

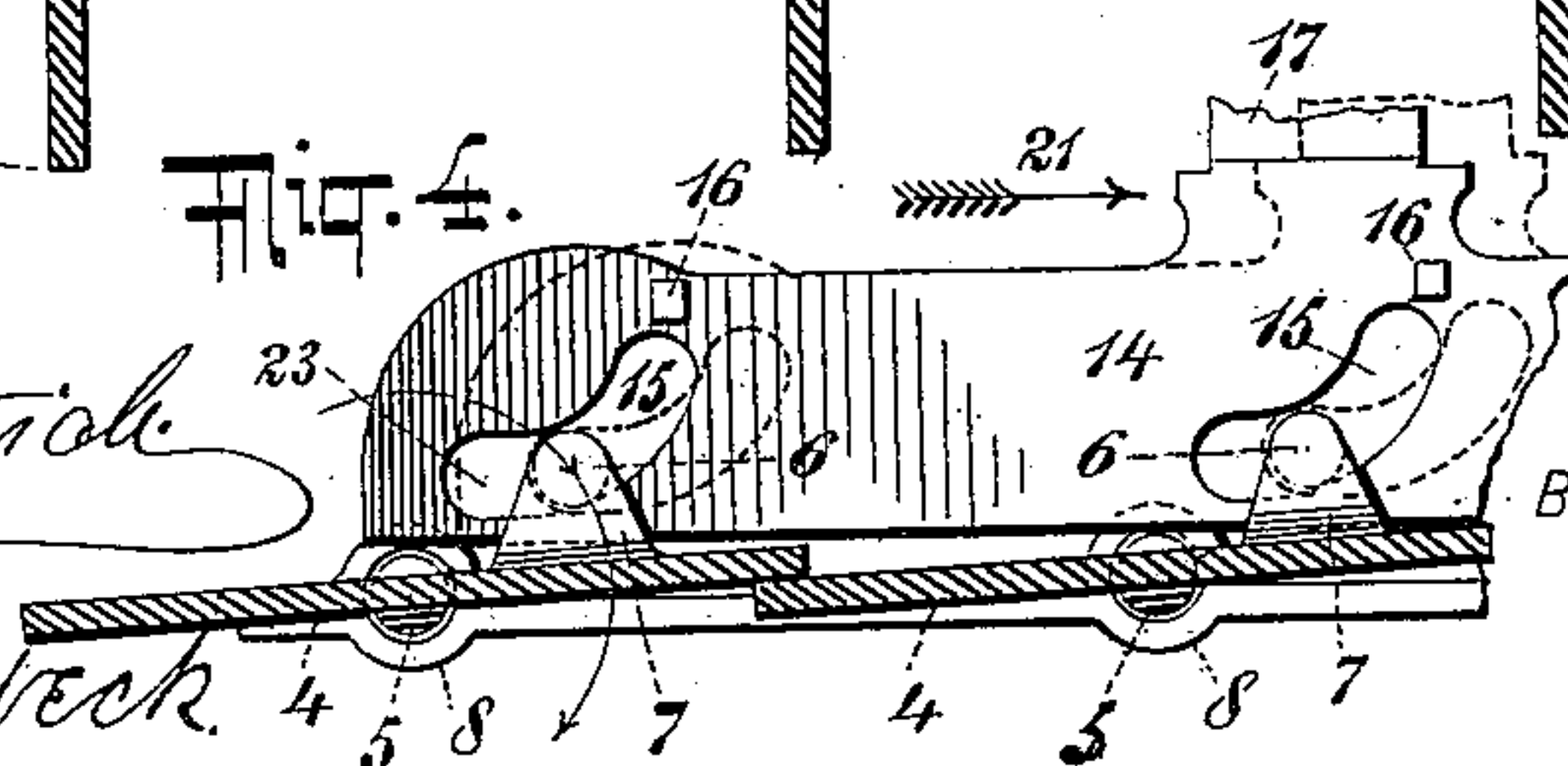
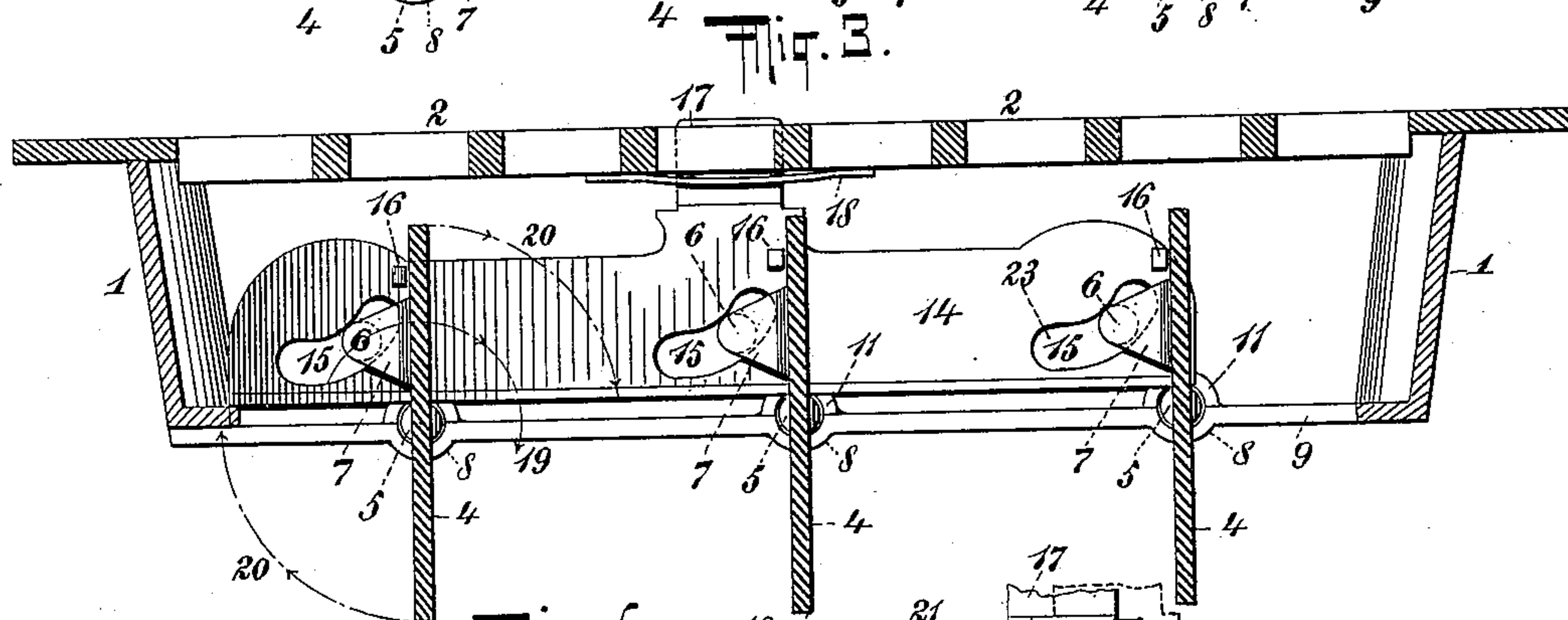
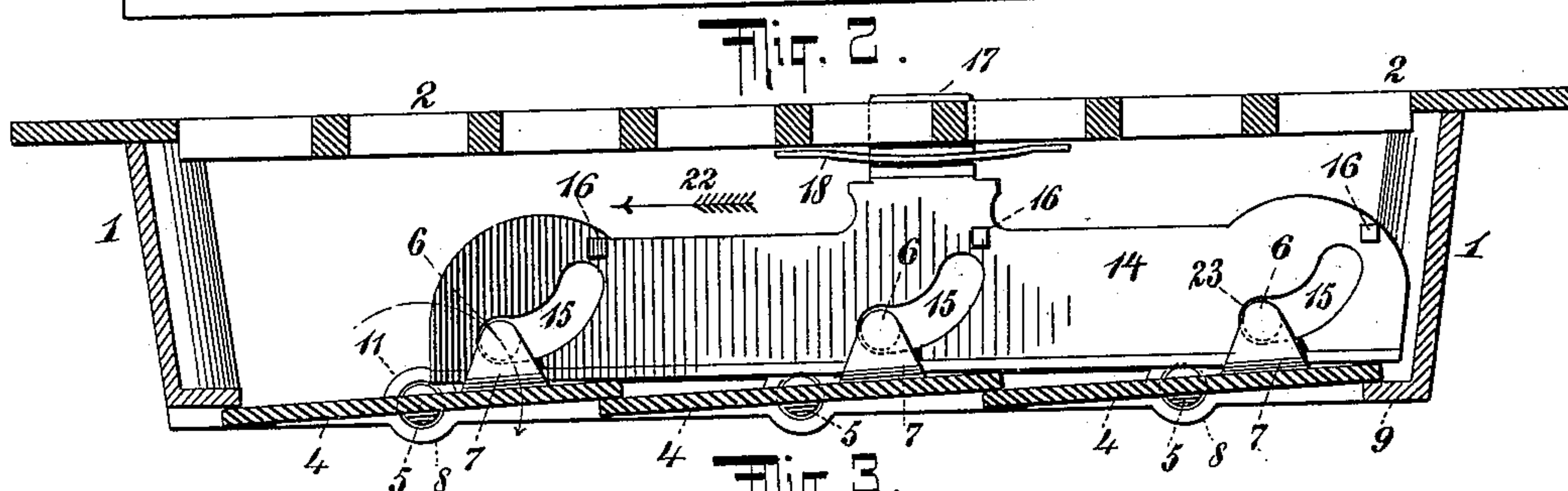
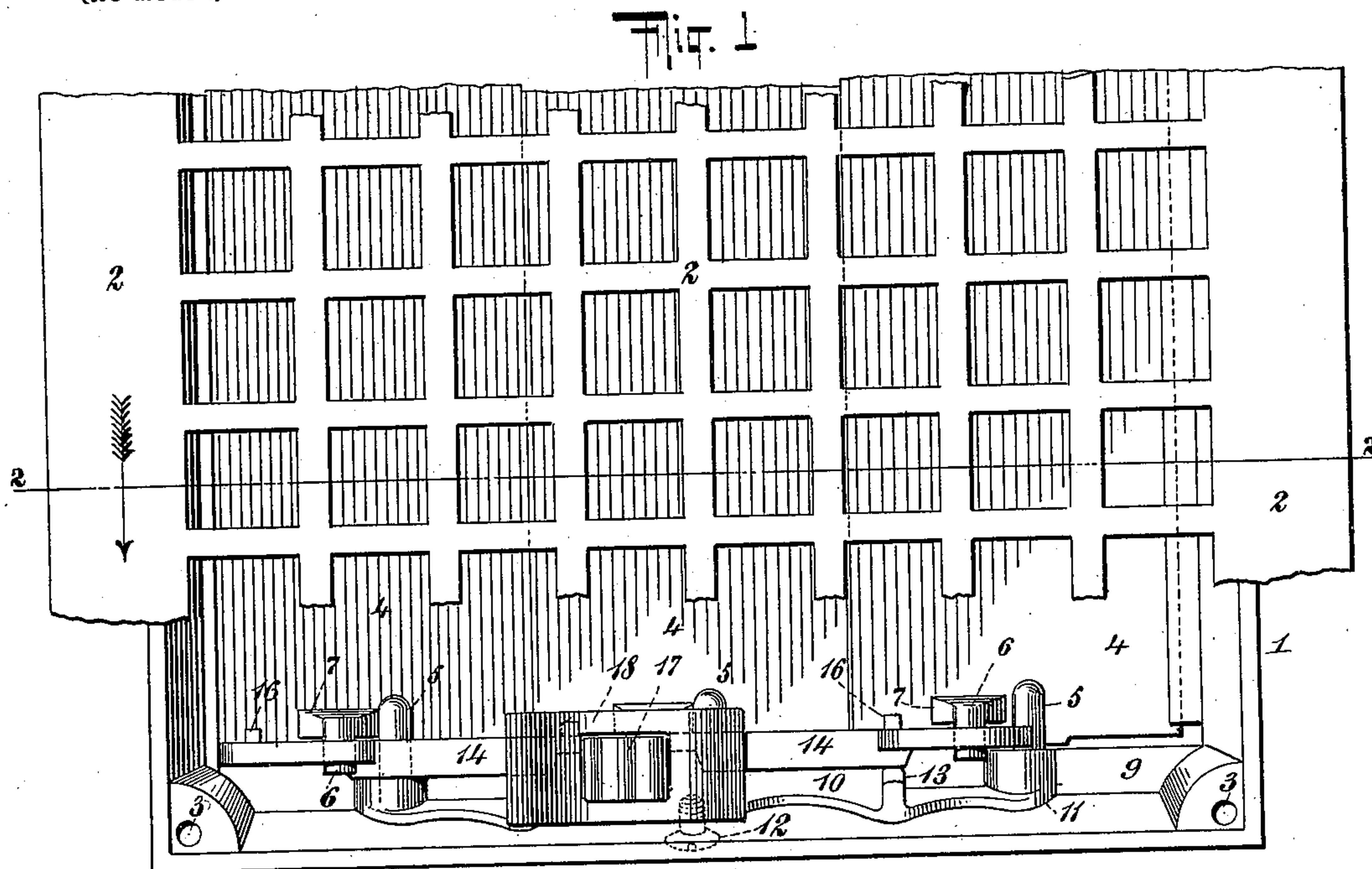
No. 618,589.

Patented Jan. 31, 1899.

S. TUTTLE.
HOT AIR REGISTER OR VENTILATOR.

(Application filed Apr. 21, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

SILAS TUTTLE, OF NEW YORK, N. Y.

HOT-AIR REGISTER OR VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 618,589, dated January 31, 1899.

Application filed April 21, 1898. Serial No. 678,344. (No model.)

To all whom it may concern:

Be it known that I, SILAS TUTTLE, of New York, (Brooklyn,) Kings county, New York, have invented a new and useful Improvement in Hot-Air Registers or Ventilators, of which the following is a specification.

My invention relates to that class of registers which are usually provided with a supporting-frame, pivoted fans or valves, and an outside grating, together with an operating device for moving the fan into open or closed position.

My invention consists more particularly in the construction of the operating device for the fans and the combination of the fans therewith and in the means for locking said fans in closed position.

In the accompanying drawings, Figure 1 is a front view of the register with a portion of the grating removed, so as to exhibit the operating parts. Figs. 2 and 3 are cross-sections on the line 2 2 of Fig. 1. Fig. 4 is a similar cross-section in part and designed more particularly to show the locking action of the sliding bar.

Similar numbers of reference indicate like parts.

1 is the register frame or box.

2 is the grating, which is secured thereto in any suitable manner, as by bolts entering openings 3 in the solid corners of the frame. The fans or slats 4 are here shown as three in number; but of course this number may be varied at will. Upon the transverse edge of each fan there is a pivot-pin 5 and also a stud-pin 6, which may project in the same direction as the pivot-pin 5 and may be supported by an offset 7, which, if the fan is of cast metal, may be cast integrally with the fan. So, also, the pivot-pins 5 may be integrally cast with the fan. I have shown the pins 6 here projecting from an offset 7; but it is to be understood that this offset is not essential to my construction, inasmuch as the pin may project from the fan-body itself. The pivot-pins 5 of the fans are received at one end of the frame in simple sockets in the frame-wall. This wall and the sockets are not shown. At the other end of the frame the pivot-pins are received in half-bearings 8, formed in a ledge 9 on the rear side of the frame. The said pins are retained in said

half-bearings by a bar 10, which is also provided with half-bearings 11, which when the bar is secured in place, as shown in Fig. 1, registers with half-bearings 8 and so completes a circular bearing or socket into which the pivot-pins 5 are received. The bar 10 is secured to the frame-wall by any suitable means—as, for example, a bolt, (indicated by dotted lines at 12 in Fig. 1.) By removing this bolt the bar 10 can be taken out, the half-bearings 8 and 11 separated, and the fans thus easily withdrawn from the frame.

Upon the upper side of the bar 10 are lugs, one of which is shown at 13. Resting upon these lugs and upon the upper surface of the half-bearings 11 is a sliding bar 14. In this bar are curved slots 15. In these slots the stud-pins 6 enter. On the upper side of the bar 14 are stops 16, and on its forward side is a projection 17, which passes through an opening in the grating and by means of which the bar 14 can be moved to and fro longitudinally, or, in other words, from right to left of the drawing.

A leaf-spring 18 bears upon a shoulder of the projection 17 and forces the bar 14 rearwardly, so that its rear side rests against the fan-pivots 5.

The operation of the device is as follows: Assuming the parts to be in the position shown in Fig. 3, with the fans open, sliding bar 14 is moved to the right of the drawing by means of the arm 17. The stud-pins 6 of the fans are now acted upon by the curved edges of the slot 15, and each stud-pin is caused to describe a circle, as indicated by the curved arrows 19 in Fig. 3, while the longitudinal edges of the fan describe a circle represented by the curved arrows 20 in the same figure. When the fans assume their closed position, as represented in Fig. 4, the stud-pins 6 have not reached the left-hand ends of the slots 15, and further movement of the bar 14 now serves to lock the fans in closed position—that is to say, if the bar 14 be moved still farther in the direction of the arrow 21 in Fig. 4 and into the position represented by dotted lines in said figure, then, as is shown by said dotted lines, the stud-pins 6 will have come into a substantially straight portion 23 of the slots, and consequently any force tending to bring the fan back to an open position,

exerted directly on the fan itself, will be opposed by the stud-pin bearing against the straight edges of the slot, and as such an application of force to the sliding bar will obviously not move the bar it follows, therefore, that the fans become locked in closed position. This is of especial advantage in registers of this kind which may be used for ventilators, in which case the air moves inwardly through the grating, as well as hot-air registers, in which case the hot air comes outwardly through the grating. If the fans were not capable of being locked in closed position, a strong inward draft would tend to open them.

The final position of the fans and of the stud-pins in the slots is as represented in Fig. 2, the bar 14 then having been moved to its extreme limit to the right of the drawing. To open the fans again, it is of course only necessary to move the bar 14 in the direction of the arrow 22 of Fig. 2. The bar then slides over the stud-pins 6 for a short distance before the curved edges of the slots act upon said pins to move them in a reverse direction to that shown in Fig. 3 and so to rotate the fans into open position until said fans strike the fixed stops 16 of the bar 14.

The special advantages of this construction are, first, its simplicity and fewness of parts; second, its ease and certainty of operation, and, third, the automatic locking of the fan in closed position by the operating device itself without the addition of any extraneous means for that purpose. As to the first point it will be noted that the whole operating device is nothing more than a single sliding bar in which are formed the slots which engage with the stud-pins of the fans. Inasmuch as the fans are locked, it is no longer necessary to arrange the parts of the operating device in close frictional contact, so as to hold the fans in closed position by friction. Therefore the entire device is very easy of operation, and, finally, the same movement which closes the fans practically locks them. The hand almost naturally in pushing over the projection 17 to make the fans shut carries it onward a little farther and so locks them.

Similarly, in opening the fans the first movement of the bar is to unlock them before it begins to open them.

I claim—

1. In an air register or ventilator, a pivoted fan, a fixed pin projecting from an end thereof, and a sliding bar having a slot adapted to receive said pin; the said slot being formed, and when said bar is moved acting, to turn said fan on its pivot, and also, by its engagement with said pin, to lock said fan in closed position, substantially as described.

2. In an air register or ventilator, a pivoted fan, a fixed pin projecting from an end thereof, and a sliding bar having a slot adapted to receive said pin and placed and operating between said fan and the register-face; the said slot being formed, and when said bar is moved acting, to turn said fan on its pivot, and also, by its engagement with said pin, to lock said fan in closed position, substantially as described.

3. In an air register or ventilator, a pivoted fan, a fixed pin thereon and a movable bar having a slot receiving said pin, the said slot having a curved portion and a straight portion; whereby when said bar is moved the curved portion of said slot acting on said fixed pin operates to turn said fan, and the straight portion of said slot acting on said fixed pin locks said fan in definite position, substantially as described.

4. In an air register or ventilator, a pivoted fan, a fixed pin thereon, and a sliding bar having a slot receiving said pin, the said slot having a curved portion and a straight portion extended in the line of movement of said bar; whereby when said bar is moved to turn said fan from open to closed position, the curved portion of said slot first acts on said pin to close said fan, and thereafter further movement of said bar in the same direction carries the straight portion of said slot over said pin and thereby locks said fan, substantially as described.

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