

Aug. 14, 1923.

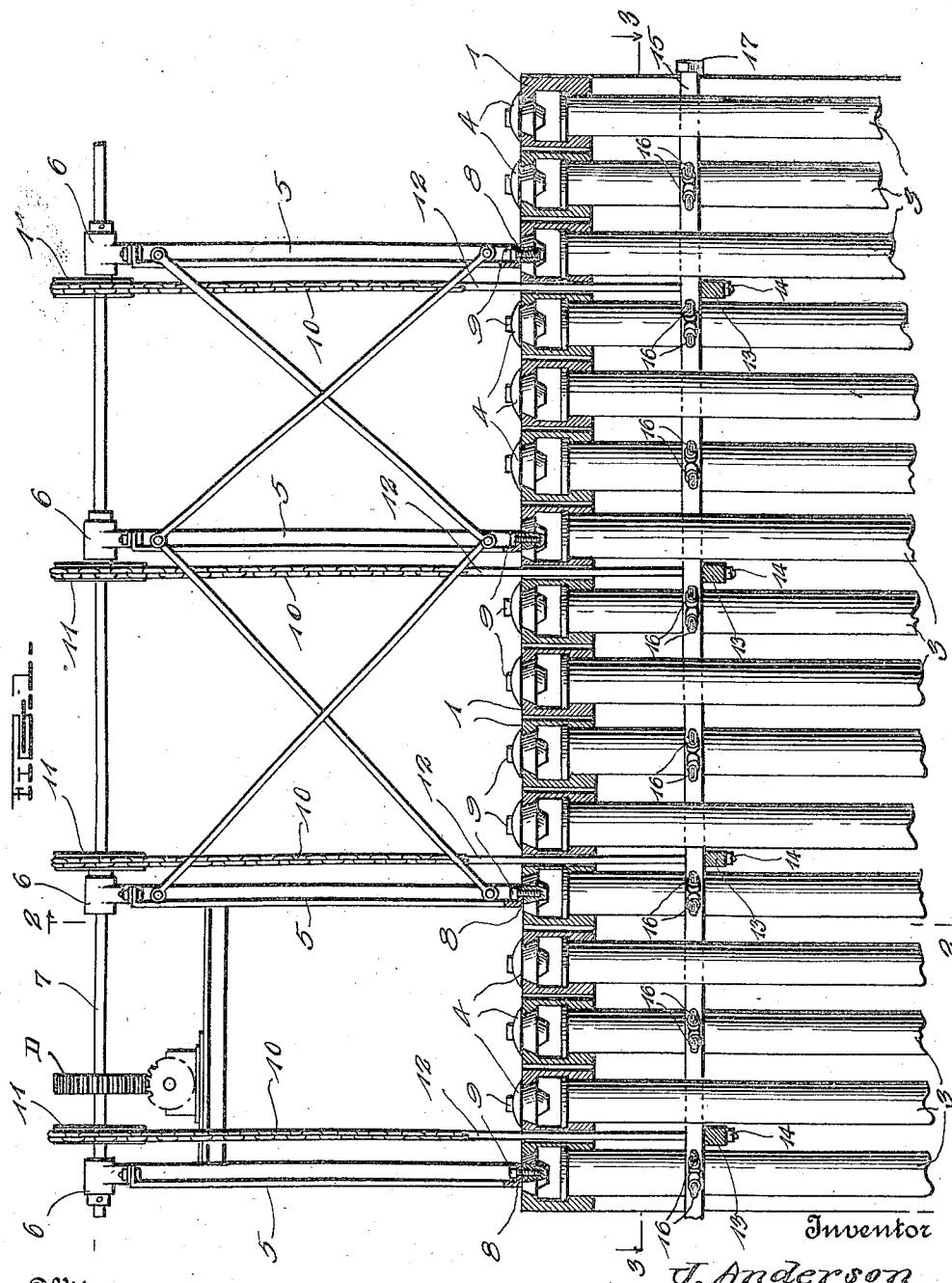
1,464,798

J. ANDERSON

SOOT BLOWER

Filed Feb. 16, 1920

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

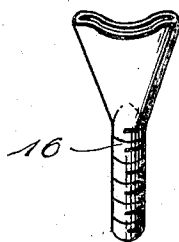
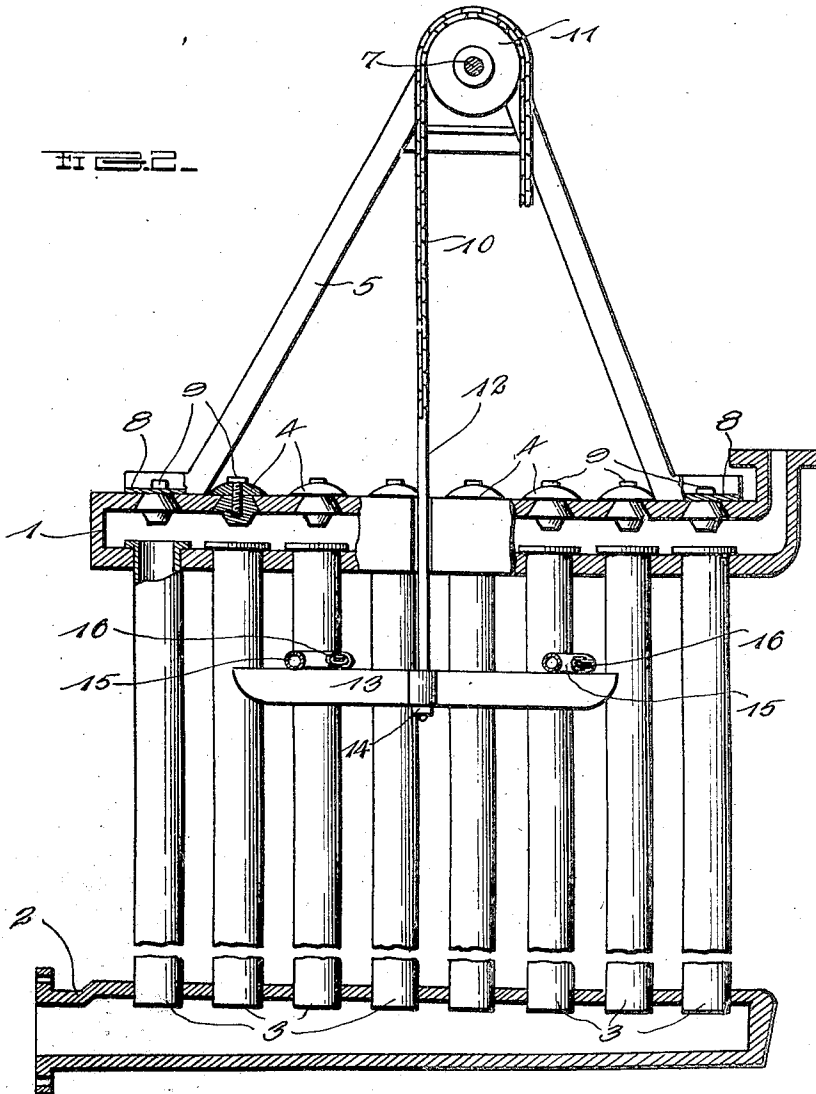


FIG. 4.

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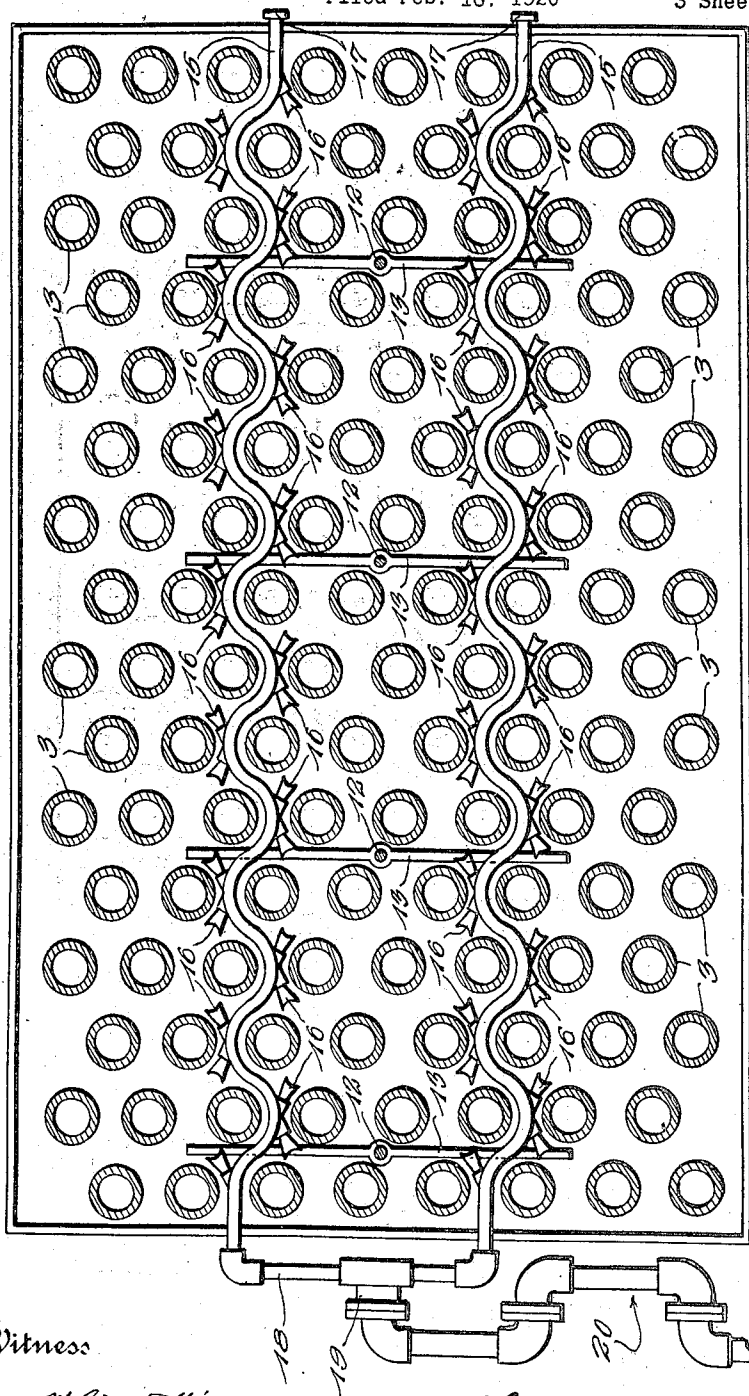
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ESTD

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UNITED STATES PATENT OFFICE.

JAMES ANDERSON, OF WHEELING, WEST VIRGINIA.

SOOT BLOWER.

Application filed February 16, 1920. Serial No. 359,037.

To all whom it may concern:

Be it known that I, JAMES ANDERSON, a subject of the King of Great Britain, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Soot Blowers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for removing accumulated soot from water tubes of fuel economizers or feed water heaters, and my principal object is to provide a simply constructed and inexpensive soot blowing device which may be easily installed without altering the construction of the economizer, and adjusted vertically to blow the soot from the tubes.

Another object is to provide supports for the blower adjusting means, secured to certain of the usual closing plugs of the upper headers of the economizer, so that it is unnecessary to drill any holes whatever in said headers in order to attach said supports.

With the foregoing and minor objects in view, the invention resides in the novel construction and arrangement of parts hereinafter described and claimed and shown in the accompanying drawings.

Figure 1 is a longitudinal section of a portion of an economizer showing the soot blower applied thereto.

Fig. 2 is a vertical transverse section on the plane of line 2—2 of Fig. 1.

Fig. 3 is a horizontal section on the plane indicated by line 3—3 of Fig. 2.

Fig. 4 is a perspective view of one of the nozzles which direct fluid under pressure against the water tubes.

In the drawings above briefly described, I have shown a portion of a well known fuel economizer or feed water heater, including spaced upper and lower headers 1 and 2 and water tubes 3 connecting them. The spaced parallel upper headers 1 are provided with the usual plugs 4 in their upper sides for giving access to the tubes 3 and I utilize certain of these plugs to anchor standards 5 which carry bearings 6 for a rotary shaft 7, this shaft being driven by any preferred means, such as indicated at D in Fig. 1. The standards 5 are by preference of angle iron and their lower ends are equipped with flat

horizontal feet 8 resting on the headers 1 and secured to the adjacent plugs 4, by cap-screws or the like 9. By attaching the standards to the economizer in this manner, it is unnecessary to drill any openings whatever in the headers 1 and consequently they are in no manner weakened, and it will be observed that the feet 8 and screws 9 serve to hold the adjacent plugs in place.

Chains or the like 10 depend from the shaft 7 and are vertically adjustable by turning said shaft, sprockets 11 being preferably provided for said chains as shown. The lower ends of the chains are connected with vertical rods 12 received slidably between the headers 1, and the lower ends of the rods 12 pass through the centers of horizontal lifter bars 13 and are provided with nuts 14 by means of which adjustment may be effected to place all of the bars 13 in the same horizontal plane. These bars support an appropriate number of zig-zig pipes 15 having pairs of outwardly diverging nozzles 16 for directing fluid under pressure against the tubes 3. I have shown two pipes 15, one end of said pipes being closed by suitable caps or plugs 17 while their opposite ends are connected by a cross pipe 18. At 19, a jointed pipe 20 is connected with the pipe 18 for supplying fluid under pressure to this pipe and consequently the pipes 15, so that such fluid will be directed against the tubes 3 by the nozzles 16, thereby effectively removing the accumulated soot. As the shaft 7 is turned in one direction, the chains 10, rods 12 and lifter bars 13, move the pipes 15 vertically along the tubes so that the latter may be cleaned from one end to the other, this movement of parts being permitted by the jointed nature of the pipe 20. The rods 12 and parts supported thereby descend by gravity when the shaft 7 is retrogradely rotated.

The nozzles 16 are preferably constructed as seen in Fig. 4, from short sections of pipe flattened at one end and ground to proper shape for producing best results.

The entire device is simple and inexpensive, may be easily and inexpensively manufactured and installed, and is in every way highly efficient and desirable, and since probably the best results may be obtained from the details disclosed, such details may well be followed, but I wish it understood that within the scope of the invention as claimed,

numerous minor changes may well be made.

I claim:

The combination with an economizer including vertical water tubes and spaced parallel headers connecting the upper ends of
5 said tubes; of a plurality of standards rising from said headers at spaced points and having aligned bearings, a horizontal shaft rotatably mounted in said bearings and hav-
10 ing a plurality of spaced sprocket wheels, chains trained over said sprocket wheels, vertical rods secured to and depending from the lower ends of said chains, said rods being
15 slidably received between said headers, horizontal supporting bars having central open-

ings through which the lower ends of said rods pass, nuts threaded on said lower ends of the rods for supporting said bars and permitting slight vertical adjustment thereof, a plurality of zig-zag fluid spray pipes
20 resting removably on said supporting bars and loosely received between said water tubes, means for supplying fluid to said spray pipes while permitting vertical move-
25 ment thereof, and means for driving the aforesaid shaft in either direction.

In testimony whereof I have hereunto set my hand.

JAMES ANDERSON.