

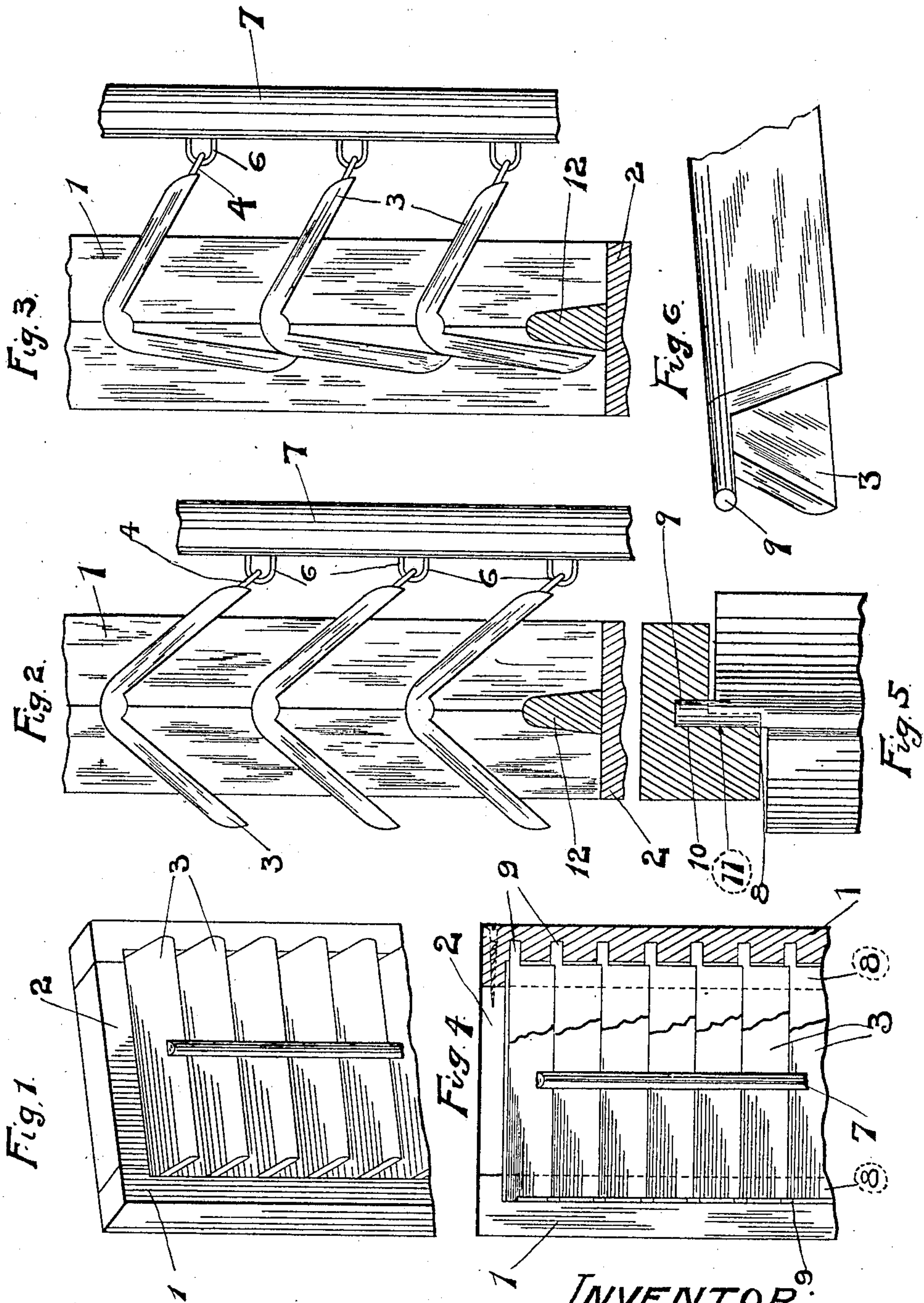
No. 878,214.

PATENTED FEB. 4, 1908.

J. LORENZ.
VENTILATOR.

APPLICATION FILED DEC. 3, 1906.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 7

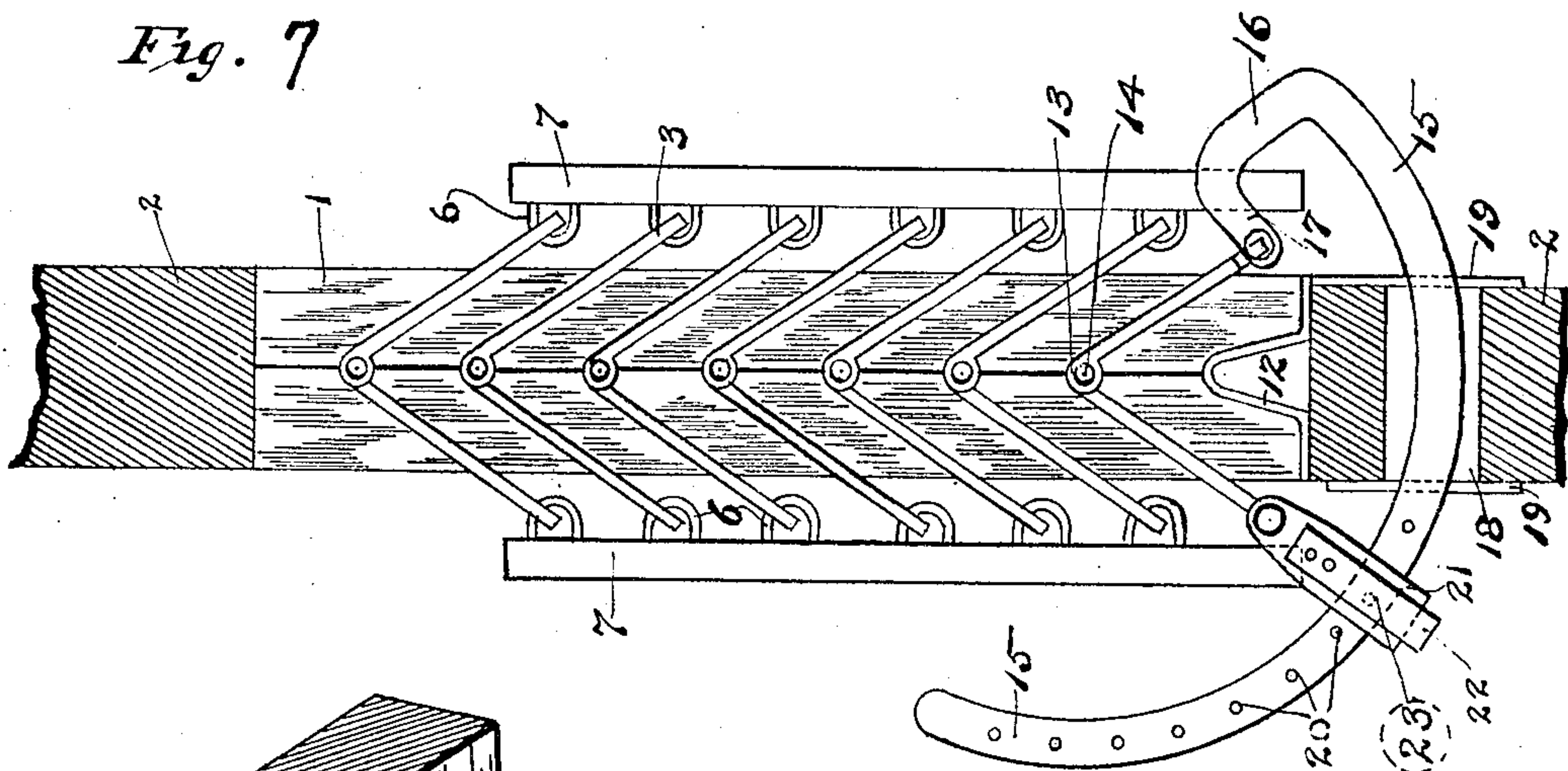


Fig. 8

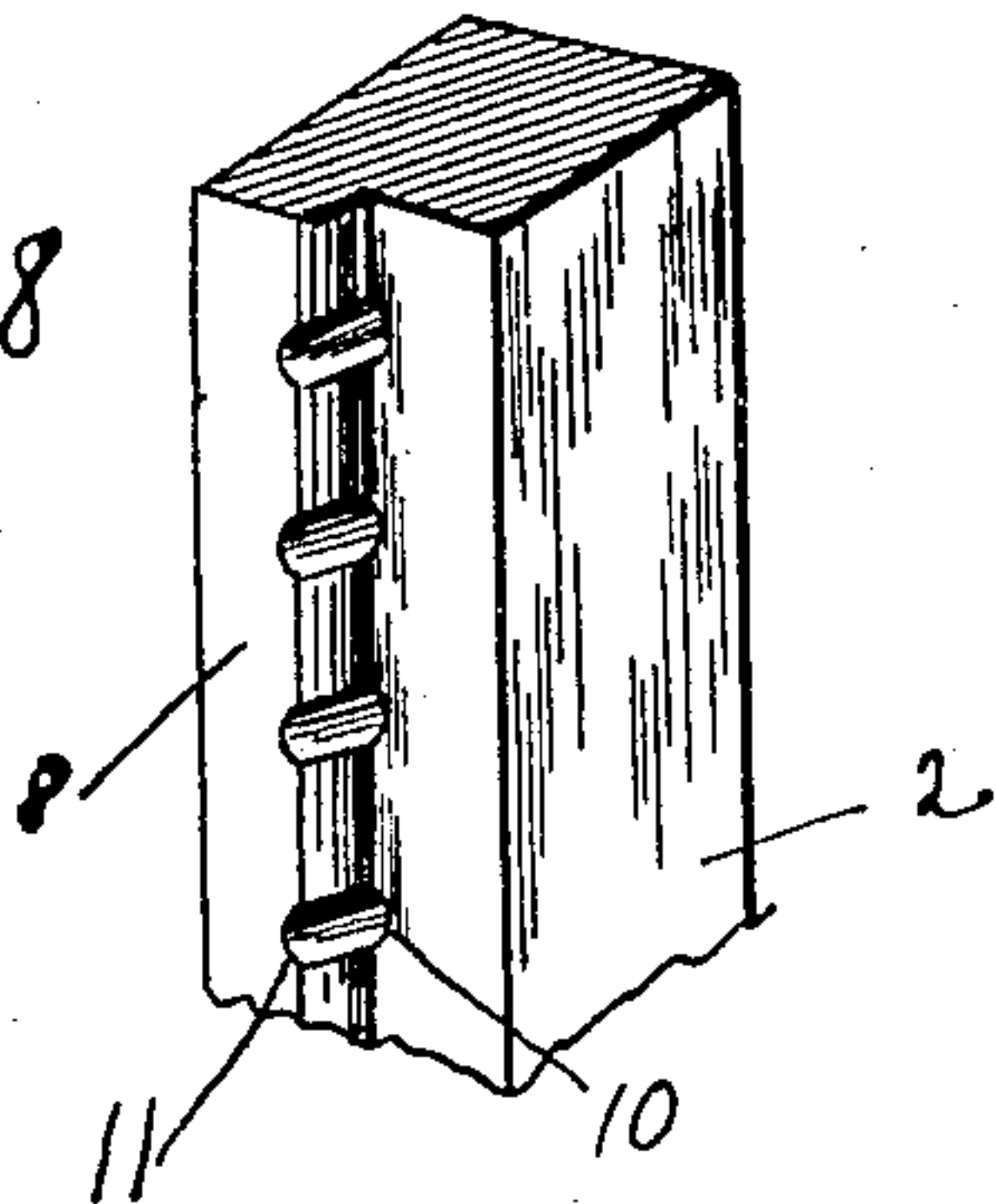


Fig. 9

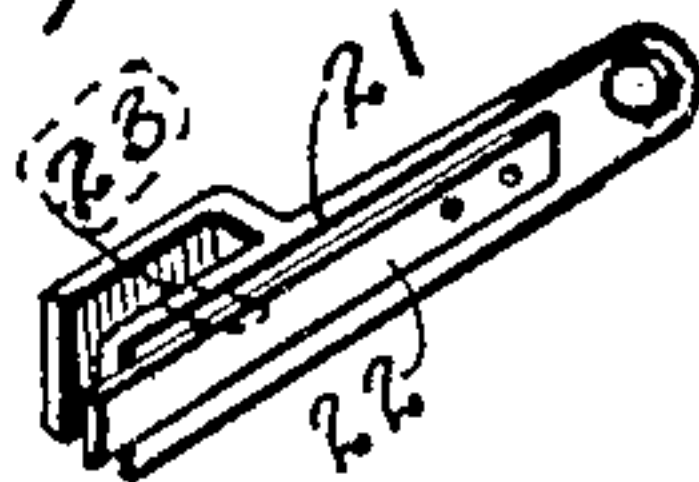
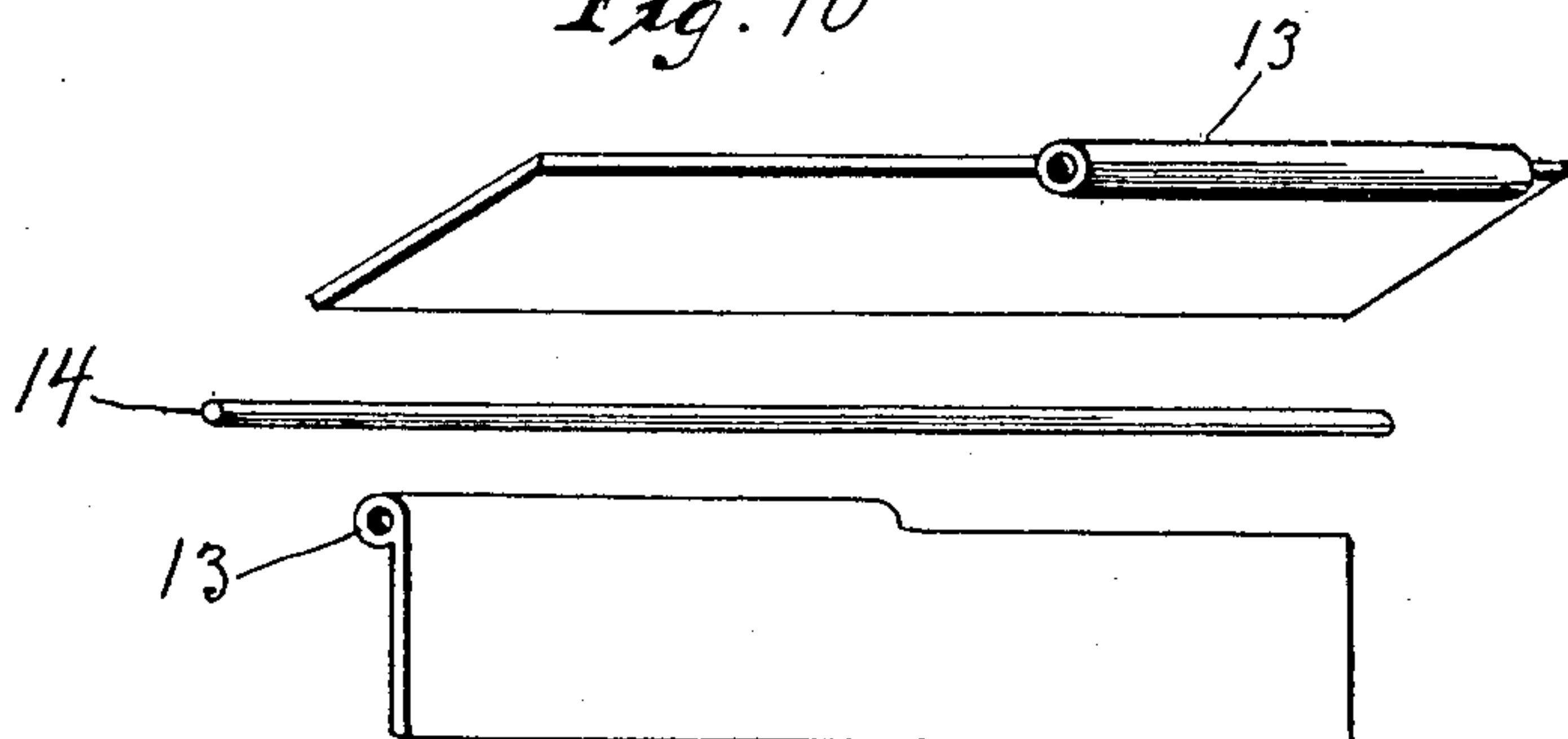


Fig. 10



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3 SHEETS—SHEET 3.

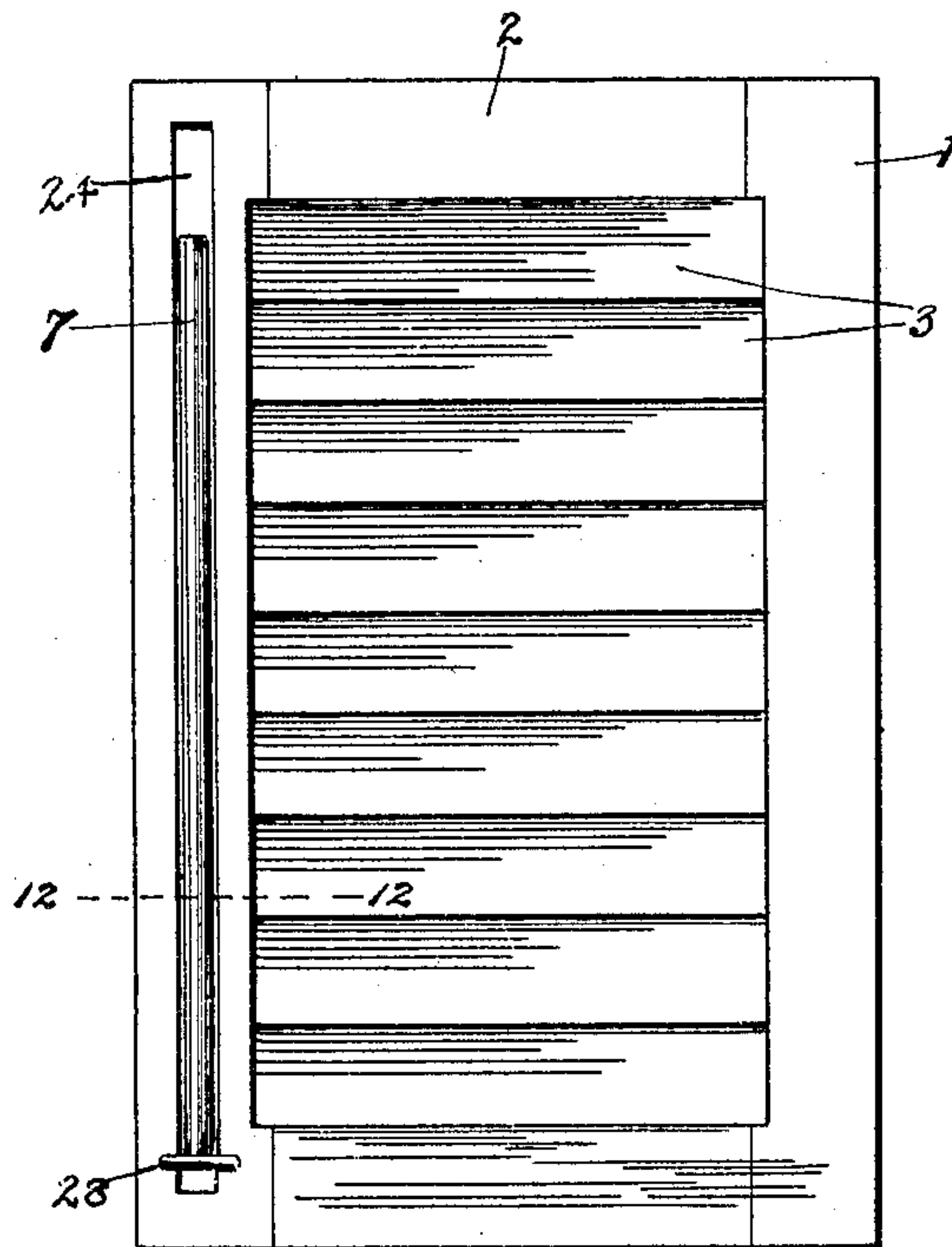


Fig. 11.

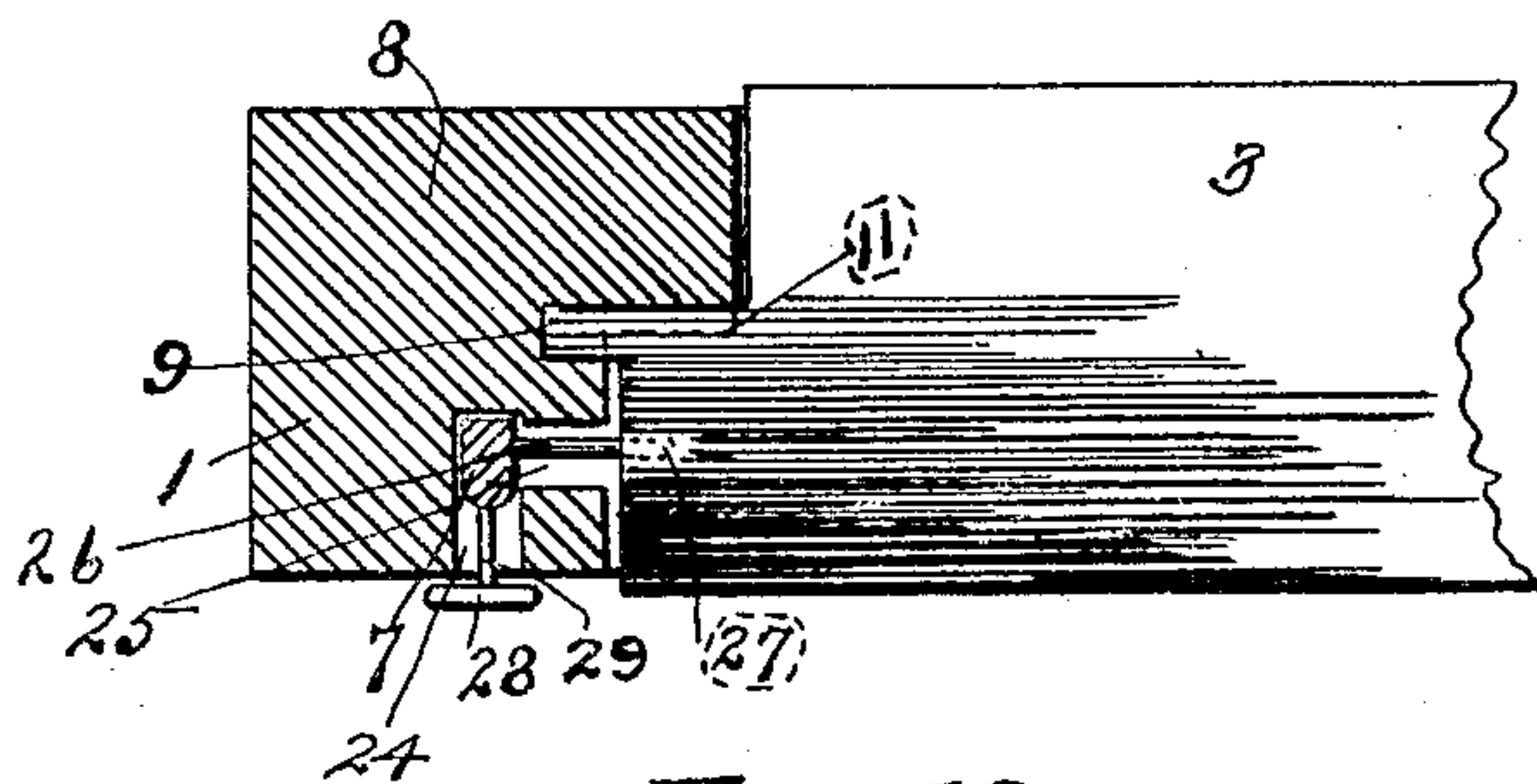


Fig. 12.

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UNITED STATES PATENT OFFICE.

JACOB LORENZ, OF ST. LOUIS, MISSOURI.

VENTILATOR.

No. 878,214.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed December 3, 1906. Serial No. 346,150.

To all whom it may concern:

Be it known that I, JACOB LORENZ, a citizen of the United States, residing at the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Ventilators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to ventilators, particularly to an improved form of the device illustrated in my prior United States patent No. 802,000, issued October 17, 1905.

In the drawings forming part of this specification, in which like numbers of reference denote like parts wherever they occur, Figure 1 is a perspective fragmentary view of a house-shutter equipped with my device; Fig. 2 is a fragmentary view, partly in section, with one of the side panels removed, exhibiting the V-shaped slats in the ventilating position; Fig. 3 is a view of the same parts depicted in Fig. 2, the slats, however, being in a different position; Fig. 4 is a fragmentary front view of a shutter equipped with my device, the front wings of the V-shaped slats being partly broken away, and one of the side panels being shown in section; Fig. 5 is a fragmentary view, partly in section, showing the manner of attaching the slats to the side panels; Fig. 6 is a perspective view of one end of one of the V-shaped slats; Fig. 7 is a sectional view of a shutter having a modified form of slats; Fig. 8 is a fragmentary view of one of the side panels, in perspective; Fig. 9 is a perspective view of the locking stud; Fig. 10 is a view showing one means of hinging the wings when slats of my preferred form are used; Fig. 11 is a front elevation showing a modified form of attaching the controlling rod; and Fig. 12 is a sectional view on the line 12—12, Fig. 11.

This ventilator may be applied in a variety of ways, and, as one example, it is illustrated in the drawings as being used in lieu of the slats or blinds of an ordinary window-shutter, although many other uses will readily occur to skilled artisans.

The shutter-frame or equivalent structure is herein shown as being formed of the stiles 1 and top and bottom rails 2. The space within the frame is provided with a plurality of V-shaped slats 3, on the inside of each of which are staples 4 in which other staples 6

loop, the controlling rod 7, into which staples 6 are driven, being thereby attached to each of the slats, so that the entire series may move or be moved in unison.

Each of the V-shaped slats is pivoted, at the union of its wings, in the stiles 2. The means of pivoting can be varied, as circumstances may determine. In the drawings, as one example, I have shown tenons 9 which project from the apexes of the slats, and extend into openings or recesses 10 in the stiles 1. Where metal slats are used, the most economical construction will be to solder or otherwise fasten rods or pintles in the crotch of the V, and these rods, which must be of slightly greater length than the slats, project into the recesses 10 just as do the tenons 9.

The stiles 1 are formed with shoulders 8, or, in place of these shoulders, cleats, detachable from the stiles, may be used. In these shoulders or cleats are semi-cylindrical recesses 11 in which the tenons 9 are fitted. The shoulders on both stiles are preferably placed on the same side of the shutter, namely, the outside, and the wings on that side of the frame are of the proper length to extend from one shoulder to the other, while the wings on the opposite side are longer and extend from stile to stile, and in front of the shoulders 8. It will be seen, therefore, that having the two wings of each of the V-shaped slats of unequal length allows said slats to fit snugly over the shoulders 8, in the manner most clearly depicted in Fig. 5, and thus to fill in all the space between same and the stiles 1, thereby leaving no peepholes or cracks at the ends of the slats.

To the bottom rail 2 a tongue or stop 12 is secured against which the lowest slat may strike, thus positively limiting the movement of the series of slats. This tongue extends the full length of the rail 2, and precludes vision between the lowest of the series of slats and the bottom rail 2.

Normally, the slats 3 will occupy the position shown in Fig. 2, which allows free circulation of air, but absolutely precludes vision from either side of the shutter so equipped. In case of a sudden wind storm, accompanied by either dust or rain, if the wind blows from left to right in Fig. 3, the slats will at once assume the position shown in that figure, the dust being, obviously, excluded,

or the rain shed off. If the wind should blow in a draft through the house, from right to left, Fig. 3, a movement the reverse of that above described would result, excluding dust or rain equally well.

While the foregoing description has had reference only to a form of construction in which both wings and, preferably, the tenons 9 as well, are integral, that being a form of mill-work which can be easily and cheaply manufactured, it is possible to provide V-shaped slats having separately-actuatable wings, this construction being partly depicted in Fig. 7. In this, which, in some respects, is the preferred form, the wings are pivoted so that each one may be moved either independently of, or in conjunction with, its partner. Each wing is provided with sleeves 13, and the sleeves of each pair are placed in alinement, so that a rod or pintle 14 can be inserted therethrough, said rods or pintles being longer than the slats and adapted to be received within the recesses 10 and grooves 11. Other means for pivoting the slats can be substituted, without departing from the spirit of the invention. A sector 15, by means of its irregular radial arm 16, is attached to the outer wing of one of the V-shaped slats, and, by reason of the L 17 of said arm 16, when the sector 15 is caused to move, movement is imparted, also, to the wing to which said L is attached, both traveling in the same arc of a circle. As the controlling-rod 7 is connected to the wing thus actuated by the sector 15, motion, is thereby communicated through it from the sector 15 to the other wings in the same series. The sector 15 passes through a slot 18 in the lower rail 2, plates 19 covering said slot and preventing vision therethrough, and being themselves slotted so as neatly to fit said sector and afford bearings therefor. The inner end of said sector 15 is elongated, and provided with a plurality of perforations or recesses 20, whereby the wings of both series may be locked in any desired position by means hereinafter described. A bifurcated stud 21 fixed to one of the inner wings and provided with a leaf spring 22 bearing a pin 23, locks the inner series of wings in any desired position by means of the protrusion of said pin 23 through one of the openings 20. When thus locked (as, for instance, in the position shown in Fig. 7) the movement of either controlling rod, or any slat of either series by wind-pressure or otherwise, or of the sector 15, will cause all the V-shaped slats and connected parts to move in unison.

When the parts are in the position depicted in Fig. 7, the operation of the device is identical with that of the form first described. The advantage arising from the use of the preferred form is that the angle of the V can be altered at will, or the two wings of each slat even placed in the same

plane, thus allowing the device to be converted readily into a straight-slat shutter, instead of one with V-slats.

The ease with which any shutter or other frame to be equipped with either form of the herein-described ventilator can be assembled, constitutes one of its most marked advantages. The stiles and rails are laid upon a bench or table so that the grooved face of the shoulders 8 is upward. The respective slats are then placed with the tenons 9 or equivalent slat-pivots resting in the grooves 11, and the whole frame is then ready to have the stiles 1 pressed together and screwed, or otherwise secured, to the cross-pieces 2, the shutter then being ready for use. Any carpenter or planing-mill operative who has had any experience in assembling old style blinds in which it is necessary to place the tenons of the slats directly in the recesses bored in the stiles knows the difficulty of completing the operation—especially the placing of the slats in the recesses of the second stile, it being comparatively easy to insert them in the first—without accidentally disarranging some of the slats and thus having to assemble all parts afresh.

Another advantage is that the grooves in the shoulders 8 afford a greater bearing surface for the pivots than could be obtained by having merely the recesses in the stiles. It is, also, much easier to manufacture stiles having the shoulders 8 in lieu of socketed cleats than it is to make a shutter frame where the slats are held in cleats, which cleats must be secured to the stiles, thus causing both extra trouble and expense.

In lieu of securing the controlling-rod to the slats in the customary manner, *e. g.*, as depicted in Figs. 1 or 4, the rods may be connected to the slats as shown in Figs. 11 and 12. In this form deep slots 24 and 25 are cut in one of the stiles 1, these slots being disposed approximately at right angles to each other. The controlling-rod 7 moves in slot 24, and, extending from rod 7 are studs 26, which project through slot 25, and eccentrically engage the V-shaped slats 3, there being one such stud for each slat, the studs projecting into sockets or recesses 27 provided therefor in the slats. Thus, as in the other forms of the invention, all the slats in the series move or are moved in unison, and the operation is the same as that hereinabove described. The slots 24 and 25 must be of sufficient size to allow for the movement of the studs, which travel in an arcuate path, and a knob 28, suitably connected by stud 29 to rod 7 should be provided, so that the rod, when at its rearmost position in the slot 24, and, therefore, beyond reach of the operator's fingers, can be moved if desired.

Having thus described my said invention, what I claim and desire to secure by Letters-Patent is:

1. In a device of the character described, the combination of stiles, slats pivotally mounted therein, a pair of slots in one of said stiles disposed at right angles to each other, a
5 controlling rod in one of said slots, studs projecting from said rod and through the other of said slots, and engaging said slats eccentrically.

2. In a device of the character described,
10 the combination of stiles, shoulders thereupon, V-shaped slats supported by said stiles and said shoulders, a pair of slots on the side opposite the shouldered side of one of said stiles, said slots being approximately at right
15 angles to each other, a controlling-rod in one of said slots, and studs projecting from said rod through the other of said slots, said studs eccentrically engaging said slats.

3. In a device of the character described,
20 the combination of two series of separately-actuable wings, both series of wings having a common series of pivots, stiles having shoulders thereupon and recesses therein, said pivots being thereby supported, a pair
25 of slots in one of said stiles, said slots being approximately at right angles to each other, a controlling-rod in one of said slots, and studs projecting therefrom through the other of said slots, said studs eccentrically engag-
30 ing said wings.

4. In a device of the character described, the combination of a frame composed of stiles and rails, a shoulder on each stile, V-shaped
35 slats supported by said stiles and said shoulders, slots in one of said stiles, a controlling rod in one of said slots, and studs which project from said rod through the other of said slots and eccentrically engage said slats, the walls of said last-mentioned slot being ap-
40 proximately parallel to the plane in which the axes of said slats lie.

5. In a device of the character described, the combination of stiles, shoulders there-

upon, grooves in said shoulders, recesses in said stiles, said recesses registering with said
45 grooves, a series of V-shaped slats, said slats having wings unequal in length, said shorter wings extending from shoulder to shoulder, and said longer wings extending from stile to stile, and tenons projecting from said V-
50 shaped slats into said recesses, thereby pivotally to support said slats.

6. In a device of the character described, the combination of stiles, shoulders thereupon, grooves in said shoulders, recesses in
55 said stiles, said recesses registering with said grooves, a series of V-shaped slats, said slats having wings unequal in length, said shorter wings extending from shoulder to shoulder and said longer wings extending from stile to
60 stile, the edges of said longer wings which are adjacent the ends of the shorter wings being rounded off and fitting in said grooves, and tenons projecting from the slats and into said sockets, thereby to support the slats. 65

7. In a device of the character described, the combination of stiles, shoulders thereupon, grooves in said shoulders, recesses in
70 said stiles, said recesses registering with said grooves, a series of V-shaped slats, said slats having wings unequal in length, the shorter wings extending from shoulder to shoulder and said longer wings from stile to stile, the edges of said longer wings which are adjacent
75 the ends of the shorter wings being rounded off and fitting in said grooves, tenons projecting from said slats and into said recesses, slots in one of said stiles, said slots receiving a controlling rod and means cross-connect-
80 ing said rod and said slats.

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

JACOB LORENZ.

Witnesses:

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HUGH K. WAGNER.