

C. Hartwell.

Skylight.

N^o 19,661.

Patented Mar. 16, 1858.

Fig. 1.

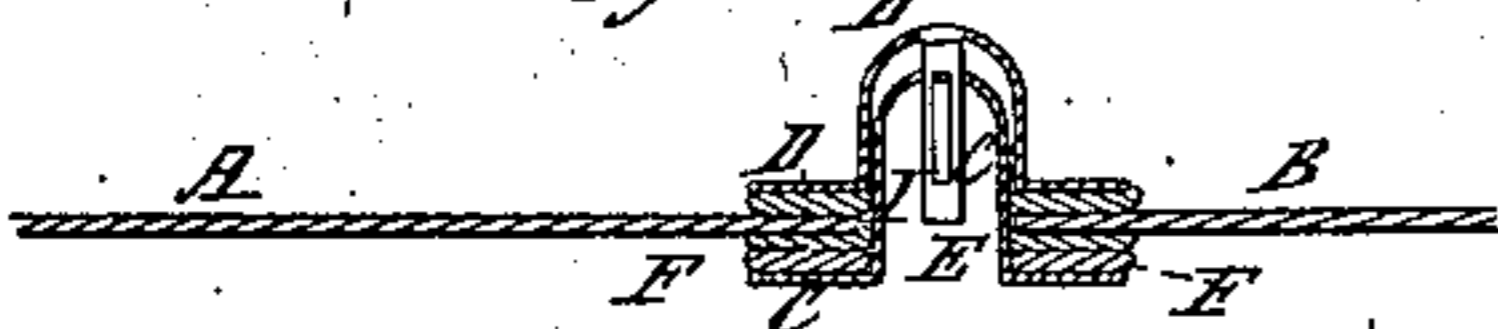


Fig. 2.

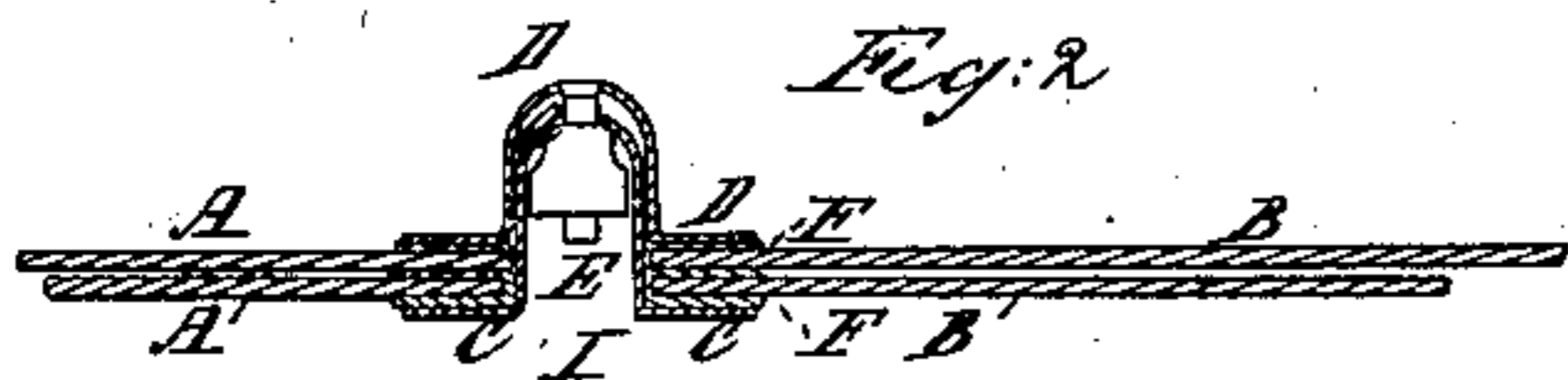


Fig. 3.

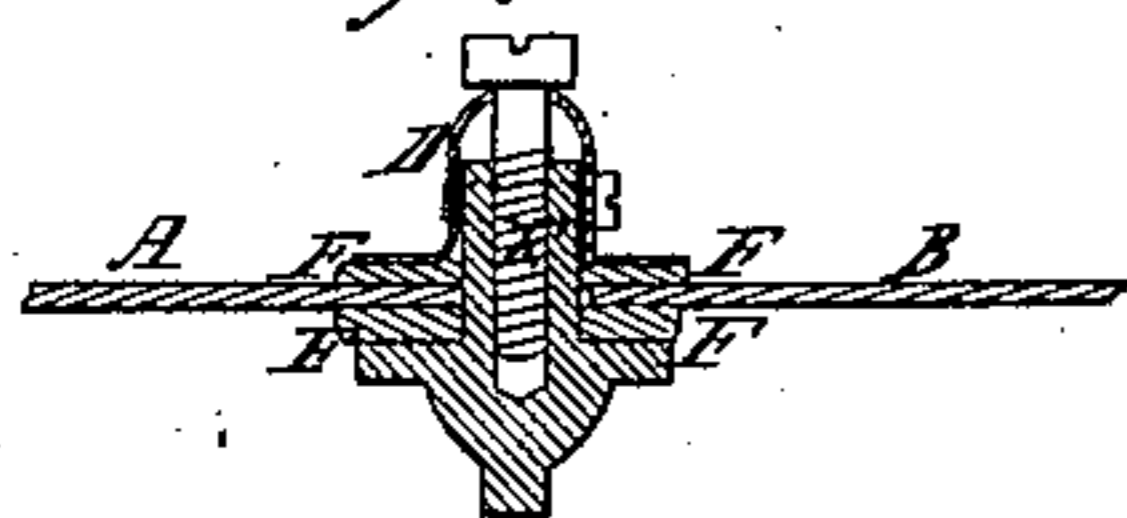
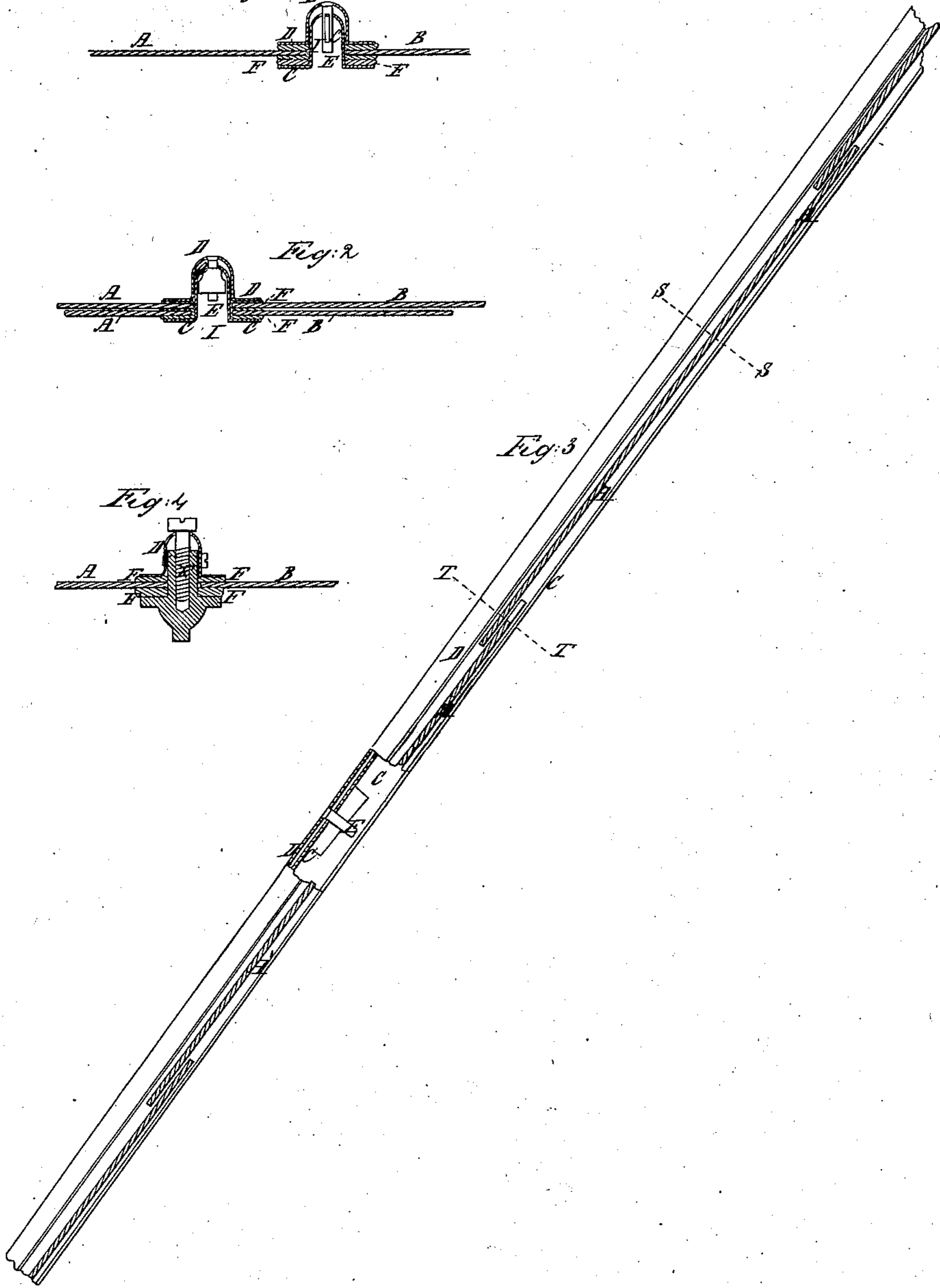


Fig. 4.



UNITED STATES PATENT OFFICE.

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METALLIC SASH.

Specification of Letters Patent No. 19,661, dated March 16, 1858.

To all whom it may concern:

Be it known that I, CHARLES HARTWELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Construction of Metallic Sash More Especially Applicable to the Inclined Windows of Hothouses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figures 1 and 2 are transverse sections; Fig. 3 a side elevation, and Fig. 4 a transverse section of my invention in another but less desirable form.

My invention consists in constructing the sash in two parts,—rubber or some similar elastic material being introduced between the glass and the sash in lieu of putty,—and forming the parts in the forms described below, so that the elasticity of the metal aids in maintaining a tight contact with the glass to exclude water, while it allows the glass to warp or spring under the influence of temperatures.

It also consists in so forming and combining the parts that the keys or nuts or their equivalents by which the parts are secured together, are let into, or concealed within, a deep groove to economize room.

The great rigidity of metallic sashes as usually constructed is sometimes productive of fractures of the glass, when the latter is secured in the ordinary manner, by pins and putty. The difference in the temperature of the air on the exterior and interior surfaces of the glass induces a tendency to warp or bend, which the rigid sash and the hard dry putty will not allow, and the glass is broken.

My invention by giving the sash a greatly increased degree of elasticity in consequence of the form of its section and by employing an elastic material instead of putty to close the joint allows the glass to bend sufficiently to avoid the difficulty.

To enable others skilled in the art to make and use my invention I will proceed to describe it.

Similar letters of reference refer to like parts in all the drawings.

A B represent the edges of two panes of glass. A' B' represent edges of other corresponding panes.

C represents the inside part of the sash, and D the outside part.

E E etc. are short bolts, secured, by riveting, or in any convenient manner, to the outer part D, and provided either with a key seat and key as shown in Fig. 1 or with a thread on which is screwed a suitable nut as shown in Fig. 2.

F F etc. represent strips of rubber, each strip being folded upon itself, so that it forms a tapering or wedge-shaped mass of elastic material, which is applied to the glass on each side, in the manner distinctly shown, in the figures, so as to make a tight and elastic packing, filling the narrow irregular space existing between the glass and the two parts C D of the sash.

The horizontal edges of the glass are usually lapped one upon the other, as represented in Figs. 2 and 3 a construction very common in hot-house sashes, leaving also a narrow space between the two panes entirely open for the free circulation of air. This circulation of air is not however an essential feature in hot-houses nor is the lapping of the glass necessary to the success of my invention. The glass may be simply laid with the edges of each pane abutting against the edges of the panes above and below it, in which case the elastic strips F must be made of uniform thickness and the abutting edges of the glass must be cemented by some suitable material to prevent the ingress of water. I prefer dissolved rubber for this purpose.

In the usual arrangement of hot house sashes the glass is in effect made to extend continuously from the top to the bottom of the inclined sides as I have represented and described but this is not essential to my invention.

My invention may be adapted to sashes for dwelling houses, in which instances the cross bars or horizontal stiles should be similar to the inclined stiles and may be fastened thereto by soldering, riveting, brazing, welding, or any analogous means, or the whole may be cut out in one piece, and stamped or swaged into the form required.

Fig. 4 shows the inner part A A of my invention, in one of the forms heretofore frequently adopted for a metallic sash to which glass is to be secured in the ordinary manner by putty. In other words, it rep-

resents glass secured by my invention in what was originally an ordinary sash. In such instances my invention simply provides the elastic bedding F F on both the exterior and interior surfaces of the edges of the glass, and a suitably shaped outer part D, with bolts F and nuts.

Figs. 1, 2, and 3 show a lighter and better form of my invention, the inner part A being rolled or swaged with a deep groove, as represented, on the interior side, and in which groove are received the ends of the rivets or short bolts E. In either form of the invention, when under change of temperature, the glass inclines to spring or curve itself, it is enabled to do so to a considerable extent by a yielding both of the rubber bedding F F and of one or both the parts C and D of the sash.

The form represented in Figs. 1, 2, and 3 allows both the inner part C and the outer part D to spring or yield somewhat, and in this respect, as well as in lightness and in

economy of space by concealing the fastenings, this form of sash is preferable to the one shown in Fig. 4 as in the latter only the portion D is sufficiently elastic to be of any service in relieving the glass from strain.

Having now fully described my sash what I claim as my invention, and desire to secure by Letters Patent, is—

1. The construction and use of metallic sashes composed of two parts C, D, in the form substantially as above described so that one or both the parts may yield by its elasticity, in combination with an elastic bedding F F substantially as above described, and for the purposes set forth.

2. I also claim making the inner portion C of the above described metallic sash with a groove I substantially as described and for the purposes set forth.

CHS. HARTWELL.

Witnesses:

C. MERRIFIELD,
M. G. COOK.