

*S. G. Crane,
Sash Holder.*

No 26,873.

Patented Jan. 17, 1860.

Fig 3

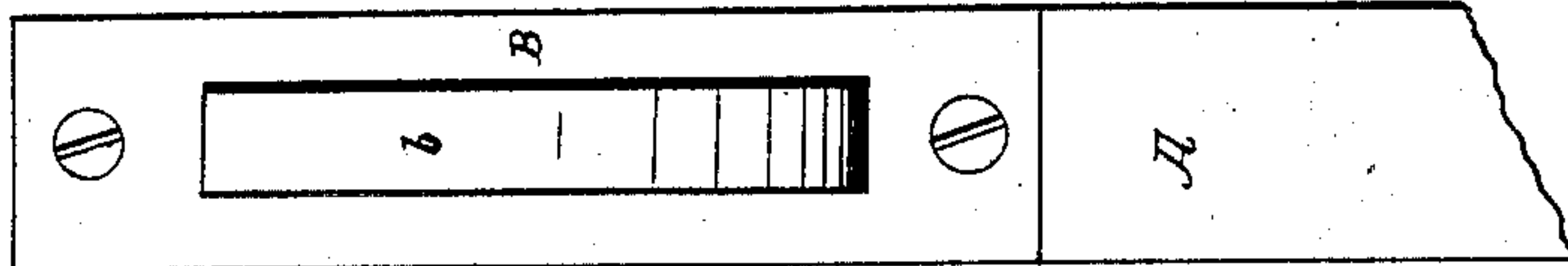


Fig 1

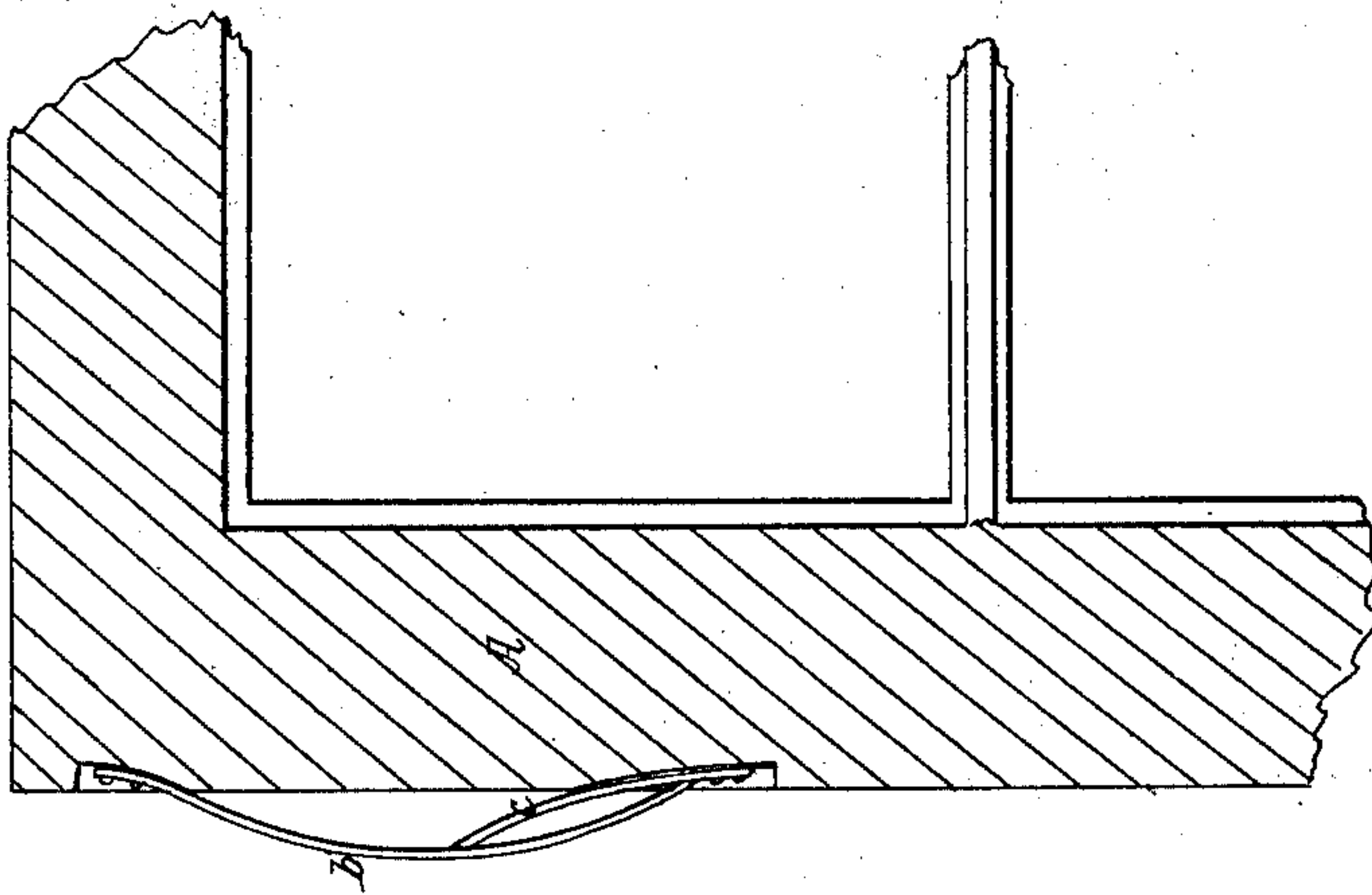
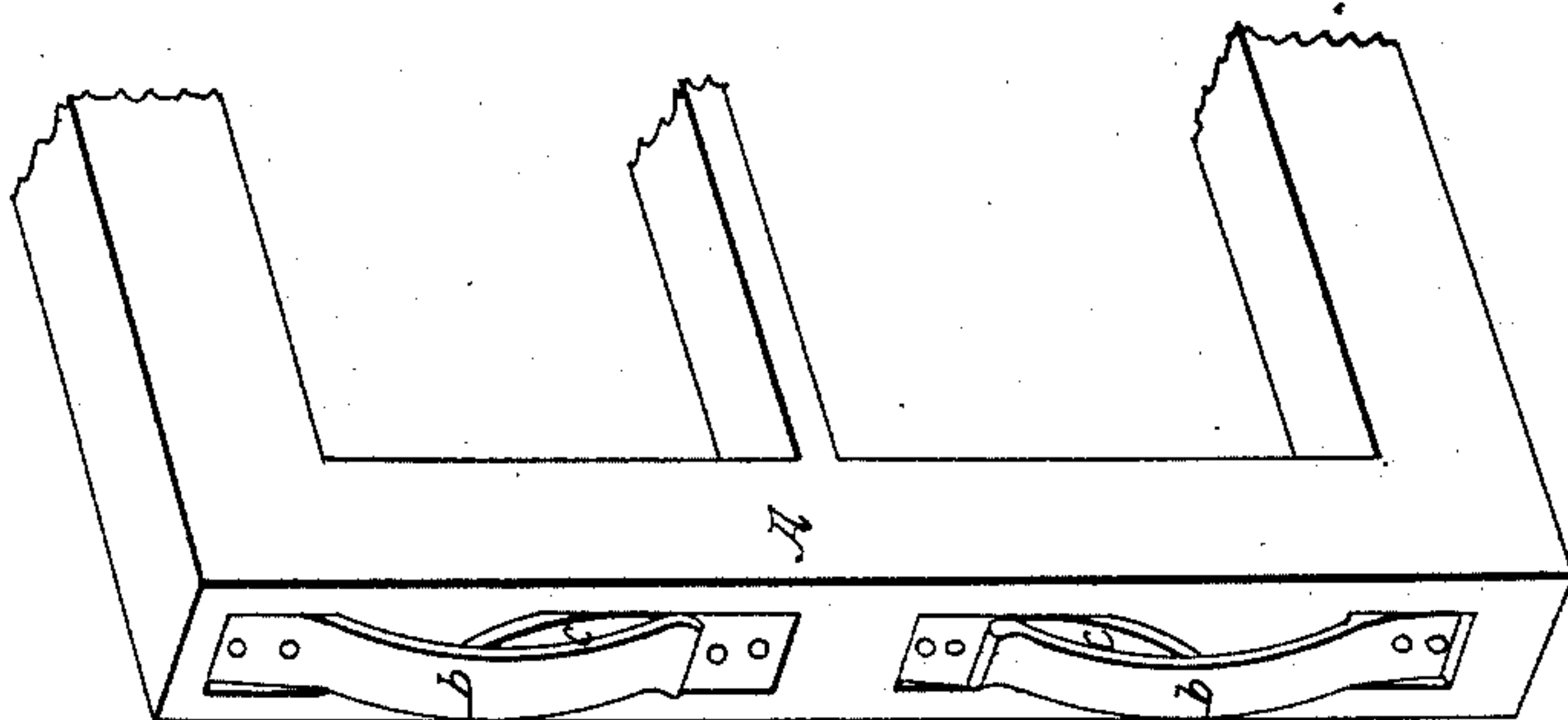


Fig 2



*Witnesses:
J. C. Gaur,
and S. Scoville*

*Inventor:
S. G. Crane*

UNITED STATES PATENT OFFICE.

S. G. CRANE, OF ROCHESTER, NEW YORK, ASSIGNOR TO HIMSELF AND CHARLES C. BARTON, ASSIGNORS TO S. G. CRANE AND CONRAD B. DENNY, OF SAME PLACE.

FRICITION SASH-SUPPORTER.

Specification of Letters Patent No. 26,873, dated January 17, 1860.

To all whom it may concern:

Be it known that I, S. G. CRANE, of Rochester, in the county of Monroe and State of New York, have invented a new and Improved Friction Sash-Supporter for Windows; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1, is a vertical section of a portion of a sash, showing the friction supporter attached. Fig. 2, is a perspective view of the same, of a diminished size. Fig. 3, is an elevation showing a different method of attaching the same to the sash.

Similar letters refer to corresponding parts in all the figures.

As represented in the drawings, A, is the sash, and *b*, a small curved steel spring, having one end let into a small mortise in the sash, and secured by pins, or otherwise, while the other is free. The curvature of the spring gives it a slight projection from the edge of the sash, like the crown of an arch; while underneath a smaller curved spring *c*, is placed with the concave surface opposite that of *b*, so that their outlines produce the figure of an ellipse, and secured at one end in the manner of *b*. This acts as an auxiliary to the main, or bearing spring, *b*, its free end supporting it in the center, and increasing its elasticity and force. Two of these compound springs are attached to each sash, upon one side only, as represented in Fig. 2, and at or near the upper and lower corners. By their projection and elasticity they press the sash in close contact with the opposite jamb or side of the window frame, and the friction thus occasioned serves to retain the sash in any position in which it is left. The friction is, of course, in proportion to the stiffness of the combined springs, and this is regulated by the weight of the sash, the stiffest springs being selected for the heaviest sash. The force with which the spring acts, may also be graduated, to some extent, by the position, or angle, at which the auxiliary spring is set. For instance, if it be desired to increase the power of a supporter already applied, it can be done by cutting the mortise in which the end of spring *c* is fastened, to a greater depth so as to make its bottom surface more oblique to the plane of the sash. This throws the free end

of the auxiliary spring higher, so that the power of the combined springs is materially increased.

The principal spring is in the form of an arch, but, unlike the arch, does not derive strength from that form, as one extremity must necessarily be free to slide on the sash in order to give the requisite elasticity. But the auxiliary spring not only fully supplies the want of stiffness, but adds other qualities nearly as indispensable, such as preventing the tendency to break at the center, which the main spring acquires from the effect of wear, making it thinner and consequently weaker, at that point. The end of *c*, supports it effectually at the exposed place, and shields it from the danger of a concussion, or too sudden bending. It also makes the flexibility greater, and causes it to work with much more freedom than if a thicker spring were relied on to produce this result.

Another advantage is gained which is important to the manufacturer, namely, the great economy of cost as, by my method spring steel, of equal thickness, such as clock springs, and other thin, rolled spring steel can be used with as good a result as if a spring were forged to the exact shape required. In consequence of this, the cost of the springs is reduced so as to be merely nominal.

Another method of attaching them, is represented in Fig. 3; which consists of letting into the wood a metal frame B, which surrounds the projecting portion of the springs, but gives their ends free play beneath it. The plate is fastened with a screw, or nail, at either end, and the springs require no other fastening, except perhaps a slight pin or tack to hold them in place while the frame is put on. By this method, they cannot become displaced.

This improvement is applicable to all sliding sash used in buildings, railroad cars, &c., having the same effect of sustaining the sash in any position which is obtained by balancing with weights, while it possesses some advantages over that method. Among these, may be mentioned that the pressure of the springs holds the sash firmly in the casement; and it can never rattle or jar from the wind, or in being raised and lowered, while from the close contact of the sash and frame, it excludes the air better, and it can as readily be applied to windows already in

use as to new ones, and the expense for either is very trifling indeed, the cost not being more than 5 per cent. of that of balancing with weights. They are convenient of use, 5 sliding with perfect ease, if a slight pressure is exerted toward the side containing the supporters, by which the friction is removed from the wood or opposite side, and thrown on the spring alone, which offer but slight 10 resistance. No inconvenience can result from the swelling of the sash or casings, the sash being a trifle smaller than the frame, as the springs yield to accommodate any changes from that cause.

15 I am aware that springs have been applied, to render the casings adjustable to the sash, and also that strips and blocks have

been applied both to the sash and casings to produce uniform friction, and that spring-snaps and catches have been used for the 20 purpose of sustaining windows; but all of these methods differ essentially from my own, and I do not claim them; but

What I claim as my invention and desire to secure by Letters Patent, is— 25

The combination of the prime supporting spring *b* and auxiliary spring *c*, or its equivalent, applied to a sliding sash, or window, substantially in the manner and for the purpose herein described.

S. G. CRANE.

Witnesses:

J. FRASER,

THAD. S. SCINLLE.