

**No. 647,421.**

**Patented Apr. 10, 1900.**

**E. J. MALLIN.**  
**HOT AIR REGISTER.**

(Application filed Aug. 3, 1899.)

(No Model.)

Fig 1.

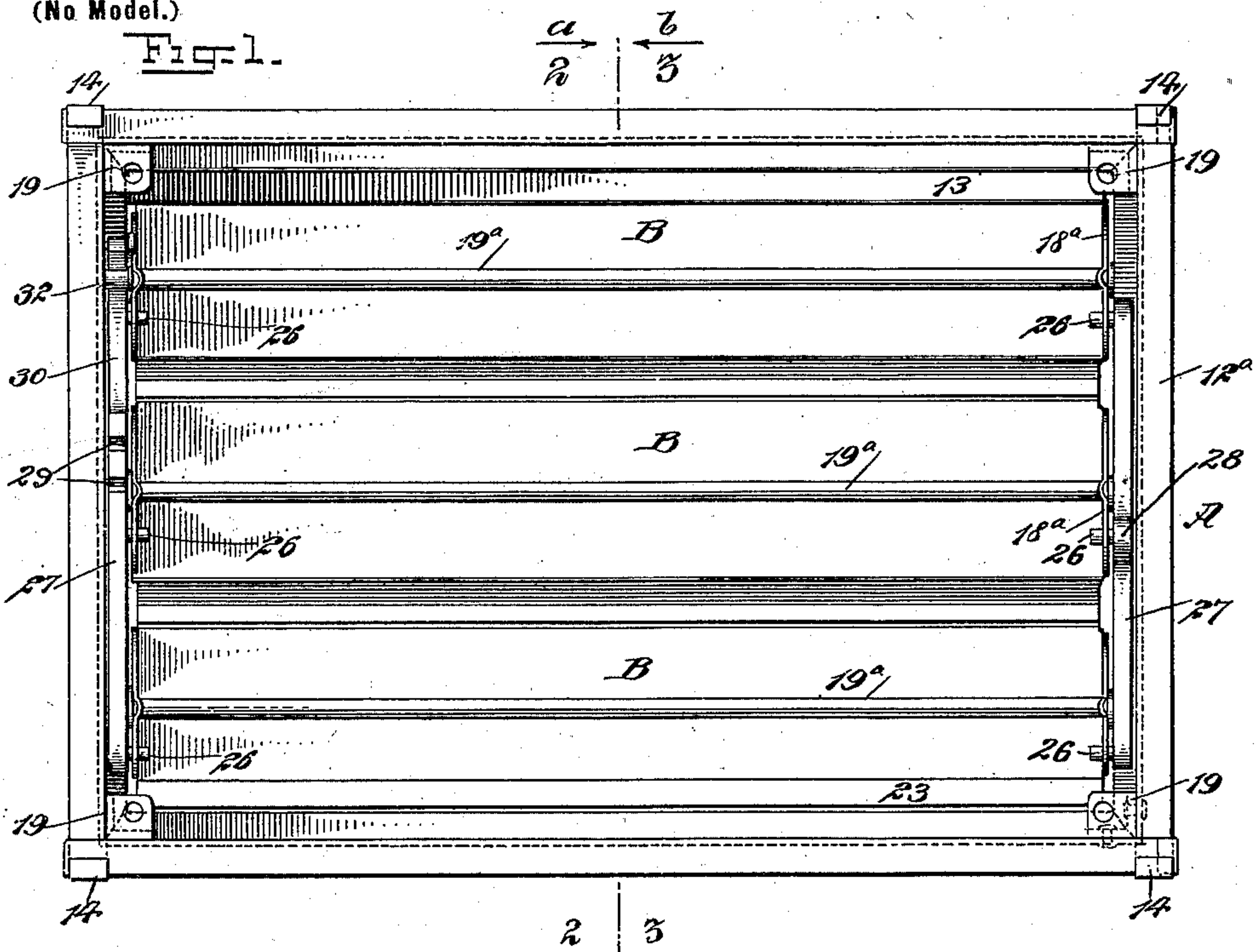


Fig. 2.

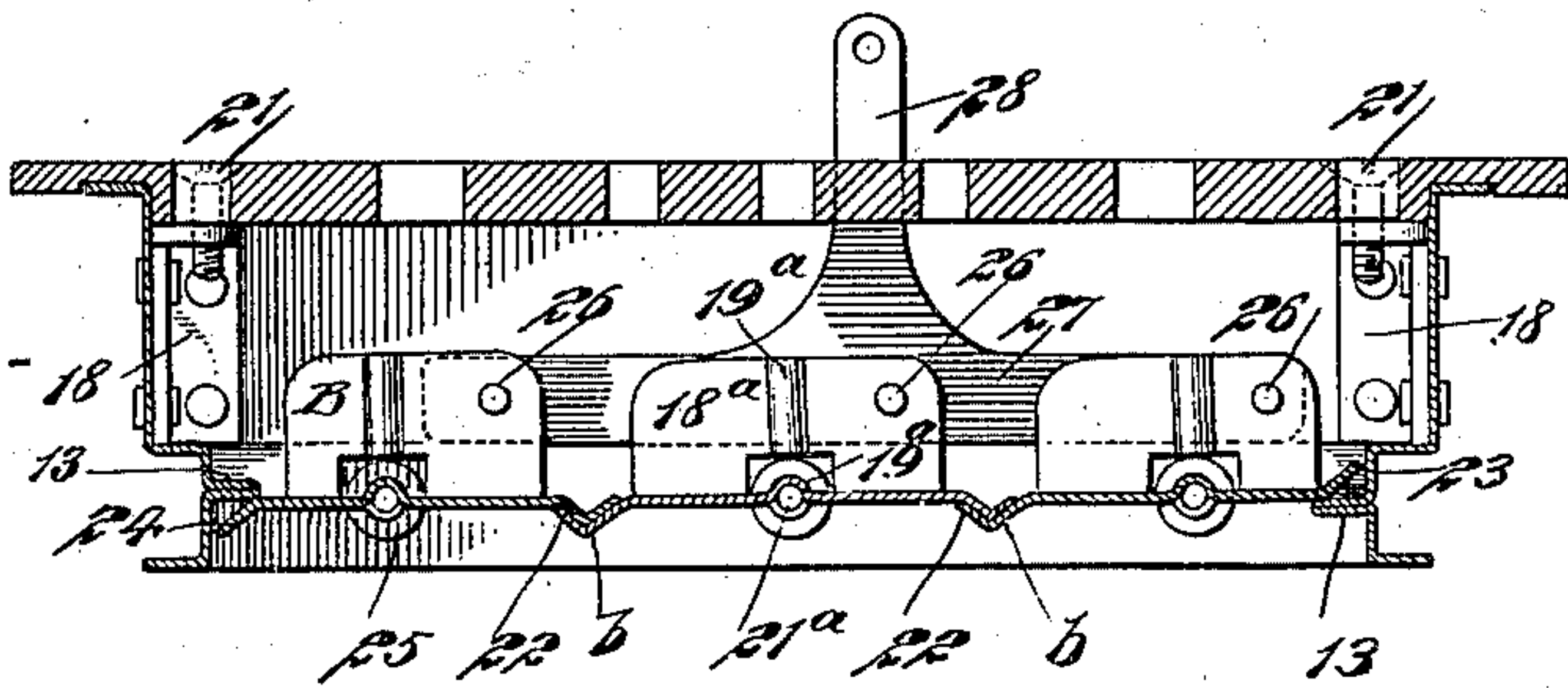


Fig. 3.

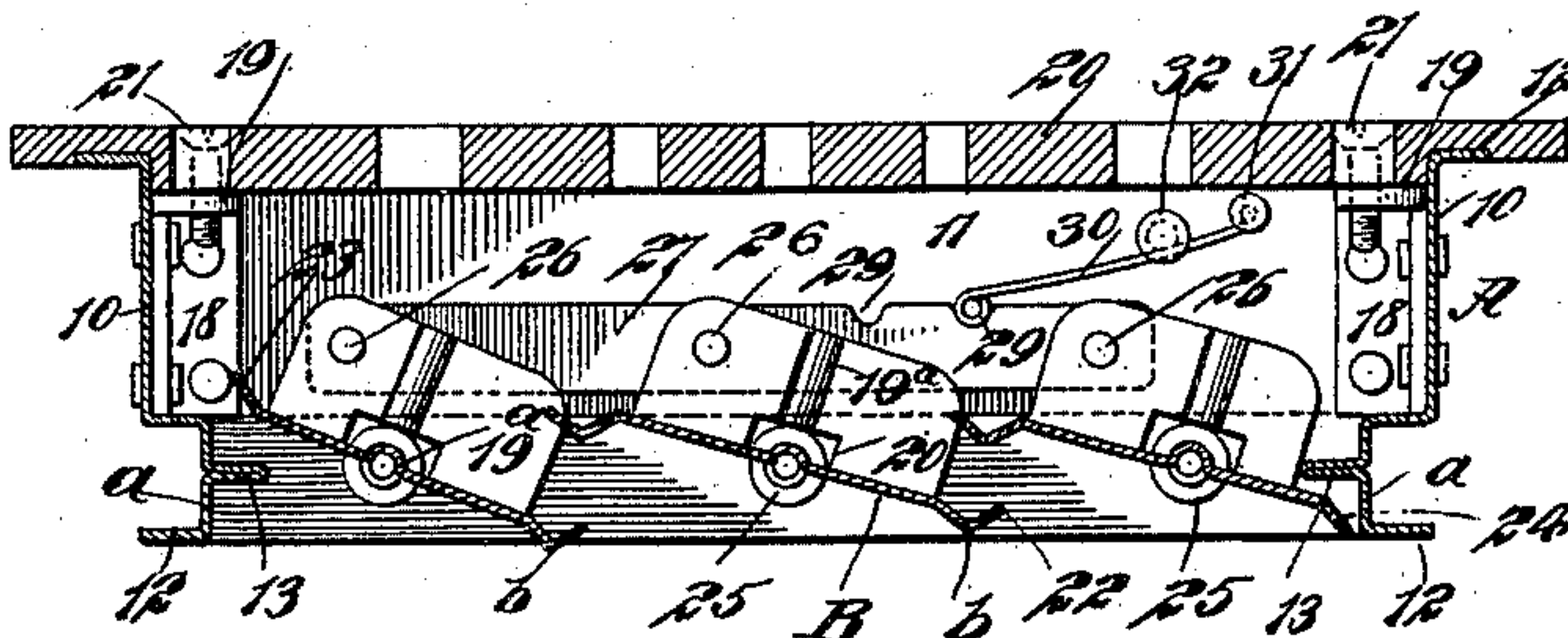
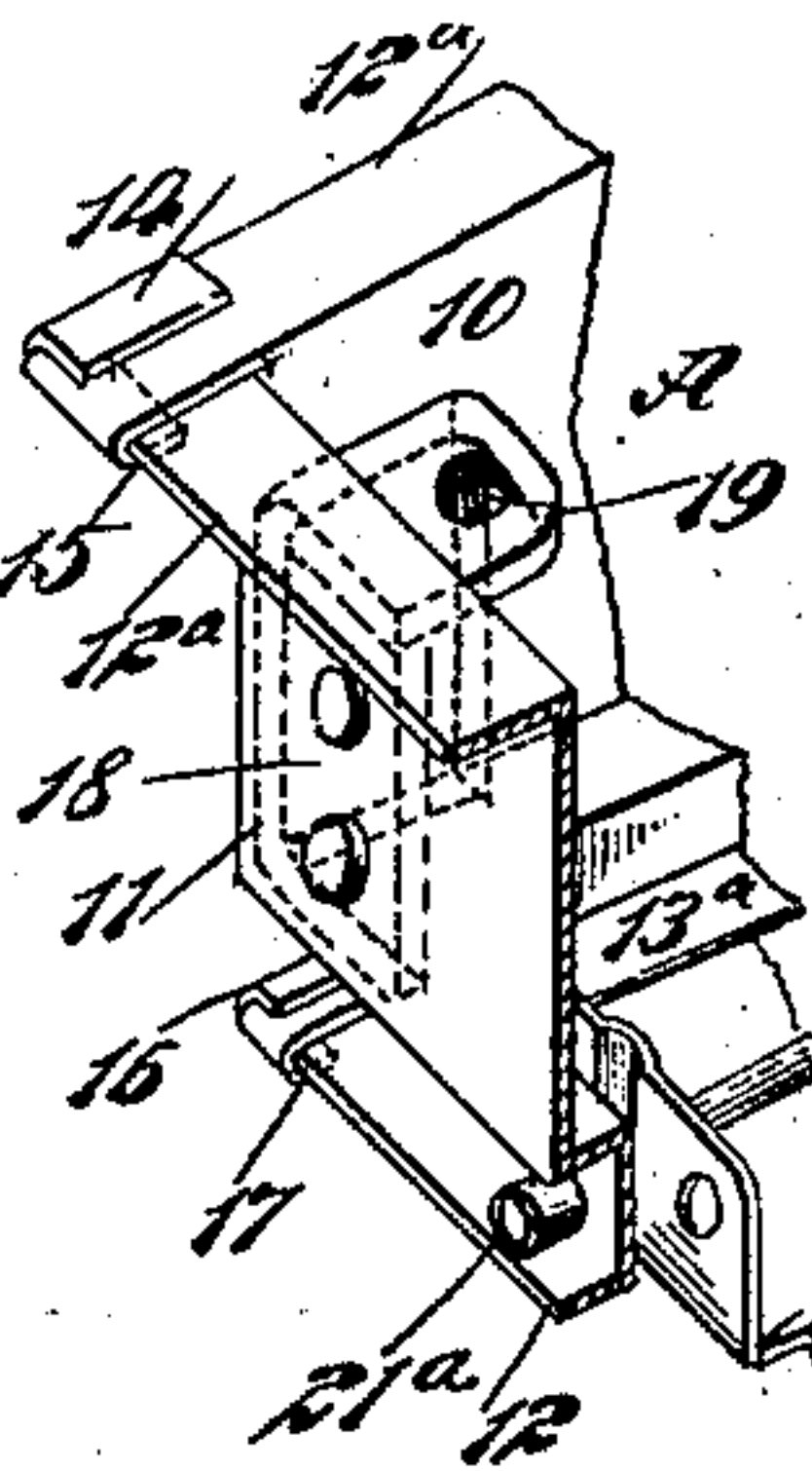
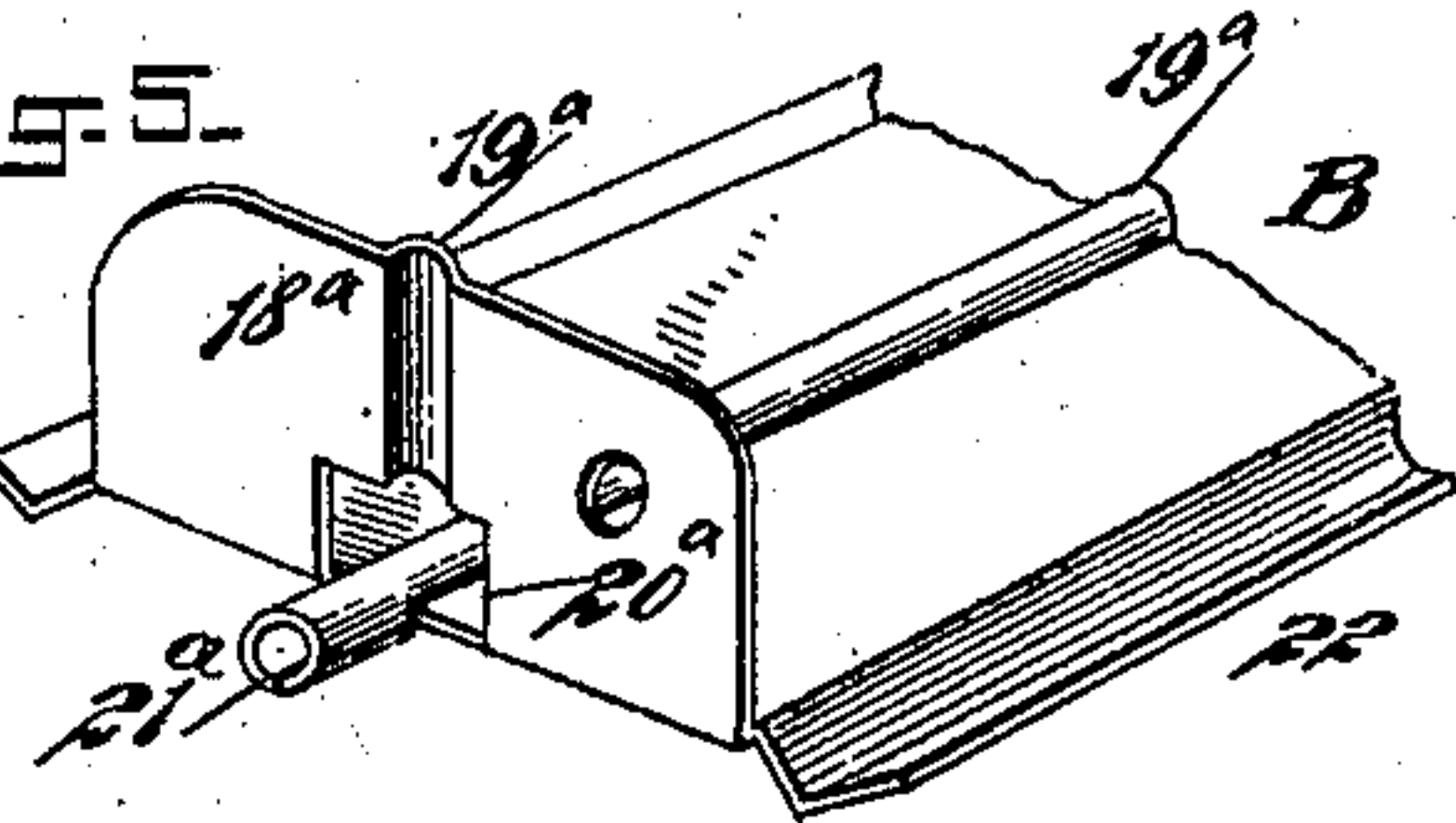


Fig 4.



WITNESSES :

Fig 5.



~~INVENTOR~~

84

~~ATTORNEYS~~



# UNITED STATES PATENT OFFICE.

EDWARD J. MALLIN, OF NEW YORK, N. Y.

## HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 647,421, dated April 10, 1900.

Application filed August 3, 1899. Serial No. 725,995. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD J. MALLIN, of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Hot-Air Register, of which the following is a full, clear, and exact description.

One object of my invention is to provide a hot-air register in which the slats are constructed of sheet metal arranged to overlap, so as to produce a smoke-tight connection, and to provide a frame also made of metal, the braces for the frame constituting means for the attachment of a cover or frontispiece.

Another object of the invention is to so construct the slats that their trunnions will be integral with the body of the slats and the bearings for the shifting devices for the slats also integral with said slats.

A further object of the invention is to so brace the several parts of the sheet-metal body that it will have practically the rigidity of a cast-metal body.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved register, the cover or front having been removed. Fig. 2 is a transverse section taken substantially on the line 2-2 of Fig. 1 looking in the direction of the arrow *a*. Fig. 3 is a similar section taken on the line 3-3 in Fig. 1 looking in the direction of the arrow *b*. Fig. 4 is a perspective view of a corner-section of the device; and Fig. 5 is a perspective view of a portion of one of the slats, the said view being on a larger scale than the other views.

The frame or body A of the register is constructed of sheet metal and is of box-like or rectangular form, although its shape may be varied. The said body A is provided with a reduced base-section *a*, and said reduced section is provided at its bottom with an outwardly-extending flange 12, a similar flange 12<sup>a</sup> being formed at the upper or outer edge of the said body A. The sides of the said body are designated by the numeral 10 and

the end portions by the numeral 11, and at about the center of the reduced portion *a* of the body A an inwardly-extending horizontal rib 13 is formed at each side of the body, as shown in Figs. 2 and 3.

In order to avoid the use of rivets at the upper flanges 12<sup>a</sup> where the side sections of the flanges connect with the end sections, the side sections of the flanges are provided with an upwardly-turned end 14, extending over the end flanges, as illustrated in Fig. 4, while the end flanges of the body are provided with downwardly-turned members 15, that extend over and engage with the side portions of said flanges, as is also shown in Fig. 4. The same connection between the ends and sides of the body is provided for the contracted base portion *a*, in which, as shown in Fig. 4, the side sections of the lower flanges 12 are bent over the end sections of said flanges, as shown at 16 in Fig. 4, and the terminals of the end portions of the flanges 12 are carried over the side portions of said flanges, as shown at 17 in Fig. 4. The return ends of the various flanges 12 and 12<sup>a</sup> are clamped together in any suitable or approved manner.

The corners of the body are connected and braced by means of angle-irons 18, riveted to the sides and end portions of the body above the contracted section *a* thereof, and at the top of each angle connecting-iron 18 an aperture 19 is formed, so that the cover or frontispiece 20 may be attached to the body by passing screws 21 through the said cover and frontispiece and into the apertures 19 in the angle-irons. Thus it will be observed that the body, although constructed entirely of sheet metal, will be as strong as a body of cast metal and very much lighter and more economic in manufacture.

A series of slats B is carried by the body A. These slats are formed from sheet metal and are preferably provided with an upset central longitudinal rib 19<sup>a</sup>, and the ends of the slats B are narrower than their body portions and are bent upward at a right angle to said body portions, forming end members or flanges 18<sup>a</sup>.

An opening 20<sup>a</sup> is made in each of the upturned end members 18<sup>a</sup>, and the material obtained by forming the said opening 20<sup>a</sup> is bent upon itself and carried horizontally outward in longitudinal alinement with the cen-



tral upset rib 19<sup>a</sup> to form trunnions 21<sup>a</sup>, as is particularly shown in Fig. 5. The central slats B are provided at each longitudinal edge with a V-shaped valley *b*, whereby oppositely  
 5 and upwardly inclined flanges 22 are obtained; but in the slats B, located at the sides of the body, the valley *b* is omitted at the outer edges of said outermost slats, as shown in Figs. 2 and 3, the outer edge of one of the  
 10 outermost slats B having a downwardly-extending flange 24, adapted to engage with the reduced or base portion *a* of the body at a point below the rib 13, whereas the opposing outermost slat B at its outer edge is provided  
 15 with an outwardly-extending flange 23, adapted to engage with the reduced portion *a* of the body A at a point above the side rib 13, adjacent to said uppermost slat, as is also shown in Figs. 2 and 3; but the valley *b* is  
 20 formed at the inner edge of each of the said outermost slats B, so that all of the slats when closed will have an interlocking dust and smoke proof connection with each other.

The trunnions 21<sup>a</sup> of the slats are jour-  
 25 naled in the reduced or base portions *a* of the body A, suitable washers 25 being provided, and a shifting bar 27 is mounted to slide at the inner face of each end portion of the body A. The said shifting bars are provided with  
 30 pins 26, that pivotally connect with the upturned ends 18<sup>a</sup> of the slats B; but one of the shifting bars 27 is provided with notches 29 in its upper edge, as shown in Fig. 3, while the other shifting bar is provided with a handle 28, that extends out through the frontis-  
 35 piece of the register, and by means of this handle the shifting bars are moved endwise in the register.

The notches 29 in one of the shifting bars  
 40 27 are adapted to receive the free end of a spring 30, the said free end being preferably cylindrical, and the opposite end of this spring is attached to an end of the register, as shown at 31 in Fig. 3, while a stud 32 has bearing  
 45 upon the upper or outer surface of the spring between its ends, serving to hold the free end of the spring in engagement with the shifting bar with which it is to contact. Thus it  
 50 will be observed that by moving the shifting bars through the medium of the handle 28

the shifting bars may be retained in such position that the slats may be fully or partially opened, or the shifting bars may be so moved as to effectually close the slats, as shown in Fig. 2.

The valleys, grooves, and flanges at the longitudinal edges of the slats not only serve to produce a perfect interlocking engagement between the slats, but likewise tend to materially strengthen the slats and enable very  
 60 thin material to be successfully employed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a register, a frame having sheet-metal  
 65 sides and ends, each formed with a top and bottom flange, the top flanges being overlapped and bent around each other at the corners into interlocking engagement, and the  
 70 bottom flanges being also overlapped and bent around each other at the corners, as set forth.

2. In a register, a frame having sheet-metal  
 75 sides and ends each formed with an outwardly-turned top and bottom flange, the top and bottom flanges on the sides of the frame being bent at the corners up over the top and  
 80 bottom flanges on the ends of the frame, and said latter flanges being bent down at the corners over the flanges on the sides of the frame, as set forth.

3. In a register, a frame having sheet-metal  
 85 sides and ends, each formed with a reduced portion near its bottom and with a top and bottom flange, which flanges are bent around each other at the corners into interlocking  
 90 engagement, the sides of the frame being further formed with intumed horizontal ribs in their reduced portions, as set forth.

4. In a register, a slat constructed of sheet  
 95 metal formed with a longitudinal rib, upturned ends, and an opening in each upturned end, the metal obtained by forming such openings forming trunnions for the slat, as set forth.

EDWARD J. MALLIN.

Witnesses:

ROBT. A. NOLAN,  
 ALFRED H. MORGAN.