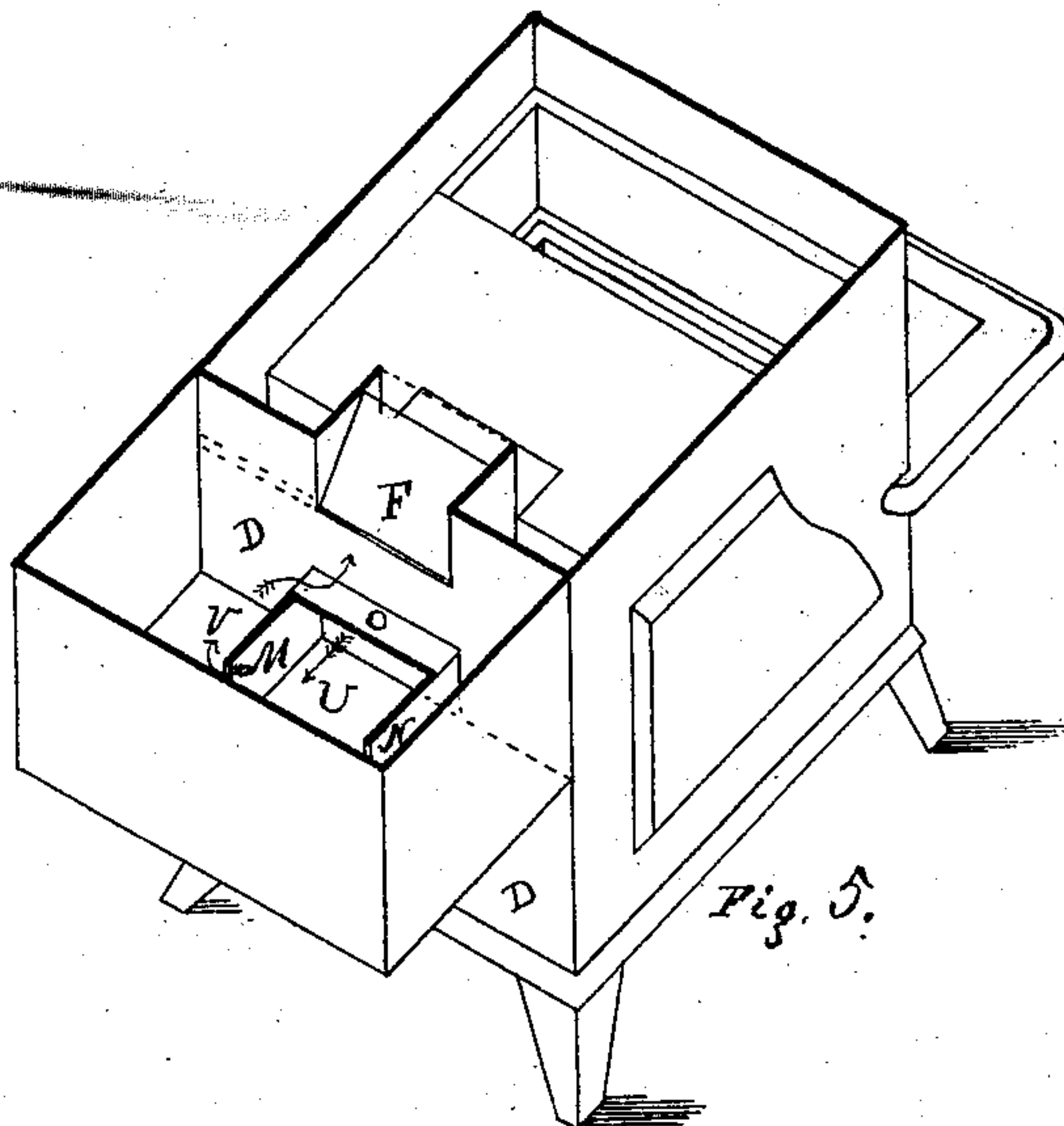
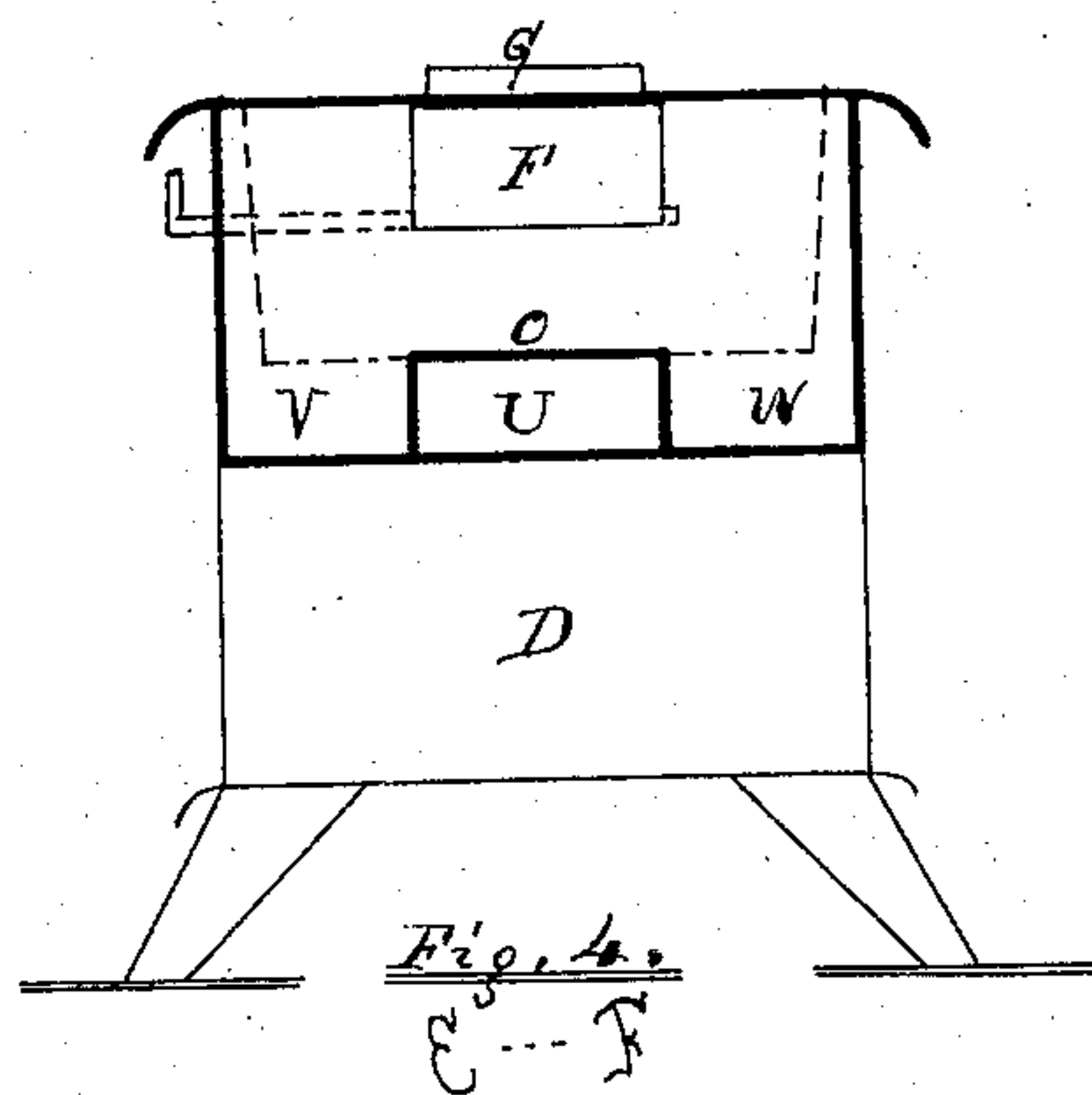
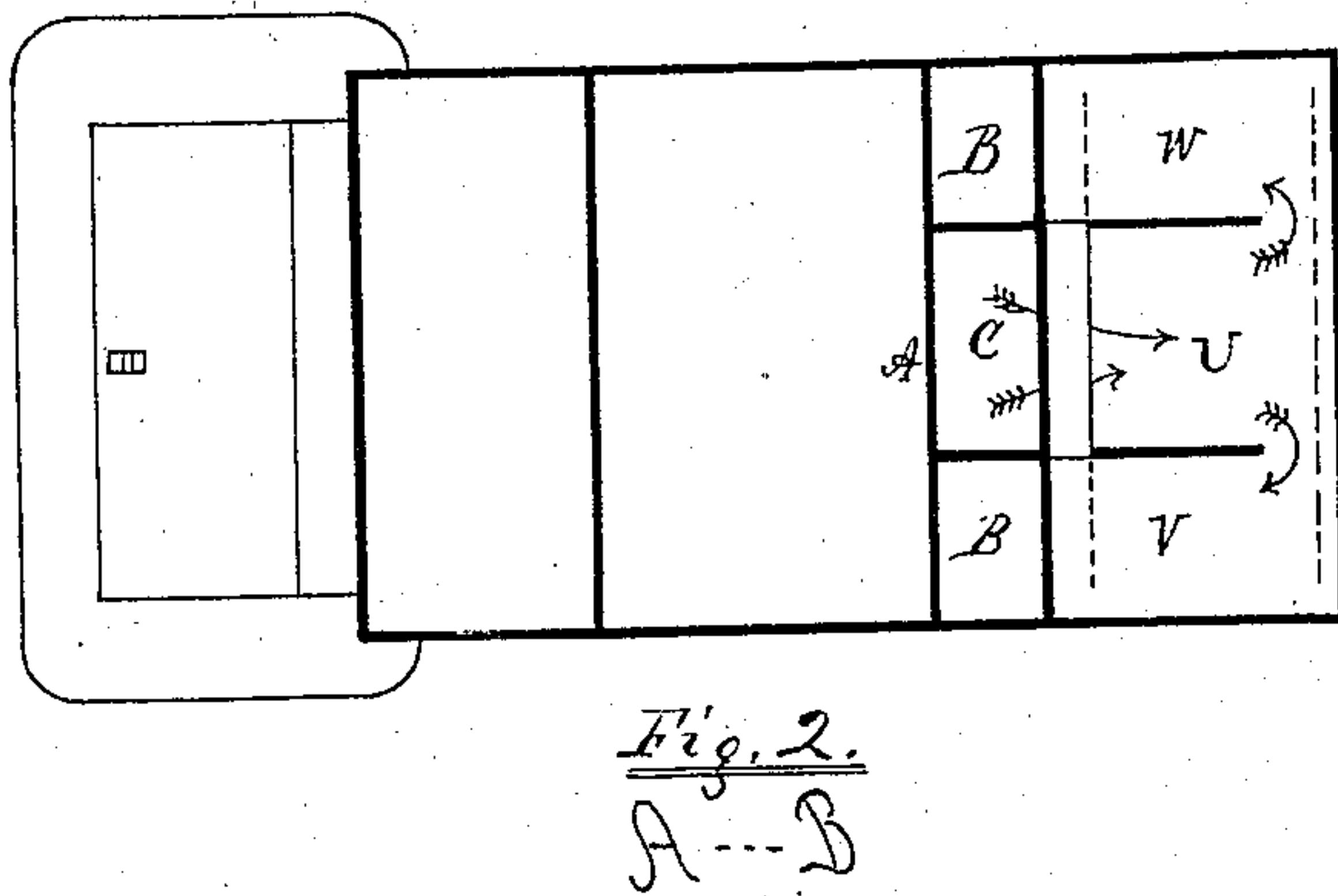
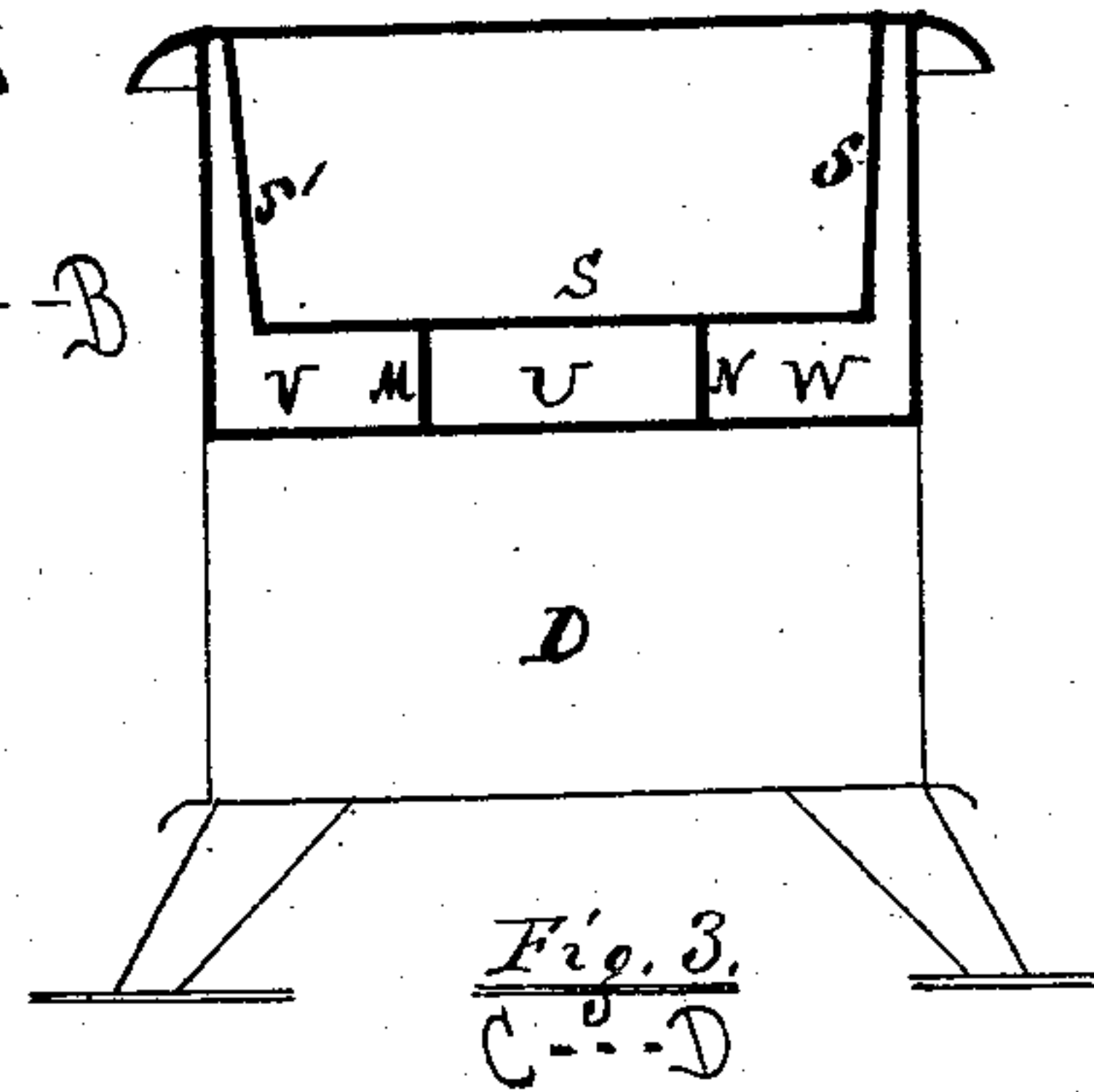
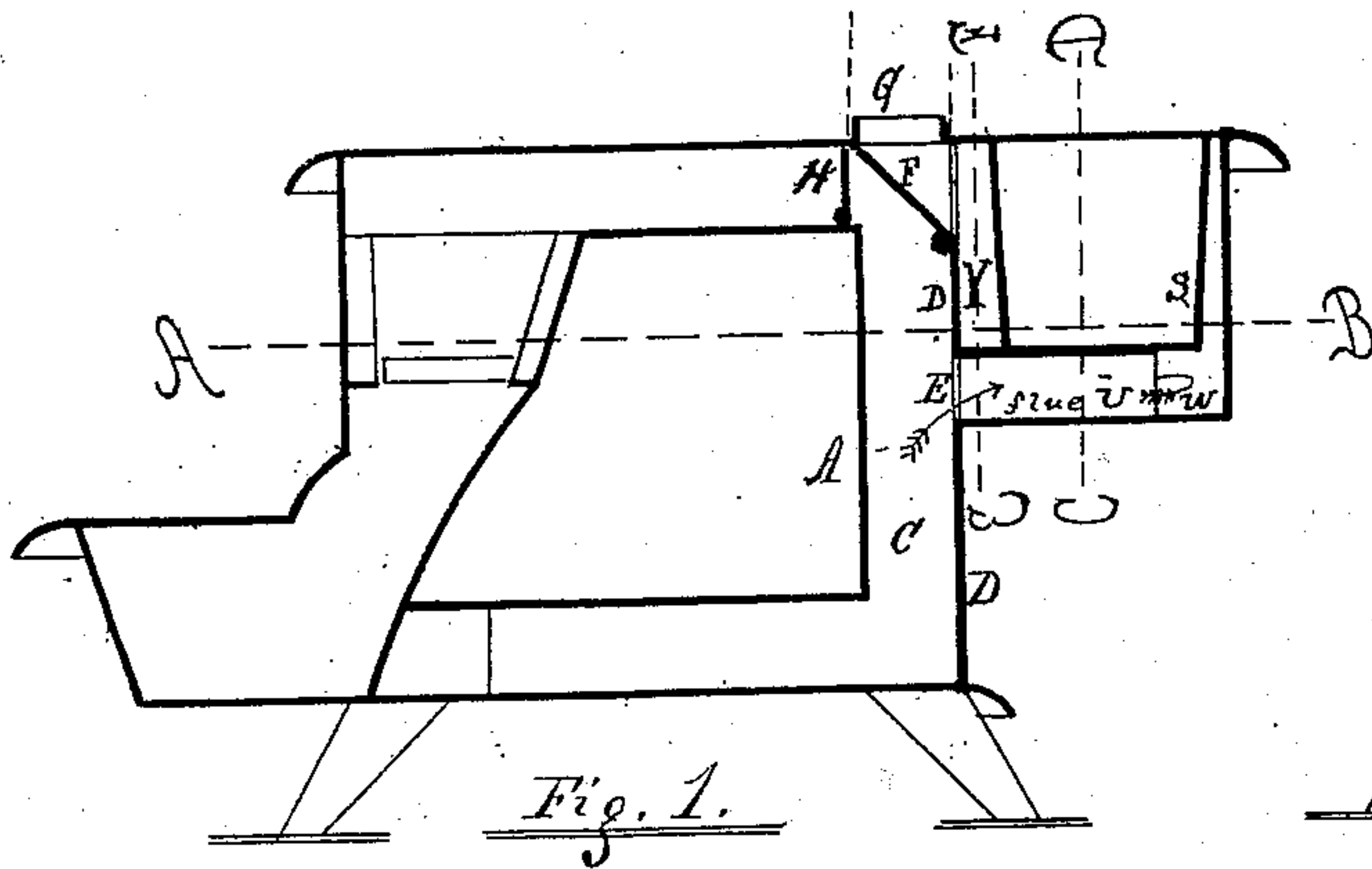


F. WARRINER.

Reservoir Cooking-Stoves.

No. 153,641.

Patented July 28, 1874.



Witnesses.

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A. S. Reille

Inventor.

Francis Warriner

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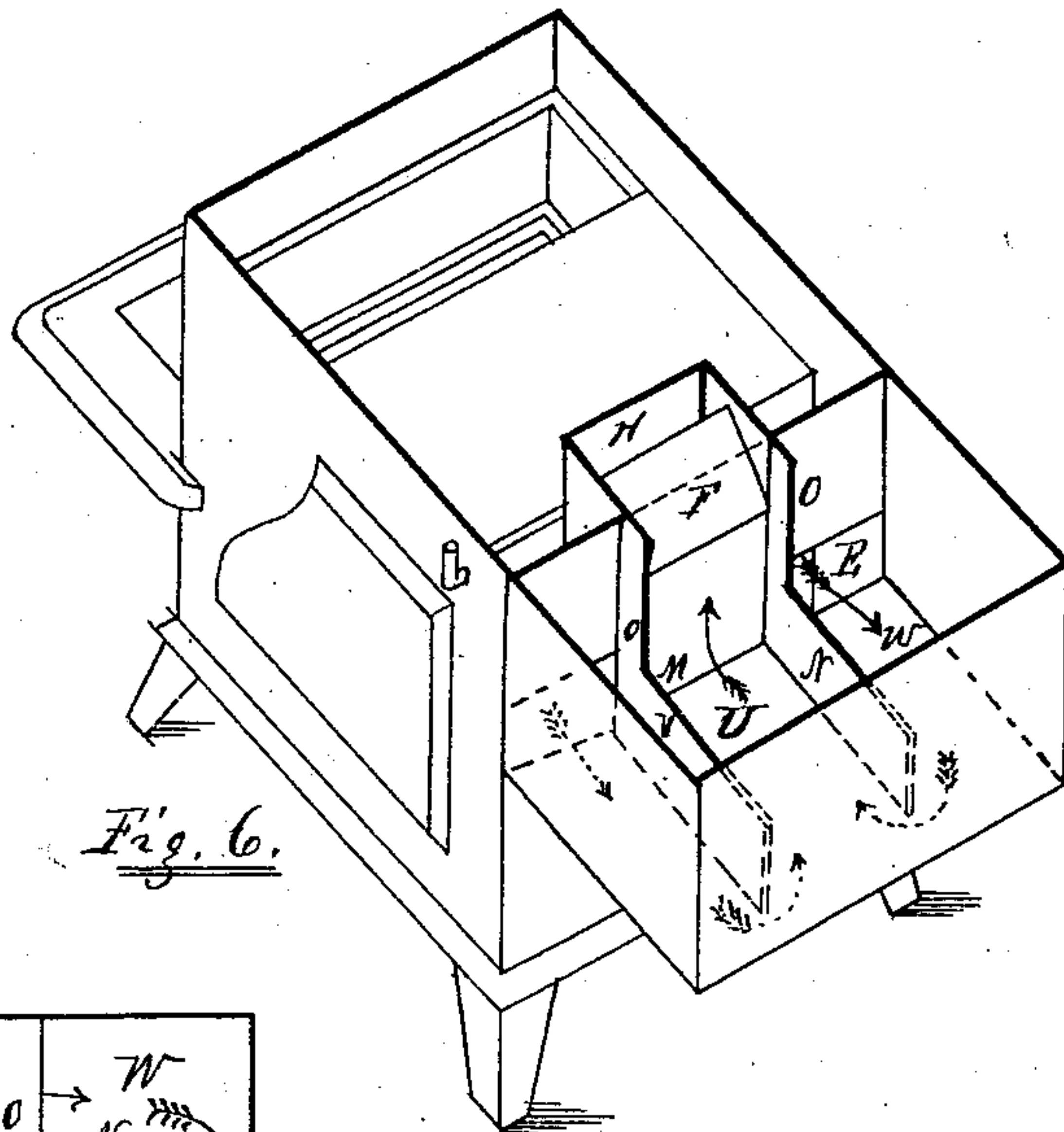


Fig. 6.

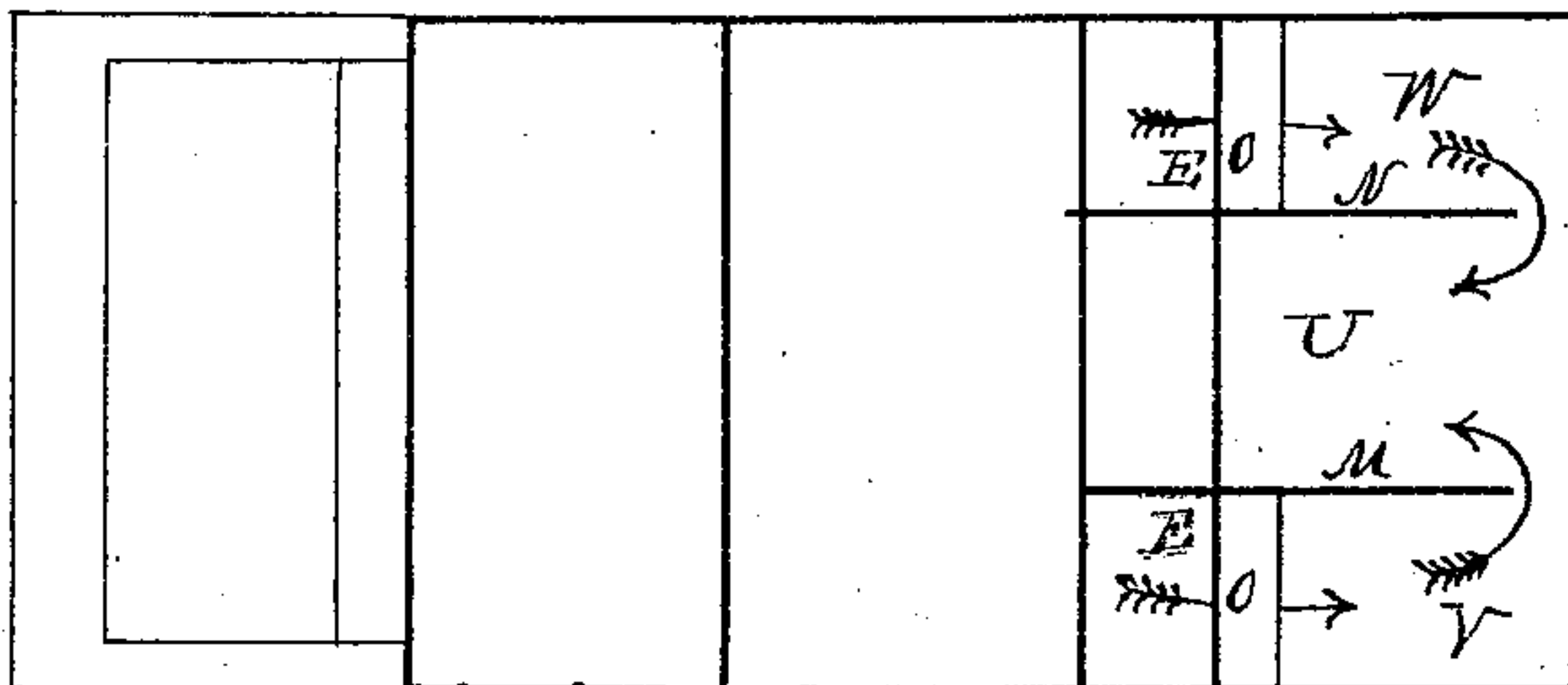


Fig. 7.

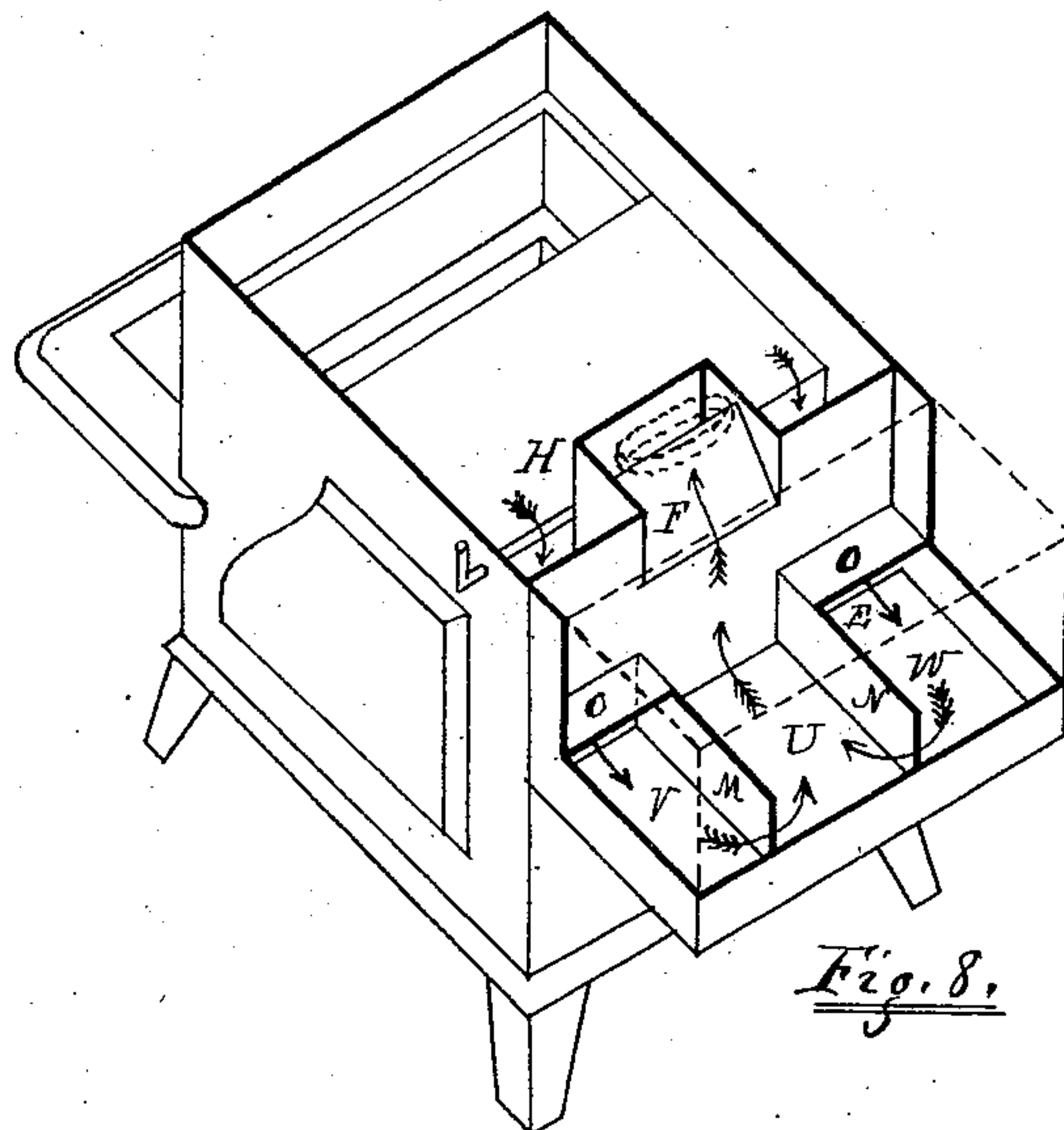


Fig. 8.

Witnesses.

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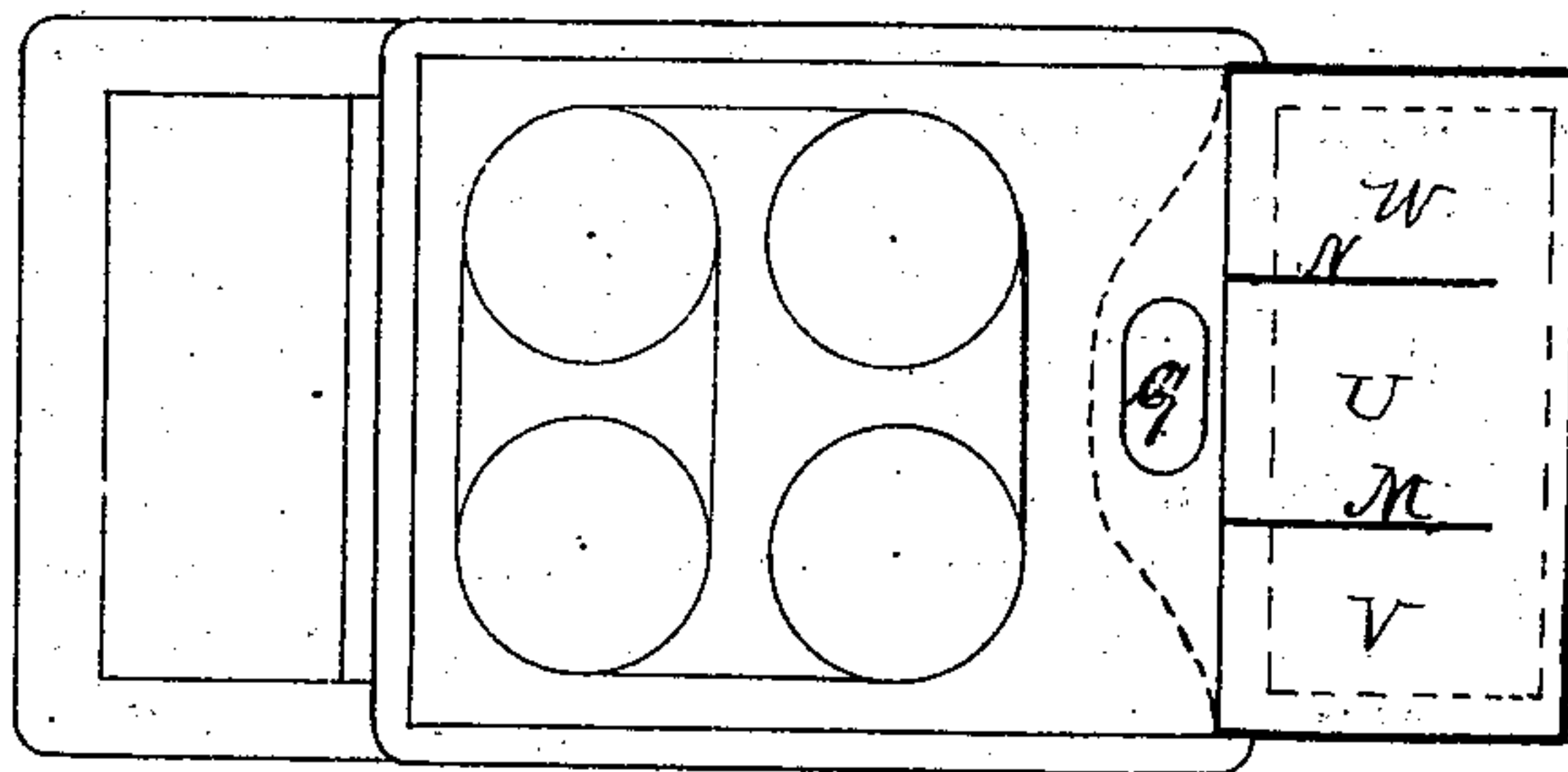
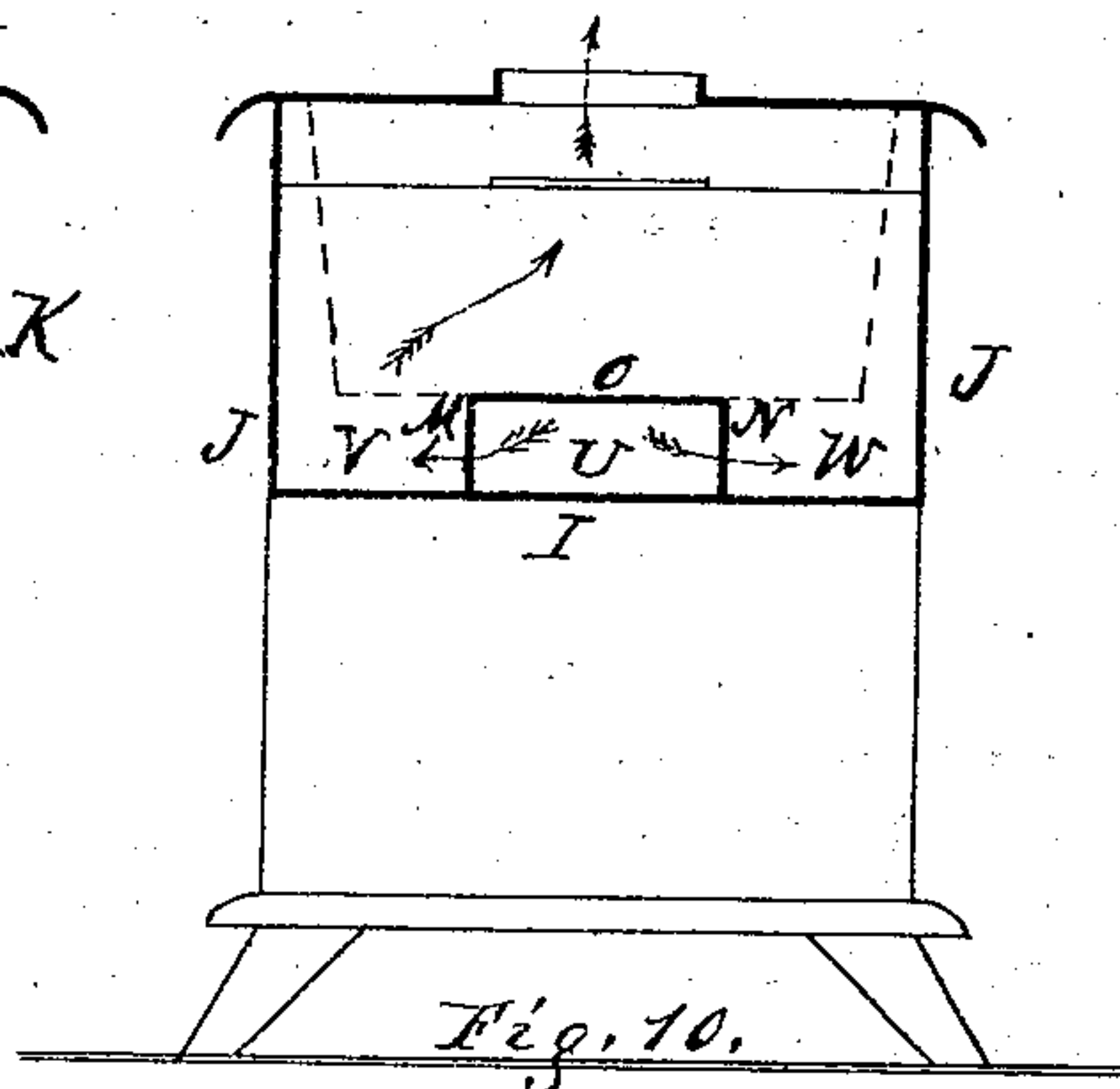
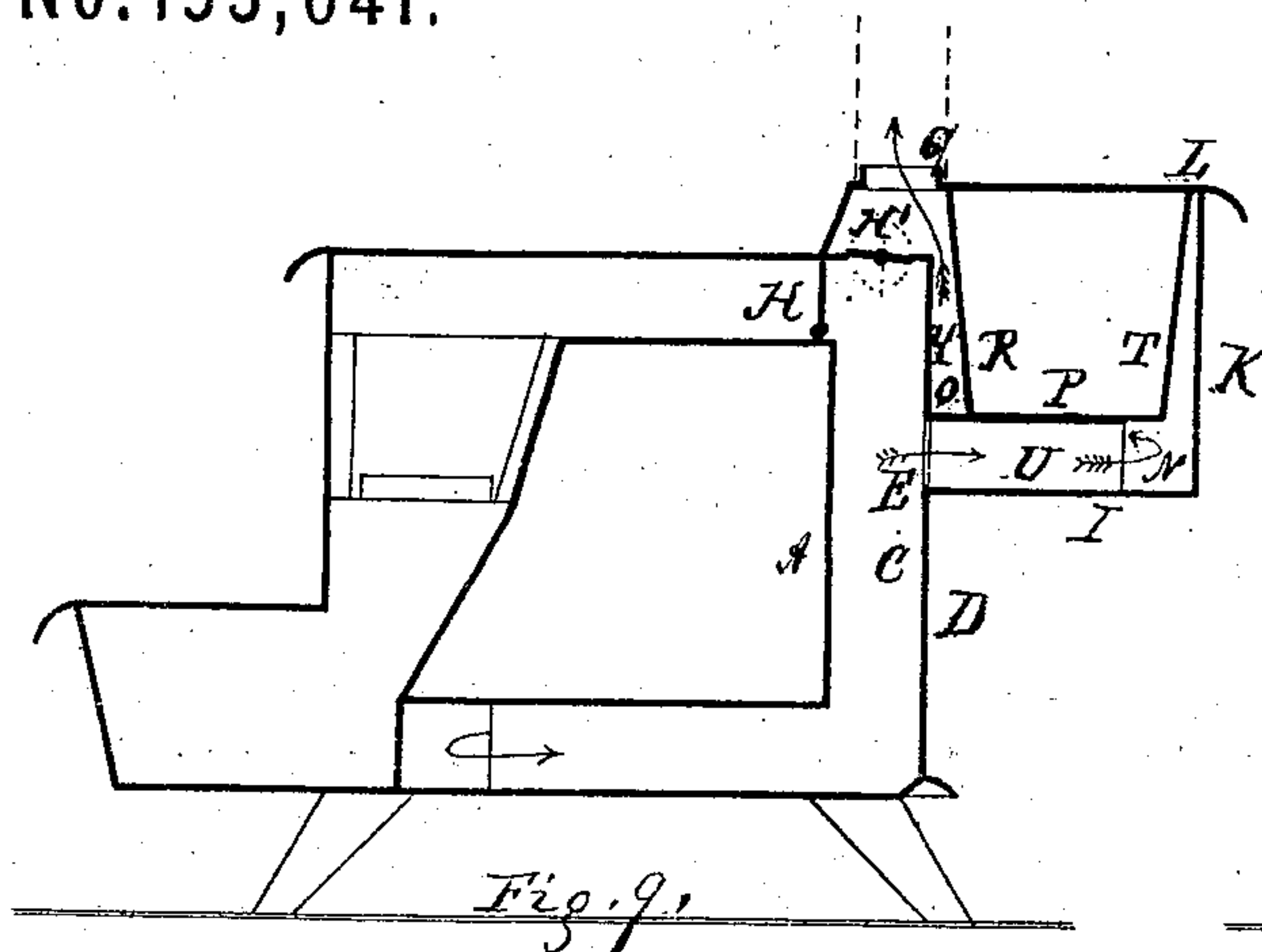


Fig. 11.

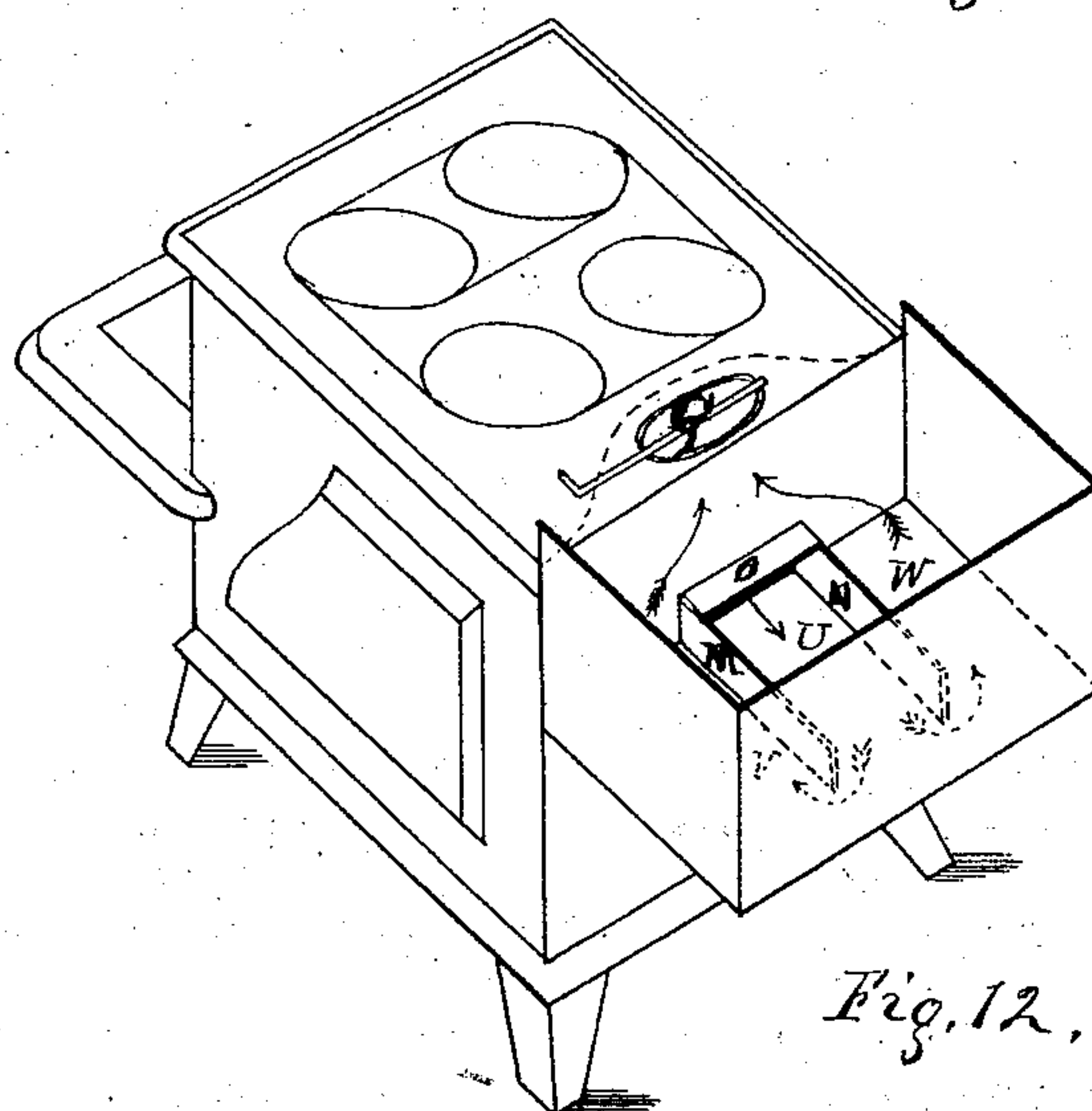


Fig. 12.

Witnesses.

Richard P. Reille  
A. S. Reille

Inventor.

Francis Wariner



# UNITED STATES PATENT OFFICE.

FRANCIS WARRINER, OF TROY, NEW YORK, ASSIGNOR TO DANIEL E. PARIS, OF SAME PLACE.

## IMPROVEMENT IN RESERVOIR COOKING-STOVES.

Specification forming part of Letters Patent No. 153,641, dated July 28, 1874; application filed October 7, 1871.

*To all whom it may concern :*

Be it known that I, FRANCIS WARRINER, of the city of Troy, county of Rensselaer and State of New York, have invented a new and useful Improvement in Reservoir Cooking-Stoves, of which the following is a specification:

This invention relates to reservoir cooking-stoves; and the improvements are fully hereinafter described, and pointed out in the claim.

Figure 1 is a longitudinal vertical section of stove and reservoir. Fig. 2 is a horizontal section of the same on line A B, Fig. 1. Fig. 3 is a transverse vertical section on line C D, Fig. 1. Fig. 4 is a transverse vertical section on line E F, Fig. 1. Fig. 5 is an isometrical view of stove and reservoir-chamber with top plate of stove and reservoir removed. Fig. 6 is a similar view, showing the strips placed vertically and running up to the top plate of stove, reservoir removed, and a full casing shown. Fig. 7 is a horizontal section of the same arrangement, except the flue-strips, which cover horizontally the front ends of the horizontal flues; and the inlet-openings from flues of stove leading thereto communicate with the corner or descending flue or flues of the stove. Fig. 8 is an isometric view of the same, except the reservoir is intended to be uncased at ends and rear. Dotted lines show its position when in use. Fig. 9 is a longitudinal section of stove and reservoir cased, top of reservoir-chamber above the stove-top, and the damper located in aperture over center or ascending flue of stove. Fig. 10 is a transverse section of the same, dotted lines showing position of reservoir. Fig. 11 is a horizontal section through reservoir-chamber and over top plate of stove. Dotted lines show position of reservoir and curve of reservoir-casing top over top plate of stove as it curves to take in the exit-aperture through stove with damper therein. Fig. 12 is an isometric view of the same construction, the top plate of reservoir-casing being removed.

Like letters refer to like or corresponding parts.

A represents back oven-plate. B B repre-

sent the descending flue or flues of the stove. C represents the rear vertical ascending flue of the stove. D represents the rear vertical plate or back of the stoves. These flues and the remainder of stove are as usual; and my invention is adapted to all styles of stoves having two or three rear vertical flues. E represents an opening (dampered or not) communicating with flue C. F represents another opening provided with a valve-damper, arranged so as to fall over the flue C, closing it at top, separating it from exit-pipe G. At H is the ordinary damper for shutting off the flue C from space over oven of stove. I represents the bottom plate of reservoir-casing. J J are side plates of same, and K is rear plate of same. The rear plate K may be omitted, except below bottom of reservoir, and the reservoir at back be uncased, and the side plates J J also, except forward of reservoir and between it and back plate of flues of stove. The reservoir, in that case, would be uncased at sides and rear without affecting my invention; but I prefer to place it within a casing, as shown, as thereby more heat is carried around reservoir and cold air excluded from direct contact therewith. L is top plate or cover over reservoir and casing. This may be a portion of stove-top extended, or separate therefrom, as deemed best. The rear plate of stove D may bend backward to form plates I and K of reservoir-casing, if deemed best, and the dividing portion between flues and reservoir cast separately, if desired, in either case not changing the principle or construction substantially of my invention. M and N are vertical flue-strips within the casing (or its equivalent) of reservoir. They are of proper height—say about four inches—and extend from back plate of flues D to a suitable distance—say to about four inches from rear line of reservoir—when placed in its casing or in combination with stove. O is a horizontal strip reaching across from flue-strip M to flue-strip N, and from back wall or plate D of stove-flues to front line of reservoir, when in combination therewith—say about two inches; and plate or strip O may be cast as a part of plate D, if



desirable. Previous to the reservoir being placed in combination therewith the strips M, N, and O present the appearance as shown in Fig. 5, a full casing being there shown in combination therewith.

When the reservoir is in position for use its bottom rests upon the top edge of flue-strips M and N and its front bottom edge against the strip O, as shown in Figs. 1 and 3, and by dotted lines in Fig. 4. The bottom of reservoir is marked P, and front plate or wall R, sides or ends S S', and rear wall T.

It will be seen that when reservoir is in position three flues are formed beneath its bottom and a broad sheet-flue in front of reservoir, center flue marked U, corner or outside flues marked V and W, the walls of casing J J forming outer sides and reservoir and bottom of casing forming the other remaining sides.

The operation of these flues in conveying heat to reservoir is as follows: The products of combustion, when damper H is closed, pass down corner flues of stove B underneath, and, returning as usual, ascend center flue C on their way to exit-pipe G. By dropping backward, as shown in Fig. 1, the damper F, they cannot escape, and so are forced into flue U under reservoir, through aperture E of stove-plate D, to rear of reservoir; then passing around the end of the flue-strips M and N, return to front of reservoir, and passing upward in front of reservoir, escape through aperture over the damper F, escape to exit-pipe G, thus heating the reservoir when reverse draft is used and stove-oven heated. Now, when the damper H is left open—damper F back as before—the products of combustion pass downward through flue of stove C, escape through aperture E, and through flues under reservoir, as before, thus heating the reservoir by direct draft, imparting great heat thereto. The plate O prevents the products of combustion passing upward from flue U in front of reservoir, so that they must pass to back of reservoir before escaping. While kindling fire, a direct draft may be used by opening damper H and turning damper F vertically, if desired, or a direct draft through the reservoir-chambers or flues, as before described.

It is obvious that the casing across ends or sides of reservoir, and at back of same, may be dispensed with by having the plates J J join front and bottom edge of reservoir, and back plate of casing only extend up to bottom rear edge of reservoir, joining thereto.

In Figs. 6 and 8 the inlet to flues of reservoir-chamber is from the corner or descending flues of the stove, as shown. The flues and flue strips are as before, except that the strip O is divided and covers the outer flues, instead of the center flue. In this case the products of combustion pass out through the apertures from corner flues of the stove, (either in a direct draft or reversed draft

when damper H is closed,) to rear of reservoir, and return to front underneath through center flue U, and up the front to exit-pipe, as before.

Instead of the strips O being placed horizontally, they may be placed vertically, as shown in Fig. 6, and may be cast as a part of the reservoir or back plate of stove, or separately, as desired, the operation of the flues being the same as in Figs. 7 and 8.

These views are introduced as modifications of or equivalents for the first-mentioned mode, the construction of the flues being substantially the same.

In Figs. 9, 10, 11, and 12, the reservoir is shown elevated, its top and top of reservoir-chamber being above the horizontal line of stove-top, extends over the flues and usual exit-opening of stove-top, which space thus becomes included in the reservoir-chamber. The stove-top extends back to back-plate of stove, and a damper is placed over center flue and in the aperture or exit-opening, so as to effectually close the same when requisite. There is but one opening in the back plate of stove through which the products of combustion escape when the top damper H is closed, and after passing through the flues, underneath the reservoir, and up its front, they escape over the damper H' and out of the exit-opening located nearly over the same, in top plate of reservoir-chamber casing. The operation in all cases is substantially the same as in those before mentioned.

The arrangement of flues and the general manner of heating the reservoir are very similar to that shown in the patent granted to G. W. Swett, June 1, 1866, but there are material differences which it is desired to protect by Letters Patent. The mode of heating, as herein described for Fig. 1, is substantially the same as that in the Swett patent, where the oven is first heated; but it is desirable to use the same construction for throwing a direct heat upon the reservoir, and this cannot be done in the Swett patent, because the secondary damper in that patent is placed so far down in the center flue that a direct draft cannot pass under it and thence under the reservoir; but in this invention the damper F is so arranged that when the damper H is opened the heat, instead of passing directly into the smoke-pipe, will pass downward underneath the damper F through the aperture E, into the flues U, V, and W, and thence out over the damper F to the smoke-pipe, thus heating the reservoir by direct draft.

It is conceded, however, that the arrangement of the flue-strips and the reservoir, of distributing the heat on or around the reservoir, is substantially the same as in the afore-said Swett patent.

What I claim, and desire to secure by Letters Patent, is—



An ordinary diving-flue cooking-stove, provided with an upward rear flue, adapted to be converted into a downward flue, in combination with a reservoir situated in rear of the stove, and with the flue space or spaces under or around said reservoir, in rear of the rear flue, and communicating therewith by an inlet

and outlet opening to the exit-pipe, located in front of the reservoir and over the ascending flue.

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Witnesses:

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A. S. REILLE.