(No Model.)

B. ROBERTS.

SMOKE CONDENSER.

No. 382,665. Patented May 8, 1888.

Fig. 1.

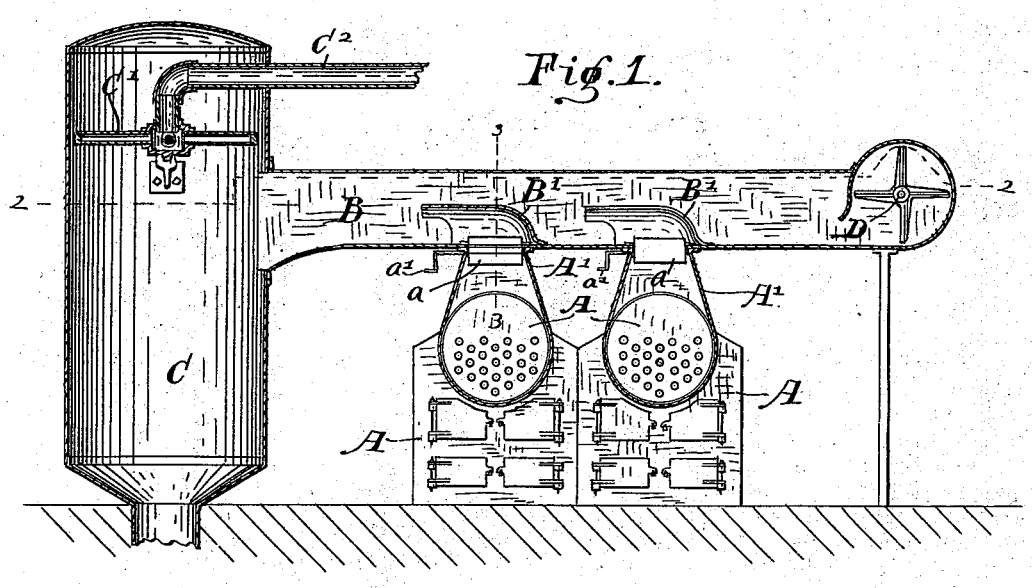


Fig. 2.

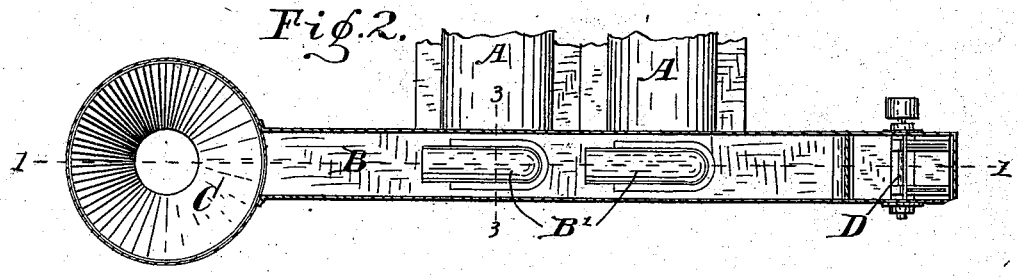


Fig. 3.

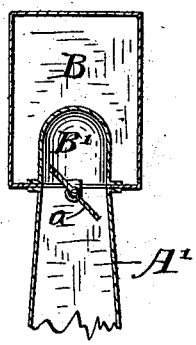
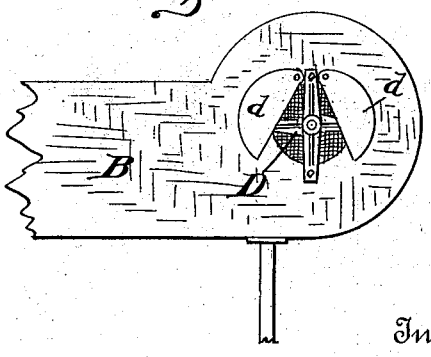


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

BENJAMIN ROBERTS, OF INDIANAPOLIS, INDIANA.

SMOKE-CONDENSER.

SPECIFICATION forming part of Letters Patent No. 382,665, dated May 8, 1888.

Application filed December 13, 1887. Serial No. 257,812. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN ROBERTS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Smoke-Condensers, of which the following is a specification.

My present invention consists in various improvements in the construction of smoke-condensers, relating especially to the smoke-condensers shown in my Letters Patent No. 360,052, dated March 29, 1887, and No. 371,365, dated October 11, 1887, by the use of which said condenser is rendered more efficient and its operation more perfect, as will be hereinafter more particularly set forth.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a central vertical section of the smoke-condenser and its adjacent parts arranged in position in connection with a furnace and boiler, on the dotted line 1 1 in Fig. 2; Fig. 2, a horizontal section, looking downwardly from the dotted line 2 2 in Fig. 1; Fig. 3, a cross-section on the dotted line 3 3 in Fig. 1, and Fig. 4 a view showing the fan-casing on the rear end of the breeching in end elevation.

In said drawings, the portions marked A represent a furnace and boiler; B, the breeching or conduit leading from said furnace to the condenser; C, said condenser, and D a blast-fan mounted in said breeching.

The furnace and boiler A are of any ordinary construction, and the smoke-condenser C is the identical smoke-condenser shown in my Letters Patent No. 371,365, above referred to, and these several parts, therefore, need no special description, except incidentally in describing the particular features constituting my present invention.

The breeching or conduit B is substantially similar to that shown in my Letters Patent above referred to, and is connected to the furnace by a smoke-chamber, A′, in the throat of which is mounted an ordinary damper, *a*, arranged to be operated by a crank-shaft, *a′*, as will be readily understood. Over the mouth of the smoke-chamber I arrange within the breeching B a hood, B′, with an open front end and a closed rear end, as shown, the top of said hood being extended some distance beyond said mouth, and its sides extended down, thus completely inclosing said mouth, except at the front. On the rear end of the breeching I form or attach a blast-fan casing, the entrance from which into said breeching is arranged near its bottom. Within said casing I mount an ordinary blast-fan, D, arranged to be driven by any convenient power. The casing is provided with the usual air-inlet holes in its ends, and with adjustable cut-off valves *d*, to regulate the quantity of air admitted.

The operation of my said invention is as follows: The several parts being put into active operation, the blast from the blast-fan D operates in passing over the hoods B′—the rear portions of which are formed slanting from the floor of the breeching or conduit to their tops—toward the condenser to create a strong draft, which may be regulated by the cut-off valves *d*, and the smoke coming from the furnace is directed by said hoods forward toward the condenser in a line with the draft thus created, and at the same time any of said draft is prevented from passing down into the smoke-chambers and interfering with the draft of the furnaces. The smoke intermingling with the atmosphere from outside, thus introduced by the blast-fan, immediately upon its entrance into the conduit, is partially condensed or absorbed into said air in the same manner that it would be if allowed to escape to the outer air; or, in other words, the carbonic gases are taken up or diluted by the natural atmosphere, with which they are thus brought into contact, and then the whole passes into the condenser C, where it is met with a shower of water from the sprinkling device C′, which is connected with the water-supply pipe C^2, and thus thoroughly condensed or absorbed and carried off through the outlet at the bottom of said condenser into the sewer or other conduit, in the same manner as described in my Letters Patent above mentioned.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a furnace, a smoke-

condenser, a conduit arranged to conduct the smoke from said furnace to said condenser, and means for introducing a blast of air from the outside into the apparatus behind the smoke-entrance, substantially as shown and described.

2. The combination of a smoke-condenser, a furnace, a breeching or conduit connecting them, and a blast-fan arranged at the rear end of said conduit behind said furnace, substantially as set forth.

3. The combination of the furnace, condenser, conduit connecting them, a blast-fan arranged at the rear end of said conduit, and a hood arranged within said conduit over the smoke-entrance thereto, substantially as set forth.

4. The combination of the furnace, the condenser, the conduit or breeching connecting them, a damper arranged in the path of the smoke, an imperforate hood over the smoke-entrance to the conduit, and the air-blast, substantially as set forth.

5. The combination of the furnace, condenser, conduit connecting said furnace and condenser, an imperforate hood arranged within said conduit over the smoke-entrance thereto, and means for introducing a blast of air behind said smoke-entrance, substantially as described, and for the purposes specified.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 7th day of December, A. D. 1887.

BENJAMIN ROBERTS. [L. S.]

Witnesses:
E. W. BRADFORD,
CHARLES L. THURBER.