

No. 719,536.

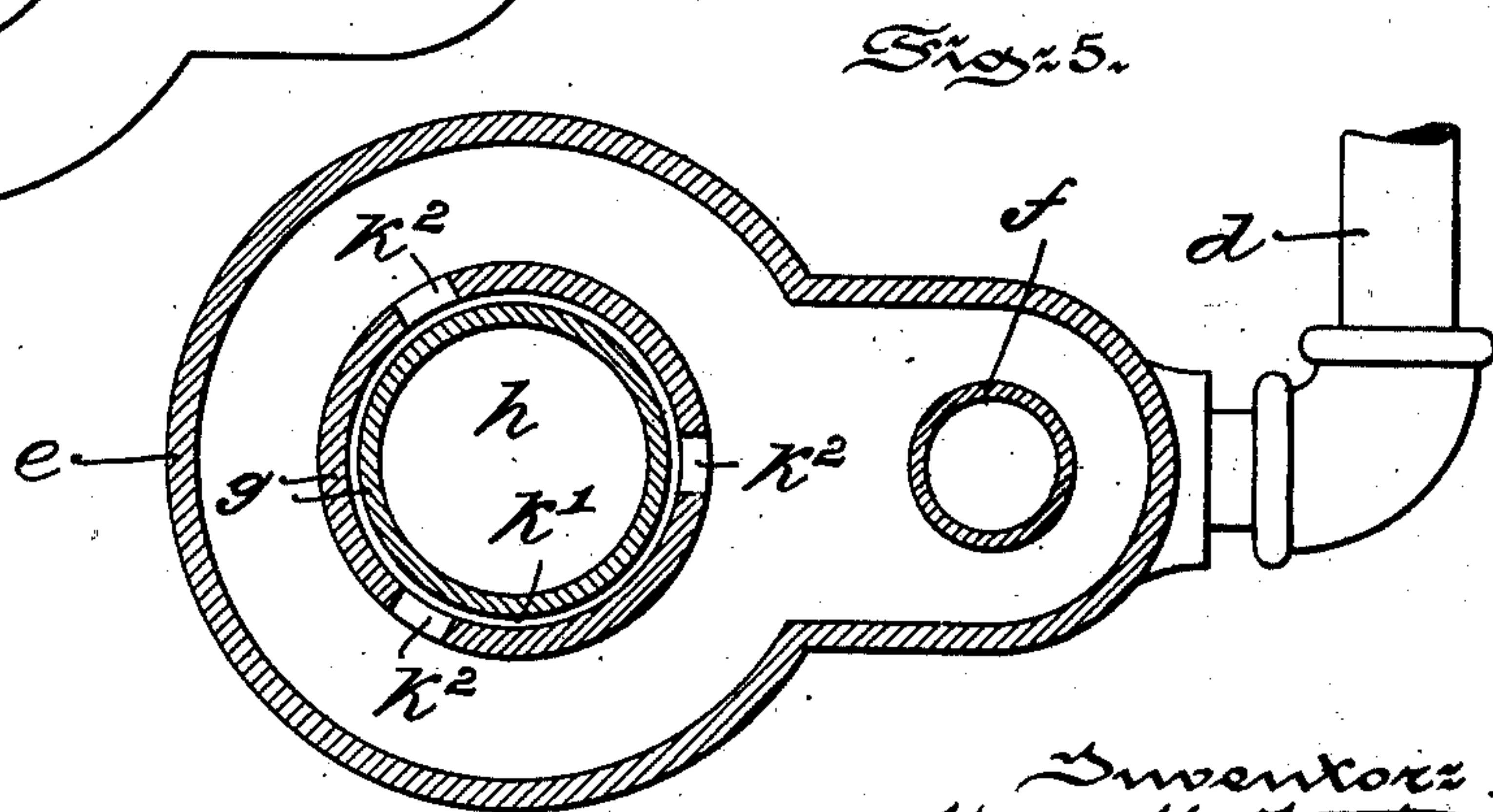
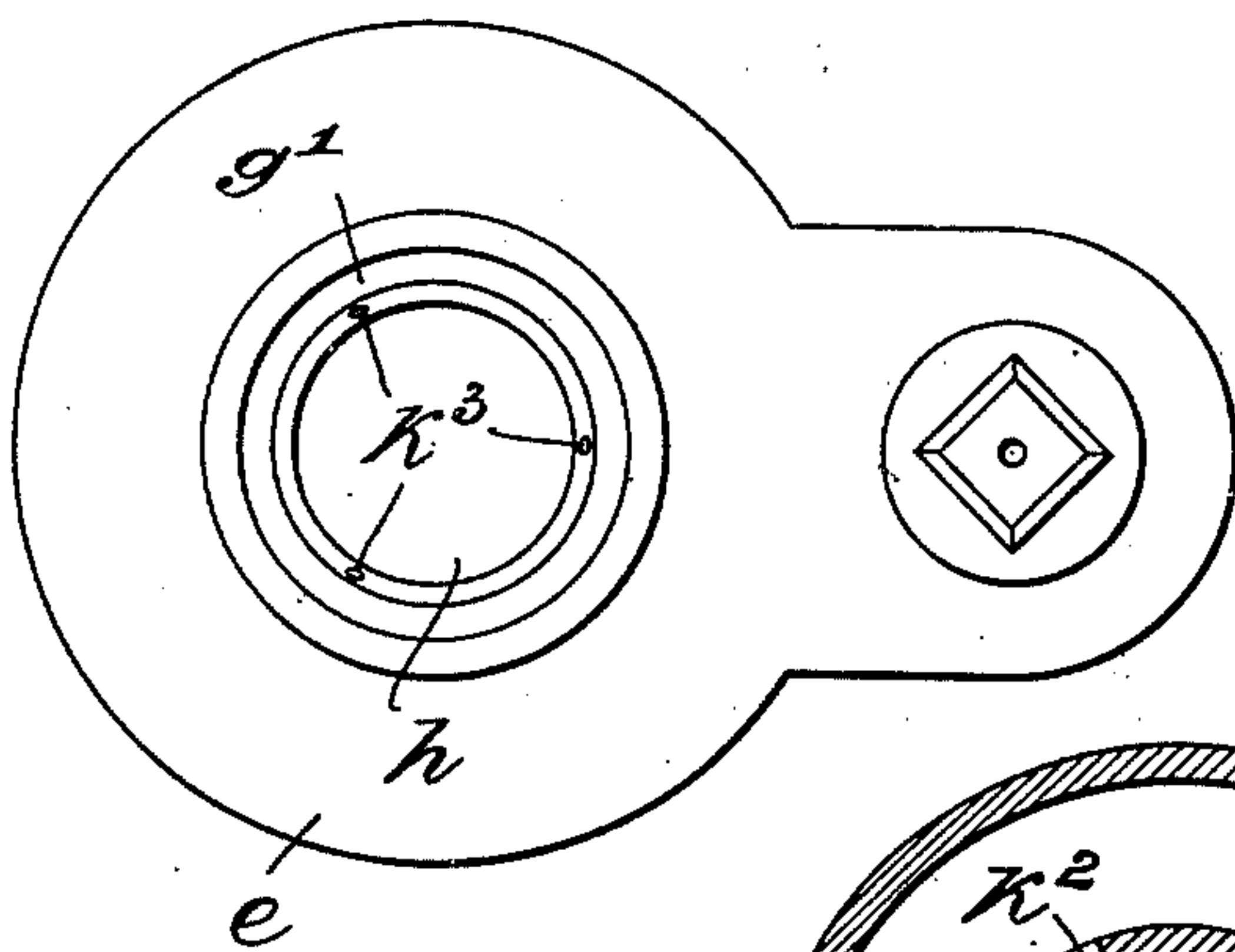
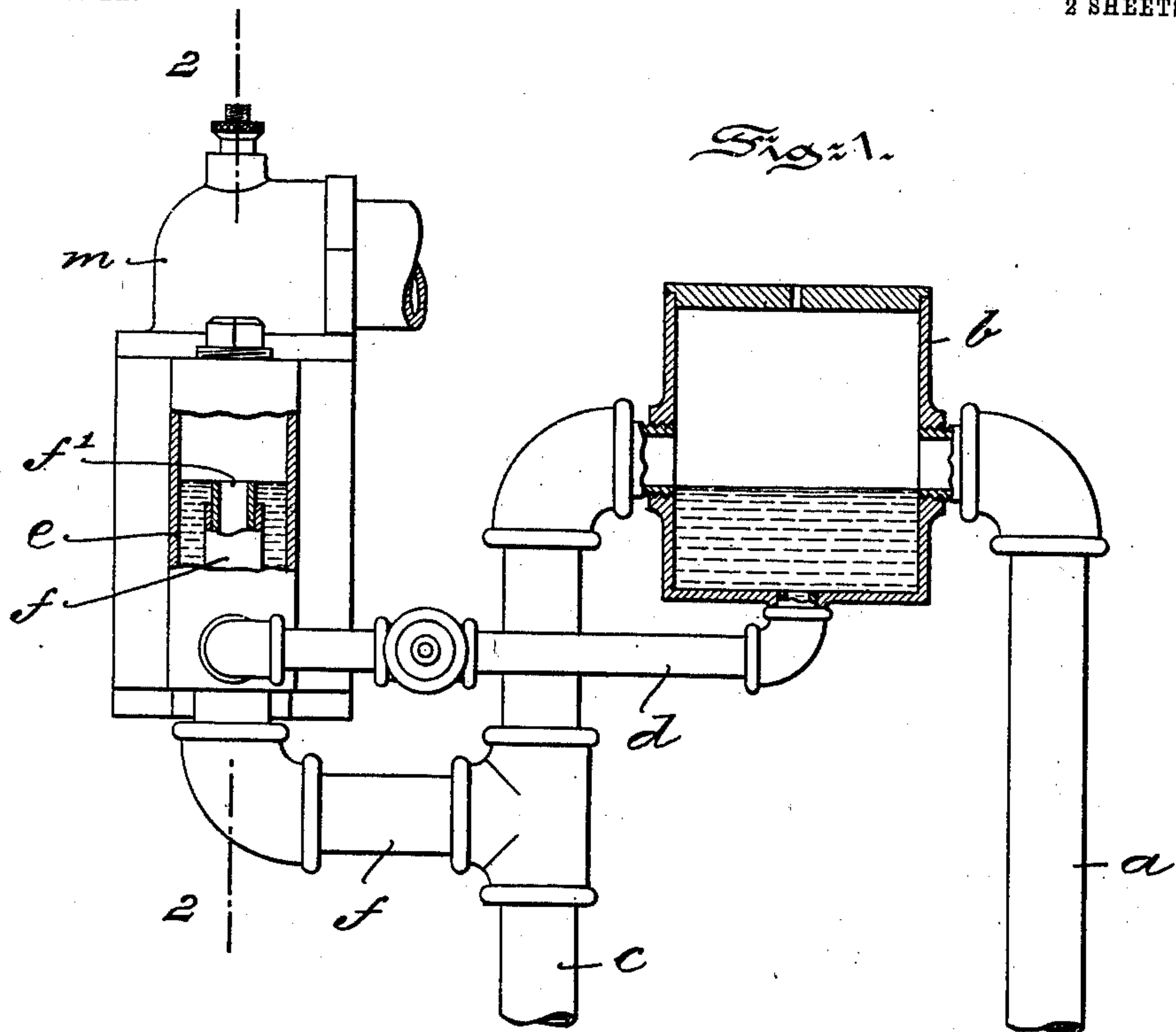
PATENTED FEB. 3, 1903.

H. W. TUTTLE.
VAPORIZER OR CARBURETER FOR EXPLOSIVE ENGINES.

APPLICATION FILED JAN. 13, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Wilhelm Vogt
Thomas M. Smith.

Inventor:
Harry H. Tuttle
J. Walter Douglas
Attorney.

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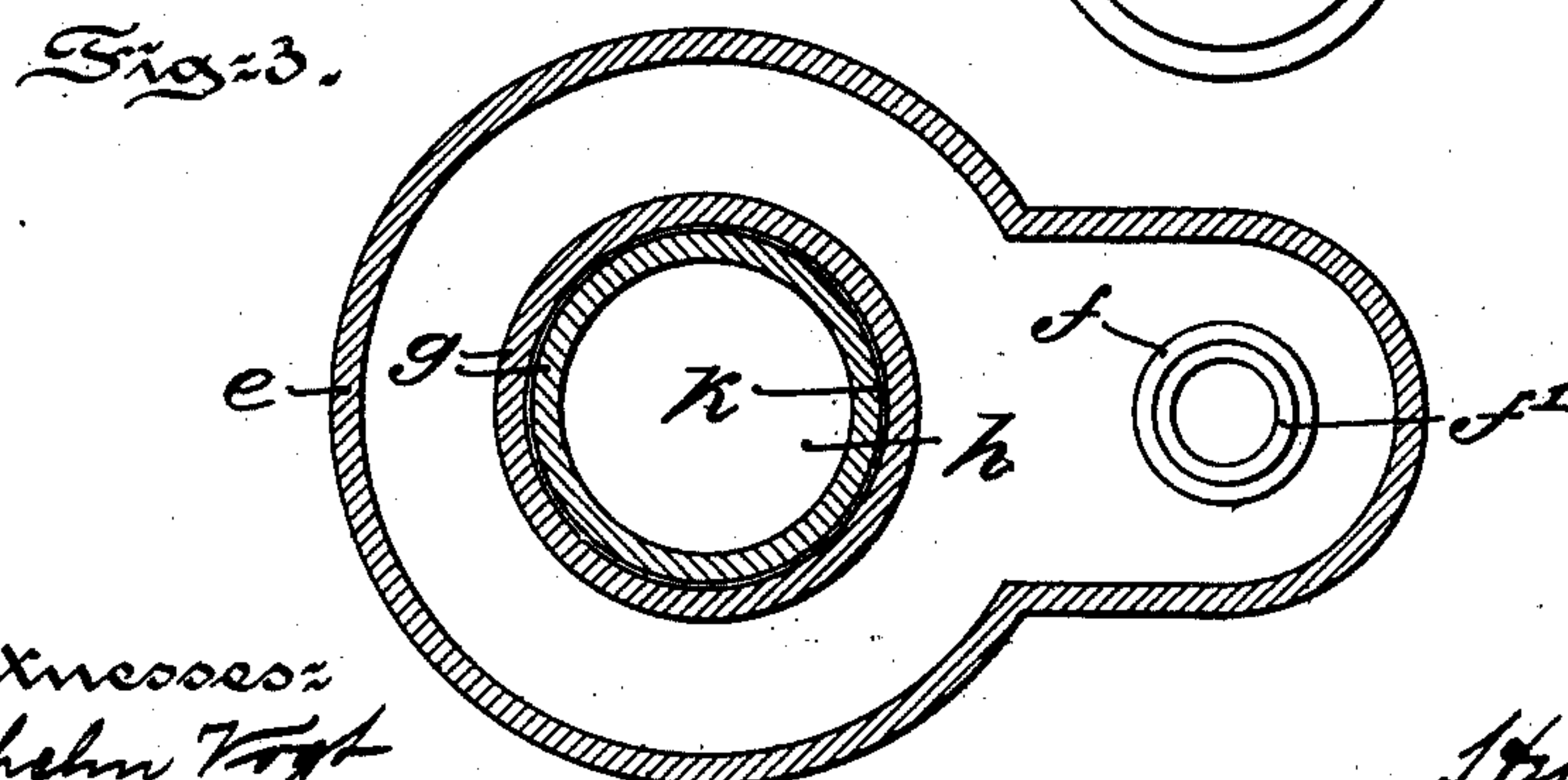
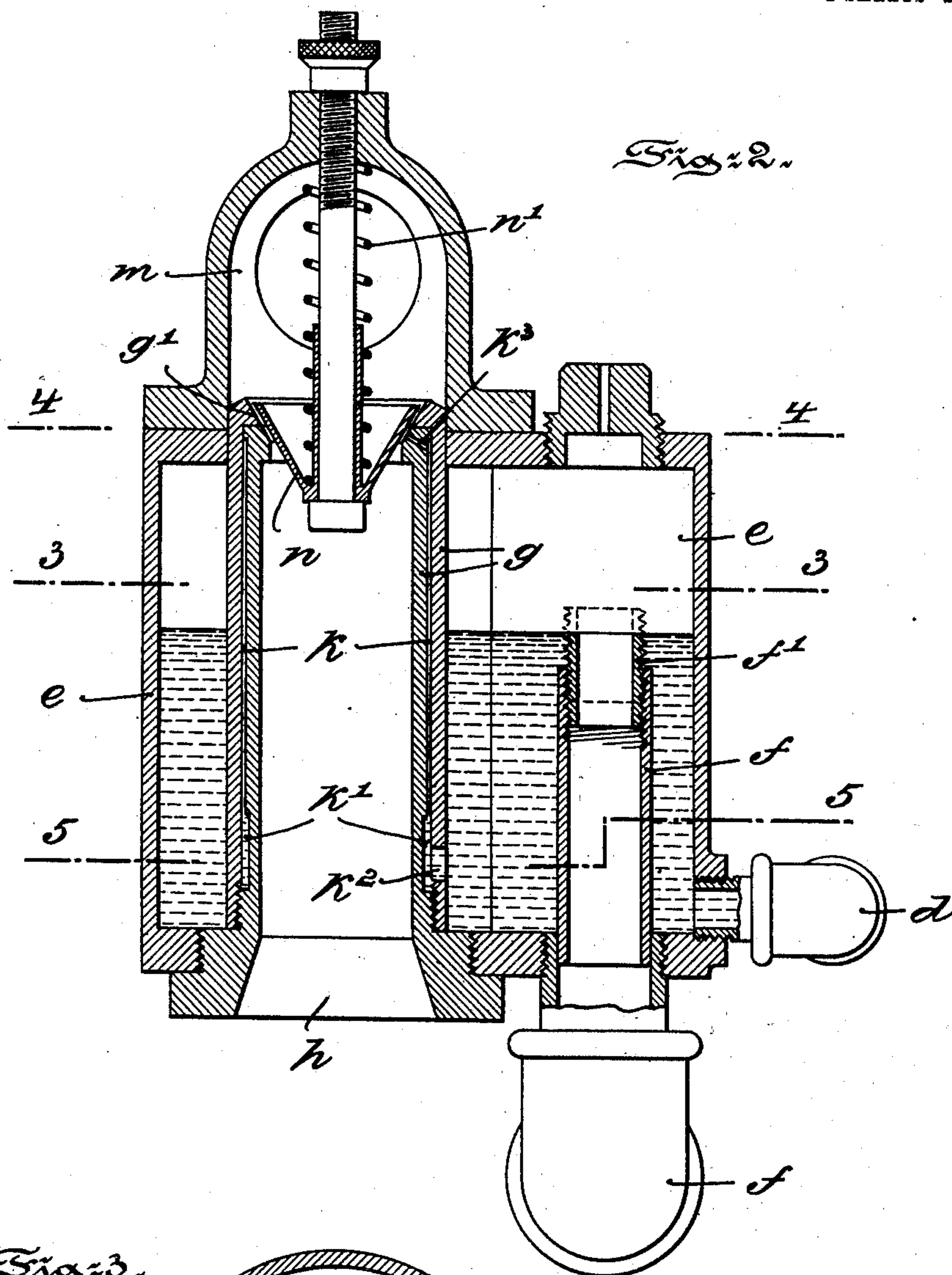
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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
Wilhelm Vogt
Thomas M. Smith.

Inventor:
Henry H. Tuttle,
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UNITED STATES PATENT OFFICE.

HENRY W. TUTTLE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN M. SCOTT, OF PHILADELPHIA, PENNSYLVANIA.

VAPORIZER OR CARBURETER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 719,536, dated February 3, 1903.

Application filed January 13, 1902. Serial No. 89,449. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. TUTTLE, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Vaporizers or Carbureters for Explosive-Engines, of which the following is a specification.

My invention has relation to that class of vaporizers or carbureters for explosive-engines known as "constant-level" vaporizers or carbureters, in which the oil to be vaporized (usually gasolene) is maintained in the oil-chamber at a certain level prior to its being fed to the mixing-valve, and in such connection the invention relates to the construction and arrangement of such a vaporizer or carbureter.

The principal object of my invention is to provide a new means for maintaining a constant level of the oil in the oil-chamber, in combination with a new means for feeding and mixing the oil with air prior to its delivery to the appropriate chamber of the explosive-engine.

The nature and scope of my invention will be more fully understood from the following description taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a side elevational view, partly sectioned, of a vaporizer or carbureter embodying main features of my invention, the sectioned parts illustrating the means for maintaining the constant level of the oil. Fig. 2 is a transverse sectional view on the line 2 2 of Fig. 1, illustrating the feeding and mixing means; and Figs. 3, 4, and 5 are cross-sectional views taken, respectively, on the lines 3 3, 4 4, and 5 5 of Fig. 2.

Referring now to Fig. 1 of the drawings, the means for maintaining the oil at a constant level in the vaporizer irrespective of the fluctuations of the feed-pump is as follows: A pipe *a* leads oil from the pump (not shown) to a chamber *b*. The level of the oil is maintained constant in this chamber *b* by an overflow-pipe *c*, leading from the chamber *b* to the oil-supply. Oil is led by the pipe *d* from the chamber *b* to the oil-chamber *e* in the

vaporizer and cannot go above a certain level in said chamber *e* because of a second overflow-pipe *f* in said chamber *e*, which leads to the main overflow-pipe *c*. Briefly stated, therefore, the means for maintaining the constant level would be a chamber *b*, fed directly from the pump and provided with an overflow *c* at a certain height in the chamber *b*, and an oil-chamber *e* in the vaporizer fed from the chamber *b* by the pipe *d*, said second oil-chamber *e* also having an overflow *f*, preferably extending in the chamber *e* to a height corresponding to the overflow *c* of the chamber *b*. If desired, the overflow-pipe *f* in the chamber *e* may be provided with a collapsible or telescoping extension *f'*, by means of which the height of the pipe *f* in the chamber *e* may be increased, if required.

Referring now to the remaining figures, the vaporizer consists of an oil-chamber *e*, having the overflow *f* to maintain the oil always below a predetermined height, and this chamber *e* surrounds a tube *g*, the interior of which forms the air-inlet *h*. The wall of the tube *g* is preferably double and separated by an annular channel *k*. The base of this channel *k* is enlarged, as at *k'*, and communicates by openings *k²* with the oil in the chamber *e*. The top of the tube *g* is flared or conical, as at *g'*, and at intervals is pierced by several openings *k³*, which traverse the flared or conical seat *g'* and enter the annular capillary groove *k* at an angle, the inclination of the ducts *k³* thus formed being downward, so that the opening in the seat *g'* is above the point where the ducts *k³* enter the groove or channel *k*. This inclination of the ducts *k³* prevents oil from oozing out upon the seat *g'* when not required, since all surplus not taken from the seat *g'*, as hereinafter described, will be conducted downward by gravity in the ducts *k³*. Above the seat *g'* is formed the mixing-chamber *m* of the vaporizer. The seat *g'* is partly closed by a conical baffle-plate *n*, held under slight spring tension *n'* down toward the seat *g'*, but not fitting thereon. As the engine exhausts the chamber *m* the baffle-plate *n* slightly opens to admit the air from the inlet *h*. The air passes over a conical seat *g'*, upon which a thin film of oil is fed from the ducts *k³* by capillary attraction. The

air thus mixes thoroughly with the oil during its passage into the mixing-chamber *m*. The baffle-plate *n* acts merely as a deflector or baffle to divert the inrushing air down upon the conical seat *g'*, and thereby saturates or mixes the air with the film of oil upon the seat *g'*.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a vaporizer, an oil-chamber, a pipe leading from an oil-supply and discharging into said oil-chamber, a second oil-chamber, a pipe connecting both chambers and adapted to conduct the oil from the first into the second chamber, a tube open at both ends and forming an air-inlet and in conjunction with a tube surrounding the same a third oil or feed chamber, openings arranged in said tube adapted to conduct oil from the second into the third oil-chamber, ducts arranged in said air-tube adapted to permit the outflow of oil of the third chamber into the interior of said tube by the suction action of a piston, a baffle-plate arranged adjacent to said ducts and the end

of said air-tube adapted to permit of the free passage of air between the end of the tube and said baffle-plate, and a spring adapted to hold the baffle-plate in its normal position adjacent to said air-tube and to permit of the ready response of said baffle-plate to the suction action of a piston to increase said air-space, an overflow-pipe connected with the first oil-chamber for regulating the height of oil in said chamber, an overflow-pipe arranged in the second oil-chamber and having an adjustable extension to regulate the height of the oil in said chamber and the third chamber and to hold the same at a level differing from that in the first chamber, a pipe connecting said overflow-pipes and adapted to conduct the surplus oil of the oil-chambers back to the source of oil-supply.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

HENRY W. TUTTLE.

Witnesses:

J. WALTER DOUGLASS,
THOMAS M. SMITH.