

(No Model.)

R. NEWTON.
VALVE FOR STEAM TRAPS.

No. 284,469.

Patented Sept. 4, 1883.

Fig. 2.

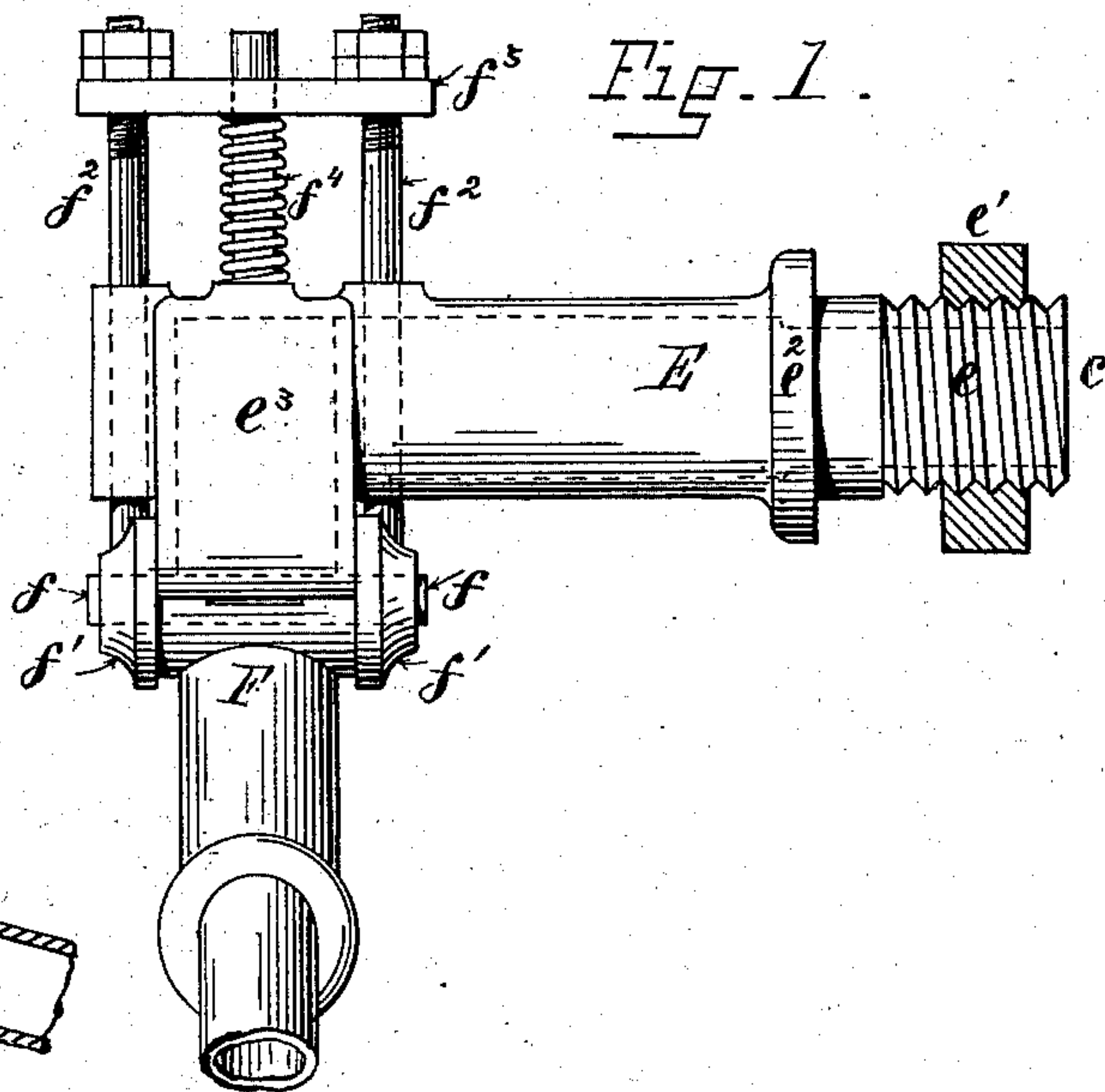
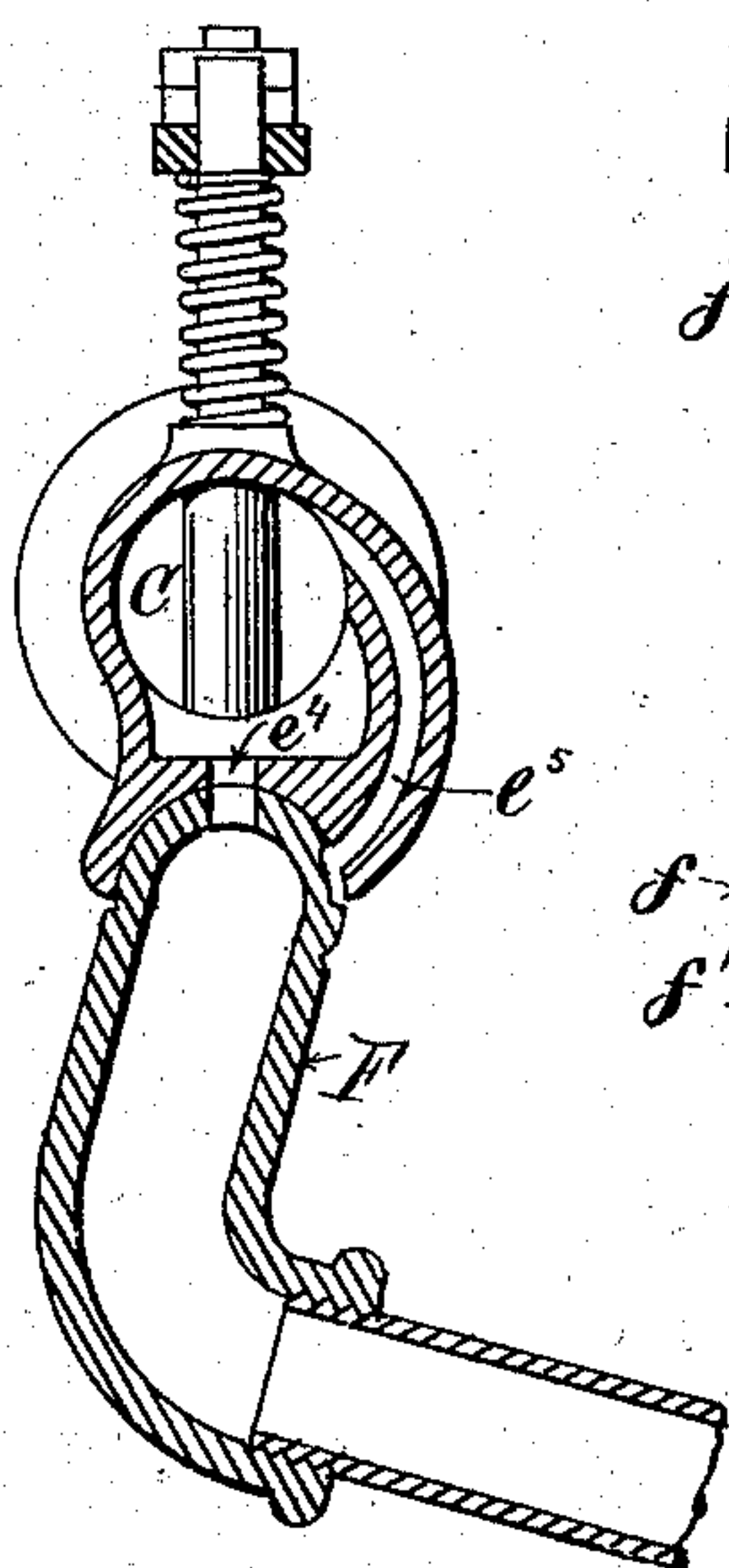
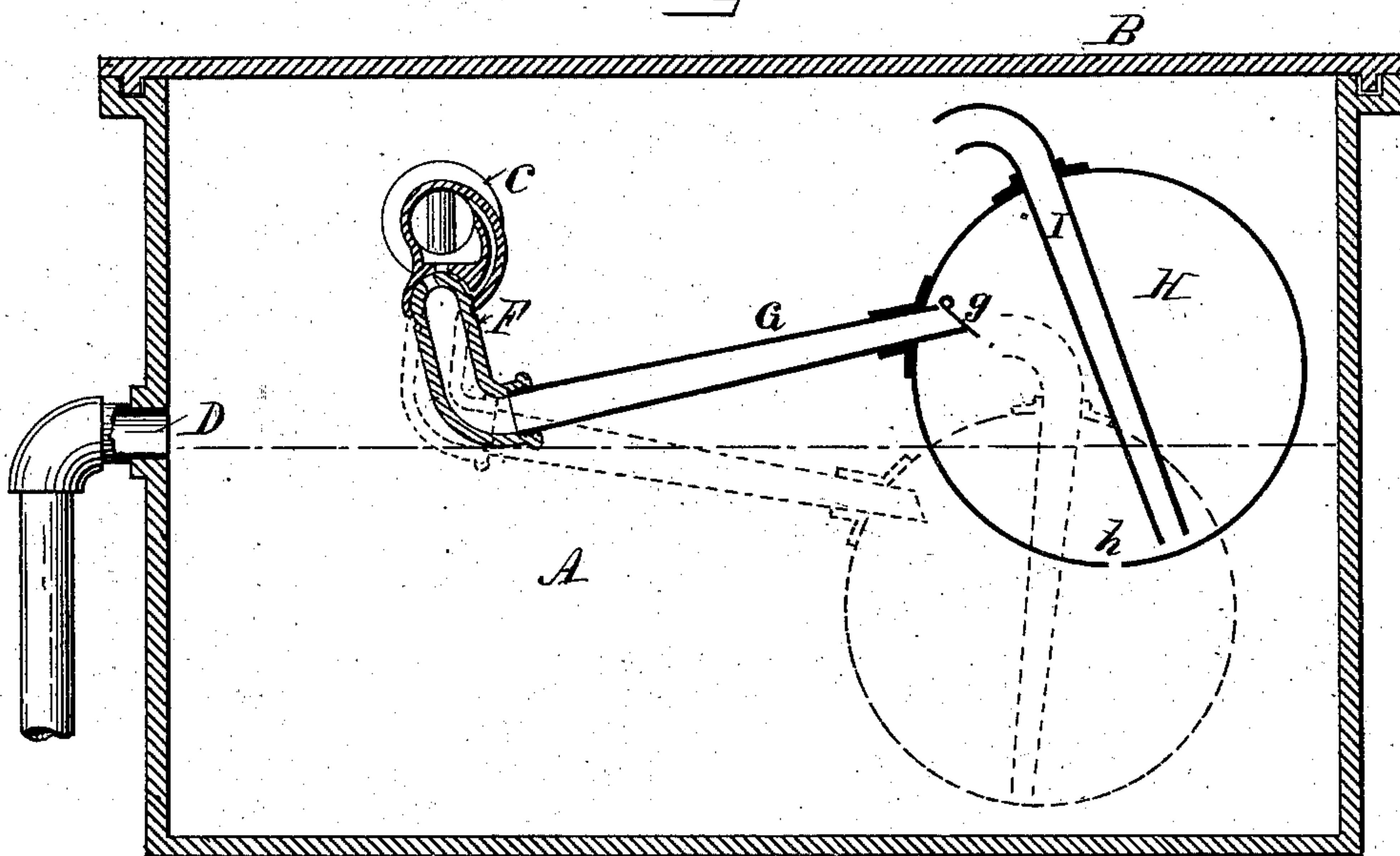


Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT NEWTON, OF PROVIDENCE, RHODE ISLAND.

VALVE FOR STEAM-TRAPS.

SPECIFICATION forming part of Letters Patent No. 284,469, dated September 4, 1883.

Application filed June 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, ROBERT NEWTON, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Valves for Steam-Traps; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to an improvement in the valves of steam-traps, by which the water of condensation from the steam is automatically carried off without the loss of steam.

15 The invention consists in the novel and peculiar construction of the valve and the connection with the steam-outlet, as will be more fully set forth hereinafter.

20 Figure 1 is a view of my improved valve. Fig. 2 is a sectional view of the same. Fig. 3 is a sectional view of a steam-trap, showing the application of my valve to a steam-trap.

25 In the various forms of valves for steam-traps the valve is always more or less liable to stick, and thus either close the outlet or leave the same open, allowing the steam to escape. This is caused in the valves constructed on the principle of the faucet by the friction of the annular case on the tapering hollow stem and the liability of impurities entering between the surfaces, causing a wedging and binding of the parts. In the class of valves in which the valve slides inside of a case the whole pressure due to the steam in the pipes and the weight of the condensed water presses the valve against the case, so that it is moved with difficulty. To overcome these defects I construct my improved valve on the oscillating principle, and hold the same to its seat by a yielding connection, by which all wear is compensated, and the valve may yield to any impurities that may enter between it and its seat.

45 In the drawings, A is the tank or receptacle in which the water of condensation is collected and the valve operated.

B is the cover.

50 C is the inlet, and D the outlet, the water-line being indicated by a broken line in Fig. 3 on a level with the outlet D, through which

all water escapes, and by which the water-level is preserved uniform.

55 E is a tubular stem, forming the inlet C. It is provided at one end with the screw-thread e , so that the pipe to be drained can be connected with the same and with the shoulder e^2 , between which and the side e' of chamber A any suitable packing may be interposed to make a tight joint. The opposite end of the stem E is provided with the valve-chamber e^3 , having the port e^4 and the air-vent e^5 . It has a concave seat, in which the elbow F can oscillate to open and close the port e^4 and the air-vent e^5 , as is clearly shown in Figs. 2 and 3. The elbow F is provided with trunnions f, f , and these are supported in the bearings f', f' , secured to the rods f^2, f^2 , the ends of which pass through the yoke f^3 , which is forced upward, so as to hold the valve-face of the elbow F in contact with the bearing of the valve-chamber e^3 by the coiled spring f^4 , placed around a central guide-rod. It is obvious that coiled springs may be placed around the rods f^2 , instead of between the same.

75 G is a pipe connecting the elbow F with the sphere H, the end being closed by the hinged gate-valve g . The sphere H is provided with the small hole h , by which the sphere is gradually filled.

I is the discharge-pipe or vomit.

80 By the peculiar construction of this valve great leverage is secured to move the same by the rising or falling of the sphere, while by the adjustable spring-tension the surfaces are held in contact, so as to wear evenly and maintain a tight fit. The construction of the valve is simple and economical, and all the wearing of the parts in contact insures a more perfect fit.

85 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

90 1. In a valve for steam-traps, the combination, with the tubular inlet-stem E, provided with the ports e^4 and e^5 , of the elbow F, provided with a port, and constructed to receive the pipe G, by which it is connected with the sphere H, as described.

95 2. The combination, with the stem E, provided with the ports e^4 and e^5 , of the elbow F, supported in trunnions, and held against the 100

valve-seat by means of a spring or springs constructed to hold the surfaces in contact, as described.

3. The combination, with the tubular stem
5 E, the elbow F, tube G, and sphere H, of the trunnions ff , the bearings $f'f'$, rods f^2f^2 , and spring or springs f^4 , constructed to form a

valve to regulate the flow of water automatically, as described.

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