

G. KAHN.
VENTILATOR FRAME.
APPLICATION FILED FEB. 23, 1911.

993,529.

Patented May 30, 1911.
2 SHEETS—SHEET 1.

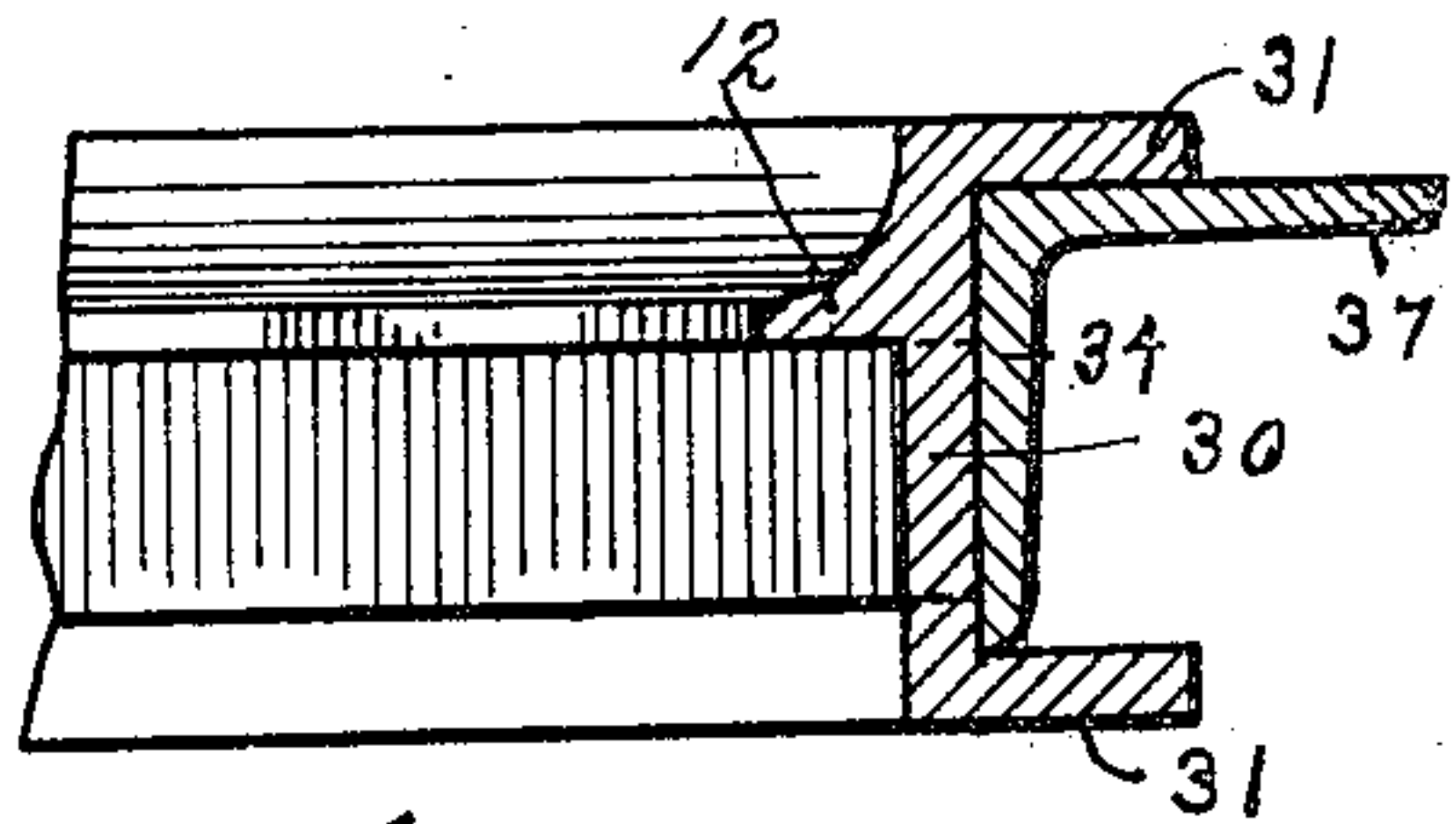
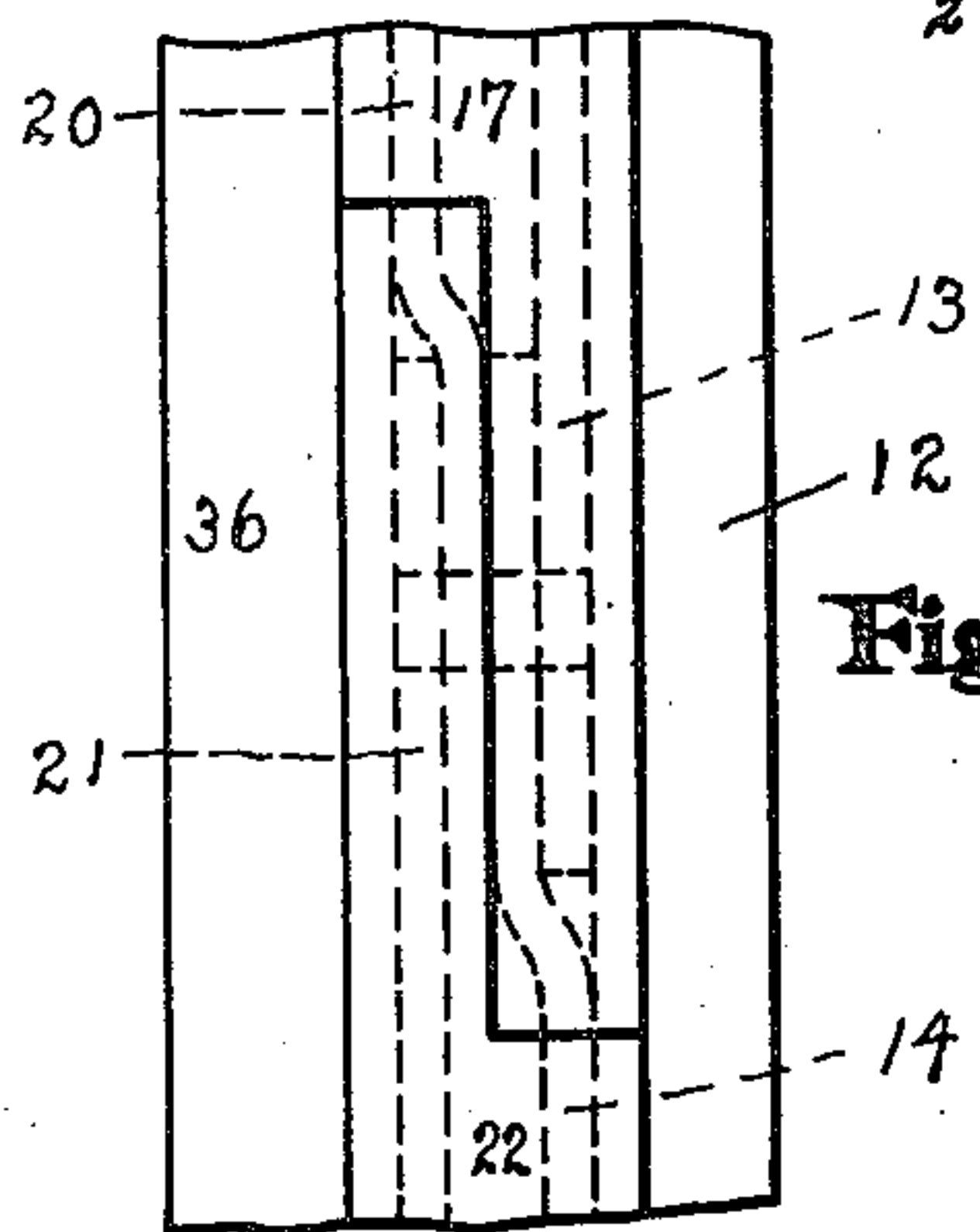
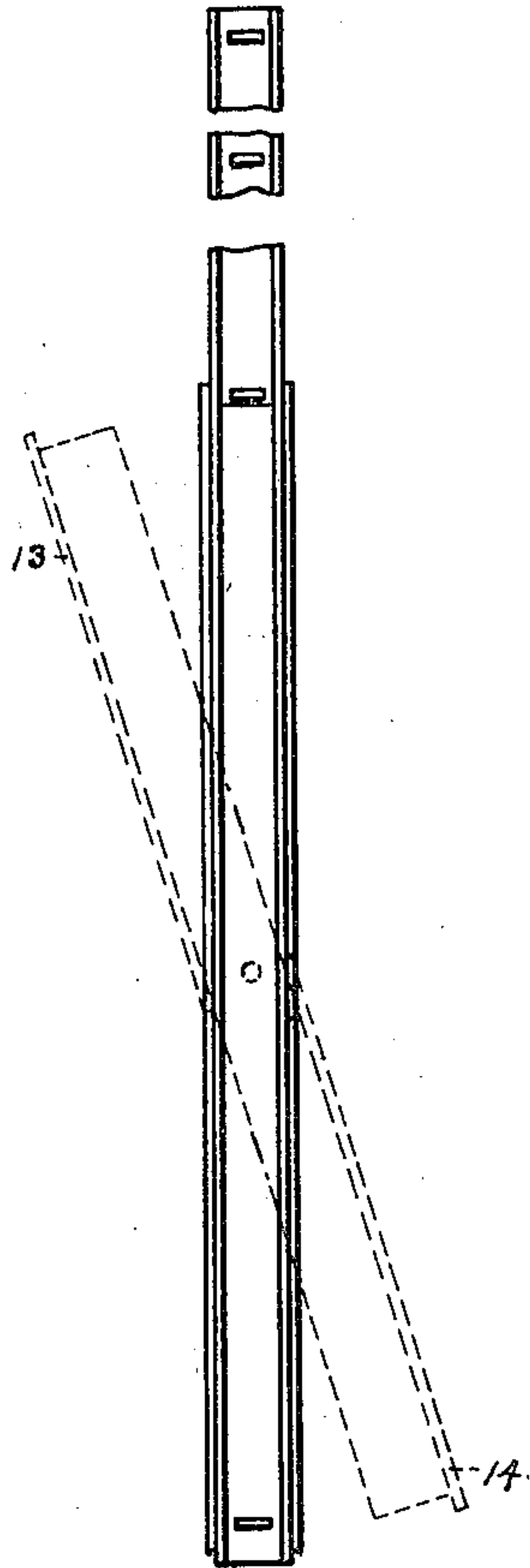
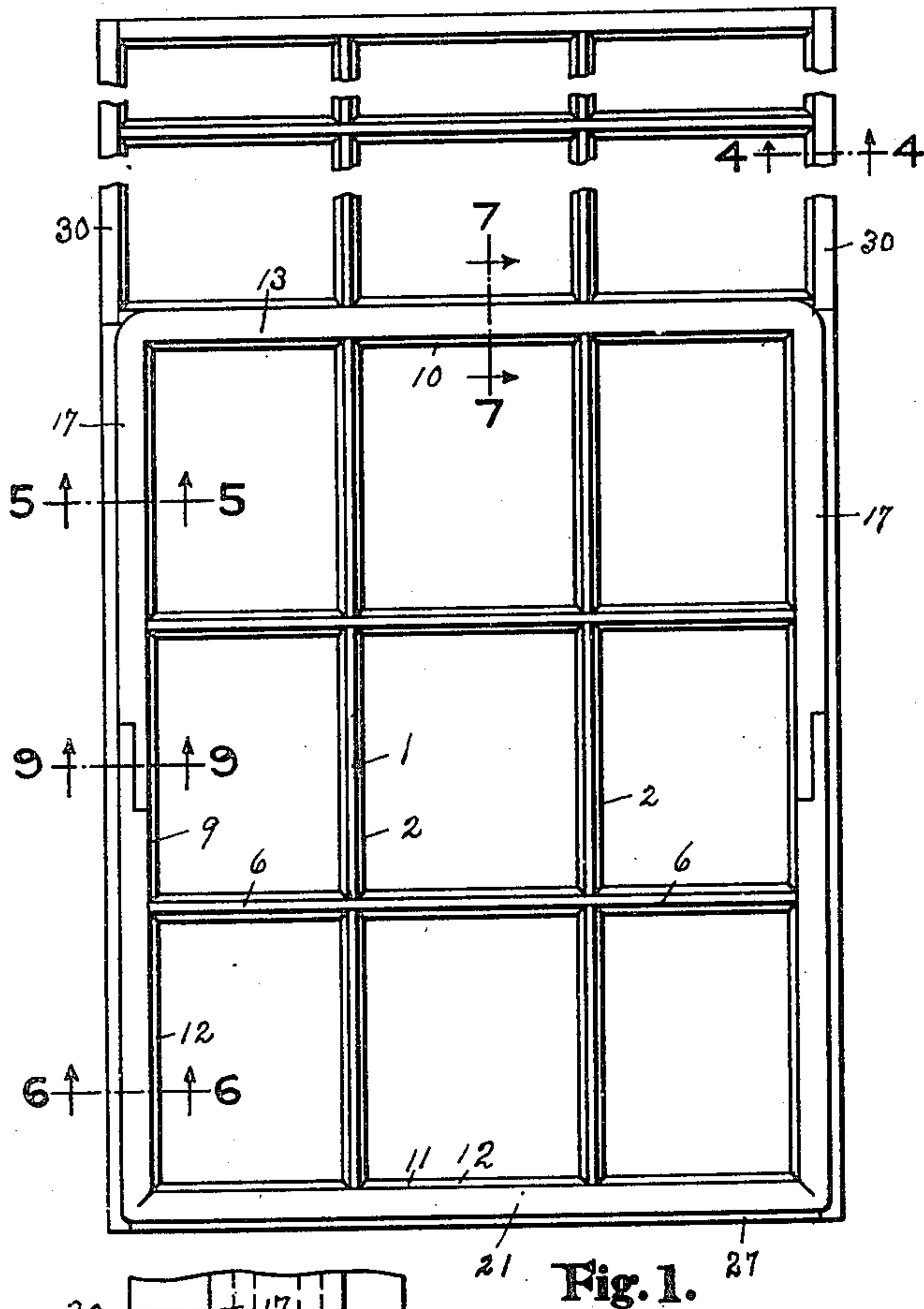


Fig. 1.

Fig. 2.

Fig. 10.

Fig. 4.

Witnesses
Albert A. Hofmann
Elizabeth M. Brown

Inventor
Gustave Kahn
By Edward N. Pagelsen, Attorney

G. KAHN.
VENTILATOR FRAME.
APPLICATION FILED FEB. 23, 1911.

Patented May 30, 1911.

2 SHEETS—SHEET 2.

993,529.

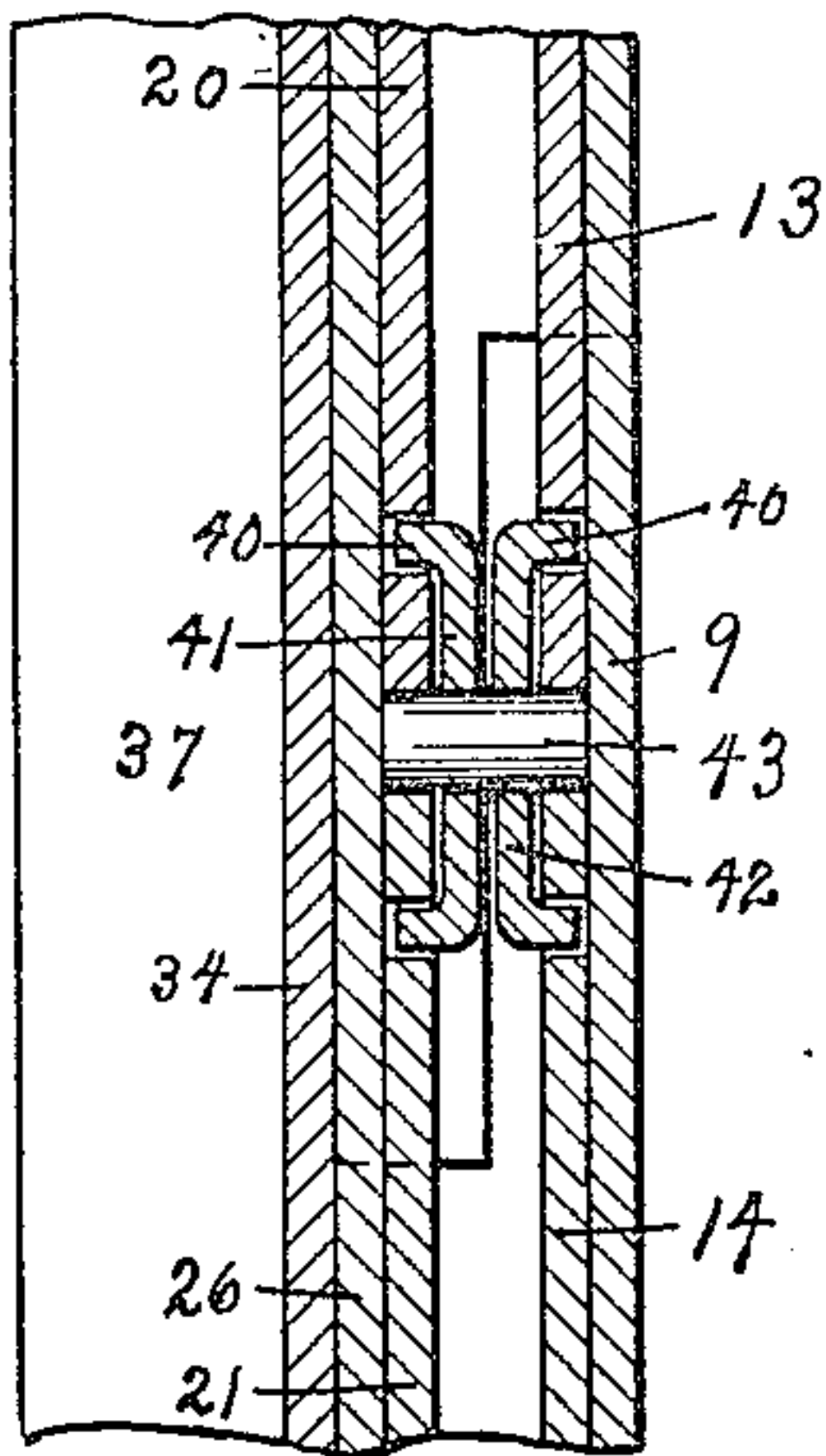


Fig. 12.

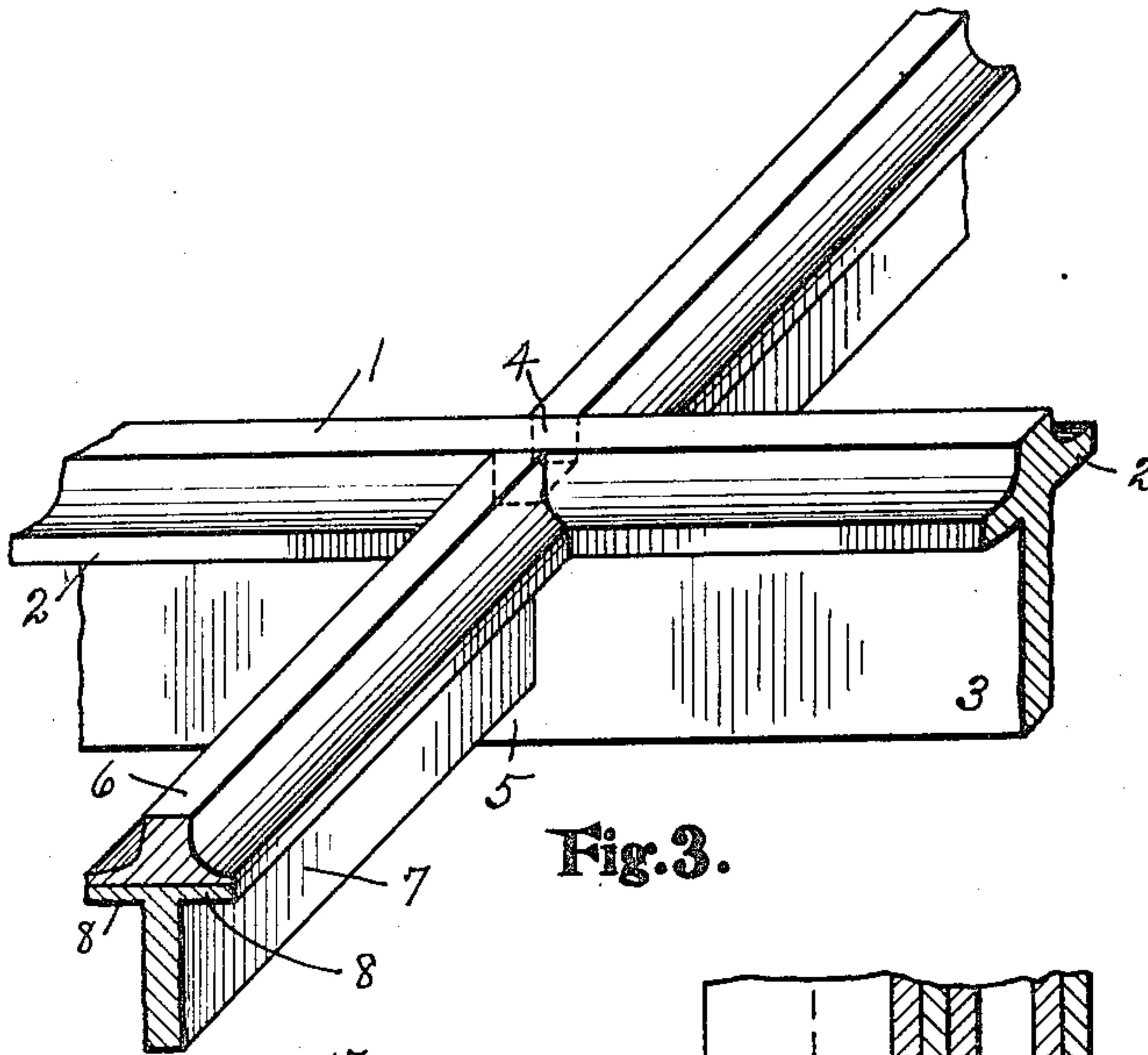


Fig. 3.

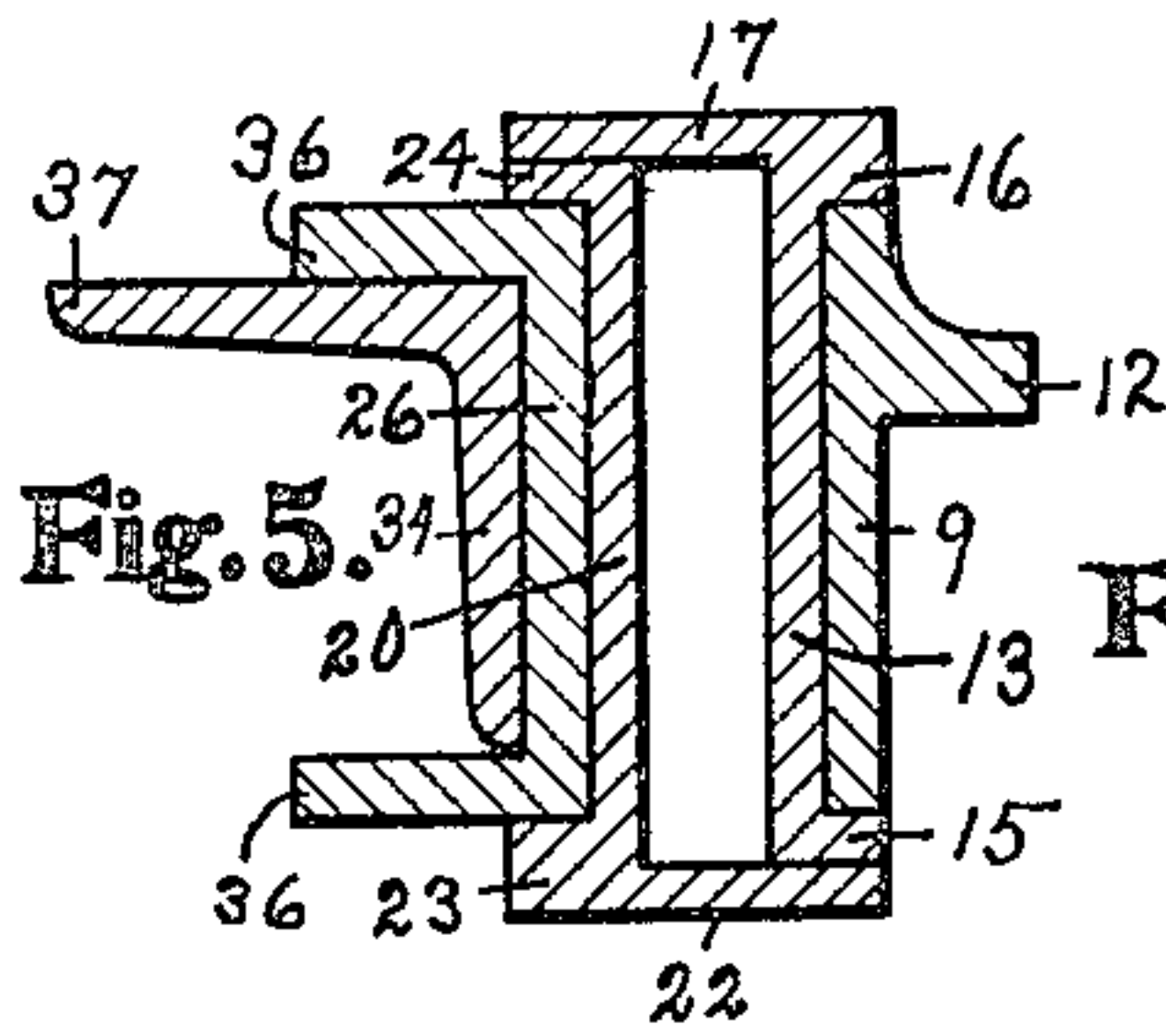


Fig. 5.

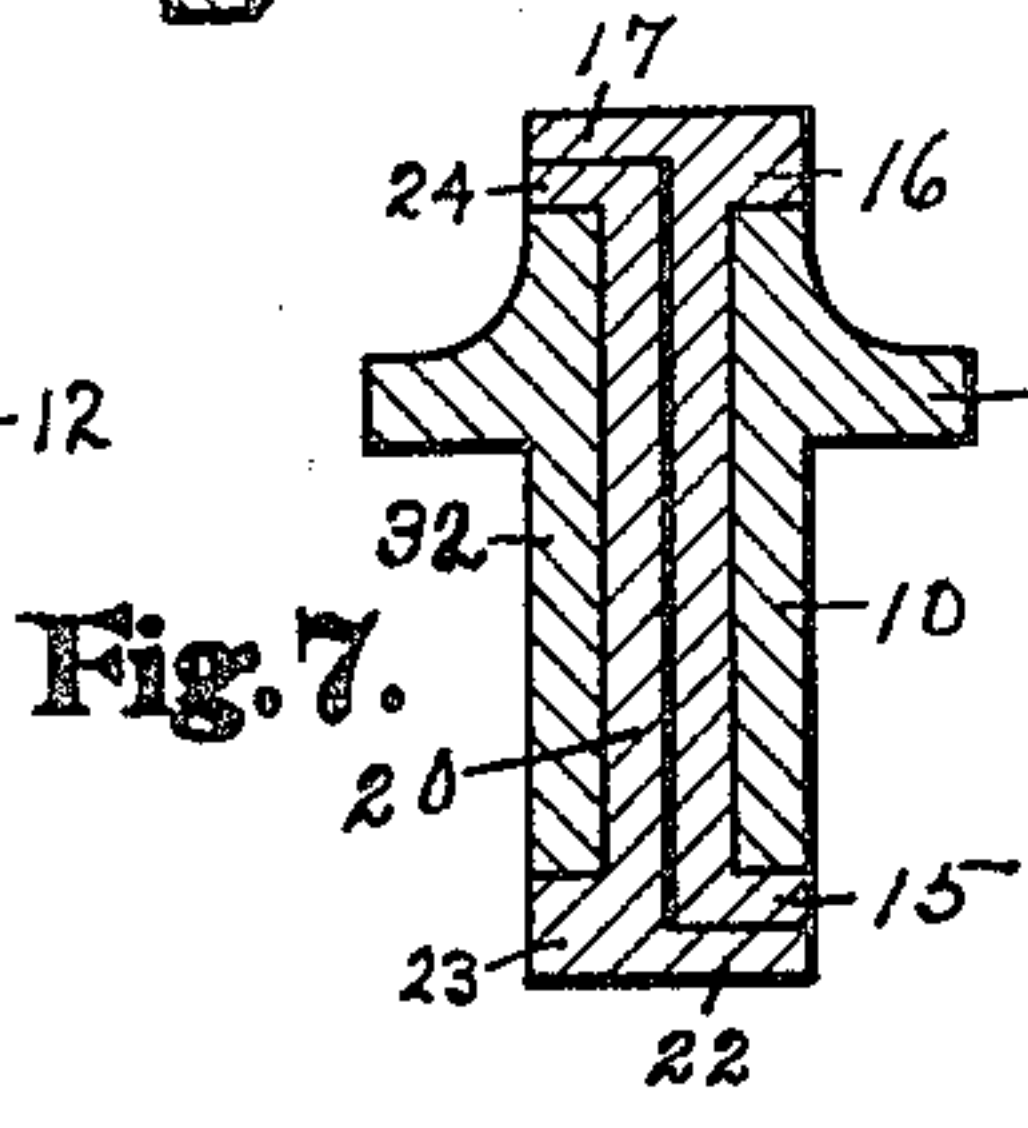


Fig. 7.

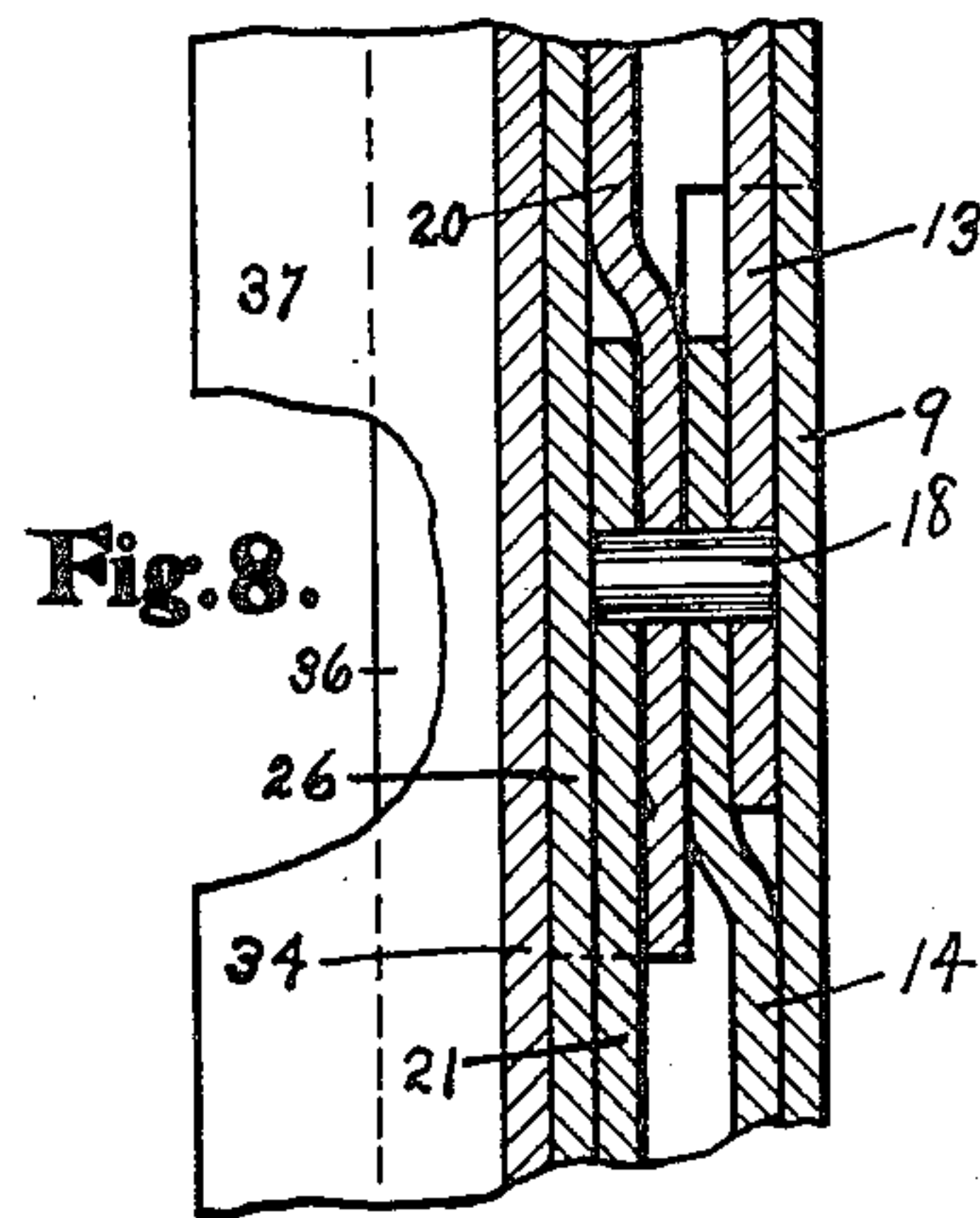


Fig. 8.

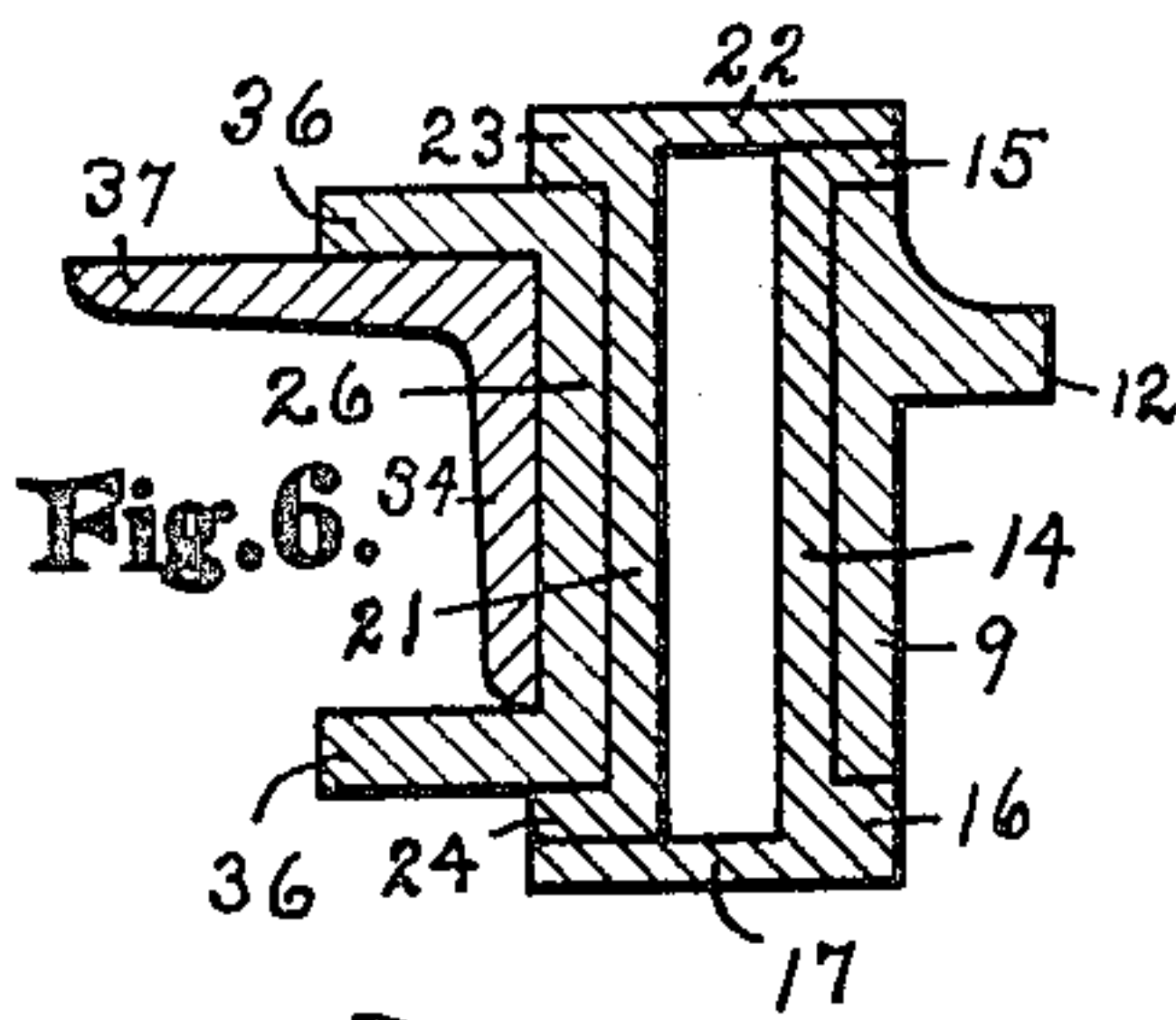


Fig. 6.

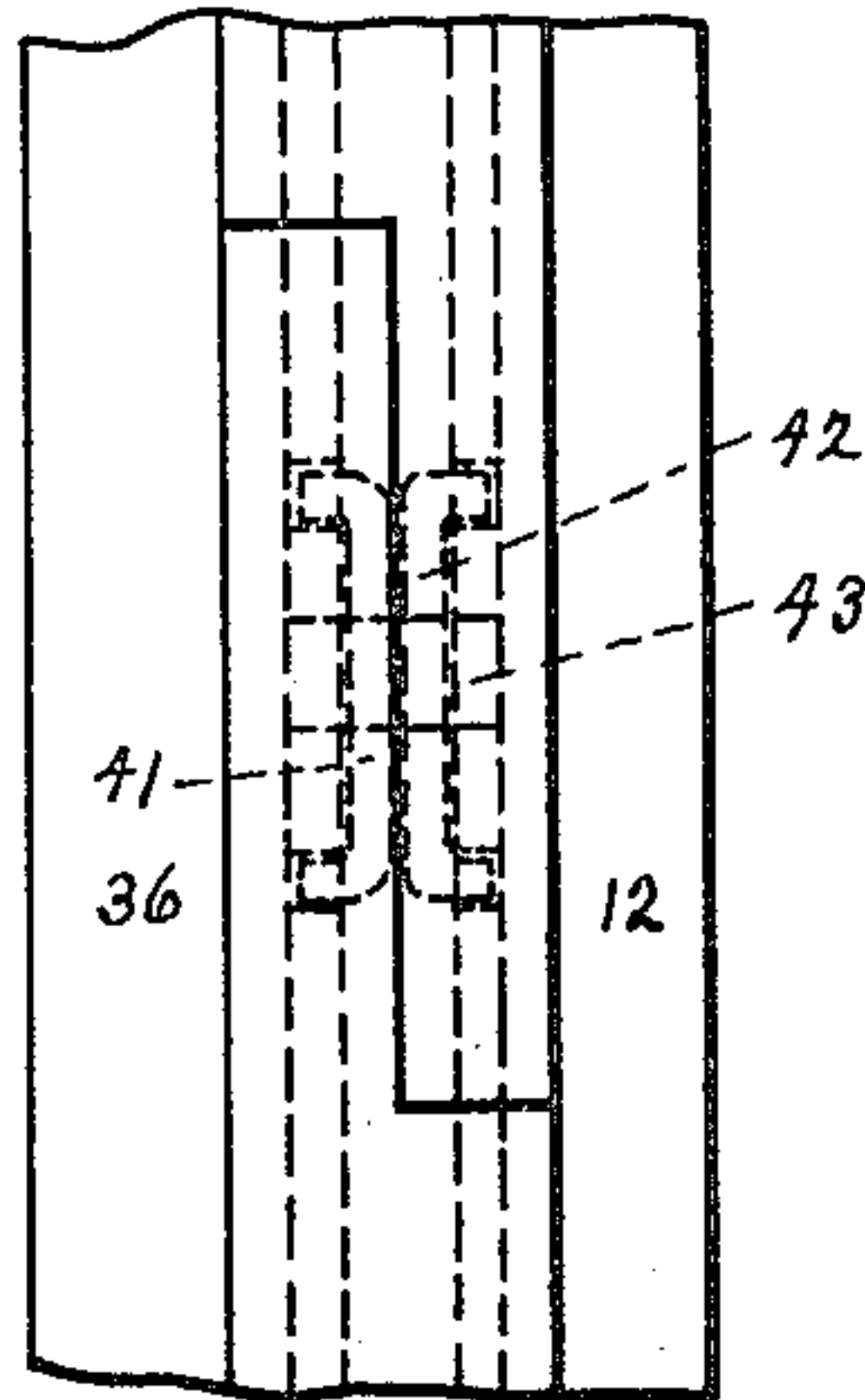


Fig. 11.

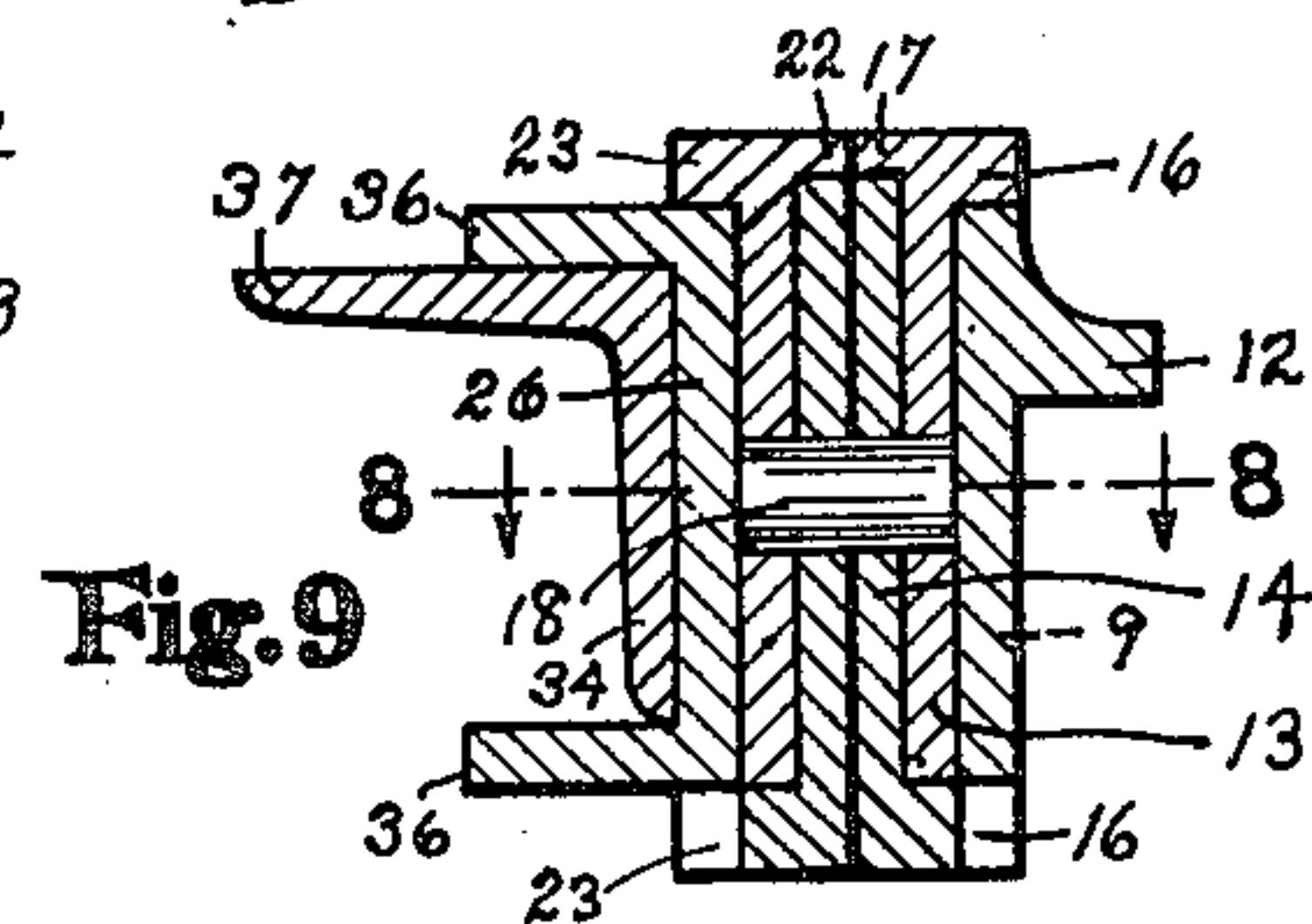


Fig. 9.

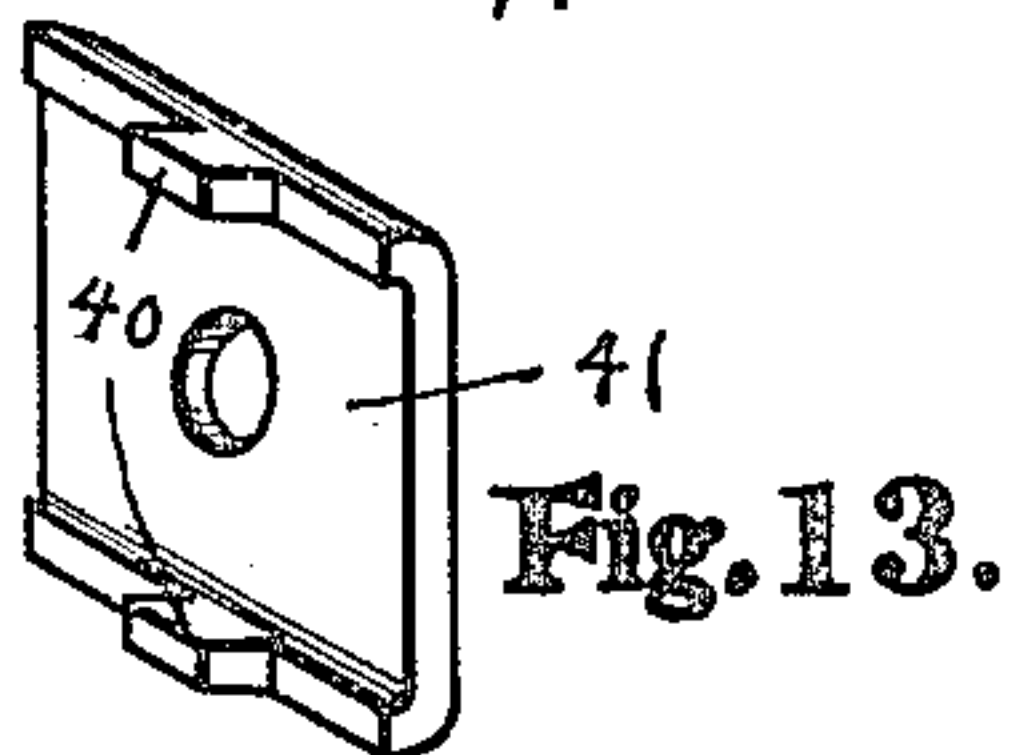


Fig. 13.

Inventor

Witnesses
Albert A. Hofmann
Elizabeth M. Brown

Gustave Kahn.
By Edward N. Page
Attorney

UNITED STATES PATENT OFFICE.

GUSTAVE KAHN, OF DETROIT, MICHIGAN.

VENTILATOR-FRAME.

993,529.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed February 23, 1911. Serial No. 610,241.

To all whom it may concern:

Be it known that I, GUSTAVE KAHN, a citizen of the United States, and a resident of Detroit, county of Wayne, and State of Michigan, have invented a new and Improved Ventilator-Frame, of which the following is a specification.

This invention relates to those portions of metal window frames which are pivoted so that they may be swung open for ventilation purposes, and its object is to provide a ventilator sash and frame, and the hinge therefor which can be easily assembled and positioned, which may be constructed at minimum cost, and which shall have sufficient strength.

In the accompanying drawings Figure 1 is a front elevation and Fig. 2 a side elevation of a window frame equipped with a ventilator frame embodying this invention. Fig. 3 is a perspective view showing a portion of the window sash which may be employed in this construction. Figs. 4, 5, 6, 7 and 9 are cross sections respectively on the lines 4—4, 5—5, 6—6, 7—7 and 9—9 of Fig. 1 on a larger scale. Fig. 8 is a cross section on the line 8—8 of Fig. 9. Fig. 10 is an elevation of the portion of the frame adjacent the hinge. Fig. 11 is a similar elevation of a slightly modified form of hinge. Fig. 12 is a vertical cross section of the structure shown in Fig. 11 on a similar plane as that shown in Fig. 8. Fig. 13 is a perspective view of a connecting device of the frame bars shown in Figs. 11 and 12.

Similar reference characters refer to like parts throughout the several views.

In my former application, Serial Number 602,179, dated January 12, 1911, a sash construction is illustrated which comprises side bars, muntins, and cross bars, the side bars and muntins being punched to permit the cross bars to extend through. This same construction is shown in Figs. 1 and 3, although any other construction may be employed. The muntins 1 have flanges 2 to support the panes of glass, and ribs 3. As set forth in said application, the muntins are centrally punched, leaving connecting portions 4 and 5. The cross bars of the sash are formed of two parts, the part 6 is formed with notches so that it may be slipped through the holes in the muntins and then moved laterally so that the portions 4 of the muntins will extend into the notches. The second portion 7 of the cross

bar is then slipped through the holes in the muntins and through the side bars 9, Fig. 4, which have been previously properly punched. The upper bars 10 and lower bars 11 are similarly positioned. The cross bars may have flanges 8 to support the panes of glass, while the side and end bars may have flanges 12 for the same purpose.

Considering the face of the window frame shown in Fig. 1 as the inside, the parts are so arranged and constructed that the upper part of the sash will swing inward and the lower part swing outward as shown in Fig. 2 in dotted lines. Extending around the side bars 9 and the end bars 10 and 11 are two bars 13 and 14 each of which has a web, a narrow flange 15 at one edge, and a narrow flange 16 and a wide flange 17 at the other edge. The flange 17 is on the inside of the upper half of the sash. The inner ends of the webs lap over each other at the middle of the sash on the line 9—9 of Fig. 1 as shown in Figs. 8 and 9 and are connected by means of pivots 18. These bars 13 and 14 are held in line with each other by the side bars 9. The flanges 15 and 16 engage the edges of the end bars 10 and 11 and side bars 9 of the pivoted sash as shown in Figs. 5, 6, 7 and 9. The frame in which this sash is mounted is formed of an upper bar 20 and a lower bar 21 which are preferably similar in cross section to the bars 12 and 13. These bars also have wide flanges 22, and narrow flanges 23 and 24 and webs. The webs of the bars 20 and 21 also overlap at the sides of the sash as shown in Figs. 8 and 9 and the pivots 18 extend through the same. The wide flanges 17 of the sash bars 13 and 14 extend outwardly but the wide flanges 22 of the frame bars 21 and 22 extend inwardly. The wide flanges 17 of the upper bar 13 is inside of the window and the lower bar 14 is on the outside of the window, while the wide flange 22 of the frame bar 20 is on the outside of the window around the upper part of the sash, and this flange 22 of the frame bar 21 is on the inside of the window around the lower part of the sash. Therefore, when the swinging sash is in vertical position, the flanges 17 of the sash will be against the flange 24 of the frame bars and the flanges 15 of the sash will be against the flanges 22 of the frame bars. As all these bars have preferably the same cross section, the joints can be made very tight.

If desired, the flanges 17 and 22 may be narrowed along the top of the sash as shown in Fig. 7, and the flanges 17 may be properly fitted to each other at the joints as shown in Fig. 10. The method of assembling a structure of this type is as follows: The muntins 1 and side bars 9 are placed parallel to each other and the bars 6 and 7 are slid through the holes in the same. The top bars 10 and bottom bars 11 are then positioned, the ends of the side bars and muntins extending through holes in the top and bottom bars. The bar 13, properly bent, is then placed around the upper end of the side bars 9 against the top bar 10, and the bar 14 is similarly positioned at the lower end of the structure, the inner ends of the bars 13 and 14 overlapping. It will be seen that as the side bars 9 are between the flanges 15 and 16, the sash bars 13 and 14 will be held in alignment. The frame bars 20 and 21 are then placed around the sash with their inner ends overlapping and the pivots 18 are placed in the proper holes in the ends of the four bars. The side channels 26 are then slid into place between the flanges 23 and 24, which channels may be connected at their lower ends by a similar channel 27. These channels, in turn, hold the frame bars 20 and 21 in alignment. When the frame is in position, another frame may be placed above it, the side bars 30 of which are preferably provided with flanges 31, and the bottom bar 32 of the upper frame is preferably of such size that it will fit between the flanges 23 and 24 of the frame bar 20, as shown in Fig. 7. To unite the upper and lower frames, angles 34 or other bars may be placed between the flanges 31 of the bars 30 and the flanges 36 of the channels 26, preferably extending the entire height of the window opening and adapted to have the outwardly extending member 37 embedded in the concrete or other material which forms the facing of the opening.

Another form of pivot construction is illustrated in Figs. 11 and 12. The bars are all preferably of the same cross section as those above described and consist of the side bar 9 of the sash, having the flange 12, the upper sash bar 13 and lower sash bar 14, the upper frame bar 20 and lower frame bar 21, the channel 26 and the angle bar 34. Instead of lapping the bars 13, 14, 20 and 21, they abut, their ends being slotted to receive the tongues 40 of the connectors 41 and 42 which respectively join the ends of the frame bars 20 and 21 and of the sash bars 13 and 14. The pivot pin 43 extends through these connectors and is held in position between the side bar 9 and the channel 26.

Many changes in the details of construction can be made by those skilled in the art without departing from the spirit of my in-

vention which is embodied in a pivoted window sash and its frame which are assembled without the necessity of riveting or distorting any of the parts in order to secure them together. The sash is mounted between frame bars and these are held between rolled bars of any desired cross section. The parts are assembled just before being put in place, and any means which rigidly supports the channels 26 will hold all the parts in operative position. Simply removing the frame and sash from the window opening unlocks each piece which can be removed at will.

Having now explained my construction, what I claim as my invention and desire to secure by Letters Patent is:—

1. In a ventilator for windows, the combination of a sash comprising side, top, bottom and cross bars, sash bars extending along the top and bottom and to the middle of the sash, said bars having flanges to engage the side, top, and bottom bars, frame bars extending around the sash bars, pivots uniting the ends of the sash bars and the ends of the frame bars, and bars extending along the frame bars to hold the same in line with each other.

2. In a ventilator for windows, the combination of a sash, sash bars extending along the top and bottom and to the middle of the sash and having their ends overlapping, bars bent to form a frame for said sash having their ends overlapping, a pivot at each side of the sash uniting the ends of the sash bars and of the frame bars, and means to hold the frame bars in line with each other.

3. In a ventilator for windows, the combination of a sash, sash bars bent to fit around the same, the ends of the bars meeting at the sides of the sash, said bars having flanges to engage the edges of the sash, pivots connecting the ends of the bars, frame bars extending around said sash bars and having their ends meet and connected by said pivots, said sash and frame bars having flanges to over-lap each other, the flanges of the sash bars extending over the frame bars and the flanges of the frame bars extending over the sash bars, and side bars to hold the frame bars in line with each other.

4. In a ventilator for windows, the combination of a sash comprising end, side and cross bars, flanged bars fitting around the sash to hold the side, end and cross bars in position, the ends of said flanged bars meeting at the middle of the sash, pivot pins to unite the same, frame bars extending around said sash bars and having their ends connected by said pivots, and means to hold said frame bars in line with each other.

5. In a ventilator, the combination of a sash comprising end, side and cross bars, flanged bars fitting around the sash to hold the side, end and cross bars in position, the ends of said flanged bars meeting at the

middle of the sash, pivot pins to unite the same, frame bars extending around said sash bars and having their ends connected by said pivots, and means to hold said frame bars in line with each other, each of said frame bars having an inwardly extending flange on the opposite side of the sash from the other.

6. In a ventilator for windows, the combination of a sash, sash bars extending along the top and bottom and to the middle of the sash and having their ends over-lapping, bars bent to form a frame for said sash having their ends over-lapping, a pivot at each side of the sash uniting the ends of the sash bars and of the frame bars, and means to hold the frame bars in line with each other, each of said bars having an outwardly extending flange on opposite side of the sash

from the other and each of the frame bars having an inwardly extending flange on the opposite side of the sash from the other.

7. In a ventilator, the combination of a sash comprising end and side bars, flanged bars fitting around the sash to hold the end and side bars in position, frame bars extending around the sash bars and having their ends adjacent the end of the sash bars, means for uniting the ends of the sash bars and of the frame bars, and means to hold said sash bars in line with each other.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAVE KAHN.

Witnesses:

EDWARD N. PAGELSEN,
ELIZABETH M. BROWN.