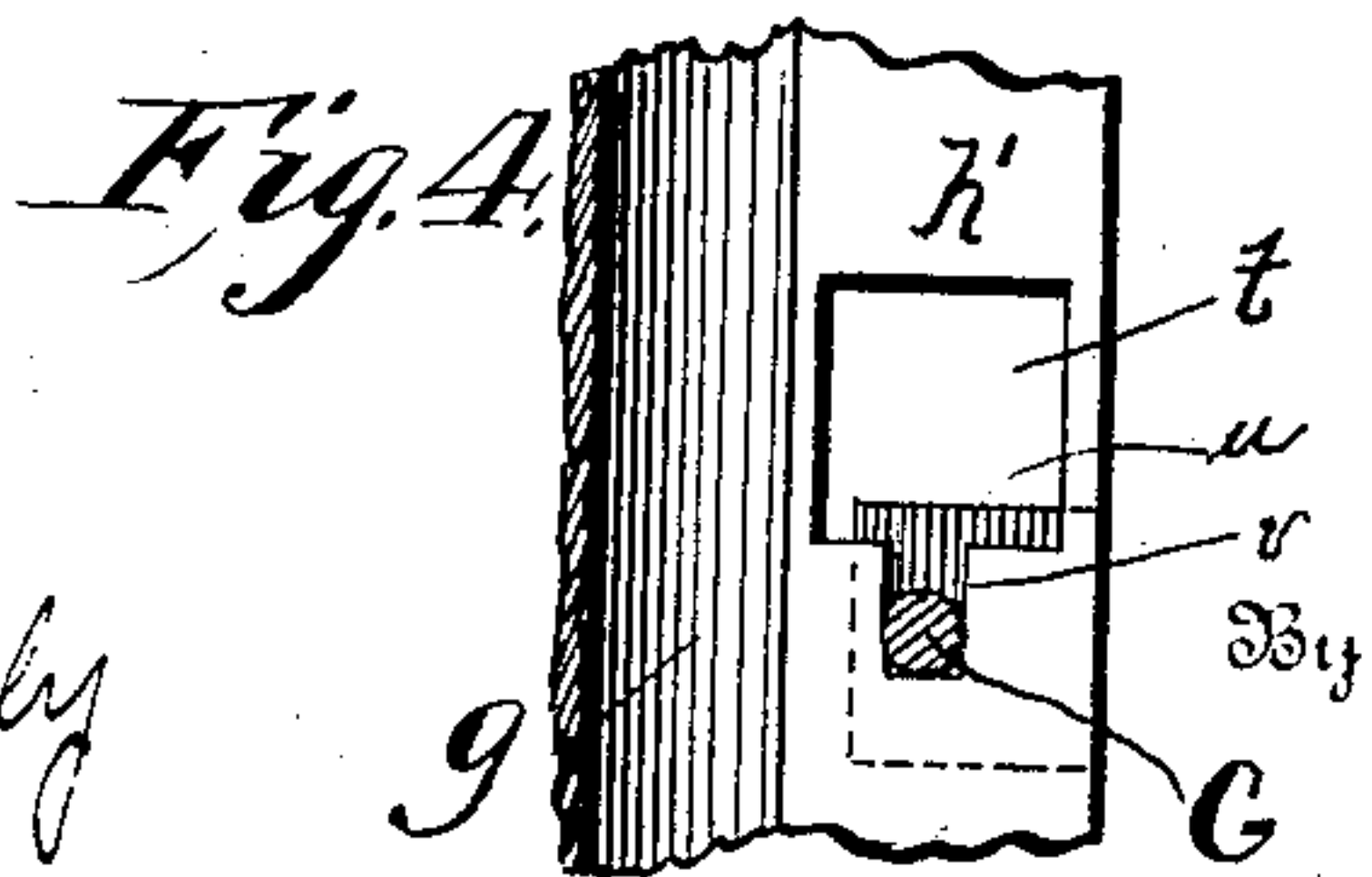
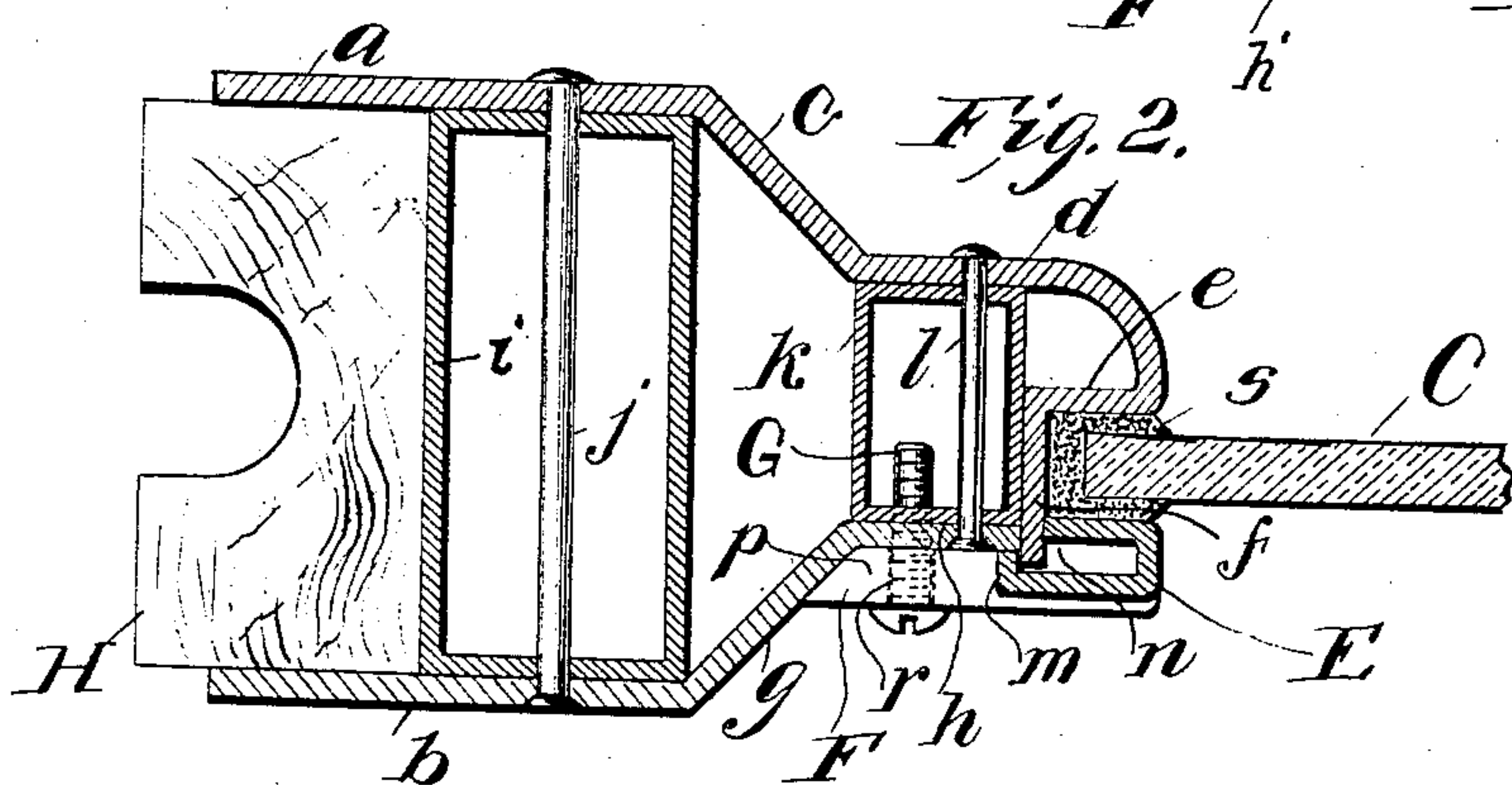
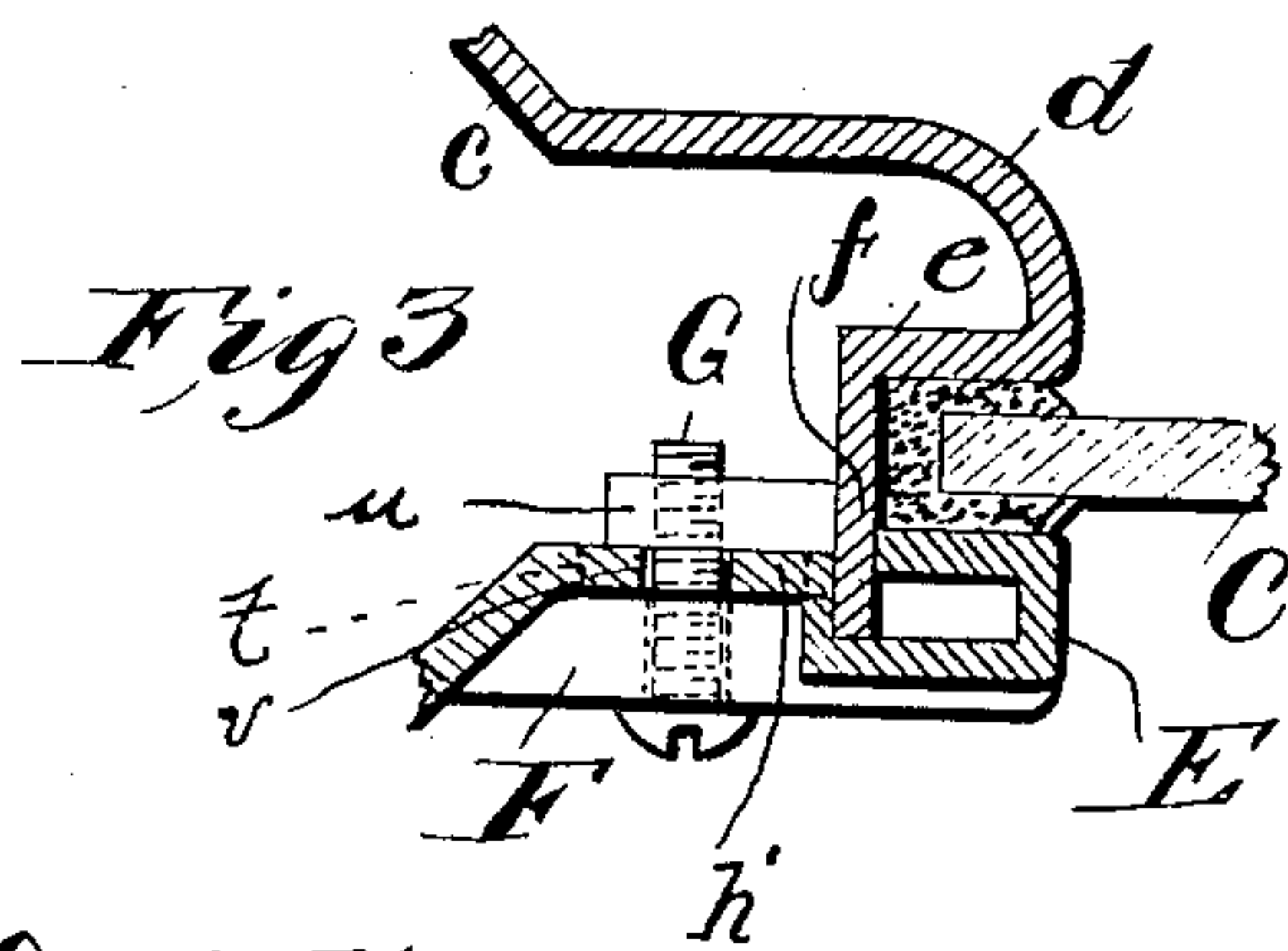
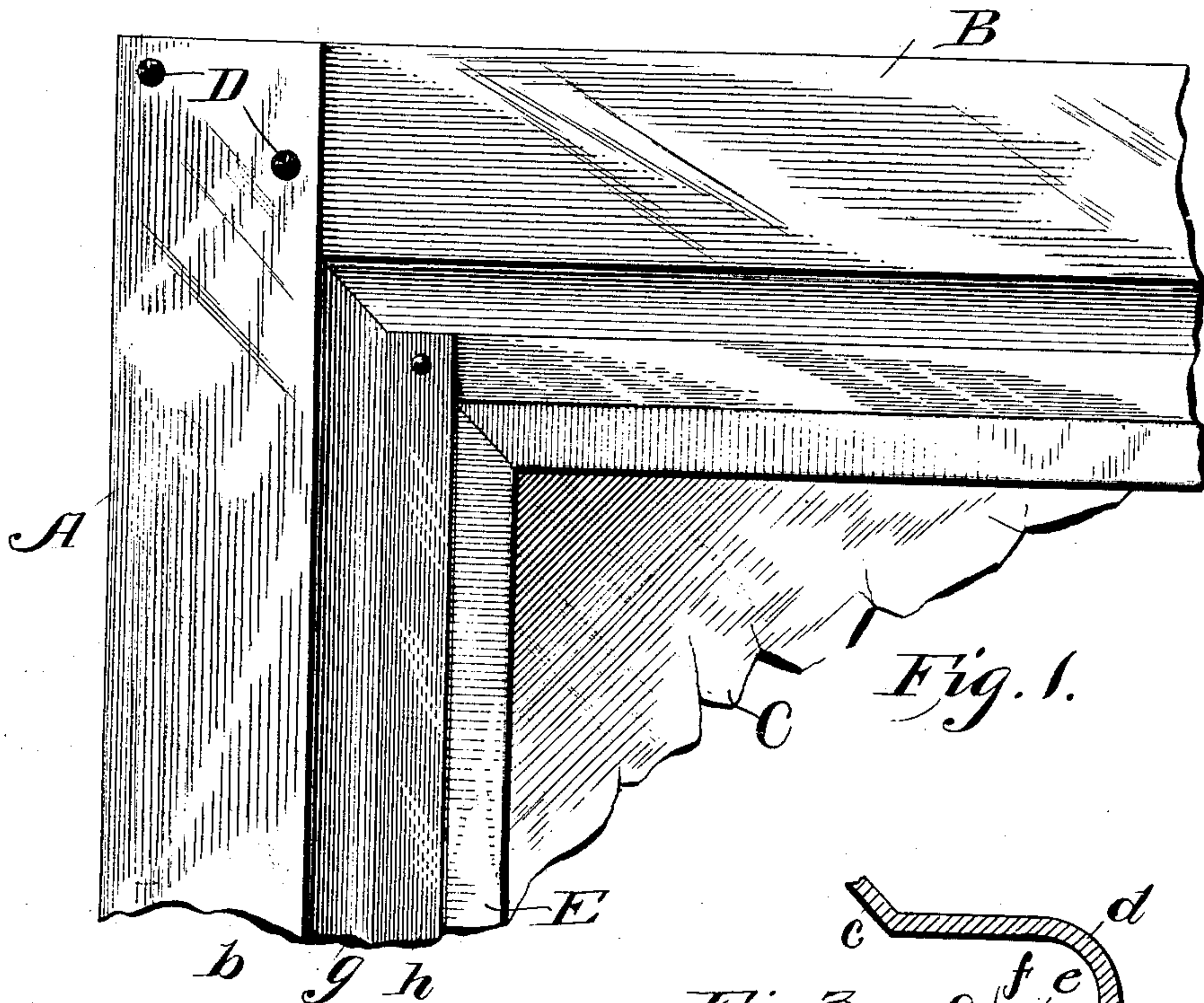


No. 854,665.

PATENTED MAY 21, 1907.

C. & O. A. NEIDIG.
METALLIC WINDOW SASH.
APPLICATION FILED FEB. 26, 1907.



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UNITED STATES PATENT OFFICE.

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METALLIC WINDOW-SASH.

No. 854,665.

Specification of Letters Patent.

Patented May 21, 1907.

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To all whom it may concern:

Be it known that we, CLEMENT NEIDIG and ORA A. NEIDIG, citizens of the United States, residing at Bourbon, in the county of Marshall and State of Indiana, have invented new and useful Improvements in Metallic Window-Sashes, of which the following is a specification.

Our invention pertains to metallic window sashes; and it contemplates the provision of a simple and practical metallic sash constructed with a view of facilitating the secure fastening of a pane of glass therein and of permitting of the ready removal of the pane when broken and the replacing of the same with a new pane.

The invention also contemplates the provision of a metallic window sash which while light in weight embodies such a construction that it is stiff and strong and therefore well adapted to withstand the strains and usage to which window sashes are ordinarily subjected.

With the foregoing in mind the invention will be fully understood from the following description and claims when the same are read in connection with the accompanying drawings, forming part of this specification, in which:

Figure 1 is a front elevation of the corner portion of a metallic window sash constructed in accordance with our invention; the same being shown as equipped with a pane of glass. Fig. 2 is an enlarged cross-section of one of the upright or side bars of the sash with a pane of glass fastened therein. Fig. 3 is a detail cross-section of a modification hereinafter referred to. Fig. 4 is a detail vertical section of the same.

Similar letters designate corresponding parts in both views of the drawings, referring to which:

A is one side bar of our improved metallic sash. B is the top cross-bar thereof, and C is a pane of glass carried by the said bars A and B. The adjoining ends of the bars A and B are preferably connected together in a fixed manner through the medium of rivets D, as illustrated in Fig. 1, but we desire it understood that the said ends of the bars A and B may be fitted and connected together in any manner compatible with the purpose of our invention without involving departure from the scope of the invention as defined in the claims appended.

As illustrated in Fig. 2, the side bar A com-

prises side sections *a* and *b* which are preferably of galvanized iron of about 16 gage, though they may be made of malleable cast iron or of other iron in the discretion of the manufacturer. These sections *a* and *b* extend throughout the length of the bar A, and the section *a* is provided at its inner edge with an inwardly inclined portion *c* which merges, in turn, into a portion *d* disposed parallel to the major portion of the section, and this portion *d* is provided at its inner edge with a portion bent to form a wall or abutment *e* from which extends at a right angle a wall *f* designed to form the bottom of the groove, presently described, for receiving one edge of the pane of glass C. The other side section *b* is provided at the inner edge of its major portion with an inwardly inclined portion *g* from which extends a portion *h* disposed parallel to the portion *d* of the section *a*.

Interposed between the parallel major portions of the side sections *a* and *b* at suitable intervals in the length thereof are rectangular bracing frames *i* of sheet-metal which are fixedly connected to the said major portions of the sections *a* and *b* through the medium of rivets *j* which extend through the sections and brace frames. But one of the said brace frames and its complementary rivet are illustrated, but this will suffice to impart a definite understanding of all the brace frames *i* and rivets *j* since they are identical in construction. Arranged between the portion *d* of the side section *a* and the opposed portion *h* of the side section *b* is a brace frame *k* which is made of metal and rectangular in form and is connected to the portions *d* and *h* by a through and through rivet *l*. We have shown but one brace frame *k* and rivet *l* in Fig. 2, but we desire it understood that any desired number of said frames and rivets may be and preferably are employed at intervals in the length of the bar A.

E is a metallic strip which extends the full height of the inner portion of the bar A and is designed to cooperate with the wall or abutment *e* of the side section *a* in fastening the pane of glass C in the groove of the bar A. At this point it is well to state that the pane of glass is embedded in putty, rubber, felt, asbestos or analogous substance in the groove of the bar A precedent to the application of the metal strip E the office of which is to hold the pane of glass in the groove of the bar. The said metallic strip is provided at its outer

edge with a lateral flange *m* designed to bear at its edge against the portion *h* of the side section *b*, and it is also provided with a portion *n* of U-shape in horizontal section arranged to bear at its edge against the bottom wall *f* of the pane-receiving groove.

F is one of a plurality of metallic clamps which are arranged at the outer side of the strip E at intervals in the length thereof, and have for their office to hold the said strip in the proper position relative to the side sections *a* and *b*, and are preferably ornamental so as to enhance the finished appearance of the sash. The said clamps F are arranged at intervals in the height of the strip E and bar A, and each is provided with a comparatively thick portion *p* of a shape in cross section to snugly fit between the flanged edge *m* of the strip E and the inclined portion *g* of the side section *b*. Each clamp F is also provided with a smooth aperture *r* for the passage of a screw G through the medium of which the clamp is detachably connected to the portion *h* of the side section *b*.

In one embodiment of our invention the brace frames *k* of the side bar are preferably positioned so that they also receive the screw G, this being advantageous since two thicknesses of metal are presented to the screw and a stronger connection is effected.

In assembling the parts of our improvements the edge of the pane of glass C is embedded in putty or analogous substance *s* in the groove formed between the walls *e* and *f* of the side section *a*. The pane of glass C is of course adjusted to position laterally or in the direction of its thickness, and after it is in proper position the strip E is placed laterally in position so that the wall *f* is received between its edges and its flanged edge *m* bears against the portion *h* of the side section *b*. The several clamps F are then placed in position and connected to the side section *b*, when, as will be readily apparent, said clamps will hold both the strip E and the pane of glass C in a secure manner and against rattling or other casual movement. At this point it will be noted that no edge of the strip E is presented to the glass C, and hence the strip is adapted to cooperate with the opposed portion of the side section *a* in holding the pane of glass and yet is not liable to break, scratch or otherwise mar the glass.

When it is desired for any reason to remove the pane of glass C, the same may be expeditiously and easily accomplished after the screws G, clamps F and strip E are detached in the order named, and from this it follows that a new pane of glass may be as readily secured in the sash.

Our novel sash is advantageous not only because of the facility with which a pane of glass may be secured in and removed from the sash, but also because of the stiffness and strength which the brace frames and their

complementary rivets impart to the bars of the sash without rendering the same unduly heavy.

The top bar and the bottom bar of the sash are of the same construction as the side bars, but may be of different sizes in cross-section to meet different conditions. We would also have it understood that in the discretion of the manufacturer our novel sash may be arranged to carry either one or a plurality of lights or panes of glass.

H is a body of wood which is arranged between and suitably fastened to the major portions of the side sections *a* and *b*. This body of wood is designed to facilitate connection of a sash cable (not shown) to the sash, and in the first instance it projects beyond the said side sections so that it may be planed off to render easy the fitting of the sash in a sash frame. This constitutes an important feature of our invention, but yet we desire it understood that for strictly fire-proof or other work a metallic filling may be substituted for the wood body H.

It will be understood of course that the wood bodies H need be employed in the side bars of the sash alone.

In lieu of threading the screws G into the portions *h* of the side section, the screws may be connected with the side section in the manner shown in Figs. 3 and 4. In the construction shown in said figures, the portion *h'* of the side section is provided with an angular aperture *t* for the passage of an angular nut *u*, and a slot *v* extending from aperture *t*, and the screw G extends through the clamp F and slot *v* and engages the nut. The nut *u* bears against the wall *f* and hence is held against turning. It will be seen however, that when the screw G is loosened and the screw and nut are moved up to the angular aperture *t*, the nut may be drawn through the aperture and the clamp F disconnected from the side section.

The construction herein shown and described constitutes the preferred embodiment of our invention, but it is obvious that in practice various changes in the form, construction and relative arrangement of parts may be made that do not involve departure from the scope of our invention as defined in the appended claims.

Having described our invention, what we claim and desire to secure by Letters-Patent, is:

1. In a window sash, a bar comprising metallic side sections connected together and suitably held apart; one of the said side sections having walls disposed at right angles to each other and arranged to form a groove for the reception of the edge of a pane of glass, a clamp detachably connected to the other side section, and a metallic pane-retaining strip arranged at the inner side of the clamp and receiving that wall of the first mentioned side

section which forms the bottom of the pane-receiving groove.

2. In a window sash, a bar comprising metallic side sections connected together and suitably held apart; one of the said side sections having walls disposed at right angles to each other and arranged to form a groove for the reception of the edge of a pane of glass, and a metallic pane-retaining strip detachably connected with the second mentioned side section and receiving that wall of the first mentioned side section which forms the bottom of the pane-receiving groove.

3. In a window sash, a bar comprising metallic side sections connected together and suitably held apart; one of said side sections having walls disposed at right angles to each other and arranged to form a groove for the reception of the edge of a pane of glass, a metallic pane-retaining strip bent or shaped in cross-section to receive that wall of the first mentioned side section which forms the bottom of the pane receiving groove and bear at one edge against the outer side of the second mentioned side section, a clamp having a portion resting at the outer side of the pane-retaining strip and also having a comparatively thick portion of a shape in cross-section to snugly fit between the outer end of the strip and the opposed portion of the second mentioned side section, and a screw detachably connecting the thick portion of the clamp to the latter side section.

4. In a window sash, a bar comprising metallic side sections having parallel major portions and also having inwardly inclined portions and parallel portions closer to each other than the first mentioned parallel portions; the said side sections being suitably connected together and held apart, and one of the same having walls disposed at right angles to each other and arranged to form a groove for the reception of the edge of a pane of glass, a metallic pane-retaining strip receiving that wall of the first mentioned side section which forms the bottom of the pane receiving groove, and suitable means detachably connecting the pane-retaining strip to the second mentioned side section.

5. In a window sash, the combination of a metallic side section having walls arranged to form a groove for the reception of the edge of a pane of glass, a second section connected to and held away from the first mentioned section, a metallic pane-retaining strip receiving and adjustable on the bottom wall of the first mentioned side section, and means detachably connecting said strip with the second mentioned side section.

6. In a window sash, the combination of a metallic section having walls disposed at

right angles to each other to form a groove for the reception of the edge of a pane of glass, and a metallic pane-retaining strip detachably connected with the section and receiving and adjustable on the bottom wall of the pane-receiving groove.

7. In a window sash, a bar comprising metallic sections connected together and suitably held apart; one of said sections having a pane receiving groove open at one side, a clamp detachably connected to the other section, and a metallic pane-retaining strip arranged at the inner side of the clamp and engaged with and held against displacement by the first mentioned section.

8. In a window sash, the combination with a bar having a pane receiving groove open at one side; said bar being formed of metal, a clamp detachably connected to the bar, and a metallic pane-retaining strip arranged at the inner side of the clamp and engaged with the bar, whereby it is held against movement from between the bar and the clamp.

9. In a window sash, a bar comprising metallic side sections having parallel major portions, inwardly inclined portions, and inner parallel portions closer together than the first mentioned parallel portions, a rectangular brace frame interposed between the first mentioned parallel portions of the side sections, means extending through and connecting said portions and frame, a rectangular brace frame interposed between the second mentioned parallel portions of the side sections, and means extending through and connecting said portions of the side sections and the frame.

10. In a window sash, a bar comprising metallic side sections suitably connected together and held apart, and a body of wood fastened between and extending beyond the edges of the said side sections, for the purpose set forth.

11. In a window sash, the combination of a hollow sash bar having in one side wall an aperture and a slot extending therefrom, a removable pane-retaining strip, a nut arranged at the inner side of the said side wall of the bar, a clamp arranged at the outer side of the strip, and a screw extending through the clamp and the slot in the side wall of the bar and engaging the nut.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

CLEMENT NEIDIG.
ORA A. NEIDIG.

Witnesses:

LUTHER JOHNSON,
G. S. BURWELL.