

(No Model.)

LA FAYETTE SCHAUCK.
HOT AIR REGISTER.

No. 429,968.

Patented June 10, 1890.

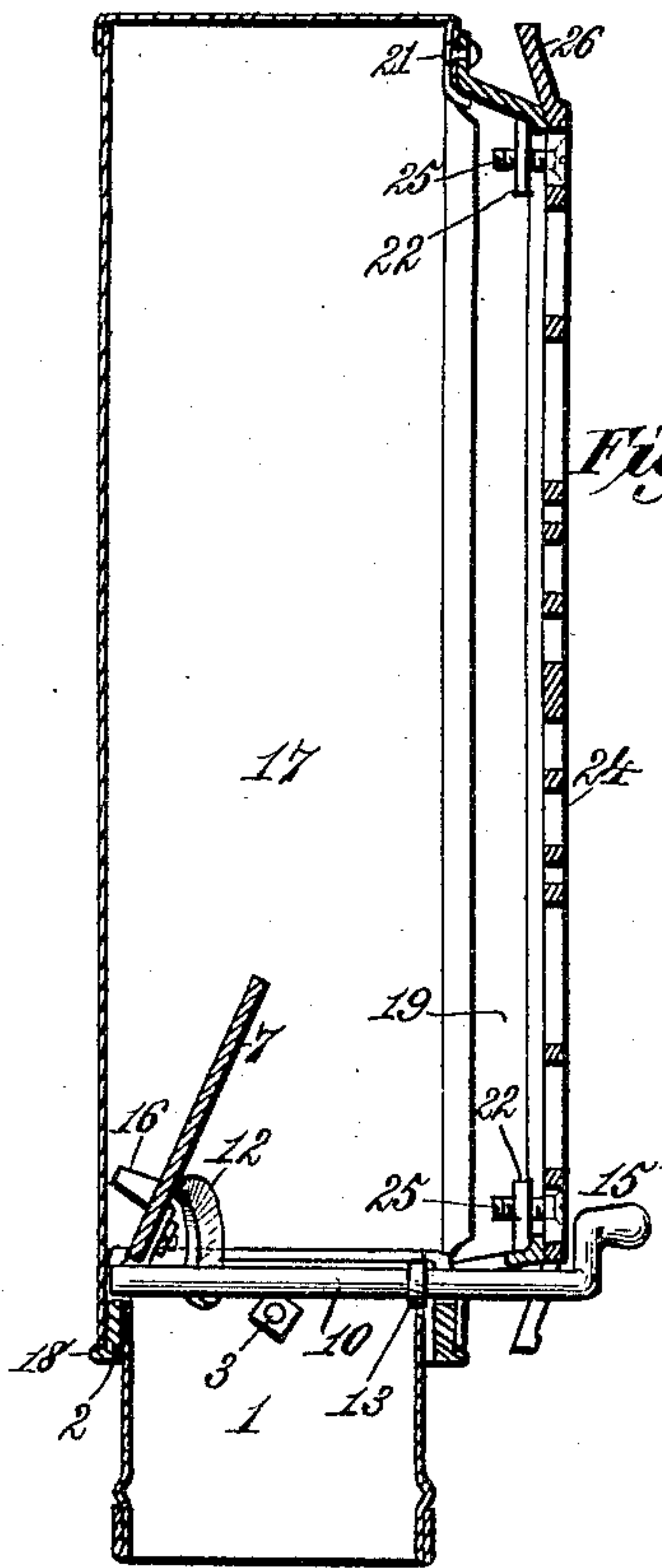


Fig. 1.

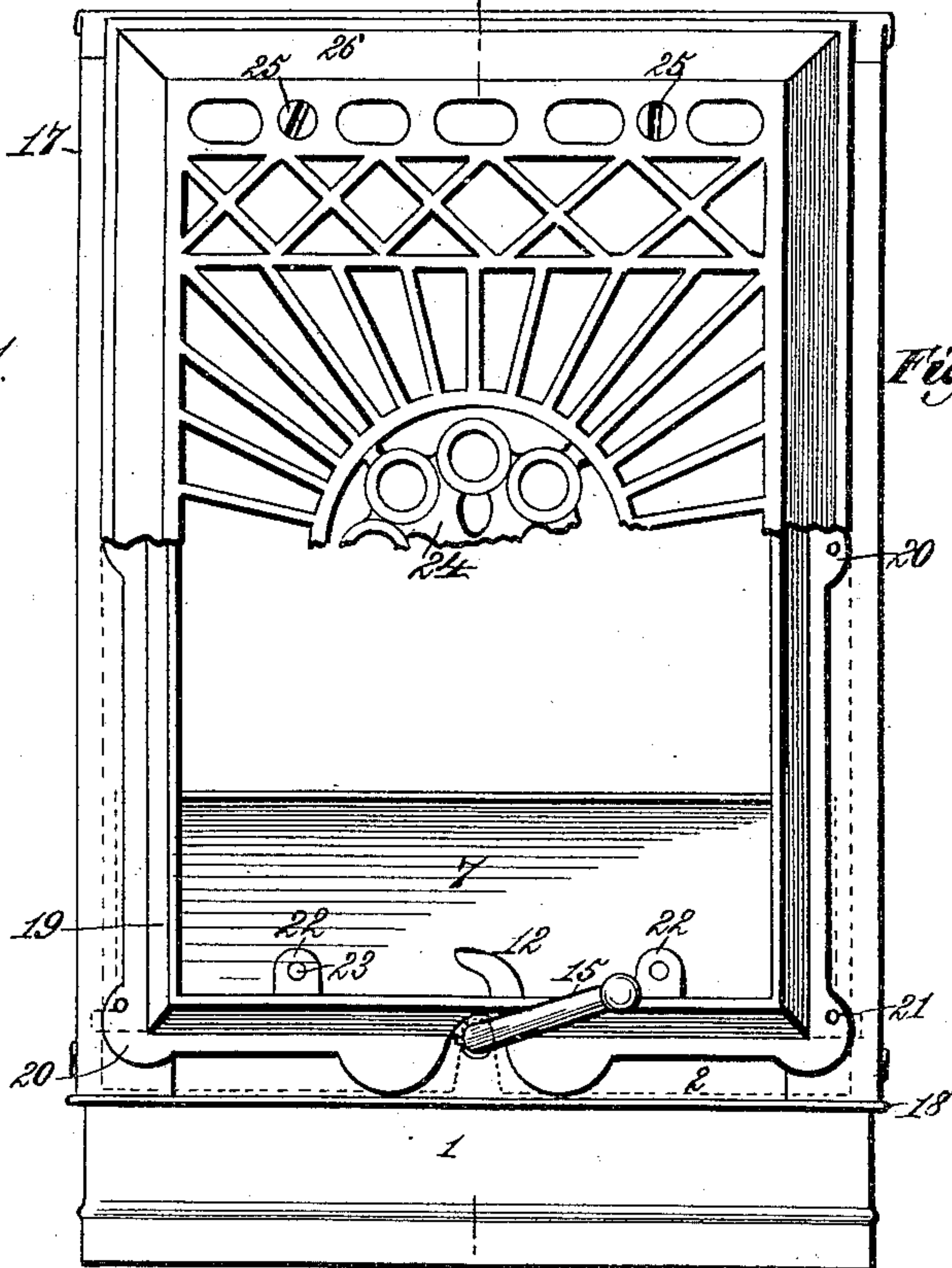


Fig. 2.

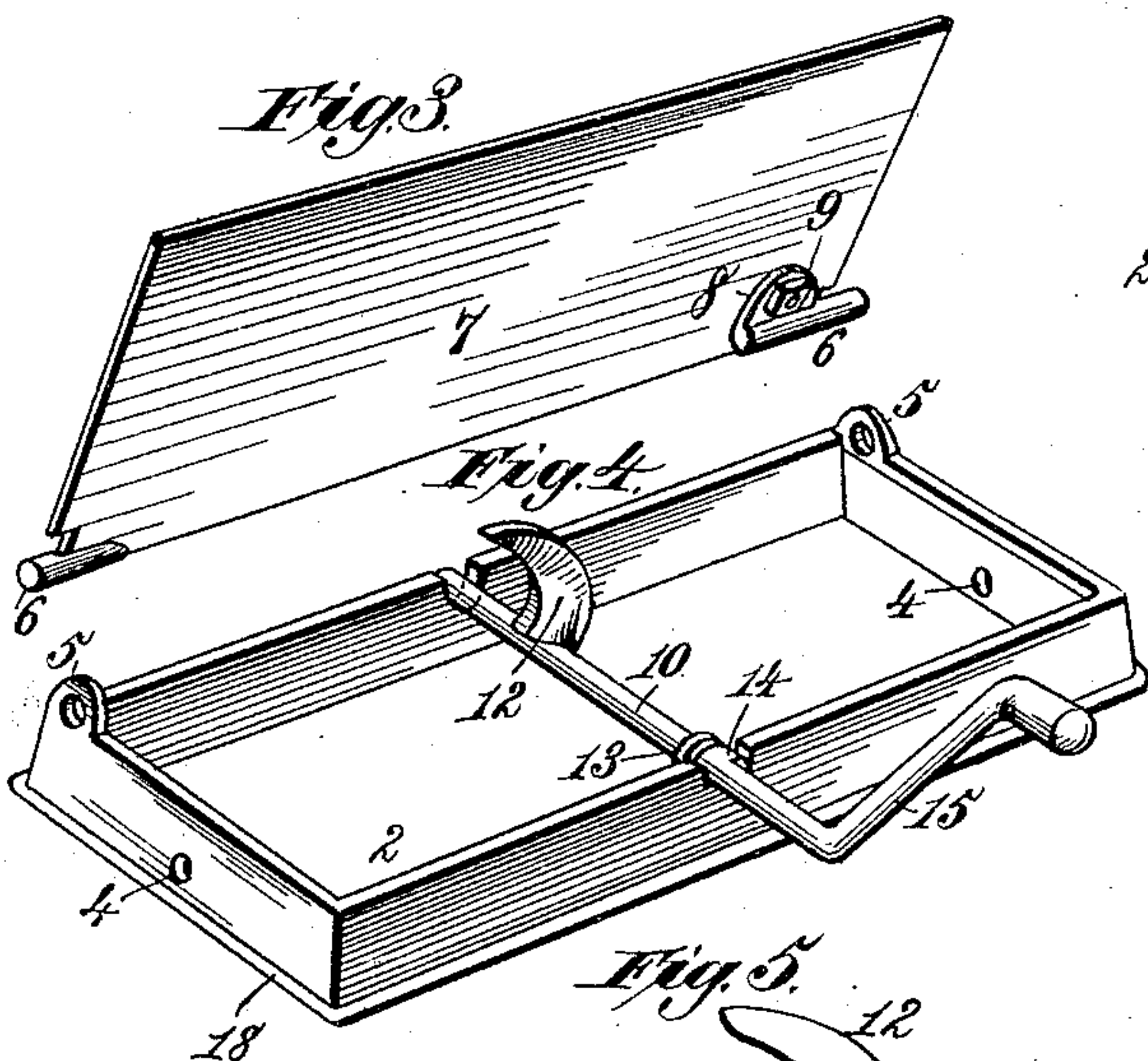
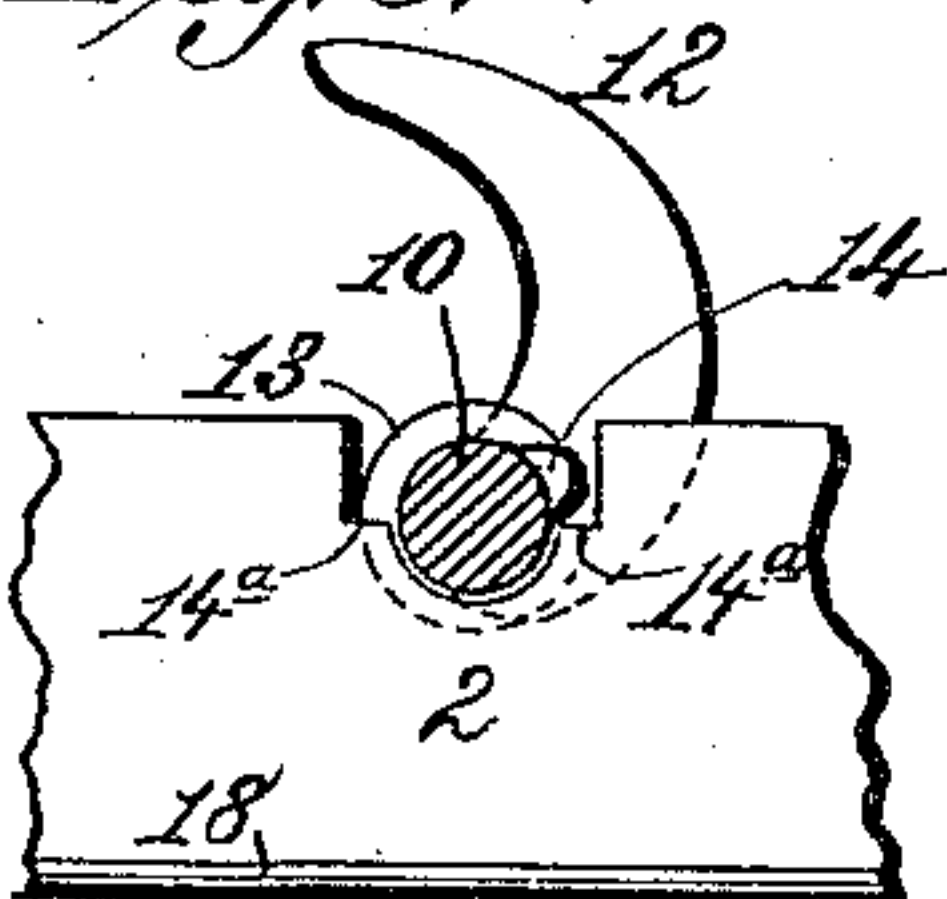


Fig. 3.

Fig. 4.

Fig. 5.



Witnesses:
Robert Everett,
Dennis Sumbly.

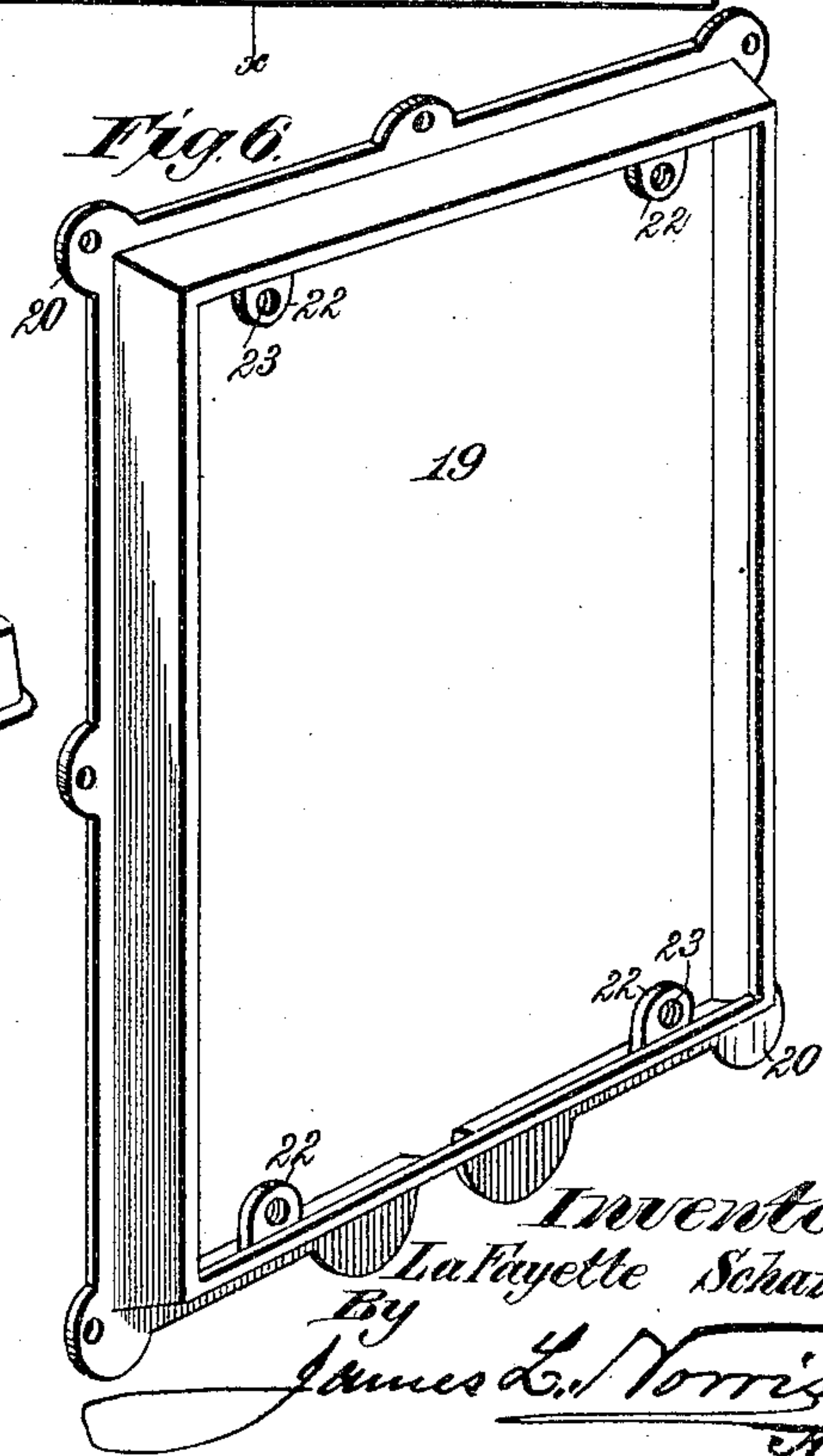


Fig. 6.

Inventor:
La Fayette Schauck,
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UNITED STATES PATENT OFFICE.

LAFAYETTE SCHAUCK, OF ROCHESTER, NEW YORK.

HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 429,968, dated June 10, 1890.

Application filed January 17, 1890. Serial No. 337,224. (No model.)

To all whom it may concern:

Be it known that I, LAFAYETTE SCHAUCK, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Hot-Air Registers, of which the following is a specification.

The purpose of this invention is to provide certain improvements in the construction of hot-air registers of the kind ordinarily set in the side walls and vertical partitions of buildings heated by furnaces, one purpose of the invention being to provide a connection between the screen or face, the box, and the intermediate body, which shall be entirely airtight, while the weight of the parts and the labor and expense of manufacture shall be materially diminished.

It is my further purpose, also, to provide a light, simple, easily-operated, and inexpensive construction and combination of parts, whereby the volume of air delivered from the register may be controlled with accuracy without obstructing the passage and in such manner as to direct the hot-air current into the room.

It is one purpose of my invention, also, to provide means whereby an adjustment may be made of the damper for cutting the air-current off altogether or for admitting its passage to any degree required, the adjusting devices being of the most simple and inexpensive form, of easy operation, and of the minimum number of parts, the construction being such that the damper is held at any angle without employing stop devices or similar adjuncts and in such position as to deliver the air through the screen or face without material obstruction or diminution of the force of the current, while at the same time its volume is fully and accurately controlled.

It is my purpose, finally, to provide a hot-air register which may be manufactured at a low cost, which shall be light, strong, and easily set, and which shall consist of a less number of parts than the registers heretofore employed of the same class or type.

The invention consists, to the above ends, in the novel features of construction and new combinations of parts hereinafter described

and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of a register constructed in accordance with my invention, the section-line being indicated by the line *xx* in Fig. 2. Fig. 2 is a front elevation of the register, a portion of the screen being broken away. Fig. 3 is a detail perspective of the damper or valve detached from the other parts. Fig. 4 is a detail perspective of the valve-frame or valve-box, showing the valve-lift in operative position. Fig. 5 is a detail section showing the construction of the journal-bearing for the valve-lift. Fig. 6 is a perspective view of the body of the register separated from the box.

In the said drawings, the reference-numeral 1 indicates the hot-air box, which is formed of tin or other suitable material in the ordinary manner and placed in the walls at those points where the heated air is to be conducted from the furnace. Upon the upper end of this box and surrounding the same is mounted a rectangular metallic frame 2, secured in position by bolts 3, passing through apertures 4 in its ends and through openings in the metal of the box. This frame, which constitutes what may be termed the "valve-box," is provided at its two rearward angles with lugs 5, which receive the journal-pins 6 of a valve or damper 7, consisting of a flat metallic plate, which entirely closes the rectangular opening surrounded by said valve-box. To provide for the ready mounting of the valve one of its journal-pins is formed of a separate piece and provided with an ear 8, whereby it is detachably connected with the valve by means of a bolt 9. The valve or damper 7 is raised and lowered to open and close the box by means of a transverse rock-shaft 10, provided with a cam 12, preferably placed between the center and the rear end of the shaft that it may have a greater throw or lift. The rock-shaft is composed of a plain cylindrical metallic bar lying in semicircular openings or bearings in the edges of the valve-box, and provided with a collar 13, lying immediately within the front wall of the box to prevent longitudinal movement of the shaft by the push of the inclined valve upon the cam. Upon said shaft in the

same plane with the front wall is formed a nipple or lug 14, which acts as a stop, the front wall being cut away upon each side of the shaft to form shoulders 14^a, against which the lug 14 strikes as the cam reaches its highest and lowest point of adjustment. As the shaft is held down within its semicircular seat by the means hereinafter described, this stop provides a simple preventive against turning the cam so far as to drop the valve with a noise, and on the other hand it serves to prevent the cam from being thrown out of proper position with relation to the valve. Upon its outer end the rock-shaft is provided with a crank 15 or other suitable means whereby it may be operated. The cam 12, being placed as described, has a frictional contact with the inner face of the valve, which holds it at any point to which it is adjusted, thus dispensing with any form of stop to hold the shaft against the pressure of the valve when the latter is partly raised. Upon the back of the said valve is formed or mounted a lug 16, which arrests its upward movement at the proper point.

The register box or casing 17, which is practically a continuation of the box 1, is mounted on the valve-box 2, its lower open end being slipped over its exterior and resting upon a flange 18, formed thereon. The front of this box is provided with the usual opening, and the edges of the metal surrounding the same are turned outward, as shown in Fig. 1. Upon the front of the register-box is mounted the body, which consists of an open rectangular metallic frame 19, provided with an exterior flange having lugs 20, which receive the bolts or rivets 21, by which it is secured. This flange is also provided with a notch, which straddles the rock-shaft 12 and aids in holding it securely in its bearings in the valve-box. This body may be of any suitable depth and is set in the plastering, with which the outer edge is flush, or nearly so. Just within its exterior edge it is provided with lugs 22, having bolt-openings 23, provided with a female screw-thread. As shown in the drawings, these lugs are placed upon the ends of the frame only; but they may be located upon the sides only or upon the ends and sides also.

The numeral 24 indicates the face or screen of the register, which is cast with any ornamental open-work and mounted upon the body 19 by screw-bolts 25, which engage the openings 23 in the lugs 22. The face or screen is provided with an inwardly-inclined flange 26, which rests against and is drawn closely up to the outer face of the finished wall. The advantages of this construction will be readily apparent to all who are acquainted with the art to which it pertains. It forms an absolutely air-tight connection between the register box or case 17 and the wall in which it is set, and this result is attained without additional labor, skill, or care

upon the part of the constructor, whose work is materially expedited and lightened, since it is only necessary to set the box in such manner as to enable the attachment of the body-frame 19 and lay the plaster flush, or substantially so, with the exterior edges of the same.

The valve or damper 7 forms a simple, inexpensive, and easily-operated device, whereby the volume of hot air supplied by the register may be held under perfect control and the heat of the room regulated to the exact degree required. The parts are few, light, and easily adjusted, and are incapable of perceptible wear, breakage, or disorder. The valve being located as shown and being hinged or pivoted to the back of the valve-box, and there being a single valve only in place of three or more, as is usually the case, the air is enabled to pass without detention, and is directed by the valve toward the center of the room in all positions of the latter. The construction is exceedingly economical and simple, the parts are few in number, and may be readily set and arranged in working order by a person of ordinary skill.

The invention is particularly adapted to side-wall or vertical partition registers only, and I do not limit myself to the use of the particular construction of rock-shaft and cam shown and described for operating the valve, as I may substitute other and equally simple means for accomplishing the same purpose.

In flues or hot-air boxes which run from story to story the openings are formed in the usual manner at the proper points, and where the construction of the wall or other circumstances require it a horizontal box may be joined to the flue to extend to the point where the register opens into the room; but in all changes of this character the body 19 is attached in the manner already described.

While I have described this invention as adapted to systems of heating by hot air, it is evident that it may be used for indirect radiation either by steam or hot water.

What I claim is—

1. In a hot-air register, the combination with the hot-air box, of a valve-box consisting of a rectangular metallic frame surrounding the top of said box and secured thereto, a valve or damper hinged or pivoted at the rear of said valve-box, and a central transverse rock-shaft journaled in semicircular notches in said valve box or frame and having a cam raising and lowering the valve, substantially as described.

2. In a hot-air register, the combination, with the register box or casing, of a body composed of an open metallic frame of suitable depth having exterior lugs which receive the bolts attaching it to said casing, and a facing or screen mounted on the exterior edge of the body and fastened thereto by screw-bolts engaging interior lugs on said body, the face or screen being provided with an in-

wardly-inclined flange projecting beyond the edge of the body, substantially as described.

3. In a hot-air register, the combination, with the hot-air box, of a valve-box surrounding and secured to it, a valve or damper hinged or pivoted at the rear of said box, a central transverse rock-shaft having a cam lifting and lowering said valve, and a register box or casing slipped upon the exterior of the valve-box and resting upon a flange or rib thereon, substantially as described.

4. In a hot-air register, a register box or casing having an open front, the metal surrounding such opening being bent outwardly, a body consisting of an open rectangular frame surrounding said opening and provided with an exterior flange having lugs receiving the attaching-bolts, and a screen or face having a spreading inwardly-inclined flange and mounted on the body by means of screw-bolts engaging threaded openings in lugs formed on the interior of the body at or near the outer edge, substantially as described.

5. In a hot-air register, the combination, with a hot-air flue or box, of a valve box or frame, a valve hinged or pivotally mounted at the rear thereof, and a rock-shaft journaled centrally and transversely in seats formed in the valve-box and provided with a cam raising and lowering said valve, said

shaft being also provided with a lug or nipple adapted to engage shoulders formed upon each side of one of the bearings in the valve-box, whereby the rotary movement of the shaft is limited and the cam retained in engagement with the valve, substantially as described.

6. In a hot-air register, the combination, with a valve box or frame mounted on the open end of the hot-air box, of a valve hinged or pivoted at the rear of said box, a central transverse rock-shaft journaled in open bearings in the sides of the valve-box and having a cam raising and lowering the valve, and a body consisting of an open frame mounted on the register-box and having a notch or slot in its lower end straddling the rock-shaft and holding it within its bearings, said shaft being provided with a lug or nipple alternately engaging opposite shoulders formed in the walls of the valve-box on opposite sides of the shaft to limit the movement of the cam, substantially as described.

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

LAFAYETTE SCHAUCK.

Witnesses:

MORRISON H. McMATH,
W. W. WEBB.

It is hereby certified that the name of the patentee in Letters Patent No. 429,968, granted June 10, 1890, for an improvement in "Hot-Air Registers," was erroneously written and printed "La Fayette Schauck," whereas said name should have been written and printed *La Fayette Schanck*; and that said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 1st day of July, A. D. 1890.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

C. E. MITCHELL,
Commissioner of Patents.