

D. H. CARPENTER.
Improvement in Metallic Shutters.
No. 131,738. Patented Oct. 1, 1872.

Fig. 1.

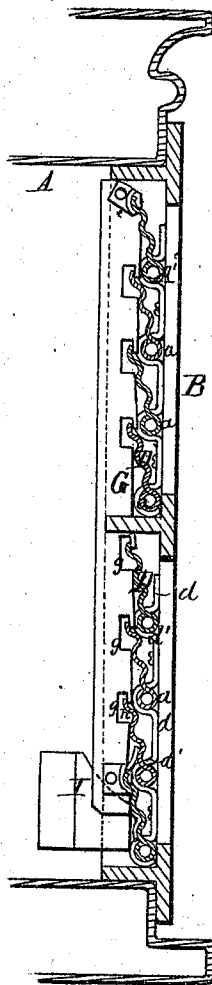


Fig. 3.

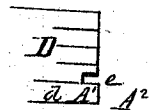
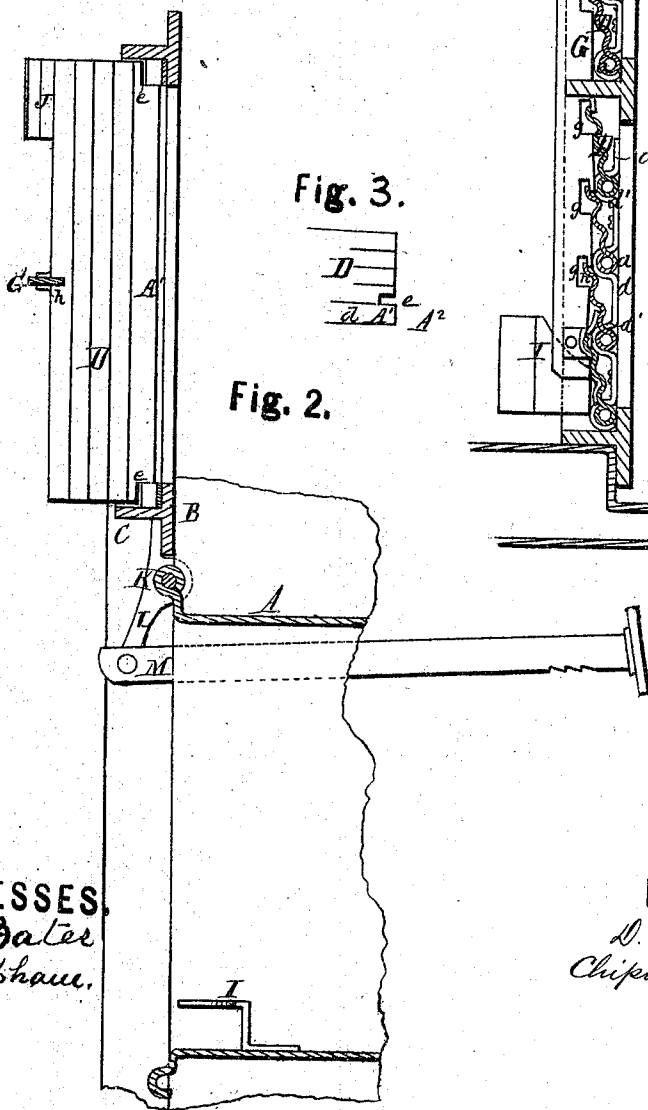


Fig. 2.



WITNESSES.
E. M. Bates
J. E. Upham.

INVENTOR.
D. H. Carpenter,
Chipman Hosmer & Co.,
Atty.

UNITED STATES PATENT OFFICE.

DANIEL H. CARPENTER, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN METALLIC SHUTTERS.

Specification forming part of Letters Patent No. 131,738, dated October 1, 1872.

To all whom it may concern:

Be it known that I, DANIEL H. CARPENTER, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and valuable Improvement in Combined Window Blind and Shutter; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical section, and Fig. 2 is a horizontal section, of my invention. Fig. 3 shows the end or hinge portion of the slat.

My invention has relation to metallic window-blinds for fire proof buildings; and it consists in the construction and novel arrangement of hinged corrugated metal blind-slats and the operating mechanism thereof, all as hereinafter described and claimed.

In the accompanying drawing, A represents a metallic window-frame, to the outside of which is hinged the cast-iron blind-frame B, constructed with the border flanges C, as shown. D designates the blind-slats, which are made of sheet-iron plates longitudinally corrugated or fluted, and hinged to the blind-frame within the confines of the flanges C. Strips *d* are secured to the blind-frame, and have semicircular indentations formed at *d'* to provide bearings for the hinged slats. The hinge-barrel A¹ of each of the slats is produced by bending the metal at its lower or pivot edge to the form of a tube, having the nature of a continuation of the edge corrugation, and then cutting notches at *e* to allow the ends A² of the barrel to enter their bearings *d'*. I prefer leaving the ends of the slats flush with the ends of the barrels, as by this means, when the slats are closed, the ends will overlap the interior edges of the frame, and so conduce to render the frame nearly air-tight if not quite so. The corrugations in the slats, it will be noticed, are of such a nature that when the slats are closed the barrel of each exactly coincides with and fits the concavity in the outer edge of the lower adjacent slat. By this means the joints are rendered as close as possible, and besides being nearly

air-tight give the external surface of the blind a uniform appearance throughout. The object of making the blind-slats corrugated is to allow them to be made light and yet strong enough for efficiency and durability. In rendering the blind air-tight or nearly so, an additional security is obtained against the progress of fire, which is invariably promoted by the admission of air to the flames. The blind slats are designed to operate conjointly in opening and closing, and for this purpose they are connected together by means of a vertical reciprocating bar, G. This bar is hinged to the top and bottom slats, and may also be hinged to those intervening, but to save work and expense I connect the said intervening slats to the bar G by forming L-shaped open slots *g* at intervals in the edge of the latter, and place in said slots the edges of the slats. The peculiar form of the slots *g* allows the slats to work as freely as if they were hinged to the bar G. To allow said bar to be easily arranged and to enable the slats to turn readily lips *h* are bent in the edges of the slats, and adapted to enter and play within the slots *g*. The slats are opened when the blind-frame is swung out by their own weight and that of the bar G. When the blind is closed the slats are also closed by being raised through the medium of a stationary cam, I, secured to the interior of the window-frame and adapted to act upon a lug, J, projecting from the lowest slat. The blind may be arranged as a shade to the light by nearly but not fully closing it. In this position the stationary cam I will raise the slats slightly but not enough to shut out all the light. The blind-frame is adapted to be closed and opened from the inside of the building. For this purpose the lower hinge K is furnished with an oblique arm, L, to which is pivoted a bar, M, which passes through the lower part of the window-frame, and works freely through an aperture provided for it. By a proper manipulation of the bar M the blind is swung to any desirable position. The edges of said bar may be notched and arranged to engage with suitable stops or flanges so that the blind will stand securely at any point to which it is adjusted.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The hinged blind-slats D having the lips *h*, in combination with the vertical reciprocating bar G having the open slots *g*, and pivoted or hinged to the top and bottom slats only, substantially as specified.

2. The metallic corrugated blind-slat D having its edge so turned as to produce a tubular hinge barrel, A¹, and having its end flush with the bearing ends of said barrels and separated therefrom by means of slots or notches *e*, substantially as and for the purpose specified.

3. The stationary cam I, in combination with the hinged blind-slats D and lug J, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

D. H. CARPENTER.

Witnesses:

D. D. KANE,

GEORGE E. UPHAM.