

No. 736,585.

PATENTED AUG. 18, 1903.

G. J. DAY.
STOVE.

APPLICATION FILED AUG. 13, 1902.

2 SHEETS—SHEET 1.

NO MODEL.

Fig. 1. 34 33

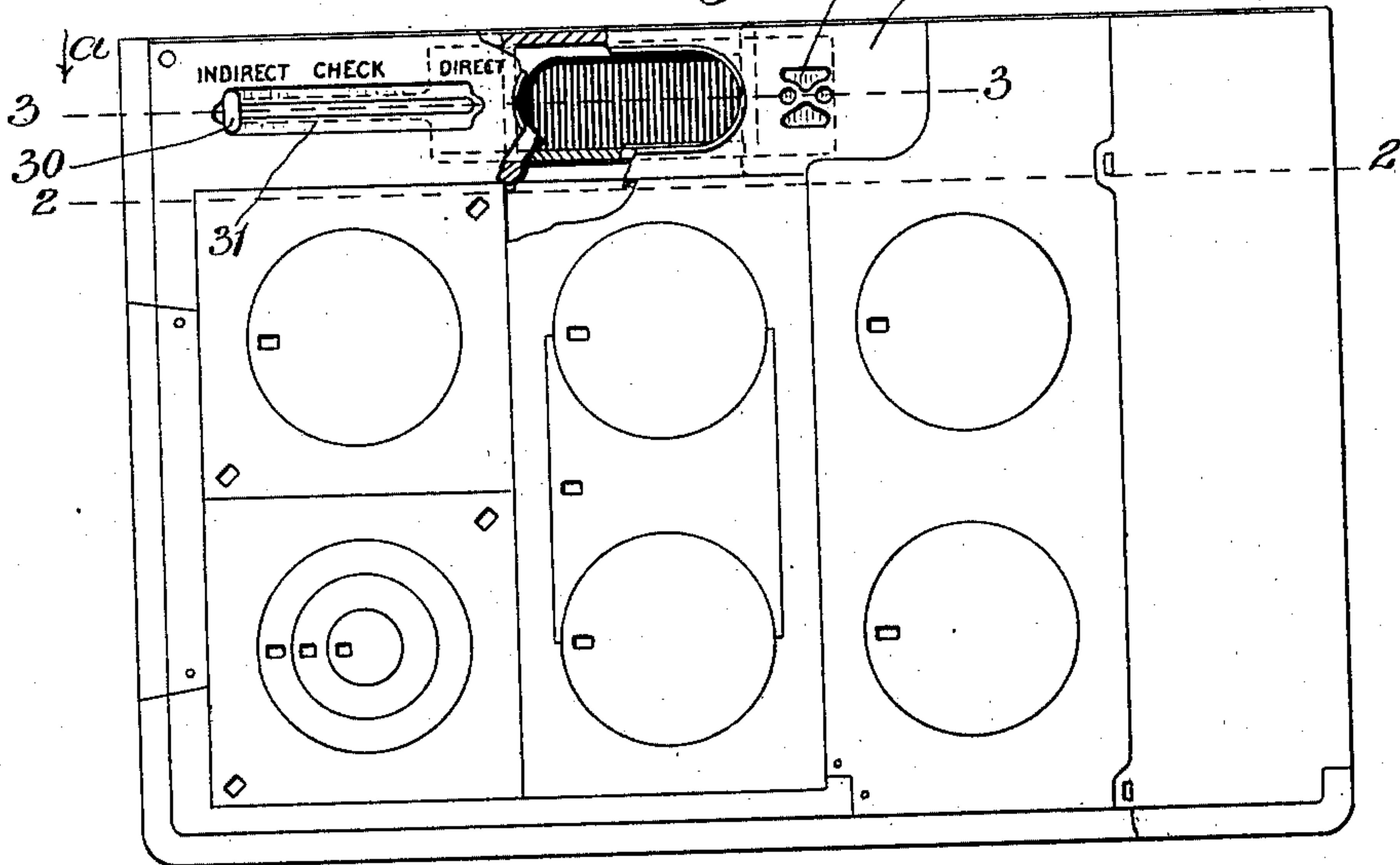


Fig. 2.

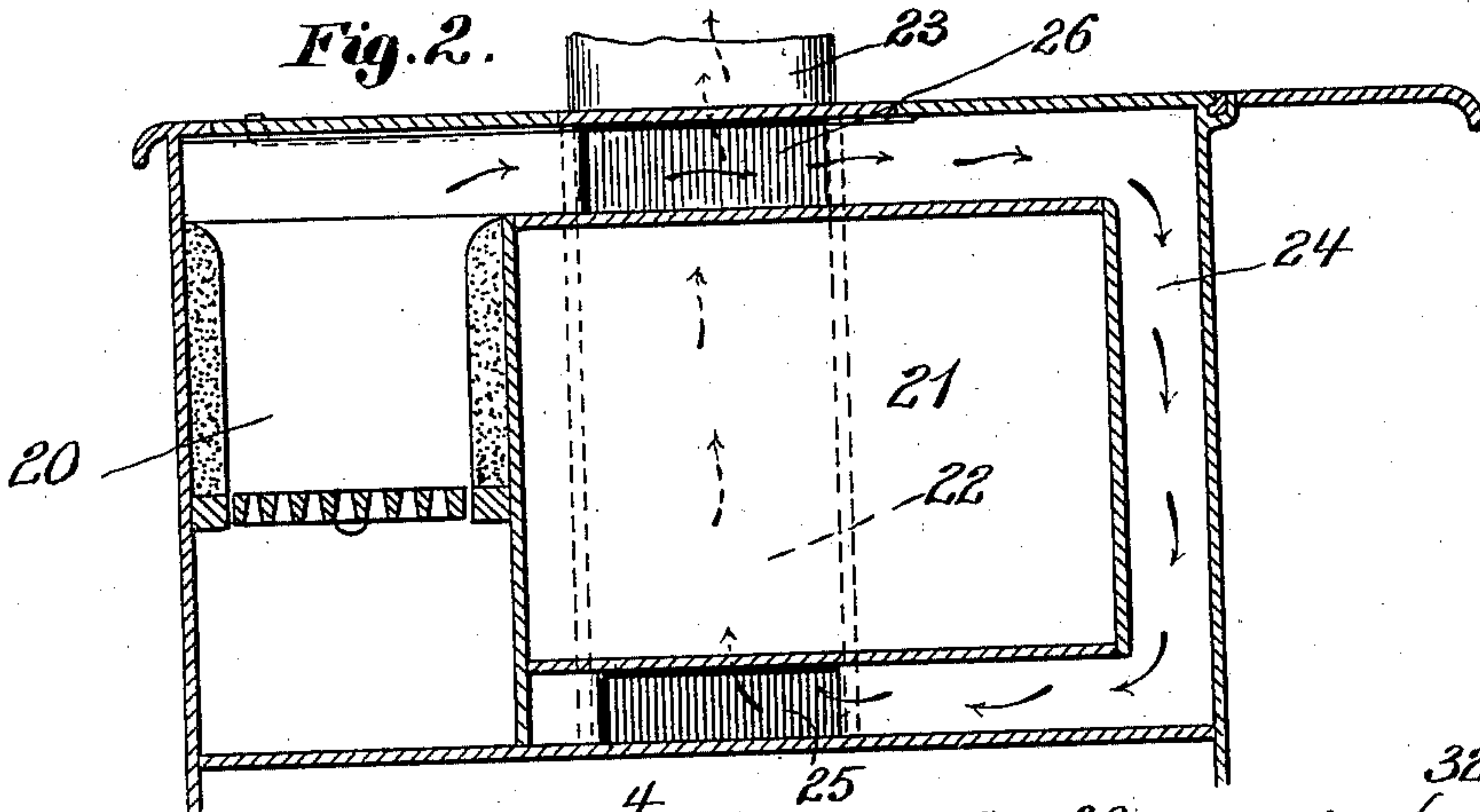


Fig. 3.

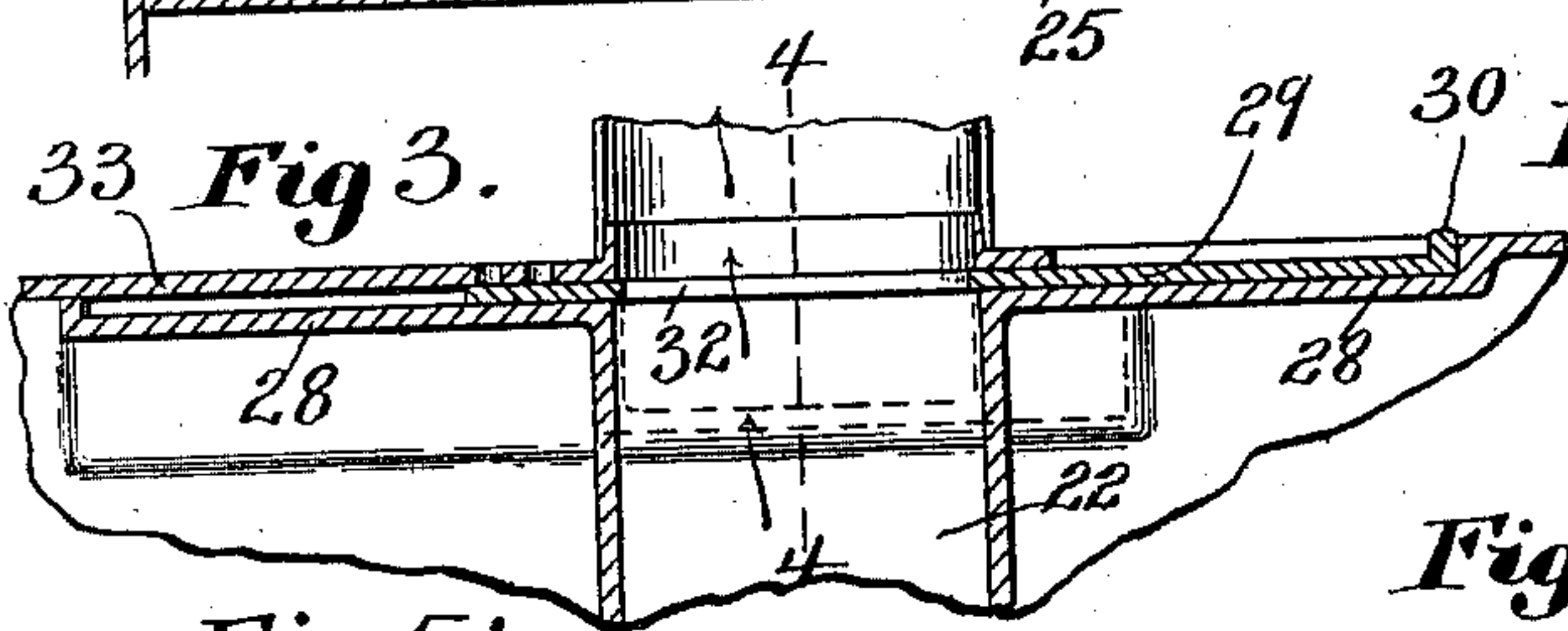


Fig. 4.

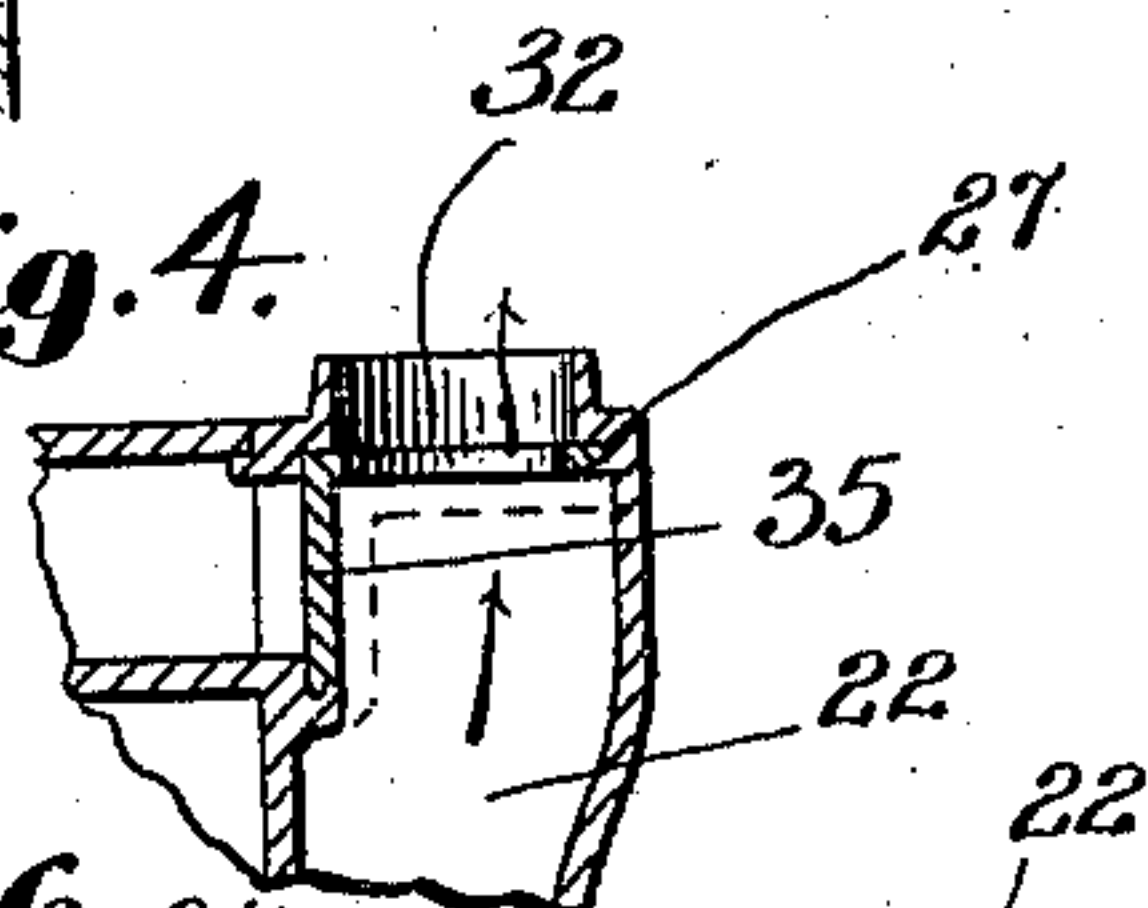


Fig. 5.

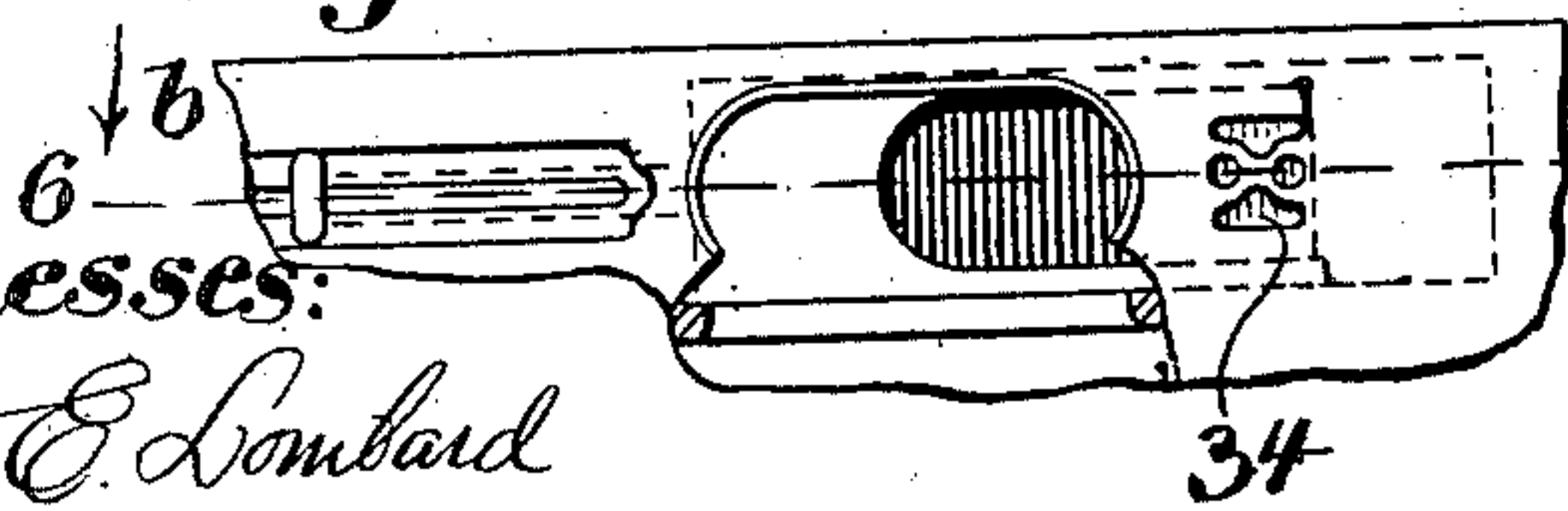
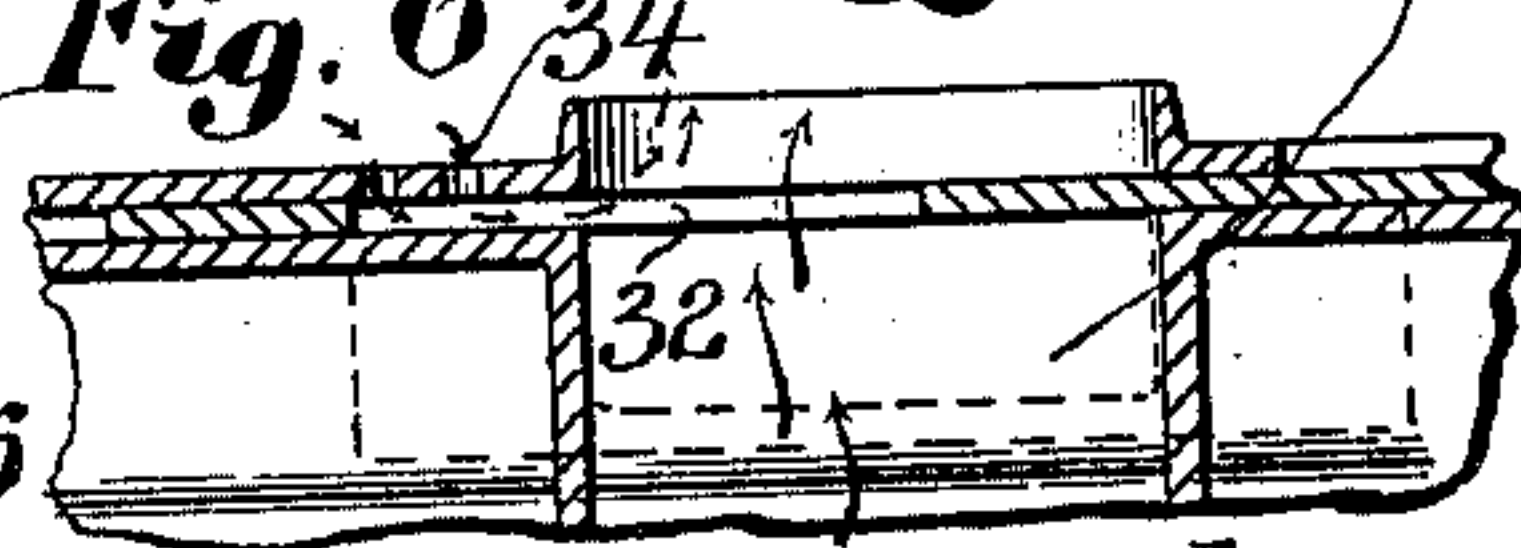


Fig. 6.



Witnesses:

Walter E. Lombard
H. Brown

Inventor:

Geo. J. Day
by *Wm. H. Brown* Attorney

No. 736,585.

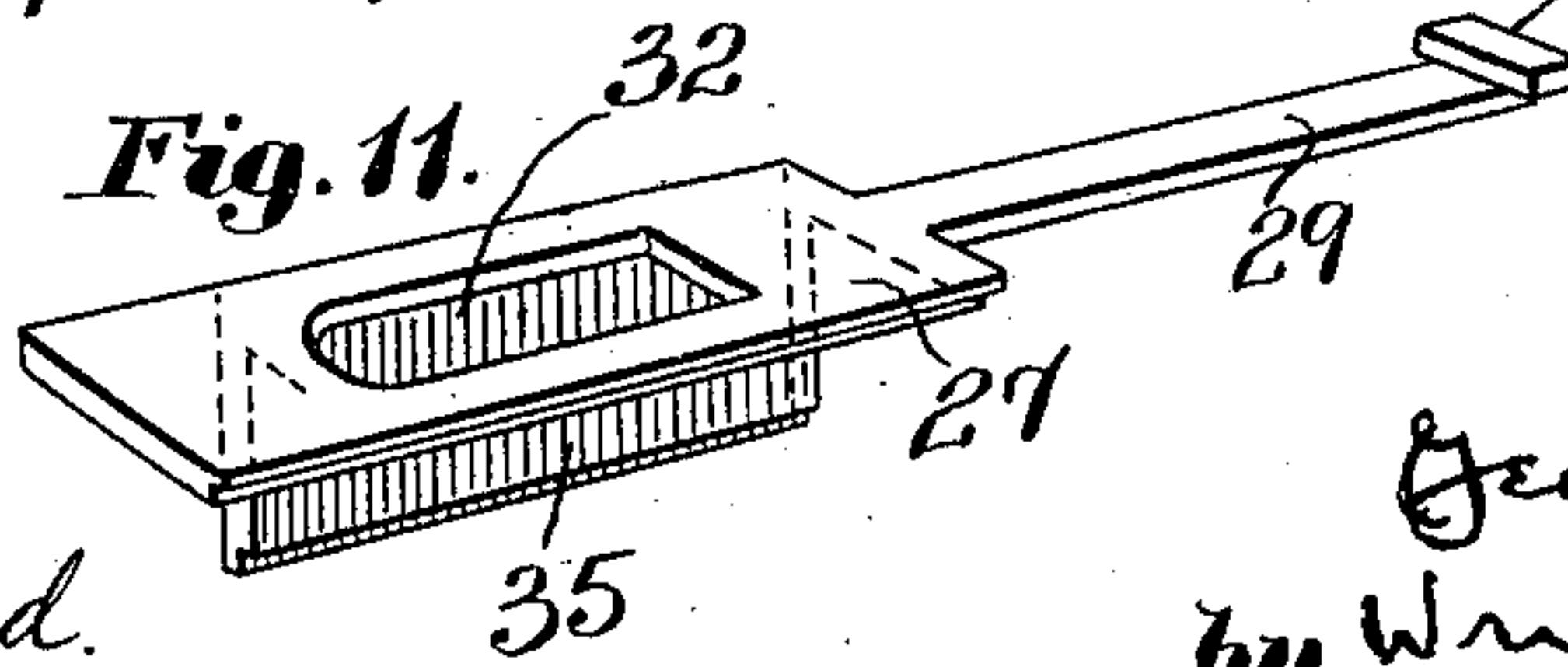
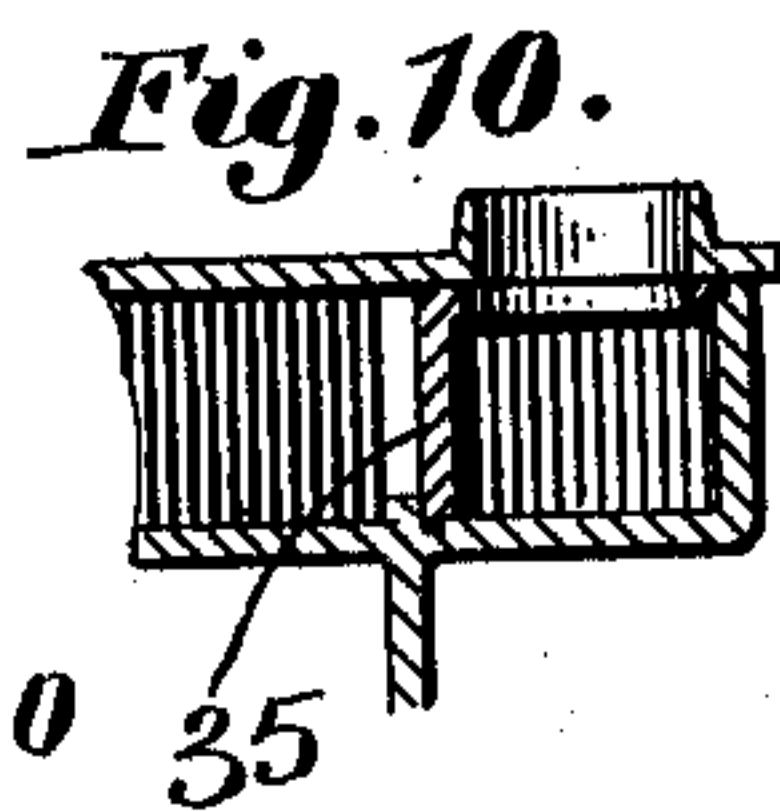
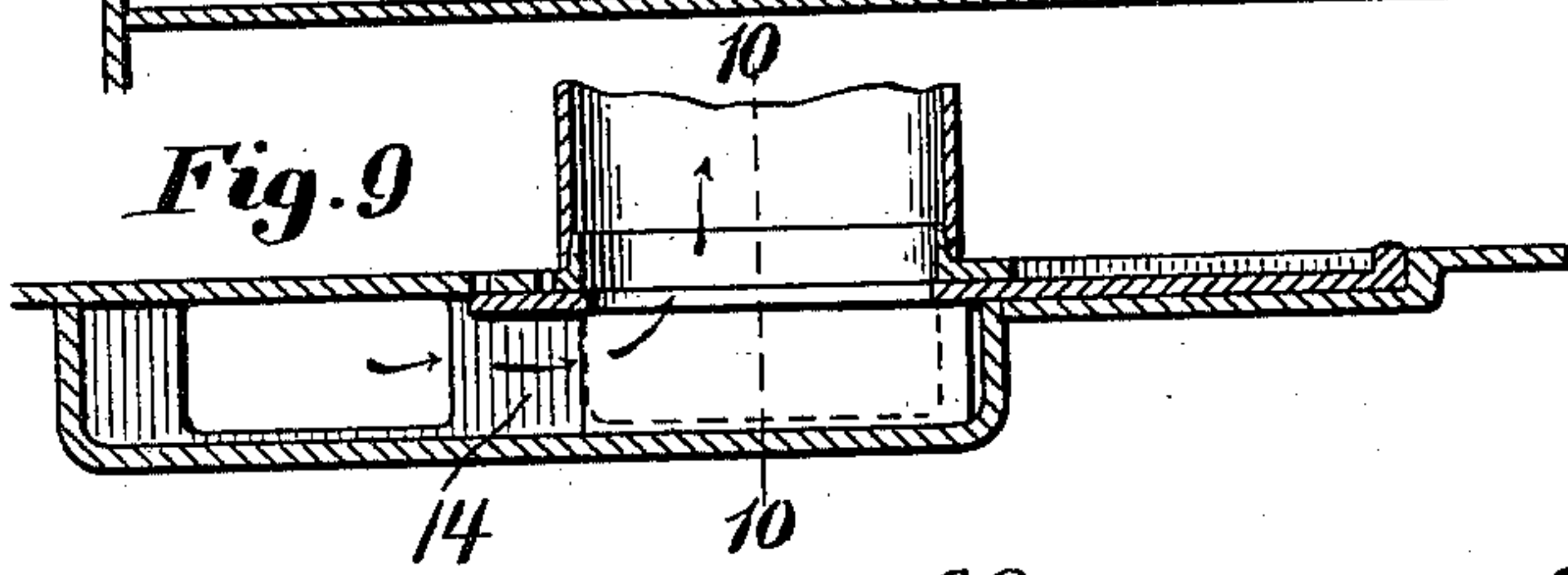
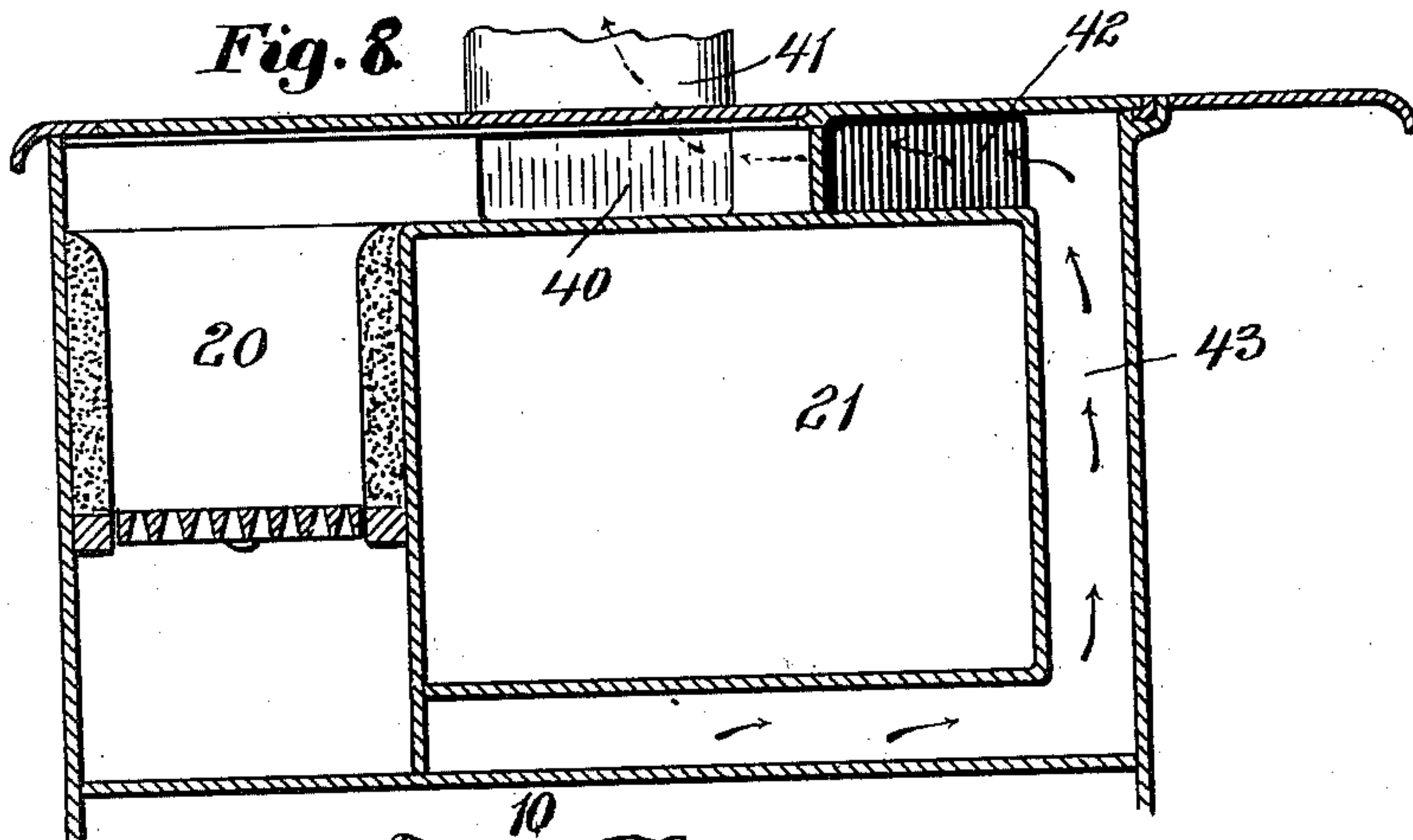
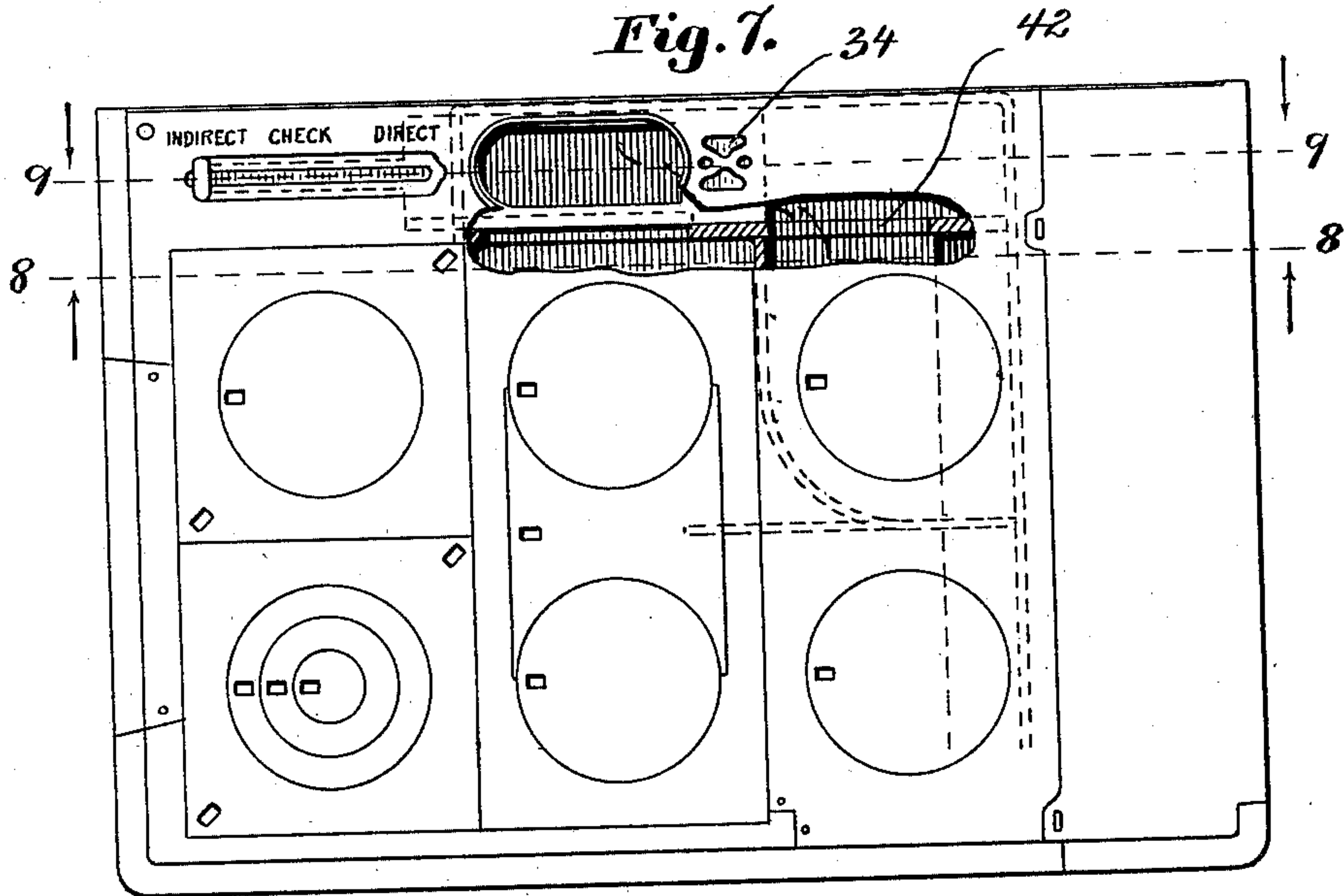
PATENTED AUG. 18, 1903.

G. J. DAY.
STOVE.

APPLICATION FILED AUG. 13, 1902.

2 SHEETS—SHEET 2.

NO MODEL.



Witnesses:
Walter C. Lombard.
H. T. Brown

Inventor:
Geo. J. Day
by Wright Brown & Quincy
his Attys.

UNITED STATES PATENT OFFICE.

GEORGE J. DAY, OF BOSTON, MASSACHUSETTS.

STOVE.

SPECIFICATION forming part of Letters Patent No. 736,585, dated August 18, 1903.

Application filed August 13, 1902. Serial No. 119,505. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. DAY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and
5 useful Improvements in Stoves, of which the following is a specification.

This invention has relation to stoves, and more particularly to kitchen-ranges, having for its object to provide a damper by means
10 of which combustion may be checked through the admission of air to the smoke-flue and by means of which the products of combustion may be permitted to pass directly to the smoke-flue or may be caused to take an indirect path
15 around the oven.

To this end the invention consists of a single damper which according to its position or location effects the desired objects.

The invention is not limited in its applica-
20 bility to any particular type of range, and to accentuate this I have illustrated upon the drawings two forms of ranges which are equipped with the invention.

On the drawings, Figure 1 illustrates in plan
25 view a range provided with the invention. Fig. 2 represents a section through the same on the line 2 2 of Fig. 1. Fig. 3 represents a section on the line 3 3 of Fig. 1 looking in the direction of the arrow *a*. Fig. 4 represents a section on the line 4 4 of Fig. 3. In
30 the four figures thus referred to the products of combustion are illustrated as taking the indirect path. Fig. 5 represents in plan view the damper in position to check the draft. Fig. 6 represents a section on the line 6 6 of Fig. 5 looking in the direction of the arrow *b*. Fig. 7 represents in plan view another form
35 of range equipped with the invention. Fig. 8 represents a section on the line 8 8 of Fig. 7. Fig. 9 represents a section on the line 9 9 of Fig. 7. Fig. 10 represents a section on the line 10 10 of Fig. 9. Fig. 11 represents in perspective view the damper detached from the range.

45 On the drawings, in Figs. 1 to 6, inclusive, a sheath-flue range is illustrated having the fire-box 20 and the oven 21. At the rear of the oven is an upright smoke-flue 22, which communicates at its upper end with the pipe-collar 23, over which the usual smoke-pipe
50 may be fitted. The products of combustion

are adapted to pass through the passage-way 24, across the top of the oven, down the right side thereof, and under the oven to an opening or port communicating with the smoke-
55 flue 22. This opening or port I have indicated as 25. There is, however, another opening or port leading from the passage-way 24 to the smoke-flue at the top of the oven and relatively near the fire-box, as indicated at
60 26. With this construction the products of combustion are adapted to pass either directly from the fire-box to the smoke-flue out through the opening 26 or to pass entirely around the oven to the opening 25 at the lower
65 end of the smoke-flue.

A damper is provided which is angular in form and is arranged as shown in Fig. 4. It consists of a flat plate 27, adapted to slide in
70 suitable guides 28 28 at the top of the range, so as to reduce the pipe-collar opening and cut off the passage of the products of combustion through the smoke-flue 22, so as to check the fire. The said plate is provided with an extension 29, having a handle 30, said handle lying
75 in a slot in the guide 28, as shown in Figs. 1, 3, and 5. The length of the slot, which is indicated at 31, limits the movement of the damper. The plate 27 is provided with an aperture 32,
80 which is substantially coextensive in length with the major diameter of the smoke-flue and substantially equal in width to the minor diameter of the said smoke-flue, so that when the damper occupies the position shown in Fig. 3
85 there will be an uninterrupted passage for the products of combustion directly upward from the bottom end of the smoke-flue. The top plate 33 of the flue is provided with a series of air-apertures 34 relatively near the
90 smoke-flue, being so located that when the damper is moved to an intermediate position, as indicated in Figs. 5 and 6, air will pass through said apertures 34 and through the opening 32 in the damper into the flue, and
95 thus operate to check the combustion.

As thus far described it will be seen that the
100 damper serves to permit the products of combustion to pass unretarded upward through the smoke-flue from the bottom end thereof or to check the combustion by partially cutting off the passage-way through the flue and admitting air thereto. The damper, how-

ever, performs another function, and to that end it is provided at one edge with a downwardly-projecting web or flange 35, which is somewhat longer than the major diameter of the opening 26. This web is so arranged on the damper that when the damper is moved to the extreme right in Fig. 1 the port 26 will be open, so that the products of combustion may pass directly from the fire-box into the smoke-flue, and when said damper occupies either an intermediate position, as in Fig. 5, or a position to the extreme left, in Fig. 1, the said port 26 will be closed, whereby the products of combustion will be compelled to traverse the passage-way 24 and enter the smoke-flue through the opening 25. By this means I am enabled to control the passage of the products of combustion and also control the combustion of the coal or other fuel by a single damper.

To indicate the different positions of the damper, the top plate 33 of the range may be provided with symbols along the slot or groove 31, such as shown in Fig. 1, the words "Indirect," "Check," and "Direct" being employed to indicate the results to be achieved by placing the damper in any particular position. It is not essential that the web or flange 35 be formed on any particular edge of the damper, for in case of a range of the character illustrated in Fig. 7 being employed said flange or web is located on the other side of the damper. In the return-flue range shown in Fig. 7 the products of combustion may pass from the fire-box 20 through an opening 40 into the smoke-flue 41. This smoke-flue is arranged horizontally and projects rearwardly from the range, as shown in dotted lines in Fig. 7, and it communicates by an opening or port 42 with a passage-way 43. Said passage-way is tortuous and provides for the products of combustion passing over the oven at the front portion of the range, downwardly at the right side thereof to the under side of the oven, and thence back to the top of the range through a similar bent portion of the passage-way until it reaches the opening 42.

The damper is substantially similar to that previously described and, as illustrated in Fig. 11, is provided with the vertical web 35, the flat plate or portion 27 at right angles thereto, and the opening 32. It is further provided with the extension 29, having the handle 30. This damper, like the one previously described in detail, is adapted to permit the air to pass through the apertures 34 when it is in an intermediate position, as indicated by the word "Check," at which time the pipe-collar opening (and therefore the smoke-flue) is partially closed to cut off or close the port 40, so as to cause the products of combustion to pass around the oven or to open said port or opening to permit the said products of combustion to pass directly from the fire-box into the smoke-flue.

I refer in the claims to the openings or

ports 26 and 40 as the "direct ports" and to the openings 25 and 42 as the "indirect ports" for convenience in phraseology. In each case the horizontal portion of the damper is arranged to open or more or less close the pipe-collar opening.

It will be understood that my damper is equally applicable to a stove or range without the air-openings 34, in which case the checking of combustion would depend upon the partial closing of the smoke-flue. There are many changes which may be made in the devices described without departing from the spirit and scope of the invention.

Having thus explained the nature of the invention and explained a way of constructing and using the same, although without having attempted to set forth all of the forms in which it may be made or all of the modes of its use, I now declare that what I claim is—

1. A stove having a smoke-flue, a direct port and an indirect port communicating with the flue, and a damper having one portion adapted to more or less close the smoke-flue and another portion to control the passage of the products of combustion through each of said ports.

2. A stove having a smoke-flue, direct and indirect ports leading into said smoke-flue, air-apertures communicating with said flue, and a damper having one portion to open or close the direct port, and having another portion adapted to open or close the flue and control the passage of air through said apertures.

3. A stove having a fire-box, an oven, a passage-way around the oven for the products of combustion, a direct port, an indirect port, and a smoke-flue terminating in a pipe-collar opening, in combination with a damper having a portion to more or less close the pipe-collar opening and thereby check the draft, and another portion to open or close the direct port to thereby permit the products of combustion to pass through the direct port into the smoke-flue or to cause said products of combustion to traverse said passage-way into said smoke-flue.

4. A stove having a fire-box, an oven, a smoke-flue having an upright portion, a passage-way around the oven for the products of combustion provided with a direct lateral port for the entrance of the products of combustion into said flue directly from the fire-box, and an indirect port into said flue for said products of combustion after they pass around the oven, and a damper having a portion to open or close said vertical portion of said smoke-flue and an angular portion to open or close said direct lateral port.

5. A stove having a fire-box, an oven, a smoke-flue a passage-way for the passage of the products of combustion around said oven, direct and indirect ports leading from said passage-way into said flue, air-apertures leading into said flue, and a slide-damper having portions to control the passage of the products of combustion through said flue and through

said ports, and to control the passage of air through said apertures into said flue, all according to the position of said slide.

5 6. A stove having a fire-box, an oven, a smoke-flue, a passage-way for the passage of the products of combustion around said oven, direct and indirect ports leading from said passage-way into said flue, air-apertures lead-
10 ing into said flue, and a slide-damper adapted when in one position to open the flue, close the direct port and close the air-apertures, when at another position to partially close said flue, close said air-apertures and close said direct port, and when at a third position
15 to open said direct port, open said flue and close said air-apertures.

7. A stove having a smoke-flue with a vertical portion, a direct port, air-apertures leading into said flue, and a slide-damper having
20 an apertured plate adapted to close or open the vertical portion of the flue and open or close said apertures, and having an angular web or flange to open or close said direct port.

8. A stove having a smoke-flue with a ver-

tical portion, a direct port, air-apertures lead- 25
ing into said flue, and a slide-damper having an apertured plate adapted to close or open the vertical portion of the flue and open or close said apertures, and having an angular
30 web or flange to open or close said direct port, said damper having an exposed member by means of which it may be moved.

9. A stove having a damper provided with angular portions which, according to its position, cooperate to open or partially close the
35 pipe-collar opening, permit the products of combustion to pass directly into the smoke-flue, or cause said products of combustion to pass around the oven, and means on said stove for indicating the described positions of said
40 damper.

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

GEORGE J. DAY.

Witnesses:

M. B. MAY,

C. C. STECHER.