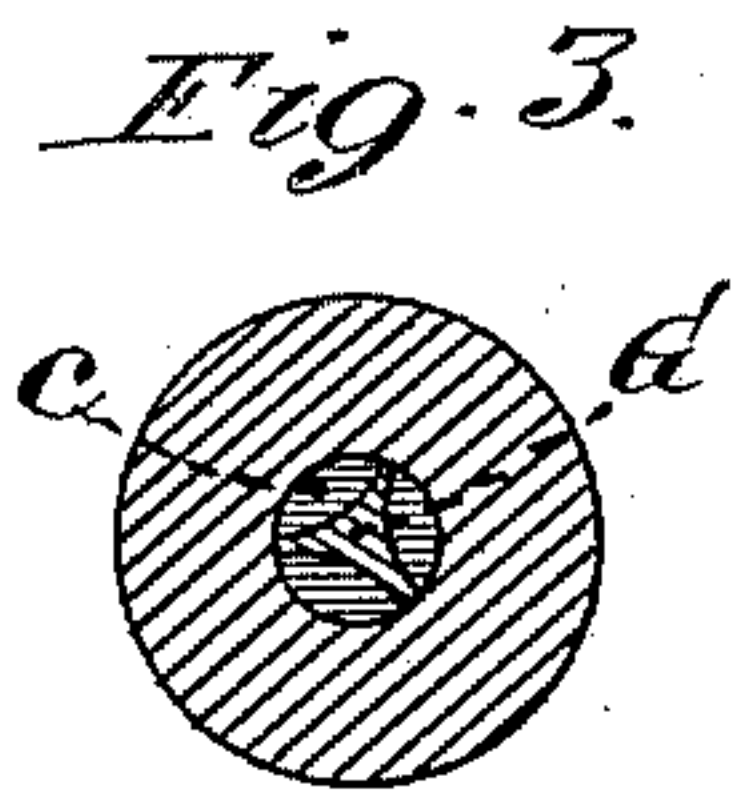
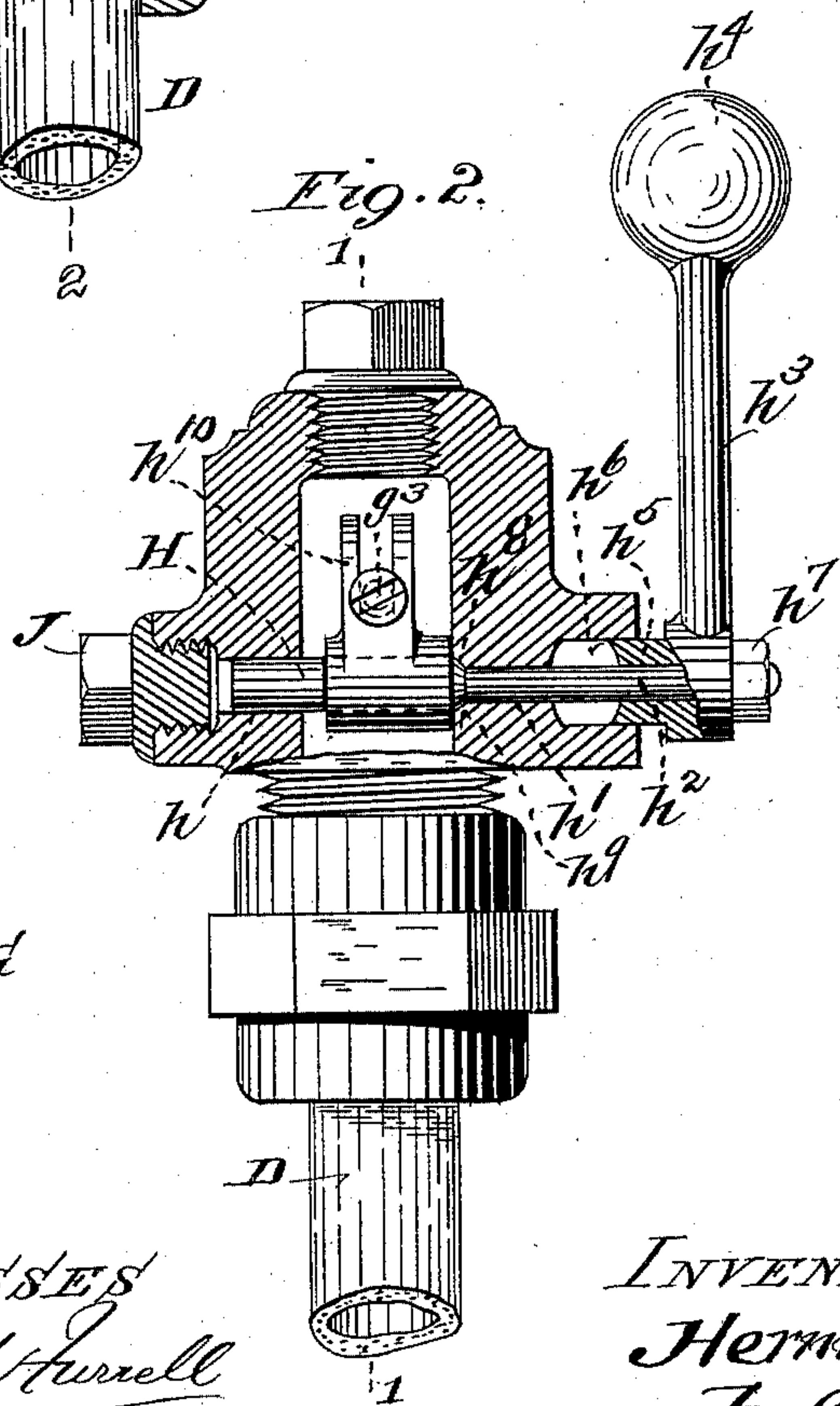
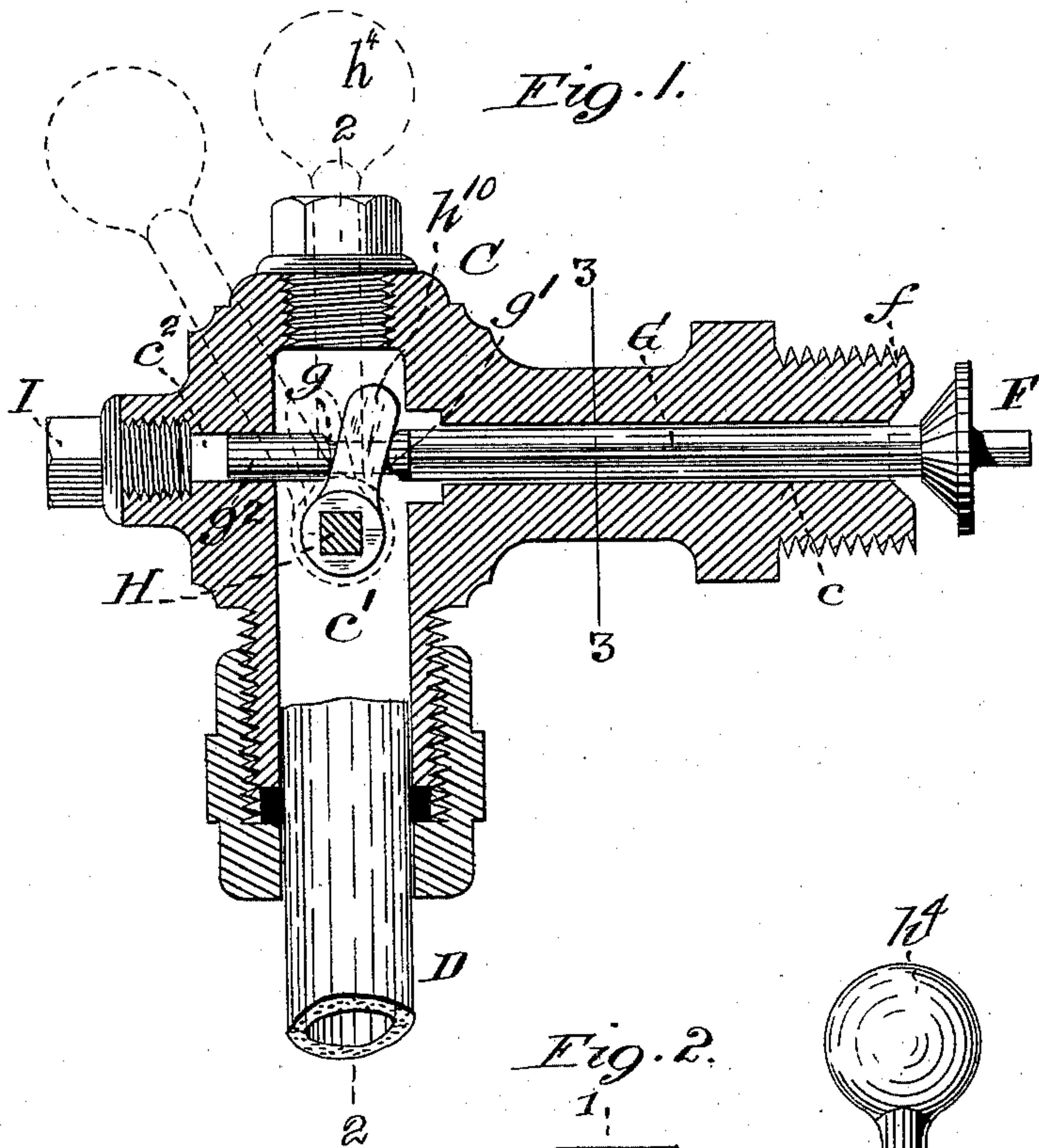


(No Model.)

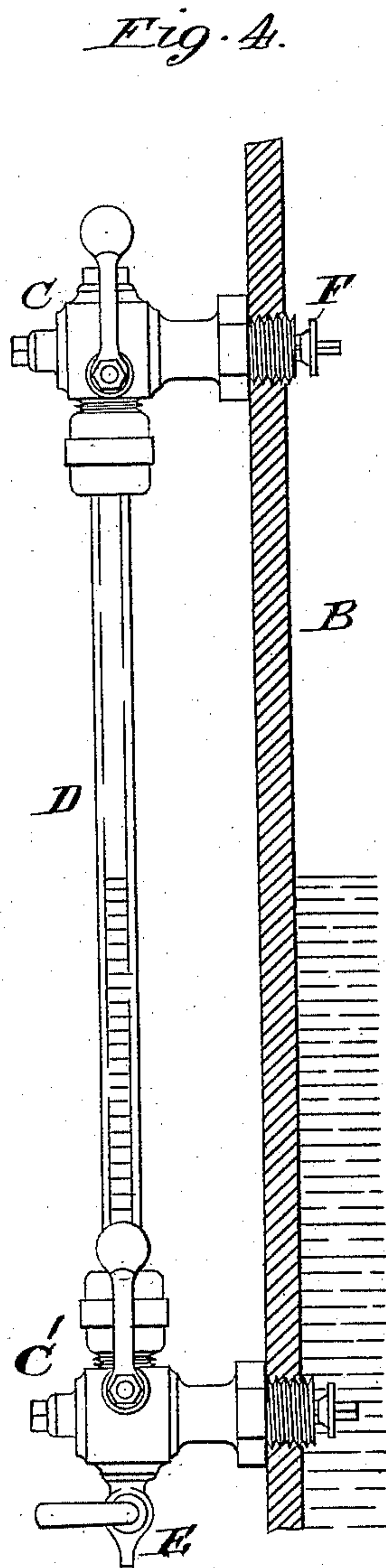
H. S. GRABER.
WATER GAGE.

No. 489,804.

Patented Jan. 10, 1893.



WITNESSES
Edward W. Furrall
A. Bonville.



INVENTOR
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his atty

UNITED STATES PATENT OFFICE.

HERMAN S. GRABER, OF ST. LOUIS, MISSOURI.

WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 489,804, dated January 10, 1893.

Application filed April 4, 1892. Serial No. 427,767. (No model.)

To all whom it may concern:

Be it known that I, HERMAN S. GRABER, of St. Louis, Missouri, have made a new and useful Improvement in Water-Gages, of which the following description and annexed drawings are a specification, the same letters in the drawings denoting the same parts.

The leading feature of my improved gage is the mode of connecting the valve of the gage with a rock-shaft having an arm arranged without the valve case and so that not only can the valve be operated by means of said arm, but also so that, in turn, the least motion of the valve, in opening and closing, shall be communicated to and affect the position of the arm and thereby enable the arm to serve as a correct indicator of the position of the valve, and furthermore, so that the valve stem can be reached for the purpose of grinding it in its seat irrespective of an existing-boiler pressure, or of the position of the rock-shaft-arm, all substantially as is hereinafter set forth and claimed, and exhibited in the drawings, which exhibit the most desirable mode of carrying out the improvement, and in which—

Figure 1 is a vertical section of the upper portion of a water gage containing the improvement, the section being on the line 1—1 of Fig. 2, which, in turn is a vertical section of the line 2—2 of Fig. 1: Fig. 3 a section on the line 3—3 of Fig. 1: and Fig. 4 a general view of the gage in position, the shell of the boiler being in section.

The gage, A, is of the usual description saving as it is modified by the improvement under consideration, and it is applied to the boiler B in the usual manner.

C and C', represent the valve cases, and D the glass-tube, of the gage. The valve cases, and parts therein respectively contained, are similar saving the lower case is provided with the customary water-discharge cock E, substantially as shown.

F represents the valve of the case. It seats at *f*, and it is attached to the stem G. The stem extends through, and is adapted to work longitudinally in the passage, *c*, of the valve-case. It is shouldered, at *g* and *g'*, to enable the stem to engage with the rock shaft H,

within the chamber, *c'*, of the valve case and its end, *g*², extends into the perforation *c*², in the outer end of the valve case, and which is adapted to be closed by means of the removable screw plug I. The rock-shaft is arranged crosswise in the valve case, and is journaled in suitable bearings *h*, *h'*, therein, and its end *h*², extends through the shell of the valve case and is provided with an arm, *h*³, which is preferably weighted at *h*⁴, substantially as shown. Said arm, *h*³, is preferably provided with or shaped to form, a gland, *h*⁵, which enters a stuffing box, *h*⁶, formed in the shell of the case and adaptable to contain any suitable packing, not shown, for closing the joint around the rock shaft. The nut, *h*⁷, serves to hold the arm and gland in place, and also to draw the rock shaft endwise to cause the conical portion, *h*⁸, of the rock shaft to seat, *h*⁹, in the shell of the valve case and thus more securely prevent the escape of the boiler pressure at that point. A screw plug, J, is used to close the perforation in the shell of the valve case opposite the bearing *h*. The rock shaft engages with the valve stem by means of its forked tappet *h*¹⁰. The outer end of the valve stem is notched at *g*³, or otherwise constructed in any equivalent manner, to enable a key or wrench, inserted through the perforation *c*², to be applied to the stem for the purpose of rotating it, and thereby grinding the valve in its seat, even when a pressure exists within the boiler.

From the description it will be seen the present gage is a self-closing one in the event of accident; also that the valve can be more or less opened by means of the rock shaft-arm; and that in turn the position of the valve is accurately determined by the position of the rock-shaft arm; also that, although the valve stem is so closely connected with the rock shaft that the rock shaft cannot be rotated, nor the valve stem moved longitudinally, without affecting the position of the other, the valve-stem can be freely rotated independently of the rock shaft. The water can also be drained from the gage by means of the cock E, without interfering with any other part of the gage. I preferably arrange the parts so that when the valve is seated the rock shaft

arm is inclined from a perpendicular position, as indicated in Fig. 1, and that when the valve is unseated said arm is in an upright position; this is desirable in that it enables
5 the valve to act more promptly in closing, especially when the rock shaft arm is weighted as described.

I desire not to be restricted to the particular shape shown of the portion h^8 , and its co-
10 acting seat h^9 .

I claim:—

In a water-gage, the combination of the valve and valve-stem, and rock-shaft, said

rock-shaft and stem being closely jointed together, and said rock-shaft being furnished 15 with the arm for operating, and also accurately indicating any position of said valve and said stem being rotatable independently of said rock-shaft, substantially as described.

Witness my hand this 23d day of March, 20
1892.

HERMAN S. GRABER.

Witnesses:

C. D. MOODY,
A. BONVILLE.