No. 794,001. PATENTED JULY 4, 1905.

S. H. GARRETT.

WINDOW SCREEN.

APPLICATION FILED JAN. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

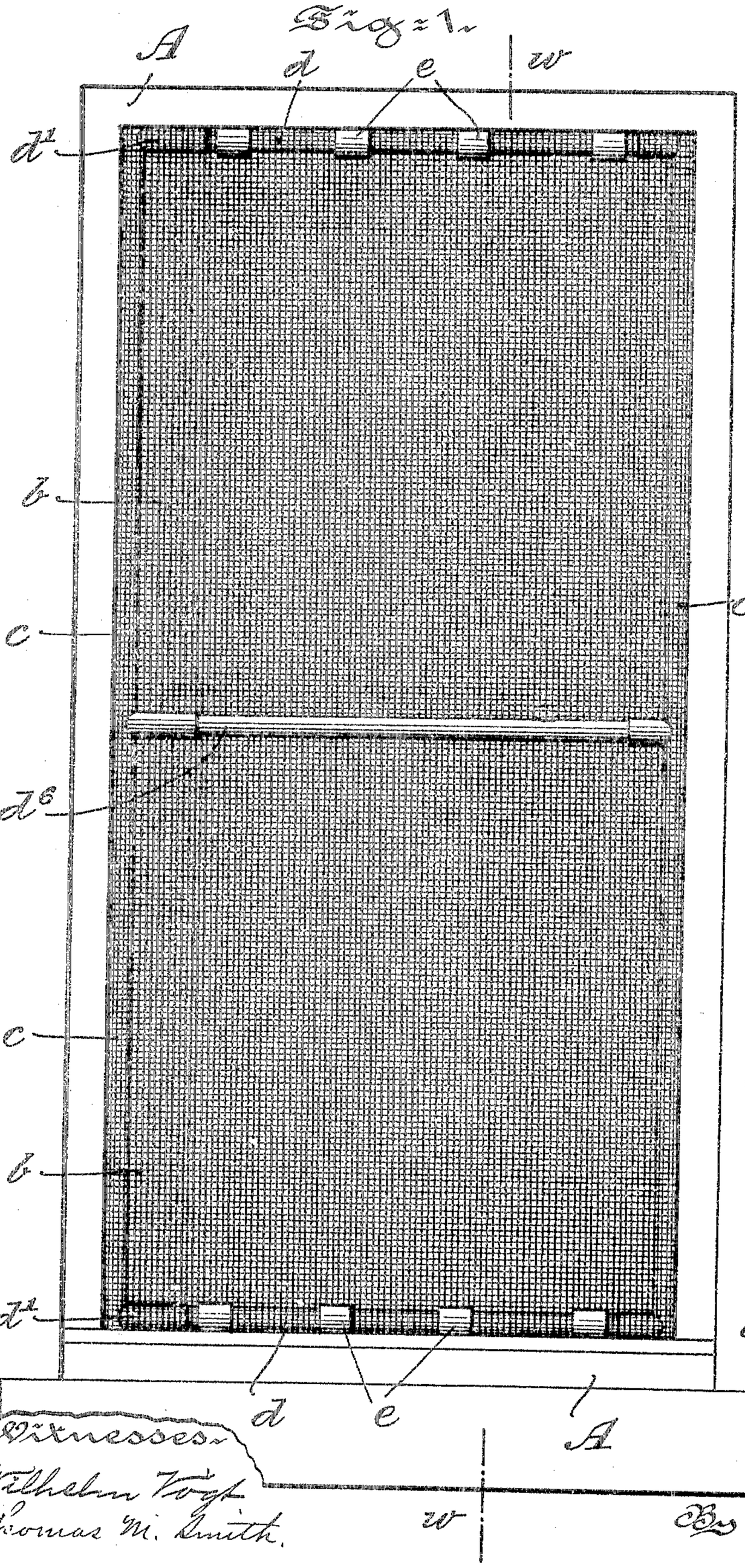
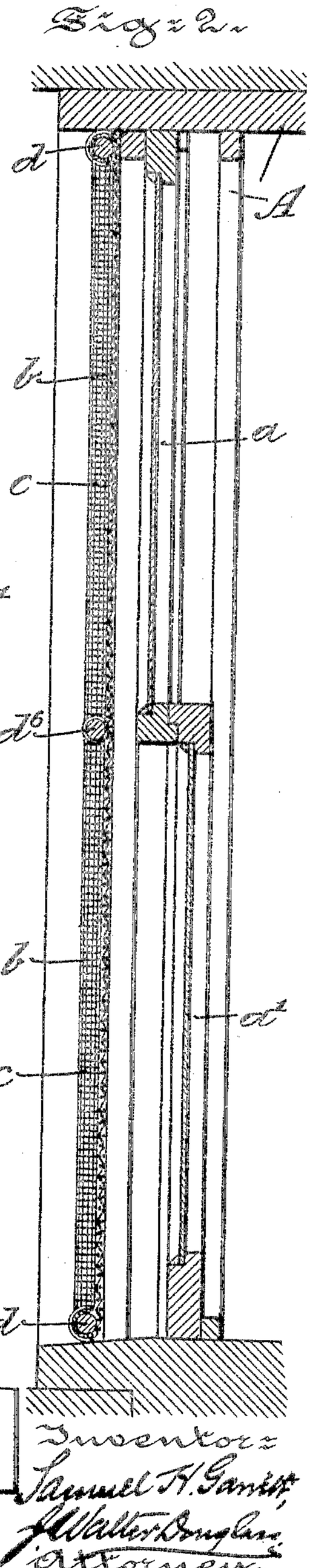


Fig. 2.



Witnesses:
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2 SHEETS—SHEET 2.

Fig. 3.

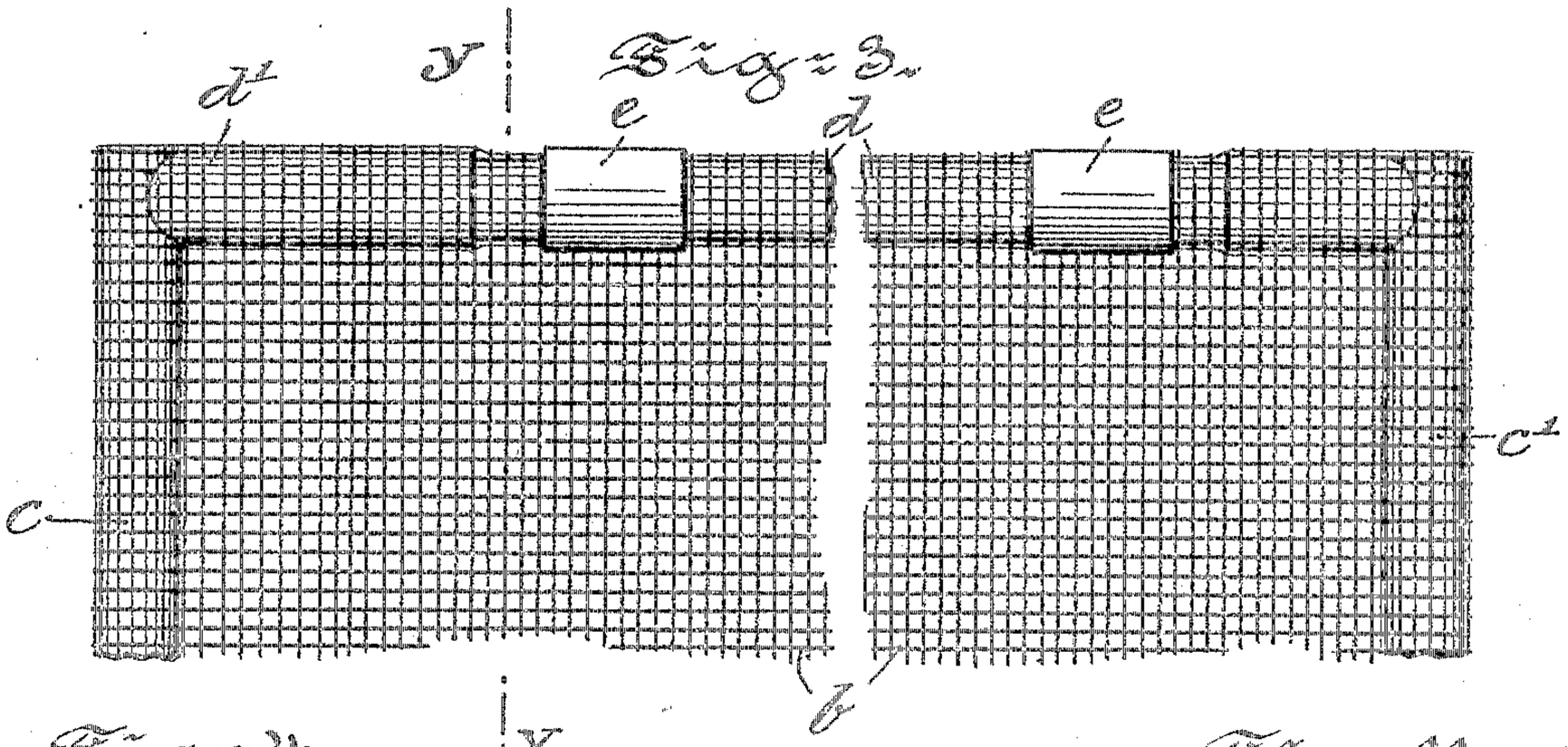

Fig. 4.

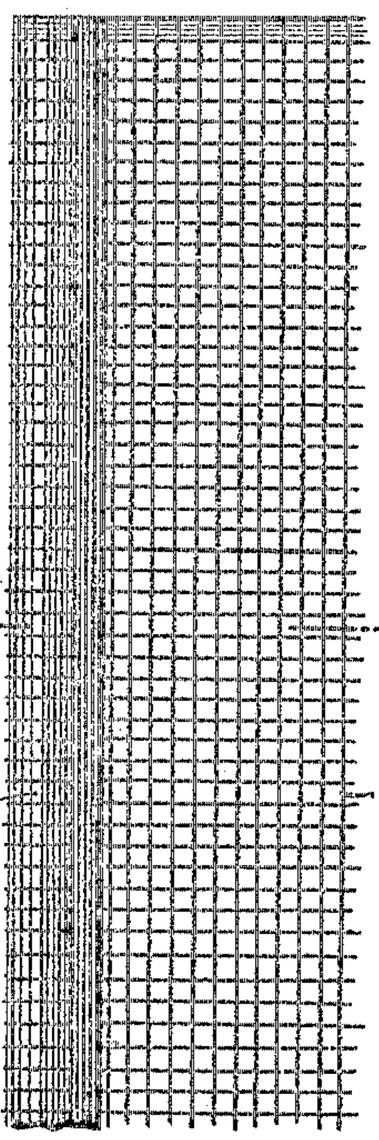

Fig. 6.

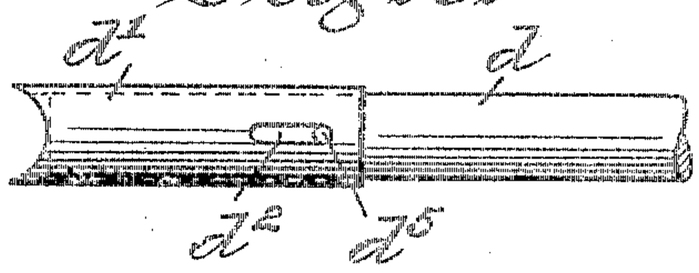

Fig. 7.

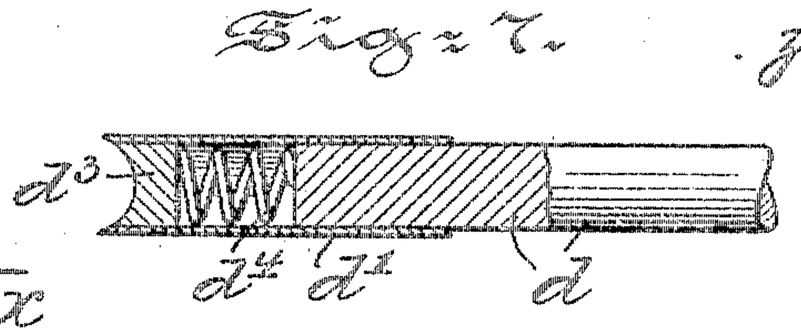

Fig. 8

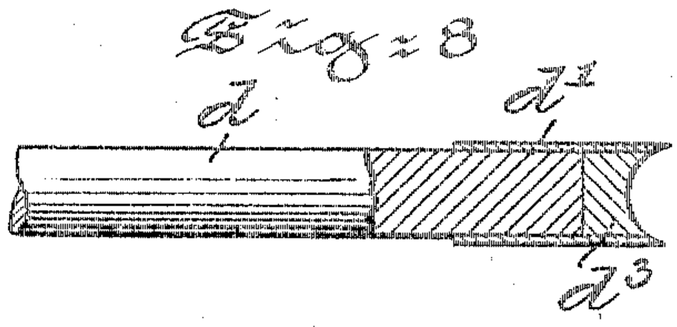

Fig. 11.

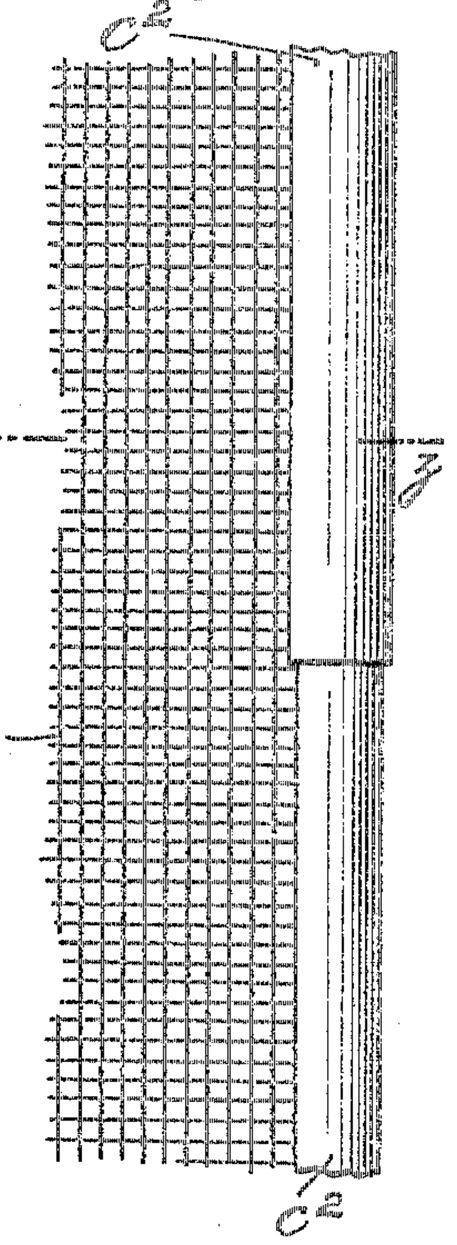

Fig. 5.

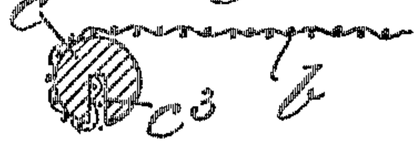

Fig. 9

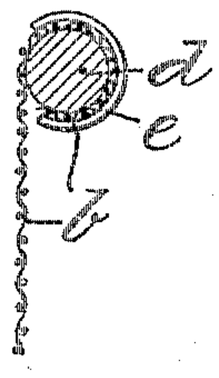

Fig. 10.

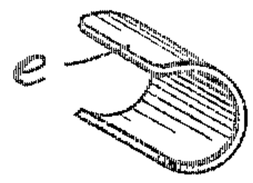

Fig. 12.

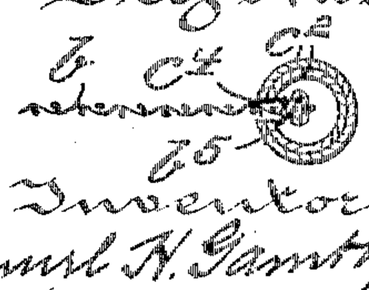

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PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 794,001. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

SAMUEL H. GARRETT, OF PHILADELPHIA, PENNSYLVANIA.

WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 794,001, dated July 4, 1905.

Application filed January 18, 1905. Serial No. 241,650.

To all whom it may concern:

Be it known that I, SAMUEL H. GARRETT, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Window-Screens, of which the following is a specification.

My invention has relation to window-screens; and in such connection it relates to the particular construction and arrangement thereof.

The principal objects of my invention are, first, to provide a foldable screen adapted to be fitted to the framework of any window and the parts of the screen adapted to be readily taken apart by reason of the disconnected arrangement of the parts constituting the screen; second, to provide a foldable window-screen of comparatively simple construction and arrangement adapted to be readily assembled for application to and use in connection with the window-framework; third, to provide a foldable window-screen adapted for application to the window-framework without employing fastening devices to secure the same to position in connection with the framework; fourth, to provide a window-screen whereof the accessories thereof are adapted to not only hold taut the screen fabric in position, but also to readily take up slack therein as necessary; fifth, to provide telescoping supporting-rods for holding the screen fabric in connection therewith on the interior thereof and cross-bars having detachable ends adapted to be fitted to the supporting-rods carrying the screen fabric, and, sixth, to provide cross-bars whereon the screen fabric is wound, with removable spanning-clamps for holding the fabric in position thereon and taut in the window-framework.

My invention, stated in general terms, consists of a window-screen arranged so as to be adapted for use in window-framework, substantially in the manner hereinafter described and claimed.

The nature and characteristic features of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a front elevational view of a window-screen in operative position within a window-frame embodying main features of my invention. Fig. 2 is a vertical sectional view on the line *w w* of Fig. 1. Fig. 3 is a face or front elevational view, enlarged, of the upper portion of the window-screen removed from the window-frame with the netting applied thereto. Fig. 4 is a detail view illustrating in front elevation a portion of a supporting-rod and also showing the manner of applying the netting thereto. Fig. 5 is a transverse sectional view on the line *x x* of Fig. 4. Fig. 6 is a detail view, enlarged, illustrating in front elevation a portion of a cross-bar and one form of a removable end slotted and with a pin engaging the bar to limit the range of back-and-forth movement of said end on the bar. Fig. 7 is a detail view, enlarged, illustrating in central section and in elevation another form of a movable end for the cross-bar. Fig. 8 is a similar view of still another form of removable end for the cross-bar adapted to be slid onto the same. Fig. 9 is a cross-sectional view on the line *y y* of Fig. 3, showing the manner of clamping the netting to the cross-bar to maintain the same taut in operative position in the window-framework. Fig. 10 is a perspective view of a form of clamp for the cross-bar for holding the wrapped netting in position on said bar. Fig. 11 is a detail view, enlarged, illustrating in front elevation a modified or telescoping supporting-rod for the netting secured to the said rod from the interior to prevent the disengagement of the netting therefrom in the operative position of the screen in the window-framework; and Fig. 12 is a cross-sectional view on the line *z z* of Fig. 11.

Referring to the drawings, A is the window-framework, provided, as illustrated, with double sash *a* and *a'*.

b is a screen fabric of cotton, linen, or other tough pliable material.

c and *c'* are two vertical supporting solid

rods adapted to fit snugly against the upper and lower sides of the window-framework, as clearly illustrated in Fig. 1.

d represents two cross-bars of wood, metal, or other suitable material adapted to engage the supporting-rods *c* and *c'* at their upper and lower ends and to hold the same in engagement with the sides of the framework A, as shown in Fig. 1. The cross-bars *d* are provided with preferably movable ends, as illustrated in Fig. 6, consisting of metal tubing or sleeves *d'*, slotted at *d²* and held on the bars *d* by pins *d³*, tending to limit the extent of back-and-forth movement of the respective sleeves on the bars *d*. The free end of the metal tubing *d'* is recessed in a semicircular form, so as to partially surround the vertical supporting-rods *c* and *c'* when in engagement therewith, as clearly illustrated in Figs. 1 and 3. When the cross-bars *d* engage the supporting-rods *c* and *c'* to hold the same in engagement with the sides of the window-frame A, the sleeves *d'* are moved forward, so as to bring their recessed ends into engagement with the rods *c* and *c'*. The sleeves *d'* by partially surrounding the rods *c* and *c'* will prevent the sidewise disengagement of the bars *d* from the rods *c* and *c'*. The movable sleeve *d'* of the cross-bar *d* may, however, be provided with a recessed block *d⁵* and with a helical spring *d⁴*, bearing against the same and the bar *d* and tending to force the sleeve *d'* outward, as shown in Fig. 7, or the spring *d⁴* may be omitted, as illustrated in Fig. 8. However, the bars *d* may be solid bars with simply recessed ends, if preferred; but in this instance the bars must be of the proper length to produce the necessary friction between the ends of the bars and the rods *c* and *c'* in the engagement of the former with the latter in the screen. When spring-controlled ends for the bars *d* are employed, the same will compensate to a certain extent for any difference in length of the bars for their engagement with the rods *c* and *c'*.

The preferred manner of securing the netting or screen fabric *b* to the supporting-rods *c* and *c'* and the cross-bars *d* is as folows: The netting *b* is first cut so as to be slightly wider and longer than the interior open space of the window-framework A. At the upper and lower corners the netting is again cut to a length corresponding to the length of the rods *c* and *c'*, leaving projecting ends which are of the same width as the window-sash *a* and *a'*. Each end of the longer sides of the netting *b* is then inserted in a groove *c³*, when solid bars or rods *c* and *c'* are used, after which the netting is wound around the same until the remaining free portion of the netting *b* is of the same width as the window-sash *a* and *a'*. The supporting-rods *c* and *c'*, with the netting thereon, which does not project beyond the same, are now inserted into the window-frame A and brought into engagement with the sides thereof. A cross-rod *d⁶* of the same construction as the cross-bars *d* is now brought into engagement with the supporting-rods *c* and *c'* and serves to hold the same firmly in engagement with the sides of the window-frame A. Any slack in the netting *b* may now be taken up by turning one or the other of the supporting-rods against the friction of the recessed ends or sleeves *d'* of the cross-rod *d⁶*. The cross-bars *d* are now brought into engagement with the ends of the supporting-rods *c* and *c'* and the ends of the netting *b* wound thereon. As soon as the netting becomes taut on the bars *d* the netting is clamped thereon by clamps *e*, fitting more than half around the bars *d*. The friction between the recessed ends of the cross-bars *d* and the supporting-rods *c* and *c'* is sufficient to hold the bars *d* firmly in proper position in engagement with the upper and lower sides of the framework A. When cross-bars such as shown in Fig. 6 are employed, the movable sleeves *d'* are slid into engagement with the supporting-bars *c* and *c'* after the bars *d* have been forced between the same. In order to insert the cross-bars *d* (shown in Figs. 7 and 8) between the rods *c* and *c'*, one end thereof is first brought into engagement with one of the supporting-rods, after which the other end by moving the same along the screen fabric *b* is brought into engagement with the remaining supporting-rod and is then slid in its proper position thereon. When hollow telescoping supporting-rods *c²* are used—for instance, such as shown in Fig. 11—the screen fabric *b* is preferably provided with a bead or bearing *b⁵*, consisting of a cord suitably fastened or interwoven with the meshes of the fabric, so as to prevent the withdrawal of the fabric *b* when inserted into the hollow rods *c²* through the slot *c⁴* thereof, as shown in Fig. 12. The slack in the netting *b* may also be taken up in this instance by winding the same upon one or both of the rods *c²*.

Among the advantageous features of my invention may be mentioned that the screen fabric, with the movable supports therefor, can when not in use be closely packed side by side for shipping or for laying aside for subsequent use; that the arrangement of the screen is such that disfiguring of the window-framework in applying for use is avoided; that the screen fabric can be brought quickly into and maintained in a taut condition without undue effort put forth, and, finally, the screen in its entirety can be readily taken apart for removing partially or wholly from the window-framework, owing to the com-

parative simplicity of arrangement of the supporting means therefor and of the cross-bars and accessories thereof.

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

1. The combination with a window-frame, of a window-screen, consisting of two vertical rods and two cross-bars adapted to abut respectively against the inner vertical and upper and lower sides of the window-frame, said cross-bars having recessed ends adapted to frictionally engage and to partially surround said rods to hold the same in engagement with said window-frame and to be held by the rods in their proper position, in respect to said frame, and a screen fabric adapted to be engaged by said rods and bars and to be held by the same in position within said window-frame.

2. The combination with a window-frame, of a window-screen, consisting of two vertical rods and two cross-bars adapted to abut respectively against the inner vertical and upper and lower sides of said window-frame, said cross-bars having movable recessed sleeves adapted to frictionally engage and to partially surround said rods to hold the same in engagement with said frame and to be held by the rods in their proper position in respect to said frame, a screen fabric adapted to be wound upon said rods and bars and to be held by the same in a taut condition within said frame, and means adapted to engage said bars so as to clamp the screen fabric thereto.

3. The combination with a window-frame, of a window-screen, consisting of two vertical rods and two cross-bars adapted to abut respectively against the inner vertical and upper and lower sides of said window-frame, said cross-bars having spring-controlled recessed sleeves adapted to frictionally engage and to partially surround said rods to hold the same in engagement with said window-frame and to be held by the rods in their proper position in respect to said frame, a screen fabric adapted to be wound upon said rods and bars and to be held by the same in position within said frame, and clamps adapted to removably engage said bars so as to clamp the screen fabric thereto.

4. The combination with a window-frame, of a window-screen, consisting of two vertical rods and two cross-bars adapted to abut respectively against the inner vertical and the upper and lower sides of said frame, a cross-rod adapted to engage the vertical rods intermediate of the cross-bars, said cross-bars and cross-rod having recessed ends adapted to frictionally engage and to partially surround the rods to hold the same in engagement with the sides of said frame, and a screen fabric adapted to be engaged by said rods and bars and in conjunction with the cross-rod to be held by the same in position within said frame.

5. The combination with a window-frame, of a window-screen, consisting of two vertical rods and two cross-bars adapted to abut respectively against the inner vertical and the upper and lower sides of said window-frame, a cross-rod adapted to engage the vertical rods intermediate of the cross-bars, said cross-bars and cross-rod having movable recessed sleeves adapted to frictionally engage and to partially surround the rods to hold the same in engagement with the sides of said frame, and a screen fabric adapted to be engaged by said rods and bars and in conjunction with the cross-rod to be held by the same in position within said frame.

6. The combination with a window-frame, of a window-screen, consisting of two vertical rods and two cross-bars adapted to abut respectively against the inner vertical and the upper and lower sides of said window-frame, a cross-rod adapted to engage the vertical rods intermediate of the cross-bars, said cross-bars and cross-rod having movable recessed sleeves adapted to frictionally engage and to partially surround said rods to hold the same in engagement with the sides of said frame, and a screen fabric adapted to be engaged by said rods and bars and in conjunction with the cross-rod to be held by the same in position within said frame, and clamps adapted to clamp the screen fabric to said bars.

7. The combination with a window-frame, of a window-screen, consisting of two grooved vertical rods and two cross-bars adapted to abut respectively against the inner vertical and the upper and lower sides of said window-frame, said cross-bars having recessed ends adapted to frictionally engage said rods to hold the same in engagement with the sides of said frame and to be held by the rods in their proper position in respect to said frame, a screen fabric adapted to engage the grooves in said rods and to be wound thereon and onto said bars, and means adapted to clamp the fabric wound on said bars thereto.

8. The combination with a window-frame, of a window-screen, consisting of two grooved vertical rods and two cross-bars adapted to abut respectively against the inner vertical and the upper and lower sides of said window-frame, said cross-bars having recessed ends adapted to frictionally engage said rods to hold the same in engagement with the sides of said frame and to be held by the rods in their proper position in respect to said frame, a screen fabric adapted to be held in position within said frame by engaging the grooves in said rods and to be wound thereon and onto

said bars, and clamps adapted to removably engage said bars to hold the fabric in engagement therewith and to permit of a tightening of the fabric upon said bars when occupying an operative position and upon the rods by the turning of the same against the friction of said bars.

9. The combination with a window-frame, of a window-screen, consisting of two grooved vertical rods and two cross-bars adapted to abut respectively against the inner vertical and the upper and lower horizontal sides of said frame, a cross-rod interposed between the cross-bars, said cross-bars and cross-rod having recessed ends adapted to frictionally engage and to partially surround said vertical rods to hold the same in engagement with the sides of said frame, and to be held by the rods in their proper position in respect to said frame, and a screen fabric adapted to engage the grooves in said rods and to be wound thereon and onto said bars, and clamps adapted to removably engage the fabric wound upon the said bars.

10. The combination with a window-frame, of a window-screen, consisting of two telescoping vertical rods and two solid cross-bars adapted to abut respectively against the inner vertical and the upper and lower horizontal sides of said frame, a cross-rod engaging the rods intermediate of said bars, said cross-bars and cross-rod having recessed ends to frictionally engage and to partially surround said rods to hold the same in engagement with the sides of said frame and to be held by said rods in their proper position in respect to said frame, and a screen fabric adapted to be engaged by said rods and bars and to be held in position by the same within said frame and clamps adapted to removably engage the fabric wound upon said bars.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

SAMUEL H. GARRETT.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.