

D. E. Paris.

Patented Sep. 19, 1871.

119,045. *Improved Reservoir Flue Chamber.*

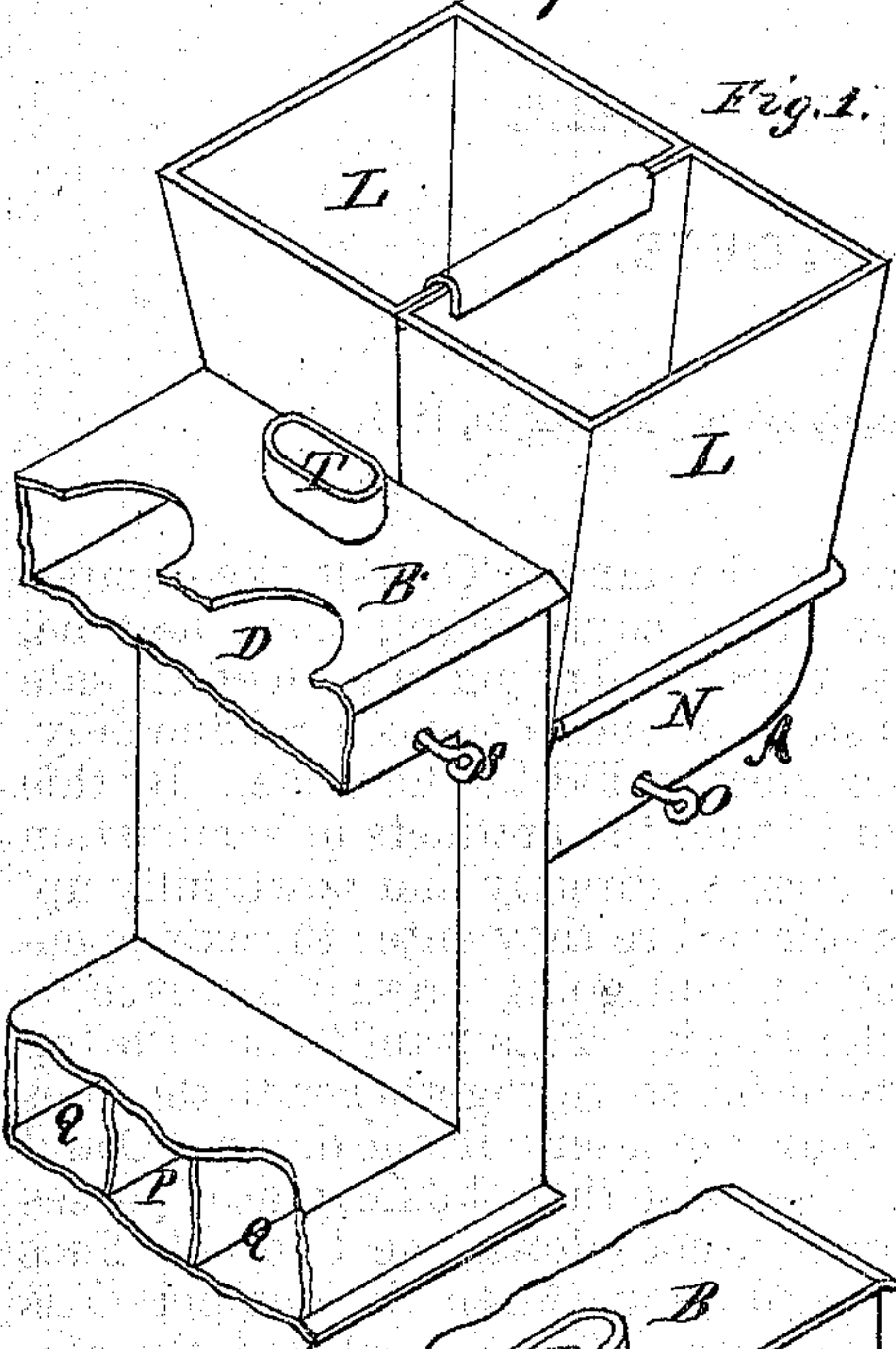


Fig. 1.

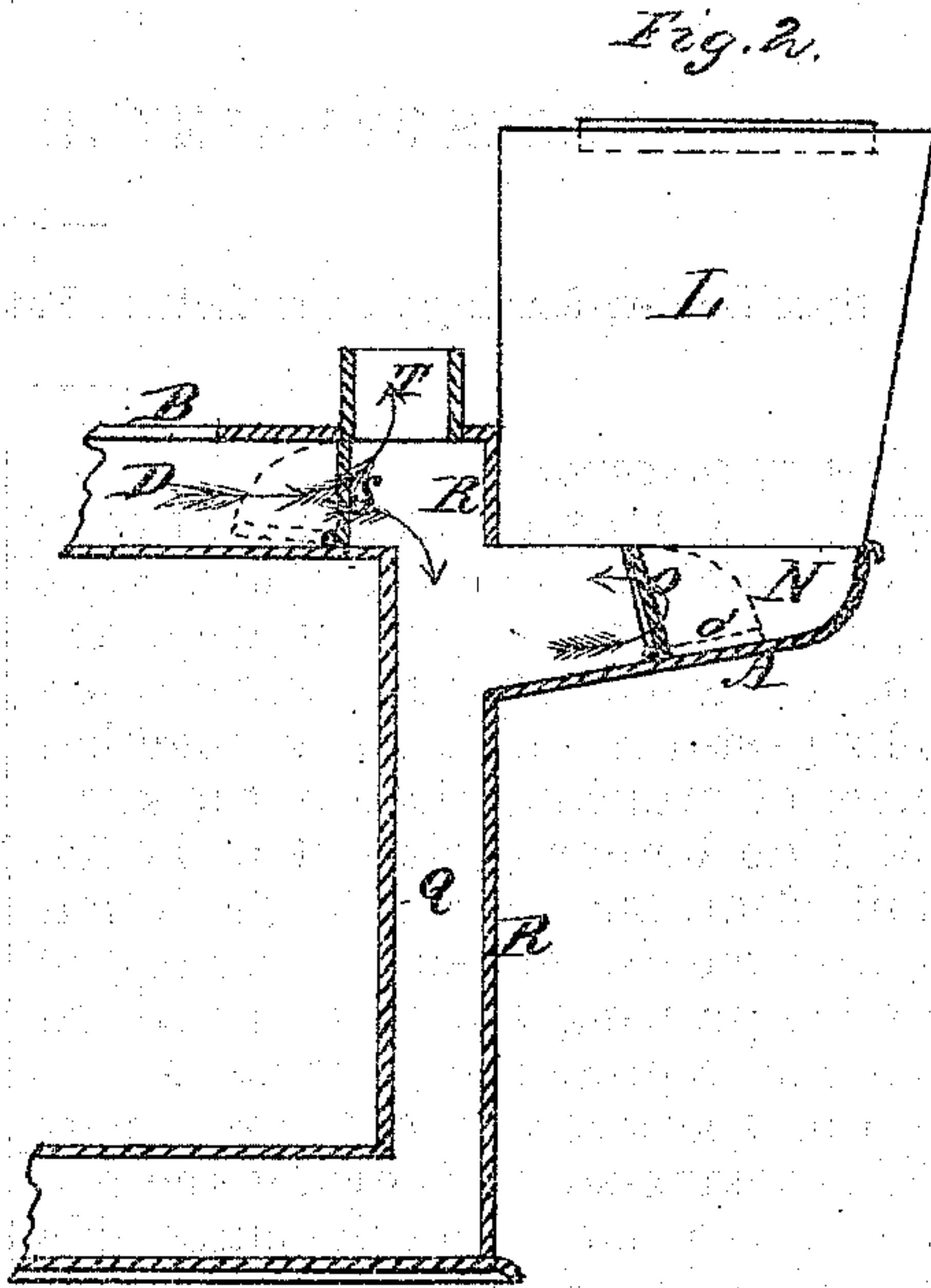


Fig. 2.

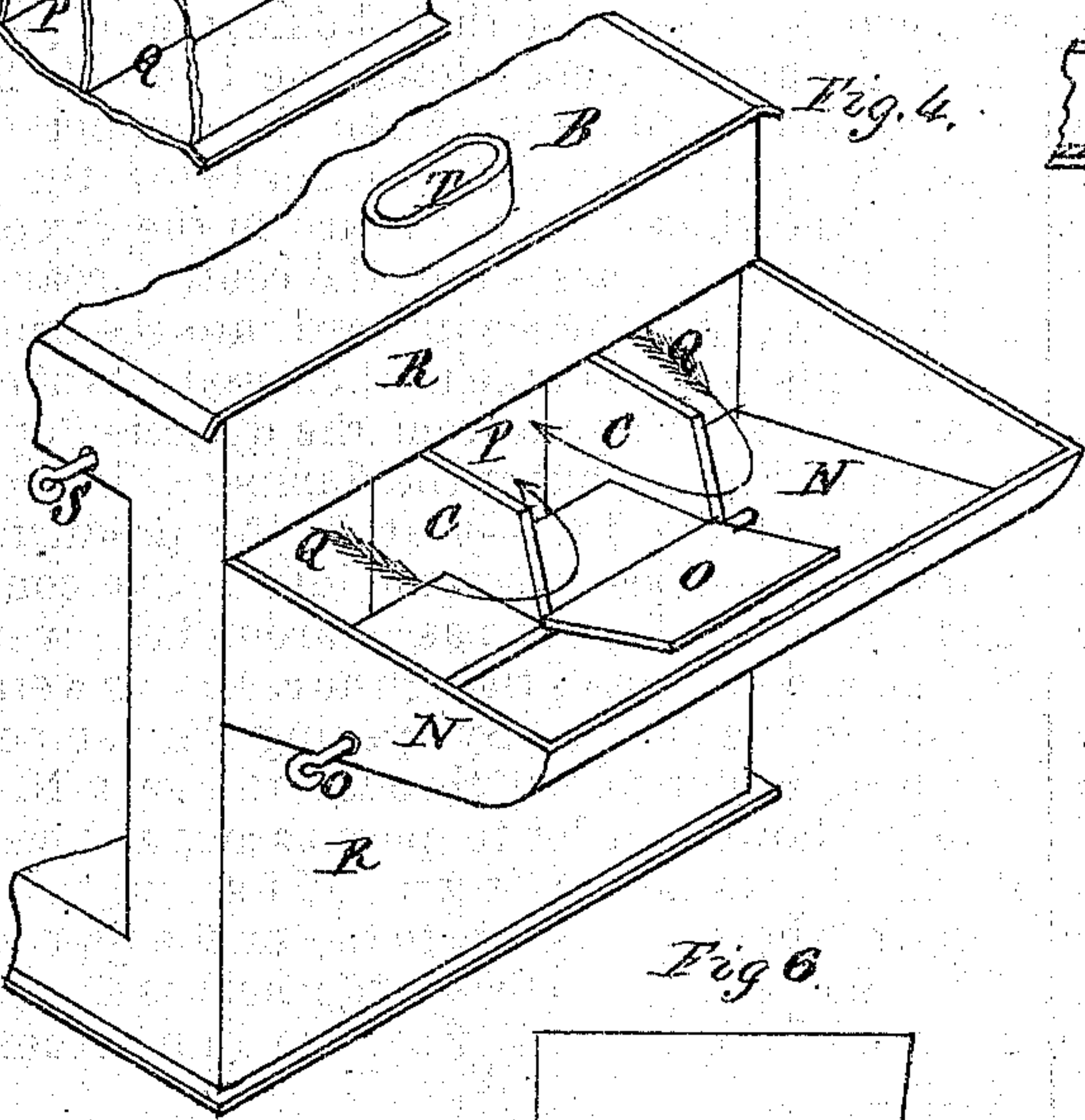


Fig. 4.

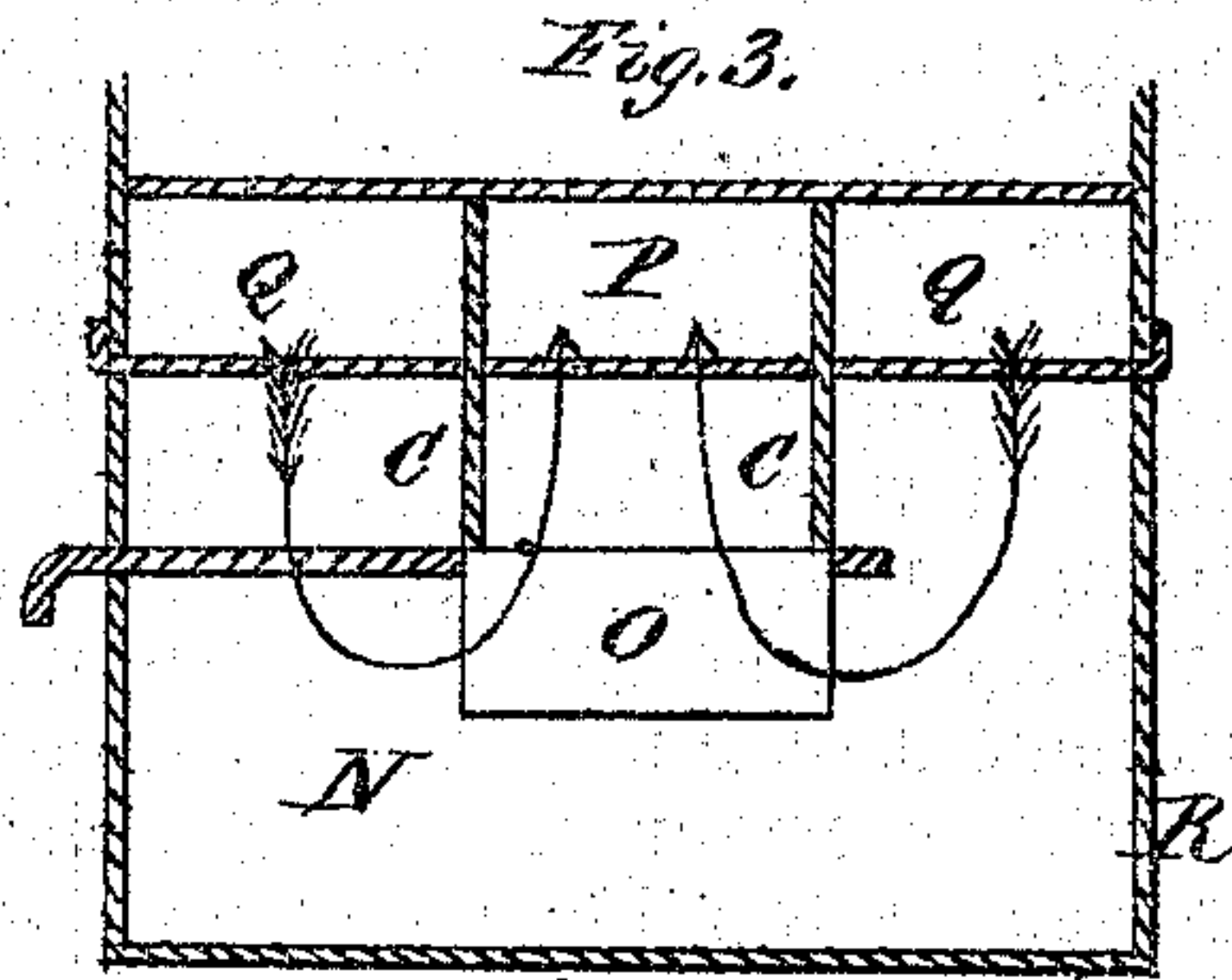


Fig. 3.

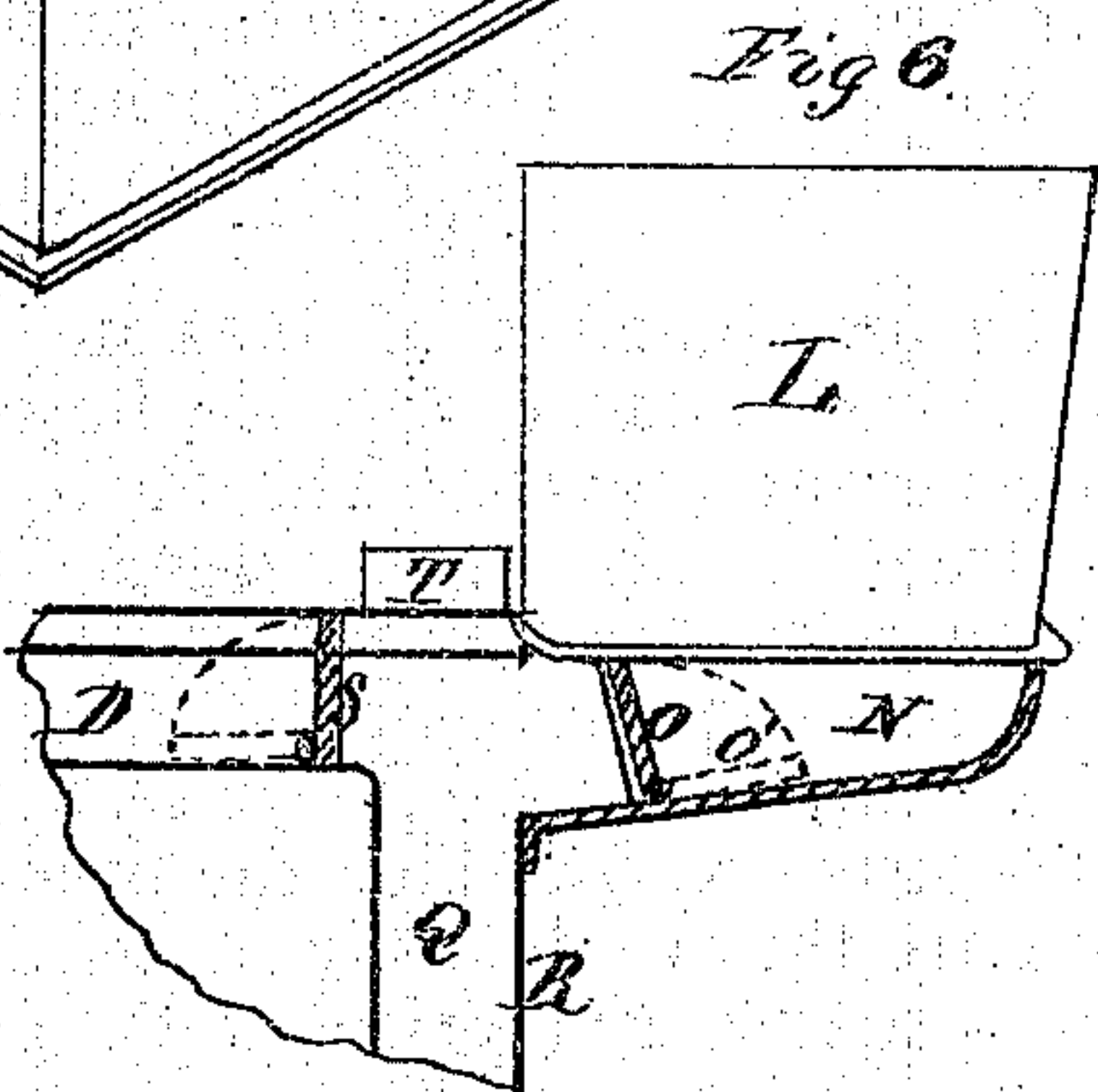


Fig. 6.

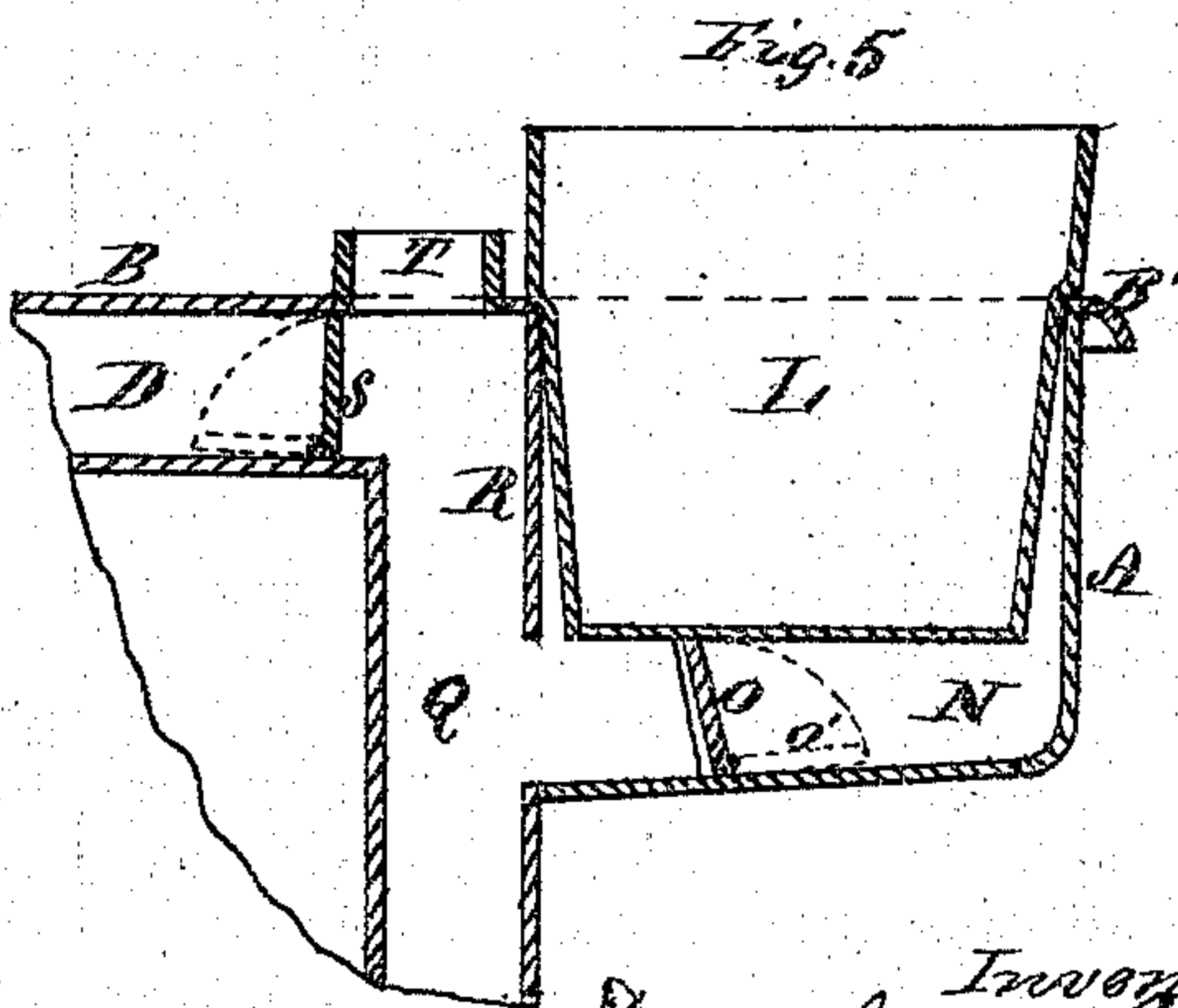


Fig. 5.

Witnesses

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DANIEL ELDON PARIS, OF TROY, NEW YORK.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. 119,045, dated September 19, 1871.

To all whom it may concern:

Be it known that I, DANIEL ELDON PARIS, of the city of Troy, county of Rensselaer, and State of New York, have invented new and useful improvements in a flue-chamber for water-reservoirs for cooking-stoves and ranges, together with the manner of attaching them to the stove or range; and I do hereby declare that the following is a full, clear, and accurate description of my said improvements, reference being had to the accompanying drawing and letters marked thereon, like letters representing like parts.

Figure 1 is a perspective view of the rear part of a diving-flue cooking-stove, showing the reservoir L made in two parts, and the outer side wall of the flue-chamber N, the outer wall itself being lettered A. Fig. 2 is a vertical section taken through the center of the stove, front to rear, showing the connection of the parts and their relations to each other. Fig. 3 is a horizontal section taken through the flue-chamber N, the reservoir being removed. Fig. 4 is a perspective rear view of the flue-chamber N, the reservoir being removed. Figs. 5 and 6 are modifications merely of the invention, showing the same arrangement of flues, but giving different positions to the reservoir, &c. Fig. 6 shows the reservoir raised up to a level, or nearly so, with the stove-top B. It is the same in all other respects as Fig. 2. Fig. 5 shows the reservoir in a lower position than either Fig. 2 or Fig. 6, and with the outer wall A of the chamber N carried up to or near the level of the stove-top B, and the reservoir sitting inside of the same. When thus made the reservoir may still be in one or two parts; but, if made in two parts, there should be a bar or central support for them running from the rear part of the stove-top B immediately in rear of the pipe-collar, and between the two, to the central rear part of the casing A at B'. By the direction of the arrows in Figs. 3 and 4 it will be seen that the products of combustion pass first into the side flues Q Q and thence into the central flue P, coming in contact with the reservoir and all these flues, for the purpose only of heating it; it will be seen also when the reservoir is below the top B, or far below it, that this heat is made to pass down the two side flues Q Q below the horizontal plane of the top oven-plate, and thence, and thereafter, into the central flue P; and this heat is shut off or turned

on by means of the damper O; but the damper O may have many equivalents; there may be, for instance, a similar damper in each of the side flues Q Q instead of one in the central flue only, and thus the effect would be the same. By this arrangement of flues the products of combustion are made to operate directly and powerfully upon the reservoir before they enter the exit-opening at T, and without going around the oven or materially effecting it. Figs. 2 and 3 show the top and rear flues of the stove, together with the flues in the seat below the reservoir, the damper O and the seat N; show also that the heat, as it passes from the fire-box, goes down the two side flues of the stove, and then (when the damper O is open) it passes into the chamber below the reservoir, and thus turning inward in the direction of the arrows it passes into the central rear flue of the stove and thence upward into the smoke-pipe. This motion of the heat or products of combustion is seen again from the direction of the arrows in Fig. 4; but if the damper O be closed the heat of the flues—that is, the products of combustion—does not come into active contact with the reservoir, but passes around the oven in the usual way, just as though no reservoir were attached to the stove. By opening the damper O the heat is not forced through the seat N, but simply allowed or let to pass through it, which it will always do, for it will, of its own motion, take the shortest passage to the smoke-pipe; but if the damper O be closed, the heat is forced to go around the oven as it can go in no other direction.

In the arrangement of flues in the seat N, I have secured a most valuable improvement in back-reservoir stoves. The stove to which I have attached this improvement is a common three-flue stove; the main object sought here, and also in my application filed January 20, 1869, is to heat the reservoir by a quick direct draught from the fire-box, by which the products of combustion are thrown into direct contact with the bottom of the reservoir without going first around the oven, as in the Spaulding patent. In my application of January 20 I secured this object in a two-flue stove; here I secure it in a three-flue stove. Another feature is secured here, viz., the simplification of the invention. I need use but one back damper—and one damper, at least, is required in any common plain-top stove—and

thus all persons who know anything of a cooking-stove know how to operate it. The damper O in the seat N is the only one I need have with this arrangement of flues; another may be made, if desired, in the usual place in front of the pipe-collar. When the damper O is open the draught is sufficiently direct for all practical purposes, the heat or smoke making only a slight detour downward through the chamber N; and even this may be made still more slight by raising the reservoir half or wholly its height above the stove-top, as seen in Fig. 6, and, by thus raising the chamber N, plenty of room is had below for the usual warming-oven, thus improving the stove. I prefer a middle position for the reservoir and seat, as shown in Figs. 1 and 2, which is better, all things considered, and especially when a closet is used, which is always desirable. It is not necessary that the reservoir be divided into two parts, for it may be made in one part only and occupy the same position above described. By this position for the reservoir I get room for a large warming-closet below it, which cannot be had where the reservoir is level with the stove top. In this construction the reservoir need not be made removable from the stove, but be mounted into the stove and form of itself the covering to the chamber N. I have shown this back reservoir with three flues under it, the two side flues Q Q and the central flue P, (see Figs. 3 and 4;) but the same principle will work equally well with only two flues. Take, for instance, one of the side flues Q away, and then move the remaining flue-strip C to the center of the stove, and you still have the same motion of heat as previously described, viz., a downward and upward draught through the flue-seat N.

What I claim as new in this back reservoir is not the position of the reservoir behind the stove, nor a seat, nor a flue-chamber simply under a reservoir, for Mr. Stewart and Mr. Spaulding have anticipated me in the matter of a flue-space formed underneath a reservoir for the purpose of heating it, and Hyde's application of 1858 combines a reservoir with the back of the stove; so that, in these general particulars, I claim nothing new; but I claim as entirely new my arrangement of flues. In the Spaulding patent the bottom flue or flues of the stove were extended under the reservoir for the purpose of heating it, and in my improvements on that patent, which were granted me July 30 and August 13, 1867, I followed closely Spaulding's idea of extending the bottom flue or flues of the stove under the reservoir, although I turned the flue slightly upward into an improved flue-chamber; but the general result was the same as in the Spaulding patent, and the heat was driven and forced under the reservoir by a damper, after it had first operated on the oven, being used then and thereafter on the reservoir; while in the Spaulding patent, therefore, and in my improved patents, the reservoir was heated by practically or in effect extending the bottom flues. In this invention I heat the reservoir by practically or in effect extending the top flues of the stove, for the heat

passes over the top of the oven, thence under the reservoir, and thence upward into the exit-pipe. In those patents the damper compelled the heat to go under the reservoir out of its direct course; in this, the damper simply permits the heat to go under the reservoir in its direct course. In those patents the heat or products of combustion operated directly upon both the oven and reservoir before entering the exit-pipe; in this, that result is impossible. The material point of value in this back reservoir, and, in this respect, wholly unlike any other, is the absolute independence of the reservoir and the oven—only one can be actively heated at a time. The reservoir is no detriment to the oven, nor the oven to the reservoir. The oven heats no slower because of the reservoir, nor the reservoir any slower because of the oven, and each heat in the quickest manner possible; or the heat is turned away from either at pleasure, and, besides, only one damper is needed to produce these results. The seat or chamber N may be brought up to a level with the stove-top, as seen in Fig. 6, for its depression downward is no part of my present invention; and when brought up to the stove top it would resemble somewhat the invention of P. P. Stewart, but would be unlike that except in the mere fact of a flue-seat below the reservoir, which I do not claim. In an ordinary stove the flues extend under the oven, forward from and then backward to the exit-pipe T; in this stove the flues not only perform this office, but they also extend backward from and then forward to the exit-pipe T, for the purpose of heating the reservoir; and the movement or operation of each is entirely different and for a different purpose. In place of a close plate at S, there may be, if preferred, a damper, as seen in Fig. 2. The only advantage gained would be the doubtful one of having a direct draught that would heat neither the oven nor the reservoir. This damper is the usual three-flue damper covering the front of the central flue.

Having thus explained the nature of my said improvements, I claim as new—

1. The two side rear flues Q Q to a diving-flue cooking-stove, so arranged as to connect with the rear central flue P by means of a damper or dampers, and so that the products of combustion, after passing into the side flues Q Q, shall immediately thereafter (when said damper or dampers are open) pass into the rear central flue P for the purpose of heating, and in combination with a water-tank or reservoir situated in rear of said flues, substantially as herein shown and described.

2. The extension of the top flues of a diving-flue cooking-stove beyond the rear vertical line of the exit-pipe, and underneath a reservoir or reservoirs, and thence back toward and into said exit-pipe, substantially in the manner and for the purpose herein shown and described.

3. A downward and upward-draught smoke-flue or flues at the rear end of the stove, connected into and in combination with a flue-chamber below the reservoir, and so arranged that the products of combustion shall pass from the

top flue of the stove down one or more of said flues into and through said chamber and thence upward to the exit-pipe, for the purpose and substantially in the manner herein shown and described.

4. The damper O, or its equivalent, made to operate as follows: When open, to let the heat or smoke pass into the central flue P to heat the reservoir, and, when closed, to drive it around the oven of the stove, substantially as herein shown and set forth.

5. For a diving-flue cooking-stove or range, one or more double-acting flues, made to pass each way from the exit-pipe, and controlled by a damper, arranged, when passing in rear of said pipe, to heat the reservoir, when in front of it, to heat the oven, substantially in the manner herein shown and described.

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Witnesses:

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