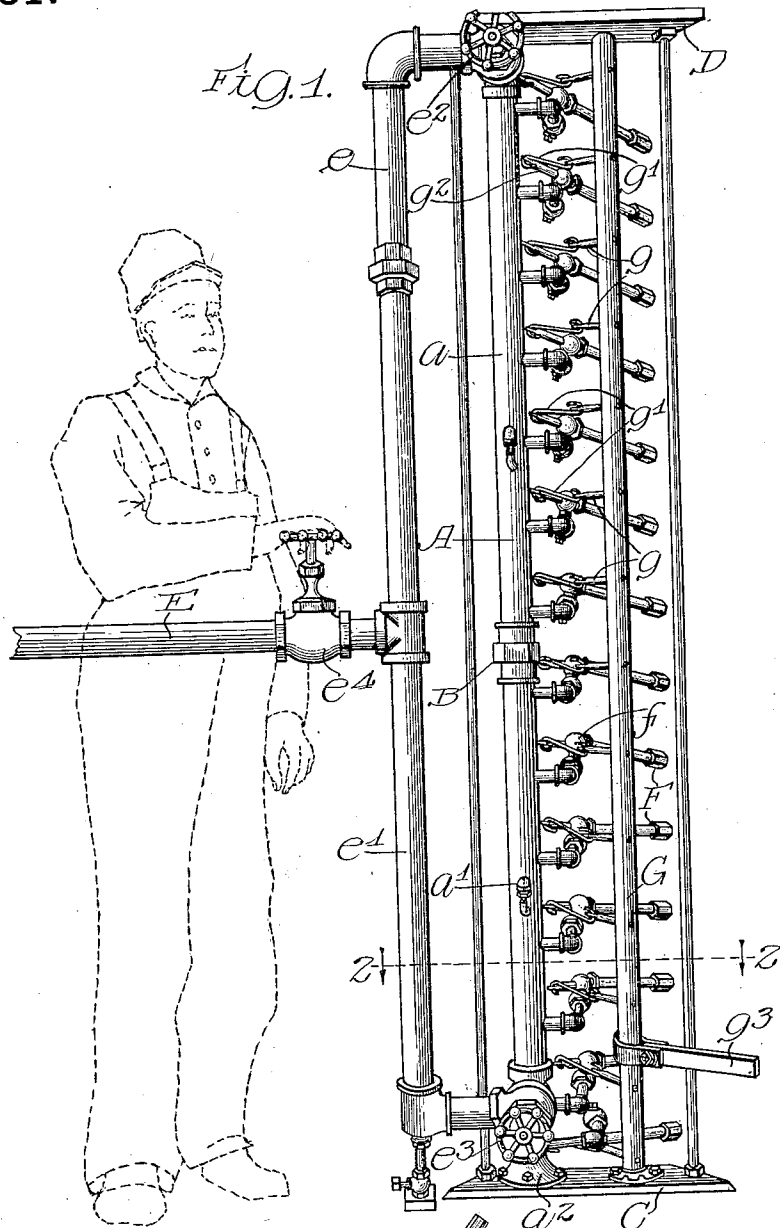
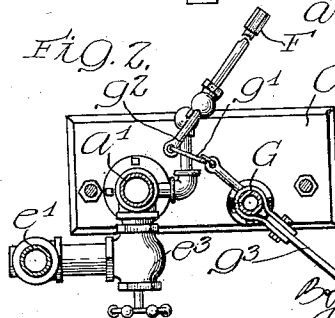


G. P. BROWN.
SOOT BLOWER.
APPLICATION FILED OCT. 26, 1911.

Patented Feb. 10, 1914.

1,086,751.



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UNITED STATES PATENT OFFICE.

GIDEON PILLOW BROWN, OF CHICAGO, ILLINOIS.

SOOT-BLOWER.

1,086,751.

Specification of Letters Patent.

Patented Feb. 10, 1914.

Application filed October 26, 1911. Serial No. 656,967.

To all whom it may concern:

Be it known that I, GIDEON PILLOW BROWN, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Soot-Blowers, of which the following is a specification.

My invention relates to soot blowers of the kind in which an upright header is provided with a series of nozzles that swing back and forth to direct the steam or other cleaning fluid between the tubes of the boiler. Prior to my invention, these blowers have been made in various ways, but always with a header having a single chamber with which all of said nozzles communicate. With this arrangement the capacity of the pipe supplying the steam must always be equal, or substantially so, to the combined capacity of all the nozzles, as otherwise the force of the jets of steam will not be sufficient for the purpose of blowing the soot off from the tubes of the boiler. Obviously, therefore, the old arrangement was not adapted for use with a large number of nozzles, as in such case the diameter or gage of the header and other piping would have to be objectionably large.

The object of my invention is, therefore, to provide a novel and improved construction whereby a large number, or practically any number, of nozzles may be mounted on a single header, without the necessity of increasing the diameter or gage of the header and other piping, as will hereinafter more fully appear.

In this application I have claimed only the sectional header arrangement, whereby the nozzles, regardless of their form and construction and mode of operation, are divided into groups, and whereby steam can be supplied to any group alone, or to all of the groups at the same time, as conditions may require.

The construction and mode of operation of the nozzles, whereby they swing in oblique planes parallel with inclined water tubes, regardless of the construction of the header, and are disposed in vertical series, is claimed in a divisional application, No. 758,575, filed April 3, 1913.

In the accompanying drawings Figure 1 is a perspective of a tubular boiler soot blower embodying the principles of my invention. Fig. 2 is a horizontal section on line 2—2 in Fig. 1.

As thus illustrated, my invention comprises a vertical header A composed of upper and lower sections *a* and *a'* which are rigidly connected end to end by the blind coupling B, whereby the two sections are non-intercommunicating in character. The lower end of the header is closed and connected by a fitting *a*² with the base plate C, and the upper end of said header is similarly united to the top plate D, which plates are disposed, respectively, at the bottom and top of the usual slot or recess in the side wall of the boiler furnace. A steam supply pipe E has an upper branch *e* that connects with the top of the header, and a lower branch *e'* that connects with the bottom of the header, whereby steam is supplied through independent pipes to the said upper and lower sections of the header. A valve *e*² controls the upper branch, and a valve *e*³ controls the lower branch, whereby steam can be admitted to either section and excluded from the other. A main valve *e*⁴ in the supply pipe *e* controls the admission of steam to the branches.

The nozzles F are of any suitable or well known form, and as shown are each swingingly connected with the header by a swinging pivot *f* that permits lateral back and forth movement thereof. Preferably, if the tubes of the boiler are inclined, each swinging pivot is set at an angle, whereby the nozzles swing in oblique or inclined planes which are parallel with the tubes, notwithstanding the vertical arrangement of the header. A vertical member G is provided with arms *g* that connect by means of links *g'* with the tails or rear ends *g*² of the nozzles. A lever *g*³ is provided for oscillating the member G about a vertical axis, which motion serves to swing all of the nozzles from one side to the other. This causes the steam to enter between the tubes of the boiler, and to blow the soot in the desired manner. With this arrangement the steam can be allowed to enter the sections *a* and *a'* in such manner that the force of the jets will always be sufficient. If, for example, the steam pressure is not sufficient to give good results with all of the nozzles going at the same time, then one section can be cut off and the remaining section will receive all of the steam. Thus the total capacity of the number of nozzles operating at any one time can be kept equal, or substantially so, to the capacity of the supply

pipe. In this way a very tall header, as shown, can be provided with a large number of nozzles, and satisfactory results can be obtained without enlarging the diameter of the header and supply pipe.

The stationary header and swing joint arrangement shown lends itself readily to the purposes of my invention, as connections are easily made to the header, and the latter, being stationary, may thus comprise, to advantage, any desired number of non-intercommunicating sections.

What I claim as my invention is:—

1. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, the nozzles of the different sections being all disposed in the same vertical series, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other the said sections being arranged end to end, and means for operating the said blower to cause said nozzles to swing back and forth.

2. A soot blower for water tube boilers, comprising a stationary header divided into rigidly united sections, a set of nozzles for each section, the nozzles of the different sections being all disposed in the same vertical series, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to cause said nozzles to swing back and forth, the total capacity of the nozzles of any one section not exceeding the capacity of said supply pipe.

3. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, the nozzles of the different sections being all disposed in the same vertical series, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to cause said nozzles to swing back and forth, the said sections being rigidly secured end to end by a blind coupling.

4. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, the nozzles of the different sections being all disposed in the same vertical series, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, means for operating the said blower to cause said nozzles to swing back and forth, and means for supporting the header in a vertical position.

5. A soot blower for water tube boilers, comprising a header divided into non-intercommunicating sections, a set of nozzles for

each section, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, means for operating the said blower to cause said nozzles to swing back and forth, said instrumentalities comprising branches from the supply pipe to the different sections of the header, and a valve for each branch.

6. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, a fluid supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to cause said nozzles to swing back and forth, said means being connected for operating the nozzles of all of said sections in unison, regardless of whether all or only some thereof are receiving a fluid from said pipe.

7. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to cause said nozzles to swing back and forth, the total capacity of the nozzles of any one section not exceeding the capacity of said supply pipe, said means being connected for operating the nozzles of all of said sections in unison, regardless of whether all or only some thereof are receiving a fluid from said pipe.

8. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to cause said nozzles to swing back and forth, the said sections being rigidly secured end to end by a blind coupling, said means being connected for operating the nozzles of all of said sections in unison, regardless of whether all or only some thereof are receiving a fluid from said pipe.

9. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to cause said nozzles to swing back and forth, said sections being disposed one above the other in vertical position.

10. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, a supply pipe,

instrumentalities for controlling communication between said supply pipe and the different sections independently of each other, and means for operating the said blower to
5 cause said nozzles to swing back and forth, the total capacity of the nozzles of any one section not exceeding the capacity of said supply pipe, said sections being disposed one above the other in vertical position.

10 11. A soot blower for water tube boilers, comprising a header divided into sections, a set of nozzles for each section, a supply pipe, instrumentalities for controlling communication between said supply pipe and the different sections independently of each other,
15 and means for operating the said blower to cause said nozzles to swing back and forth, the said sections being rigidly secured end to end by a blind coupling, said sections be-

ing disposed one above the other in vertical position. 20

12. A soot blower for water tube boilers, comprising a series of nozzles divided into groups, means for vibrating said nozzles in unison, and means whereby a cleaning fluid
25 is supplied to any group alone.

13. A soot blower for water tube boilers, comprising a series of nozzles divided into groups, a vertical header for said nozzles, divided into sections for said groups, and
30 means whereby a cleaning fluid is supplied to any section alone.

Signed by me at Chicago, Illinois, this 21st day of October, 1911.

GIDEON PILLOW BROWN.

Witnesses:

GEO. F. SCHMIDT,
R. E. SEHNEM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."