

No. 897,554.

PATENTED SEPT. 1, 1908.

I. H. PECK & W. D. HAGGERTY.

AUTOMATIC TRAP.

APPLICATION FILED FEB. 26, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

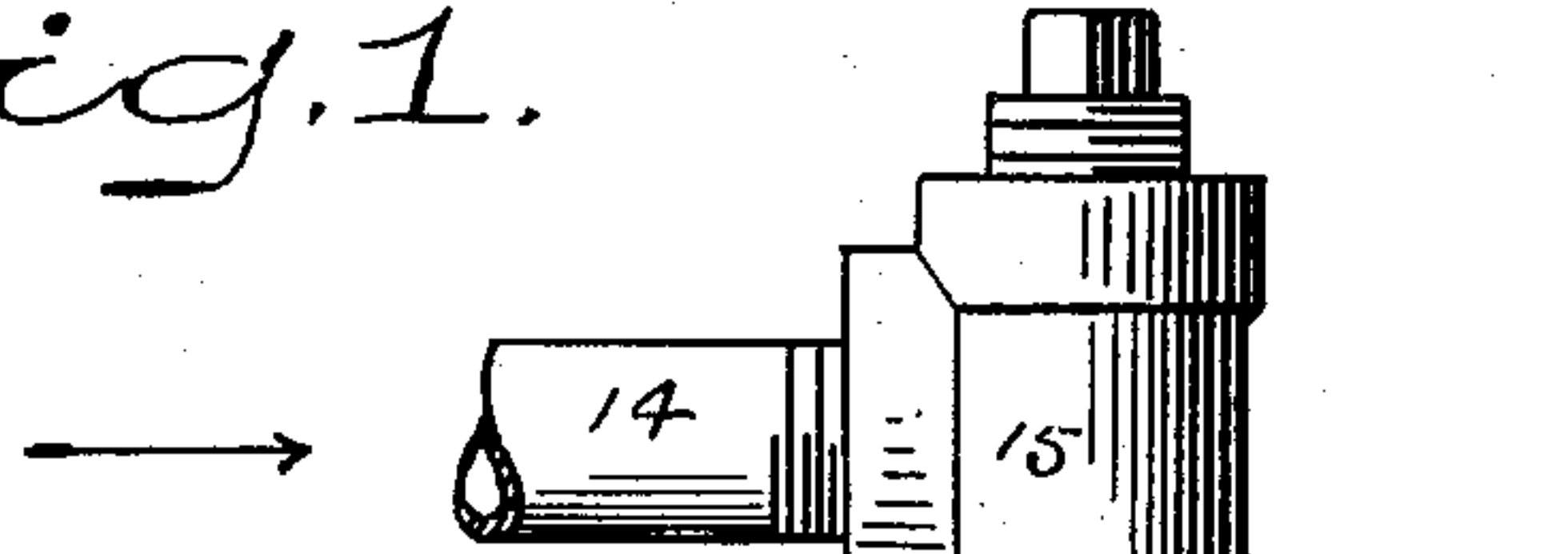


Fig. 2.

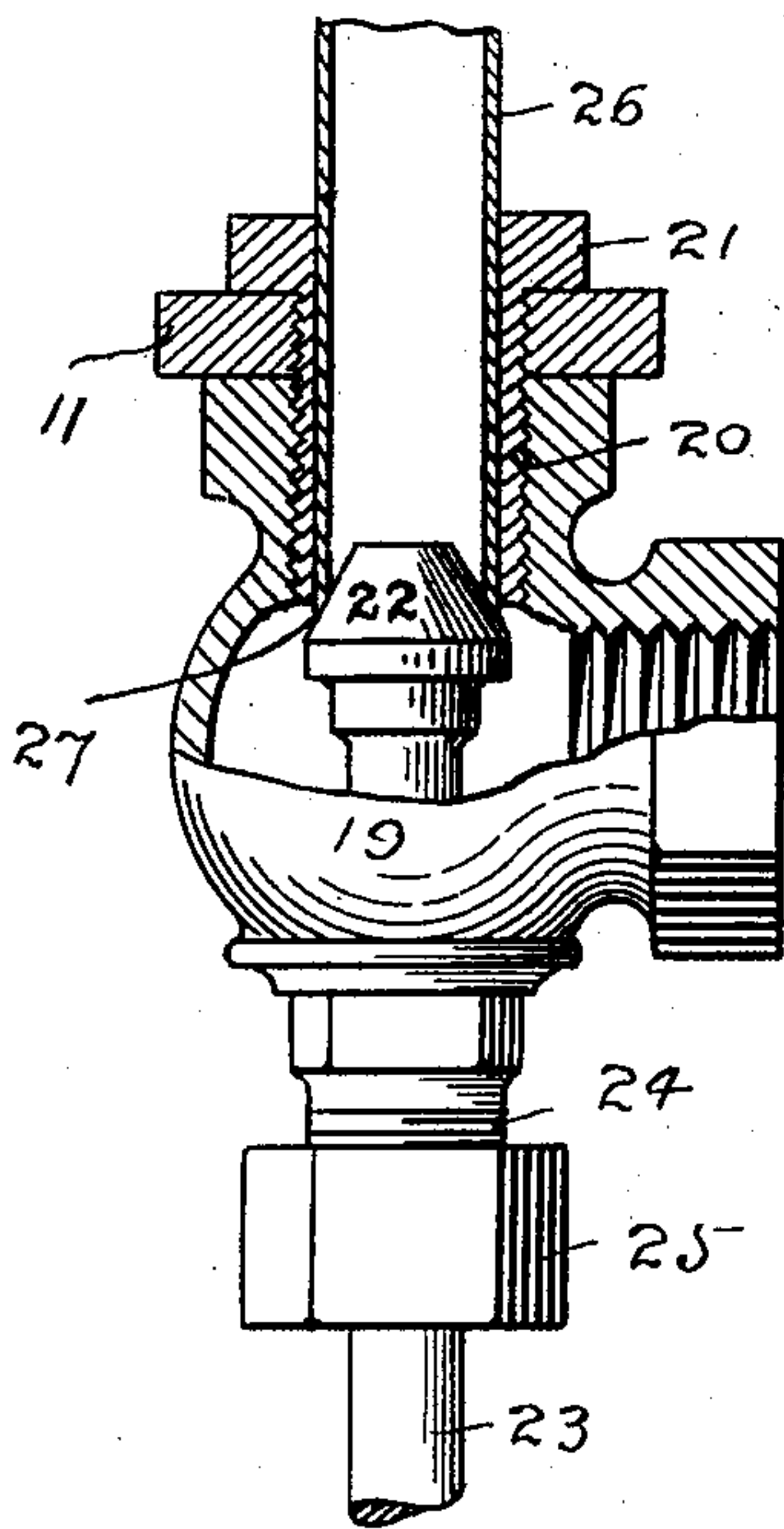


Fig. 4.

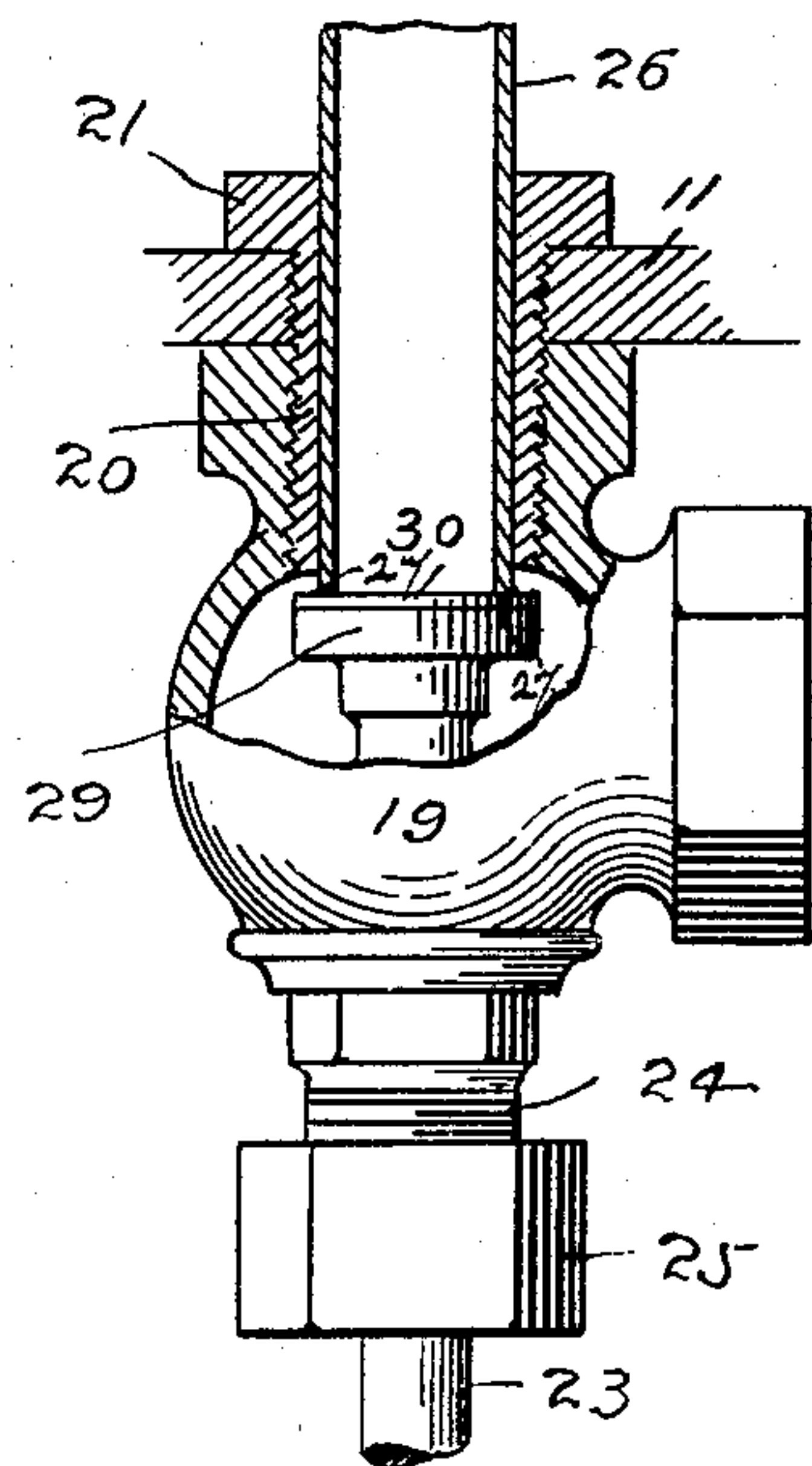
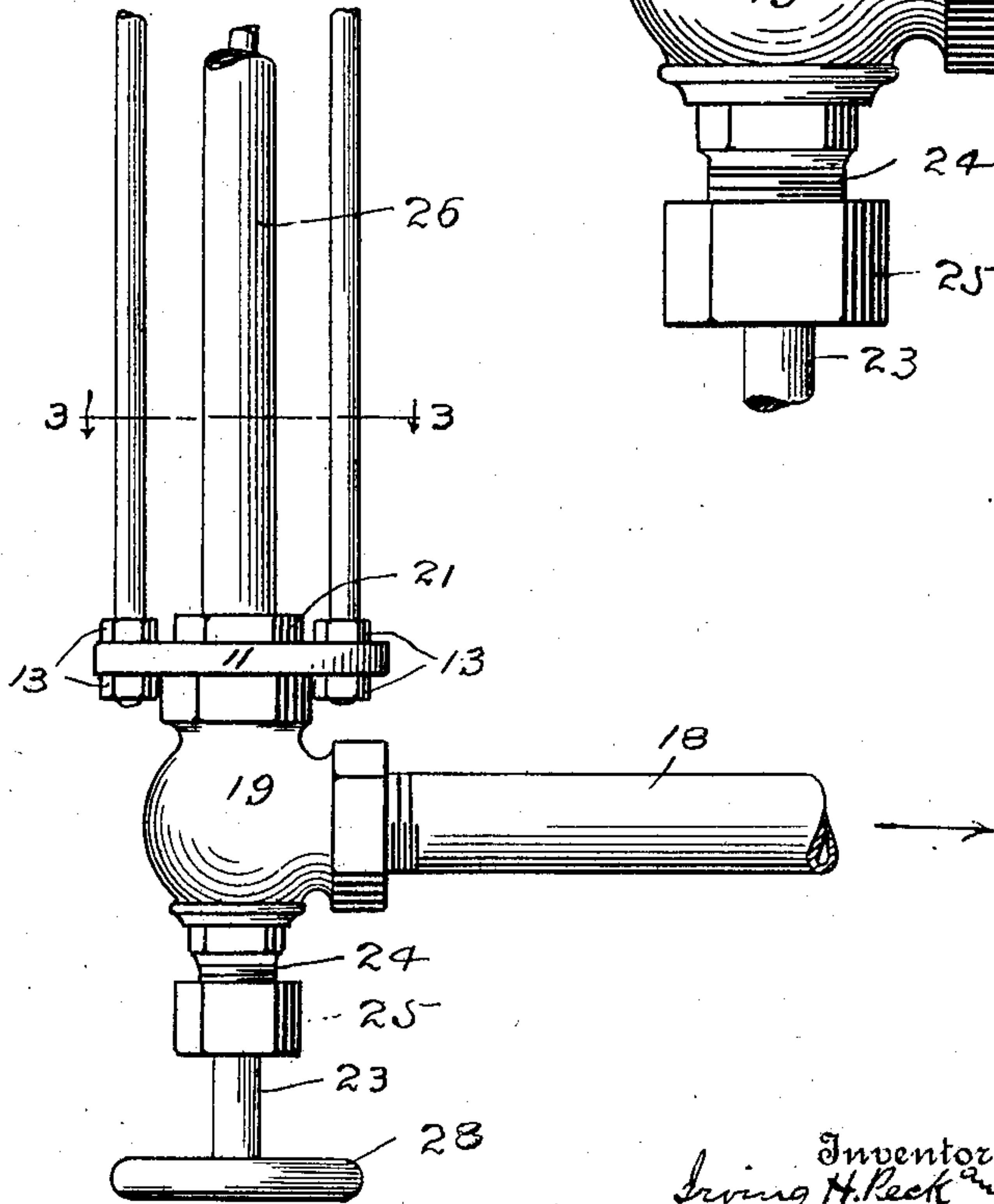
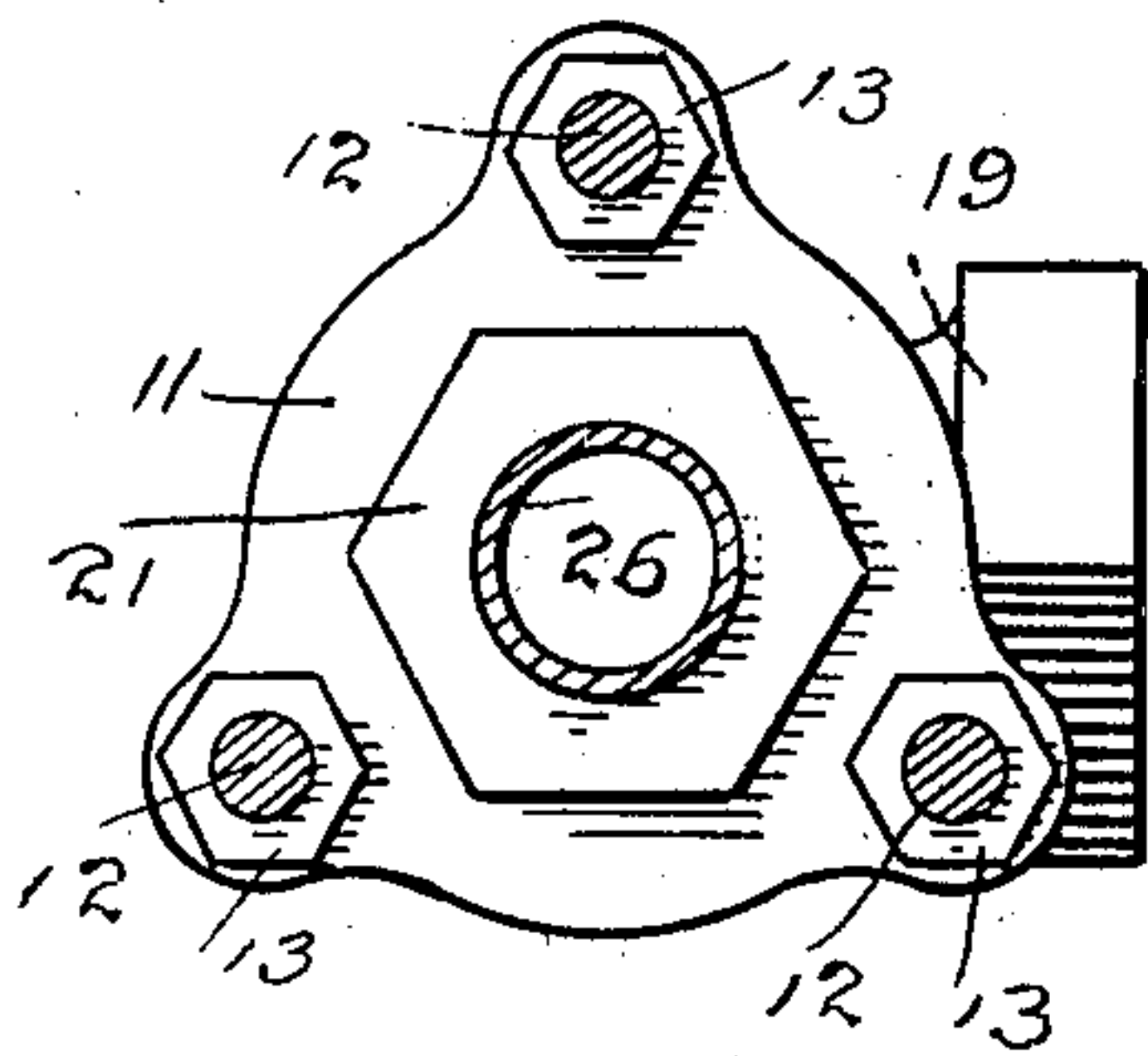


Fig. 3.



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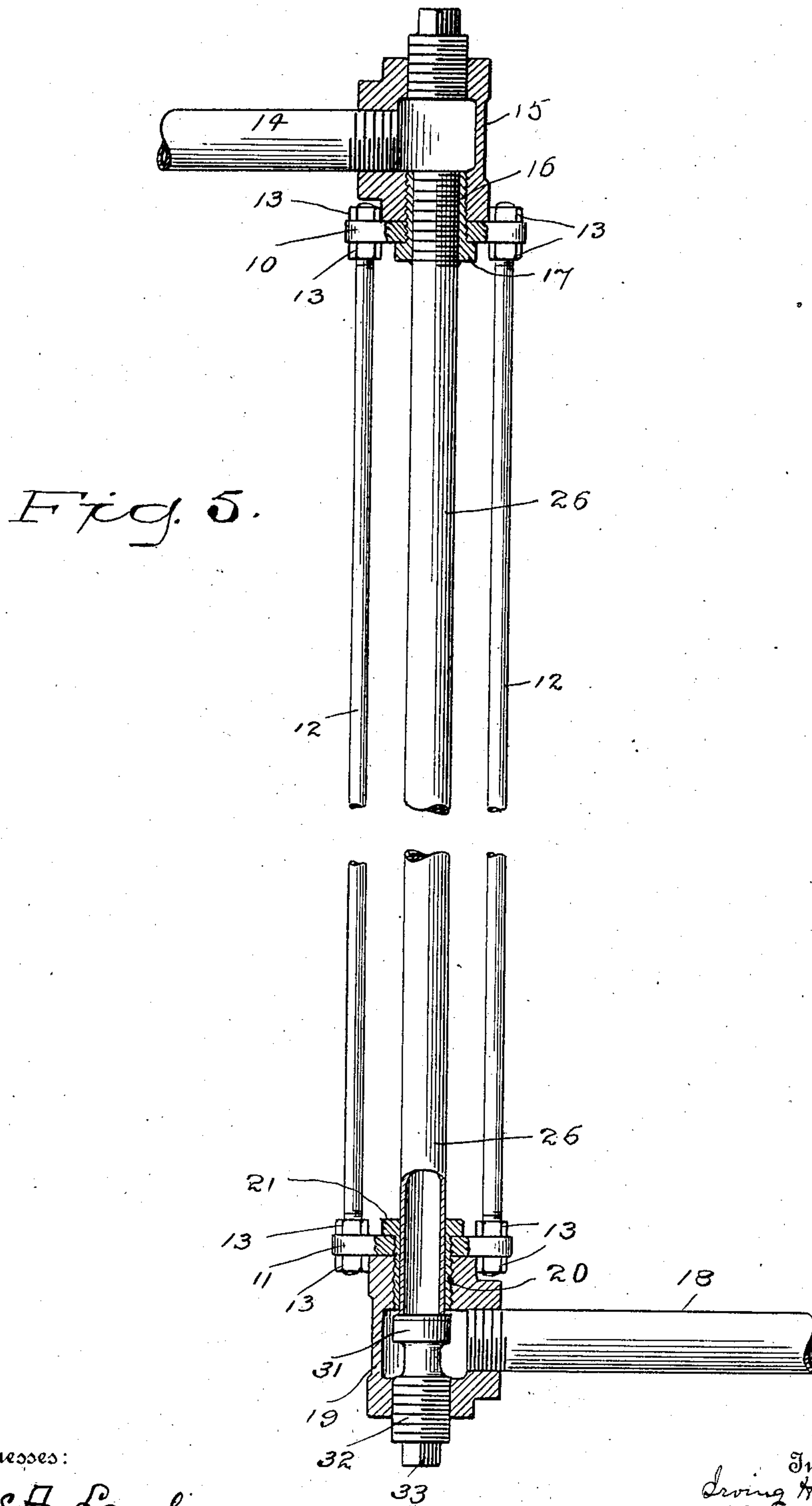
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2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

IRVING H. PECK AND WILLIAM D. HAGGERTY, OF DERBY, CONNECTICUT.

AUTOMATIC TRAP.

No. 897,554.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed February 26, 1908. Serial No. 417,843.

To all whom it may concern:

Be it known that we, IRVING H. PECK and WILLIAM D. HAGGERTY, citizens of the United States, residing at Derby, county of New Haven, State of Connecticut, have invented a new and useful Automatic Trap for Steam-Heating Systems, of which the following is a specification.

This invention has for its object to provide a trap for radiators, steam tables, steam heating systems, etc. that will open automatically through the contraction of a metal pipe carrying a valve seat to permit water of condensation to escape when the steam is shut off and will automatically close to prevent the passage of steam as soon as steam is turned on and heats the pipe.

With these and other objects in view we have devised the novel expanding seat trap, of which the following description in connection with the accompanying drawings is a specification, reference characters being used to indicate the several parts.

In the accompanying drawings forming a part of this specification, Figure 1 is an elevation of our novel trap complete; Fig. 2 a sectional view on an enlarged scale, showing the operation of the expanding seat in closing the trap; Fig. 3 a section on the line 3—3 in Fig. 1 looking in the direction of the arrows; Fig. 4 a view corresponding with Fig. 2, illustrating a variant form of construction; and Fig. 5 is a view partly in elevation and partly in section, illustrating other changes in the details of construction.

10 and 11 denote respectively upper and lower cross-heads which are rigidly connected by rods 12, the threaded ends of which pass through the cross heads and are engaged by nuts 13 on opposite sides of the cross-heads. The trap is placed at the outlet end of a radiator, steam table or heating system.

14 denotes a pipe leading from the radiator, table or system which we term for convenience the inlet pipe and which engages an upper head indicated by 15. The upper head is shown as connected to the upper cross-head by means of a threaded sleeve 16 engaging the cross-head and the upper head and itself provided with a head 17 made polygonal to receive a wrench for convenience in turning the sleeve to place.

18 denotes the outlet pipe which leads from a lower head 19 which is shown as connected to the lower cross-head by means of a threaded sleeve 20 engaging the head and

cross-head and itself provided with a polygonal head 21 for convenience in turning the sleeve to place as at the opposite end of the trap.

The heads 15 and 19 are firmly clamped to the cross heads 10 and 11 by the sleeves 16 and 20 respectively, each of said heads 15 and 19 having a flat face which bears against one side of its respective cross head while the heads 17 and 21 of sleeves 16 and 20 respectively bind said cross heads against the flat faces of heads 15 and 19. This, with the connecting rods 12, provides a firm and durable construction which avoids liability of leakage and enables the parts to be supported by the inlet and outlet pipes 14 and 18 without requiring wall brackets or other supports.

In the form illustrated in Fig. 2, 22 denotes the valve which in this form is made conical and is carried by a stem 23 which passes through a stuffing box 24 and through the lower head. The stuffing box is externally threaded to receive a nut 25 which keeps the stuffing box tight, permits adjustment of the valve in installing the trap and also locks the valve against movement, as will be more fully explained. 26 denotes a tube made of any expansible metal, as brass, which is rigidly secured to the upper sleeve 16 as by means of a thread and solder and passes with a close fit through the lower threaded sleeve 20 but is not secured thereto. The lower end of this tube serves as a valve seat, indicated by 27, and is adapted to engage the valve to prevent the passage of steam. The essential feature of the present invention is that in use the valve is stationary and the seat is automatically movable, through the expansion of the tube, to open and close the valve; that is, to permit the passage of water of condensation when the tube is cold and to prevent the escape of steam when the tube is expanded longitudinally by the steam. In setting up the trap for use, nut 25 is loosened and the valve turned backward to permit free passage of steam until the tube is fully expanded thereby. The valve is then turned up tight against the seat to prevent the passage of steam, after which nut 25 is turned up tightly to lock the valve in place. In Fig. 1, the stem is shown as provided with a hand wheel 28 for convenience in operation in adjusting the valve. In the form illustrated in Fig. 2, the valve, indicated by 22, is conical and the valve seat at

the lower end of the tube is beveled to correspond therewith.

The form illustrated in Fig. 4 differs only in the form of the valve and valve seat. The valve, indicated by 29, is provided with a flat face and may or may not be provided with a packing washer indicated by 30. The lower end of the tube in this form, which comprises the valve seat, may likewise be left with a flat face to correspond with the face of the valve seat.

In the form illustrated in Fig. 5, the flat faced valve and valve seat are retained as in Fig. 4. The valve, however, in this form, indicated by 31, is formed integral with a plug 32 which engages and closes a threaded hole in the lower head 19. The plug is shown as provided with an angular portion 33 for the application of a wrench in adjusting the valve, the operation of adjusting the valve for use being substantially the same as before.

Having thus described our invention we claim:

1. An automatic trap comprising in its construction two heads having connections for inlet and outlet pipes respectively, said heads having flat opposing faces, cross heads mounted against said flat faces, sleeves passing through said cross heads into the first

mentioned inlet and outlet heads, said sleeves having heads engaging said cross heads to bind them against the inlet and outlet heads, rods connecting said cross heads, a tube secured to one of said sleeves and mounted to slide in the other sleeve, and a valve opposite the sliding end of said tube.

2. In an automatic trap, the combination with upper and lower cross-heads, rods connecting said cross-heads, upper and lower heads, inlet and outlet pipes engaging said heads respectively and sleeves having heads clamping the cross heads to said upper and lower heads, of a valve adjustably secured in the lower head and a tube rigidly secured in the upper sleeve and extending through the lower sleeve and provided at its lower end with a valve seat which engages the valve to prevent escape of steam when the tube is expanded and permits escape of water of condensation when the tube is contracted.

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

IRVING H. PECK.
WILLIAM D. HAGGERTY.

Witnesses:

PAUL F. HEMINGWAY,
HOWARD B. PECK.