

No. 832,150.

PATENTED OCT. 2, 1906.

J. C. McMAHON.
METAL WEATHER STRIP.
APPLICATION FILED APR. 21, 1905.

Fig. 1.

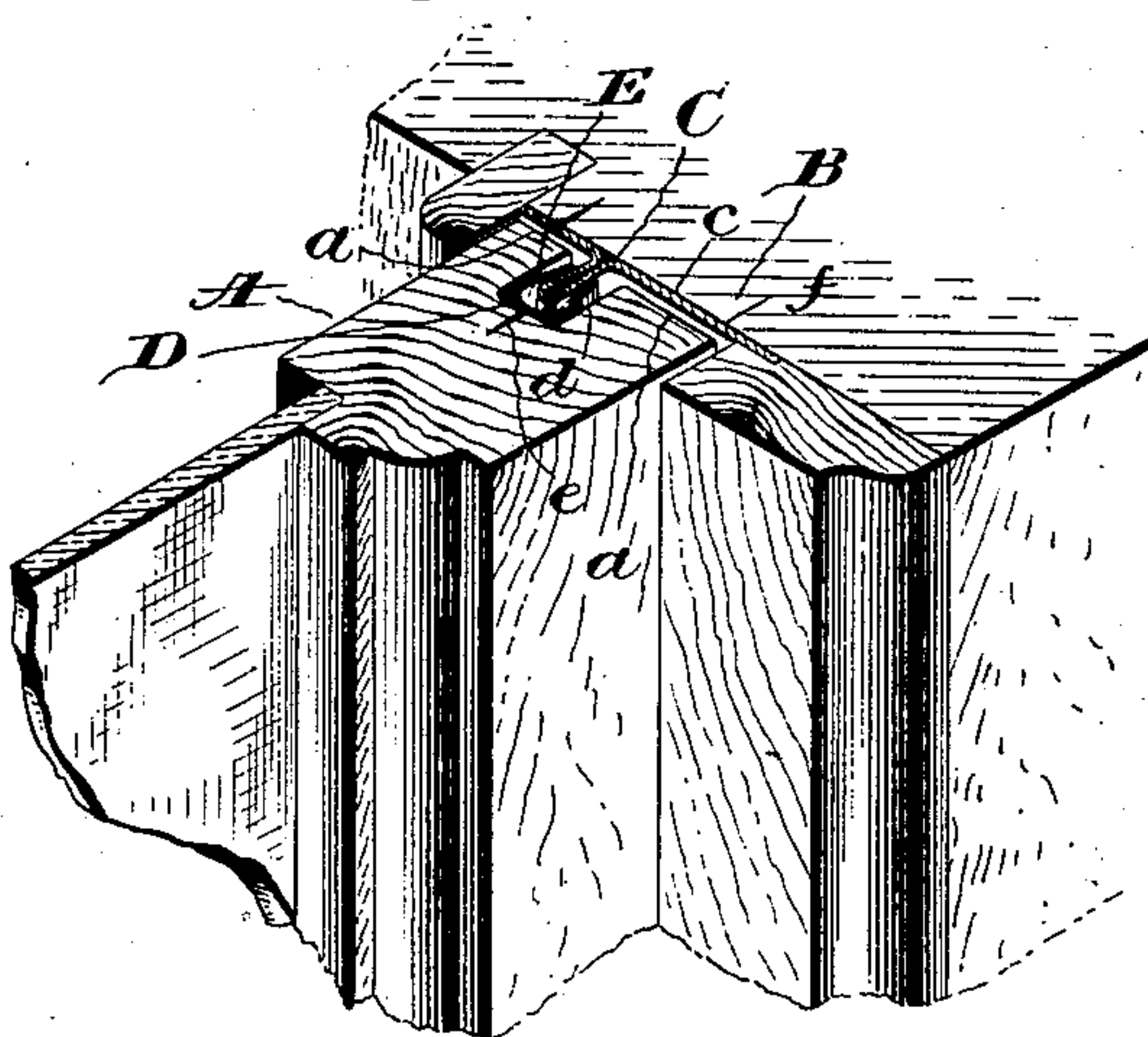


Fig. 2.

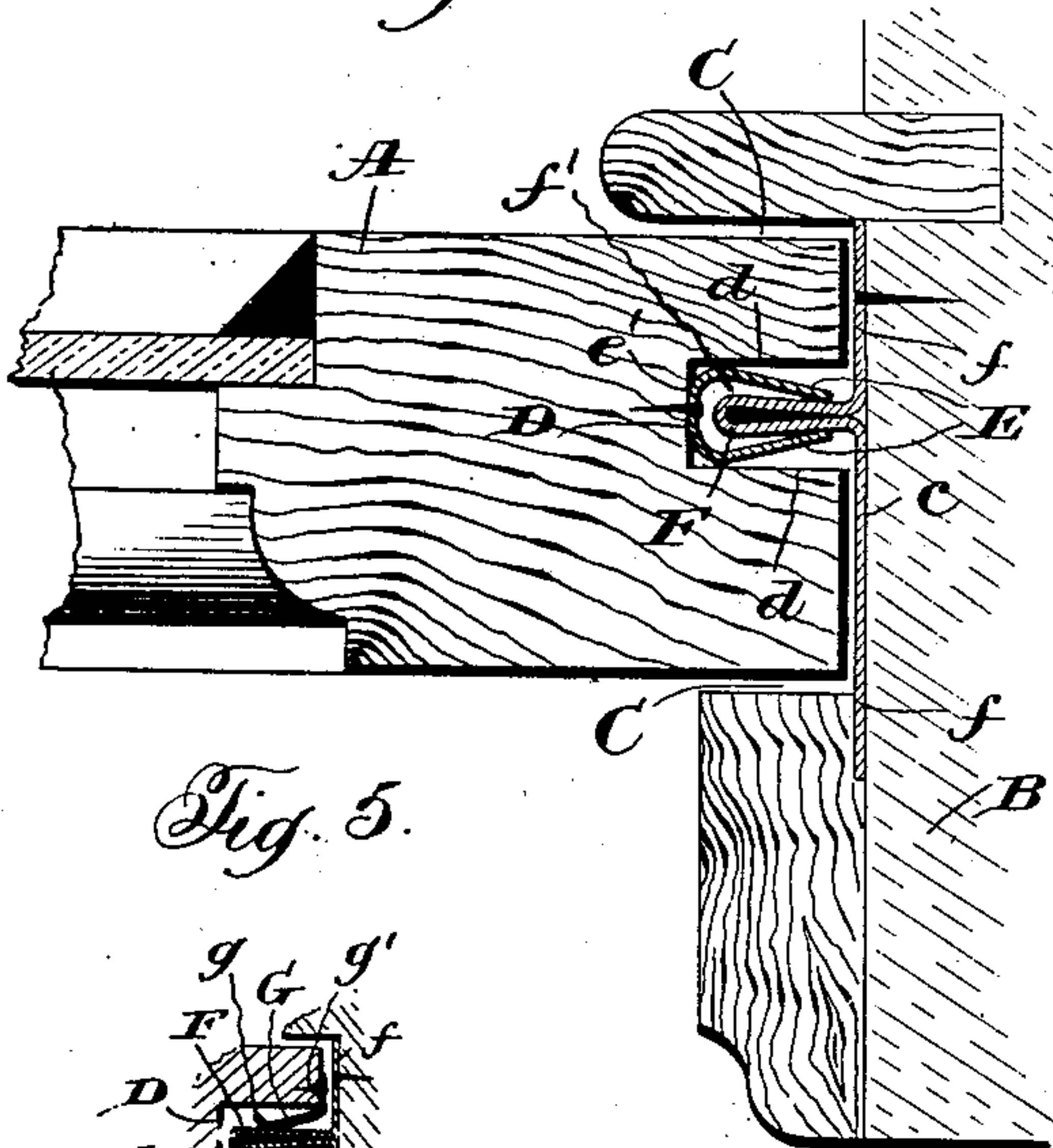


Fig. 3.

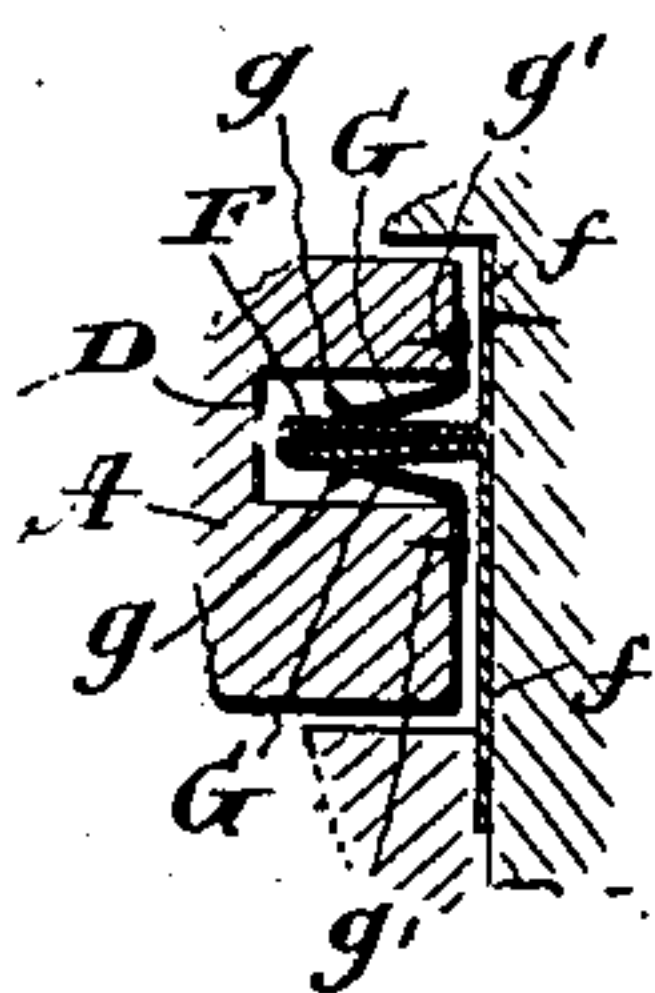


Fig. 4.

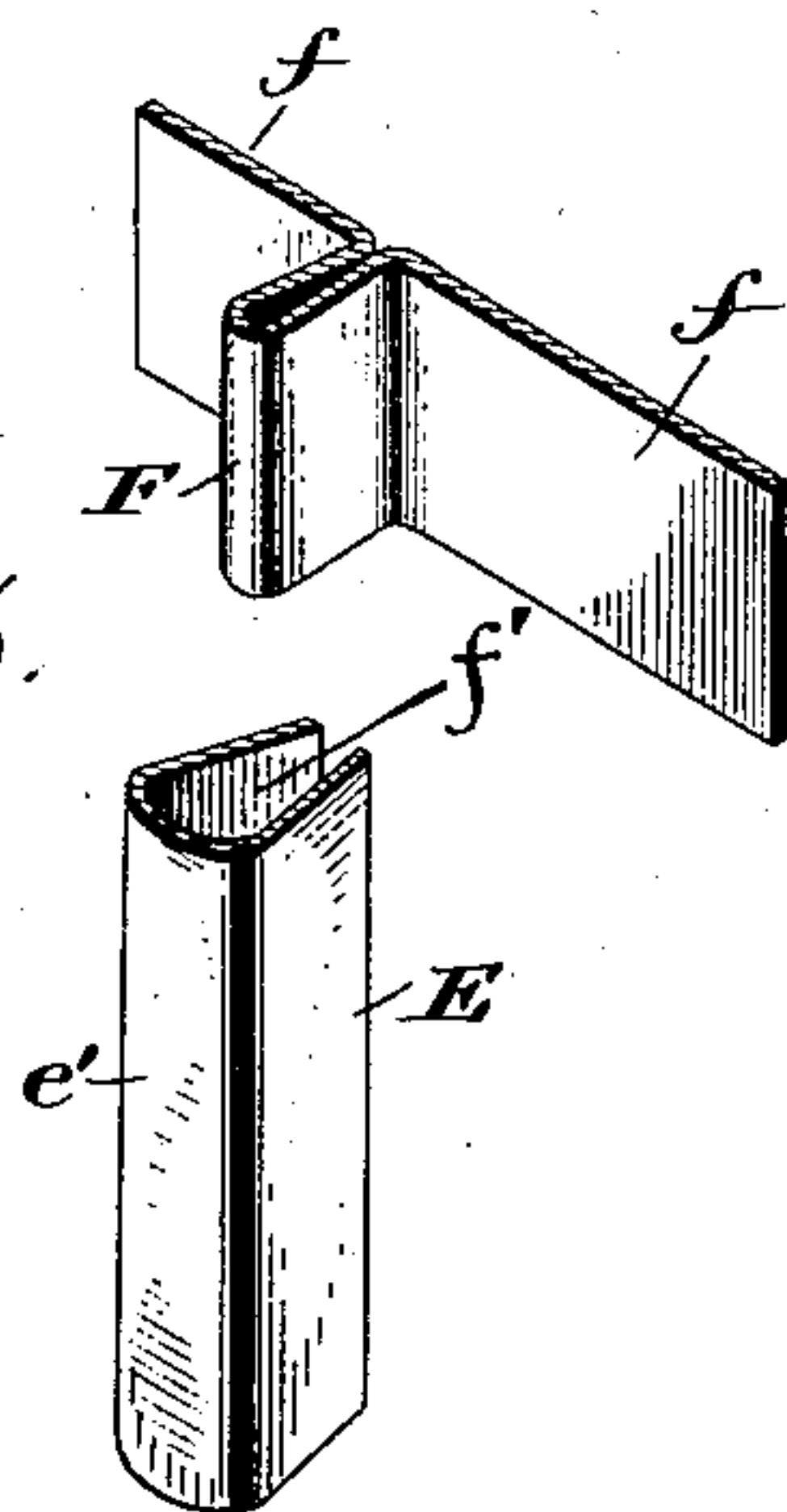
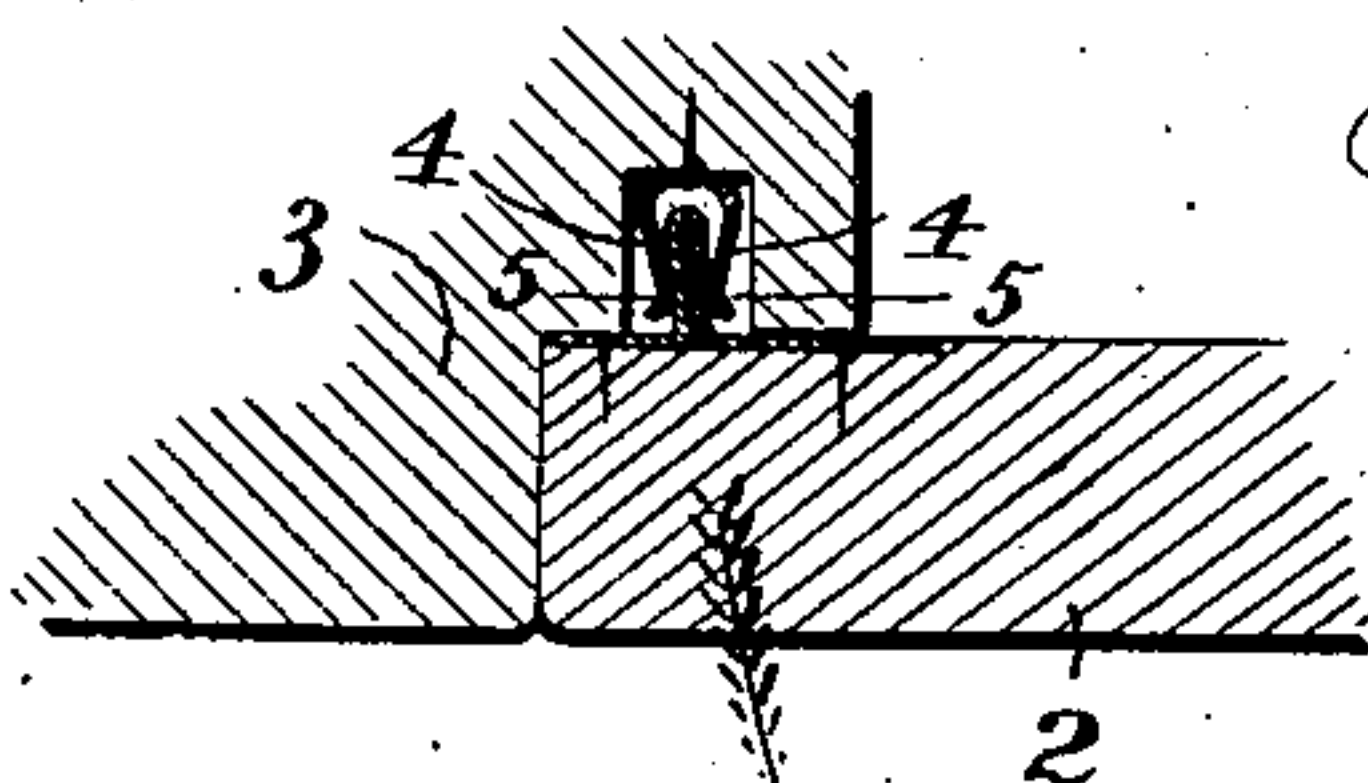


Fig. 5.



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METAL WEATHER-STRIP.

No. 832,150.

Specification of Letters Patent.

Patented Oct. 2, 1906.

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To all whom it may concern:

Be it known that I, JOSIAH C. McMAHON, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Metal Weather-Strips, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to weather-strips, and has for its object the improvement of that type of fixture wherein is employed a strip having a projecting sealing rib or flange adapted to enter a complementary receiving-groove in a frame, window, or door according to the member to which the flanged strip is secured.

20 The more ordinary method of applying the strip referred to is to fasten the same to the surrounding edges of a window-frame, whereby its sealing rib or flange projects into and works within a suitable groove or grooves in a sliding sash. Heretofore no arrangement has been afforded whereby to reduce the extended frictional engagement between the sides of the sealing rib or flange and the confining-walls of the groove within which the same works, thereby facilitating the easy manipulation of the sash, nor has any provision been made for maintaining an intimate sealing relation between said sides of the rib or flange and the edges of the confining groove or way whereby a constant contact of protecting parts is assured irrespective of any swelling or shrinkage of the window or door, as the case may be, or the frame thereof.

40 It is to provide a fixture possessing the foregoing desirable characteristics, as also others, among which may be noted the prevention of any objectionable binding action between the parts or wearing away of the groove, that the present invention has been devised.

45 A convenient embodiment of the invention embraces a strip provided with a sealing rib or flange designed to enter a receiving groove or way formed by an approximately U-shaped spring-metal insert adapted to be secured within a groove in the frame or sash, the flanges of said insert normally bending inwardly to impinge at their free edges upon the sides of the sealing rib or flange, so that

the surface engagement between the opposing parts is minimized, while at the same time a constant sealing contact is maintained. This embodiment of the invention is illustrated in the accompanying drawings for the purpose of facilitating a clear understanding of the invention, and the novel details of construction and arrangement of parts will be obvious upon an inspection thereof when read in connection with the detailed description hereinafter contained.

65 In the drawings, Figure 1 is a fragmentary perspective view of a window frame and sash, showing my improved weather-strip applied thereto. Fig. 2 is an enlarged transverse sectional view through a sash, strip, and frame. Fig. 3 is a detail perspective view of separated portions of the flanged strip and spring-metal insert constituting the receiving groove or way therefor. Fig. 4 is a sectional view similar to Fig. 2, illustrating a slightly-modified form of the spring-metal insert, the strip in this instance being shown as applied to the edge of a swinging door or sash, it being understood that the rounded-edge insert embodied in this form of the fixture is also particularly adapted for use at the bottom and top of a sash-frame and at the meeting-rails of adjoining or overlapping sashes; and Fig. 5 is a detail cross-sectional view illustrative of a second embodiment of the invention.

85 Referring more specifically to the drawings, and for the present with reference to the first three views thereof, in which like reference characters refer to corresponding parts, A designates a sliding sash, B a window frame or casing, and C the groove or runway of the frame within which the sash works up and down in the usual manner. In the edge of the sash, preferably the surface *a* thereof, which opposes the base *c* of the runway, I form a groove D, the side walls *d* of which extend outwardly in substantially parallel planes or in planes diverging outwardly, as shown in Fig. 2, and within this groove I mount a spring-metal insert E, the same in cross-section approximating a pear shape and being movably secured in place through the medium of tacks *e*, loosely engaging the bend *e'* thereof and embedded in the material of the sash. The flanges of the insert just defined have a permanent tendency to spring

inwardly or approach, whereby their free edges constantly impinge upon the opposite sides of a flange or rib *F*, arranged to project into the groove *f'* formed between the flanges of the insert, and said rib or flange being mounted in the base of the runway or groove of the sash-frame in any convenient manner, conveniently by means of base-flanges *f*, tacked down or held in place by overhanging portions of the sash-frame. As shown, these base-flanges and the sealing rib or flange are formed of sheet metal doubled upon itself after the fashion well known in this art. I have, however, found that the special type or rib shown is peculiarly adapted for use in connection with my spring-insert, inasmuch as such rib has a bulged or laterally-enlarged edge (see particularly Figs. 2 and 3) which when the sash moves away from the frame incident to shrinkage the sealing contact between the edges of the spring-arms of the insert and the side walls of the rib or flange is increased, as will be readily understood. It will be noted that the engagement of the flanges of the spring-insert with the sealing rib or flange is substantially a line-contact at each side of the latter, whereby rubbing frictional contact incident to the raising and lowering of the sash is minimized, while at the same time the sealing effect secured by the cooperation of said insert and the sealing rib or flange will be maintained, notwithstanding the warping or shrinkage of the sash or frame, until the parts become so separated that the sealing rib or flange is entirely withdrawn from the space within the insert, and the possibilities of any such separation are extremely remote, and as a matter of fact it is doubtful if such a condition ever arises. In some cases where the members carrying the spring-insert and the sealing rib or flange are caused to approach or recede one relative to the other—for instance, as in the swinging sash or door 2 and its frame 3 illustrated in Fig. 4—it is desirable that the free edges of the insert 4 be rounded or turned outwardly, as at 5, to facilitate the entrance therebetween of the sealing rib or flange 6, carried by said swinging sash or door as the same is closed. In both of the forms of spring-inserts heretofore set forth it is to be noted that owing to the rounded configuration of the connecting portion and the loose fitting of the securing-tacks said inserts may have a limited laterally-tilting or rocking movement to preserve its normal operative relation to the sealing-strip.

With reference now to Fig. 5, it will be seen that the spring-insert in this instance is composed of two spring members or strips *G*, their inner edges being outwardly bent or flaring, as at *g*, while their intermediate portions diverge outwardly to the mouth of the groove and terminate in offset flanges, the

latter being tacked to the edge of the sash, as at *g'*.

I claim—

1. The combination with a frame member and a sash member mounted to cooperate therewith, one of said members being provided with a groove, of a weather-strip interposed between said members comprising two opposing sheet-metal parts one of said parts having a securing-flange and an outwardly-extending rib arranged to project into said groove, the thickness of said rib being considerably less than the width of said groove, and the other of said parts consisting of a resilient member approximately pear-shaped in cross-section having spring-flanges free at their edges and contacting with the side surfaces of the rib, and means for securing said resilient member in the groove with its connecting edge at the base of the groove whereby spaces are left between the side walls of the groove and the free ends of the spring-flanges and between the edge of the rib and the inner sides of said flanges within which the parts may play in either lateral direction.

2. The combination with a frame member and a sash member mounted to cooperate therewith, one of said members being provided with a groove, of a weather-strip interposed between said members comprising two opposing sheet-metal parts one of said parts having a securing-flange and an outwardly-extending rib arranged to project into said groove, the thickness of said rib being considerably less than the width of said groove, and the other of said parts consisting of a resilient member approximately pear-shaped in cross-section having spring-flanges free at their edges and contacting with the side surfaces of the rib, and means for securing said resilient member in the groove with its connecting edge at the base of the groove whereby spaces are left between the side walls of the groove and the free ends of the spring-flanges and between the edge of the rib and the inner sides of said flanges within which the parts may play in either lateral direction, and the relatively wide or connected edge of the resilient pear-shaped member being of transverse formation permitting it to bodily rock in either lateral direction.

3. The combination with a frame member and a sash member mounted to cooperate therewith, one of said members being provided with a groove, of a weather-strip interposed between said members comprising two opposing sheet-metal parts one of said parts having a securing-flange and an outwardly-extending rib of increasing thickness arranged to project into said groove, the maximum thickness of said rib being considerably less than the width of said groove, and the other of said parts consisting of a resilient member approximately pear-shaped in cross-

section having spring-flanges free at their
edges and contacting with the side surfaces
of the rib, and means for securing said resili-
ent member in the groove with its connecting
5 edge at the base of the groove whereby
spaces are left between the side walls of the
groove and the free ends of the spring-flanges
and between the edge of the rib and the inner

sides of said flanges within which the parts
may play in either lateral direction. 10

In testimony whereof I affix my signature
in presence of two witnesses.

JOSIAH C. McMAHON.

Witnesses:

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