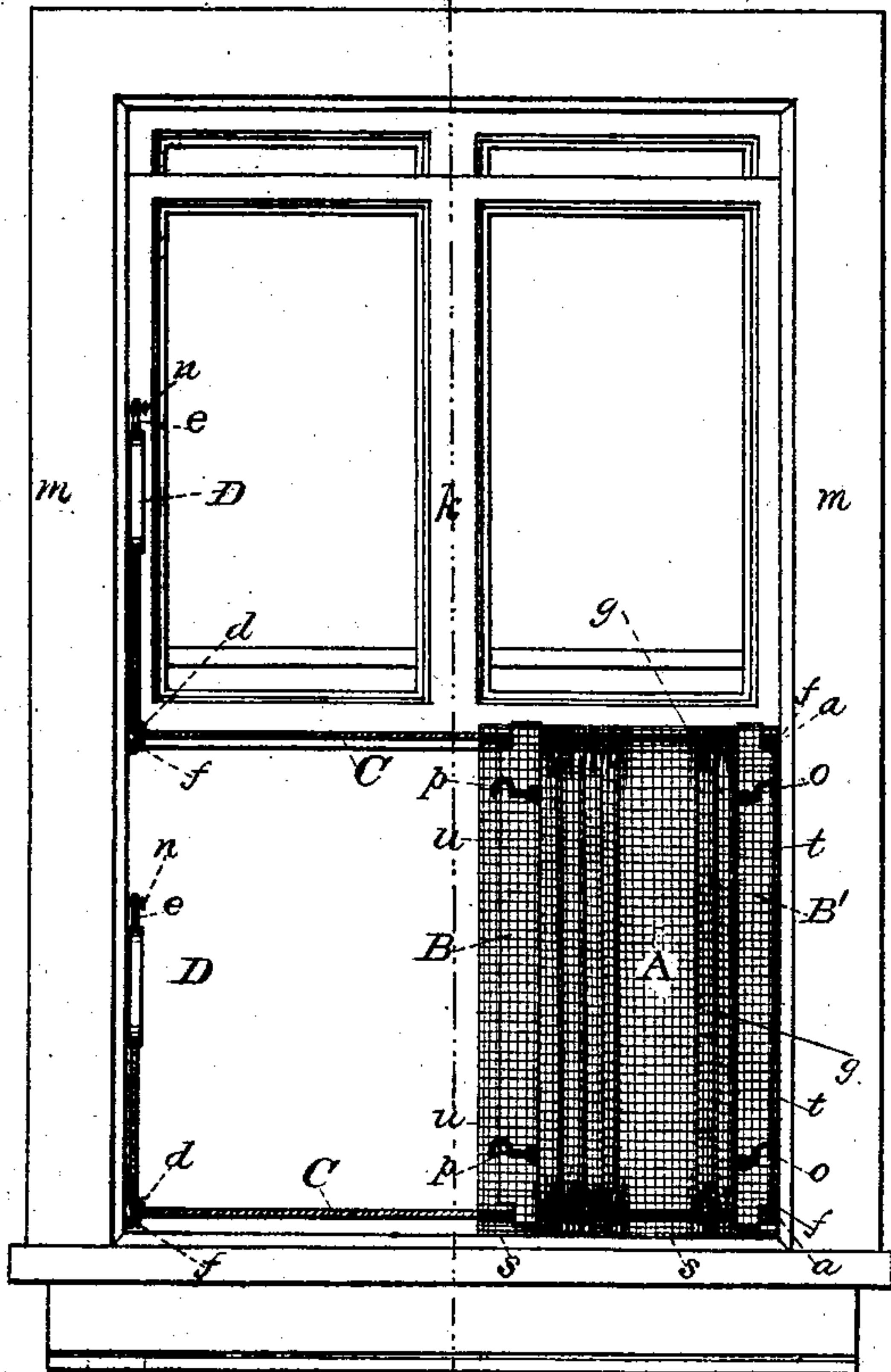


**C. M. HIGGINS.**  
**Window-Screens.**

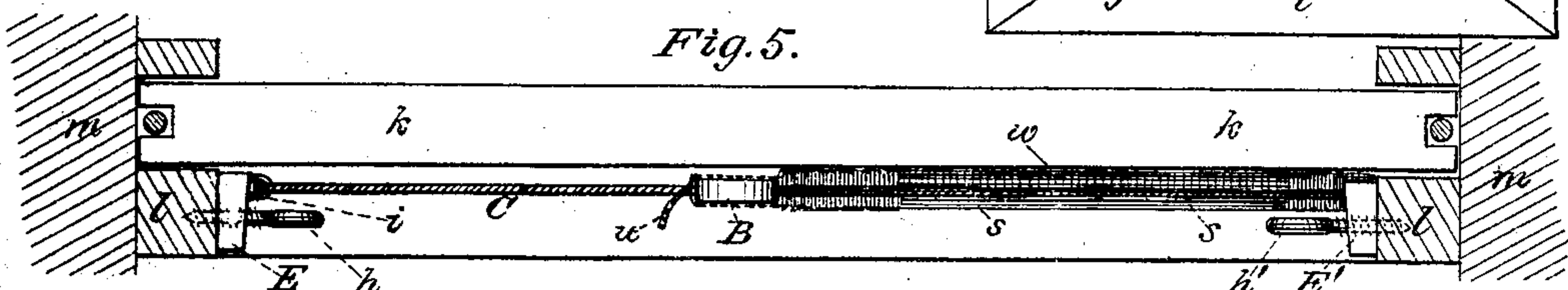
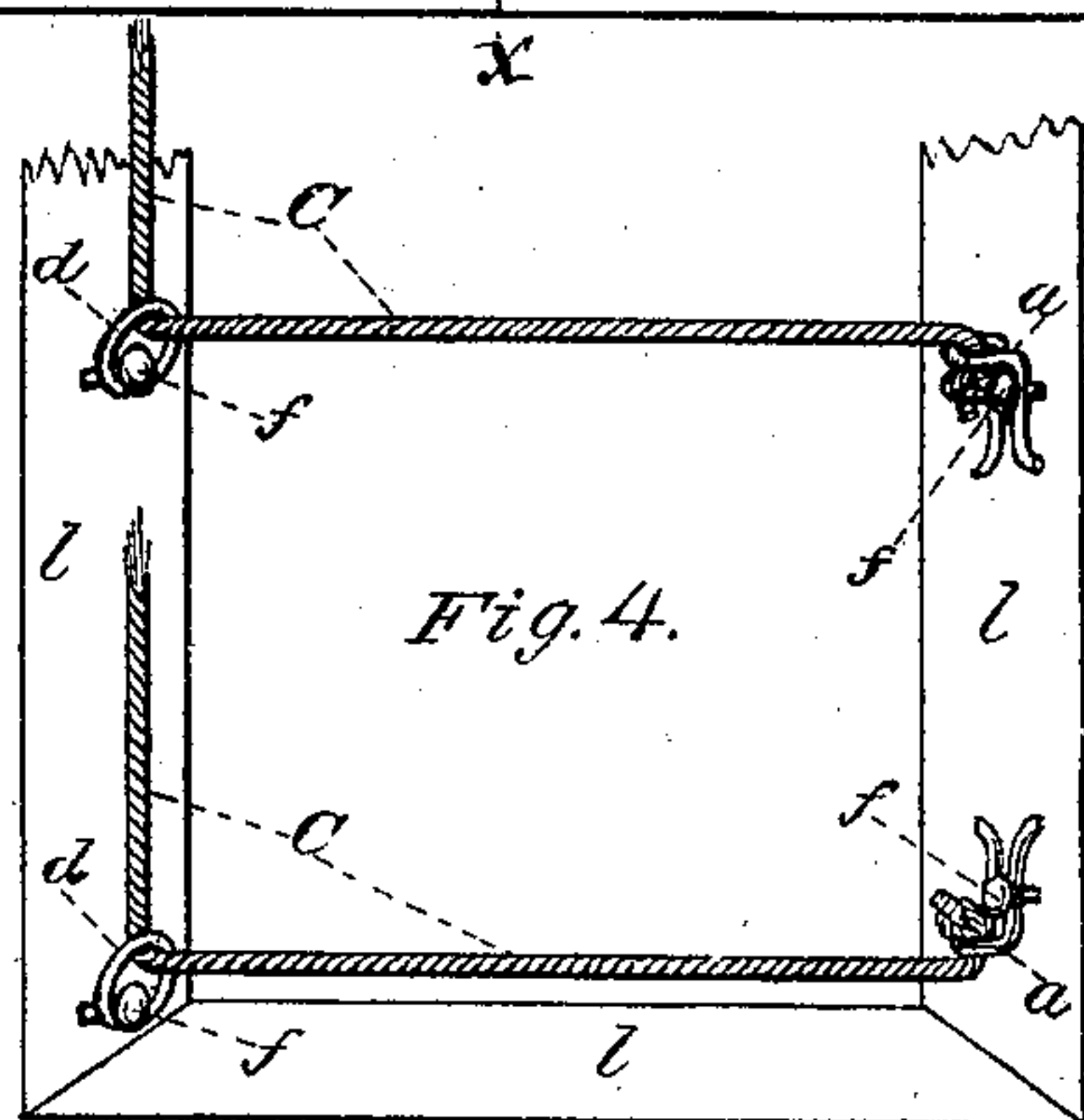
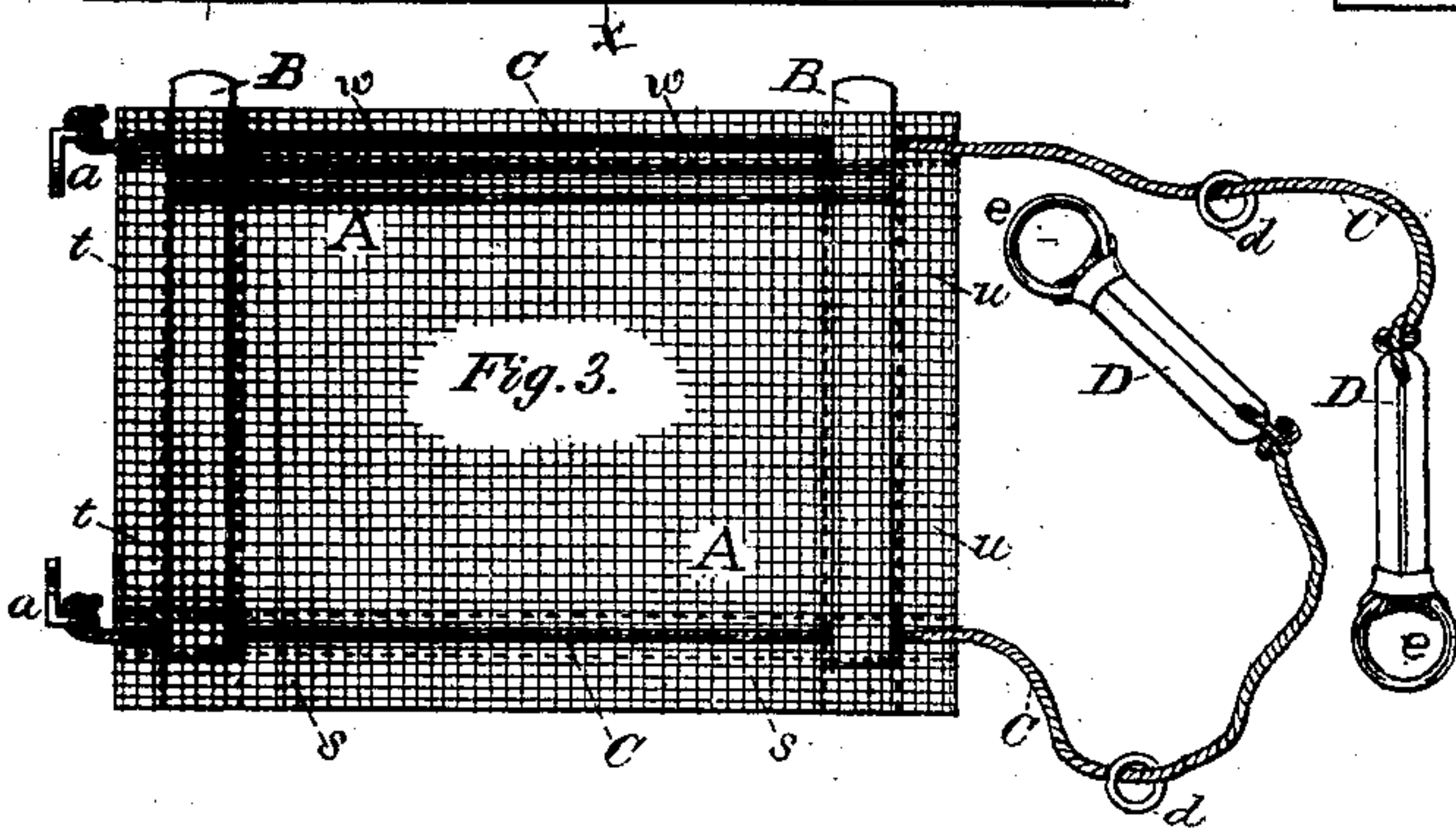
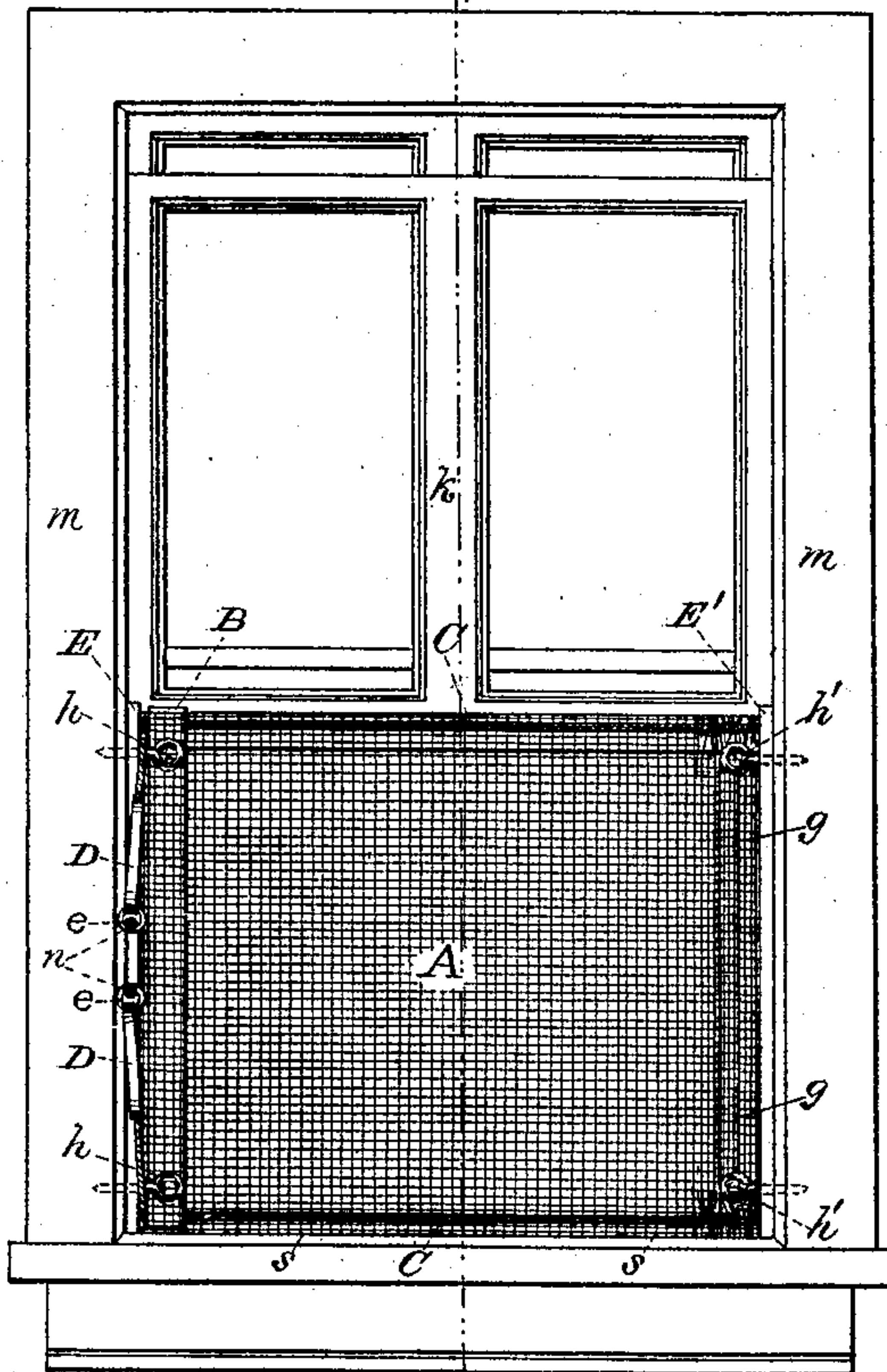
No. 149,126.

Patented March 31, 1874.

*Fig. 1.*



*Fig. 2.*



Witnesses:

Arthur C. Fraser.  
J. Fraser

Inventor:

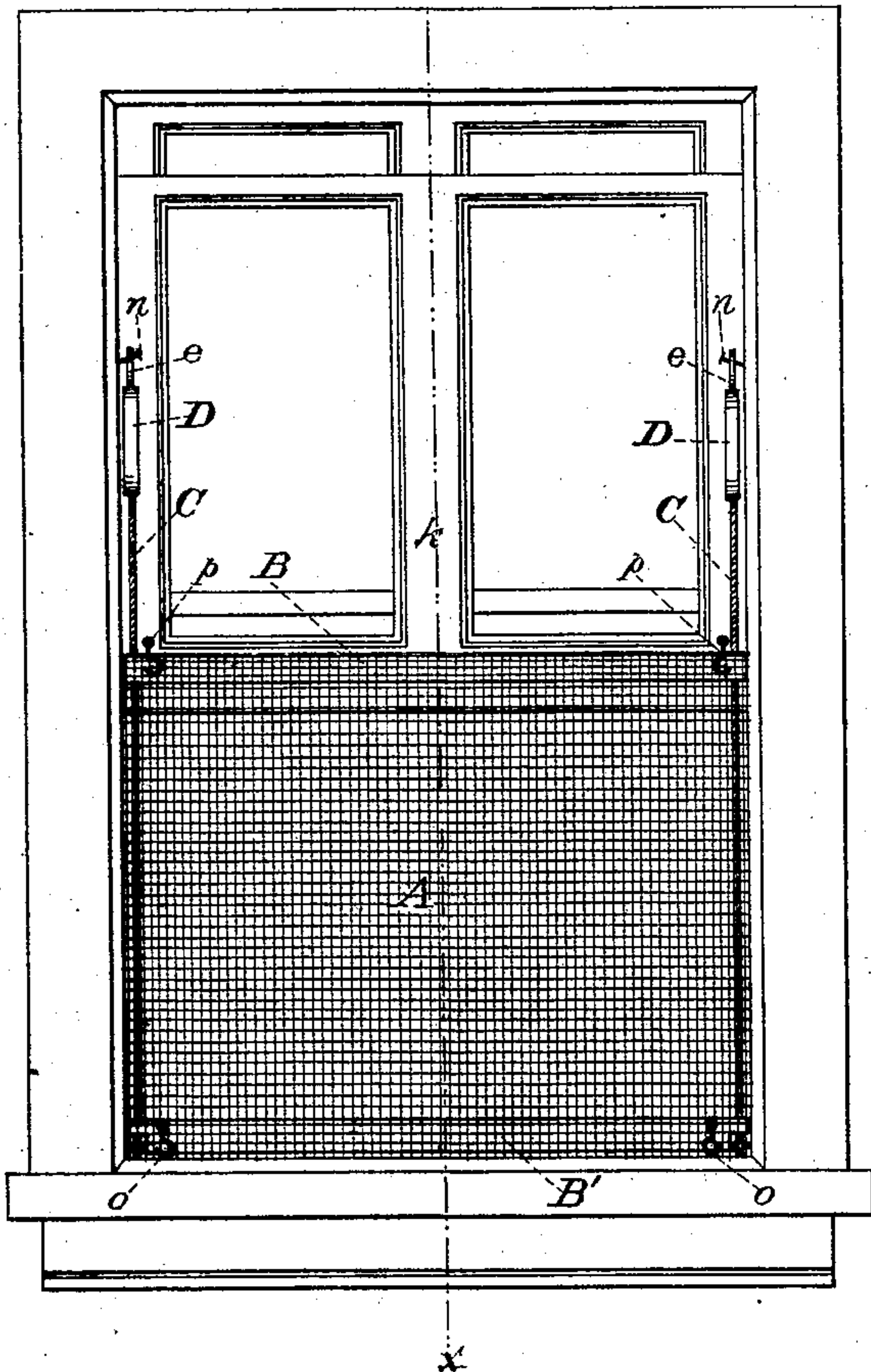
Charles M. Higgins.

**C. M. HIGGINS.**  
**Window-Screens.**

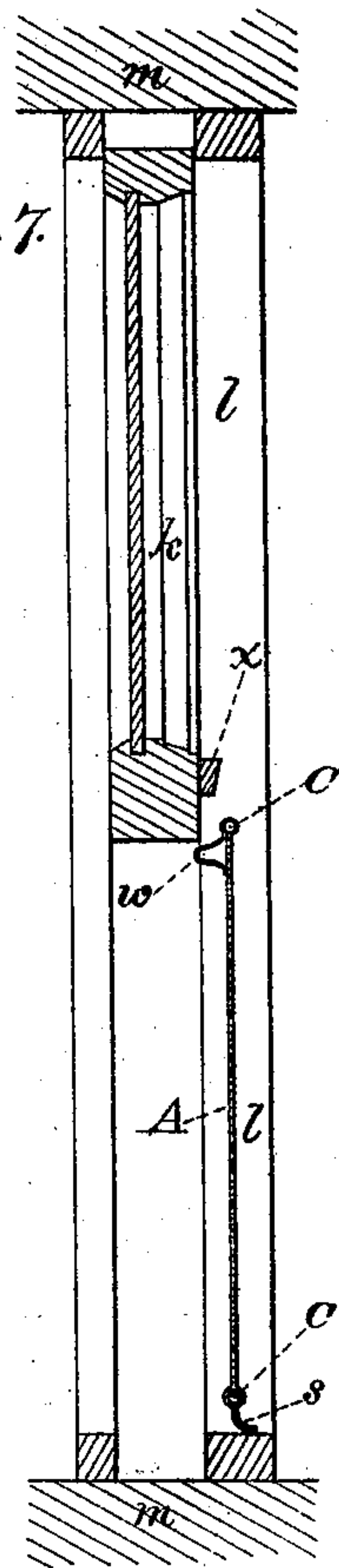
No. 149,126.

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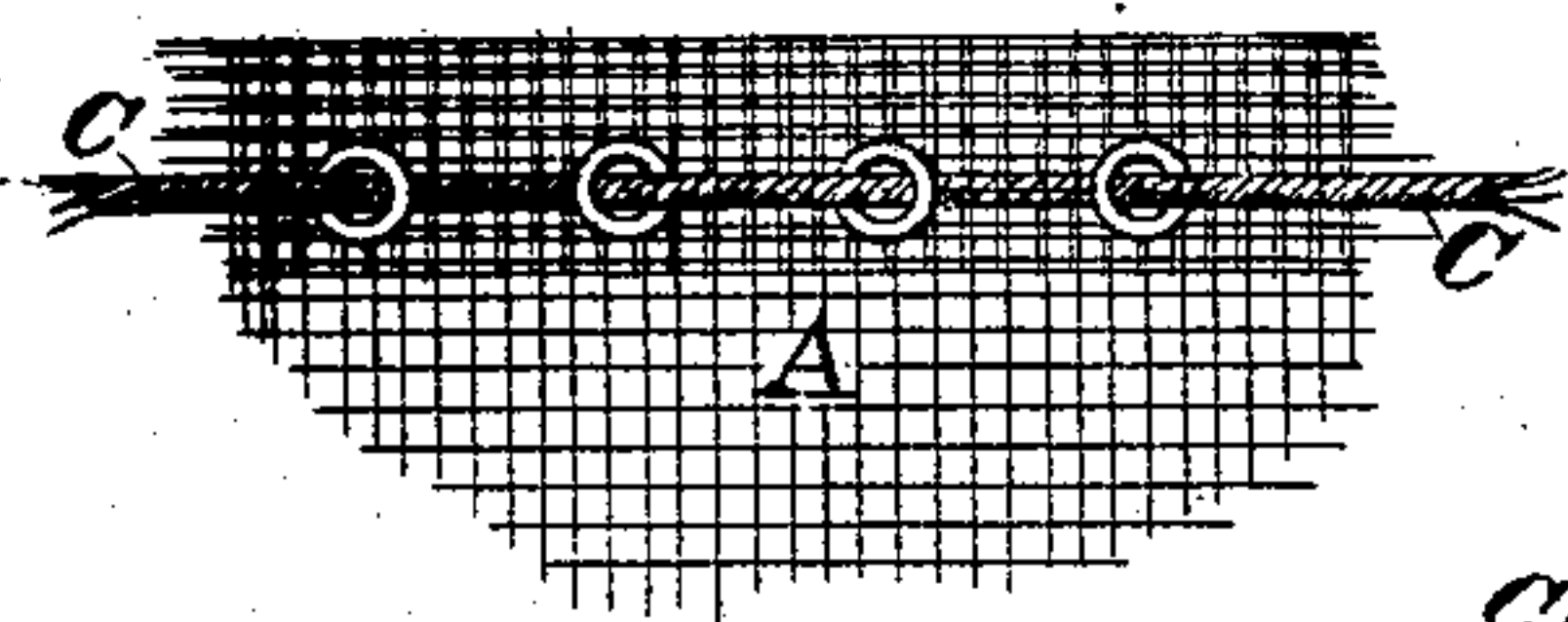
*Fig. 6.*



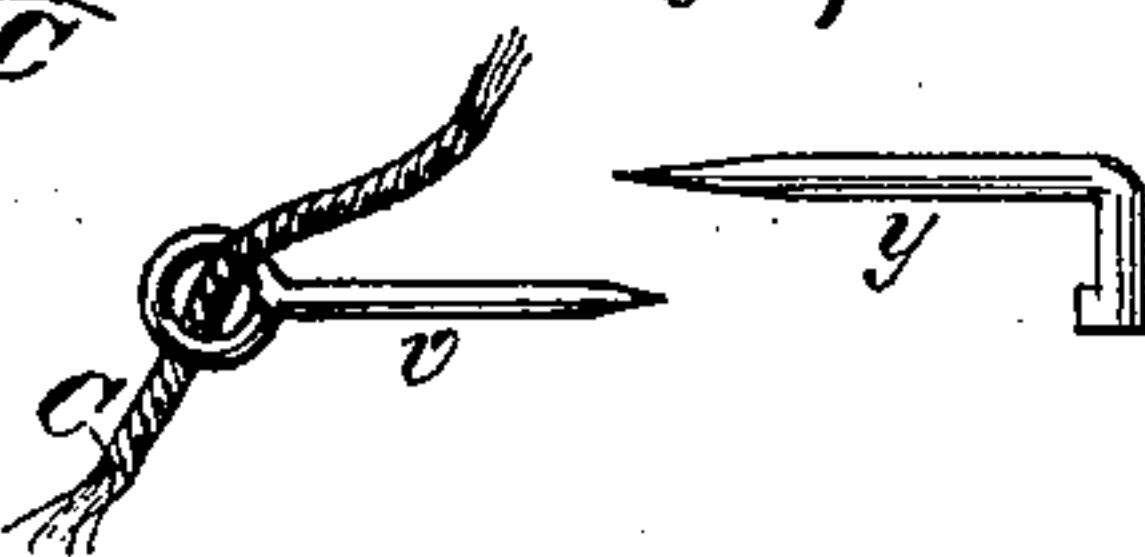
*Fig. 7.*



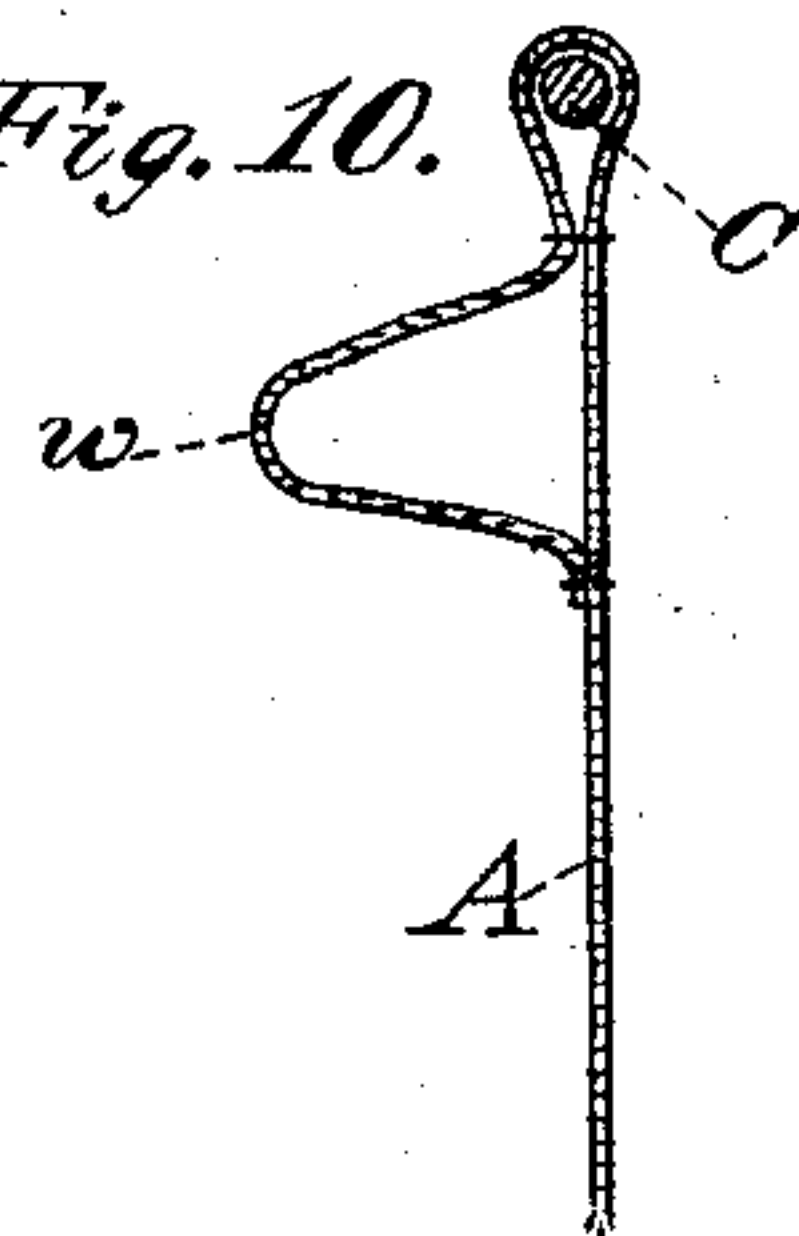
*Fig. 8.*



*Fig. 9.*



*Fig. 10.*



*Witnesses:*

Arthur C. Fraser.  
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*Inventor:*

Charles M. Higgins.



# UNITED STATES PATENT OFFICE.

CHARLES M. HIGGINS, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN WINDOW-SCREENS.

Specification forming part of Letters Patent No. **149,126**, dated March 31, 1874; application filed November 12, 1873.

*To all whom it may concern:*

Be it known that I, CHARLES M. HIGGINS, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Window-Screens, of which the following is a specification:

My invention has for its object the production of a window-screen for the exclusion of insects from the apartments of dwellings, which may be furnished at a low price, be adjustable or applicable to windows of various widths, and allow of ready access to the exterior of the window, when required, without detaching the screen therefrom. This invention consists, essentially, of a screen formed of suitable netting, supported or held in position before the window-opening by strained elastic, or partially elastic, cords, arranged at two sides of the screen, passing loosely through shirrs, or their equivalent, in the netting, and suitably attached to the sides of the window-casing, so arranged that the netting can be freely slid upon the cords, and moved to one side of the window, from before the opening, to allow of access to the exterior of the window, when desired; and also in novel fastenings for attaching the cords to the casing, and in springs and slats in combination with the netting and cords, and in other novel features, hereinafter described.

In the annexed drawings, Figures 1 and 2 are front elevations of windows with my screen applied thereto, and represented in different positions. Fig. 3 is an enlarged disproportionate view of the screen in Fig. 1, removed, showing the general arrangement of parts. Fig. 4 is an enlarged perspective disproportionate view, showing the arrangement of cords and fastenings in relation to the window-casing. Fig. 5 is an enlarged transverse section and plan of Fig. 2, the window-sash and screen being in plan and the casing in section. Fig. 6 is an elevation of a window with the screen applied thereto in a reverse position. Fig. 7 is a vertical section, showing the means of closing the small space between the top of the screen and the lower bar of the window-sash. The remaining minor figures will be referred to in the course of the description.

The screen is formed of any suitable netting,

A, having sufficient flexibility to allow of being readily gathered into small folds, and at the sides of the netting shirrs are formed, (represented by broken lines,) by stitching or otherwise, into which the cords C C are inserted, as shown best in Fig. 3. A slat, B, is secured to the netting (by sewing or otherwise) at each side of the screen, preferably as shown in Fig. 3, and through holes in these the cords C C pass. On the ends of the cords, on one side of the screen, beyond the limits of the netting, are attached small fastenings *a a*, formed of wire bent into the desired shape, or stamped from sheet metal, (seen best in Fig. 4,) and upon the cords at the other side are slipped small metallic rings *d d*, and the ends of the cords are secured to rubber bands or spiral springs D D, to which are attached larger metallic rings *e e*.

To secure the screen to the window, common tacks are driven into the sides of the window-frame at the proper distances, one for each corner of the screen, as shown at *fff*, Figs. 1 and 4. The fastenings *a a* are then slipped on or over the tacks at one side of the screen, as shown in Fig. 4, and at the opposite side the rings *d d* are slipped over the tacks at that side, and the cords carried up parallel with the side of the casing, straining the cords, stretching the rubber bands D, and slipping its ring *e'* over a tack, *n*, Figs. 1, 2, and 6, driven into the casing at the proper point to receive it. The rubber bands, being thus stretched, maintain a strong tension upon the cords, keeping them strained or taut across the window, which is necessary for the proper operation of the screen, effectually holding the netting in position before the window-opening, admitting of the slats and netting sliding freely upon them, and preventing the deflection of the netting by the wind.

If preferred, the entire cord used may be elastic; or a very fine flexible wire, with a spring attached to or formed on it, may be used instead; but I prefer to use an inelastic or partially elastic cord, with a rubber band, as shown in the drawings. And in lieu of the rings *d d*, the eyes of hooks *v y*, (shown in Fig. 9,) which are driven into the casing, and through or over which the cords are slipped,



may be used; or any equivalent fastening which will hold the cord to the casing, and yet allow a certain degree of motion between it and the spring D.

The slats B B' may be provided with the hooks *o o p p*, which engage with eyes on the window-casing, and hold the slats thereto when the screen is closed or extended, but are detached to open it.

The slat B and netting A ride or slide freely upon the cords C C, and by seizing and moving the slat in one direction the netting may be extended entirely across the window, as shown in Fig. 2, so as to completely cover the opening; and when moved in the opposite direction, it becomes gathered into a small space upon the cords at one side of the window, as shown in Fig. 1, where the screen is two-thirds opened, and is thus removed from before the window-opening, allowing the head to be thrust through the open window when occasion requires it, and permitting free access to the exterior window-blinds—an operation requiring but the slightest exertion, and one conveniently and readily accomplished, and with much greater ease and convenience than would be the raising or lowering or removal of heavy-framed screens to allow of the same result as with the common screen. The screen, or the netting of which it is composed, is formed as wide as, or wider than, any ordinary house-window to which it is expected to be applied, (the cords being preferably much wider,) and when the screen is applied to a window narrower than this the slack or loose portion of the netting is gathered into neat folds at one side of the screen, as shown at *g g* in Figs. 1 and 2, and by this means the screen is adapted or rendered adjustable to windows of various widths.

In some cases it is preferable to attach the cords and fastenings directly to the window-casing in the manner previously described, as shown in Figs. 1 and 4, while in others it is preferable to attach the cords in a permanent manner to bars or slats, which are then secured to the window-casing, as shown in Figs. 2 and 5. Here the netting and cords on one side of the screen are secured permanently to a bar or slat, E', which is attached to the window-casing by small screw-eyes *h' h'*. (Seen also in plan in Fig. 5.) On the opposite side of the screen the cords are slipped through staples *i i*, Fig. 5, secured to a like slat, E, which is also secured to the window-casing by screw-eyes *h h*, all of which is shown enlarged, and in plan in Fig. 5, where *k* is the window-sash, and *l m* the window-casing. A horizontal fold, *w*, is formed at the top edge of the netting, as shown in Figs. 3, 5, 7, and 10, which projects outwardly and rests against or under the lower bar of the window-sash *k*, as shown in Fig. 7, effectually closing the small space between screen and sash, and preventing the admission of insects at that part. A strip of wood, *x*, Fig. 7, tacked to the lower part of

the sash, may be used with the fold. Flat or curved springs may also be employed to effect the same results, by being arranged to press the upper cord against the sash. The mode of forming the fold *w* will be understood upon reference to the enlarged view, Fig. 10.

In the figures previously referred to, the screen is shown applied to the window in a horizontal position; but it may be applied in a vertical position when desired, as shown in Fig. 6, where the position of the screen, as shown in Figs. 1 and 2, is reversed, the cords being parallel with the casing, and the slats arranged across and fastened by the hooks and eyes *o o p p* to the window frame and sash.

Instead of using two slats, as shown in Figs. 1 and 6, a single slat may be used on one side of the screen, while the cords may encircle the netting on the other.

Upon referring to Fig. 3, it will be seen that the shirrs (represented by broken lines) for the cords and slats are arranged at a distance from the edges of the netting, so as to form flaps *s t u*, which rest closely against the sides of the window-frame when the screen is affixed thereto, and the slats moved up to the sides, as shown in Figs. 1, 2, 5, and 7. These flaps accommodate themselves to any irregularities of surface, and effectually prevent the admission of insects at the edges of the screen.

As an equivalent for the shirrs, eyelets may be fastened in the netting, at intervals, a distance from the edges, and the cords run through these, as shown in Fig. 8.

The advantages of my screen are, first, its cheapness, as, owing to its simple construction, and the cheapness of the materials used, it may be furnished at a very small price; second, its adjustability to windows of various widths, and its ease of application to the same; third, the ease and readiness with which access may be had to the exterior of the window to open or close the window-blinds, &c.; fourth, its extreme portability and compactness, as, when detached from the window, it may be rolled up into a very small space for storage or transportation, and is complete in itself, all its parts being inseparably connected together.

I claim as my invention—

1. A window-screen supported and held in position before the window-opening by strained cords arranged in shirrs, or their equivalent, in the netting at two sides of the screen, and attached to each side of the window-casing, substantially as herein set forth.

2. In combination with the netting A and cords C C, the springs D D and fastenings *a a d d*, or their equivalents, substantially as shown and described.

3. A window-screen supported by cords or guides at its top and bottom, arranged horizontally across the window and secured to each side of the frame, having the netting capable of sliding thereon, and formed wider than



any ordinary window, so that the screen may be adjustable to windows of various widths, and the slack therein gathered to one side when applied to a window narrower than itself, substantially as set forth.

4. The slats B B', in combination with the cords C C and netting A, with or without the slats E E', substantially as shown and described.

5. In combination with the netting and cords, the flaps s t u, substantially as and for the purpose set forth.

6. In combination with a frameless screen, the fold *w* and strip *x*, as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES M. HIGGINS.

Witnesses:

ARTHUR C. FRASER,  
J. FRASER.