G. HAYES.
Window-Shutters.

No. 198,979. Patented Jan. 8, 1878.

Fig. 1

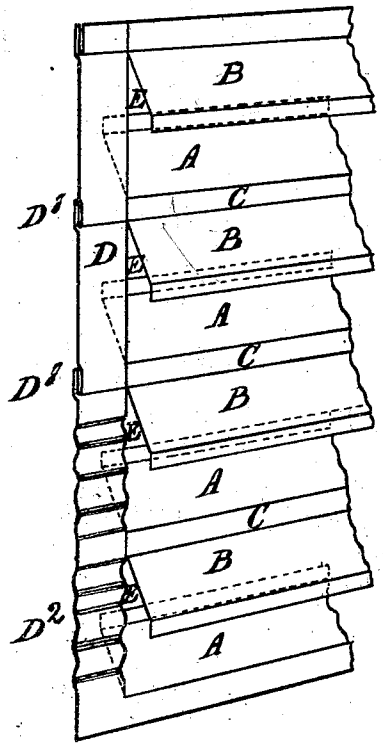


Fig. 2

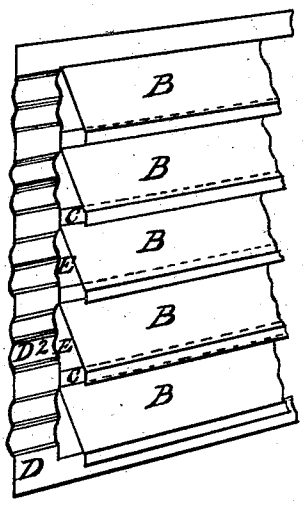
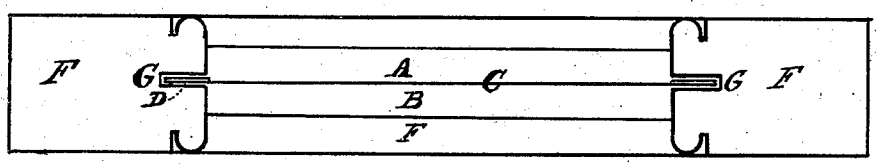


Fig. 3



Witnesses.
John H. Gibson
Charles Hayes.

Inventor.
George Hayes.

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UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

IMPROVEMENT IN WINDOW-SHUTTERS.

Specification forming part of Letters Patent No. **198,979**, dated January 8, 1878; application filed June 4, 1877.

To all whom it may concern:

Be it known that I, GEORGE HAYES, of the city, county, and State of New York, have invented a new and useful improvement in panels for window blinds, shutters, doors, screens, shades of railroad-cars and steamboats, the inclosing of verandas, summer-houses, or any structure to which wooden slats are applied; and I do declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, forming part of this specification.

The object of this improvement is to produce a blind that will effectually obstruct the direct rays of the sun and exclude rain-storms, that will obstruct vision from the outside, while there will be less obstruction of vision from the inside of a room, and to reduce the cost of blinds at first, and also to avoid frequent and expensive repairs.

I am aware that efforts have been made to attain the result here stated by making a series of incisions in a plate of metal, upon which Letters Patent were granted December 13, 1859, and also that another patent was issued July 23, 1867, upon a similar panel, this latter panel being fluted or molded to gain strength; but neither of these productions subserves the purpose which I claim my invention does, and they have not, in consequence, come into use.

My improvement consists in forming a series of openings and ledges in a plate or sheet of metal. This I do by first making a series of incisions parallel with and of equal distance from each other. The upper or first incision is made across the sheet from within a half inch, more or less, of each side, at the termination of which, at both the extremities of this incision, I make other incisions downward at right angles, extending a half inch, more or less. The next incision I make is parallel with the first, which is made the same distance, and at each extremity I make similar incisions, but upward at right angles, and to within a quarter of an inch, more or less, of them. Similar incisions are made throughout the sheet, and when thus made a margin of a half inch, more or less, is left. At the same time these incisions are being made, by a peculiar contrivance, I form the ledges, the upper inwardly, while the lower ledge is outwardly. At this process I gather and fold completely that portion of the margin now attached to the sheet between the points of upward and downward incisions. By this means I not only give the ledges their final position on the sheet, one doing the office of and resembling slats, but I reduce in width the openings, thereby permitting the ledges to more than cover them, thereby effectually screening and protecting said openings. The ledges are also bent or curved longitudinally to give them a more ornamental appearance, and also to give them more rigidity. The panel, when thus formed, is ready to be inserted into the wooden frames, such as are used for the present style of blinds, excepting that the frames are grooved with a saw and not bored. This method of inserting the panels strengthens them, and obviates the necessity of forming any molding or corrugation in the plate proper in order to attain stiffness; and a further degree of rigidity to the slats or ledges is imparted by slightly embedding their ends by pressure in the wedging up of the blind-frames. The mode of applying these panels is precisely the same as that of an ordinary door-panel.

I do not corrugate, or crimp, or flute my panel in order to gain any strength, as that is not necessary, only so far as the ledges are concerned, and these are rendered much stronger by being curved or bent at an obtuse angle.

It will be seen that a panel can be formed by slightly changing the incisions, and only bending or forming single ledges outwardly, and dispensing with the upper ledges; but I prefer the double form, as it conforms more in appearance to the accustomed form of ordinary blind-slat.

I can also reduce the width of the openings by substituting for the folds on the margin opposite the openings a series of flutings or crimpings, by which I attain the same principle as heretofore described—that of more fully protecting the openings.

Referring to the accompanying drawings, Figure 1 represents a perspective view of the panel having the ledges or slats bent inward and outward. Fig. 2 represents a perspective view of a panel having the ledges bent out-

wardly only. Fig. 3 represents a cross-section of wooden blind-stiles with panel inserted.

Similar letters of reference indicate corresponding parts.

A is the upper portion of slat; B, the lower portion; C, the space between, forming portion of slat, and the connection between them and the margin. D is the margin; D^1, the folds of margin, which cause the reduction of openings; D^2, the flutings, which answer the purpose of D^1; E, the openings of panels; F, the stiles of blind; G, the groove into which the margin of panel is inserted.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A metallic plate having ledges formed by being bent inwardly and outwardly, or outwardly alone, with a margin folded or crimped, in the manner described, and for the purposes herein set forth.

GEORGE HAYES.

Witnesses:
JOHN H. GIBSON,
CHARLES HAYES.