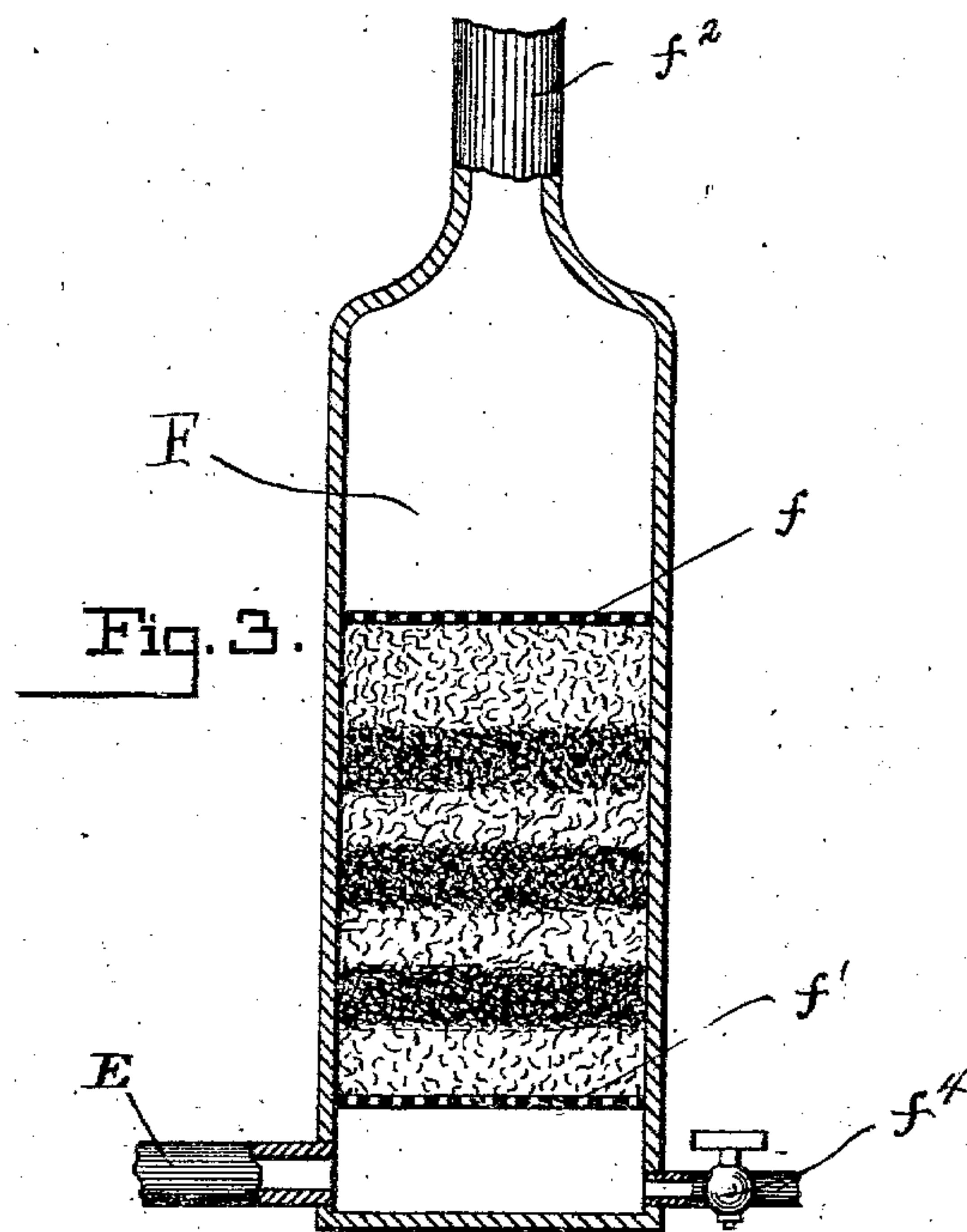
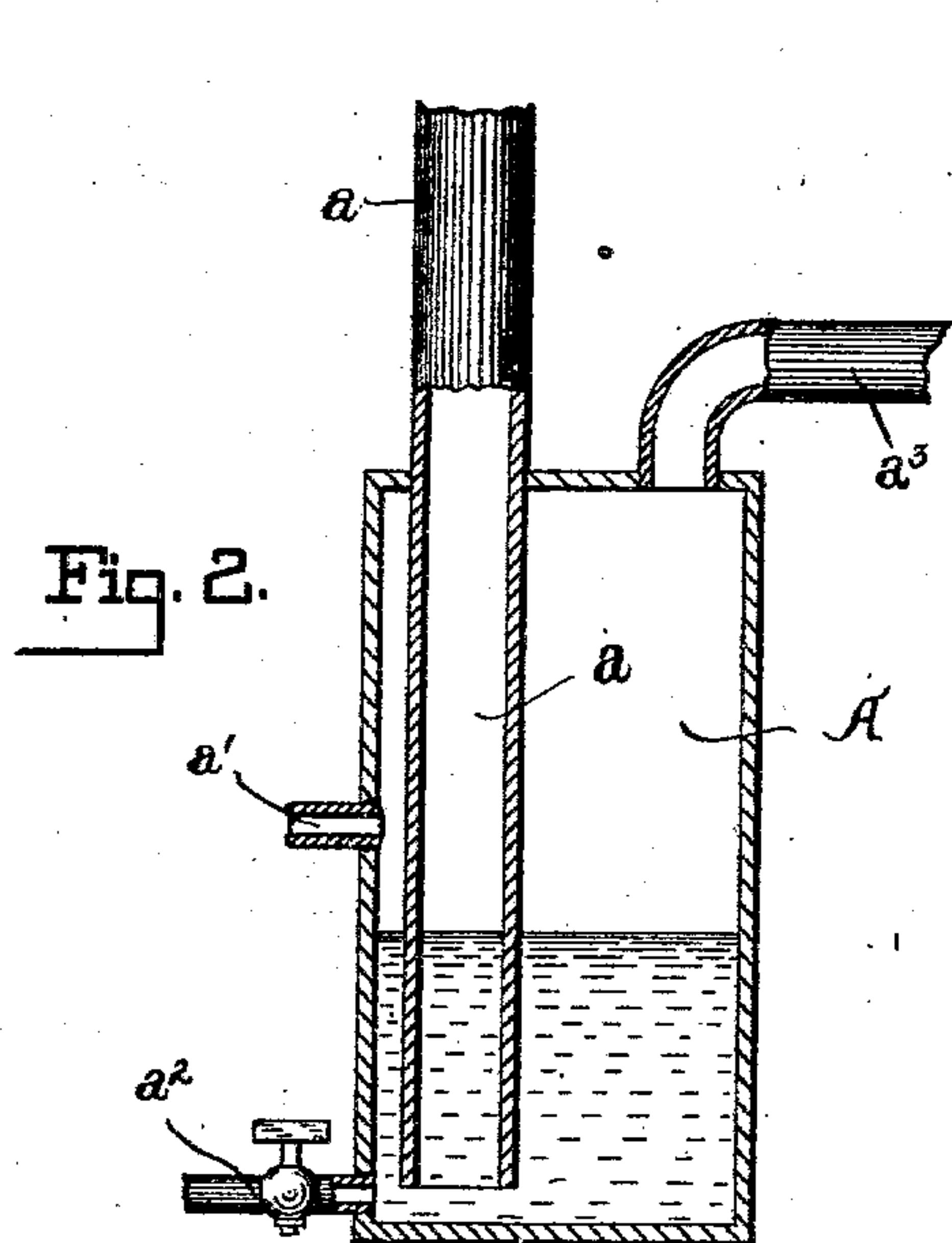
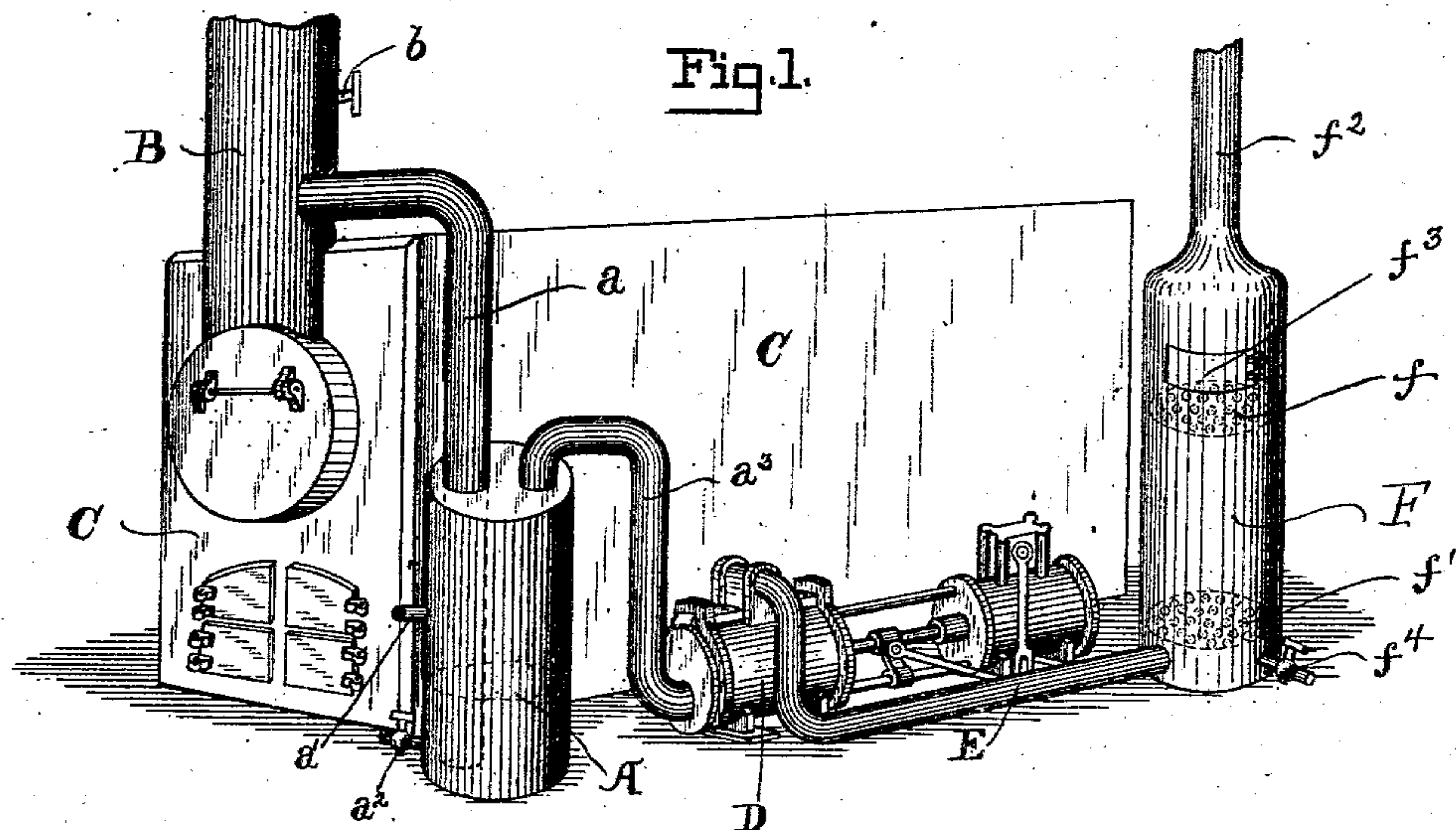


(No Model.)

D. S. & P. J. JUNE.
SMOKE BLEACHER.

No. 468,408.

Patented Feb. 9, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

DANIEL S. JUNE AND PETER J. JUNE, OF FREMONT, OHIO.

SMOKE-BLEACHER.

SPECIFICATION forming part of Letters Patent No. 468,408, dated February 9, 1892.

Application filed April 29 1891. Serial No. 391,006. (No model.)

To all whom it may concern:

Be it known that we, DANIEL S. JUNE and PETER J. JUNE, citizens of the United States, residing at Fremont, in the county of Sandusky and State of Ohio, have invented a new and useful Smoke-Bleacher, of which the following is a specification.

Our invention relates to an improved method and apparatus for bleaching smoke that arises from boiler-furnaces or any smoke-producing nuisance; and it has for its object to provide a simple and effective apparatus that will bleach the smoke and conduct it into the atmosphere clean and colorless, retaining sparks or large incandescent particles of carbon which might cause conflagrations, and avoiding the unclean and disagreeable effects produced by the escape of the smoke directly from the furnace, and also to combine with its function as a smoke-bleacher an apparatus that can be used for diminishing or increasing the draft of the boiler or furnace at will; and it consists of an apparatus connected with the smoke-stack of the smoke-producer, consisting of an air-pump, cleaning and bleaching chambers provided with details of construction hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a perspective view of our improved cleaning and bleaching apparatus connected with the smoke-stack of an ordinary boiler-furnace. Fig. 2 is a vertical section of the smoke-cleaning chamber provided with inlet and outlet pipes. Fig. 3 is a similar view of the bleaching-chamber.

Referring to the accompanying drawings by letter, A designates an air-tight tank filled with water to about one-fourth of its capacity, and is provided with a pipe a extending from near the bottom of the same beneath the water, up through the top and communicating with the smoke-stack B of the ordinary steam-boiler furnace C. Directly above the entrance of pipe a in said smoke-stack the same is provided with a damper b for directing the smoke emanating from the furnace into the chamber A down to the surface of the water within the lower end of the pipe a , through which it is designed to be forced and

be cooled and cleansed from all cinders and heavy carbon. The chamber A is provided with an ordinary feed-inlet a' and blow-off cock a^2 , by which the water may be placed within the same and afterward drawn off when filled with the cinders and heavy carbon from the smoke. A suction-pipe a^3 communicates with the top of the cleaning and cooling chamber and connects with an air-pump D, which, when in operation, creates a partial vacuum in chamber A above the water, and thereby draws the smoke passing down the pipe a through the water, and thus subjects it to its first stage of purification.

From the air-pump D a pipe E connects the same with a bleaching-chamber F, through which the smoke is designed to be forced, and finally conducted into the atmosphere clean and colorless. The chamber F is provided with alternate layers of crushed charcoal and asbestos, preferably; but any other suitable filtering material may also be used, the same being held in place within the filtering-chamber between a top and bottom perforated plate f and f' , which prevent any of the filtering material from being blown out with the smoke, while at the same time giving a free passage through the material and chamber and out through the escape-pipe f^2 at the top. A trap or door f^3 in the upper side of the filtering-chamber provides access to the interior of the same in order to fill it with the filtering-materials, while at the bottom of the chamber is a blow-off cock f^4 , that is used for blowing out what sediment may have collected in the bottom of the tank.

The operation of our invention can be now readily seen from the foregoing. The smoke in the smoke-stack extending up from the furnace is directed by the damper in the smoke-stack into the chamber A through the pipe a , where it passes through the water in the bottom of said chamber by the action of the air-pump E causing a partial vacuum in the upper part of the chamber, the water, as said, removing the heavier particles of carbon and cinders. Being sucked into the air-pump the smoke is forced from the same through layers of filtering material in a bleaching-tank, and finally passed into the air in a clean and colorless condition. By increasing or diminishing the action of the air-pump the draft

in the furnace may be regulated and accordingly increased or diminished, thus giving the apparatus a double function.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

In an apparatus for purifying and bleaching smoke, the combination of a cooling and cleaning chamber adapted to be partly filled with water, a conducting-tube connected with the smoke-stack of the furnace and depending within said chamber to within a short distance of the bottom thereof, an air-pump, a pipe connecting said air-pump with the top of said chamber, a filtering-chamber having

a top escape-pipe and top and bottom perforated plates, successive strata of filtering material interposed between said plates, and a pipe connecting the lower end of said filtering-chamber with said air-pump, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

DANIEL S. JUNE.
PETER J. JUNE.

Witnesses:

JAMES H. FOWLER,
J. B. B. DICKINSON.