

(No Model.)

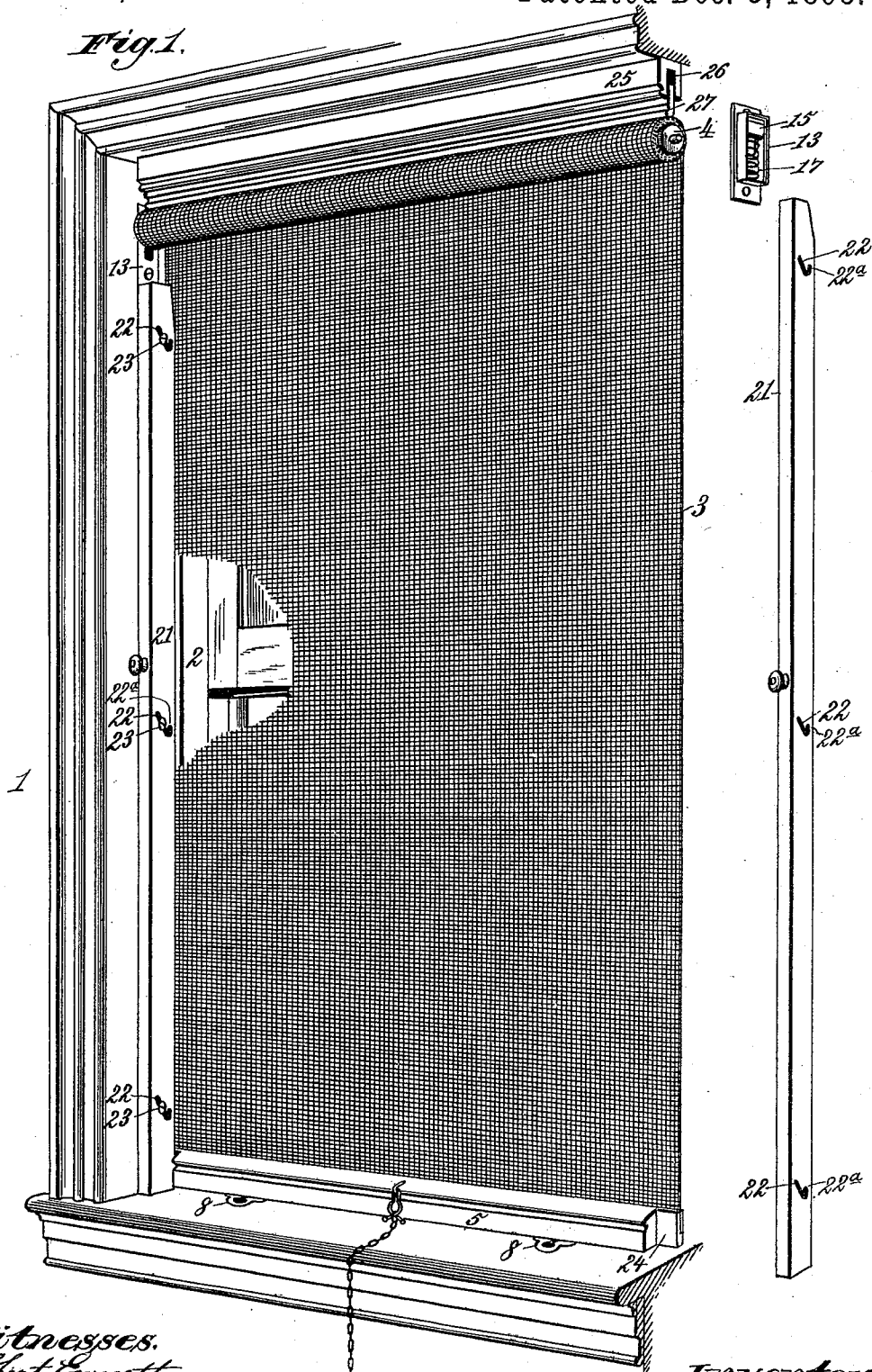
2 Sheets—Sheet 1.

W. H. FELTHOUSEN.  
WINDOW SCREEN.

No. 510,336.

Patented Dec. 5, 1893.

*Fig. 1.*



Witnesses.  
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(No Model.)

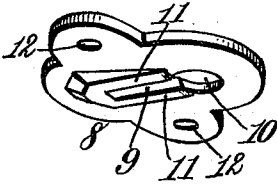
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W. H. FELTHOUSEN.  
WINDOW SCREEN.

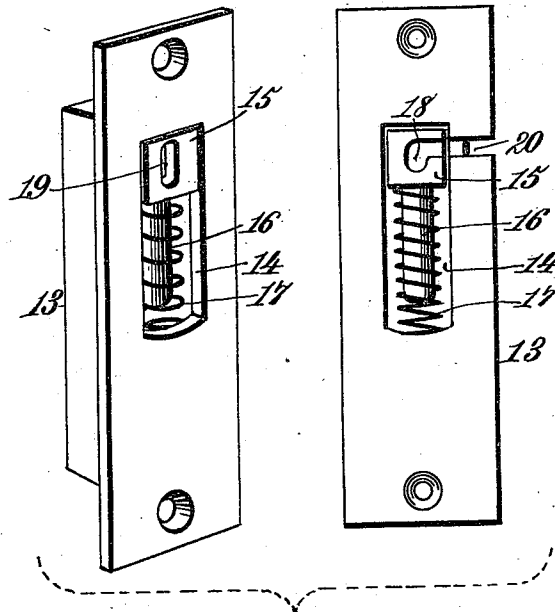
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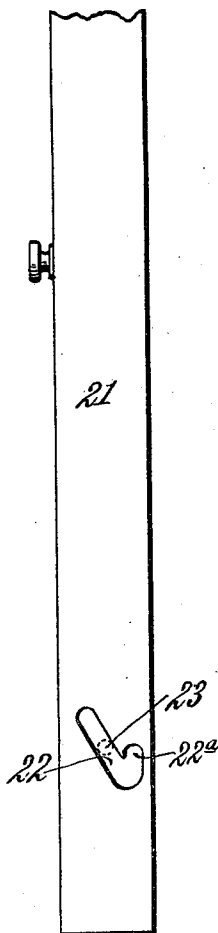
*Fig. 2.*



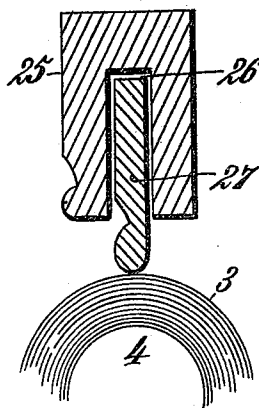
*Fig. 3.*



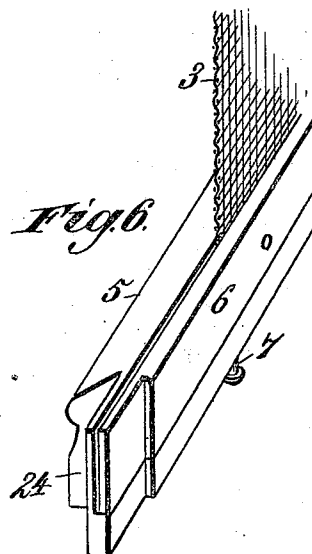
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

WILLIAM H. FELTHOUSEN, OF BALTIMORE, MARYLAND.

## WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 510,336, dated December 5, 1893.

Application filed April 8, 1893. Serial No. 469,584. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. FELTHOUSEN, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented new and useful Improvements in Window-Screens, of which the following is a specification.

This invention relates to an improved automatically rolling window screen of that class which is constructed in the form of a wire cloth curtain designed to closely cover the whole of the window space, or opening.

The objects of my invention are to provide simple and inexpensive fastenings for the lower end of the curtain or screen when drawn down to the window sill; to provide effective tension bearings for the spring roller to which the curtain or screen is attached whereby the curtain, when drawn down and secured to its lower edge, will be held taut across the window opening or space; to provide automatic clamping guide strips or sticks for securing the side edges of the unrolled or extended screen, thereby preventing it from wrinkling or sagging and from being blown inward when the window sash is raised or opened; to provide a self-adjusting top rail for automatically closing or controlling the space above the spring roller as the screen is rolled onto or unrolled therefrom; and generally to provide an efficient, reliable and comparatively inexpensive wire cloth rolling screen adapted to prevent flies and mosquitoes from entering the windows of an apartment and capable of excluding sparks and cinders when the screen is applied to the windows of a railway car.

My invention consists in the peculiarities of construction and novel combinations of devices in a rolling wire cloth window screen as hereinafter more particularly described and claimed.

In the annexed drawings illustrating the invention—Figure 1 is a perspective of my improved wire cloth screen applied to a window and unrolled or extended for use. Fig. 2 is a view of one of the fastenings or locks for securing the lower end of the unrolled screen to the window sill. Fig. 3 represents the spring tension bearings for the spring roller to which the upper end of the screen is secured. Fig. 4 is a view of one of the automatic clamping guide strips for holding the

side edges of the extended screen in close contact with the beads of the window frame. Fig. 5 is a view of the top rail and its self-adjusting strip or section for closing the space above the rolled or unrolled screen. Fig. 6 is a view of one of the rabbeted ends of the stick attached to the lower edge of the wire cloth screen.

Referring to the drawings, the numeral 1 designates the window frame or casing and 2 the beads at the inner sides thereof.

My improved window screen consists of a piece of wire cloth 3 sufficiently large to closely cover the window opening, or space inclosed by the frame or casing, and to have its side edges rest against the inner faces of the beads 2 when the screen is unrolled or extended downward to the window sill. I prefer to employ a woven screen cloth composed of fine copper wire and containing, say, from eleven to twenty-two strands to the square inch. The upper end of the flexible wire cloth 3 is firmly secured, in any suitable manner, to a spring roller 4, which may be of the well known "Hartshorn" type.

To the lower end of the wire cloth screen is secured transversely a suitably heavy stick 5 which may have its rear face rabbeted to receive the edge of the wire cloth that may be covered by a wood or metal strip 6 to prevent fraying. The lower edge of the stick 5 is provided with a couple of downward projecting beaded pins 7 adapted to be engaged in slotted lock plates 8 secured to the window sill. Each of these lock plates 8 is provided with a slot 9 having a width corresponding with the thickness or diameter of the pin 7 and communicating at its forward end with a circular enlargement 10 of sufficiently large diameter to permit the passage of the head of the pin. On the under side of the lock plate 8, at the sides of the narrow portion of the slot 9, are inclined projections 11 on which the head of the pin will ride, thereby drawing the screen taut after the pins 7 have been inserted through the enlarged openings 10 and then pushed backward in the slots 9 so that the heads of the pins will engage said inclined projections. The plates 8 are provided with openings 12 for the passage of screws by which they may be fastened in place; and the sill may be mortised or counter-sunk in line

with the slots 9 so as to receive the inclined projections 11 and afford room for the heads of the pins 7, when the screen is drawn down and secured in position for use.

5 For the purpose of securing a proper tension of the woven wire screen so that it will remain taut and closely cover the window space without liability to wrinkling or sagging, the spring roller 4 should be supported  
10 in yielding or self adjusting tension bearings. The upper portion of the window frame or casing is mortised on each side for reception of a metal box or bracket 13 having a vertically slotted guideway 14 which receives the square  
15 head 15 of a vertically movable bolt or pin 16 supported by a spiral spring 17 arranged within the box or casing. In the head 15 of the spring supported bolt or pin 16 at one side of the window casing is a circular cavity  
20 or recess 18 communicating with a slot 20 in the box or bracket and serving as a bearing for the cylindrical or rotary journal at one end of the spring roller, while the head of the bolt or pin at the other side of the window  
25 casing has a rectangular recess 19, to engage with the fixed rectangular stem at the other end of the spring roller. It will be seen that the spring supported heads 15 of the vertically movable pins 16 thus serve as yielding  
30 bearings for the spring roller 4 and thereby exert a tension on the unrolled and extended screen that will hold it smoothly and taut when fastened down to the window sill.

To the vertical inner sides of the window  
35 casing adjacent to the side beads 2 are attached automatic clamping guide strips or sticks 21 that may be composed of metal or sufficiently heavy pieces of wood and which act by gravity, in a downward and outward di-  
40 rection toward the beads 2 and in front of the side edges of the screen 3, in such a manner as to press or clamp the side edges of the extended screen against and in close contact with the beads 2 so as to obviate any wrinkling or sagging of the screen edges and prevent the screen from being blown inward when the window is opened for ventilation. In order to enable the vertical guide strips or sticks  
50 21 to have this clamping action each strip or stick is provided near its upper and lower ends with inclined slots 22 by which the strips are hung on supporting guide pins 23 inserted in the opposite sides of the window casing. These vertical strips or sticks 21 also serve as  
55 guides for the ends of the transversely arranged sticks 5 at the lower end of the screen, while the screen is being raised or lowered, each end of the screen stick 5 being provided on its front or inner face with a rabbet 24 to be engaged between the vertical guide sticks  
60 21 and the beads 2 of the window casing, thereby causing the screen to ascend or descend evenly, when operated.

At the top of the window casing, above the  
65 spring roller 4, is supported a top rail, molding or cornice 25 the under side of which is provided with a deep longitudinal groove, re-

cess, or mortise 26 in which a vertically movable rail section 27 is inserted with its lower edge projecting below the main portion of the  
70 rail 25 and normally resting on the portion of the wire cloth screen that is rolled or wound on the spring roller. As the flexible screen is rolled or unrolled, or drawn upward or downward, the vertically movable rail section  
75 27 will constantly bear upon the rolled or partially rolled portion of the screen and automatically follow its increasing or decreasing diameter, as the case may be, in such a manner as to completely close, at all times, any  
80 space that might otherwise be left above the spring roller by the unrolling of the screen. It will, therefore, be seen that by means of this self-adjusting top rail no opening or variable space is afforded above the spring roller  
85 4 and screen 3 for the entrance of insects into the apartment. It will also be observed that as the screen, when drawn down, is securely and closely fastened at the bottom and both sides and held taut by the spring tension bear-  
90 ings in which the spring roller is mounted, it will provide a very effective and convenient window guard for excluding insects when the window sash is raised or opened.

While I have described my invention with  
95 reference more particularly to the windows of apartments in dwelling and other buildings it is obvious that it may be applied equally as well and with great advantage to the win-  
100 dows of railway cars, for the purpose of excluding sparks and cinders.

It may sometimes be desired to sustain the guide-strips or sticks 21, out of normal position, or away from the wire cloth screen, and to accomplish this the lower ends of the slots  
105 22 may be extended upward, as at 22<sup>a</sup>, to form shoulders, so that by moving the guide-strips or sticks upward and outward, the pins 23, are caused to engage the said shoulders and thus sustain the strips or sticks away from  
110 the screen.

What I claim as my invention is—

1. In a window screen, the combination with a spring roller and a flexible wire cloth screen having its upper end secured to said roller  
115 and provided at its lower end with a transverse stick, of headed pins inserted in the lower edge of said stick, and lock plates secured to the window sill and adapted to be engaged by said pins, each lock plate being  
120 provided with a slot having an enlargement at one end to permit the passage of the head of one of said pins, and the under side of the plate being provided on opposite sides of the slot with inclined projections on which the  
125 heads of the pins ride to hold the screen taut when drawn down and fastened, substantially as described.

2. In a window screen, the combination with a spring roller having a flexible wire cloth  
130 screen attached thereto, and provided with a stick having headed pins, tension bearings consisting of boxes or brackets having vertically slotted guide ways, and vertically yield-

ing spring-pressed supports arranged in the boxes or brackets for supporting the spring roller, and lock plates secured to the window sill and adapted to be engaged by the headed pins on the stick of the screen, whereby the latter is held taut when its stick is held down, substantially as described.

3. In a window screen, the combination with a wire cloth screen attached to a spring roller and adapted to extend entirely across the window opening when drawn down and secured to the window sill, of automatic clamping guide strips attached in a vertical position to the sides of the window casing adjacent to the beads thereof and having slots which incline downwardly toward the screen, and stationary pins extending through said slots and secured to the window frame so that the guide strips work loosely on the stationary pins, substantially as described.

4. In a window screen, the combination with a flexible wire cloth screen, and a roller to which the upper end of said screen is attached, of a self adjusting top rail supported above the screen roller and comprising a stationary guide section, and a vertically sliding section

guided by said stationary guiding section normally resting on the portion of the screen that is wound on the roller and adapted to rise and fall automatically as the diameter of the roller is increased or diminished by rolling or unrolling the screen, whereby the space above the roller at the top of the window frame is constantly closed, substantially as described.

5. The combination with a flexible wire cloth window screen attached to a spring roller and adapted to be drawn down and secured to the window sill, of spring tension bearings in which the screen roller is supported, a self adjusting top rail adapted to close the variable space above said roller at the top of the window frame, and automatic clamping guide strips for pressing the side edges of the extended screen against the window beads, substantially as described.

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

WILLIAM H. FELTHOUSEN.

Witnesses:

GEO. S. KIEFFER,  
GEO. K. CRAIG.