

991,471.

Patented May 9, 1911.

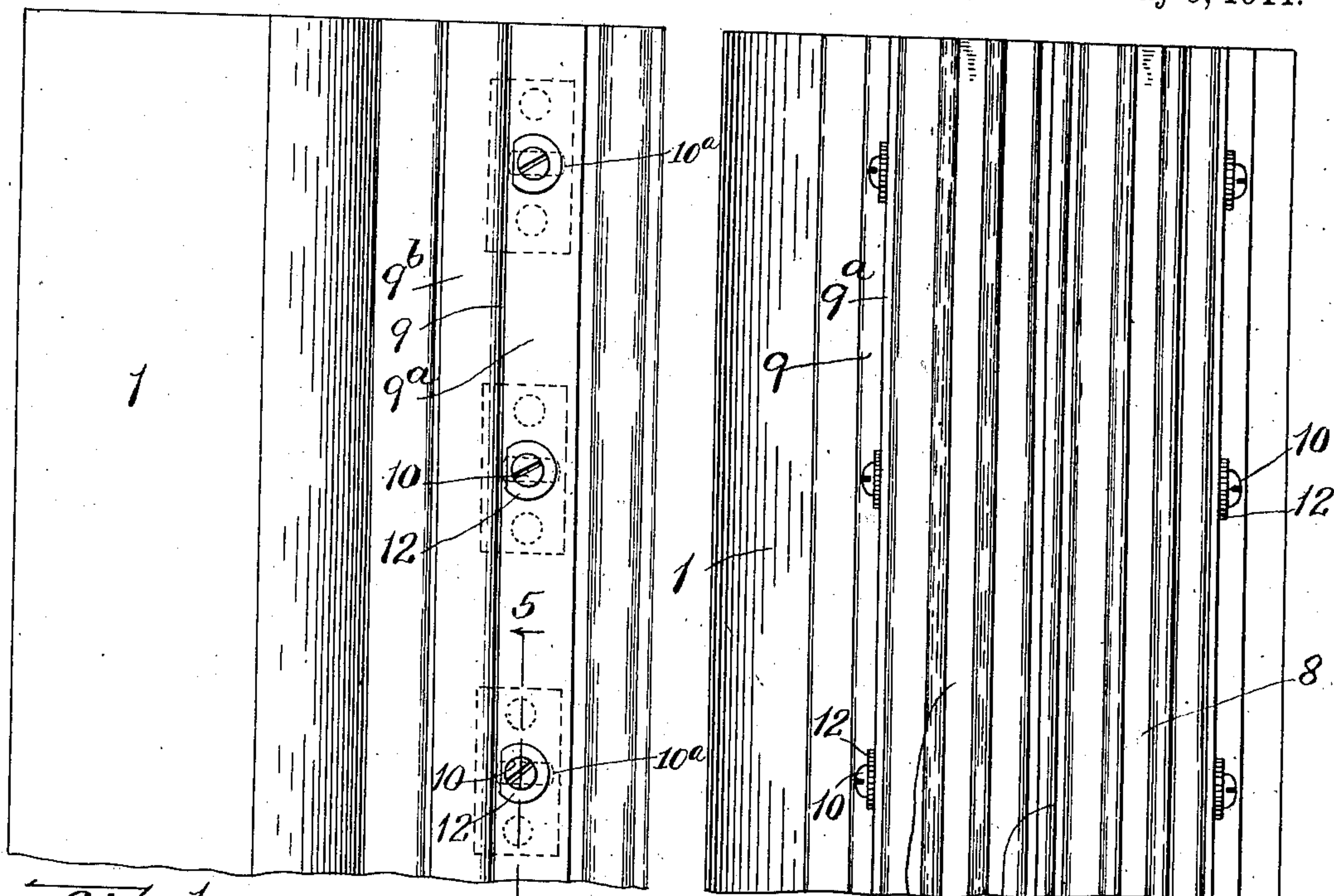


Fig. 1.

Fig. 2.

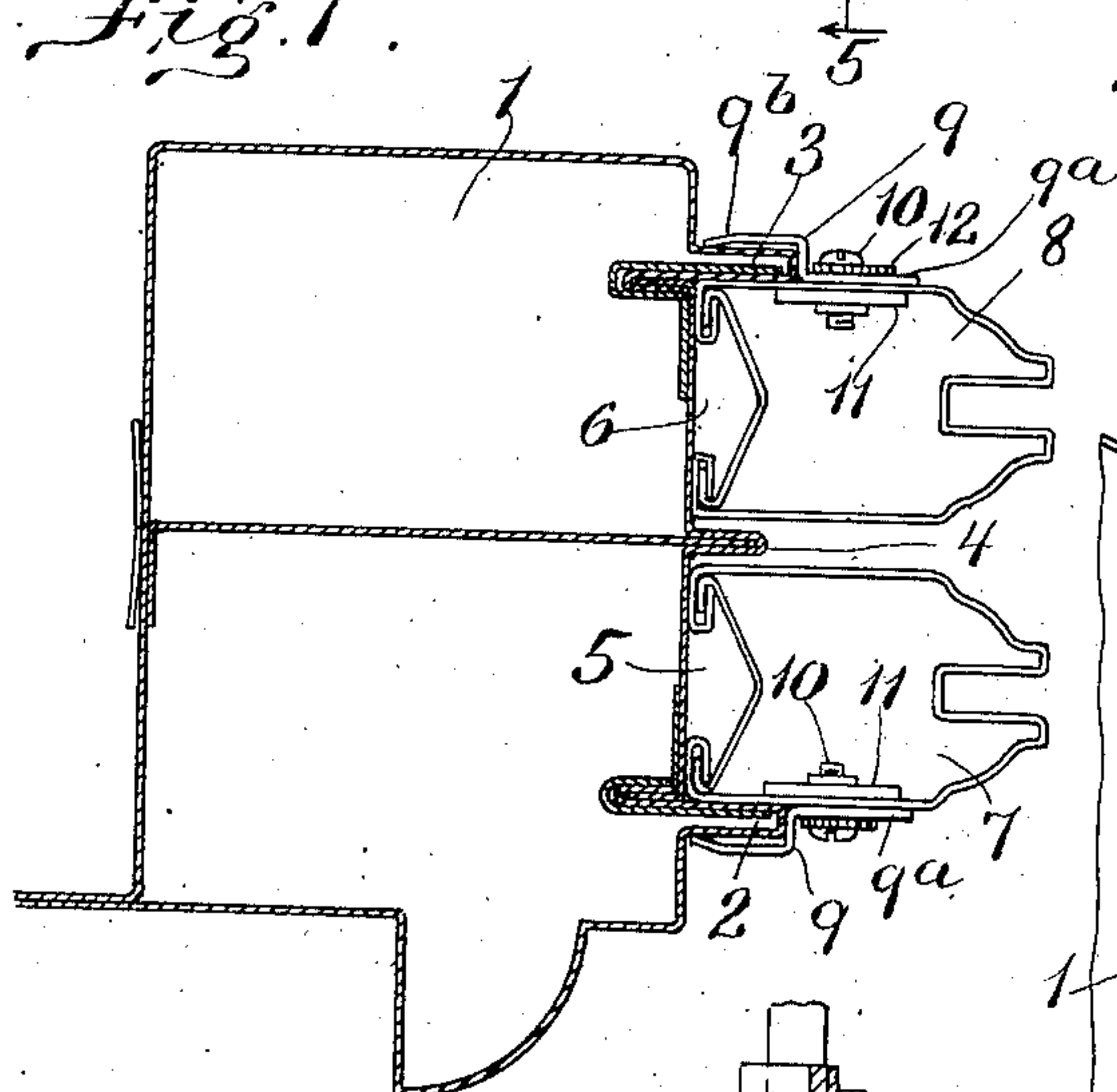


Fig. 3.

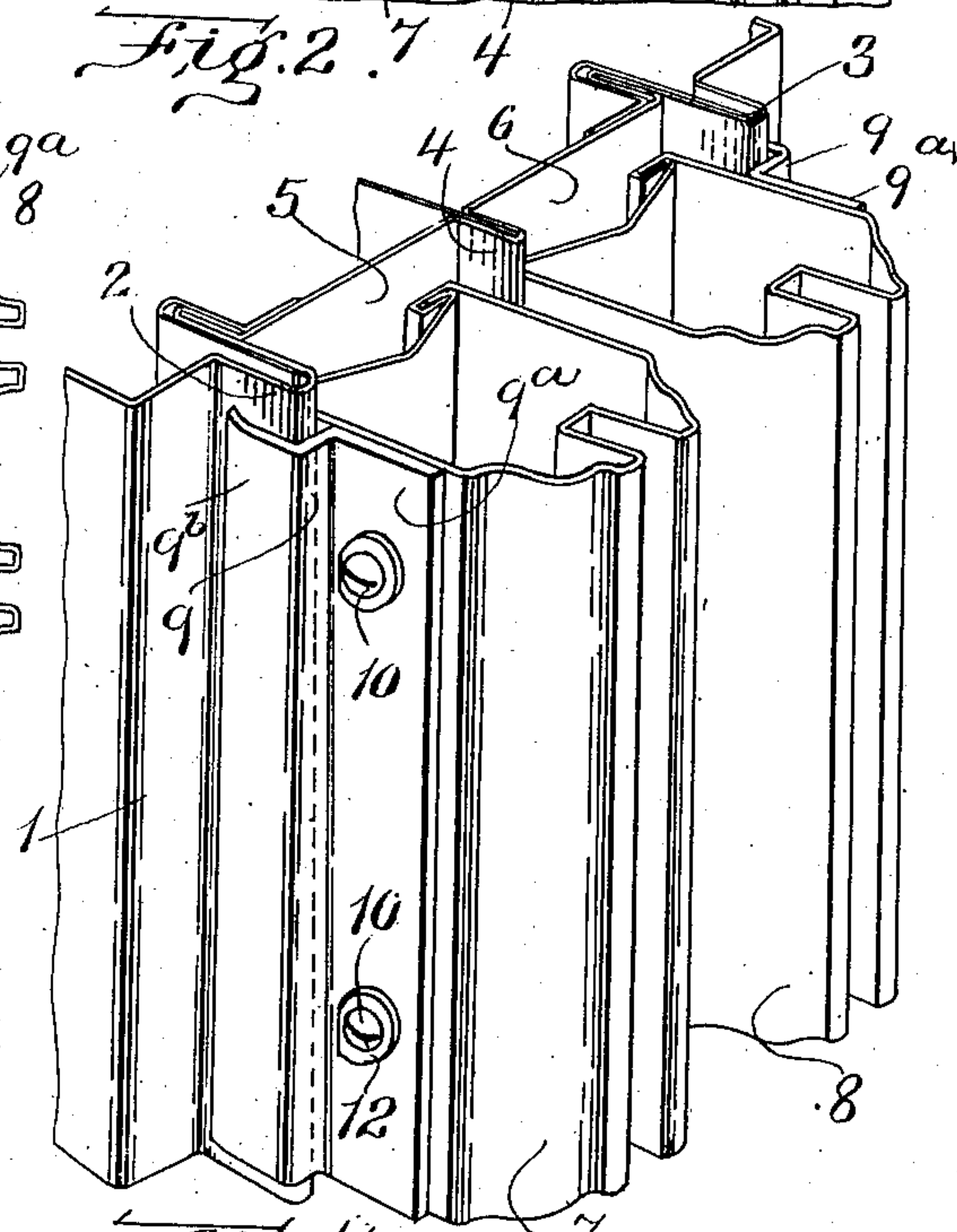


Fig. 4.

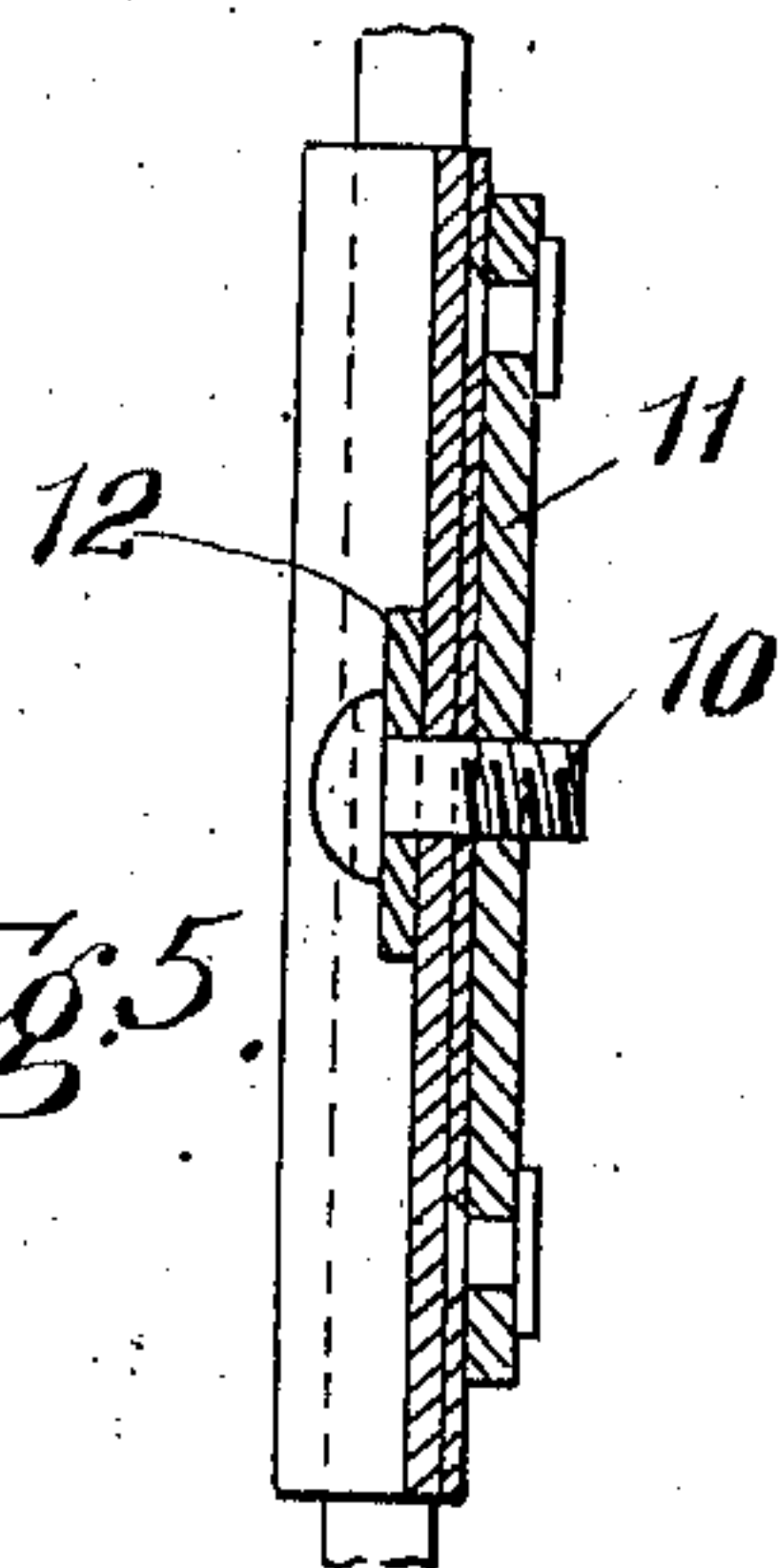


Fig. 5.

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# UNITED STATES PATENT OFFICE.

ARTHUR C. BADGER, OF NEWTON, MASSACHUSETTS.

## WINDOW.

991,471.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed June 3, 1910. Serial No. 564,742.

*To all whom it may concern:*

Be it known that I, ARTHUR C. BADGER, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Windows, of which the following is a specification.

This invention relates to metal window frames and sashes and has for its object to provide a novel and improved construction in such frames and sashes of a character such as to enable a metal sash to be weather-tight without requiring that it should fit accurately in the channel provided for it in the frame.

Hitherto it has been frequently found that when metal window frames are set in place in the window openings of a building, it is difficult to place them with perfect accuracy and without bending or twisting them somewhat. This is particularly the case where the workmen are careless. In such a case as this, if the sashes are made to fit accurately enough in the channels provided for them in the jambs of the window frame as to exclude the weather, they will bind and stick.

It is the object of my invention to provide an attachment by which the window sash may be made weather-tight without requiring that it fit accurately in the channel.

The manner in which I have embodied my invention in practical form is illustrated in the accompanying drawings, the same showing merely one possible embodiment out of many which might be employed.

In the drawings, Figure 1 represents a side view of a portion of the jamb or upright of a window frame with a section of the side rail of a sash associated therewith and the attachment forming my invention applied thereto. Fig. 2 is an elevation of the same as seen from the right-hand side of Fig. 1. Fig. 3 is a cross-sectional view of the combination shown in Figs. 1 and 2. Fig. 4 is a perspective view of the same. Fig. 5 is a detail sectional view on an enlarged scale taken on line 5—5 of Fig. 1.

Referring to the drawings, the numeral 1 represents one of the sides or jambs of a metal window frame, the same being made of sheet metal in any of the modes of construction which have been found practical. Parts of the sheet or sheets forming the inner wall of the frame are offset to form the inner bead 2, the outer bead 3 and the

parting bead 4 between the sashes of the window. These beads form the usual channels 5 and 6 in which the sashes run. In the drawings the upright side rails of the bottom sash 7 and top sash 8 are shown as occupying these channels respectively.

Up to the present time the most commonly employed method of making the sashes of a sheet metal window frame weather-tight has been to make the rails thereof sufficiently large to fit closely in the guiding channels of the frame. It frequently happens, however, that owing to careless work or other cause, the upright members of the window frames are not set in the window openings with absolute accuracy, but on the contrary are somewhat bent or twisted. The result is that accurately fitting sashes do not run in their channels easily, but bind so much as to make their operation difficult or impossible.

It has been my object to overcome this difficulty and accordingly I construct the sashes of sufficiently less width than the channels in the frame to permit them to run easily, even though the frame may be bent or twisted considerably out of line when being set. This feature will be observed from Fig. 3, wherein it appears that the sash rails are of considerably less width than the channels 5 and 6 and that considerable clearance is left between them and the parting bead 4. The clearance is intended to be great enough to permit free movement of the sashes under all circumstances. In order, however, to make the sash water-tight, I provide each side rail of each sash with means adapted to overlap one of the beads and adjustable to fit closely enough upon such bead to exclude wind and water. Such means is a strip 9 having a web 9<sup>a</sup> adapted to lie against the rail of the window sash and being offset approximately at its longitudinal center, whereby to provide a second web 9<sup>b</sup> overlying the bead of the frame. The web of the strip which lies next to the sash is secured thereto, preferably adjustably, by any desired means, such, for instance, as screws 10 passing through the strip and into the window sash. Conveniently the sheet metal wall of the sash rail is thickened and strengthened sufficiently to take the threads of the screws by means of reinforcing strips 11, riveted to the rail at the points where the screws are located, while washers 12 are placed between the head of each bolt and the weather strip. Preferably the strip is



slotted where the screws pass through it, as shown at 10<sup>a</sup> in dotted lines in Fig. 1, such slots extending transversely of its length, in order that the offset portion of the strip may be adjusted toward or from the edge of the bead.

From an inspection of Figs. 3 and 4 it will be noted that the offset or transverse part of the strip is longer than the thickness of the bead and that the edge of the web 9<sup>b</sup> is bent back toward the bead. This allows the edge of the weather strip to make close contact with the bead, while at the same time permitting it to yield in case the frame should not be properly in line. As previously stated the upright rails in both sashes are preferably provided with such weather strips having substantially the characteristics described. These strips are so arranged on the sashes that they will not interfere with each other when the sashes are raised and lowered, hence the strip carried by the lower sash is on the inner wall thereof and overlaps the inner bead of the frame, while the strip carried by the upper sash is on the outside of the window. When the sashes are placed in the frame the weather strips are set up toward the beads, so that their offset parts bear on the edges of the adjacent beads, and the screws 10 are then tightened sufficiently to cause the edges of the webs 9<sup>b</sup> of the strips to engage the beads as closely as possible, without unduly impeding the free movement of the sashes. The sashes themselves, however, are so much narrower than the channels provided to receive them, that they will run freely, no matter how much the frame may be distorted, that is, within the limits permitted

by building practice, provided only that the strips are so adjusted as to prevent binding.

By means of the construction and mode of use hereinbefore described, it is possible to make any sheet metal window weather-tight, without at the same time necessitating such extremely careful work in setting the window frame into a building as to avoid any twisting or warping thereof whatever.

I claim,

1. The combination of a sheet metal window frame having grooves, and sashes arranged to run in such grooves, the sashes being of less width than the grooves, and independently adjustable means carried by a sash and engaging a bead of the frame for making the sash weather-tight.

2. The combination of a window frame having sash-guiding channels, sashes arranged to travel in such channels and being sufficiently narrow to move easily in the same when the frame is so distorted as to destroy the alinement of the grooves, and adjustable means carried by a sash and embracing one of the beads of the frame for excluding the weather.

3. In a sheet metal window the combination of a frame having beads forming sash-guiding channels, sashes in said channels, and a strip adjustably secured upon each of said sashes, each said strip having an offset portion overlapping the side of the bead remote from the sash.

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

ARTHUR C. BADGER.

Witnesses:

ARTHUR H. BROWN,  
P. W. PEZZETTI.