

No. 808,982.

PATENTED JAN. 2, 1906.

A. GRÖNVALD.
BOILER FLUE CLEANER.
APPLICATION FILED MAY 15, 1905.

Fig. 1

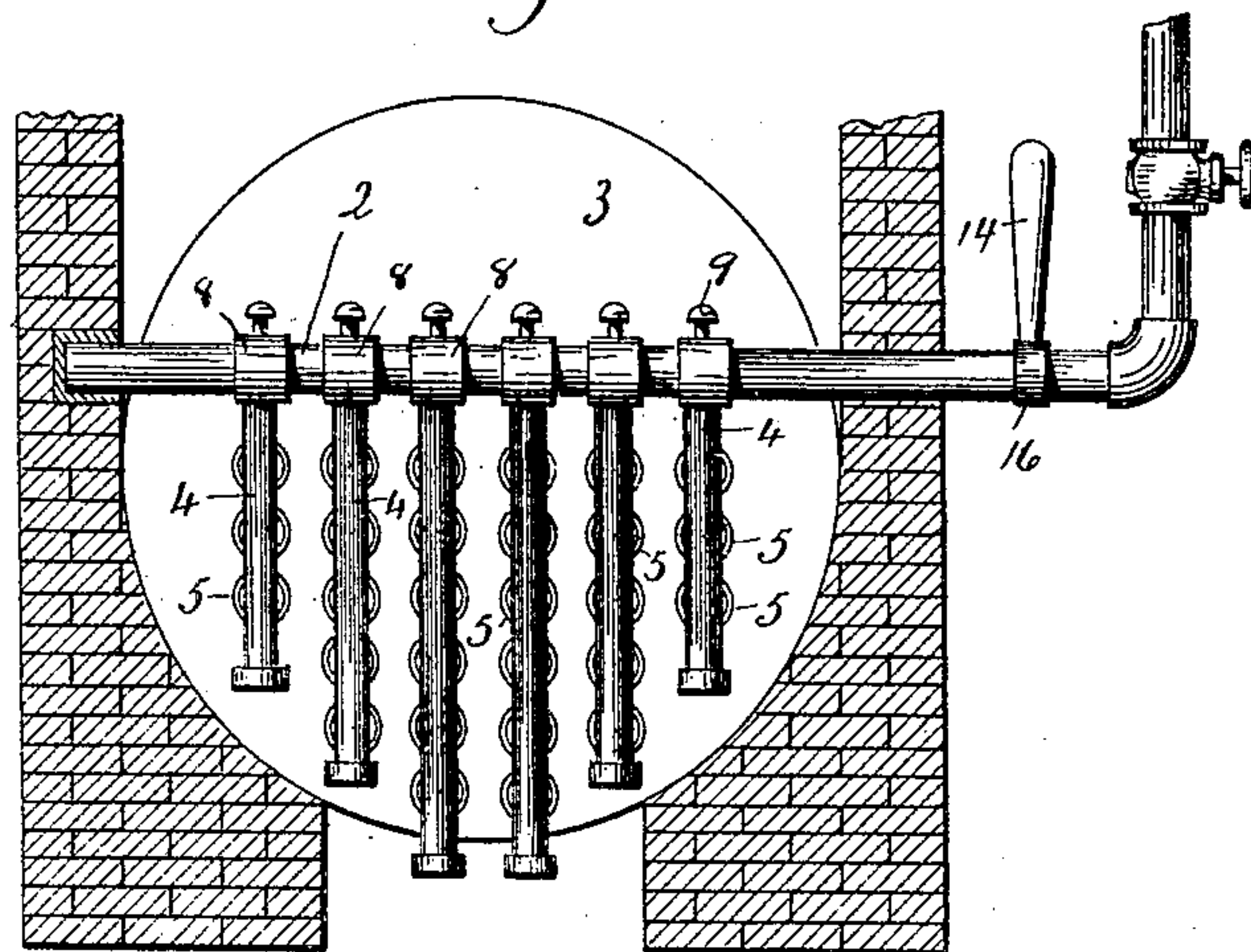


Fig. 2

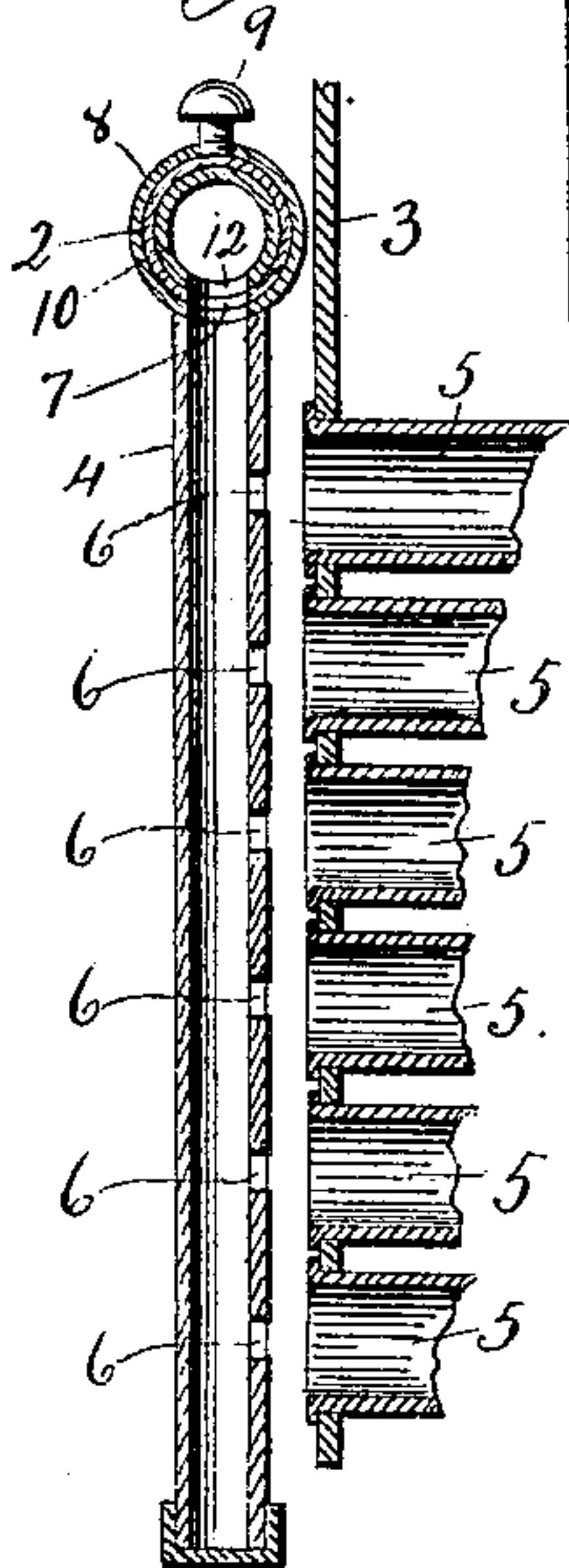


Fig. 3

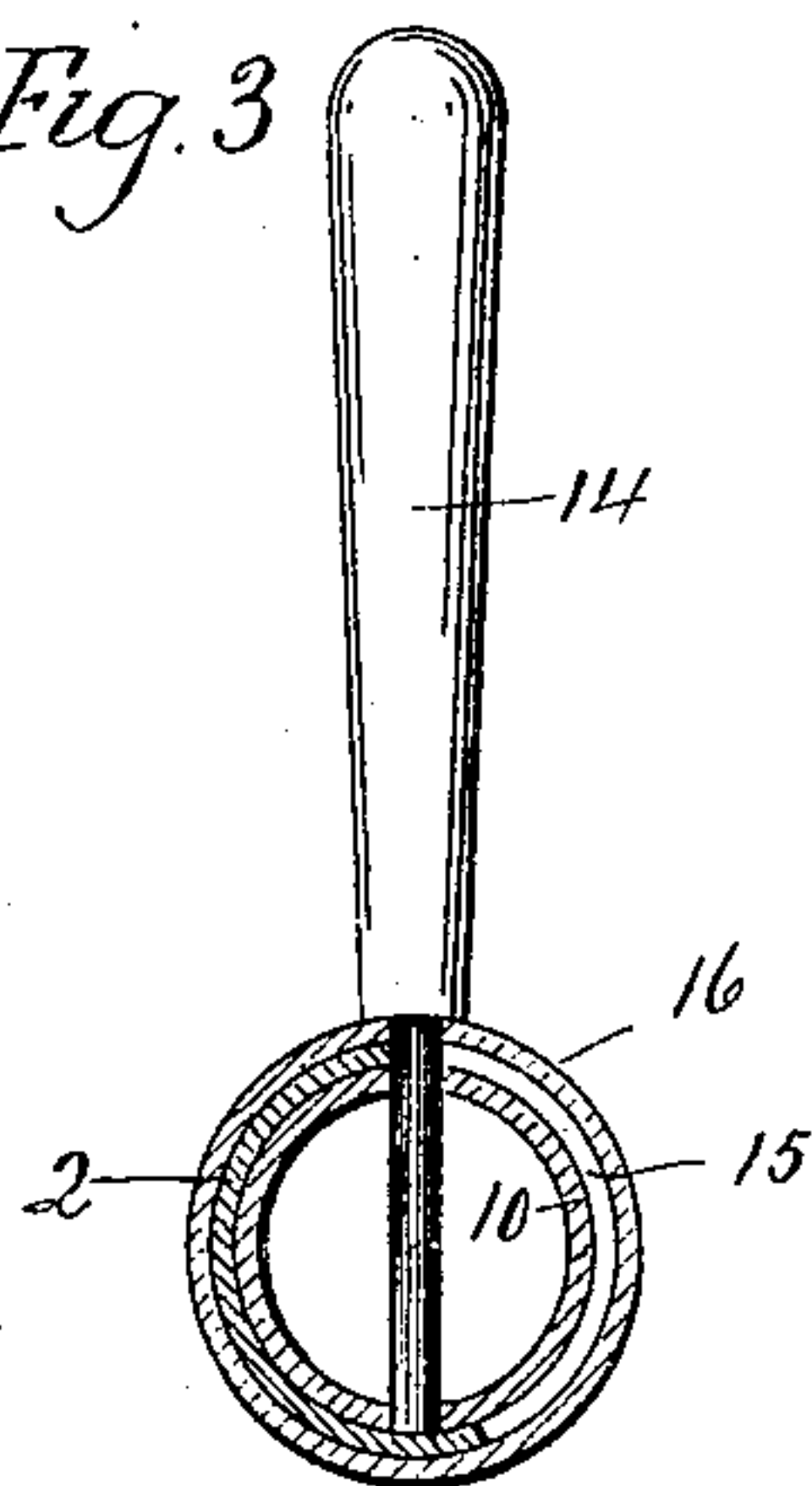


Fig. 4

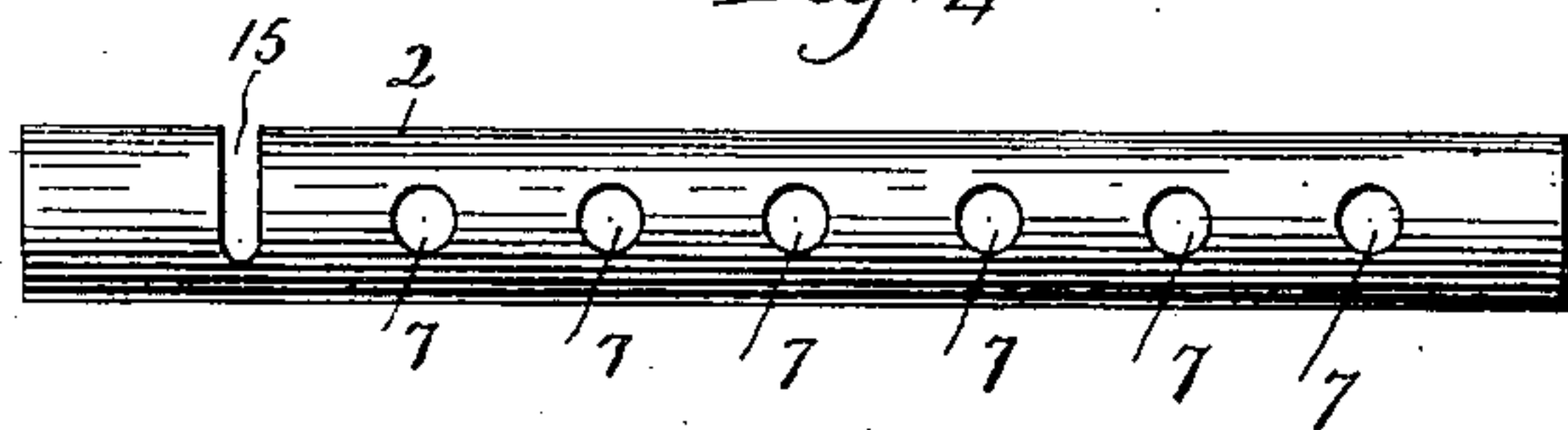
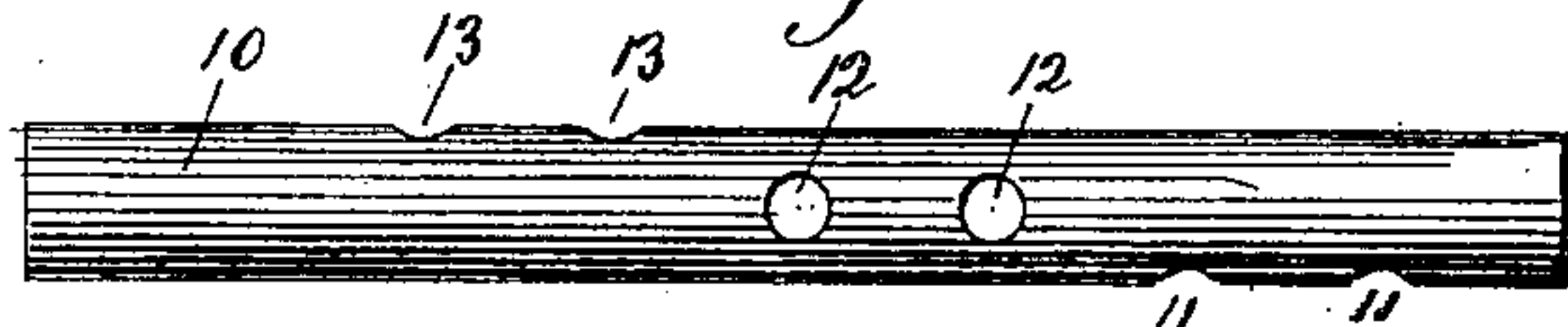


Fig. 5



Witnesses.

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UNITED STATES PATENT OFFICE.

ANDREAS GRÖNVALD, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-HALF TO CHARLES A. BRADLEY, OF WOODBRIDGE, CONNECTICUT.

BOILER-FLUE CLEANER.

No. 808,982.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed May 15, 1905. Serial No. 260,483.

To all whom it may concern:

Be it known that I, ANDREAS GRÖNVALD, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Boiler-Flue Cleaners; and I do hereby declare the following, when taken in connection with the accompanying drawings and the figures of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view of a boiler, showing my improved flue-cleaner arranged in front thereof; Fig. 2, a sectional view through the header and one of the cleaning-pipes, showing the relative position thereof to the boiler-head on a larger scale than the parts shown in Fig. 1; Fig. 3, an enlarged sectional view through the header, showing the valve-tube therein and the handle connected therewith; Fig. 4, an under side view of the header with the cleaning-pipes removed; Fig. 5, a side view of the valve-tube removed.

This invention relates to an improvement in boiler-flue cleaners for steam-boilers, and particularly to that class in which steam, air, or other fluid under pressure is forced through the tubes as a cleaning medium, and is an improvement on the invention shown and described in Letters Patent of the United States, No. 672,733, granted April 23, 1901. In the usual arrangement of boiler-flue cleaners of this character cleaning pressure is applied to all of the flues at the same time, the result of which is that the dust and soot in the flues is forced into the fire-box, and hence deadens the fire.

The object of this invention is to so arrange a cleaning device that a portion of the tubes may be cleaned at a time; and the invention consists in the construction hereinafter described, and particularly recited in the claims.

In carrying out my invention, as in the previous patent, I arrange a header 2 at one end of the boiler 3, which header connects with vertically-arranged cleaning-pipes 4, corresponding in number to the number of rows of tubes 5 in the boiler, the pipes being arranged in line with the tubes and each pipe formed with a series of perforations 6 in line with the said tubes. As herein shown, the header is formed with a series of holes 7, cor-

responding to the number of pipes 4 in its under side, and the pipes 4 with collars or rings 8, which surround the header and which are clamped thereto by set-screws 9; but it is apparent without illustration that the cleaning-pipes 4 might be tapped directly into the header.

Within the header 2 is a valve-tube 10, closely fitting the interior of the header, but capable of being rotated therein. In this tube are three sets of holes 11, 12, and 13, the holes corresponding longitudinally to the position of the cleaning-pipes 4; but the several pairs of holes are out of line with each other. Connected with this valve-sleeve tube 10 is a handle 14, which extends outward through a slot 15 in the header 2, a ring 16 being placed around the header at this point, through which also the handle extends, the ring inclosing the slot 15.

When it is desired to clean a boiler, the valve-tube 10 will be turned so that two of the holes therein will register with two of the cleaning-pipes. Thus the openings 11 may register with the two pipes at the right. At this time the remaining pipes will be closed by the imperforated portion of the valve-tube. Air or steam under pressure then being admitted to the header will pass into two of the cleaning-pipes and escape through the holes 6 in line with the flues, and consequently force any foreign material through them. When the first set of flues is cleaned, the valve-tube will be turned so as to present the next series of perforations, as 12, to the central section of cleaning-pipes, at which time the other cleaning-pipes will be closed, and thus the central section may be cleaned. A still further turning of the valve-tube will present the openings 13 into line with the tubes at the left and close the remaining tubes, thus permitting the tubes at the left to be cleaned. By thus forcing cleaning medium through a portion of the tubes a much greater force can be exerted on a few than could be exerted on all of the tubes at once, and forcing steam or air through a portion of the tubes will not interfere with the normal action of the remaining tubes.

While I have shown a device with six cleaning-pipes, it is apparent that in larger boilers a larger number of pipes will be required; but in every case at least one-third of the cleaning-pipes may be open for opera-

tion, while the remaining two-thirds will be closed.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a boiler - flue cleaner, the combination with a header, vertically-arranged cleaning-pipes connected therewith and opening thereinto, a valve-tube within said header and provided with two or more series of openings each series adapted to open communication between the header and a portion of the cleaner-pipes, and close connection between the remaining portion of the cleaning-pipes and the header, substantially as described.

2. In a boiler - flue cleaner comprising a horizontally - arranged header, vertically-arranged perforated cleaning-pipes connected thereto and communicating therewith, a valve-tube within said header and formed

with two or more series of openings each series adapted to open communication between said header and a portion of said cleaning-pipes, the several sets of openings arranged out of line with each other whereby when communication is opened between a portion of the pipes and the header the communication between the remaining pipes and the header will be closed, and a handle connected with said valve-tube and extending outward through said header, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ANDREAS GRÖNVALD.

Witnesses:

FREDERIC C. EARLE,
CLARA L. WEED.