W. O. CONNOR.

Window-Shutters.

No. 166,218. Patented Aug. 3, 1875.

Fig. 2

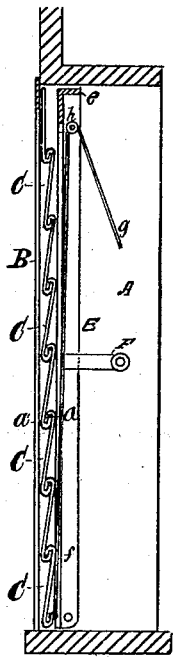


Fig. 3

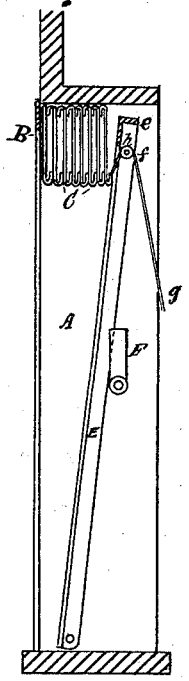


Fig. 1

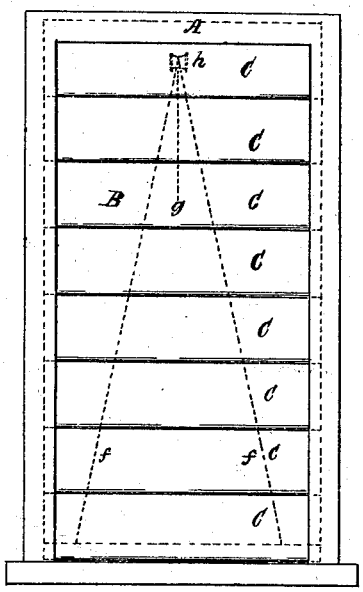


Fig. 4

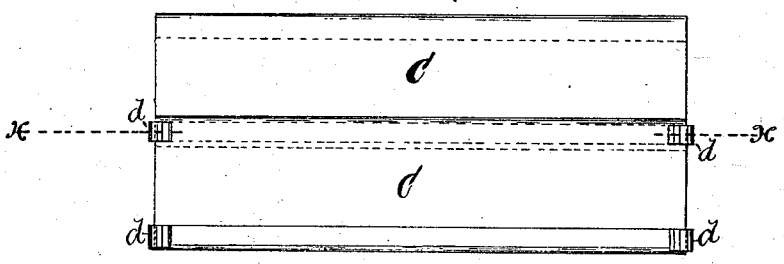
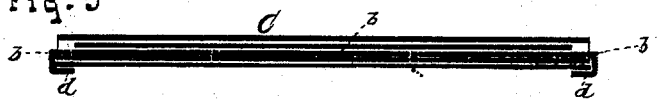


Fig. 5



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM O. CONNOR, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE B. CORNELL, OF SAME PLACE.

IMPROVEMENT IN WINDOW-SHUTTERS.

Specification forming part of Letters Patent No. **166,218**, dated August 3, 1875; application filed June 21, 1875.

To all whom it may concern:

Be it known that I, WILLIAM O. CONNOR, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Window-Shutters; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a front elevation of a window with my improved shutter attached. Fig. 2 is a vertical transverse section of the same, showing the position of the shutter when closed. Fig. 3 is a like section, showing the position of the shutter when open. Fig. 4 is an enlarged front view of two of the sections of the shutter detached, and Fig. 5 is a longitudinal section taken on the line *x x*, drawn through Fig. 4.

Similar letters of reference indicate like parts in the several figures of the drawing.

My invention relates to that class of window-shutters made from sheet metal, and its object is to render the same fire-proof, and at the same time easily and conveniently adjusted. To that end it consists in the arrangement of the parts, as will be more fully understood by the following description and claims.

In the drawing, A represents the window-frame, which may be of any known form. B is the shutter proper, which consists of a series of sections, C, extending across from side to side of the window-frame. These sections are from eight to ten inches in width, and are made from sheet metal of proper thickness to insure the required strength. Each section is bent at its edges, forming an overhanging lip, *a a'*, on opposite sides of the section, and so arranged as to form a groove or channel extending the entire length of the plate forming the section between it and the lip. The sectional area of each groove is slightly greater than the sectional area of the lip on the adjacent section, by which means the lips of each section readily pass into the groove of the adjacent section when adjusted to cover the window-opening.

Permanently attached to the inner surface of each lower lip *a'* of the several sections is a metal bar, *b*, extending the entire length of the same. Both ends of this bar are bent outward about the end of the lip, and parallel with its outer surface, forming lips *d d*. The arrangement of these lips is such as to form a groove, through which the end of the adjacent section loosely passes, and by which means the sections are secured one to the other, and in such a manner as to allow each section to be moved upward to the same horizontal plane with its adjacent rear section. The object of this bar is to strengthen the lip, and thus prevent it from being bent or sprung out of shape by the action of the heat from an adjacent burning building. The upper edge of the upper section is permanently attached to the window-cap or wall of the building over the window-opening, and by the arrangement of the clasps the gravity of the sections causes them to freely descend until the lips of each section take into the grooves of the adjacent section, when the descending movement ceases, and the sections are suspended one to the other over the window-opening, tightly closing the same.

E E are sheet-metal straps, which are each pivoted at the lower end to the inner wall of the window-frame at or near the window-sill, between the sash and inner surface of the shutter, and are so arranged as to admit of a free and easy oscillating movement. These stops are connected at the top one to the other by a cross-bar, *e*. (Shown in Figs. 2 and 3.) F F are levers, which are pivoted to the inner surface of the window-frame at a point near the center of the same.

The arrangement of the straps and lever is such that when the shutter is closed the stops are moved against the shutter by turning the levers so as to cause their ends to bear against the stops, thus locking the shutter in a closed position, and by removing the levers from contact with the stops the latter swing back to their normal position, allowing the sections of the shutter to ascend.

Permanently attached to the lower section C, at a point near its ends, are the adjusting-cords *f f*, which extend upward over a sheave-wheel, *h*, centrally journaled to the upper

cross-bar connecting the stops, as shown in Figs. 1, 2, and 3. The arrangement of these cords is such that by pulling down the end *g* of the same the lower section C is drawn upward to the same horizontal plane with the next adjacent rear section, when the latter ascends with it, and so on, moving each rear section consecutively until all are drawn to the top of the window-frame, and in one and the same horizontal plane with the upper section, as shown in Fig. 3.

It is well known that the ordinary sheet-metal shutter, made in one or two parts, when subjected to the radiation of heat on one side, are more or less liable to warp or spring out of shape. This difficulty is practically overcome with my invention, for the reason the sections are made narrow and provided on each edge with the lips and the bar *b*, the latter extending the entire length of the sections, which lock together when the shutter is adjusted to close the window-opening, thus presenting five thicknesses of metal at each edge of the respective sections, consequently increasing the strength of the sections, rendering them less liable to warp.

I have shown and described the shutter attached to the top of the window-frame; but I do not wish to confine myself exclusively to attaching them as described, for I sometimes attach them to the window-stool, in which case the sections are elevated by the adjusting-cords to close the window-opening.

Having thus described my invention, I claim—

1. A sheet-metal window-shutter, consisting of the series of sections C, provided with the overhanging lips *a a'*, the lip *a'* provided with the bar *b*, extending its entire length, and bent at its ends to form the lips *d d*, arranged to lap about the ends of the adjacent section, substantially as specified.

2. In combination with the shutter B, made in sections, as specified, the stops E E and levers F F, as and for the purpose specified.

WILLIAM O. CONNOR.

Witnesses:
J. T. WHIPPLE,
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