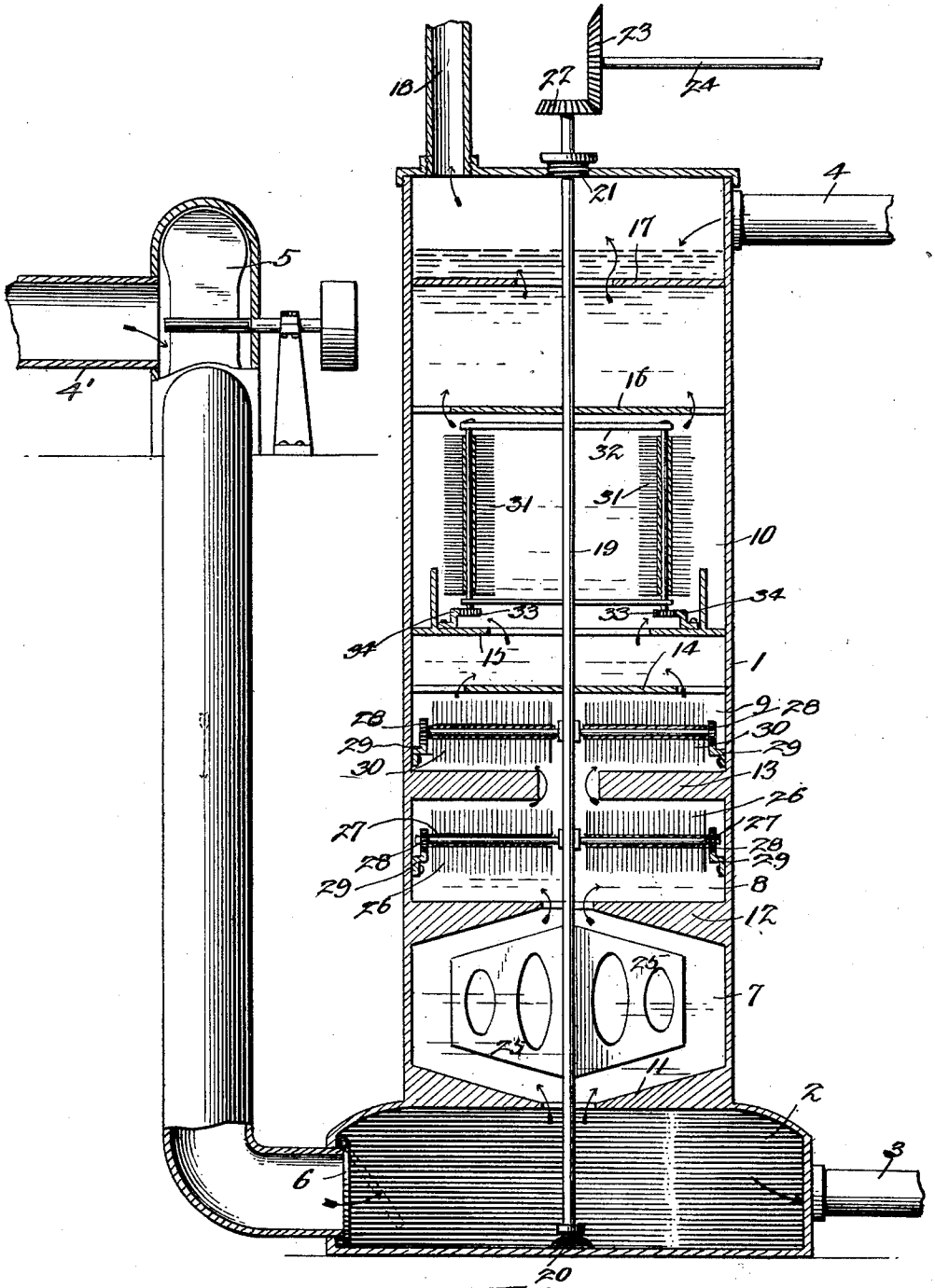
No. 697,069. Patented Apr. 8, 1902.

L. E. C. BRUSHABER.

APPARATUS FOR CONSUMING SMOKE.

(Application filed June 13, 1901.)

(No Model.)



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LOUIS E. C. BRUSHABER, OF BROOKLYN, NEW YORK.

APPARATUS FOR CONSUMING SMOKE.

SPECIFICATION forming part of Letters Patent No. 697,069, dated April 8, 1902.

Application filed June 13, 1901. Serial No. 64,446. (No model.)

To all whom it may concern:

Be it known that I, LOUIS E. C. BRUSHABER, a citizen of the United States, residing at Brooklyn, (Flatbush,) in the county of Kings and State of New York, have invented a new and useful Apparatus for Consuming Smoke, of which the following is a specification.

My invention is an improved apparatus for consuming smoke; and it consists in a novel arrangement of mechanism forcing the smoke through a body of water and agitating the said body of water to break up and destroy the globules of smoke and gases passing therethrough to insure the separation of the minute solid particles or products of combustion from the globules formed by the gaseous particles and secure the precipitation of the said minute solid particles in the body of water and prevent their escape with the gaseous products of combustion.

My invention further consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

The accompanying drawing is a vertical sectional view of an apparatus embodying my invention and for carrying the same into effect for consuming smoke to obviate the smoke nuisance and render innocuous the smoke from furnaces in which bituminous coal is consumed.

An upright tank 1, which is preferably cylindrical in form, may be supplied with water or other fluid, and preferably the water should be constantly circulated in the tank. As here shown, the tank has a chamber 2 at its lower end, from which leads a water-escape pipe 3, and the said tank is supplied near its upper end with a water-supply pipe 4. A tube 4′ leads the chimney of a furnace to the chamber 2 and is provided with a fan or blower 5 to force the smoke and products of combustion from the furnace into the said chamber 2. The said tube 4 has a valve 6, which is preferably located at the point where the said tube communicates with the said chamber.

The tank 1 is provided with a series of communicating chambers 7 8 9 10, of which there may be any suitable number, and the said chambers are separated by baffles 11 12 13 14 15, and baffles 16 and 17 may be provided also in the tank above the upper chamber 10. A pipe or flue 18 for the escape of gases leads from the upper end of the tank. In the latter is centrally disposed a vertical shaft 19. The lower end of the said shaft is stepped in a bearing 20 in the bottom of the chamber 2, and said shaft has a bearing 21 in the top of the tank. At the upper end of the said shaft 19 is a gear 22, which is engaged by a gear 23 on a power-shaft 24. Thereby shaft 19 may be rotated. Any suitable means may be employed for conveying power to and rotating the shaft 19 within the scope of my invention. The said shaft operates a series of agitating devices for agitating the water in the tank and breaking up the smoke and gas globules that pass therethrough. As here shown, the shaft 19 is provided with revoluble beater-wings 25, which operate in the chamber 7 and rotate in a horizontal plane. In the chamber 8 are revoluble beaters 26, which rotate both axially and orbitally. The said beaters 26 are journaled on arms 27, which radiate from the shaft 19 and are rotated axially by pinions 28 and a fixed crown-gear 29. Similar orbital and axially-revoluble beaters 30 operate in the chamber 9. In chamber 10 the revoluble beaters 31 are disposed vertically, are carried by radial arms 32, with which the shaft 19 is provided, and have pinions 33 at their lower ends, which engage a fixed annular gear 34 in the lower side of said chamber 10. I will have it understood, however, that I do not limit myself to any of the forms of the beaters or agitators herein shown and described, as any suitable means may within the scope of my invention be employed for agitating the water in the various chambers in the tank and breaking up the smoke and gas globules as the same pass through the body of water in the tank.

In the operation of my improved apparatus the smoke from the furnace is introduced to the chamber 2. The heavier and larger solid products of combustion are immediately precipitated in the water in the chamber 2. The globules formed by the gases, which globules contain minute solid particles, as soot and the like, which are the objectionable products of combustion and which it is the object of my invention to separate from the gaseous products, rise in the tank through the various chambers therein and describe a tortuous

course during their ascent in the tank, owing to the various baffles which separate the chambers in the tank, and during the ascent of the globules in the tank the same are by the agitators and the agitation of the water consequent upon the operation of the agitators or beaters broken up, thereby bringing the individual minute solid particles of the products of combustion into contact with the water in the tank and causing the same to become precipitated therein and separated from the gaseous products of combustion, which gaseous products are innocuous and escape from the upper end of the tank through the flue 18.

My improved apparatus obviates the smoke nuisance and enables bituminous coal to be used as fuel in steam and other furnaces in municipalities where antismoke laws are in force.

Having thus described my invention, I claim—

1. In a smoke-consumer, the combination of a liquid-containing tank, means for forcing smoke through the liquid contained therein, and means to break up the gaseous globules and separate the solid particles therefrom and cause precipitation thereof, comprising a plurality of agitators having a combined axial and orbital movement.

2. In a smoke-consumer, the combination of a liquid-containing tank, a pipe connecting therewith including a pressure-blower for forcing smoke through the liquid in the tank, a plurality of horizontally-disposed baffle-plates dividing the tank into communicating chambers, and agitators arranged within the said chambers, said agitators having combined axial and orbital movements.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LOUIS E. C. BRUSHABER.

Witnesses:

JERE LOTT,

OTTO T. SCHMITT.