

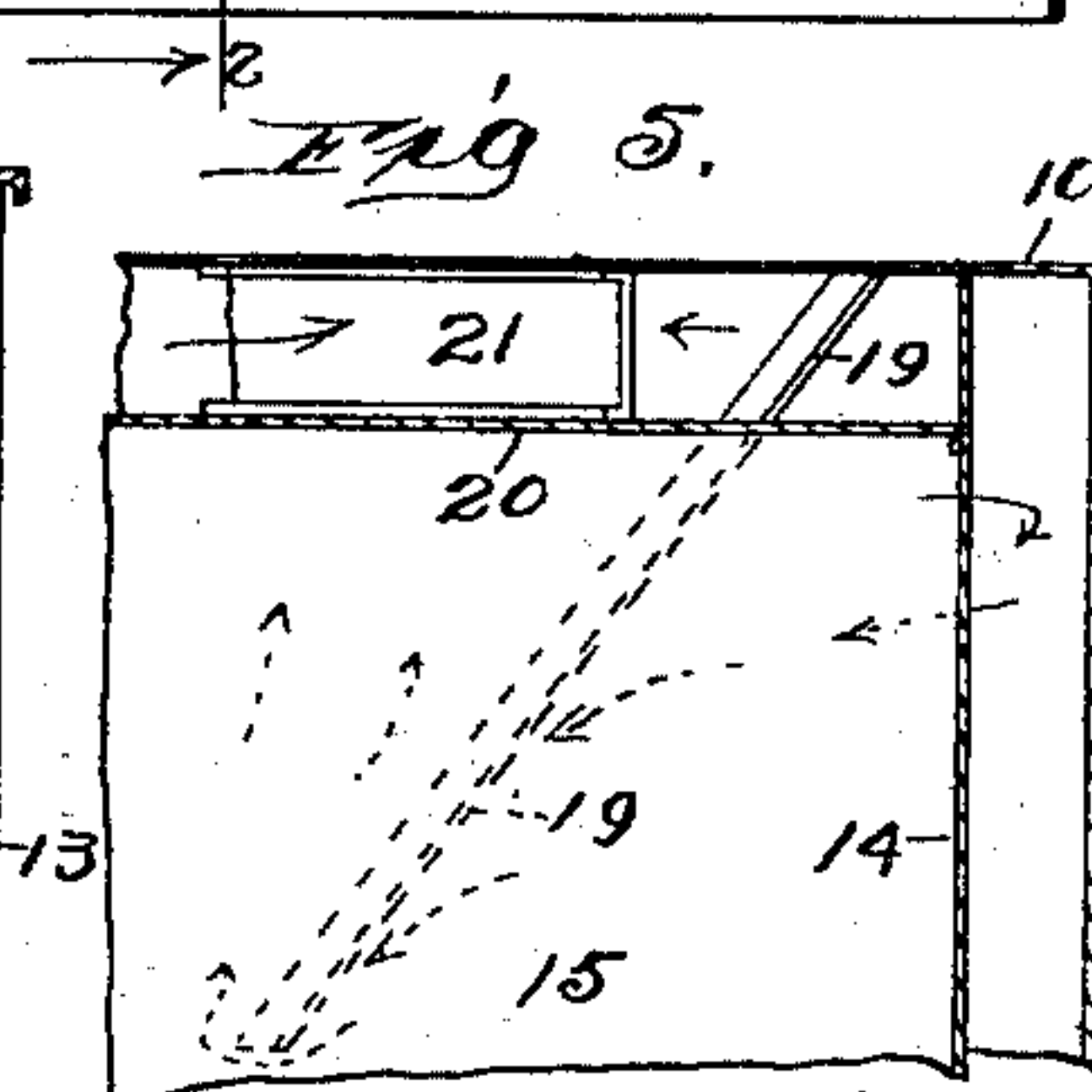
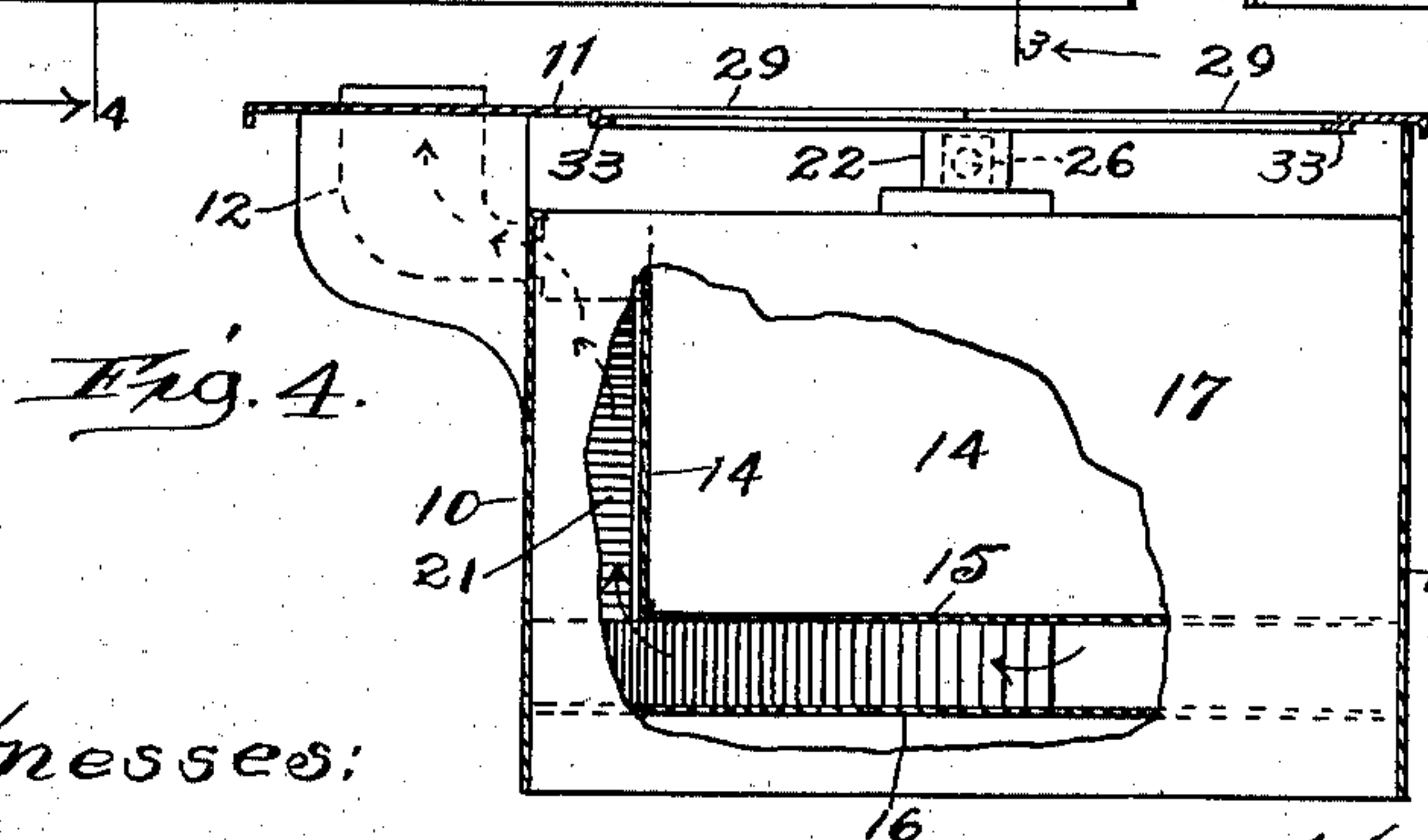
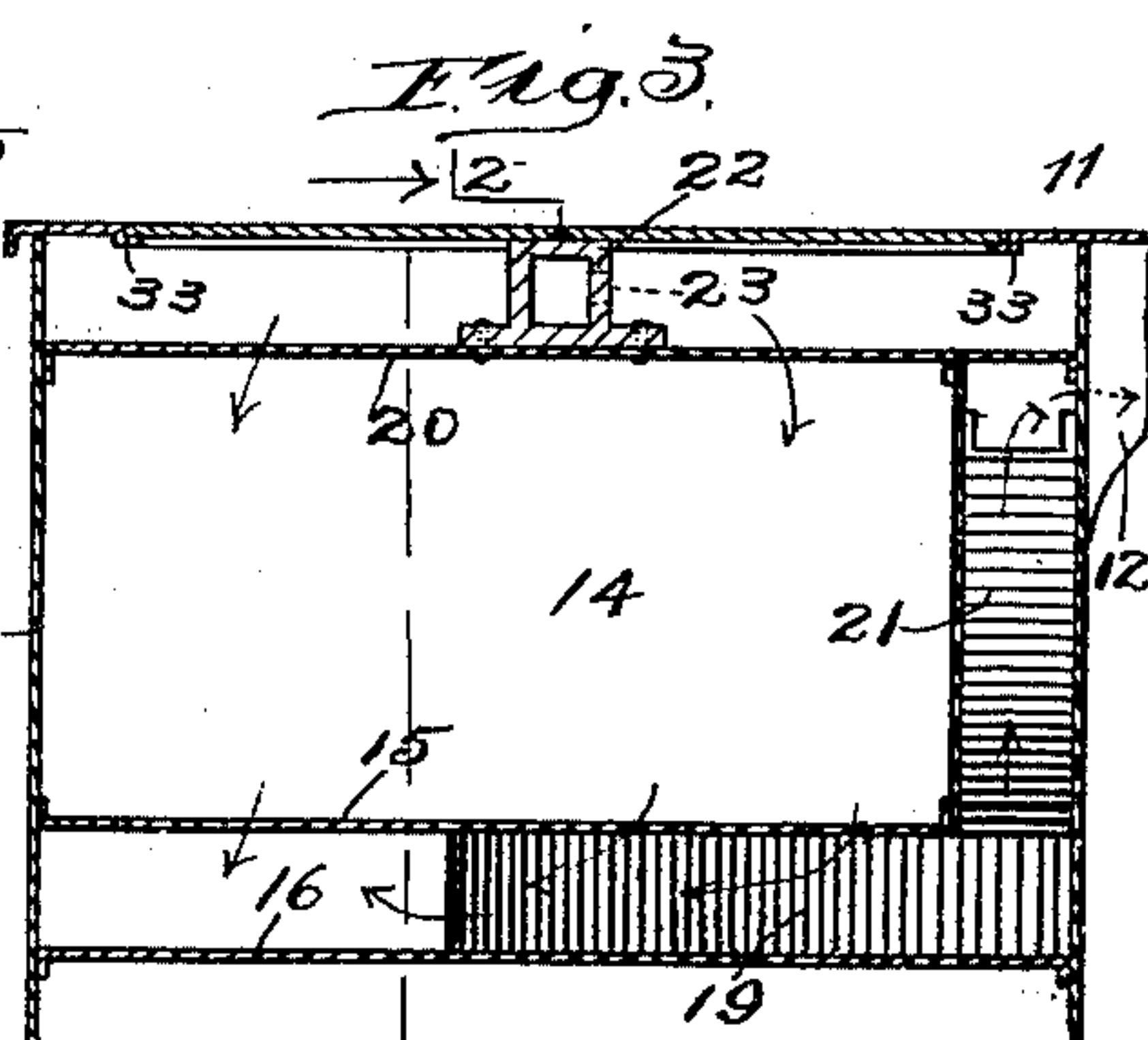
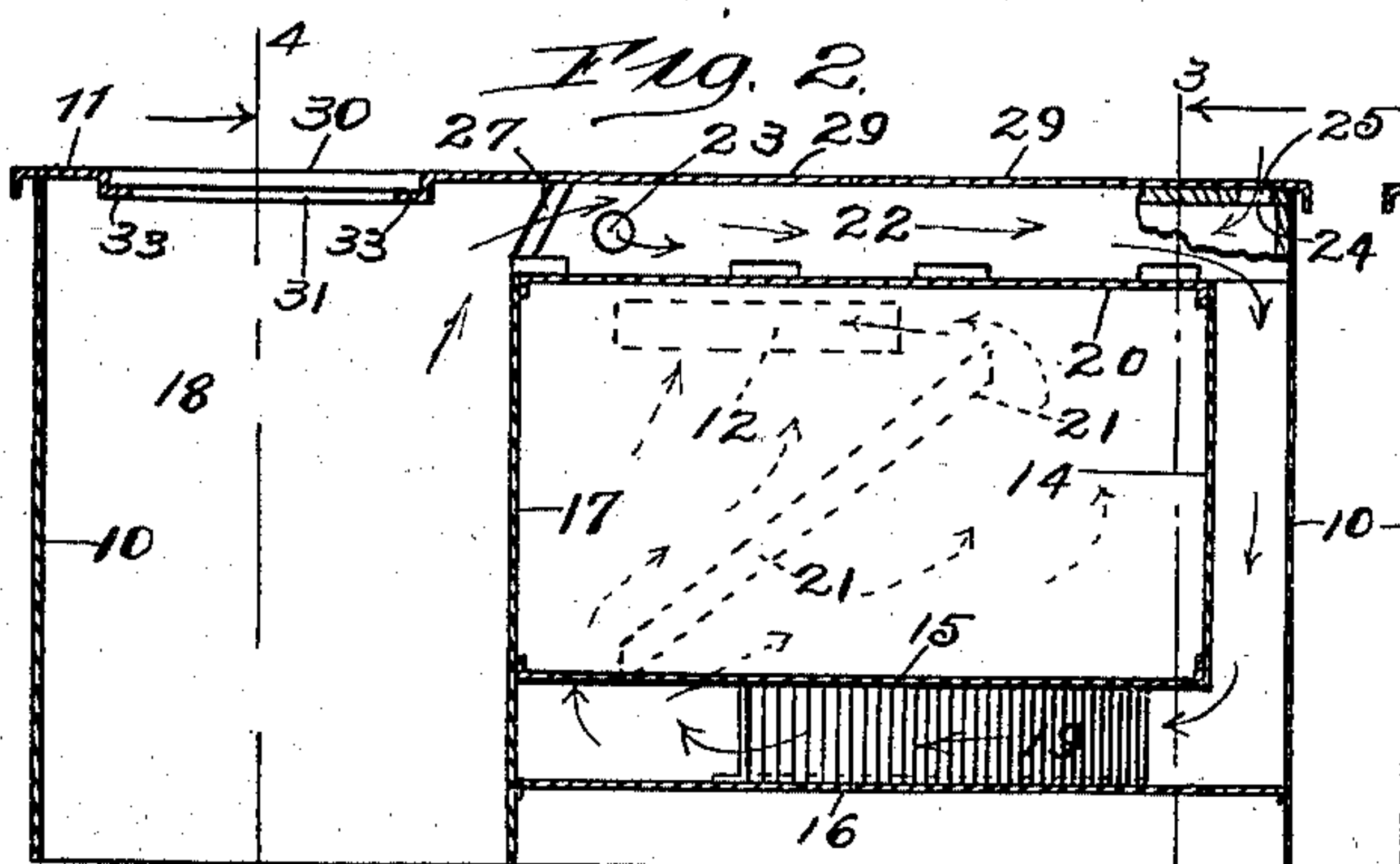
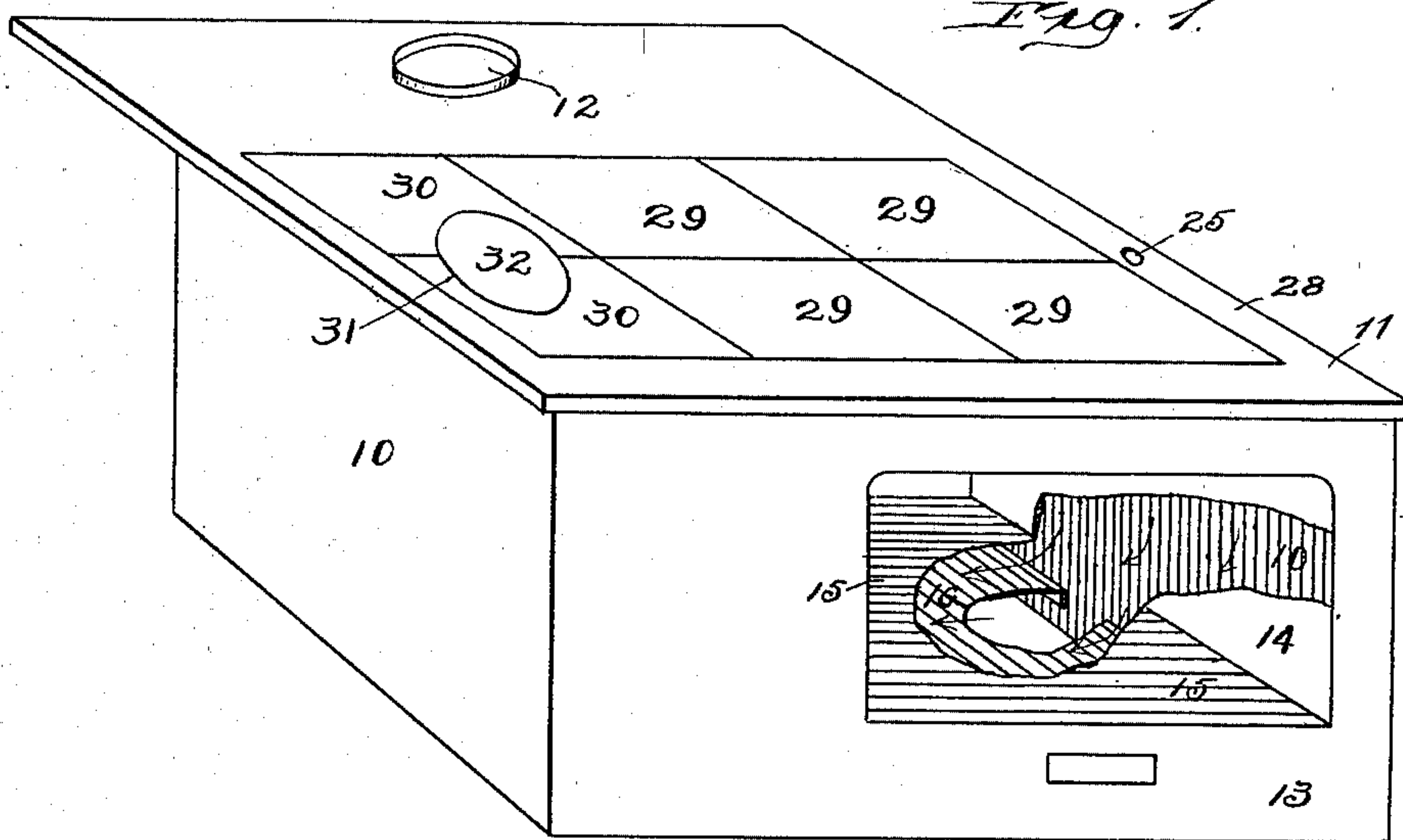
No. 749,304.

PATENTED JAN. 12, 1904.

K. G. KRONVALL.
RANGE.

APPLICATION FILED MAY 18, 1903.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

KARL G. KRONVALL, OF CHICAGO, ILLINOIS.

RANGE.

SPECIFICATION forming part of Letters Patent No. 749,304, dated January 12, 1904.

Application filed May 18, 1903. Serial No. 157,579. (No model.)

To all whom it may concern:

Be it known that I, KARL G. KRONVALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ranges, of which the following is a specification.

This invention relates to improvements in cooking-ranges, and while it is more especially intended for large ranges, such as are used in hotels and restaurants, yet it is applicable to the smaller ones or those used in households; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

In large ranges, as well as in smaller ones, as heretofore made the top plates are caused to buckle or warp on account of the intense heat to which they are subjected and by reason of the fact that they are made in large or continuous pieces, thus rendering them good heat-conductors. When thus warped or buckled, they render the ranges deficient by presenting uneven surfaces and besides allowing smoke to escape between their edges and the edges of the supporting plate or top of the range, so that new plates are frequently required.

In ranges of the general or well-known construction the combustion of the fuel is imperfect, for the reason the oxygen in the air is consumed in the fire-box or as it enters the same, thus allowing large quantities of the fuel to pass out through the smoke-flue in the form of unconsumed particles of carbon.

One of the main objects, therefore, of my invention is to furnish a range which shall be so constructed that the tendency of the top plates to buckle or warp will be reduced to a minimum, thus rendering the range more durable.

Another object of the invention is to afford means for automatically supplying fresh air and oxygen to the combustion-chambers at the rear of the fire-box, thus causing more perfect combustion of the fuel.

A still further object of the invention is to so construct the range that the oven will be subjected to heat on all of its sides but one,

thereby attaining a uniform degree of heat at any point in the oven.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a perspective view of a range embodying my invention, showing the door to the oven removed and illustrating the bottom and one of the side walls thereof broken away to illustrate the passages or ways for the heat and smoke. Fig. 2 is a longitudinal sectional view, partly in elevation, taken on line 2 2 of Fig. 3 looking in the direction indicated by the arrows. Fig. 3 is a cross-sectional view taken on line 3 3 of Fig. 2 looking in the direction indicated by the arrows. Fig. 4 is a similar view taken on line 4 4 of Fig. 2 looking in the direction indicated by the arrows; and Fig. 5 is a plan sectional view of a portion of the outer casing and a part of the oven, showing the heat-deflectors.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The numeral 10 represents the outer casing, which is preferably rectangular, as shown, and has secured on its upper surface a top 11, which extends over the back of the casing 10, as shown in Fig. 1, and is provided with an outlet-pipe 12, which communicates with the stovepipe or flue (not shown) and the interior or cavity of the casing. Located within the casing 10 and secured at its front edges to the front wall 13 of the casing is the rectangular-shaped oven 14, which is so situated that all of its walls, as well as its top and bottom, except its front portion, are at a distance from the casing, so that the heat may pass therearound. Located horizontally below the bottom 15 of the oven is a partition 16, which is secured to the casing and to the inner surface of the wall 17 of the oven adjacent to the fire-box 18, in which the ordinary grate and fire-back may be located in the well-known or any suitable manner. Secured obliquely on the partition 16 and extending from the rear wall of the casing 10 to about the middle of the bottom of the oven and resting against the

lower surface of said bottom is a deflector 19, which will cause the heated currents as they pass over the top and end of the oven opposite the fire-box to pursue the course indicated by the arrows in Fig. 5, thus subjecting the entire bottom of the oven to the action of the heat of said currents. Located between the rear wall of the casing and the rear wall of the oven is another deflector 21, which extends in an inclined position from near the lower portion of the wall 17 of the oven to near the top thereof, as is clearly shown by dotted lines in Fig. 2 of the drawings, in which figure it will be observed that said deflector lies diagonally below the outlet 12, which leads to the flue. Located on the middle of the top 20 of the oven and extending from the fire-box or compartment 18 to the end of the casing opposite the same is a conduit 22, which may be made of any suitable material and has in each of its sides near its end adjacent to the fire-box a discharge-opening 23 for the passage of fresh air. The end of the conduit 22 opposite the fire-box is provided with an inlet-opening 24, which opening may be located on the upper surface of the conduit, as shown in Fig. 2, and register with an opening 25 in the top 11 of the casing, as shown in Fig. 2 of the drawings, or it may be located in the end of the conduit, as shown at 26 in Fig. 4 of the drawings. The end of the conduit 22 adjacent to the fire-box 18 is preferably provided with a detachable plate 27, which will protect the conduit from the intense heat of the fire and which may be renewed when destroyed by the heat. The top 11 of the range is provided above the oven and fire-box with a rectangular opening 28, in which are located sectional plates 29 and 30, the latter of which may be provided with circular openings 31 to receive a removable lid 32, as usual. The outer edges of said sectional plates rest on ledges 33 at the edges of the opening 28, and the inner edges of said plates rest on the top of the conduit 22, as shown in Fig. 3 of the drawings.

From the foregoing and by reference to the drawings it will be readily seen and clearly understood that as the heat passes from the fire box or compartment 18 it will travel over the top 20 of the oven and on each side of the conduit 22, in which operation fresh air and oxygen will be supplied to the flames, thus creating more perfect combustion. From the channel between the top of the range and the top of the oven the heated currents will pass downwardly between the walls of the oven and the casing at the opposite end of the range from the fire-box, from which channel they will pass under the bottom 15 of the oven, in which operation they will strike the deflector 19, thus causing them to pass toward the front of the casing, from whence their course will be changed toward the rear thereof by reason

of the draft through the outlet-opening and flue. After passing from the passage under the bottom of the oven the currents will be deflected in their upward passage between the rear wall of the oven and the back of the casing by means of the deflector 21, as is fully indicated by the dotted arrows in Fig. 2 of the drawings. By providing the top of the range with sectional plates, as above stated, it is apparent that their capacity for conducting heat will be greatly diminished and that they will thereby be rendered more durable and less liable to warp or buckle.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A range comprising a casing having an outlet for the smoke and gases and an opening in its top, of an oven located in the casing at a distance from its wall as well as its top and bottom, a conduit extending from the fire-box between the tops of the oven and casing and having openings near its ends, a series of plates located in the opening of the casing and suitably supported thereon at their outer edges, their inner edges resting on and being supported by the conduit, a deflector extending obliquely and forwardly from the rear wall of the casing between the bottoms of the oven and casing, and another deflector located in an inclined position between the casing and the rear wall of the oven, substantially as described.

2. The combination with the casing having in one of its ends a fire-box and provided with an outlet for the smoke and gases, of an oven located in the casing at a distance from its walls as well as its top and bottom, a conduit extending from the fire-box between the tops of the oven and casing and having openings near its ends, a deflector extending obliquely and forwardly from the rear wall of the casing between the bottoms of the oven and casing, and another deflector located in an inclined position between the casing and the rear wall of the oven, substantially as described.

3. The combination with the casing having an outlet for the smoke and gases, of an oven located therein so that it will be at a distance from all of the walls except one, as well as from the top and bottom of the casing, a deflector extending obliquely and forwardly from the rear wall of the casing between its bottom and the bottom of the oven, and another deflector located in an inclined position between the casing and the rear wall of the oven and extending from near the bottom of the oven to near its top, substantially as described.

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Witnesses:

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