

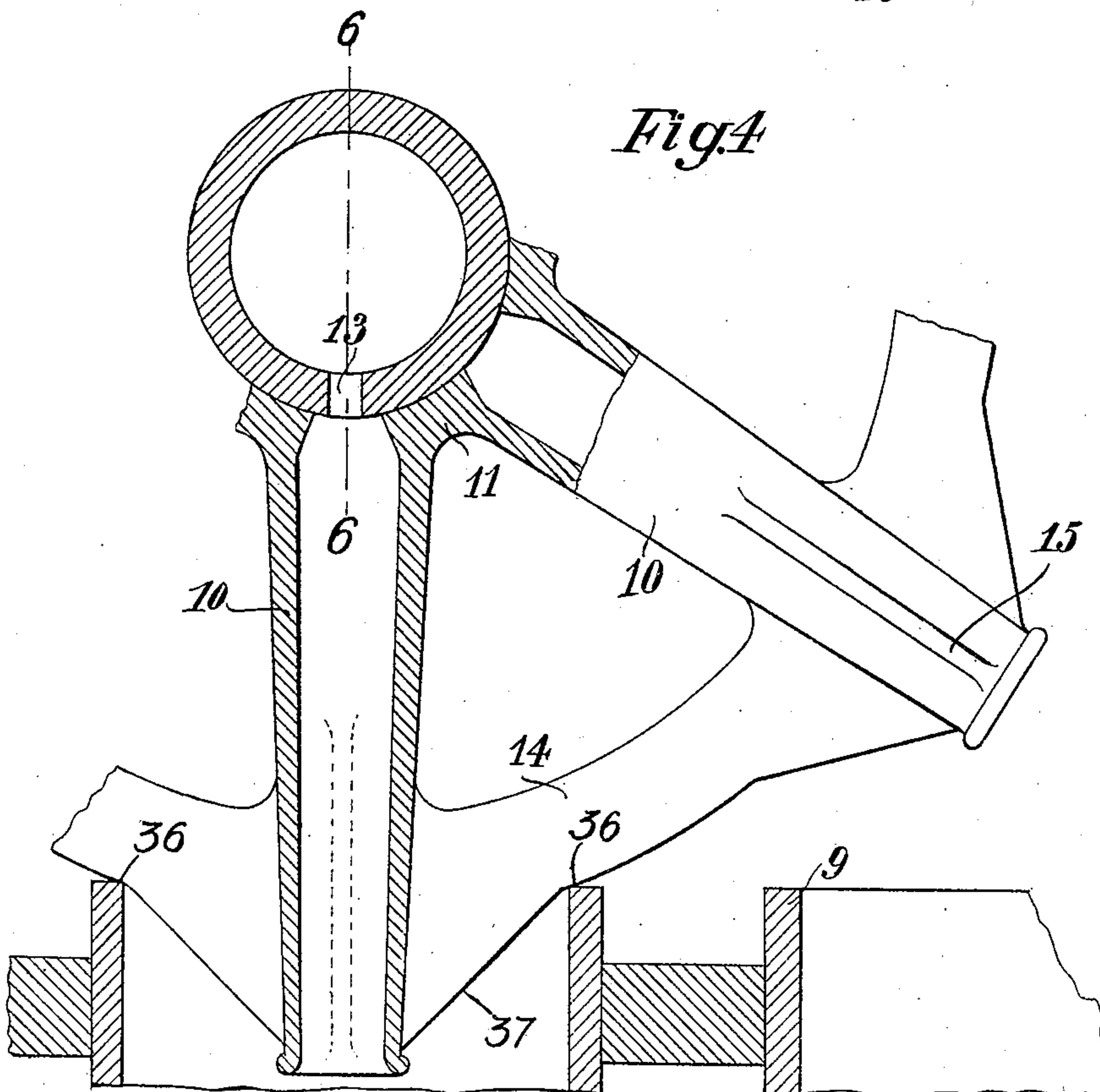
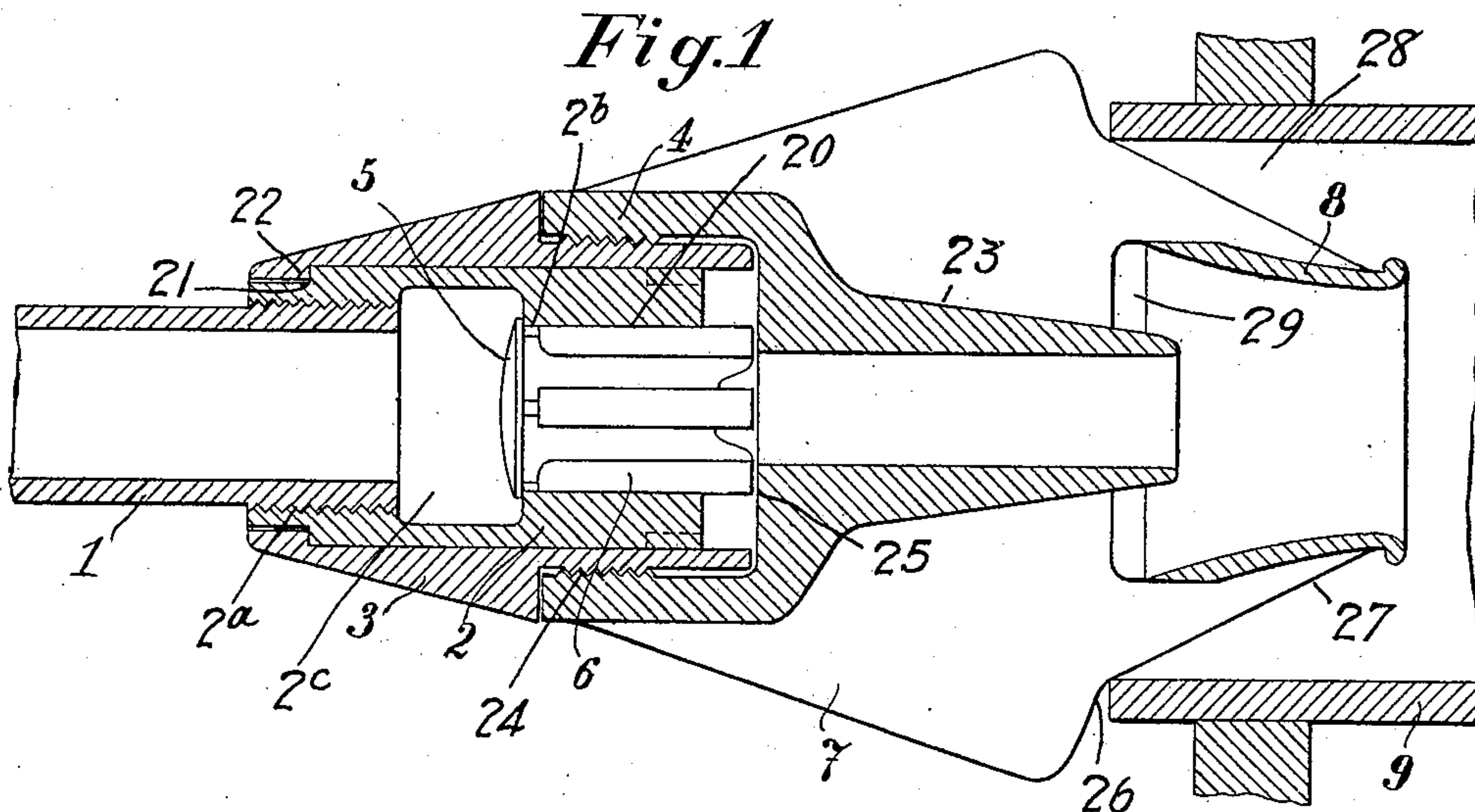
No. 865,653.

PATENTED SEPT. 10, 1907.

A. MÜLLER.
FLUE CLEANER.

APPLICATION FILED MAY 6, 1907.

2 SHEETS—SHEET 1.



Witnesses:-
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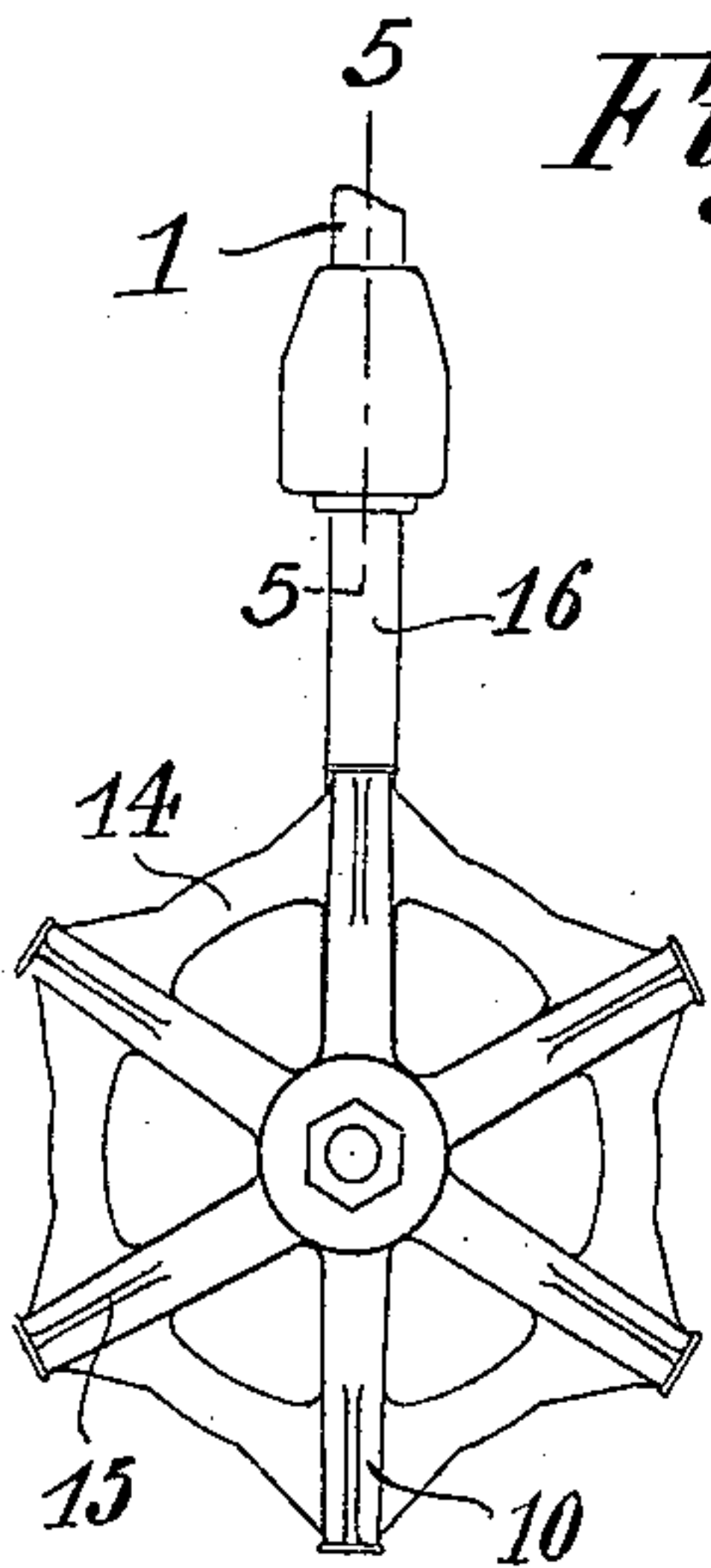


Fig. 3

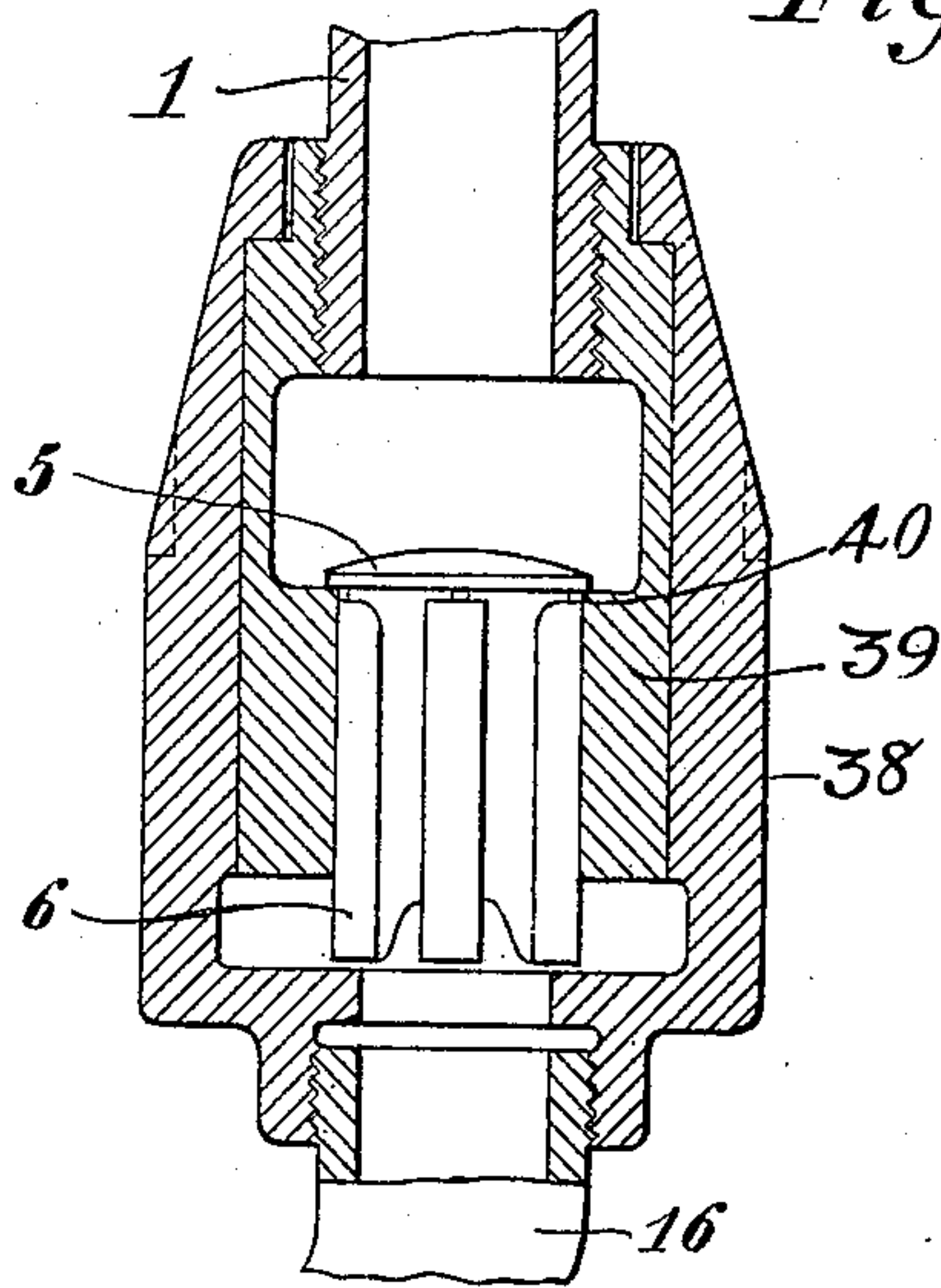


Fig. 5

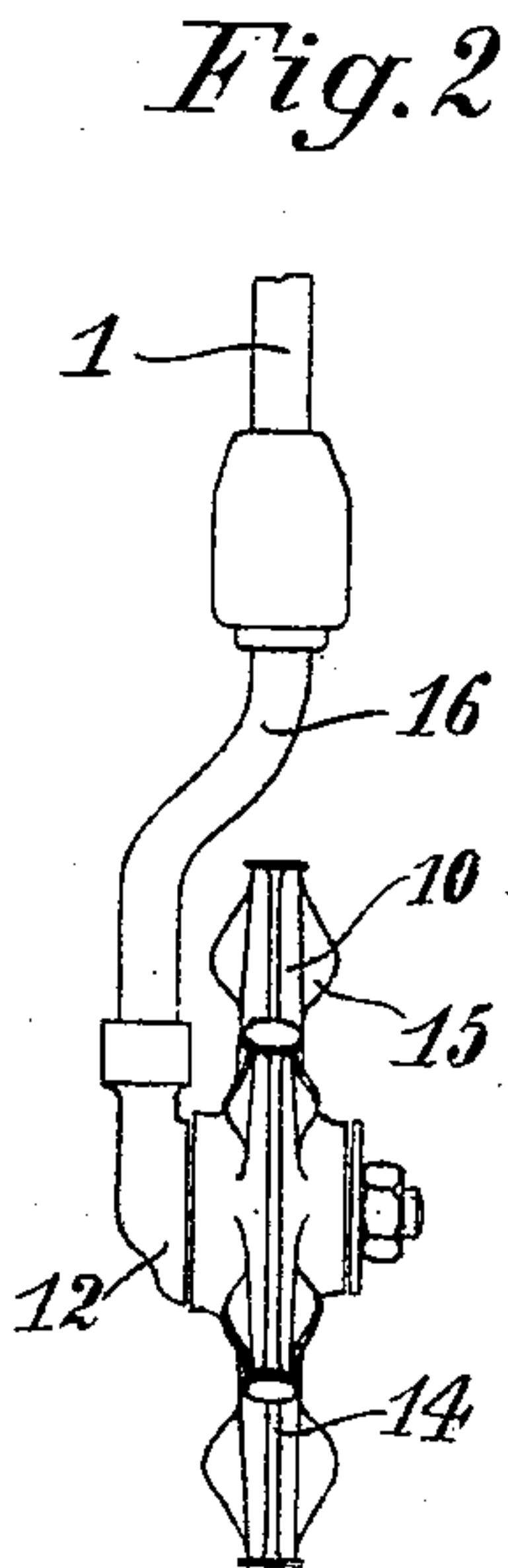


Fig. 2

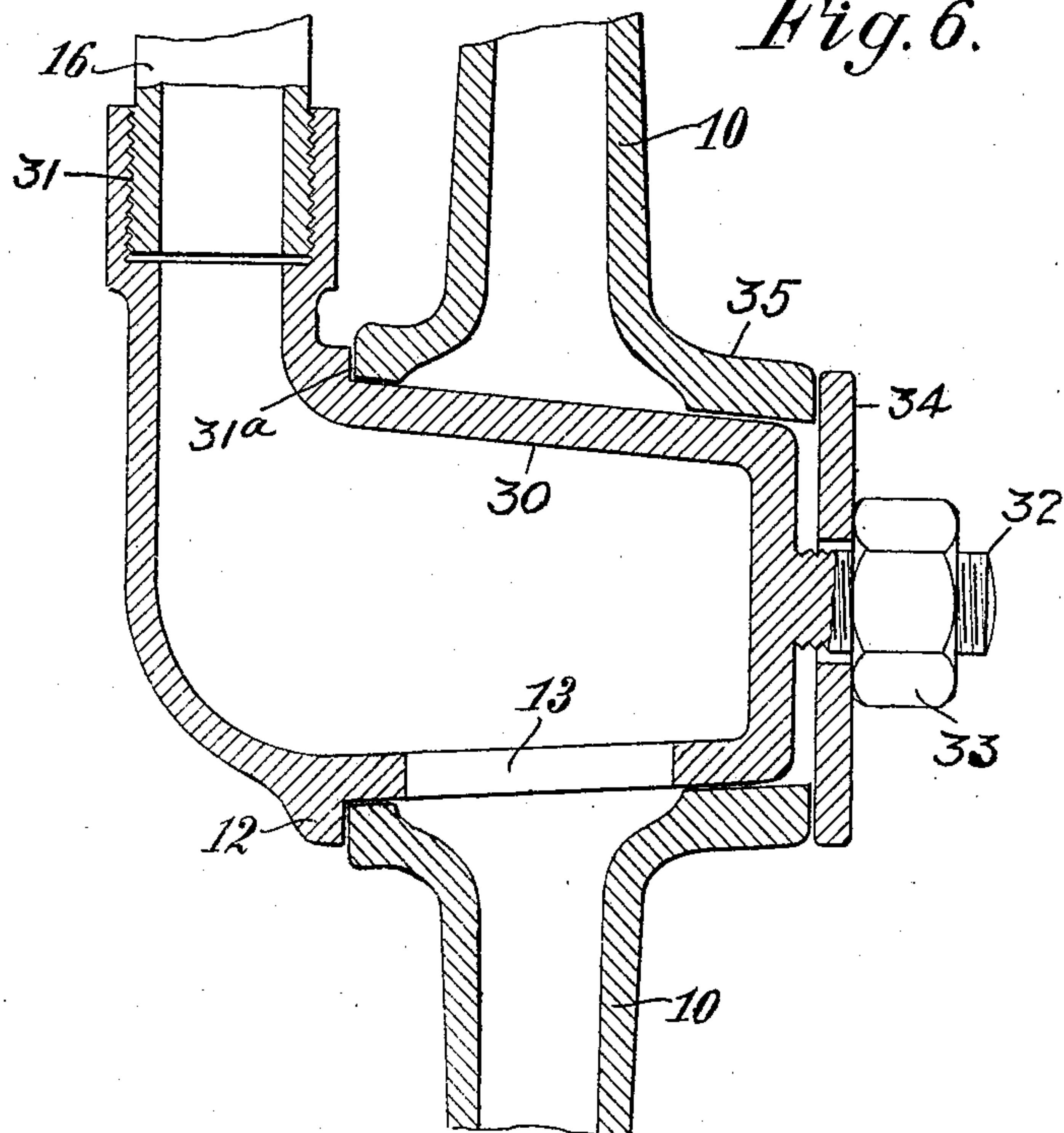


Fig. 6

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UNITED STATES PATENT OFFICE.

ASKAN MÜLLER, OF HOHENAU, AUSTRIA-HUNGARY.

FLUE-CLEANER.

No. 865,653.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed May 6, 1907. Serial No. 372,239.

To all whom it may concern:

Be it known that I, ASKAN MÜLLER, factory director, a subject of the Emperor of Austria, residing in Hohenau, Austria-Hungary, have invented new and useful
5 Improvements in Flue-Cleaners; 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, reference being had to the accompanying drawings, and to
10 letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in flue cleaners adapted for use in connection with steam or like pressure fluids as cleaning mediums.

15 One object of the invention is to avoid waste of steam occurring during the transfer of the nozzle of the cleaner from one flue to another by providing means for automatically shutting off steam when the cleaner is removed from one flue and in the preferred embodiment of the invention providing means of this character whereby the pressure fluid is automatically turned
20 on when the cleaner is inserted in another flue.

The invention consists in the provision of such means as claimed hereinafter and in combination with an improved device adapted to be so proportioned with respect to the centers of the flues as to permit the flue cleaner to be moved abreast of the flue plate, the said device automatically projecting into and centering
25 itself with respect to the flues and said means serving to automatically turn on and shut off the pressure fluid.

The invention also consists in the provision of a device of this character irrespective of said means for controlling the pressure fluid.

35 The invention will be more fully described in connection with the accompanying drawings and will be more particularly pointed out and ascertained in and by the appended claims.

In the drawings Figure 1 is a sectional view of one form of flue cleaner embodying my invention associated with a boiler flue. Fig. 2 is a view in end elevation of a modified form of the invention. Fig. 3 is a view in side elevation of the form shown in Fig. 2. Fig. 4 is a sectional view of the form shown in Fig. 3 illustrating the manner in which the device is operated
40 abreast of the flue plate. Fig. 5 is a sectional view on line 5—5 of Fig. 3. Fig. 6 is a sectional view on line 6—6 of Fig. 4.

Like numerals of reference designate similar parts throughout the different figures of the drawings.

50 Referring to the form shown in Fig. 1, and more especially to that feature of the invention that comprises means for automatically shutting off the pressure fluid and turning the same on during the transfer of the cleaner from one flue to another, 1 designates the supply or feed pipe for the pressure fluid which is adapted to be connected with any convenient source of supply.

A valve member 2, preferably in the form of a nipple, has threaded connection at 2^a with the feed pipe 1 and is provided with an annular valve seat 2^b between which and the end of the pipe 1 there is formed a receiving chamber 2^c. Said valve member is provided with a bore 20 at one end and at its opposite end it is reduced to form an annular shoulder 21. A valve closure 5 is adapted to cooperate with said seat 2^b and is provided with guide extensions 6 adapted to engage the bore 20
60 and hold the closure in alinement with its seat. Said closure is so disposed with respect to the feed pipe 1 that the incoming pressure fluid serves to normally hold the closure seated.

A combined valve actuating member and nozzle is 70 provided and as shown the same consists of two parts one of which comprises a sleeve 3. Said sleeve 3 is provided with a shoulder 22 adapted to cooperate with the shoulder 21 and fits snugly and is adapted to be reciprocated upon the valve member 2. The other of 75 said parts comprises a nozzle proper and consists of a nozzle 23 provided with an extension 4 which has threaded connection with the sleeve 3 at 24. Said nozzle is provided with an abutment 25 adapted to engage the outer ends of the guide portion 6 to unseat the closure 5. Centering means desirably in the form of
80 flanges 7 are provided and are formed integral with the nozzle 23. Said flanges are provided with shoulders 26 adapted to abut against the outer ends of the flues and extensions 27 adapted to extend within the flues 85 and guide the nozzle to a properly centered position. In this form of the invention an auxiliary nozzle 8 is employed and the same is disposed upon or carried by said flanges in such a manner as to surround the outer end of the nozzle 23 and project some distance within
90 the flue 9 as clearly shown in Fig. 1.

Normally, or when the nozzle is first inserted in the flue 9, the parts are in the position shown in Fig. 1 wherein the valve 5 is seated and the pressure fluid is shut off. When additional pressure is applied to 95 the feed pipe 1 the latter and the valve member 2 will be advanced or moved with respect to the nozzle proper, because of the sliding engagement between the valve member 2 and the sleeve 3, and as the closure 5 engages the abutment 25 and is prevented from further movement toward the right of Fig. 1 the closure
100 is opened and the steam or other medium passes through the nozzles 23 and 8 into the flue 9. The auxiliary flue 8 is relatively reduced in diameter with respect to the flue 9 in a manner to provide an intervening space 28 therebetween. The said auxiliary flue is also enlarged with respect to the nozzle 23 in a manner to form an intervening space 29. It will be seen from the foregoing that the action of the nozzle and auxiliary
105 nozzle will be similar to an injector as the ingoing steam will induce a flow of air through spaces 28 and 29 and thereby prevent the formation of eddies or
110

counter-currents adjacent the outer end of the flue which action serves to prevent or retard the cleaning operation of the outer end of the flue. By the construction herein shown the incoming air will flow with
5 sufficient force to clean the outer end of the flue.

The device of my invention also includes a movable element provided with a plurality of nozzles or outlets adapted to be spaced apart from each other a distance equal to the centers of the flues to which the cleaner
10 is to be applied so as to permit said element to be moved abreast of said flues and automatically centered with respect thereto.

As shown in Figs. 2 and 3 the device comprises a supporting pipe 16 provided with a bearing member
15 12. As shown in Fig. 6 said bearing member 12 is provided with an angular bearing extension 30 desirably provided with an outlet 13. At its other end said bearing member is secured to the supporting pipe 16 at 31 in the manner shown. Said extension 30 is
20 provided with an annular shoulder 31 and is tapered therefrom to its outer end. A stud 32 and a nut 33 together with a washer 34 serve to hold said element or nozzle member in place. As shown said nozzle member comprises a hub 35 bearing on the extension 30 and
25 rotatable with respect thereto and a plurality of radially disposed nozzles 10 extending outwardly from said hub. Said nozzles 10 are provided with centering means which as shown consists of flanges 14 connecting said nozzles and flanges 15 extending from the
30 discharge end of said nozzles rearwardly in angular relation with respect to the flanges 14. Said flanges 14 are provided with shoulders 36 adapted to abut against the outer ends of the flues 9 and reduced extensions 37 adapted to engage the outer ends of the
35 flues 9 to properly center the nozzle. The supporting pipe 16 is connected with a sleeve 38 similar to sleeve 3 and is adapted to inclose a valve member 39 rigidly connected with the feed pipe 1 and provided with a valve seat 40. A closure 5 provided with guide ex-
40 tensions 6 is arranged to operate similar to the construction shown in Fig. 1. It will thus be obvious that as the nozzle member is moved abreast of the flues 9 in the manner shown in Fig. 4 the centering means engaging the flues will automatically center the nozzles
45 with respect thereto. After a nozzle has been centered in position the operator will impart a forward movement to the feed pipe 1 unseating the closure 5 and permitting the pressure fluid to flow through the nozzle into the flue. When the flue is cleaned pres-
50 sure on the pipe 1 is released and the pressure fluid is automatically shut off whereupon the operator will impart a lateral movement, or vertical as the case may be, to the supporting pipe 6 thereby rotating the nozzle member on the extension 30 so as to bring the next
55 nozzle into place. Forward movement will then be

imparted to the feed pipe 1 whereupon the pressure fluid will be admitted in the manner hereinbefore described.

If it is desired to use the rotating nozzle member without the valves shown in Figs. 2, 3 and 5 a construction according to Fig. 6 may be employed. In this form of the invention there is but one outlet 13 to the various nozzles 10 and the pressure fluid can only be admitted when one of the nozzles register with the opening 13. It will thus be seen that when the structure is
60 moved to rotate the nozzle member on its support from the position shown in Fig. 4 the pressure fluid will be automatically cut off and when the next nozzle is in place the extension 30 may be rotated slightly to bring the opening 13 into register with the inserted or cen-
65 tered nozzle thereby turning on the pressure fluid. 70

I claim:—

1. A flue cleaner comprising in combination, a rotatable member provided with a plurality of radially disposed nozzles communicating with a source of supply of pressure fluid, and a support for said member, said nozzles being provided with centering means whereby they may be automatically centered in the flues when moved abreast thereof. 75
2. A flue cleaner comprising in combination, a rotatable member provided with a plurality of radially disposed nozzles communicating with a source of supply of pressure fluid, said nozzles being spaced apart from each other in accordance with the spacing of the flues in the boiler, and a support for said member. 80
3. A flue cleaner comprising in combination, a rotatable member provided with a plurality of radially disposed nozzles communicating with a source of supply of pressure fluid, said nozzles being spaced apart from each other in accordance with the spacing of the flues in the boiler, and a support for said member, said nozzles being provided with centering means whereby they may be automatically centered in the flues when moved abreast thereof. 85
4. A flue cleaner comprising in combination, a rotatable member provided with a plurality of nozzles, a support therefor on which said member is rotatively mounted, and means whereby pressure imparted to and released from said support serves to turn the pressure fluid on and off. 90
5. A flue cleaner comprising in combination, a movable member provided with a plurality of nozzles, communicating with a source of supply of pressure fluid, a support for said member, and means whereby pressure imparted to and released from said support serves to turn the pressure fluid on and off. 95
6. A flue cleaner comprising in combination, a rotatable member provided with a plurality of radially disposed nozzles communicating with a source of supply of pressure fluid, a support for said member, and means whereby pressure imparted to and released from said support serves to turn the pressure fluid on and off. 100

In testimony whereof I affix my signature in presence of two witnesses. 105

ASKAN MÜLLER.

Witnesses:

RUD ZIPSER,
RUDOLF THEUMER.