No. 695,049. Patented Mar. 11, 1902.

D. S. HILL.

BURGLAR ALARM FLY SCREEN.

(Application filed May 1, 1901.)

(No Model.)

Fig. 1.

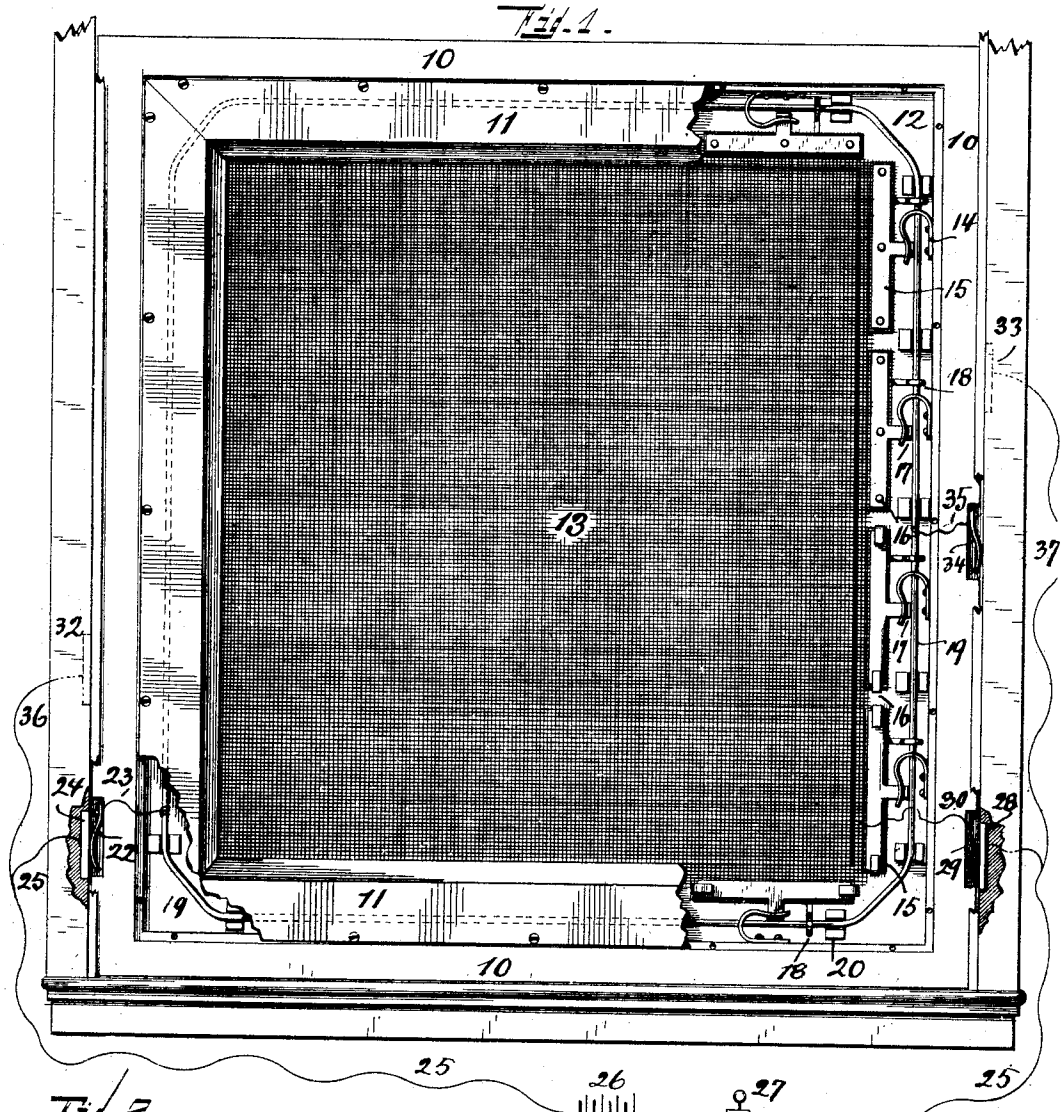


Fig. 2.

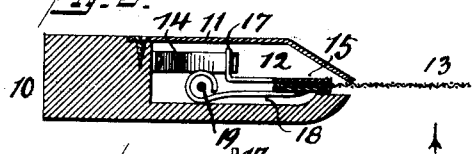


Fig. 3.

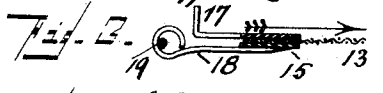


Fig. 4.

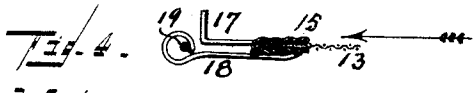


Fig. 5.

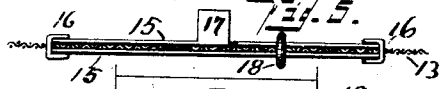
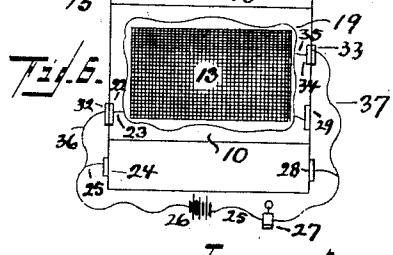


Fig. 6.



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UNITED STATES PATENT OFFICE.

DAVID S. HILL, OF CINCINNATI, OHIO.

BURGLAR-ALARM FLY-SCREEN.

SPECIFICATION forming part of Letters Patent No. 695,049, dated March 11, 1902.

Application filed May 1, 1901. Serial No. 58,267. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. HILL, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented a certain new and useful Burglar-Alarm Fly-Screen; and I do declare the following to be a clear, full, 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, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form also a part of this specification.

This invention relates to screens such as are commonly used to close window and door openings to prevent entrance of insects.

It comprises several features, one of which is the provision of means whereby the wire portion or panel of the screen is always kept tightly stretched between its frame, which feature is such as to permit it, in connection with additional means, to be used in a manner operating as a burglar-alarm, indicating by audible signal any tampering with the wire panel for the purpose of gaining entrance or otherwise. This burglar-alarm feature is also by further additional means extended so as to indicate any attempt at moving the screen as a whole by raising or lowering the same.

In the following specification and particularly pointed out in the claims following is found a full description of the invention, together with its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows in elevation a screen embodying the features of my invention, parts of the frame being broken away. Fig. 2 is an enlarged cross-section of the frame, showing manner of attaching the wire panel. Figs. 3 and 4 in detail views show parts of the preceding figure, illustrating the manner of effecting electrical contact. Fig. 5 is also a detail view and shows in side view one of the clamps used for holding the wire panel. Fig. 6 shows diagram of the circuit when the screen is raised.

10 indicates the frame of the screen, usually rectangular and fitted to the size of the opening it is intended to close. It is of any suitable material, preferably wood. Around its inner edge there is provided a recess 12, obtained by forming a rabbet all around, closed on one side with a frame 11, preferably of sheet metal, which partly closes this rabbet, thus forming such recess. This latter receives the means for attaching the wire-screen panel 13. The edges of the screen extend into this recess through a narrow space between the free edge of frame 11 and the inner edge of the wooden screen-frame. This edge is held in position by a number of springs 14, attached to it and to the opposite sides of the frame within recess 12. The action of these springs is to draw the wire-cloth outwardly, whereby the wire panel is always kept stretched tight. In order to provide substantial means for connecting these springs to the edge of the wire-cloth, I use clamps 15, which receive between the two members composing them a portion of the edge of the wire-cloth. These clamping-pieces on their inner opposite sides may be corrugated, as shown in Fig. 4, to obtain a better grip of the wire-cloth, and at their ends they are held together by suitable fastening means 16, which may be screws, rivets, or clamps. In case of these latter portions of the wire-cloth between the ends of adjoining clamps are cut out to permit application of these fastening-clamps.

Part of one of the clamping members of each clamp is extended outwardly and bent to form hook-shaped lugs 17, which hook into the free end of springs 14, by which the wire panel is held to the screen-frame. There extends, furthermore, from each clamp a metallic contact-piece 18, suitably bent or curled on its outer free end, which ends as to any one of the sides of the screen are all in alinement with each other. Through all these curled ends there passes a continuous wire 19, which by insulated supporting-pieces, preferably wooden blocks 20, is held normally in such a position as to be kept free from touching any of the contact-pieces, as well as any other parts of the screen and its fastening means.

It will now be understood that should any pressure be applied against the wire-cloth of the screen-panel, tending to contract the same by bulging, the particular fastening-springs affected will yield and permit the outer part of the curled end of one or more

contact-pieces 18 to touch wire 19, as shown in Fig. 3.

Should the wire panel be cut, the affected springs will draw the wire-cloth apart and again permit certain, more or less, of the contact-pieces 18 to touch wire 19, this time on its other side, as shown in Fig. 4. By making now all contact-pieces 18 parts of the carrier of a normally open electric circuit and wire 19 another part of the same circuit and by providing proper connections, including an electric signal-bell and a source of current, which may be a battery, it will be seen that an alarm system is established. For purposes of connecting electrically all contact-pieces 18 I preferably use the screen-cloth as a current-conductor, although a separate special wire might be used. In providing these further connections to the battery and bell-signal their arrangement must be such as not to interfere with occasional removal of the screens or their opening when they are in form of doors. This requires additional contact-pieces between the screen-frame and the sashways or jambs, against which the same abuts. For such purpose I provide on one side of the screen-frame a contact-piece 22, to which wire 19 connects either directly or by means of a short branch 23. Opposite this contact-piece there is a stationary contact-piece 24 normally in contact with the first and to which the general circuit-wire 25 connects. This latter includes a battery 26 and a signal 27 and returns to another stationary contact-piece 28, normally in contact with another contact-piece 29 on the screen-frame. This latter piece by a short branch 30 connects to the wire screen. It will now be seen that as soon as any of the contact-pieces 18 touch wire 19 on either of its sides, due to a tampering with the wire-cloth of the screen-panel, a closed circuit is established, traveling through wire 19, branch 23, contact-pieces 22 and 24, circuit-wire 25, contact-pieces 28 and 29, branch 30, back to the screen-cloth. The bell-signal being included in the circuit will as a consequence be sounded. With certain additions part of this circuit may also be used to operate the bell-signal, if an attempt is made to raise the screen as a whole—that is, its frame included. For such purpose I provide two additional stationary contact-pieces 32 and 33 and one, 34, on the screen-frame. The wire-cloth or wire 19 may be used as part of the conductor. By using this latter connection from it is made to contact-piece 34 by means of a short branch wire 35. Additional branches 36 and 37 connect contact-pieces 32 and 33 to the general circuit-wire 25. The three last-described contact-pieces are so located that when the screen is moved a certain distance contact-pieces 23 and 32 on the one side and contact-pieces 33 and 34 on the other side make simultaneous contact, after which a current is again established, traveling through wire 19, branch 23, contact-pieces 22 32, branch 36, circuit-wire 25, branch 37, contact-pieces 33 34, and branch 35 back to wire 19. (See Fig. 6.)

Where the movement of the screen for opening it necessitates a lowering of it, the same effect is obtained by simply changing the position of the contact-pieces of this latter. It is preferable to have one of each engaging pair of contact-pieces, either the stationary one or the movable one, constituted by a spring, whereby a better contact is maintained. The number of contact-pieces 18 depends on the length of a screen side, and their provision might be restricted to only one side or to two opposite ones.

While the electrical arrangement is operated with a normally open circuit, it is clear that such might be done equally as well with a circuit which is normally closed.

Having described my invention, I claim as new—

1. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield either to or from the frame, contact-pieces projecting from the wire-cloth and attached thereto in a manner to partake of this movement in either direction, a current-conductor forming part of a circuit of which these contact-pieces form also a part, said current-conductor so supported as to be capable of contact with any of the contact-pieces when they move in either direction and an alarm-signal which operates upon such contact.

2. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise either inwardly or outwardly, a circuit-wire supported close to the edge of the wire-cloth, contact-pieces projecting from this latter and so shaped as to be able to touch the circuit-wire when moving with the screen-cloth in either direction, said contact-pieces and circuit-wire forming parts of an electric circuit and an alarm-signal adapted to operate when such circuit is closed.

3. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise, contact-pieces projecting from the wire-cloth, a wire supported so as to be within the reach of movement of these contact-pieces, contact-pieces on the screen-frame, both electrically connected, one to the aforesaid wire, the other to the contact-pieces on the wire-cloth, stationary contact-pieces normally in contact with the contact-pieces on the screen-frame, a general circuit-wire connecting these stationary contact-pieces and an alarm-signal included in this latter, all these parts forming elements of an electric circuit which when closed, causes the alarm-signal to operate.

4. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise, contact-pieces having their

outer ends curled, projecting from the wire-cloth, a wire passing through the curled ends of all these contact-pieces, but normally out of touch with any of them, an electrical circuit of which this wire and all these contact-pieces form a part, and an alarm-signal included in this circuit which will operate as soon as this latter is closed by reason of any of the contact-pieces touching the wire passing through them.

5. A screen consisting of a frame, a panel of wire-cloth to close the space surrounded by the same, clamps around the edge of the wire-cloth, springs connecting these clamps to the inside of the frame whereby the wire-cloth is held in a manner to be capable to yield edgewise, contact-pieces attached to these clamps and projecting outwardly from the wire-cloth, an electrical circuit of which they form a part when in contact therewith and an alarm-signal included in this circuit and adapted to operate when said circuit is closed.

6. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise, contact-pieces projecting from the wire-cloth, a circuit-wire supported close to these contact-pieces and adapted to make contact with any of them upon movement of the screen-cloth, contact-pieces on the screen-frame to which this circuit-wire and all the contact-pieces on the wire-cloth are electrically connected stationary contact-pieces with which the contact-pieces on the screen-frame are normally in contact, additional contact-pieces on the screen-frame, and stationary contact-pieces so located as to be in the path of the former if the screen is moved, a general electric circuit connecting all these contact-pieces and an alarm-signal included in this circuit and adapted to operate if said circuit is closed in consequence of a movement of either the wire-cloth on the screen-frame, or of this latter within its inclosure.

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

DAVID S. HILL.

Witnesses:
C. SPENGEL,
ARTHUR KLINE.