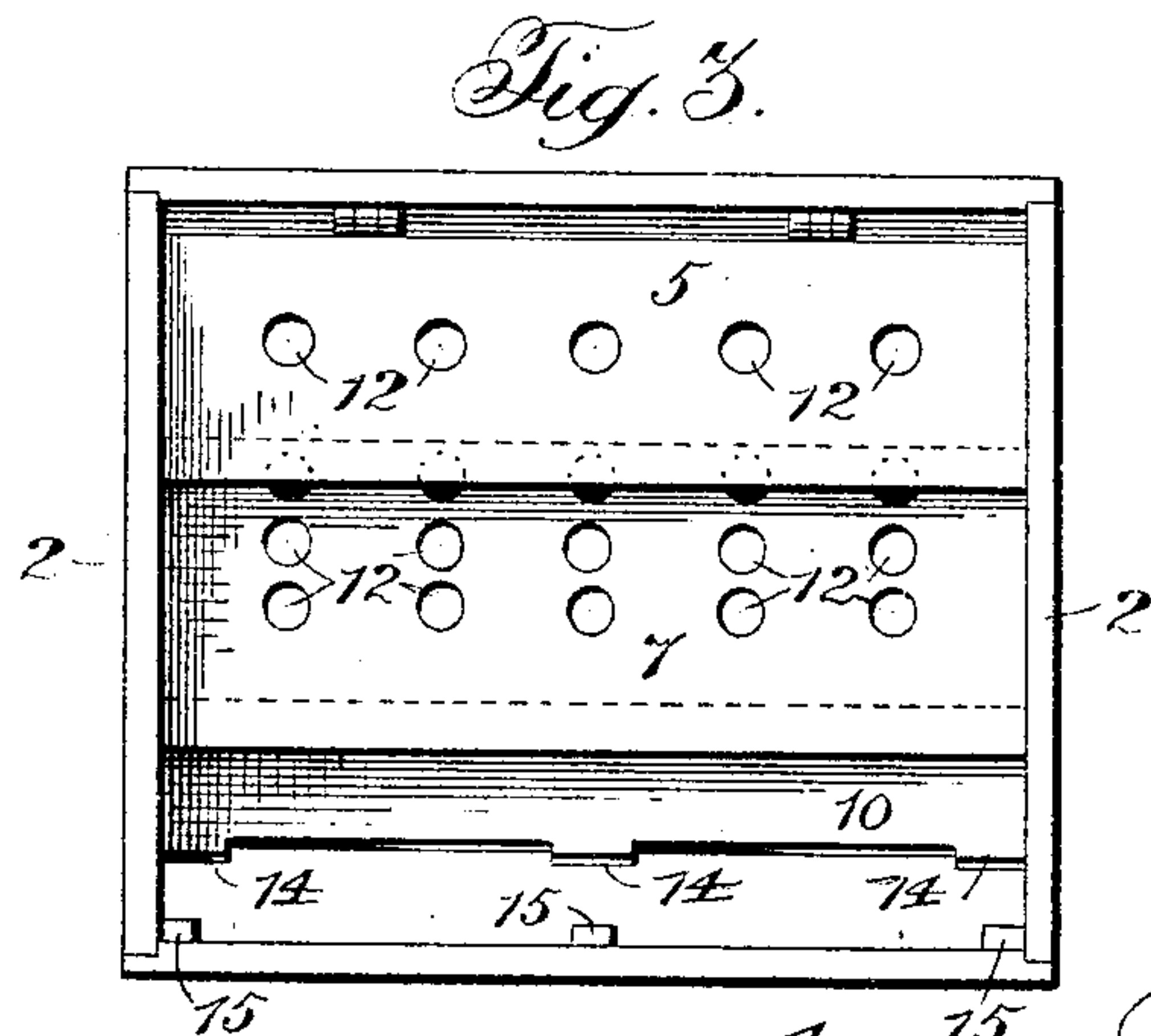
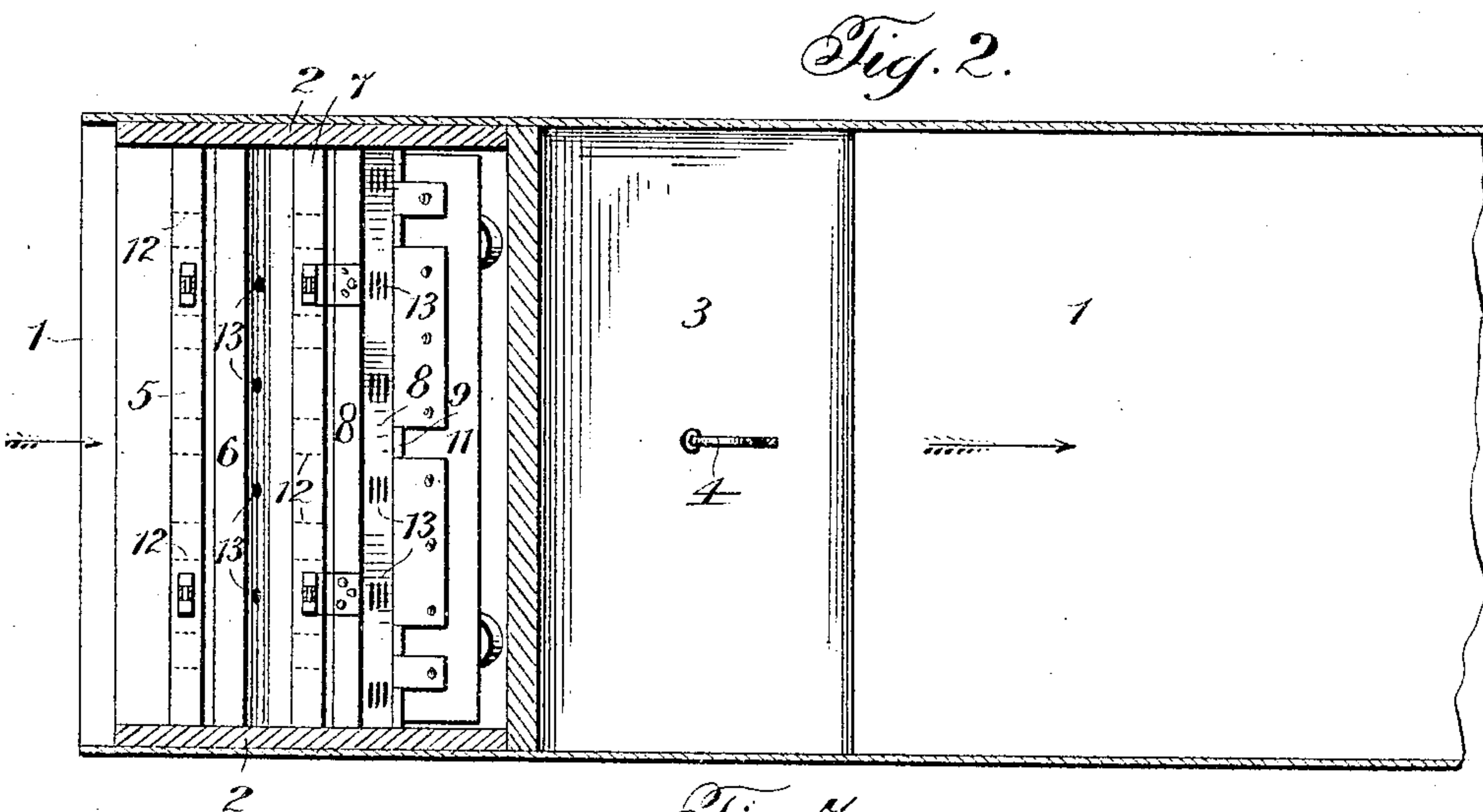
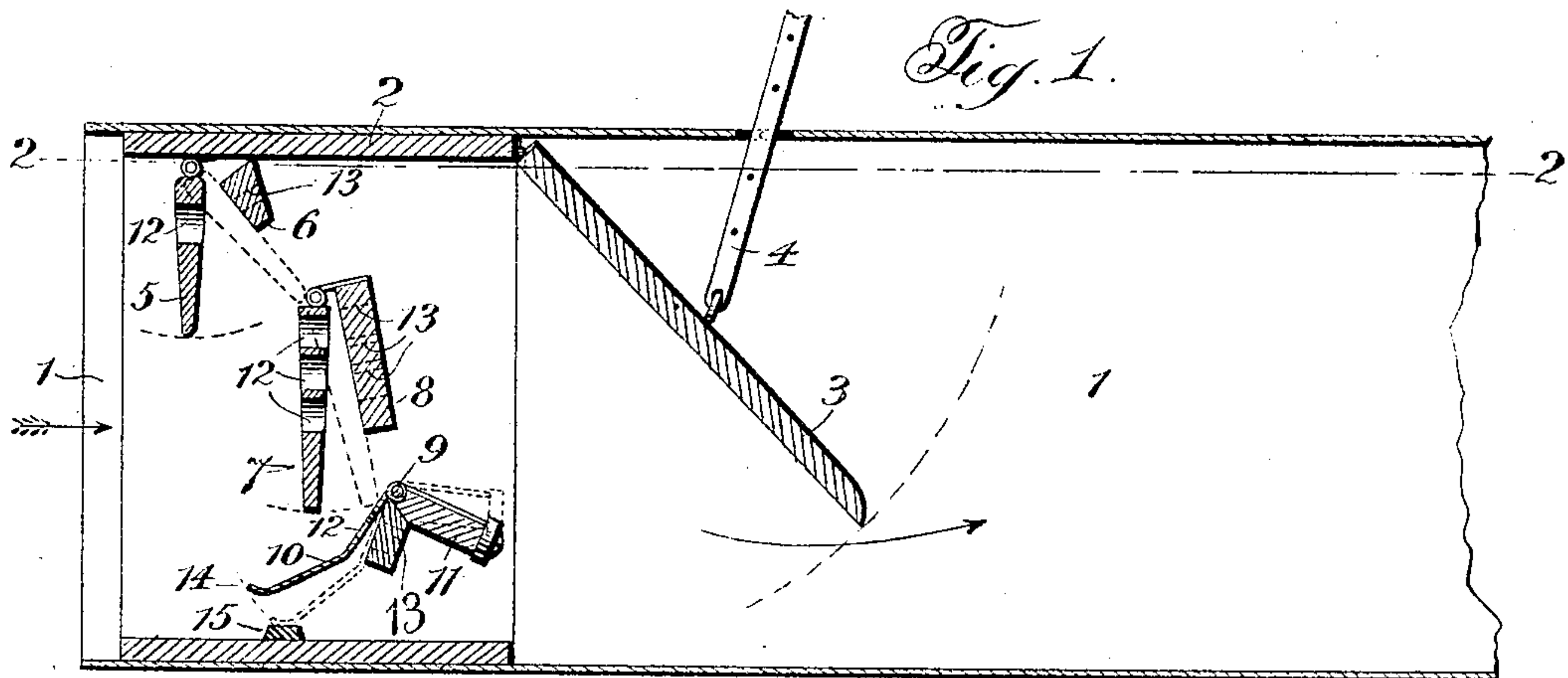


No. 803,291.

PATENTED OCT. 31, 1905.

A. J. KAMINSKY.
AUTOMATIC DRAFT REGULATOR.
APPLICATION FILED APR. 15, 1905.



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AUGUST J. KAMINSKY, OF ITHACA, NEW YORK.

AUTOMATIC DRAFT-REGULATOR.

No. 803,291.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed April 15, 1905. Serial No. 255,720.

To all whom it may concern:

Be it known that I, AUGUST J. KAMINSKY, a citizen of the United States, residing at Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Automatic Draft-Regulators, of which the following is a specification.

This invention relates to improvements in draft-regulators, and is more especially designed as an improvement in devices of this character adapted for the regulation of the passage of air through the fresh-air ducts or boxes of hot-air furnaces.

The object of the present invention is the provision of a draft-regulator which is so constructed as to automatically control the amount of air being fed to a furnace, thereby preventing an excessive amount passing through the air-box, and, furthermore, the invention aims to provide simple and efficient means whereby in windy weather the amount of fresh air passing to the furnace will be proportionate to the pressure of the wind acting upon the regulator.

The invention also contemplates the provision of a draft-regulator embodying in its construction in addition to the automatically-operating means other means whereby the air-duct may be entirely closed and through the medium of which the flow of air can be entirely cut off independently of the automatically-operated means.

With these general objects in view and others, which will appear as the nature of the improvements is better understood, the invention consists substantially in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is a vertical transverse sectional view of a draft-regulator constructed in accordance with the present invention and illustrated as associated with an air duct or box, the dotted lines indicating the closed position of the respective valves. Fig. 2 is a sectional plan view on the line 2-2, Fig. 1. Fig. 3 is a face elevation of the regulator removed.

Referring to the drawings, the numeral 1 designates the fresh-air duct or box of a hot-air furnace, which duct or box is formed in the ordinary manner, and it is for the purpose of controlling the passage of the air through this duct or box that the present invention is designed. To the accomplishment of this end

a rectangular frame 2 is positioned in the mouth of the box 1 or adjacent thereto, and to the rear or inner side of the frame 2 is hinged a manually-controlled valve 3. To the valve 3 is connected an operating device 4, which latter extends through the duct or box 1 in order to be readily controlled; but the arrangement of the valve 3 as a part of the frame 2 is not essential, as said valve may be positioned at any other point within the duct or box and may be either hinged to the top or positioned at the sides or bottom of the duct or box. It is preferable, however, to attach the valve 3 to the frame 2.

As also premised, the present invention has in contemplation the provision of means whereby the passage of the air through the box 1 may be automatically controlled, and especially is this desirable in windy weather, so that the amount of air passing through the box to the furnace will not be in excess of that usually required, but may be in direct proportion to the pressure of the air upon the regulator, thus precluding the passage of more air than can be readily heated with economical results by the furnace. In the present invention this end is obtained through the medium of a plurality of independently-acting valves, which valves are arranged in different vertical planes and adapted to effectually close the air-duct, as will presently appear. The numeral 5 designates the upper valve, which latter is hinged to the top of the frame 2 and is located at a point in close proximity to the outer edge of said frame. The normal position of this valve is, as indicated in Fig. 1, in a vertical plane, and immediately in rear of said valve 5 is a partition or barrier 6, which is arranged at an angle to a vertical plane and against which the valve 5 is adapted to swing when the air-pressure is sufficient to move the same rearwardly.

Arranged in rear of the valve 5 is an intermediate valve 7, said valve 7 being hingedly connected to a partition or barrier 8, which extends transversely of the frame 2, and said partition or barrier 8 is also arranged at an angle to a vertical plane, so that the valve 7 may swing thereagainst under excessive air-pressure. Arranged in rear of the valve 7 and pivotally connected to a transversely-extending support 9 is a balanced valve 10. This valve is formed, preferably, of metal and at its rear edge is provided a weight 11, through the medium of which the valve 10 is effectually held in the balanced position shown in full

lines in Fig. 3. It will also be noted that each of the valves 5, 7, and 10 is provided with a series of perforations 12, the purpose of which is to permit free passage of the air through said valves when the air is flowing under normal conditions, and to further facilitate the passage of the air the partitions 6 and 8 and the support 9 are likewise provided with a series of perforations 13. The perforations 13, however, do not register with the perforations 12, and consequently when the respective valves are in their closed positions it is obvious that no air will pass through the perforations of the valves and the partitions; but as soon as the valves have assumed their normal positions the air is free to pass through not only the perforations 12, but also through the perforations 13 and freely circulate around the valves in its passage to the furnace.

It is desirable that notwithstanding the duct may be closed by the valves 5, 7, and 10 some air should still be fed to the furnace, and in order that this end may be accomplished the forward edge of the valve 10 is provided with a series of extensions 14, which coact with a series of blocks 15, positioned upon the bottom of the frame 2. It will thus be seen that when the extensions 14 contact with the blocks 15 the valve 10 is limited in its downward movement, and consequently a space is permitted to remain between the forward edge of the valve 10 and the bottom of the frame 2, whereby a sufficient quantity of air may still pass through the duct or box 1 for the purposes desired.

In the operation of the device the manually-controlled valve 3 will be sufficiently opened to provide the proper clearance-space for the passage of the air, and under normal conditions the positions of the respective valves are that illustrated by full lines in Fig. 3. Under these conditions the air will freely pass around said valves and on to the furnace through the duct or box 1; but immediately upon sufficient pressure being exerted against the valves, as in windy weather, the same will be moved rearwardly in direct proportion to the pressure of wind, and consequently the clearance-spaces will be partially closed. If the pressure of the wind is sufficient, the valves 5 and 7 will be moved against the partitions or barriers 6 and 8, thus effectually closing the entire space above the valve 10; but inasmuch as the air will be deflected downwardly when these valves are closed the valve 10 will also be closed by the wind until its forward edge contacts with the blocks 15. It will be noted at this point that the valve 7 is so positioned in relation to the valve 10 that in the closing movement of the former its free edge will contact with said valve 10, which contact has a tendency to depress the valve 10, and inasmuch as the perforations 12 and 13 do not register with each other in the closed position

of the valves the passage of the air is effectually prevented except through the contracted space beneath the forward edge of the valve 10 and the bottom of the frame 2.

Should it be desired to entirely close the duct or box 1, the valve 3 may be operated through the medium of the device 4, and by means of said valve the air is entirely excluded from the furnace.

It is obvious that while the valves 5, 7, and 10 have been described as being hinged within the frame 2 the latter may be entirely dispensed with and the respective valves arranged within the duct or box 1 in their relative positions without departing in the least from the spirit of the invention. In this event the regulator becomes a component part of the duct or box.

While the invention has also been described as adapted for use with fresh-air ducts or boxes, the use of the same is not restricted thereto; but it is equally as well adapted for use in connection with ventilating-chimneys, skylights, &c.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a draft-regulator, the combination with an air duct or box, of a series of valves arranged therein and located in different vertical planes, partitions or barriers arranged in proximity to said valves, said valves and partitions or barriers being perforated to facilitate the passage of the air through the duct or box, the perforations of the valves being in different planes from those of the partitions or barriers.

2. In a draft-regulator, the combination with an air duct or box, of a series of valves hinged therein and adapted to be automatically actuated through excess air-pressure within the box or duct, a balanced valve associated with said hinged valves, and barriers or partitions arranged in proximity to the valves, said valves and partitions being perforated to facilitate passage of the air through the duct or box, the perforations of the valves being in different planes from the perforations of the partitions or barriers.

3. In a draft-regulator, the combination with an air duct or box, of a series of valves arranged therein and located in different vertical planes, partitions or barriers arranged in proximity to said valves, said valves and partitions or barriers being perforated to facilitate the passage of the air through the duct or box, the perforations of said valves being in different planes from the perforations of the partitions or barriers, and a manually-controlled valve associated with the aforesaid valves for entirely closing the air duct or box independently of said valves.

4. In a draft-regulator, the combination with an air duct or box, of a series of valves hinged therein and adapted to be automatically actuated

ated through excess air-pressure within the
box or duct, a balanced valve associated with
said hinged valves, and barriers or partitions
arranged in proximity to the valves, said
5 valves and partitions being perforated to fa-
cilitate passage of the air through the duct or
box, the perforations of said valves being in
different planes from the perforations of the
partitions or barriers, and a manually-con-

trolled valve associated with the aforesaid 10
valves for entirely closing the air duct or box
independently of said valves.

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

AUGUST J. KAMINSKY.

Witnesses:

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