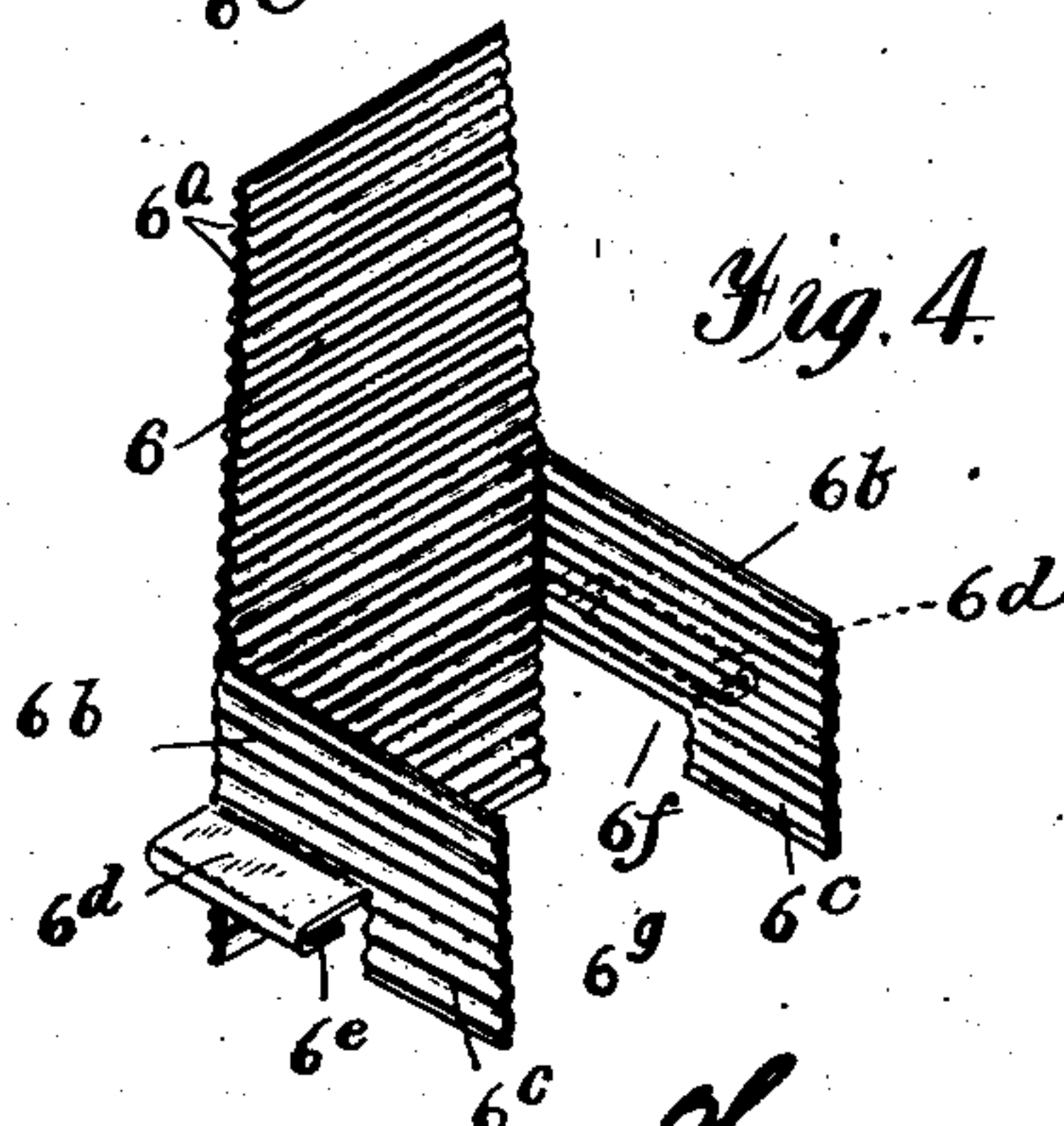
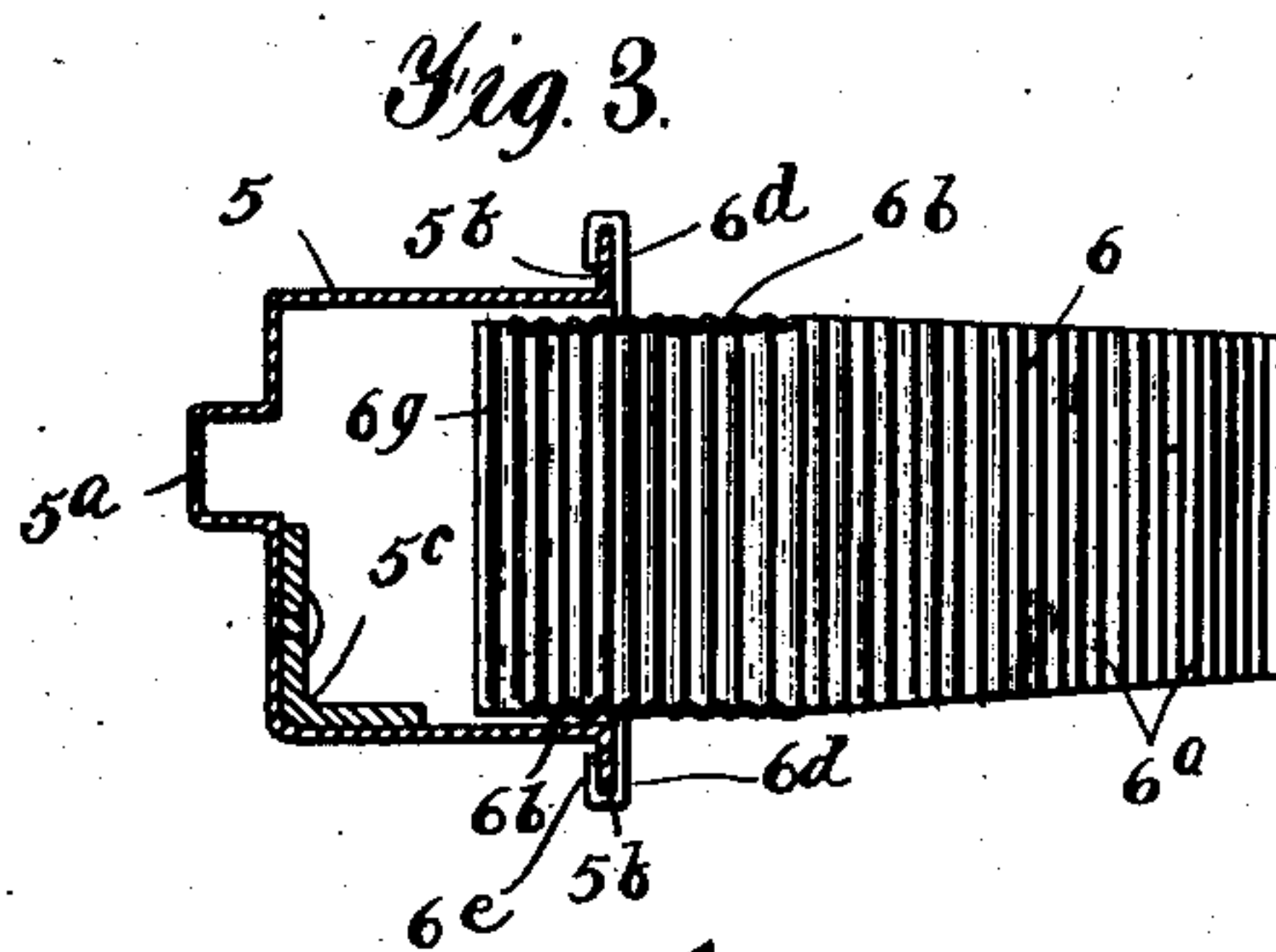
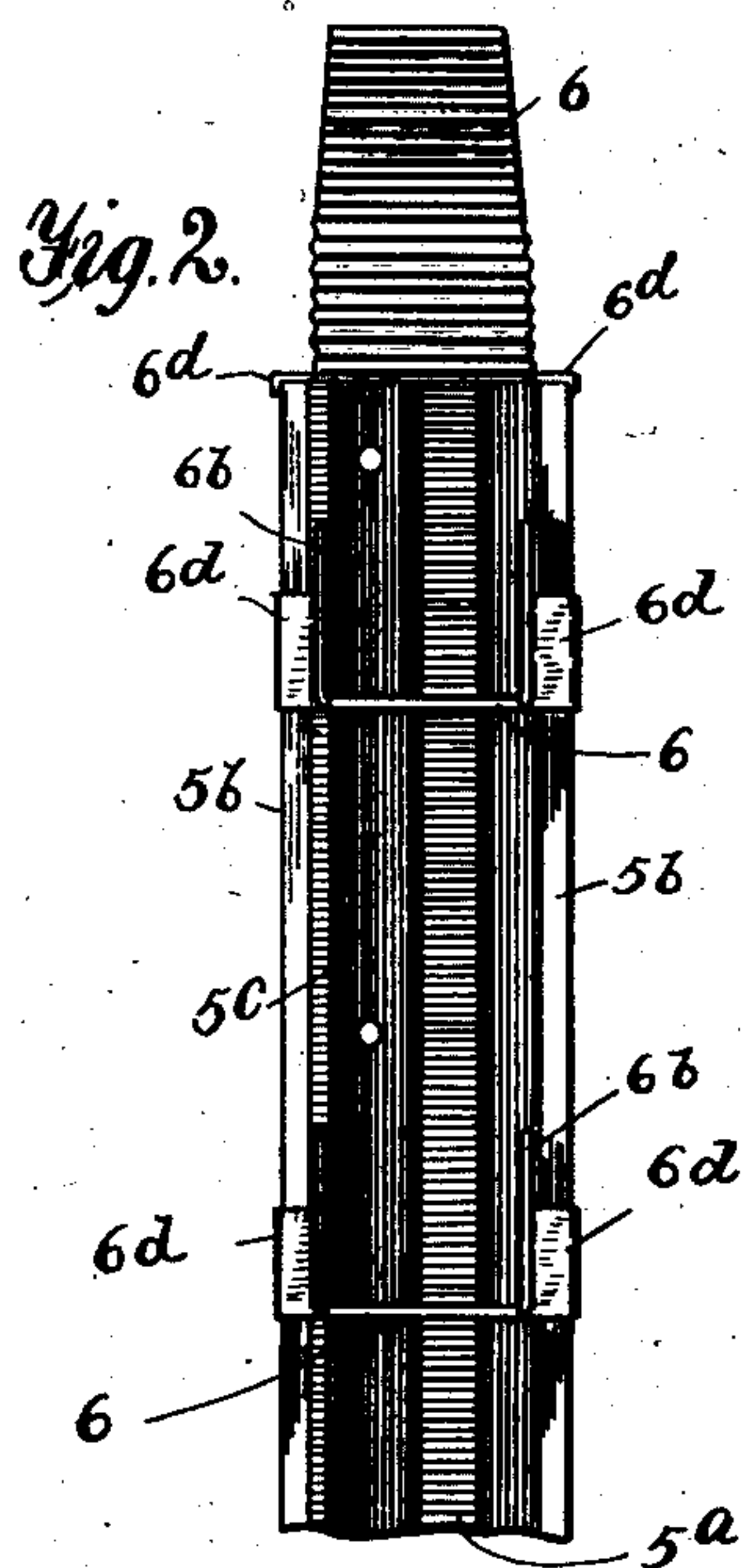
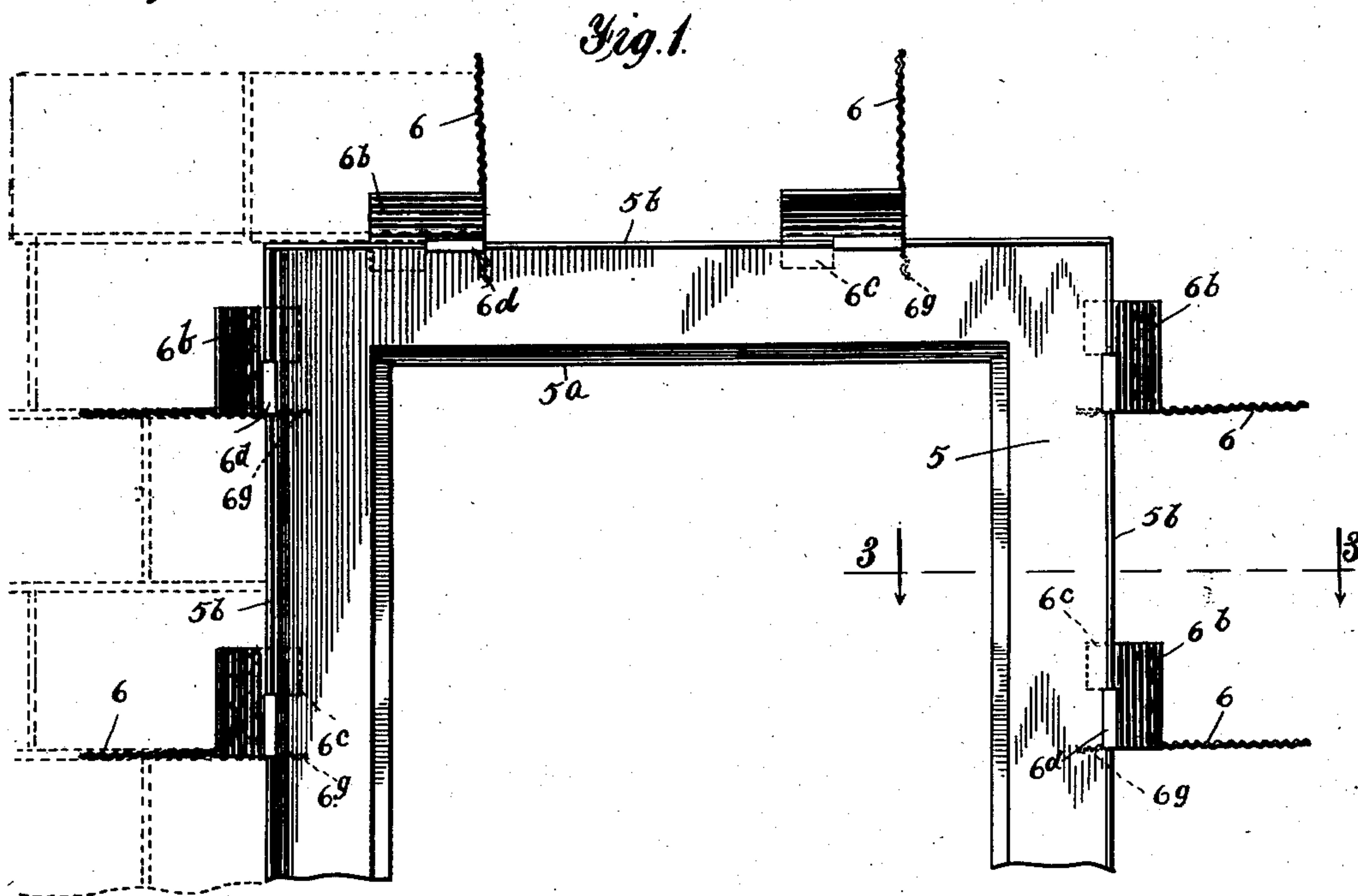


T. P. SHEAN.  
WALL TIE.  
APPLICATION FILED FEB. 7, 1910.

978,948.

Patented Dec. 20, 1910.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## WALL-TIE.

978,948.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed February 7, 1910. Serial No. 542,421.

### *To all whom it may concern:*

Be it known that I, THOMAS P. SHEAN, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wall-Ties, of which the following is a specification.

This invention relates generally to the construction of buildings and particularly to that style of construction designed to prevent the spread of fire within a building, wherein metal door and window frames are used in conjunction with terra-cotta tiling, cement blocks or concrete walls.

The especial object of the improvements which constitute the subject matter of this application is to provide means whereby the sheet-metal door and window frames in general use will be firmly and securely connected with or anchored to the adjacent walls of tile, block or concrete.

A further object is to provide such anchoring means so that the said metal frames cannot pull away from their adjacent walls when subjected to intense heat and thus leave openings between wall and frame through which the flames may pass.

An additional object is to provide a wall and frame connecting device that can be attached to the metal frame when it is constructed or erected and the position of which can be adjusted to meet the requirements of the mason setting the tile or cement block.

A still further object of my invention is to provide a device having the advantages set forth and at the same time be cheaply manufactured from small pieces of sheet metal which would be considered "scrap."

In the accompanying drawing which forms a part of this application, I have illustrated a preferred adaptation of my invention in the following views:—

Figure 1 is an elevational view of the upper part of a door frame to which my tie or bonding devices are applied, with a portion of the adjacent tile wall shown in dotted lines; Fig. 2 is a view looking toward the inside of the door-frame pictured in Fig. 1; Fig. 3 is a magnified cross-section on the line 3—3 of Fig. 1; Fig. 4 is a perspective view of my improved tie taken alone, and on the scale of Fig. 3.

Referring to the details of construction as illustrated in the drawing 5 represents the side member of a door-frame formed from sheet metal in the hollow or box-like

construction common in the art. The metal is bent to provide the usual door-stop 5<sup>a</sup>, and the free edges are bent up at right angles to provide flanges 5<sup>b</sup>. The hinge member of the frame is reinforced by an angle-bar 5<sup>c</sup> riveted to the inner wall as shown in cross-section Fig. 3.

The frame anchor or tie is represented generally by the numeral 6. It is made of sheet metal of suitable thickness and corrugated transversely throughout all, or a portion of its area. The piece of metal is cut and bent to form the following members possessing the functions described:—6<sup>a</sup> represents what might be termed the body of the tie and its side edges are slightly inwardly inclined so that the outer portion is slightly narrower than the inner portion from which extend the parallel wings 6<sup>b</sup> which are bent up at right angles from the body. These wings are cut into at one edge and at the junction with the body for a portion of their width as at 6<sup>c</sup> so as to leave a tongue 6<sup>c</sup> extending in the same plane with the wing, and the remaining partially severed portion of each wing is bent outwardly at right angles and then rebent to form a gripping member or clamp having the parallel portions 6<sup>d</sup>, 6<sup>e</sup>, which are slightly spaced apart. The remaining portion of the body is represented by 6<sup>f</sup> and it is left in the same plane with the body proper 6<sup>a</sup>.

The shape of the tie structure described is clearly indicated in Fig. 4, and the manner of applying the tie to a door frame is as follows:—The clips 6<sup>d</sup>, 6<sup>e</sup>, which extend at right angles from the wings 6<sup>b</sup> are placed over the flanges 5<sup>b</sup> of the frame member and are slid along by the mason on said flanges to such point as will bring the body 6<sup>a</sup> to a joint between the contiguous tile or blocks. The body 6<sup>a</sup> will extend between the opposing faces of the adjacent blocks or tile and the cement or mortar will enter the corrugations and serve to lock this portion of the tie in place. The tongues 6<sup>c</sup> will extend into the hollow frame and will lie close to the inner walls of the frame and the edges of the body portion 6<sup>f</sup> will abut against said walls thus resisting any tendency of said walls to incline inwardly. As the clips 6<sup>d</sup>, 6<sup>e</sup>, interlock with the flanges 5<sup>b</sup> they resist any tendency of the frame side walls to expand laterally or to fall toward the doorway or other opening into which the frame is set.

It will thus be seen that my tie when com-



bined as described will hold and brace the frame relative to the adjacent walls.

It will also be apparent that the various tongues and wings which form integral parts of the tie may be bent in other directions or manner than as described in order that they may cooperate with frames or constructions of different bends or contours, but with the same result, to wit, the interlocking of the sheet-metal frame with the adjacent wall by a member which will prevent the warping, buckling and pulling away in any direction of the frame. If the adjacent wall is of concrete construction formed by pouring the concrete into molds or forms, the portions 6<sup>a</sup> will project into the space between the forms and the concrete will be poured so as to entirely surround same and also fill the hollow frame, thus permanently sealing the tie in place.

Having thus described my invention what I claim is:—

1. A metal tie having a body portion, wings at an angle to said body and clips having parallel walls at an angle to said wings, said body, wings and clips being integrally formed.

2. A metal tie having a body portion, wings at a right angle from opposite edges of said body, and clips formed by cutting and bending portions of the wings.

3. A metal tie formed from a piece of corrugated metal, cut and bent to form a body, wings extending from the side edges of said body, and clips extending outwardly at an angle from said wings.

4. In combination with a hollow metal frame and a tile or brick wall supporting

said frame, a tie having integral members adapted to interlock with the said frame, and an integral member adapted to be anchored in the wall supporting said frame.

5. In combination with a hollow metal frame, a tie having integral clips adapted to interlock with the sides of said frame, also having a member adapted to be anchored in a wall, and also having a member fitting between the walls of the frame and adapted to resist the crushing of said walls.

6. In combination with a hollow metal frame, a tie having an anchoring member, wings at right angles to the anchoring member, and clips at right angles to the wings said clips adapted to interlock with the metal frame.

7. A tie for walls and hollow metal frames, consisting of a member adapted to extend into the wall, a member adapted to project into the hollow metal frame at right angles to the walls thereof, and members adapted to interlock with portions of said frame.

8. A tie for walls and hollow metal frames consisting of a member adapted to interlock with the wall, a member adapted to project into the hollow metal frame and to hold apart the opposite walls between which it extends, and members adapted to interlock with portions of said frame.

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

THOMAS P. SHEAN.

Witnesses:

F. BENJAMIN,

C. B. BENJAMIN.