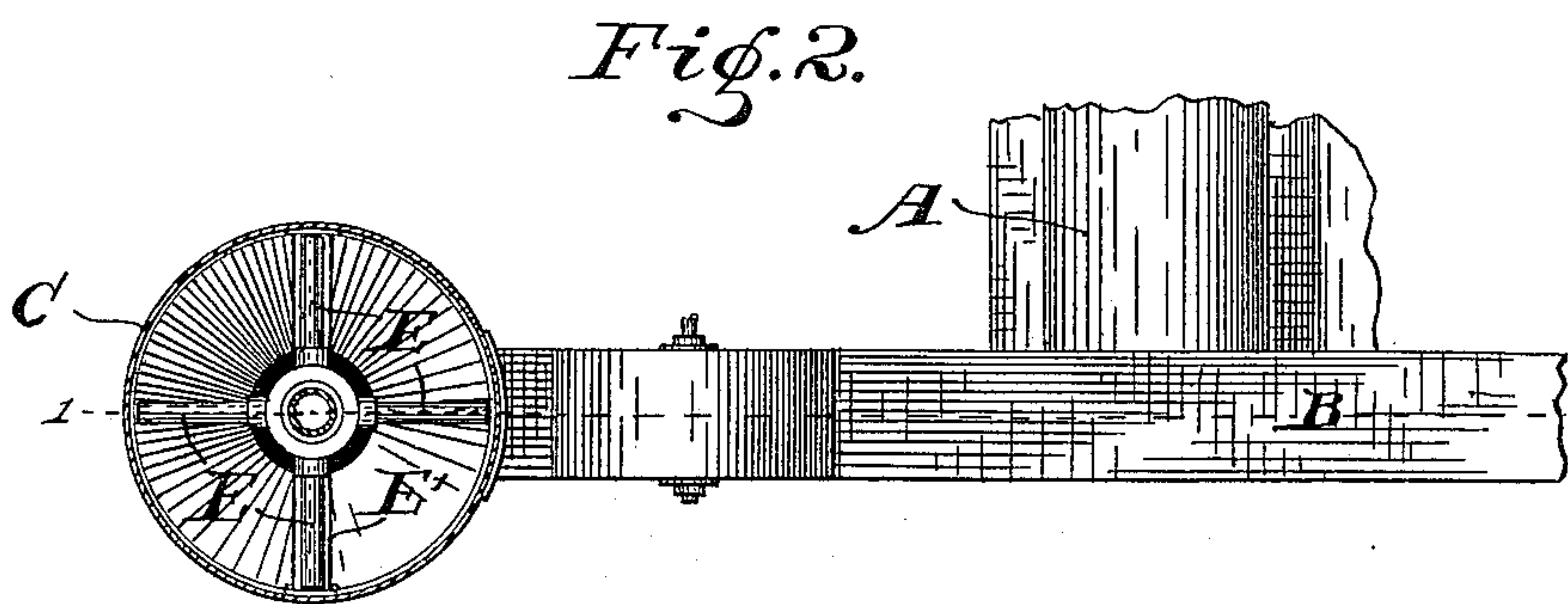
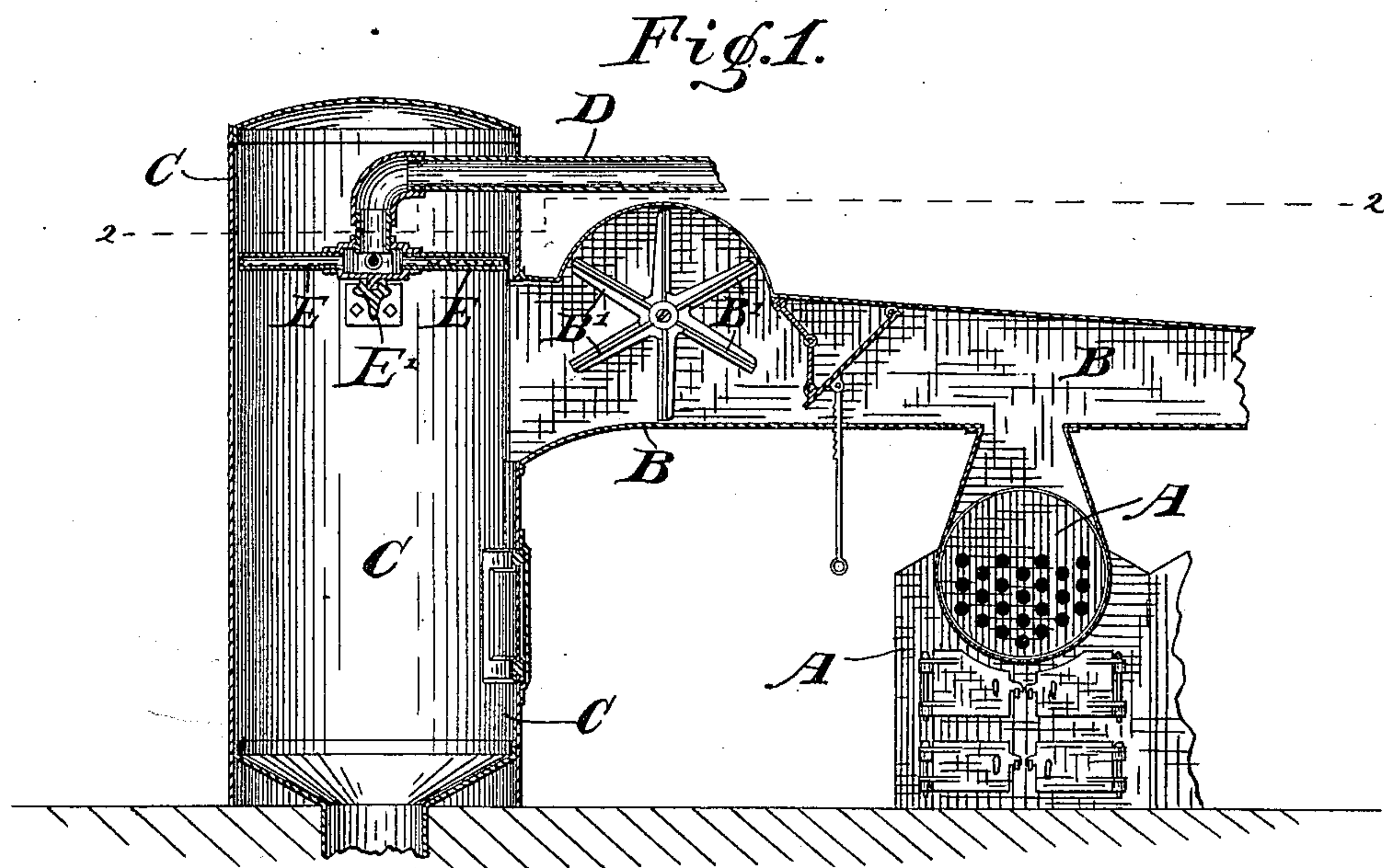


(No Model.)

B. ROBERTS.
SMOKE CONDENSER.

No. 371,365.

Patented Oct. 11, 1887.



WITNESSES.

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BENJAMIN ROBERTS, OF INDIANAPOLIS, INDIANA.

SMOKE-CONDENSER.

SPECIFICATION forming part of Letters Patent No. 371,365, dated October 11, 1887.

Application filed March 18, 1887. Ser'al No. 231,363. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN ROBERTS, of the city of Indianapolis, 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 certain improvements upon that shown and described in my application Serial No. 217,773, filed November 2, 1886, and in that Serial No. 230,736, filed March 12, 1887, whereby, instead of the several sprinkling devices shown in said applications, I am enabled to use a single sprinkling device, consisting of arms mounted upon a central hub and perforated, preferably upon one side, whereby by the force of the water issuing from said perforations said arms may be revolved, and the water thus thoroughly distributed throughout the entire interior of the condenser, as will be hereinafter more particularly described and claimed.

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 a smoke-condenser and adjacent parts, when it is arranged in position in connection with a furnace and boiler, on the dotted line 1 1 in Fig. 2; and Fig. 2 is a horizontal sectional view looking downwardly from the dotted line 2 2 in Fig. 1.

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, the body or casing of said condenser; D, the water-supply pipe; and E, the revolving hollow-armed spider, which is the feature of my present invention. Said several parts are all either of an ordinary and well-known construction, or are shown and described in my aforementioned application for Letters Patent, and, not being features of my present invention, will not be further described herein, except incidentally in describing the invention.

The revolving spider E consists of a number of hollow arms (four are shown) connected to a central hub mounted upon or connected to the inner end of the water supply pipe D. Said arms are preferably formed of ordinary pipe and should be each perforated upon one

side, so that the water issuing therefrom will cause them to revolve in a manner which will be readily understood. This, as will also be readily seen, distributes the water very thoroughly over the entire interior space of the condenser, and thus accomplishes by this single device what I have heretofore accomplished by a larger number of devices, and at the same time in a manner which is not at all expensive as compared with other constructions.

By a reference to Fig. 1 of the drawings it will be seen that this water-distributing device is arranged entirely above the opening through which the products of combustion enter the condenser from the breeching or conduit B, and thus the water issuing therefrom is precipitated upon all said products of combustion, and, forcing them down, assists to form a vacuum for the continued inflow of products of combustion.

I may and preferably do employ a cross-bar, E', which extends across the condenser directly underneath the revolving spider and the inner end of the water-supply pipe as a support, thereby securing greater stability to the structure.

The operation is as follows: The products of combustion are drawn from the furnace by the fan B' and forced into the condenser. They are there subjected to a thorough wetting from the spray or fine streams of water which issue from the revolving spider. The gases are thereby purified and the solids are wet and washed down to the bottom of the condenser, whence they run off with the water and are discharged into a sewer or other suitable place. The atmosphere of the neighborhood where the furnaces are located is thus freed from impurities, and all danger of fire from flying sparks is obviated.

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

1. In a smoke-condenser, a spider consisting of perforated hollow arms extending out from a central hub which is secured to or mounted upon the water supply pipe which extends into the condenser.

2. The combination, in a smoke-condenser, of a water-supply pipe, a spider consisting of hollow arms, and a central hub mounted and adapted to revolve on said pipe, said arms be-

ing perforated upon one side, and thus adapted to be operated by the force of the water issuing therefrom.

3. The combination of a furnace, a smoke-
5 condenser, a breeching or conduit leading from said furnace to said condenser, a water-supply pipe entering said condenser, and a series of perforated pipes connected with said water-supply pipe and located in said condenser
10 above the opening therein which communicates with the breeching or conduit, substantially as shown and described.

4. The combination of a furnace, a smoke-
condenser, a breeching or conduit leading from
15 said furnace to said condenser, a water supply

pipe entering the upper portion of said condenser and extending to a central point above the opening which leads from said conduit into said condenser, and a spider consisting of a series of radial perforated arms and a central
20 hub mounted upon the lower end of said water-supply pipe, substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this
25 14th day of March, A D. 1887.

BENJAMIN ROBERTS. [L. S.]

In presence of—

C. BRADFORD,

CHARLES L. THURBER.