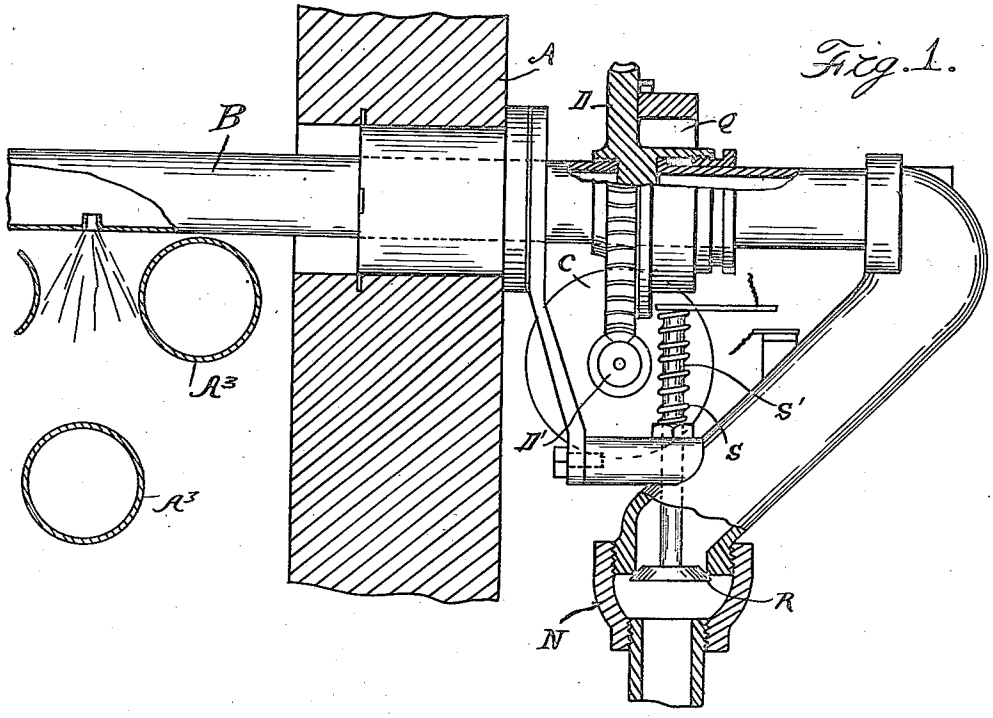
Aug. 21, 1923. 1,465,387

F. BOWERS

BOILER CLEANER

Original Filed Nov. 30. 1917

Fig. 1.



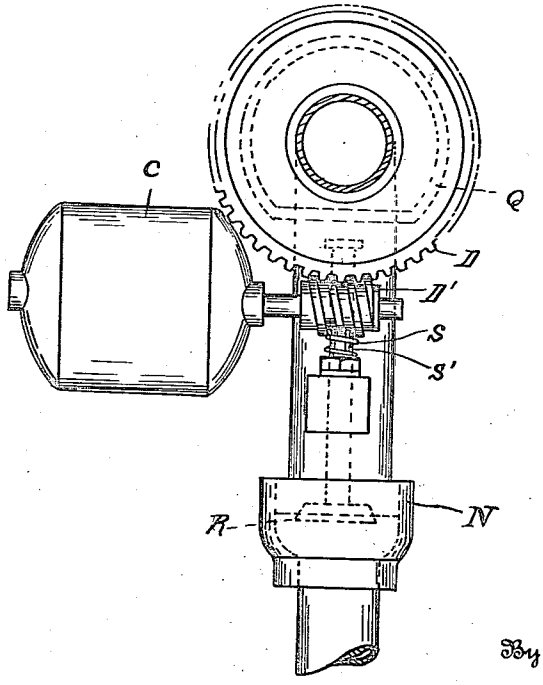


Fig. 2.

Inventor
Frank Bowers

By Whittemore Hulbert & Whittemore & Belknap

Attorneys

Patented Aug. 21, 1923. 1,465,387

UNITED STATES PATENT OFFICE.

FRANK BOWERS, OF DETROIT, MICHIGAN, ASSIGNOR TO DIAMOND POWER SPECIALTY CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

BOILER CLEANER.

Original application filed November 30, 1917, Serial No. 204,556. Renewed November 6, 1922, Serial No. 599,559. Divided and this application filed September 18, 1922. Serial No. 588,960.

To all whom it may concern:

Be it known that I, FRANK BOWERS, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Boiler Cleaners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to soot blowers and refers more particularly to blowers of the type having rotary units for directing jets of steam or the like for cleaning the boiler tubes, and is a divisional of my earlier application, Serial No. 204,556, filed November 30, 1917.

The invention resides in the novel arrangement for automatically cutting off the steam supply during that portion of the rotation of the unit where it will be injurious to the baffles or other parts of the boiler, and, more particularly, in automatically operating the valve by a cam or similar mechanism operated from the rotation of the blower unit. The invention further resides in the novel arrangement of the valve with reference to the plane of the blower unit and in the construction whereby the units are operated only during the period when they are directing the steam jets in the proper direction, and in such other features of construction and arrangements and combinations of parts as will more fully hereinafter appear.

In the drawings:

Figure 1 is a side elevational view, partly in section, of a blower unit head embodying my invention.

Figure 2 is an end view of the parts shown in Figure 1.

Describing in detail the particular embodiment of my invention shown in the drawings, A designates the wall of a boiler through which the rotary blower unit B projects. This unit extends transverse to the axes of the boiler tubes A^3 and is provided with nozzles arranged to discharge jets of steam against the surfaces of the tubes A^3 for cleaning the soot off the latter. The blower unit B is suitable connected as by the usual swivel to the supply pipe N, and the supply of steam from this stationary pipe to the rotatable blower unit is controlled by a valve R. For rotating the blower unit there is in the particular construction shown an electric motor C which is connected to the unit by suitable reduction gearing such as the worm wheel D and the worm D′ so that a slow and steady rotary movement is given to the unit when the circuit to that particular motor is closed.

Referring now to the means for automatically operating the valve upon rotation of the blower unit, it will be noticed that the blower unit is provided with a cam Q, which, when the high portion of the cam is in certain positions of rotation, will press down upon the valve stem S′ and open the valve R. In boiler cleaners of the type above mentioned, it is often undesirable to operate the unit through a complete circle, since in so doing the steam jets would be directed against the baffles or other parts of the boiler, where they would be liable to produce injury and also to waste the steam. I therefore provide the novel arrangement for permitting the rotation of the units through an entire circle, but automatically cutting off the steam to the unit during any predetermined portion of its rotation. It will be noticed that the units are of the type adapted to be rotated about its longitudinal axis and having steam discharge jets distributed throughout its longitudinal length for discharging steam against the surfaces to be cleaned. In detail, the automatic cut-off consists in forming the cam Q so that it rotates with the unit and is adapted to force the individual cut-off valves R back against the tension of the spring S so as to permit steam to pass into the unit from its branch supply pipe as long as the cam is in engagement with the lug S′, which is attached to the valve and forms a valve stem therefor. As soon, however, as the high point of the cam passes out of engagement with the lug or stem S′, the spring S will automatically close the valve. Therefore, a continuous rotation of the unit through any number of complete turns can be made without in any way injuring the baffles or other parts of the boiler against which it is not desired to direct the steam jets. By locating the valve in substantially the horizontal plane of the blower unit, it not only prevents the accumulation of any material amount of condensate above the valve, but it also conveniently permits the use of a cam or other positive mechanism for mechanically holding the

valve open during the desired portion of rotation of the blower unit. Also, by changing the shape or proportion of the cam, the same general construction can be used for holding different valves open during different predetermined portions of rotation.

In the appended claims it will be understood that by the term "rotatable blower unit" is meant not only a blower unit which is rotated continuously in one direction, as in the illustrative form, but also any other form of rotatable unit, such as the well-known form in which the unit is rotated for a part of a turn in one direction and then back again.

It will also be understood that in the appended claims I have used the term "mechanical connections" as excluding any electrically operated device.

What I claim as my invention is:

1. In a boiler cleaner, the combination with a rotatable blower unit adapted to discharge steam jets or the like, a stationary supply pipe, a valve therein independent of the blower unit, means to rotate the blower unit, and a rotary cam connected to said unit rotating means and arranged to operate said valve to automatically supply steam or the like from said supply pipe to said unit while the jets are directed toward predetermined portions of the boiler.

2. In a boiler cleaner, the combination with a rotatable blower unit adapted to discharge steam jets or the like, a stationary supply pipe, a valve therein independent of the blower unit, means mounted on said blower unit to rotate said blower unit, and means operated by said first means to operate said valve.

3. In a boiler cleaner, the combination with a rotatable blower unit adapted to discharge steam jets or the like, a stationary supply pipe, a valve therein independent of the blower unit, mechanical connections forming a part of said unit and operating between said unit and said valve, and means to operate said unit and from the same means actuate the said connections to operate said valve to automatically supply steam or the like from said supply pipe to said unit while the jets are directed toward predetermined portions of the boiler.

In testimony whereof I affix my signature.

FRANK BOWERS.