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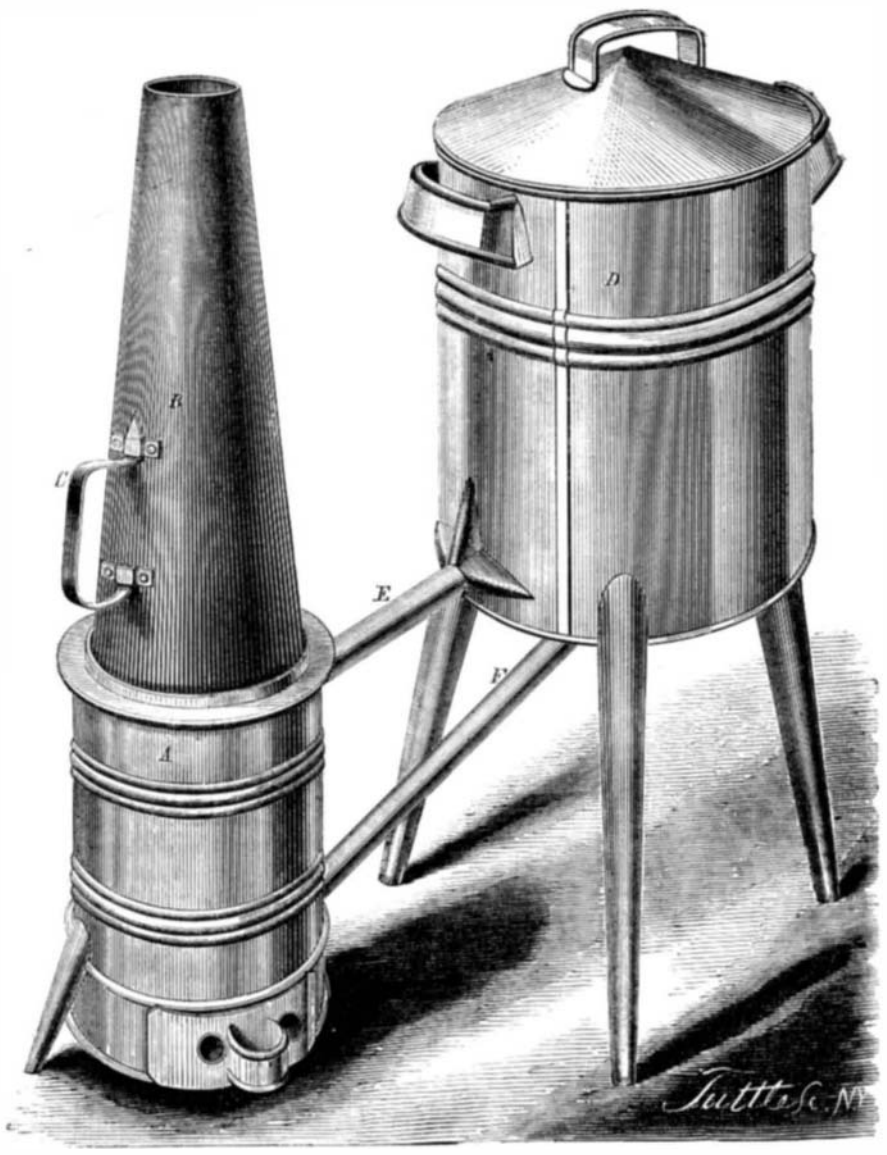
Portable Distilling and Steaming Apparatus.

This is a cheap, handy, and portable apparatus for household purposes, capable of being modified to meet all the ordinary exigencies of domestic cookery, except baking. For steaming vegetables, etc., it seems to be specially adapted and also for any process of inspissation as the preparation of sirups, jams, preserves, etc., or the extraction of the volatile essences from vegetable or animal substances. It would seem, also, as though it could be easily adapted for purposes of distillation, a fact that might be taken advantage of to the detriment of the Internal Revenue Department.

The chamber, A, is double, having an inner receptacle—a furnace—for charcoal, resting on a grate at the bottom, and surrounded by an annular water chamber. At the top of this chamber is a funnel, B, which is removable by means of the handle, C, and can be continued to a chimney, if desirable, to conduct away the smoke. The boiler, D, is partially filled with water, or any other fluid desired, to a point above the opening of the pipe, E, which, of course, fills the annular space surroun ling the furnace in the chamber, A. A second pipe, F, leads from the center of the bottom of the boiler, D, back to the annular space surrounding the furnace, returning the cooler water back to the bottom of the furnace, thus keeping up a continuous circulation. If the apparatus is to be used as a still, a pipe can be affixed to the upper portion of the boiler and conducted through a cooling medium to a reservoir for the reception of the products of combustion. It can be used for steaming food for stock or for the family, boiling water for tea or coffee, and, by an addition to the furnace, for heating sad irons, etc.

Patented May 7, 1867. For state and county rights address C. Daubert Louisville, Ky.



DAUBERT'S PORTABLE STILL AND WATER-HEATER.

A Veteran Soldier's Elixir.

We were requested to step down stairs to the street door, the other day, to confer with an old man who sent word he was too infirm to come up into our office. We found our visitor to be a tall keen-eyed healthy-looking man, robust and soldierly in appearance, by name A. Rullman, residence 643 Fourth avenue, New York city, by birth a Frenchman. He stated that he was 84 years of age and had served fifteen years in the French army under the first Napoleon, having been in the celebrated campaigns of Spain, Italy, and Russia. His health, he said, was capital; but his legs gave him some trouble. His hand writing is excellent. This old veteran has applied for a patent for a medical compound discovered by him many years ago, which he states is a specific for all troubles of the stomach. He expects that his elixir will keep him alive for a generation more, at least; and, to judge from his looks, he is not far out of the way in his calculations.

SETTING BOILERS---HOW TO SET A HORIZONTAL STATIONARY BOILER.

The subject of boiler setting has not received the attention it deserves from engineers and mechanics, the method in which the work is performed and sometimes its plan, being left mostly, if not entirely, to the bricklayers. We give herewith an illustration and a description, by Mr. F. W. Bacon, 84 John street, New York city—an engineer of large experience—which will be found valuable by many of our readers and will answer repeated requests for such information, although some engineers may differ from him in some of the proportions and details.

The objects to be attained in properly setting a boiler are, economy of fuel, durability of the furnace and boiler, and an immunity from burning, bursting, or exploding the boiler. The cardinal points are:

1st, A good and sufficient chimney located out of the influence of counter currents caused by higher buildings or hills in the immediate vicinity; 2d, The boiler, if flue or tubular, to have sufficient vent as compared with the grate surface; 3d, The boiler so set that there shall be sufficient vent over the bridgewalls to admit of a free draft; 4th, That the furnace shall be so arranged as to burn the gases and arrest the sparks and dust before they enter the flues or tubes. The chimney for the boiler we shall adopt for our illustration, should have 16 feet of grate surface, should be 18 inches square inside, or if round not less than 20 inches diameter, smooth inside, and should be plastered. Its hight not less than 40 feet. If more than 60 feet high it should be larger. It should be carried above the surrounding buildings, at any rate.

If there should be a duct from the boiler to the chimney it should be larger than the chimney. Should there be angles in the duct they should be made circular and larger than the straight line. The vent of the boiler, supposing it to be tubular, should have tubes 3 inches diameter by 10 feet long: they should not be less in diameter nor longer to insure a good draft. These tubes should collectively have an area of 320 square inches, which will give 20 square inches to each square foot of grate. The vent or aperture between the bridgewalls, A. B. C. and boiler should be for the first, 400 square inches, the second, 350 square inches; the third, 320 square inches.

The faces of the bridgewalls should be made on an angle as represented in the engraving for the purpose of distributing the concentrated heat over a larger surface of the boiler, also that the heat radiated from them shall go to the boiler instead of being thrown forward against the furnace front and doors. The spaces, D, serve to give room for the products of combustion to expand, thereby moving slower, giving an opportunity for the particles of unconsumed fuel to fall and not pass into the tubes or flues, also when they strike the bridgewall to be rotated and mixed, the hotter with the cooler. E are doors to clear the deposits collected in D.

The rear wall, F, should also have an inclined face for the same purpose, and to facilitate the change of the current. This space should be large, not short of 18 inches, better, where there there is room for it, 24 inches, to give ample room for turning the direction of the current and that the heat may not be so concentrated as to injure the angle of the boiler. The furnace we have said should have about 16 square feet of grate, say its width is 3 feet 6 inches by 4 feet 6 inches long. The object of making it narrower than the diameter of the boiler is to make its sides inclined. Every practised engineer knows that when the walls of his furnace are vertical the action of the intense heat induces the fire bricks to fall in long before they are worn out. Now it will be seen that by giving an outward inclination to these walls they cannot fall in and will stay in their places until worn out. This, though an important consideration, is not the greatest advantage gained by it. It is a well known law that heat is radiated at right angles to the radiating surface—hence if the walls of the furnace are perpendicular the heat is thrown on the opposite wall, "each increasing each," until they are destroyed. Incline the walls and the radiated heat strikes the boiler and is utilized. In laying up these walls the bricks should not be "battered back" but laid on the proper inclination to give a plane surface.

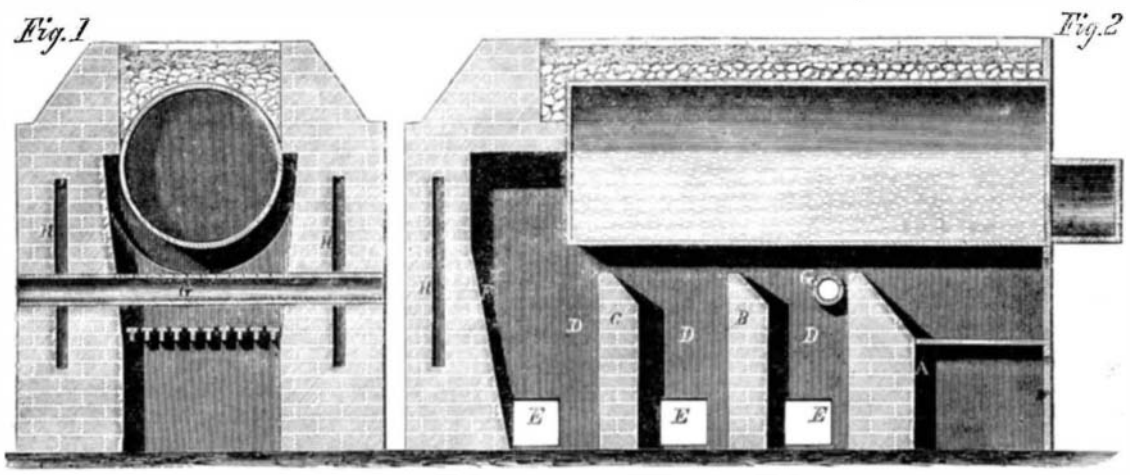
To burn the gases is an important consideration, and can be accomplished with but little expense and great economy. All smoke issuing from a furnace is fuel wasted; it can be consumed, thereby relieving the neighborhood of a nuisance and saving fuel. This can be accomplished by properly admitting air at the bridgewall where the products of combustion are yet at a sufficient temperature to ignite. The mode we have practiced is, to put a cast-iron pipe G, of 6 inches diameter across directly behind the first bridgewall perforated with holes 3-16 of an inch in diameter whose united area shall be equal to 1½ square inches to each square foot of grate surface. This pipe to be open at each end to the air. The object of the small holes is the same as that of the argand burner to insure an intimate mixture of atmospheric air with the gases, that they may be consumed. In case that the boiler should be of the class known as the fire box kind, the pipe cannot be inserted without difficulty. In this case the air can be admitted through apertures in the furnace door into a box fastened to the door perforated as above.

It will be found that the above fixture will be of great advantage particularly where bituminous coal, wood, or shavings and saw dust are burned. Air spaces should be left, as at H, in the side and rear walls the entire length, and sealed tight.

It will be noticed that the side and rear walls are carried above the top of the boiler. This is to hold ashes or some other non-conducting material to protect the otherwise exposed surface from condensation. It is known that owing to the difference in expansion between the boiler and brick-work large spaces will soon show themselves, thereby letting in air where it is not wanted, cooling the products of combustion and reducing the draft.

Now if we deposit a few pebbles along the line where the cracks will show themselves, and then fill in above with ashes, we will have, under any circumstances, tight joints.

The use of the pebbles is to prevent the ashes from going through the cracks. It will be seen that we have taken as



PLAN FOR SETTING HORIZONTAL BOILERS.

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