

No. 683,077.

Patented Sept. 24, 1901.

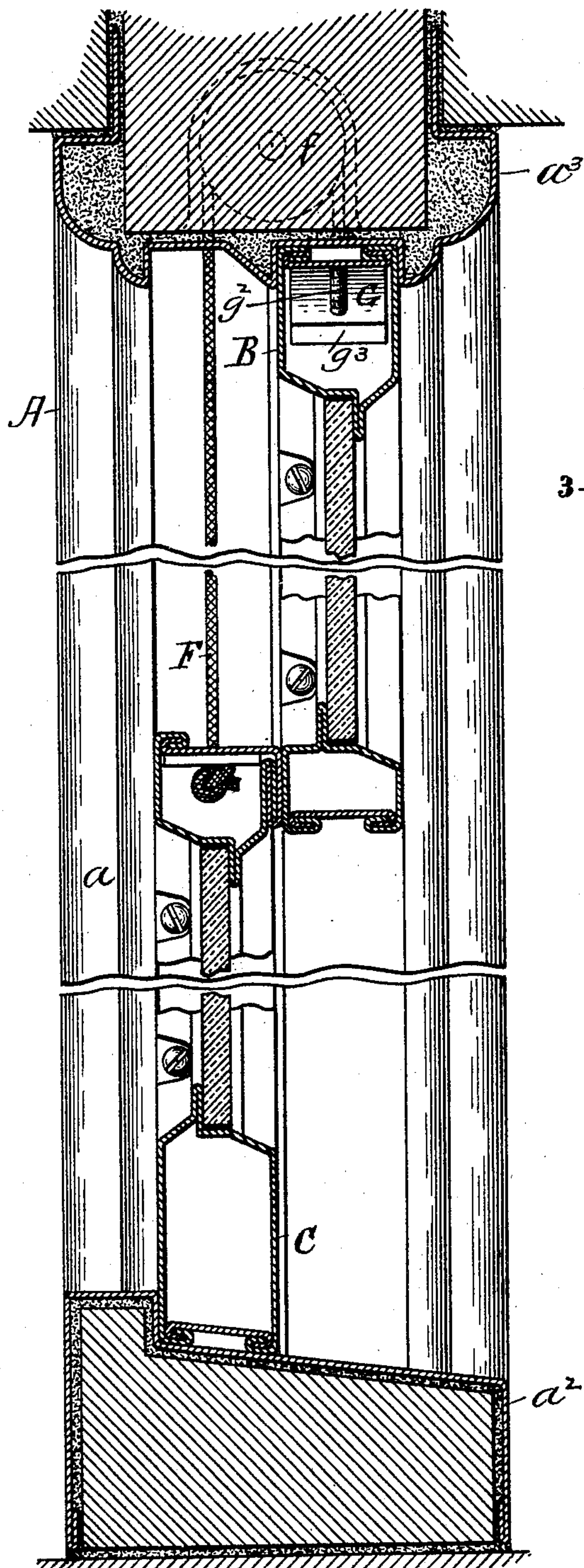
H. C. SMITH.

WINDOW FRAME AND WINDOW SASH.

(Application filed Aug. 24, 1899.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:
H. H. Carter
Jas. P. Tolman

FIG. 1.

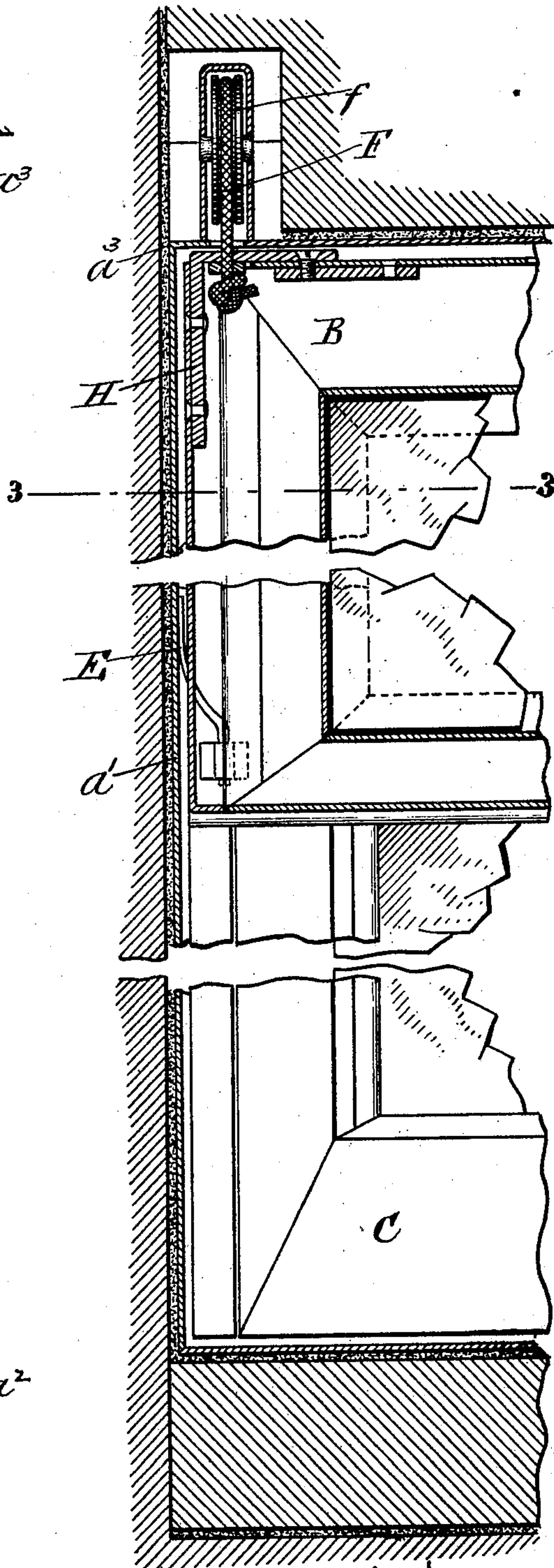


FIG. 2. INVENTOR:
H. C. Smith
by his atty
Clark & Raymond

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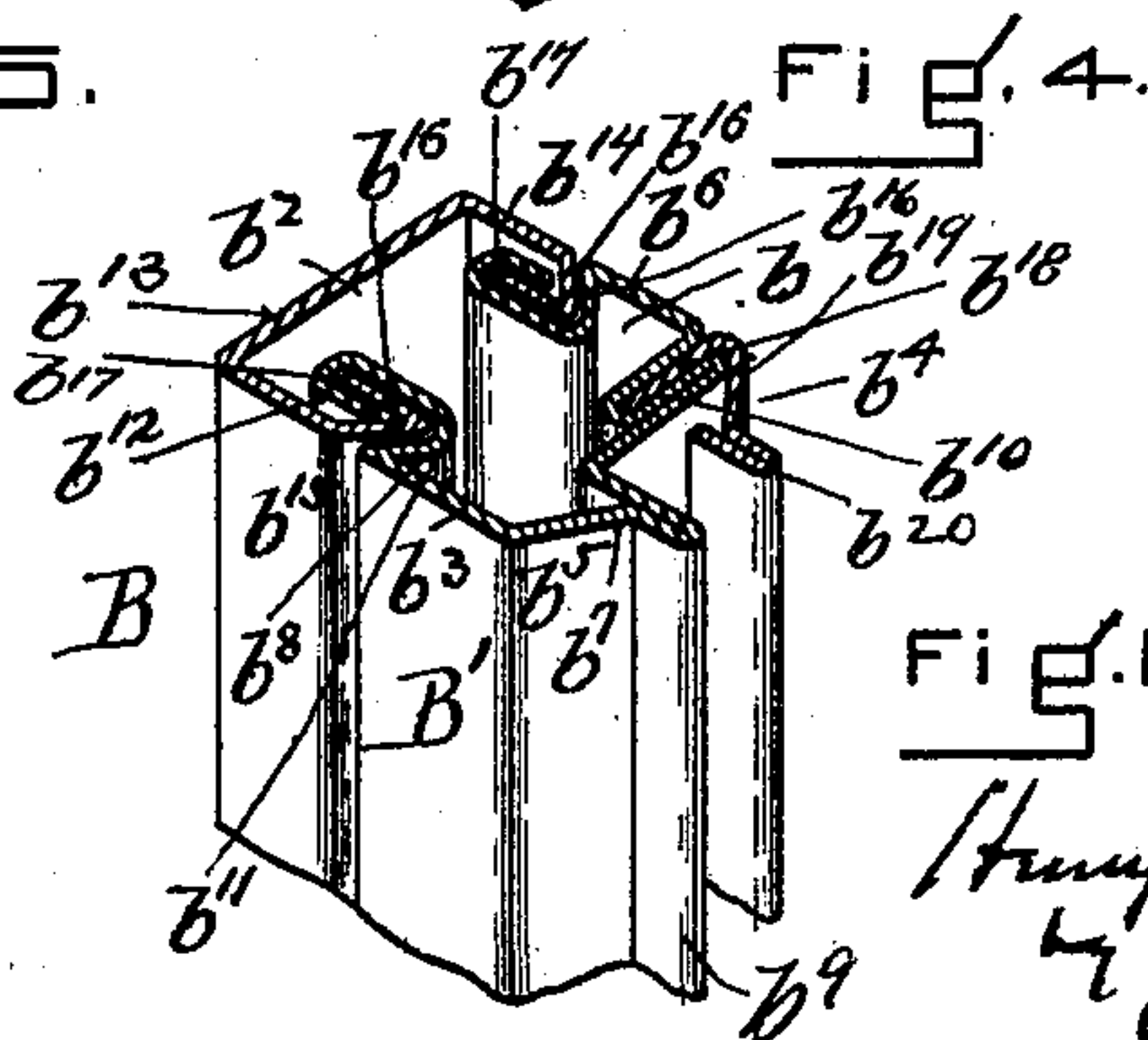
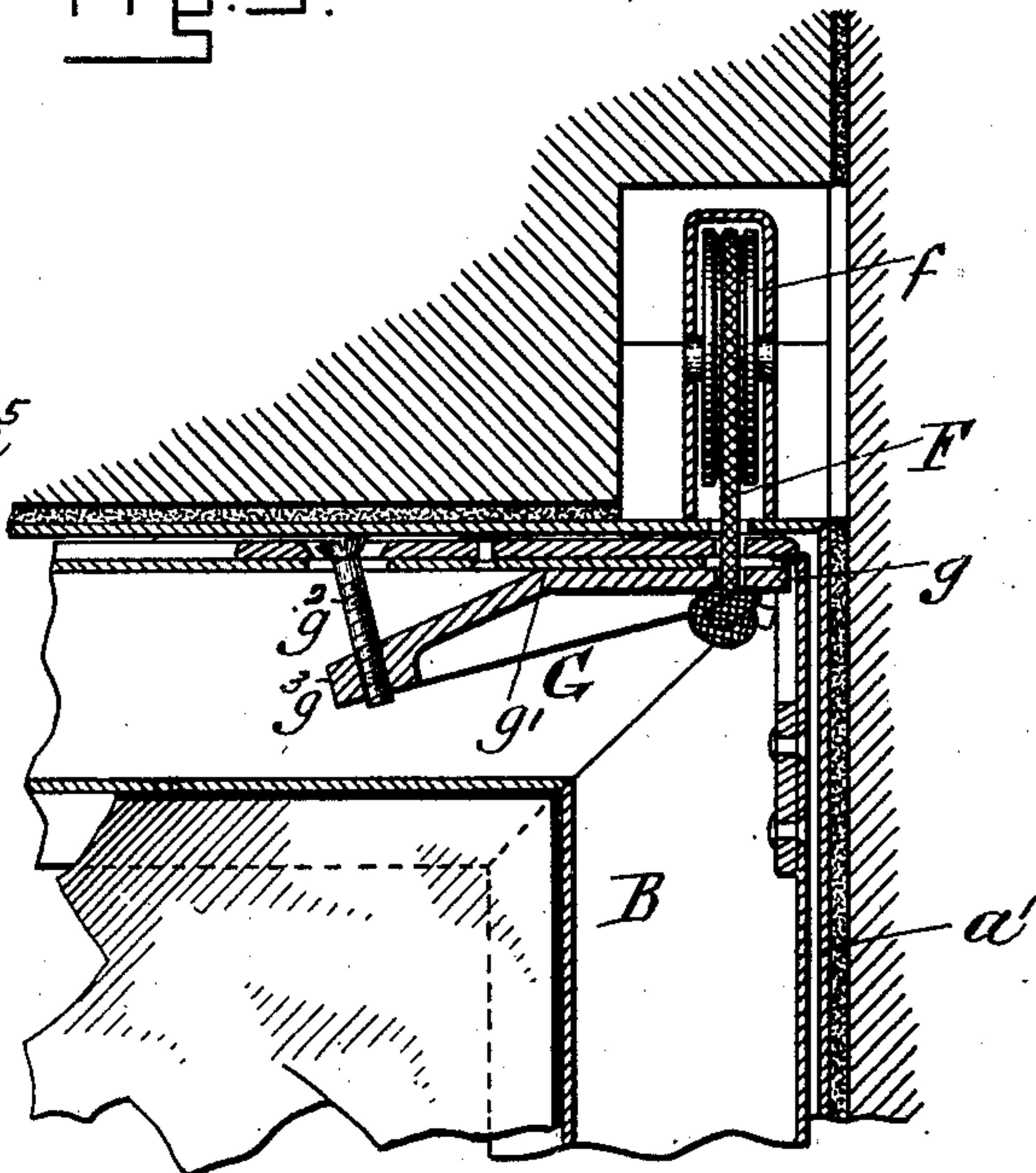
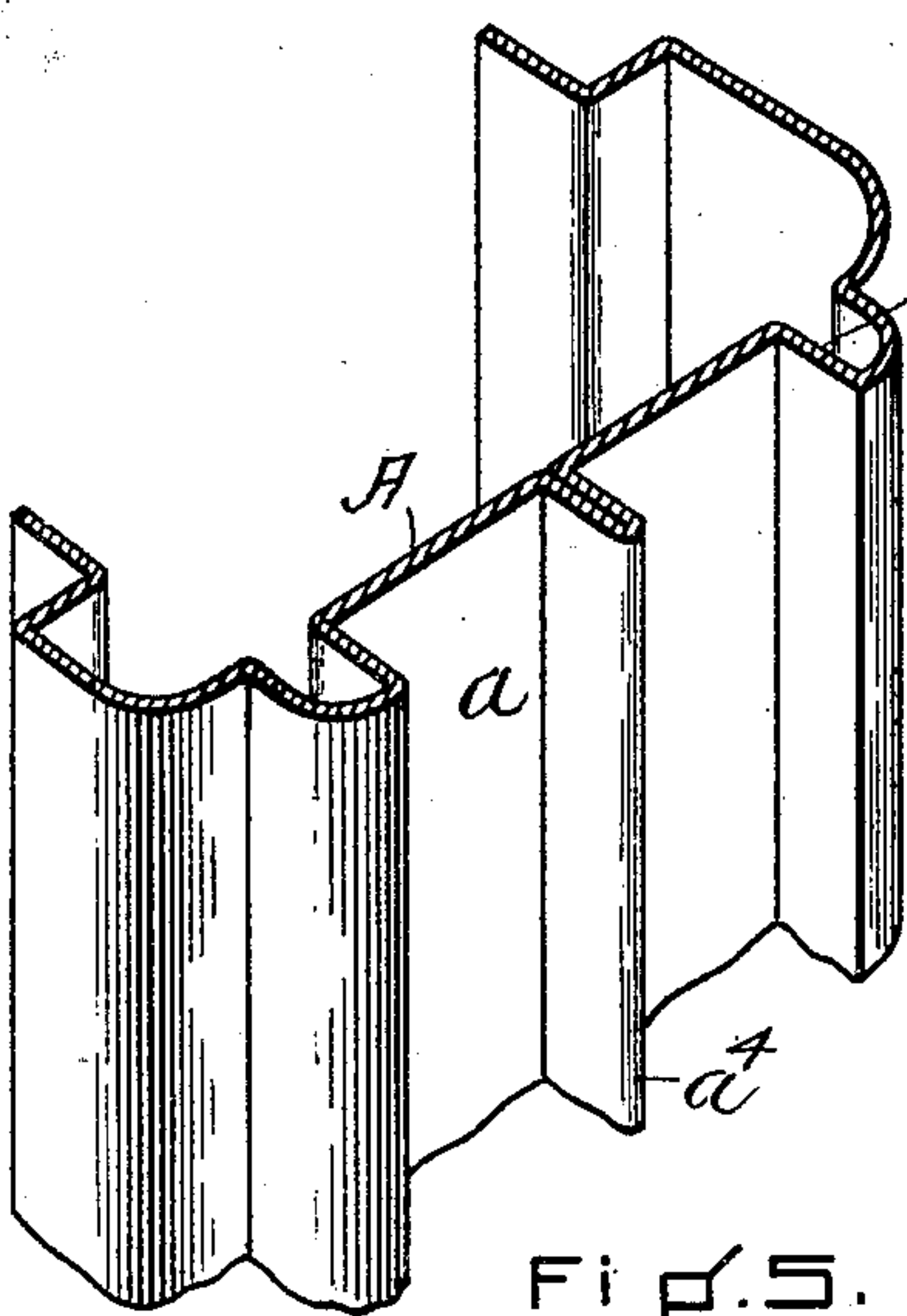
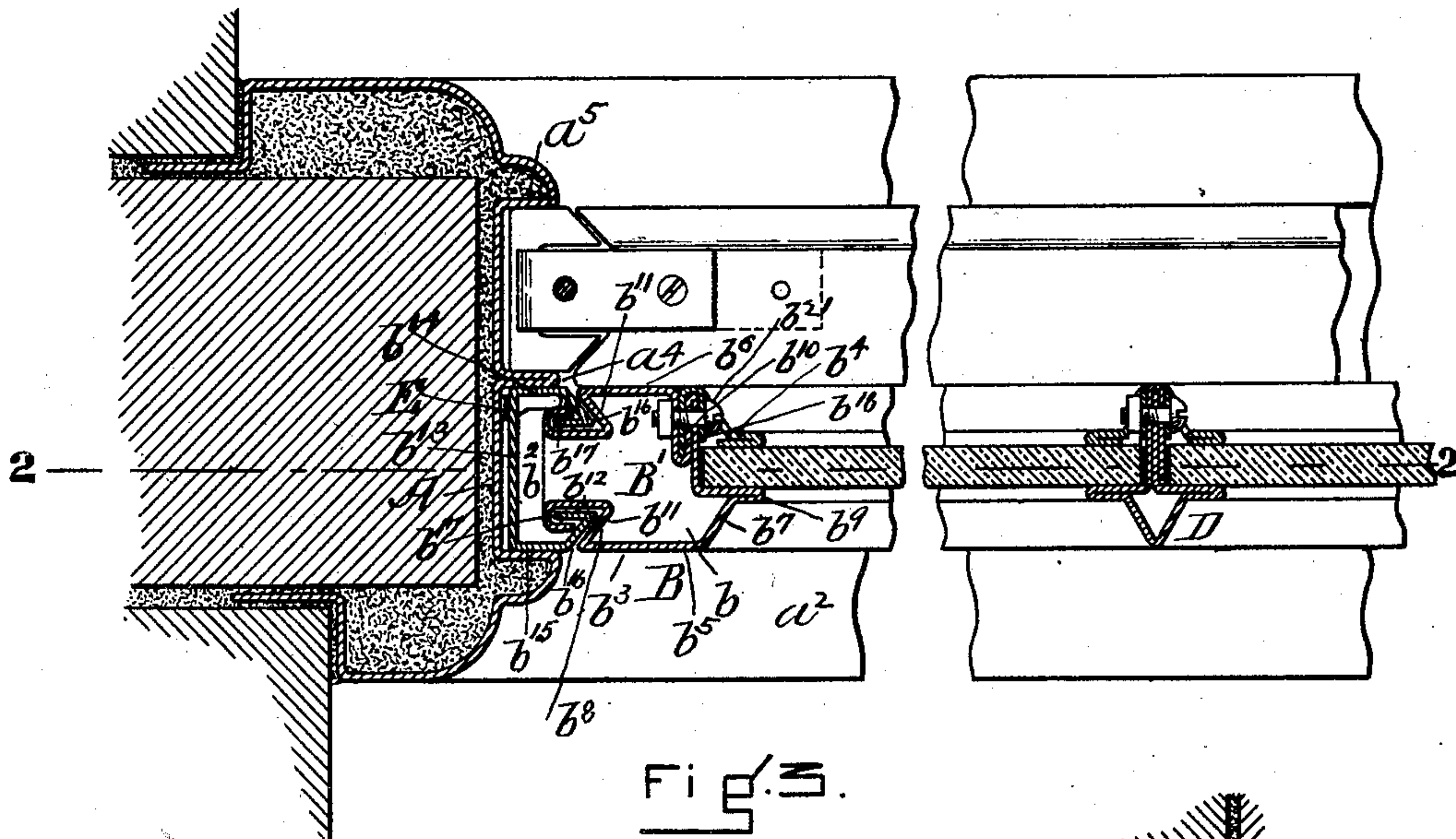
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3 Sheets—Sheet 2.



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H. H. Carter

Jas. P. Tolman

INVENTOR:

Henry C. Smith
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UNITED STATES PATENT OFFICE.

HENRY C. SMITH, OF SOMERVILLE, MASSACHUSETTS.

WINDOW-FRAME AND WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 683,077, dated September 24, 1901.

Application filed August 24, 1899. Serial No. 728,326. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SMITH, a citizen of the United States, and a resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Window-Frames and Window-Sashes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is an improvement upon that described in my application for Letters Patent of the United States (Case A) executed of even date herewith; and it consists in a modification of the window-sashes in that one or both of the side rails of the sash is or are made in two longitudinal sections, the inner of which is united to the top and bottom rails of the sash and the outer of which is detachable and is not united to the inner until the sash has been put in place in the frame, where it forms a make-up piece or extension of the side rail, increasing its width.

The purpose of the invention is to permit the sash in its incomplete condition to be placed within its runway in the frame without removing any of the stop-beads of the frame and to then provide it with the requisite width to fill the spaces between the stop-beads by means of separate pieces, which are then united or joined to the remainder of the sash by being slid vertically upon the incomplete edges thereof. These two sections of the side rails are so formed as to interlock, and this construction of the window-sash permits the side sections of the window-frame to be constructed with permanent stop-beads, which are integral with the rest of the side sections of the frame. The side sections of the frame in all other respects are like those described in my said pending application.

In the drawings, Figure 1 is a vertical section of my improved window frame and sash. Fig. 2 is a vertical section on the line 2 2 of Fig. 3. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a vertical section of the weight-adjusting device. Fig. 5 is a detail perspective view of the frame. Fig. 6 is a detail perspective view of a portion of the rail. Fig. 7 is a modification to which reference will hereinafter be made.

Referring to the drawings, A is the window-frame, B the upper window-sash, and C the lower window-sash. The frame is made of sheet metal and comprises the side sections a a' , the sill-section a^2 , and head-section a^3 . The sill and head sections are each made of one piece of sheet metal, substantially as described in my said application, and they are joined at each end with the lower and upper ends of the side sections. Each side section is also preferably made of one piece of sheet metal and varies from the side section of said application in that it is provided with two additional integral stop-beads—namely, the outer stop-bead a^4 and the inner stop-bead a^5 . These are formed integral with the plate from which the section is made by bending. As these beads are made before the frame is set and are not removable, I have constructed the side rail of each window-sash in two parts, the inner of which parts is attached to the top and bottom rails of the sash and the outer of which parts is detachable and attachable. This provides a sash which can be narrowed for insertion into the frame and can then be widened by the addition of the detachable side sash-sections.

In the drawings, B' represents one of the side rails of the sash, and b is the section of said side rail which is rigidly secured to the upper and lower rails of the sash.

b^2 is the independent attachable section of the side rail.

The section b preferably is made of two pieces of sheet metal—namely, a piece which is shaped to form the part b^3 and the piece which is shaped to form the glass-retainer b^4 . The piece b^3 forms the sides b^5 b^6 , the inner edge b^7 , and the outer edge b^8 . The inner edge has the shoulder b^9 , against which the glass is set, and a section b^{10} of a lock for the retainer b^4 . The outer edge b^8 of the section is formed of the two ends of the piece, which preferably are bent inward to form the beveled section b^{11} , then outward parallel with each other, and then returned upon themselves to form parts b^{12} of a joint by which the detachable section b^2 of the sash-rail is secured to it.

The detachable section b^2 of the side rail is made of one piece of sheet metal shaped to provide the continuous edge face b^{13} , the in-

ner and outer side sections b^{14} b^{15} , and the inner sections b^{16} . These sections are shaped to abut against the parts b^{11} —that is, they are formed outward at an obtuse angle to the sides and are substantially parallel with the diagonal faces of the section b . They are also formed to interlock with the locking parts of the section b by having their ends b^{17} turned inward parallel with each other. (See Fig. 6.) The parts of the locking-joints are thus so formed that the detachable section b^2 may be united to the section b by being moved vertically from above or below in relation to it, the locking ends b^{17} of the detachable section being thus interlocked with the locking portions of the section b .

The glass-retainer b^4 is made from a single sheet of metal, has the joint-section b^{18} , which interlocks with the joint b^{10} of the section b , the diagonal bracing edge b^{19} , and hemmed outer edge b^{20} . It is bolted by the bolts b^{21} to the parts b . The mullion or center rail D of the sash I prefer to make as represented in Fig. 3.

E represents a sash-retaining spring united to the sash by fusible metal bearing against the casing and designed to help balance a heavier inner sash against a lighter outer sash and also to release both sashes in case of heat from a fire sufficient to melt the attaching-solder. I do not, however, claim this spring and its use here, as I have described and claimed the same in the application above referred to.

I prefer that the sashes be hung as described in said application—that is, that the sashes be connected by a tape or wire cord F running from the top of one over a fixed pulley f and to the top of the other. To permit both sashes to be closed, it is necessary that the connecting tape or cord should be of the proper length and have no slack or be too short, and as it would be difficult to hang the sashes in a manner to provide this proper length without some means for the adjustment of the length of the tape or cord I have provided one of the sashes with a cord or tape adjusting device consisting of a lever G , to the outer end g of which the cord is attached, and which lever is fulcrumed at g' and is adjusted to raise or lower the said outer end g by an adjusting-screw g^2 , accessible from the top of the sash and screwing through a threaded hole in the end g^3 of the lever. By turning this screw the end g of the lever is raised or lowered with respect to the top of the sash, and the sash tape or cord is lengthened or shortened thereby.

To hold the detachable section b^2 of the side rail of the sash in place, I may use any locking device, and I have represented an angle-iron H at the upper corners of the sash, which has a horizontal section extending over both ends of the two sections of the side rail onto the top rail, if desired, and a vertical section which extends along the outer or inner surface of the detachable section

and which is united to the side sections by rivets or bolts. In lieu of adjusting the end or ends of the sash tape or cord the pulley over which it runs may be made vertically adjustable.

In practice, the detachable sections of the sash being first set into the proper pair of grooves in the side frames—for example, the grooves a —the sash is then moved vertically so that the interlocking ends b^{17} slide into their appropriate grooves. It will thus be seen that the window-frame itself does not have to be taken apart in order to receive the window-sash, as is the case with the ordinary window frame and sash.

In Fig. 7 I have represented the window-sashes as counterbalanced by weights in the ordinary way, and when they are so hung I prefer to employ a metal window-frame having weight-holding metal cavities and to make engagement between the sashes and the weights in the cavities in the usual way.

The window-frame when so constructed may be made substantially in accordance with that described in my application for Letters Patent of the United States, filed May 31, 1899, Serial No. 718,794, and allowed August 7, 1899.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A window-sash having a side rail made in two longitudinal sections, one of each sections forming a permanent part of said sash, the other of which is detachably secured as described, said sections having a bearing against each other along their entire length whereby one section of said sash is rendered incapable of any swinging movement relative to the other and both sections are adapted to be moved together vertically in the window-frame, as and for the purposes described.

2. A metallic window-sash having a side rail in two sections, one of which forms a permanent part of the window-sash and is formed to interlock with a portion of the other section of the rail, said other section of the rail being detachable from the first-named section and having interlocking sections to engage the interlocking parts of the permanent section of the rail, the interlocking sections of the said removable section engaging the interlocking sections of the fixed section by a longitudinal sliding movement of one upon the other.

3. The combination of a metallic window-frame having permanent front and back stop-beads and a permanent central stop-bead, a metallic window-sash having a side rail in two parts or sections the outer of which is removable from the inner to narrow the same and is attached to the inner after the sash has been placed in position in the frame by a vertical movement with respect thereto, whereby the sash is made to fill between two of the beads.

4. The combination of a window-frame having permanent front and back stop-beads and

a permanent central stop-bead with a window-sash having a side rail in two parts or sections, the outer of which is detachably secured to the inner and adapted to be attached thereto after the sash has been placed in position in the frame, said sections having a bearing against each other along their entire length, whereby one section of said sash is rendered incapable of any swinging movement relative to the other, and both sections are adapted to be moved vertically in the window-frame, as described.

5. The combination in a metallic window-sash of the side rail made in two sections or parts one of which is detachable by a longitudinal movement with respect to the other and attachable in the same way thereto, and means for locking the two sections of the sash together when in engagement.

HENRY C. SMITH.

In presence of—

J. M. DOLAN,
L. A. WALSH.