

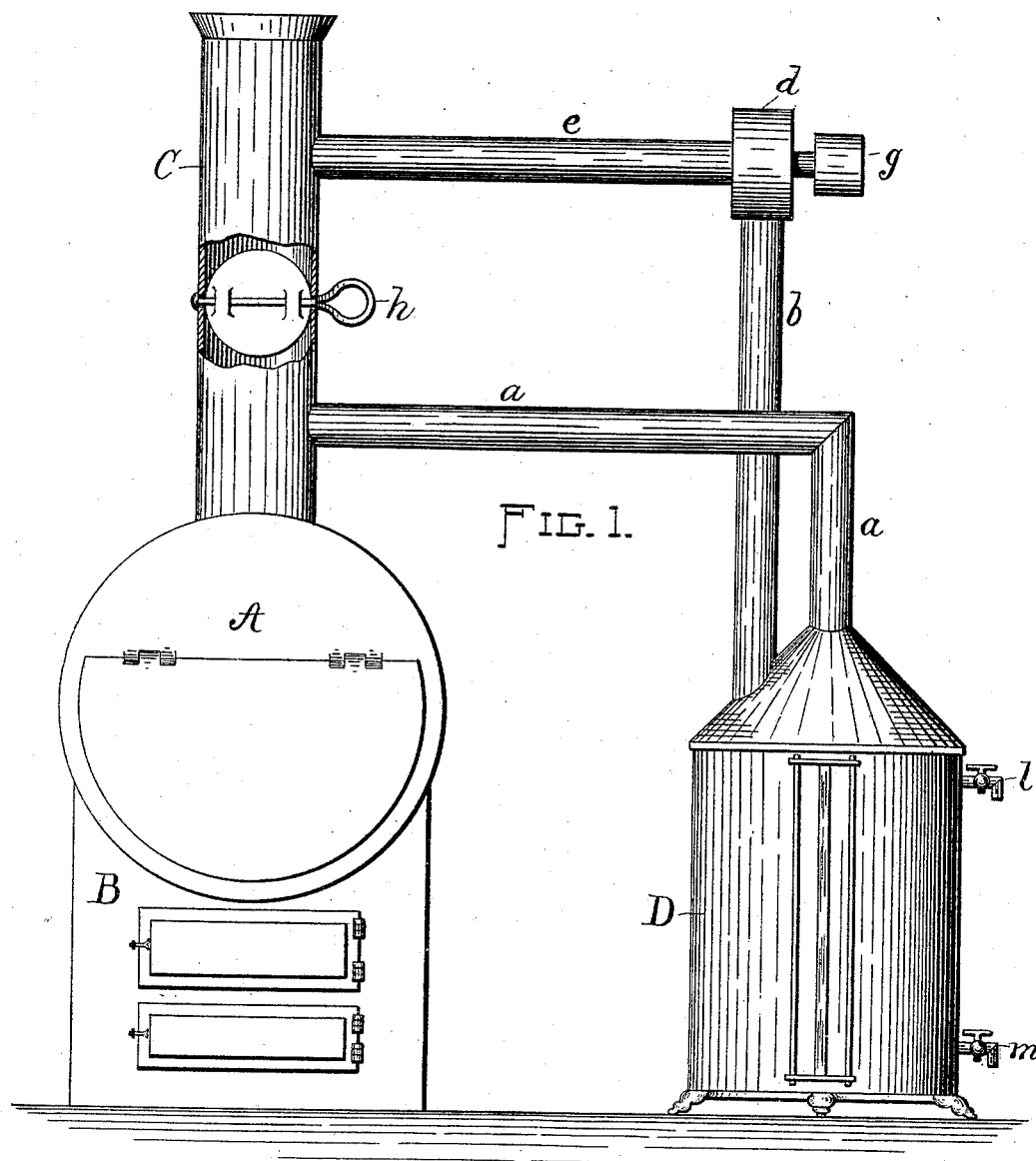
(No Model.)

J. PARKIN & H. BORN
SMOKE ARRESTER.

2 Sheets—Sheet 1.

No. 489,715.

Patented Jan. 10, 1893.



WITNESSES:

F. A. Cutter,
A. Clark Ford

INVENTORS

J. Parkin,
H. Born.
By *W. A. Burroughs*

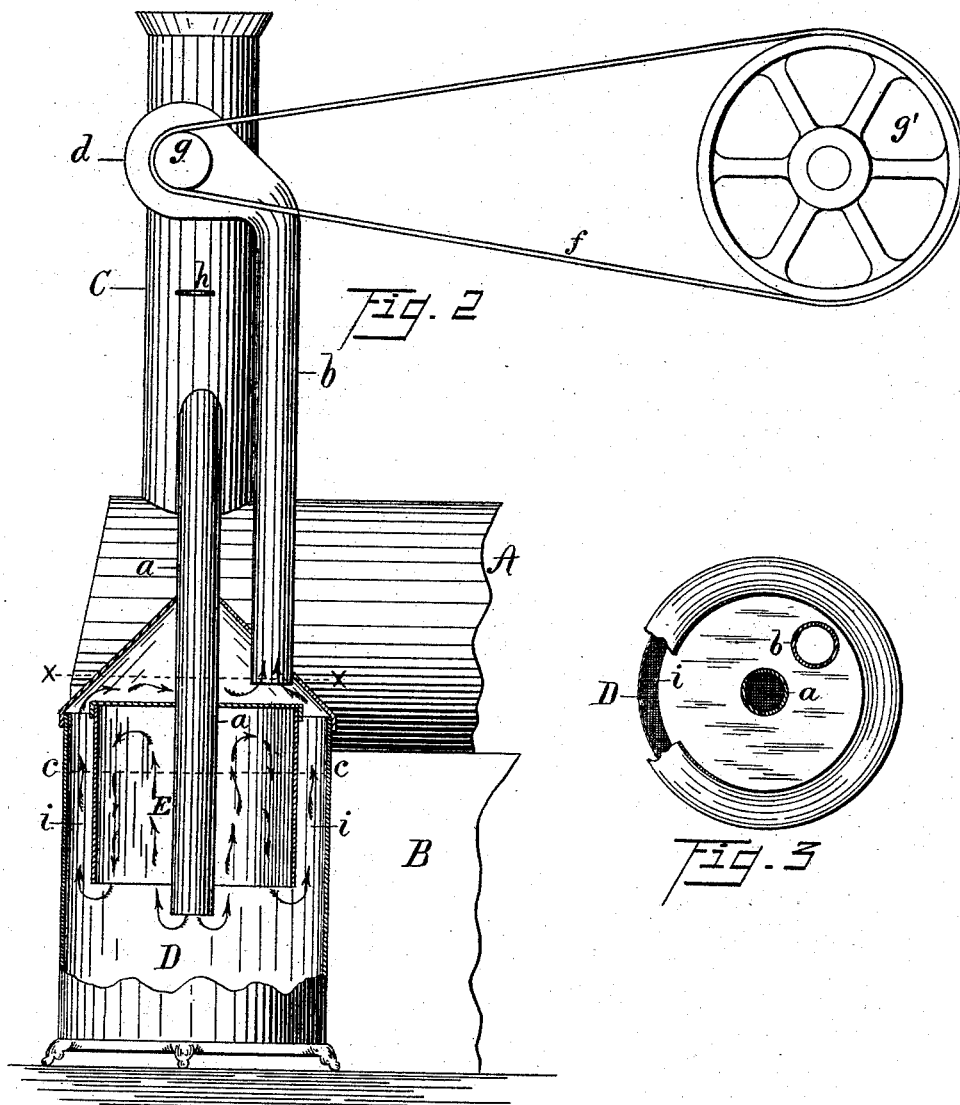
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Witnesses.

W. A. Biddle

E. J. Gray

Inventors:

J. Parkin & H. Born

By W. H. Burridge atty.

UNITED STATES PATENT OFFICE.

JOSEPH PARKIN AND HENRY BORN, OF CLEVELAND, OHIO.

SMOKE-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 489,715, dated January 10, 1893.

Application filed January 30, 1892. Serial No. 419,852. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH PARKIN and HENRY BORN, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Smoke-Arrester, of which the following is a full, clear, and complete description.

The nature of our invention relates to an apparatus used in connection with the stack or chimney of a furnace, and so constructed that the smoke from said furnace is carried or drawn through water, the gases in the smoke passing off through the stack or chimney while the carbon is separated therefrom in the manner herein-after fully explained.

That the apparatus may be fully seen and understood by others, reference will be had to the following specification and annexed drawings forming part thereof.

Fig. 1. is a front elevation showing the apparatus in connection with a boiler furnace. Fig. 2. is a partial side elevation of same showing the water reservoir in partial vertical section and Fig. 3. is a cross section on line *x. x.* of Fig. 2. with a portion broken away showing the smoke chamber hereinafter explained.

Like letters of reference designate like parts in the drawings and specification.

In the drawings A represents the boiler, B. the furnace, C the chimney, and D the reservoir. The reservoir has the shell E therein, shown in Fig. 2. The shell E is open at the lower terminal, or in open connection with the compartment D. A pipe or conductor *a* has one terminal in the chimney C, passes down through the roof of the reservoir D and shell E, having its opposite terminal in the water preferably below the base of the shell E. A pipe *b* enters the roof of the reservoir D but does not pass into the shell E, nor does it reach the water level, which is intended to be about on the dotted line *c. c.* The upper part of the pipe *b* is enlarged forming a chamber *d*. Connected with the chamber *d* and in open communication therewith is a pipe *e*, which also opens into the chimney C.

Located within the chamber *d*, is a fan or blower, which may be any suitable form known. This blower may be operated by any known means. The one shown in Figs. 1. and 2. be-

ing operated by a band or belt *f* and pulleys *g* and *g'*.

Located at any convenient point in the chimney between the two pipes *a* and *e*, is a damper *h*. Figs. 1 and 2. When the damper *h* is closed as shown in Fig. 2. and the fan in the chamber *d* is in motion, a strong draft will be created by said fan and draw the smoke from the chimney through the pipe *a* down through the water in the shell E, from thence the gases pass up through the annular water chamber *i*, Figs. 2 and 3. in the direction of arrows and out through the pipes *b* and *e*. into the chimney above the damper *h*. The carbon in the smoke remains in the water, rising to the top thereof while the gases pass off as herein before stated. The water in compartment D should stand above the base of the shell E and the smoke, from the pipe *a*, first arises around said pipe, into the shell E. The smoke in the shell E passes out and upward through the annular chamber *i*, as before described, and thus by the use of said shell the smoke is twice passed through the water. The gases remaining in the shell E may be removed by any suitable means, as the faucet *l*, hereinafter described.

Should a direct draft be desired and the smoke pass off in its natural state, it is simply necessary to open the damper *h*. as shown in Fig. 1.

The reservoir is provided with a gage glass *k*, and two faucets *l* and *m*. The faucet *l*, extends through into the compartment E; while the faucet *m*, only enters the reservoir D, for the purpose of drawing off the water.

What we claim and desire to secure by Letters Patent is—

1. In combination with the chimney of a furnace a water reservoir D having a shell E therein, said shell open at the bottom and having a water chamber *i* extending entirely around it, a pipe *a* connected with the chimney and passing down through said shell, a pipe *b* extending from the roof of the reservoir up to, and in open connection with the chamber *d*, the pipe *e*, in open connection with the chimney and said chamber, operating conjointly with a fan situated within the chamber *d*, and with a damper *h* in the chimney intermediate of the pipes *a* and *e*. sub-

stantially in the manner as and for the purpose set forth.

2. A water reservoir D containing a shell E, open at the bottom and closed at the top, one
5 terminal of a pipe *a* opening into said shell, the other terminal opening into the chimney of a furnace, and a pipe *b*, one terminal of which opens into the reservoir above the waterline, and the opposite terminal into a chamber
10 containing a fan and in open communication with the chimney through the pipe *e*,

above the damper *h*, whereby the smoke from the furnace is carried into the water which retains the carbon and the gases pass off substantially as and for the purpose described. 15

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH PARKIN.
HENRY BORN.

Witnesses:

W. H. BURRIDGE,
L. F. GRISWOLD.