J. GOHR & E. RICHARDS.

Flue-Cleaner.

No. 223,040. Patented Dec. 30, 1879.

FIG. 1.

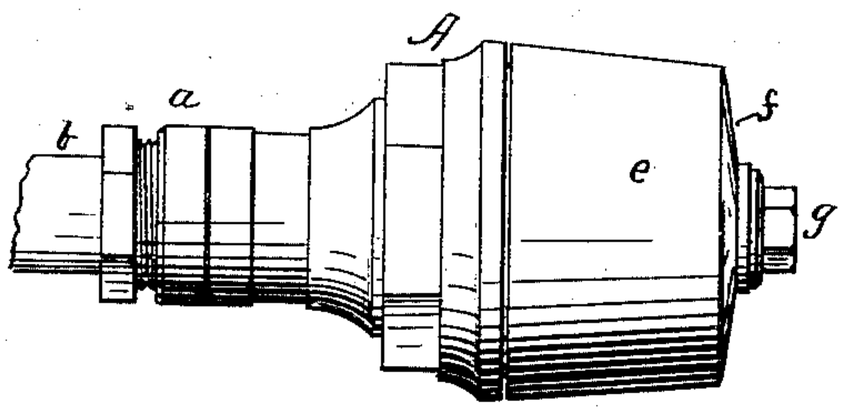


FIG. 2.

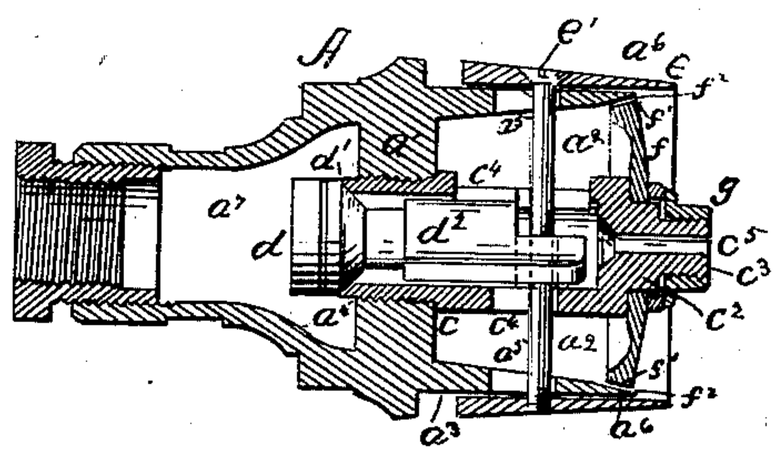


FIG. 3.

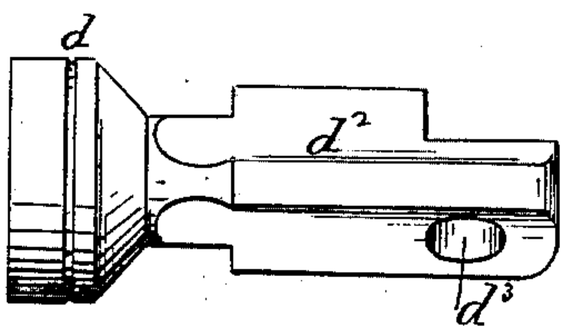


FIG. 4.

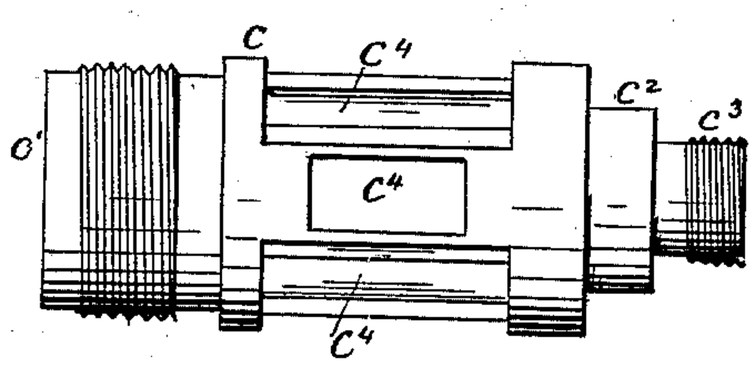


FIG. 5.

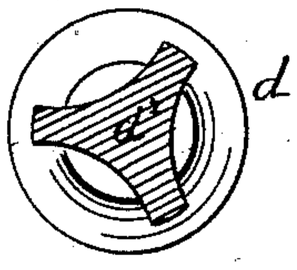
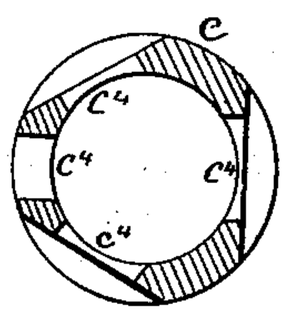


FIG. 6.



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UNITED STATES PATENT OFFICE.

JOHN GOHR AND ELIAS RICHARDS, OF SALAMANCA, NEW YORK.

IMPROVEMENT IN FLUE-CLEANERS.

Specification forming part of Letters Patent No. **223,040,** dated December 30, 1879; application filed October 21, 1879.

To all whom it may concern:

Be it known that we, JOHN GOHR and ELIAS RICHARDS, of Salamanca, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Flue-Cleaners; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of flue-cleaners in which the end of the device is inserted into the flue and a jet of steam is employed to cleanse the flue-pipes.

It consists in a hollow casing divided by a partition into two chambers, which are connected by a central opening, in which is screwed the end of a valve-case containing the valve, and in a disk secured in the opening of the outer chamber, and constructed and arranged to form oblique steam-ports, and in other novel features, all of which will be fully hereinafter described.

In the drawings, Figure 1 is a side elevation, and Fig. 2 is a longitudinal section, of our invention. Fig. 3 is the valve; Fig. 4, the valve-case. Fig. 5 is a cross-section of the valve, and Fig. 6 is a cross-section of the valve-case.

A is a hollow casing, provided at its end a with suitable means for attaching the hose or steam-pipe b, and it is divided by a partition, a', so as to form an outer chamber, a^2, within the projecting end or flange a^3. The partition a' has formed through it a central opening, a^4, into which the end of the valve-case hereinafter described is inserted. The projecting end or flange a^3 has formed through its sides the longitudinal slots a^5 a^5, arranged diametrically opposite each other, and it has the inner side of its outer end beveled outward, as shown at a^6, for purposes hereinafter set forth.

c is the valve-case, which has its inner end, c', threaded and turned into the opening a^4 in the partition a', while its opposite end projects slightly beyond the outer end of the flange a^3 and has a suitable collar, c^2, and a stem, c^3, to receive and fasten the disk hereinafter described. The valve-case c is provided with a series of side ports, c^4, and an end port, c^5. The side ports, c^4, permit the steam to enter the chamber a^2, while the end port, c^5, throws a steam-jet directly into and centrally along the flue.

d is the valve placed in the chamber a^7 of the casing A, and it is seated on the inner end of the valve-case c, as shown at d', Fig. 2. Its stem d^2 extends along inside the valve-case c, and through its forward end has formed a hole, d^3, which is arranged flush with or on a line connecting the opposite slots a^5 a^5 in the flange a^3. The stem d^2 of the valve may be of any desired form to permit the ready passage of the steam from the chamber a^7 through the valve-case into the chamber a^2, and to the end port, c^5.

e is a sleeve which fits snugly over and slides longitudinally on the projecting end or flange a^3, and it is by preference made of same length of said flange, so that when it is thrown or pressed back on the casing A its outer end will be flush with the outer end of the said flange. It is held to the casing by a bolt, e', which passes through the slots a^5 a^5, and through the hole d^3 in the stem d^2 of the valve d. When thus secured it will be seen that its movements inward or outward will open or close the valve d. The outer side of the sleeve e is made cylindrical, and is tapered toward its outer end, so that it may be inserted into and fit different-sized flues.

f is a disk provided with a central opening, and is placed on the collar c^2 of the valve-case c, and it nearly closes the outer end of the chamber a^2. Its rim or edge f' is inclined or beveled inward parallel with the bevel a^6 on the inner side of the flange a^3. The disk is so arranged with reference to the flange a^3 that a steam-port, f^2, is formed between the beveled rim f' and the outer beveled end, a^6, which port is inclined outward from the chamber a^2, so that the steam-jet is thrown obliquely against the sides of the flue.

Steam being let on, it presses on and closes the valve d, which, acting on the rod e', presses the sleeve e outward, as shown in Fig. 2. The end of the sleeve is inserted into the flue, and the casing A is pushed forward by the hand, the flange a^3 sliding inside the sleeve e. This movement pushes the valve d open, and permits

the steam to enter through the casing *c* into the chamber a^2 and to the port c^5. The steam rushes from the chamber a^2 through the oblique ports f^2.

By this construction and arrangement we secure more direct action of the steam on the sides of the flue, and at the same time drive the steam along the flue by a central jet from the port c^5.

The pressure being removed from the case A, the valve *d* is closed automatically by the direct or positive action of the steam, while the outer shell or sleeve, *e*, remains in its place in the flue.

Should it be desired to have a heavy jet of steam thrown into the flue, the disk *f* may be readily removed, thus opening the entire end of the chamber a^2.

It will be seen that valve-case *c* could be dispensed with in constructing my device. In this instance the valve *d* would be seated directly on the partition a', and the disk *f* would be provided on its rim with a series of narrow lugs, which could be readily fastened by suitable fixtures on the inner side of the outer end of flange a^3, and the port c^5 would be made through the center of the disk *f*. We however prefer the construction shown, as it gives better results, and is more easily repaired in case of accident to some of the parts.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with the casing A, constructed with a flange, a^3, having the inner side of its outer end beveled outward, as shown, of the disk *f*, having its rim or edge beveled inward and fixed in the open end of the chamber a^2, formed by the flange a^3, and arranged as and for the purposes set forth.

2. The combination, with the case A, having partition a' and opening a^4, valve *d*, and disk *f*, of the valve-case *c*, having the series of side openings or ports, c^4, and the central port, c^5, in its end, and having the collar c^2 and stem c^3, and the nut *g*, all arranged to operate as and for the purposes set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

JOHN GOHR.
ELIAS RICHARDS.

Witnesses:
THOS. A. HELLER,
H. O. WAIT.