F. F. HULTGREEN.

WINDOW SCREEN.

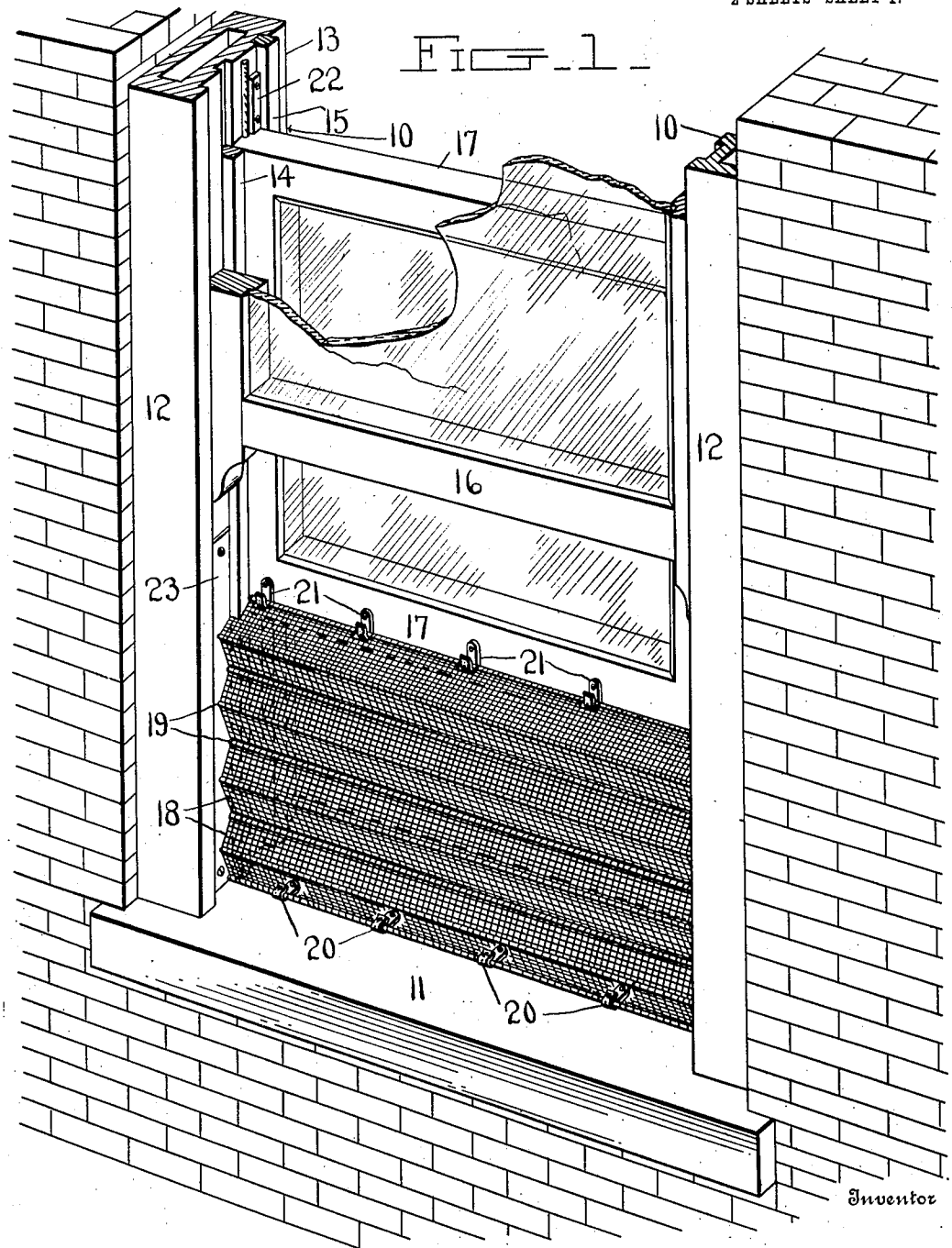
APPLICATION FILED JUNE 8, 1908.

912,849.

Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

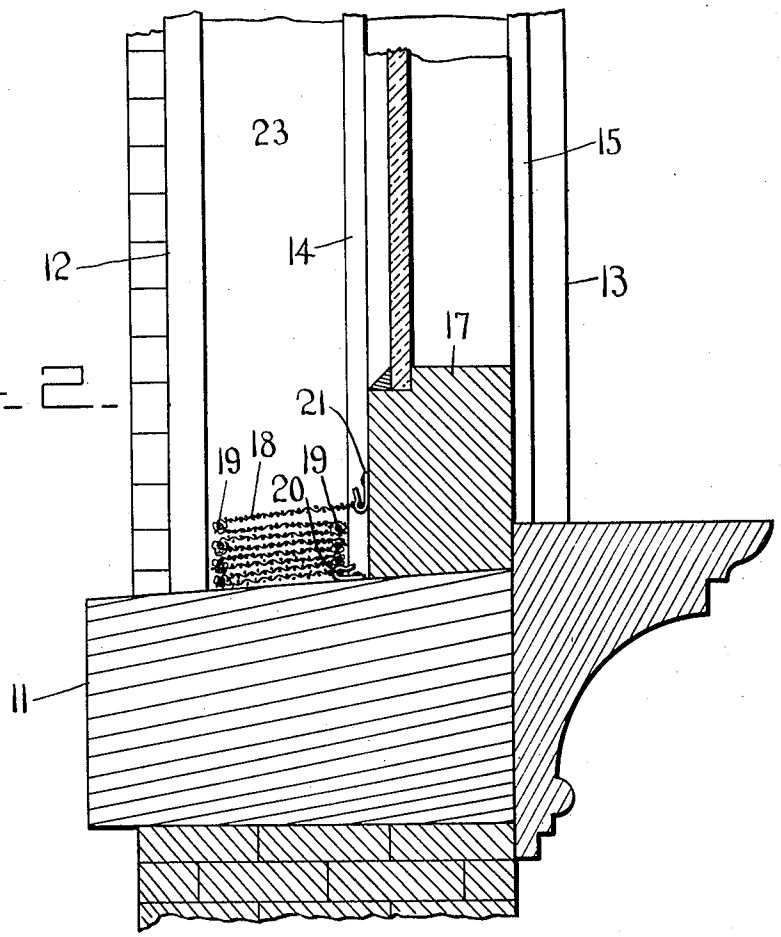


Fig. 3.

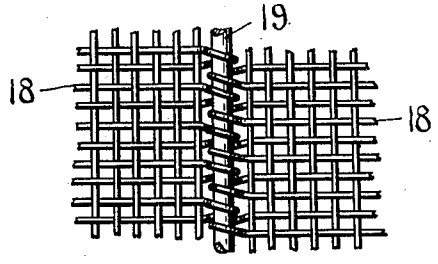
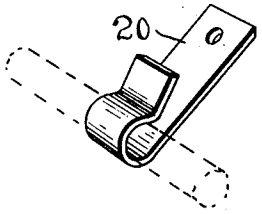


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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WINDOW-SCREEN.

No. 912,849. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed June 8, 1908. Serial No. 437,326.

To all whom it may concern:

Be it known that I, FRANK F. HULTGREEN, a citizen of the United States, residing at Oakland, in the county of Alameda, State of California, have invented certain new and useful Improvements in Window-Screens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to window screens of the class connected to one of the sashes and foldable when the sash is closed and which opens to the same extent as the sashes open, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to produce a simply constructed device of this character which may be readily detached and applied to enable the screen material to be stored when not in use or to be removed when the windows are to be cleaned, or for any other required purpose.

With these and other objects in view the invention consists in certain novel features of construction as hereafter shown and described and then specifically pointed out in the claims, and in the drawings illustrating the preferred embodiment of the invention, Figure 1 is a perspective view of the lower portion of a window from the outside including a portion of the upper sash and a portion of the lower sash with the improved screen device attached thereto. Fig. 2 is a vertical section of a window frame and the sashes with the improved device applied. Fig. 3 is an enlarged detail view of a portion of the folding screen material illustrating its construction. Fig. 4 is a perspective view of one of the screen holding clips enlarged.

The improved structure may be applied to any of the ordinary constructions of windows, and for the purpose of illustration is shown applied to a conventional structure of this class, the side members of the window frame being indicated at 10, the sill at 11, the outside casing at 12, the inside casing at 13, the parting stop at 14, the inside stop at 15, the upper sash at 16 and the lower sash at 17, all of these parts being of the usual construction.

The improved device comprises a foldable screen connected at one edge to the lower member of the lower sash and at the lower end to the sill of the window, and the construction of the foldable screen and the means whereby it is connected to the sash and to the sill forms the specific feature of the present invention.

The screen material is of the usual quality and is formed into a plurality of strips 18 about equal in width to the distance between the outside casing 12 and the parting stop 14, so that the ends of the strips will operate in the space referred to, as hereafter explained.

The strips 18 are connected by wires 19 extending longitudinally of the strips, the bights or the return bends of the wires at the edges of the strips being passed around the wires 19 as illustrated in the enlarged portion of the folding screen illustrated in Fig. 3, so that the longitudinal wires coacting with the screen material forms hinge joints between the strips and enables them to be folded one upon the other in reverse order as illustrated in the sectional view, Fig. 2, when the sash 17 is closed, and which will be distended as shown in Fig. 1 when the sash is open. The action of the screen is thus automatic and opens just so far as the sash is opened and closes down flat upon the sill 11 when the sash is closed. The outer edges of the end strips 18 are provided with the wire devices 19, which thus form binder elements to the outer edges of the outer strips.

Attached to the sill 11 at intervals are small clip devices 20, these clip devices being in the form of open hooks in which the binder wire at the margins of the end screen strips are passed to hold the lower edge of the screen structure fast to the sill, but which may be readily detached when required. The lower member of the sash 17 is also provided with a plurality of these clips indicated at 21, of the same form, and into which the binder wire of the upper screen strip is disposed to couple the screen to the sash. The screen structure is thus coupled to the sash member and to the sill and remains thus connected during the operation of the sash, but if it is desired to remove the screen structure it is only necessary to unhook the terminal screen strips from the hooks.

The inner faces of the side members 10 of the frame between the parting stop 14 and the outside casing 12 are covered with a sheet of metal 23, preferably tin, and

against which the ends of the strips of screen material operate, the metal portion thus forming a smooth surface against which the screen material acts and thus materially reduces the friction and prevents the material from clogging during its operation. If required stops 22 may be attached to the inner face of the frame between the parting stop 14 and the inside stop 13 to limit the upward movement of the sash 15 and thus prevent injury to the screen material by the accidental movement of the sash to too great an extent.

The improved device is simple in construction, can be readily applied to windows of all sizes, and provides an automatic screen which folds together when the sash is closed, and opens across the open space below the sash when the latter is opened. The screen therefore does not obstruct the light or the view when the window is closed.

What is claimed, is:—

1. A foldable window screen comprising a plurality of strips of screen material having the wires thereof formed with return bends at the margins with the bends alternately interlocking, wires extending longitudinally of the strips and passing through said interlocking return bends and thereby hingedly uniting the strips of screen material, and means for connecting the terminals of said screen structure respectively to one of the sashes and to the sill of a window.

2. A window screen comprising a plurality of strips of screen material, wires connected to said screen material at the adjacent edges of said strips and thereby hingedly uniting them, clips comprising open hooks connected to the window sill and adapted to detachably receive the outer edge of the screen structure at one side, and clip devices comprising open hooks connected to one of the sashes and adapted to receive the screen structure at its opposite side.

In testimony whereof, I affix my signature, in presence of two witnesses.

FRANK F. HULTGREEN.

Witnesses:

CARL P. JOHNSON,

JOHN H. KOMRS.