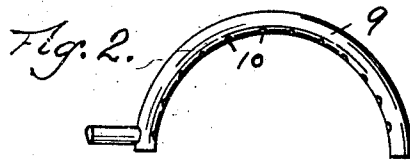
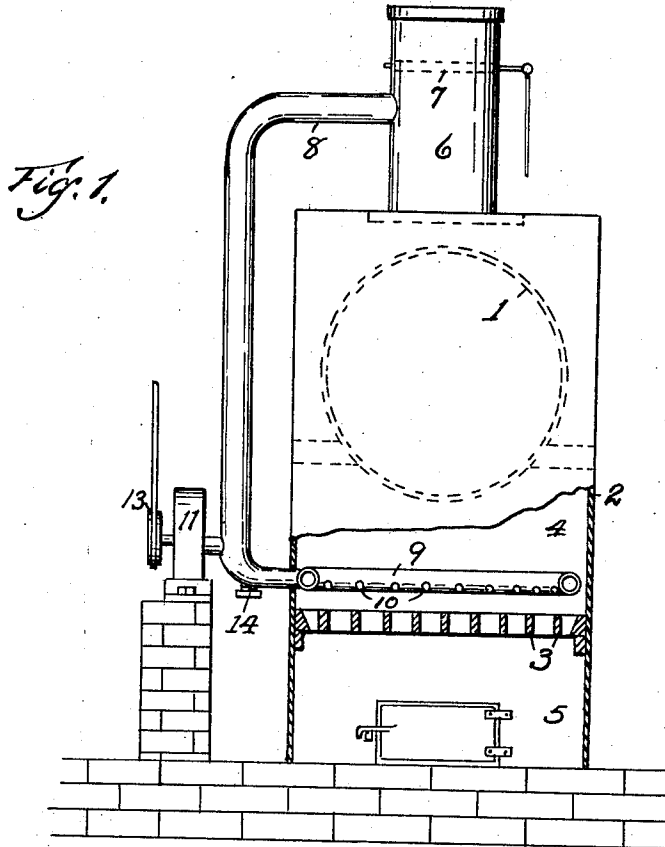


No. 830,560.

PATENTED SEPT. 11, 1906.

C. R. BLANKENBILLER.  
SMOKE CONSUMER.

APPLICATION FILED JAN. 29, 1906.



WITNESSES:

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BY

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# UNITED STATES PATENT OFFICE.

CHARLES R. BLANKENBILLER, OF READING, PENNSYLVANIA.

## SMOKE-CONSUMER.

No. 830,560.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed January 29, 1906. Serial No. 298,394.

*To all whom it may concern:*

Be it known that I, CHARLES R. BLANKENBILLER, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented new and useful Improvements in Smoke-Consumers, of which the following is a specification.

This invention relates to improvements in smoke-consumers; and the object of my invention is to provide a construction whereby the smoke is drawn from the stack at a point below the damper and conveyed to the fire-box, thus producing a circulating current of air and unconsumed particles of combustion. This current being continuous very nearly the entire body of unconsumed fuel contained in the smoke is consumed, the fact that there must be some outlet from the stack preventing complete combustion.

My invention is equally applicable to stationary or locomotive boilers and can also be applied to marine boilers, the necessary changes being such that it could be accomplished without departing from the spirit of my invention.

The invention is more fully described in the following specification and clearly illustrated in the accompanying drawings, in which—

Figure 1 shows my device applied to a stationary boiler, and Fig. 2 is a plan view of the spray-pipe.

The numeral 1 designates a boiler, and 2 the jacket or casing.

3 indicates the grate-bars.

4 indicates the fire-box.

5 indicates the ash-pit.

6 indicates the smoke-stack, and 7 indicates the damper. At a point below the damper I attach a return-pipe 8 to the stack 6, and this pipe leads to a point at the side of the casing 2 above the grate-bars. This pipe enters the fire-box, and to its end I secure a semi-circular spray-pipe 9. This pipe is formed with a series of perforations 10 at the lower inner side, so that the smoke emitted therefrom will be thrown toward the center of the fire. At a point on the pipe 8 near its en-

trance to the fire-box I attach a suitable fan or blower 11 of any well-known construction and operated by means of a belt and pulley 13. At a point in the pipe 8 between its connection to the fan and its entrance to the fire-box I provide a plug 14, which is screwed into the under side thereof and by the removal of which the pipe may be cleaned.

The operation is simple. The damper is left partly open and the fan started. The smoke and particles of fuel as it goes up the stack will be very largely drawn into the pipe 8 by means of the action of the fan and blown into the spray-pipe 9, which distributes it over the surface of the fire. The continued circulation of the particles of combustion through the pipe and smoke-stack will clear the smoke of nearly all the unconsumed fuel, and the result will be the saving of a large part of the fuel as well as the partial prevention, at least, of blacksmoke being emitted from the stack.

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

In a smoke-consumer, a furnace composed of the usual boiler, fire-box and smoke-stack in combination with a single-piece return-pipe connected to said stack below the damper and terminating in the fire-box, a semi-circular spray-pipe secured to the end of said return-pipe and located in the rear of the fire-box, said spray-pipe being provided with a series of holes by which the smoke is directed inwardly and downwardly toward the center of the fire and directly against the draft, a blower connected to said return-pipe near its entrance to the fire-box, means for operating said blower and a screw-plug removably inserted in the under side of said return-pipe in close proximity to its entrance into the fire-box, all substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

CHARLES R. BLANKENBILLER.

Witnesses:

E. A. KELLY,

WILLIAM O. COMMAN.