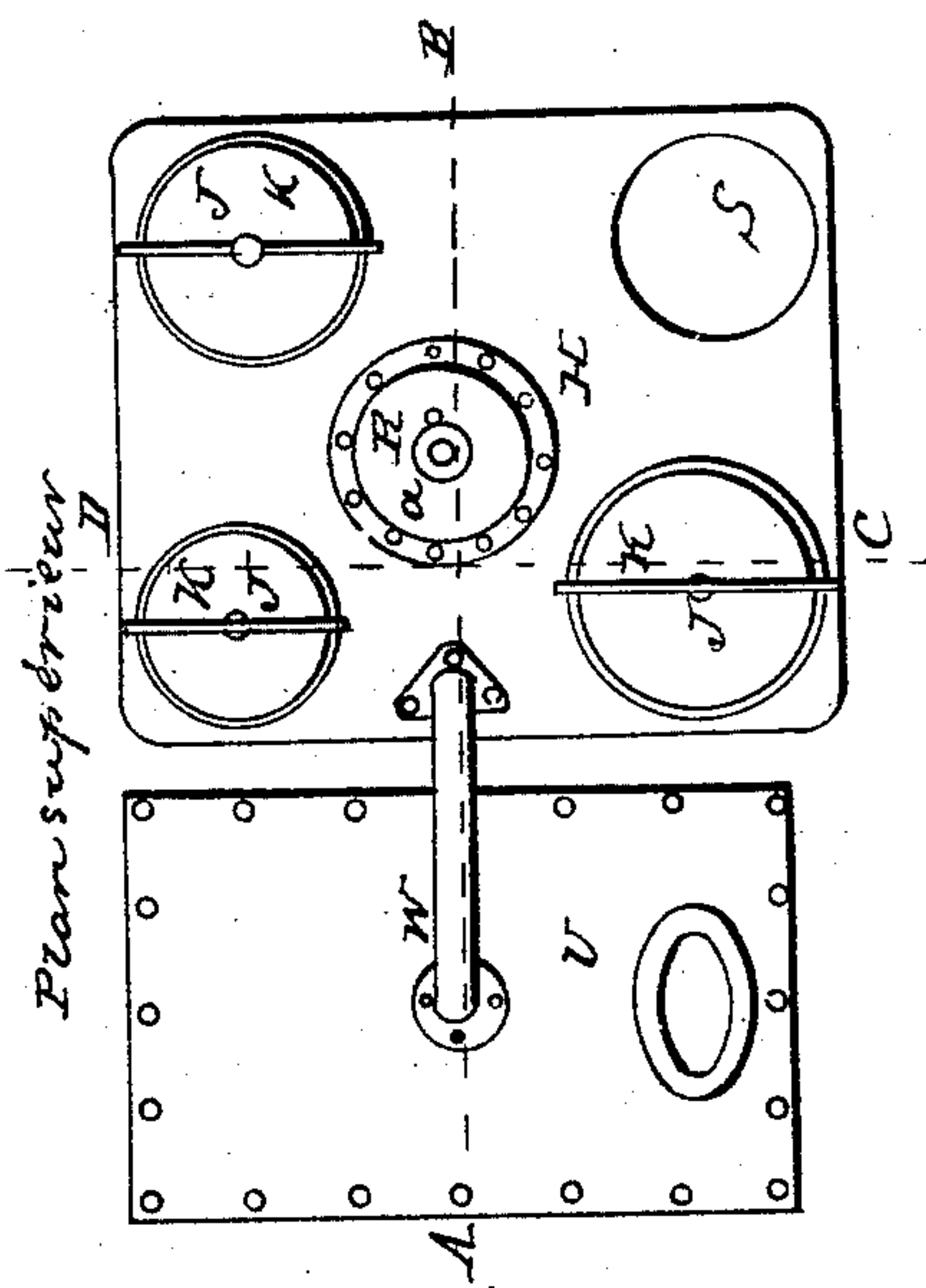
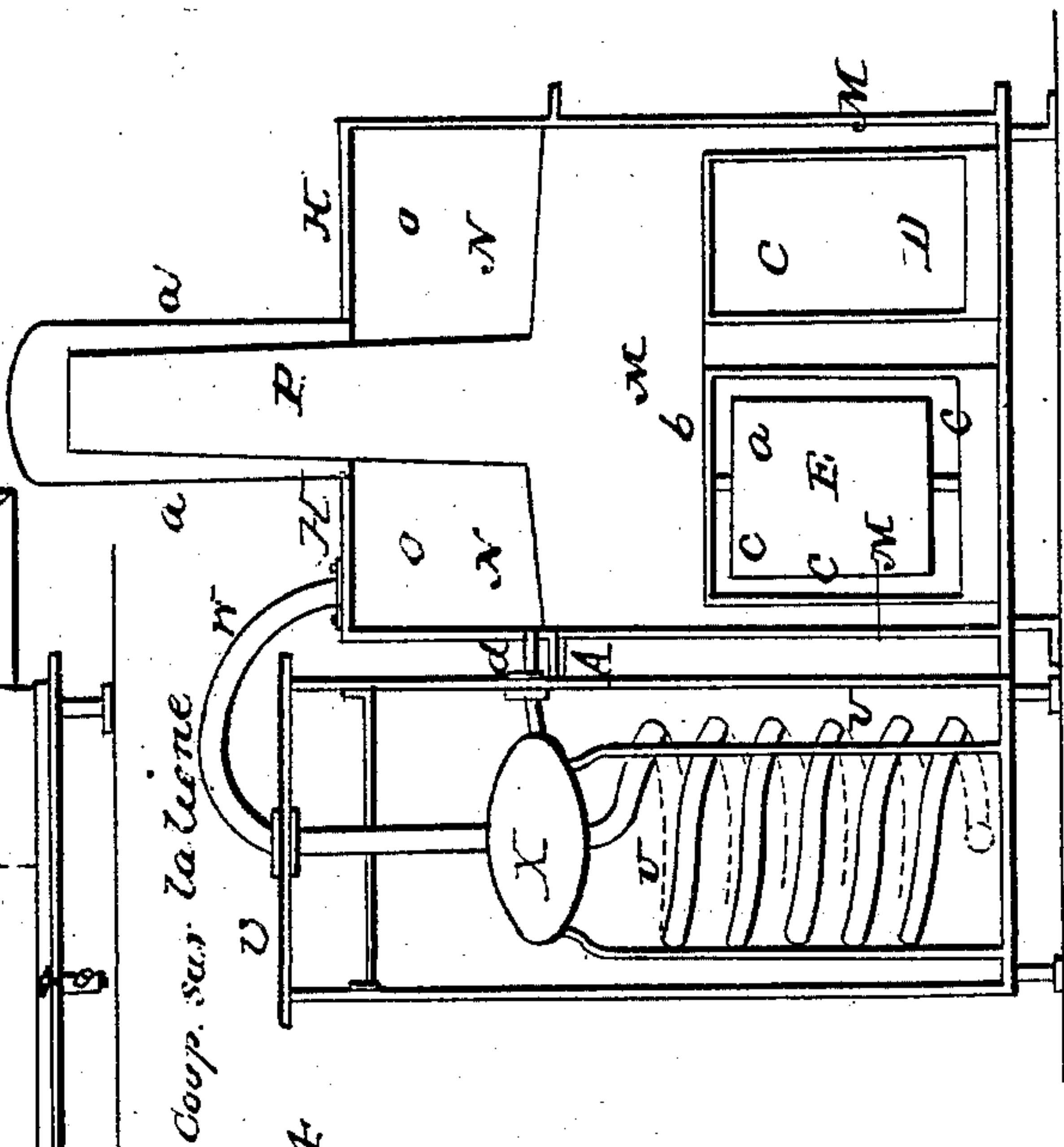
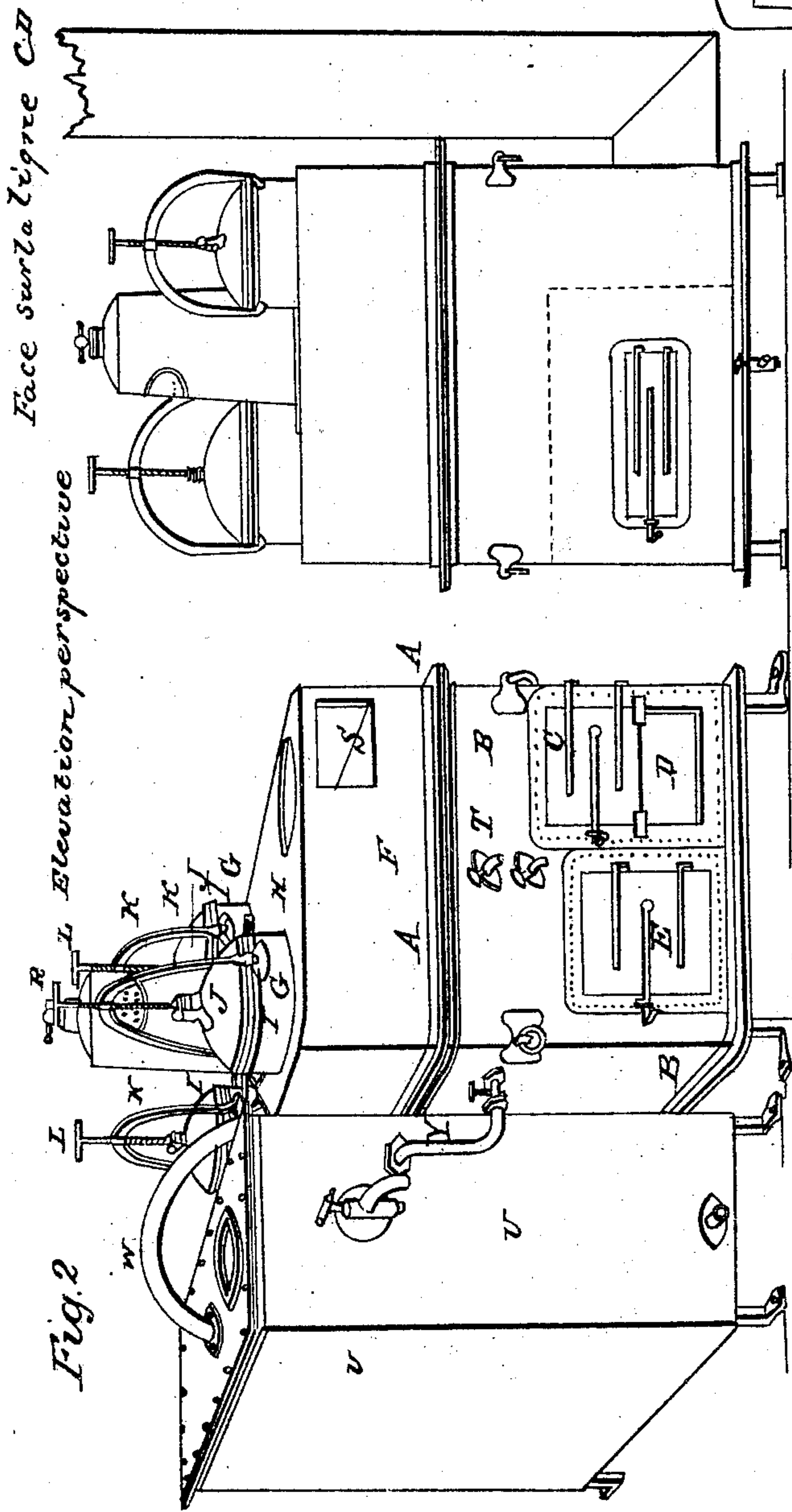


M. ROCHER.
Fresh Water Still.

No. 2,232.

Patented Aug. 28, 1841.



UNITED STATES PATENT OFFICE.

MICHEL ROCHER, OF NANTES, FRANCE.

IMPROVEMENT IN CABOOSES FOR ADAPTING THEM TO THE DISTILLATION OF SALT-WATER.

Specification forming part of Letters Patent No. 2,232, dated August 28, 1841.

To all whom it may concern:

Be it known that I, MICHEL ROCHER, a French citizen, now residing at Nantes, in the Kingdom of France, have invented certain improvements in the manner of constructing the caboose or cooking-stove of the kind generally employed on board of vessels, by which improvements I adapt it to the purpose of producing fresh water by the distillation of sea-water, and which I effect by the aid of the fire employed for the purpose of cooking; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawings, Figure 1 is a perspective view of the caboose or cooking apparatus, and Fig. 2, which is connected with it by means of certain tubes, to be presently described, is the refrigerator or condenser by which the steam arising from the boiling sea-water is brought into the liquid state. Fig. 3 is a plan or top view of the cooking-stove and refrigerator. Fig. 4 is a vertical section through the line A B of Fig. 3.

The caboose or cooking apparatus I divide into two chambers or compartments, an upper and a lower, which compartments are united together by flanges, as seen at A A, Figs. 1 and 4. The lower compartment contains the furnace or fire-place, the oven, and a space surrounding and above the fire-place and oven for receiving the salt-water which is to be distilled. The upper compartment constitutes a steam-chamber, within which the lower portion of the boilers, stew-pans, or other cooking utensils are received, and are heated by the contained steam. From this upper compartment a pipe leads to the refrigerator for the purpose of conveying the steam thereto.

B B, Fig. 1, is the lower compartment; C, the furnace-door; D, the ash-pit, and E the door opening into the oven.

F is the exterior of the upper compartment or steam-chamber.

G G are collars or rims attached to and rising from the top H of the steam-chamber. These collars embrace the boilers or stew-pans, which are made to fit closely into them, and the lower portions of which should descend nearly to the bottom of the steam-chamber. I I are the top edges, and J J the lids, of these boilers.

K K are bails, through which pass screws L L, which are made to press upon the cen-

ters of the boiler-lids, so as to hold them and the boilers down, and thus prevent their rising by the action of the steam.

In the section, Fig. 4, C is the furnace, and E the oven.

M M M is the water-space surrounding the furnace and oven, and extending above them to the bottom N N of the steam-chamber O O. The water contained in the space M M does not come into contact with the plates *a a a*, which constitute the sides of the oven, there being an exterior plate, *b b b*, between which and *a a* there is a flue-space, *c c c*, for the circulation of heated air. The bottom N N of the steam-chamber forms a diaphragm between it and the lower compartment; but it is perforated at its center to receive the steam-pipe P, through which the steam from the boiling water is to pass on its way to the steam-chamber.

G is a cap, which passes over the steam-pipe P, and which serves to conduct the steam from it down into the chamber O O. This cap is firmly riveted to the top H of the steam-chamber. An opening may be made in the top of this cap, if desired, and secured by a screw-plug, R.

The compartment S in Fig. 1 is for the reception of a chafing-dish or soup-pot, and has no connection whatever with my improvements.

T T are cocks, which may be inserted in the lower compartment for ascertaining the height of the water. There must also be a cock, which may be placed in any convenient situation at the bottom of the lower compartment, for discharging the whole of the water before it begins to deposit its salt.

U, Figs. 2 and 4, is the refrigerator, which contains a still-worm, V V. This worm and the steam-chamber are connected together by the curved tube W, said tube leading into the hollow worm-head X. The operation of this part of the apparatus, being well known, does not require to be described.

Y, Fig. 2, is a tube regulated by a cock, by means of which the heated water from the refrigerator may be discharged into the water-compartment of the caboose. Other cocks may also be employed for drawing off the water from the refrigerator.

Z is the termination of the worm for discharging the distilled water.

In the commencement of the operation of cooking, and when the boilers or stew-pans are

at a temperature below that of the boiling-point, steam will be condensed within the steam-chamber, and it becomes necessary to discharge the water so produced. For this purpose I pass a tube, *d d*, from the lower part of the steam-chamber into the worm-head X within the refrigerator. This water thus enters the worm along with the steam, and its accumulation in the steam-chamber is prevented.

I am aware that it has been previously attempted to produce fresh water by the distillation of sea-water in a manner bearing some resemblance to that which I have described—that is to say, by means of the heat generated in the furnace of a caboose or cooking apparatus; but such efforts have been hitherto unsuccessful, the quantity of water obtained having been so small as to be considered a complete failure.

The difference between my apparatus and that heretofore essayed is in the division of the caboose into two compartments by means of the diaphragm or bottom N N of the steam-chamber. Without this provision the water that is produced by the condensation of steam in the upper part of the cooking apparatus, as by the boiler when at a low temperature, and by the action of the external air, falls back again into the water in the boiler and retards to a great extent the operation of distillation, while in my apparatus the water so produced is added to that which is condensed in the worm, and is thus rendered available.

I will here state, in proof of the efficiency of my apparatus, that I have obtained one hundred and twenty pounds of fresh water by the combustion of somewhat less than twelve pounds of coal.

It will be readily perceived that the respective parts of my apparatus may admit of considerable variation in its construction and arrangement without changing the principle upon which its successful application is dependent; and I do not, therefore, intend to limit myself to the precise form and arrangement herein designated, but to vary these as I may think proper, while I attain the same end by means substantially the same.

What I claim as constituting my invention, and which I desire to secure by Letter Patent, is—

The dividing of the caboose or cooking apparatus into two compartments, the uppermost of which is to constitute a steam-chamber which is separated from the lower compartment or boiler by the diaphragm or bottom N N, the two parts being combined with each other and with the condenser substantially in the manner and for the purpose herein set forth.

ROCHER.

Witnesses:

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