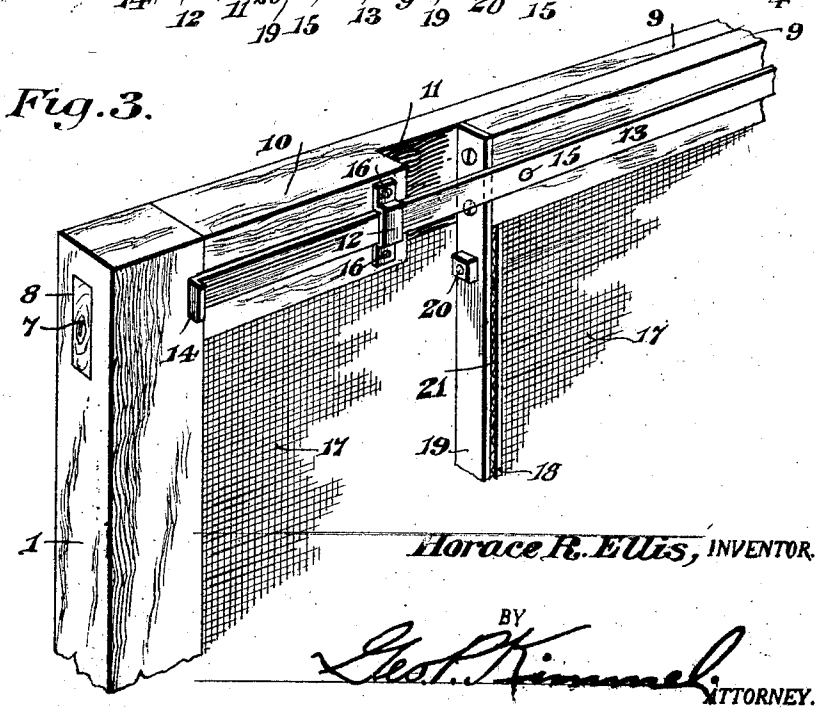


Fig. 3.



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UNITED STATES PATENT OFFICE.

HORACE R. ELLIS, OF MEADVILLE, PENNSYLVANIA.

SECTIONAL WINDOW SCREEN.

Application filed January 18, 1924. Serial No. 687,046.

To all whom it may concern:

Be it known that I, HORACE R. ELLIS, a citizen of the United States, residing at Meadville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Sectional Window Screens, of which the following is a specification.

This invention relates to a sectional window screen, and has for its object to provide, in a manner as hereinafter set forth, a window screen formed of a pair of overlapping slidably connected frame sections capable of being extended relatively to each other to adjust the screen to fit window openings of varying widths and having the top and bottom rails of said sections of the same width throughout, and with the top rails as well as the bottom rails of said sections flush throughout to provide for a snug fit throughout between the screen and the rail of a window sash, and between the screen and a window sill, when the screen is mounted in position.

A further object of the invention is to provide, in a manner as hereinafter set forth, a sectional window screen including a pair of frame sections formed with top and bottom rails and with the inner and outer faces of said rails provided with means for slidably connecting said sections together, and further for permanently maintaining the top rails, as well as the bottom rails, flush with each other.

A further object of the invention is to provide, in a manner as hereinafter set forth, a sectional window screen including a pair of frame sections each provided with a top and bottom rail and with each of said rails formed with a reduced outer portion of substantial length, and a thickened inner portion of less length than the outer portion, whereby a shoulder is provided at the point of joinder of the reduced portion with the thickened portion. The reduced portions and shoulders of the top and bottom rails of one section are oppositely disposed with respect to the reduced portions and shoulders of the top and bottom rails of the other section and with the inner faces of the reduced portions of the top and bottom rails of one section riding against the inner faces of the reduced portions of the top and bottom rails of the other section, and further with the rails of one section of the same width as the rails of the other section to provide for the rails of one section to be permanently flush with the rails of the other section, and further providing the outer faces of said rails with means for slidably connecting the sections together and or maintaining the top rails, as well as the bottom rails, of the sections permanently flush throughout.

Further objects of the invention are to provide a sectional window screen, in a manner as hereinafter set forth, which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient and convenient in its use, readily installed in position, and inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is an elevation of a sectional screen in accordance with this invention, partly extended.

Figure 2 is a top plan view.

Figure 3 is a detailed perspective.

Referring to the drawings in detail, a sectional window screen in accordance with this invention comprises a pair of frame sections and one of said sections includes a side rail 1, a top rail 2 and a bottom rail 3. The other frame section includes a side rail 4, a top rail 5 and a bottom rail 6. The side rail 1, as well as the side rail 4, is of substantial length, thickness and width and near the upper and lower ends thereof is formed with a mortise 7, in which is secured a tenon 8. The top rails 2 and 5 and bottom rails 3 and 6, each is provided at one end with a tenon 8, whereby the top and bottom rails 2 and 3 are secured to the side rail 1, and the top and bottom rails 5 and 6 are secured to the side rail 4.

The top rail 2, as well as the top rail 5, and the bottom rail 3, as well as the bottom rail 6, is formed with a reduced outer portion 9 of substantial length and a thickened inner portion 10 of less length than the outer portion 9. The thickened inner portion 10 abuts against the inner face of a side rail and the tenon 8 projects from said thickened

portion 10 into the mortise 7. The setting up of the top rails 2 and 5, as well as the bottom rails 3 and 6, with a reduced outer portion and a thickened inner portion, provides a transversely extending shoulder 11 at the point of joinder between said inner and outer portions of each of said rails.

The shoulders 11 of the rails 2 and 3, are arranged on the inner sides thereof, and the shoulders 11 of the rails 5 and 6 are arranged on the outer sides thereof whereby the reduced portions 9 of the rails 2 and 3 are oppositely disposed with respect to the reduced portions 9 of the rails 5 and 6.

The top rail 2 is of the same width as the top rail 5, and the bottom rail 3 is of the same width as the bottom rail 6, and the inner faces of each of the reduced portions 9 are uninterrupted throughout.

When the frame sections are set up, the inner faces of the reduced portions of the rails 5 and 6 ride against the inner faces of the reduced portions 9 of the rails 2 and 3. The reduced portions 9 of the rails 2 and 3 are of the same length as the reduced portions 9 of the rails 5 and 6, and the thickened portions 10 of the rails 2 and 3 are of the same length, width and thickness as the thickened portions 10 of the rails 5 and 6. The thickness of the reduced portions 9 of the rails 2 and 3 is the same as the thickness of the reduced portions 9 of the rails 5 and 6.

When the frame sections are set up, the free termini of the reduced portions 9 of the rails 2 and 3 oppose the shoulders of the rails 5 and 6, and the free temini of the reduced portions 9 of the rails 5 and 6 oppose the shoulders of the rails 2 and 3. The reduced portions 9 of the rails 2 and 3 ride against the reduced portions 9 of the rails 5 and 6, when the sections are shifted relatively to each other to adjust the size of the screen. The top and bottom edges of the rail 2 are flush with the top and bottom edges of the rail 5, and the top and bottom edges of the rail 3 are flush with the top and bottom edges of the rail 6.

The frame sections are slidably connected together for the purpose of maintaining the top rails permanently flush and also for the purpose of maintaining the bottom rails permanently flush. The means which slidably connects the frame sections together are arranged at the outer and inner faces of the top rails 2 and 5, and at the outer and inner faces of the bottom rails 3 and 6, and said means consists of four coupling devices and each of said coupling devices comprises a keeper 12, a coupling bar 13 slidably extending through a keeper 12 and having one end provided with a right angular extension 14 to constitute a stop. A keeper 12 is secured to the inner face of the thickened inner portion of the top rail 2, and a keeper 12 is secured to the inner face of the thickened inner portion of the bottom rail 3. A keeper 12 is secured to the outer face of the thickened inner portion of the top rail 5, and a keeper 12 is secured to the outer face of the thickened inner portion of the bottom rail 6.

Each coupling bar 13 is of substantial length and one of said bars is secured to the outer face of the reduced portion 9 of the top rail 2 and extends upon the reduced inner portion of the top rail 5. A coupling bar is secured to the outer face of the reduced outer part of the bottom rail 3 and extends upon the thickened inner part of the bottom rail 6. A coupling bar is secured to the inner face of the outer reduced portion of the top rail 5 and projects upon the thickened inner portion of the top rail 2, and a coupling bar is secured to the inner face of the outer reduced portion of the bottom rail 6 and projects upon the thickened inner portion of the bottom rail 3.

The keepers 12 maintain the coupling bars 13 against the thickened inner portions of the top and bottom rails of the screen section. The coupling bars are fixedly secured in position by the hold-fast devices 15. The keepers 12 are fixedly secured in position by the hold-fast devices 16, and said keepers 12 are positioned in proximity to the shoulders 11.

The angle-shaped projections 14, when the frame sections are extended relative to each other, abut against the keepers 12 and limit the movement of the frame sections relative to each other and further constitute means to prevent the separation of the sections from each other.

Each of the frame sections has secured to the rails thereof a foraminous sheet 17, such as wire mesh, and which extends from the side rail to the free terminus of a top and bottom rail of a section. The outer end of the sheet 17 is extended between a pair of flat bars 18, 19. The bar 18 is arranged between the top and bottom rails of a frame section, and the bar 19 is secured against the free termini of the top and bottom rails of a frame section. The bar 18 is secured to the bar 19 by the hold-fast devices 20 and when said bars 18 and 19 are connected together by the hold-fast devices 20, the terminal portion 21 of the foraminous sheet 17 is clamped in position. The bars 19 are secured by hold-fast devices to the frame sections and are so arranged that each bar 19 will be positioned against and flush with the free ends of the reduced portions 9 of a frame section. Each bar 18 is positioned between the reduced portions 9 of a frame section as well as abutting against said reduced portions 9. The inner edges of the bars 18 and 19 of one frame section ride against the foraminous sheet 17 of the other frame section and constitute a closure

for the ends of the frame section to prevent the passage of insects between the foraminous sheets of the sections and furthermore said bars constitute bracing or reinforcing means for the inner end of each of the frame sections.

The coupling bars 13 and keepers 12 are arranged with respect to the top and bottom rails of the frame sections so that the top and bottom edges of the top rails, as well as the top and bottom edges of the bottom rails will be permanently flush when the frame sections are closed or when extended. The said coupling bars, in connection with the keepers, provide what may be termed guides for the frame sections when they are shifted relatively to each other.

By setting up the top and bottom rails of the frame sections in the manner as shown and described, and providing said rails with connecting devices, it overcomes the necessity of dovetailing said rails and further maintains the rails flush so that a snug fit is had between the frames and a window sash and sill, whereby passages or openings will not be formed to allow the entrance of insects between the screen and the window sash and sill.

It is thought that the many advantages of a window screen constructed in the manner as hereinbefore described and illustrated, can be readily understood, and although the preferred embodiment of the invention is as shown and described, yet it is to be understood that changes in the details of construction can be had which fall within the light of the invention as claimed.

What I claim is:—

1. A window screen comprising a pair of frame sections including spaced top and bottom rails, the rails of each section being reduced for a portion of their length, the reduced portions of the rails of one section opposing the reduced portions of the rails of the other section, a vertically disposed flat bar secured flat-wise against the inner end edges and flush with the reduced portions of the rails of each section for connecting said rails together, a rectangular foraminous panel secured in each section and having the inner terminal portion thereof bent at right angles to oppose the inner side of said bar, a vertically disposed short bar arranged between and having its ends abutting against the reduced portions of the rails of each section, said short bar opposing the said side and abutting against the angular portion of said panel whereby said angular portion will be positioned between said bars, and means for securing the angular portion of a panel to the bars between which it is arranged and further for securing said bars together.

2. A window screen comprising a pair of framed sections each including a top and a bottom rail having a reduced portion, the reduced portions of the top and bottom rails of one section oppositely disposed with respect to and having the inner faces thereof sliding against the inner faces of the reduced portions of the top and bottom rails of the other section, the inner face of each of said reduced portions being uninterrupted and plane from end to end, outer keepers secured to the outer sides of the top and bottom rails of one section and spaced from the reduced portions thereof, inner keepers secured to the inner sides of the top and bottom rails of the other section and spaced from the reduced portions thereof, flat coupling bars fixedly secured to the inner sides of the reduced portions of the rails of one section and slidably connected to said inner keepers, flat coupling bars fixedly secured to the outer sides of the reduced portions of the top and bottom rails of the other section and slidably connected to said outer keepers, and each of said coupling bars having its free end provided with a right-angular extension co-operating with a keeper to provide a stop to prevent the separation of the frame sections.

In testimony whereof, I affix my signature hereto.

HORACE R. ELLIS.