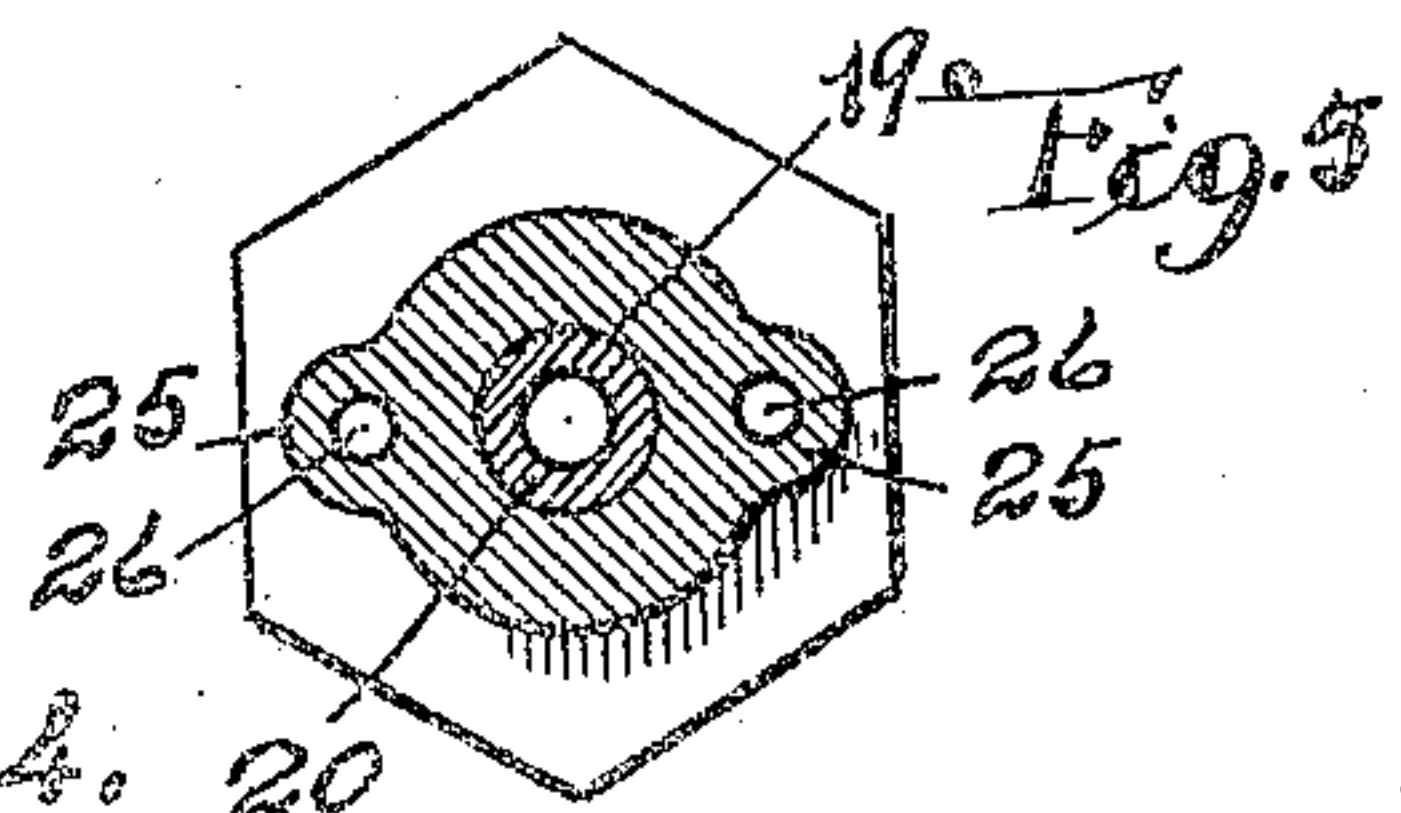
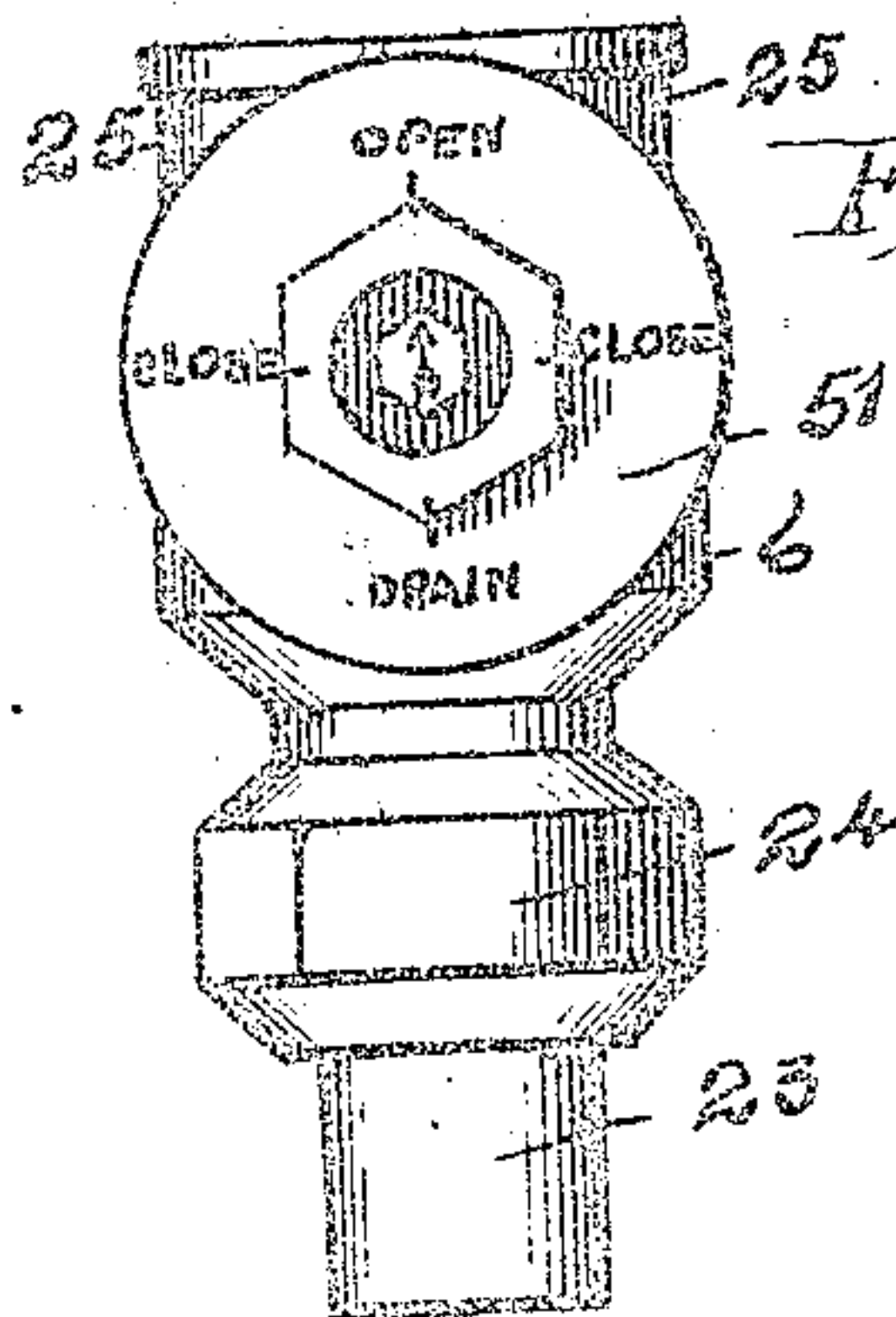
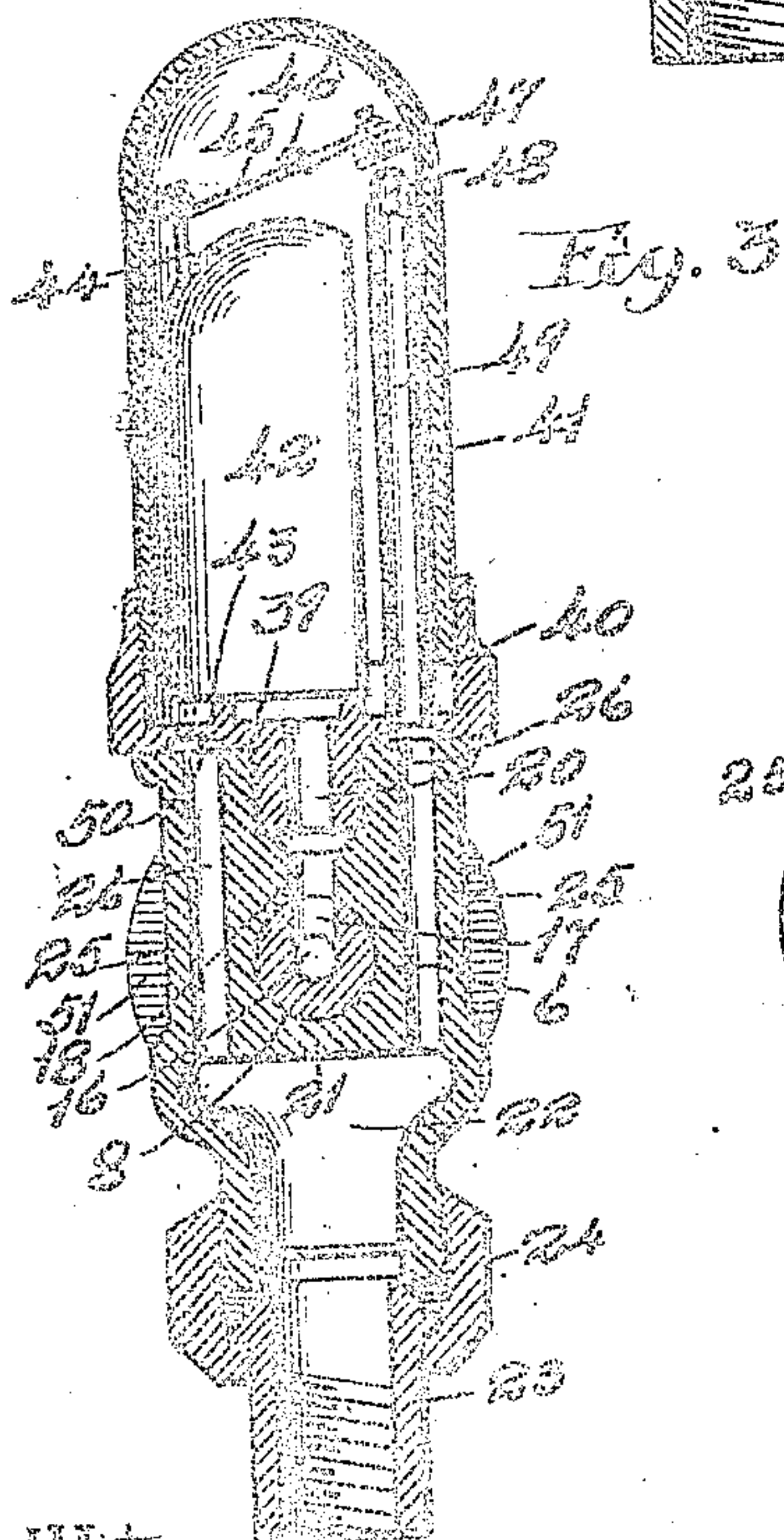
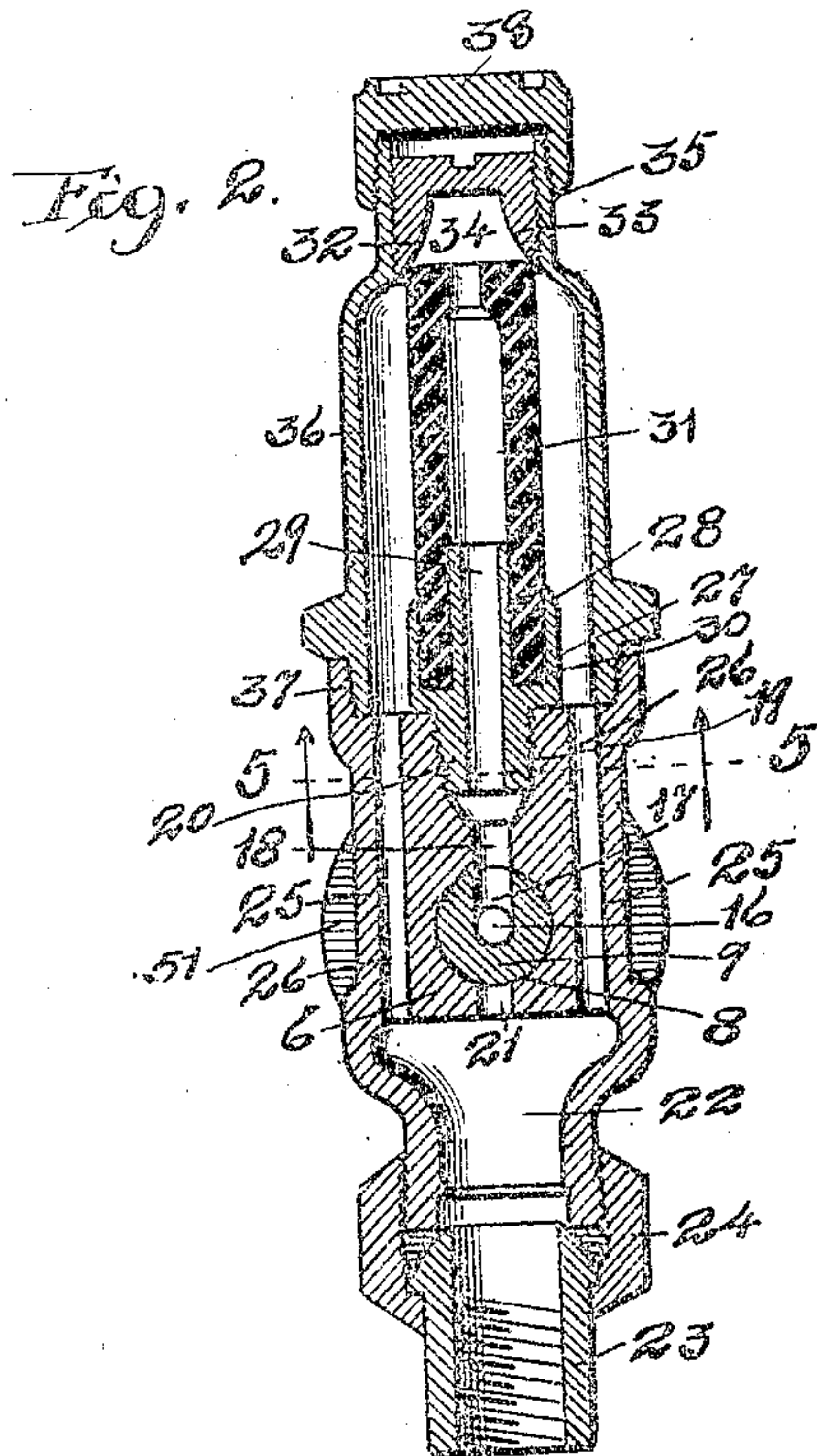
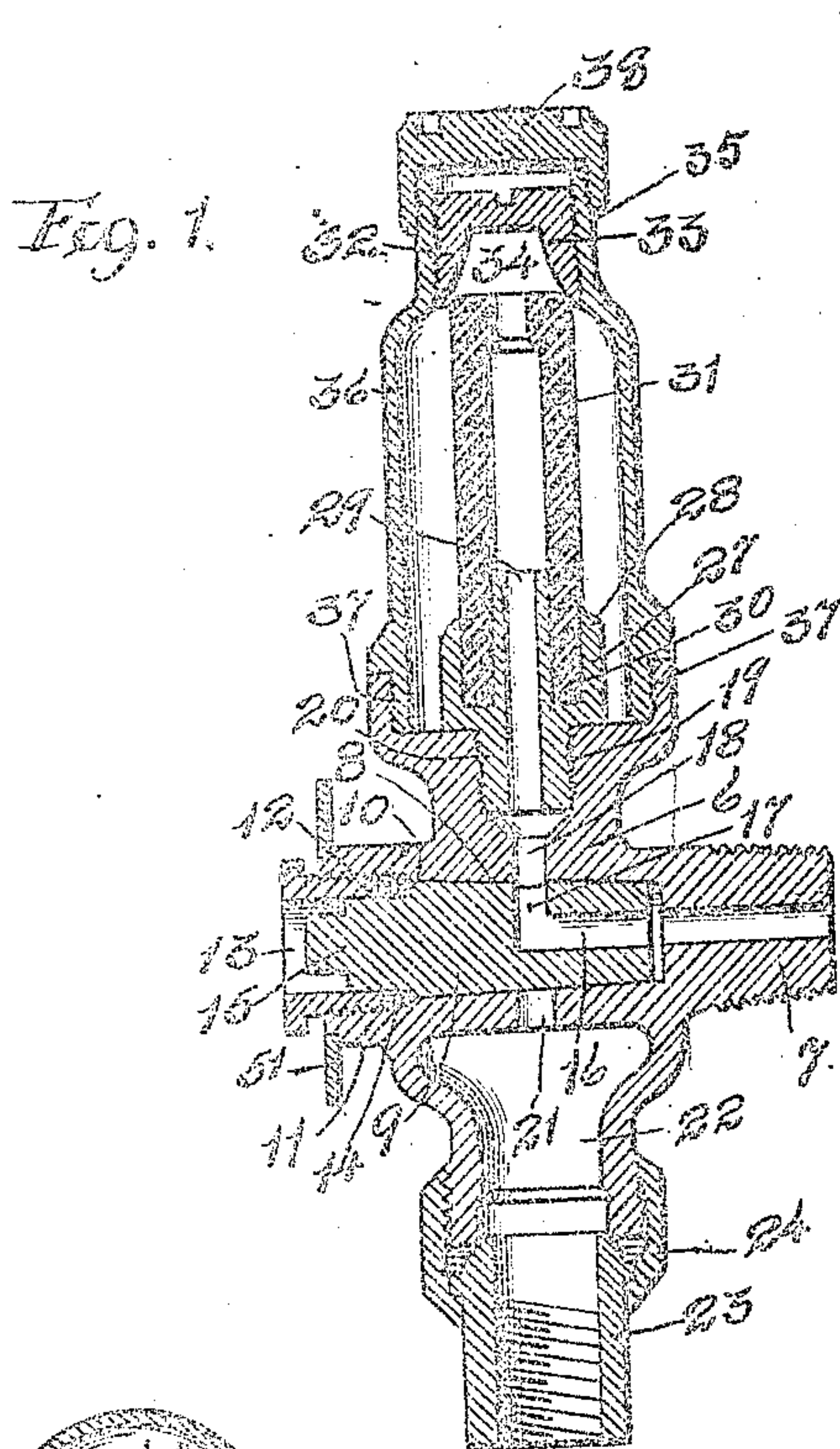


No. 891,183.

PATENTED JUNE 16, 1908.

F. W. LEUTHESSE.
AIR VALVE FOR RADIATORS.
APPLICATION FILED MAR. 2, 1907.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRED W. LEUTHESSER, OF CHICAGO, ILLINOIS, ASSIGNOR TO MONASH-YOUNKER COMPANY,
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AIR-VALVE FOR RADIATORS.

No. 891,180.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed March 2, 1907. Serial No. 360,271.

To all whom it may concern:

Be it known that I, FRED W. LEUTHESSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Air-Valves for Radiators, of which the following is a specification.

This invention more particularly relates to the base portion of a radiator valve and has for its object to provide means for more rapidly relieving the radiator system of air than is possible in the normal operation of the valve, by providing an auxiliary valve adapted to be turned to a suitable position to afford a by-pass for the rapid discharge of air. The valve further serves to rapidly drain the system of surplus water, when turned to one position, and serves to afford a passage for the air or water to the operative portions of the valve, when turned to a different position, thereby enabling the user to facilitate the action of the heating system in all cases in which it is inconvenient to wait for the normal discharge of air from the system.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings illustrating the invention, Figure 1 is a sectional elevation of a valve of the style ordinarily employed in a vacuum system; Fig. 2 a similar view taken at right angles to the section of Fig. 1; Fig. 3 a view similar to Fig. 2, showing the valve as employed in a hot water system; Fig. 4 a side elevation of the base or cup of Fig. 3; and Fig. 5 a cross sectional view taken on line 5-5 of Fig. 2, looking in the direction of the arrow.

The base portions of the valve, which more particularly form the subject matter of the present invention, are the same whether the valve be of the style shown in Figs. 1 and 2, or of the style shown in Fig. 3, for which reason a single description of this portion of the device is deemed sufficient. The valve of either style comprises a base portion 6 from which laterally extends a tapered nipple 7. The nipple communicates with a tapered valve chamber 8 having its axis in alinement with the bore of the nipple, which valve chamber has entered thereinto a tapered valve plug 9, provided with a shoulder 10. The base portion 6 has outwardly projecting therefrom, diametric-

ally opposite to the nipple, a short tubular neck 11, provided with screw threads 12, into which is entered a gland 13 which serves to compress a spring 14 against the shoulder 10 of the valve plug, thereby preventing leakage and permitting the rotation of the valve plug. The valve plug is provided at its outer end with a squared head 15 which lies within the rim of the gland and is adapted to be engaged by any suitable wrench of proper size.

As shown in Fig. 4, the squared head is preferably marked with an arrow adapted to indicate the position of the valve plug. The valve plug is provided in its inner end with a longitudinally extending passage 16, which registers with the passage in the nipple, and the passage 16 terminates in a laterally extending passage 17, which, when the valve is in its normal position of adjustment, registers with an upwardly opening port 18 leading to the main or operative portion of the air valve. The port 18 merges into an enlarged screw-threaded socket hole 19 adapted to receive a nipple 20. Below the valve plug and in alinement with the port 18 is a discharge port 21 which opens into the interior of a discharge nipple 22, which latter is connected with a pipe tap 23 by means of a nipple 24.

On opposite sides of the valve plug, the valve casing is thickened to provide vertically extending ribs 25, each of which is provided with a discharge passage 26 communicating with the discharge nipple, as indicated in Figs. 2 and 3. The parts hitherto described all pertain to the valve of either style of construction, but the operating portions of the valve, of necessity, differ in the types under consideration.

In the construction illustrated in Figs. 1 and 2, the nipple 20 terminates in an enlarged socket 27, having an outer wall 28 and a tubular inner wall 29, leaving an annular space 30, for the reception of a tubular post of vulcanite 31 adapted to expand and contract under changes of temperature. Immediately above the upper end of the vulcanite post is a seating plug 32 provided with a concavity 34, which affords a seating surface 33 on its under side, the walls of which concavity afford a seating for the upper end of the vulcanite post. The seating plug is screw-threaded into the neck 35 of a shell 36, the lower end of which is screw-threaded into

a socket 37 on the base portion of the valve. The seating plug is inclosed by means of a cap 38 which is screw-threaded onto the end of a neck 35.

5 In the construction illustrated in Fig. 3, the nipple 20, instead of supporting a socket of the character hitherto described, depends from and is formed integrally with a flooring 39 which rests upon the flat upper face of the
10 base portion of the valve, the socket 37 being eliminated to permit the parts to rest in facial contact with one another. The flooring has formed around its edge a rim or flange 40, screw-threaded on its interior, which rim or
15 flange has entered therinto a dome-shaped casing 41. Within the casing is located a float 42 of the usual type, which float is adapted to rest upon a lug 43 on the floor of the valve casing, which raises the float suffi-
20 ciently to permit the easy ingress of water. The float carries near its top a small stud 44 which engages with one end of a lever 45 which is mounted on a pivot 46 and is provided at its opposite end with a closing block
25 47. The closing block is adapted to be seated against a nipple 48 entered into the upper end of a discharge pipe 49, which latter is entered through the flooring of the valve casing and is in alinement with one of the discharge
30 passages 26. The flooring, on its under side, is provided with an annular recess 50 into which the pipe 49 enters, with which annular recess both of the discharge passages 29 are in communication.

35 In order to facilitate the adjustment of the valve of either style, a dial plate 51 is employed, which is secured to the neck 11 and is inscribed with suitable words indicating the positions to which the valve may be
40 turned, as, for instance, "Open", "Closed", and "Drain", or words of similar import.

In use, when it is desired to have the air valve operate automatically or in its normal
45 manner, the valve plug is turned into the position indicated in Figs. 1, 2, and 3, which permits the air escaping from the heating system to pass through the valve plug and up to the operative portions of the valve. When
50 it is desired to drain the system or provide for a more rapid discharge of air, the valve is turned into position to bring the passage 17 into register with the discharge port 21 which provides a direct passage for the escape of air and facilitates its discharge.

55 If desired, the valve can be shut off entirely by turning the passage 17 half way around, which completely shuts off the discharge of air or water through the valve. This latter adjustment can be made when it is desired,
60 for any reason, to remove the valve casing or disconnect the valve at its lower end.

In the valve of Figs. 1 and 2, the air, passing through the air plug, will pass upwardly
65 through the tubular vulcanite post, thence downwardly within the casing and through

the discharge passage 26. This action will continue until the system has been relieved from air and the steam begins to enter the valve. As in all air valves of this character, the steam serves to expand the vulcanite post
70 and prevent further escape of air and steam from the valve.

The valve of Fig. 3 differs only from that hitherto described in that a float of the ordinary character is provided in place of the
75 expansible vulcanite post, which float will be raised as soon as the system has been relieved from air and water begins to rise in the valve. The rise of the float serves to close the pipe
80 49, thereby preventing the further discharge of air or water through the valve.

So far as the auxiliary mechanism, which more particularly forms the subject matter of the present invention, is concerned, such mechanism is exactly the same in both cases, the only features of difference being such as
generally pertain to valves of the two different styles above described.

The invention is one which enables the air in a heating system to be more quickly and
90 more easily discharged, by proper manipulation of the valve, than by the normal operation of the valve. In many cases it is highly desirable that the radiators be more rapidly heated than is possible where the air is per-
95 mitted to escape by a circuitous route through the valve ordinarily provided. The invention furthermore permits the air to be vented in cases in which the valve mechanism be-
100 comes disordered, so that no difficulty will be experienced in bringing the radiators to the required temperature, even though the valve be out of commission. The valve further
provides means for quickly draining the system of surplus water or water of condensa-
105 tion, and provides a closure, which permits the valve casing to be removed and the interior mechanism to be repaired or renewed without the escape of any water or steam
110 from the radiator.

What I regard as new and desire to secure by Letters Patent is:—

1. In an air valve adapted to be placed in communication with a radiator, the combination of two discharge passageways, automatic means controlling the outlet of one of
115 said passageways, and a three-way valve adapted to close communication between either or both of said passageways and the radiator.

2. In an air valve for radiators, in combination with automatic means for regulating the flow of air, a direct discharge passageway, a passageway through the valve adapted to be put in communication, at one end,
125 with a radiator, and, at its other end, with the automatic regulating means, a valve plug in said last named passageway, intermediate the point of attachment with the radiator and the automatic regulating means, 130

said plug adapted, when turned in one position, to establish communication between the radiator and the automatic regulating means, and adapted, when in another position, to shut off such communication and provide a direct connection with the direct discharge passageway for permitting the direct discharge of air, substantially as described.

3. In an air valve for radiators, in combination with means for automatically regulating the discharge of air, a discharge passage, a tubular nipple, a revoluble valve plug having a passage, a portion of which leads from the end of the valve plug and is in alinement with the passage in the nipple, the passage in the valve plug, when in one position, affording communication with the automatic means, and, when in another position, affording a direct connection with the discharge passage for permitting the direct discharge of air, substantially as described.

4. In an air valve for radiators, the combination of a base portion having at one side a tubular nipple adapted to be connected to a radiator, the base portion having a passage therethrough formed to provide a valve chamber, a revoluble valve plug entered into the valve chamber and in axial alinement with the nipple, such valve plug having formed therethrough a passage leading from the end of the plug adjacent to the nipple and opening through the side of the plug, the valve chamber being provided with an upper and a lower discharge port, said ports being adapted to register with the opening in the side of the valve plug when said plug is turned to different positions of adjustment, a socket portion terminating in a tubular nipple in alinement with said upper port, automatic mechanism for regulating the flow of air through the socket portion, a shell surrounding the automatic mechanism, a discharge

passage leading from the chamber within the shell through the base portion, and a discharge pipe connected with the base portion, the plug being revoluble to establish a direct communication between the passage therein and either of said discharge ports, substantially as described.

5. In an air valve for radiators, the combination of a base portion having at one side a tubular nipple adapted to be connected to a radiator, the base portion having a passage therethrough formed to provide a valve chamber, a revoluble valve plug entered into the valve chamber and in axial alinement with the nipple, said valve plug having formed therethrough a passage leading from the end of the plug adjacent to the nipple and opening through the side of the plug, the valve chamber being provided with an upper and a lower discharge port, said ports being adapted to register with the opening in the side of the valve plug when said plug is turned to different positions of adjustment, a socket portion terminating in a tubular nipple in alinement with said upper port, automatic mechanism for regulating the flow of air through the socket portion, a shell surrounding the automatic mechanism, a discharge passage leading from the chamber within the shell through the base portion, and a discharge pipe connected with the base portion and in communication with said discharge passage, the plug being revoluble to establish a direct communication between the passage therein and either of said discharge ports, a marked head on the outer end of the valve plug and an inscribed stationary disk adapted to indicate to the user the adjustment of the valve, substantially as described.

FRED W. LEUTHESSER.

Witnesses:

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