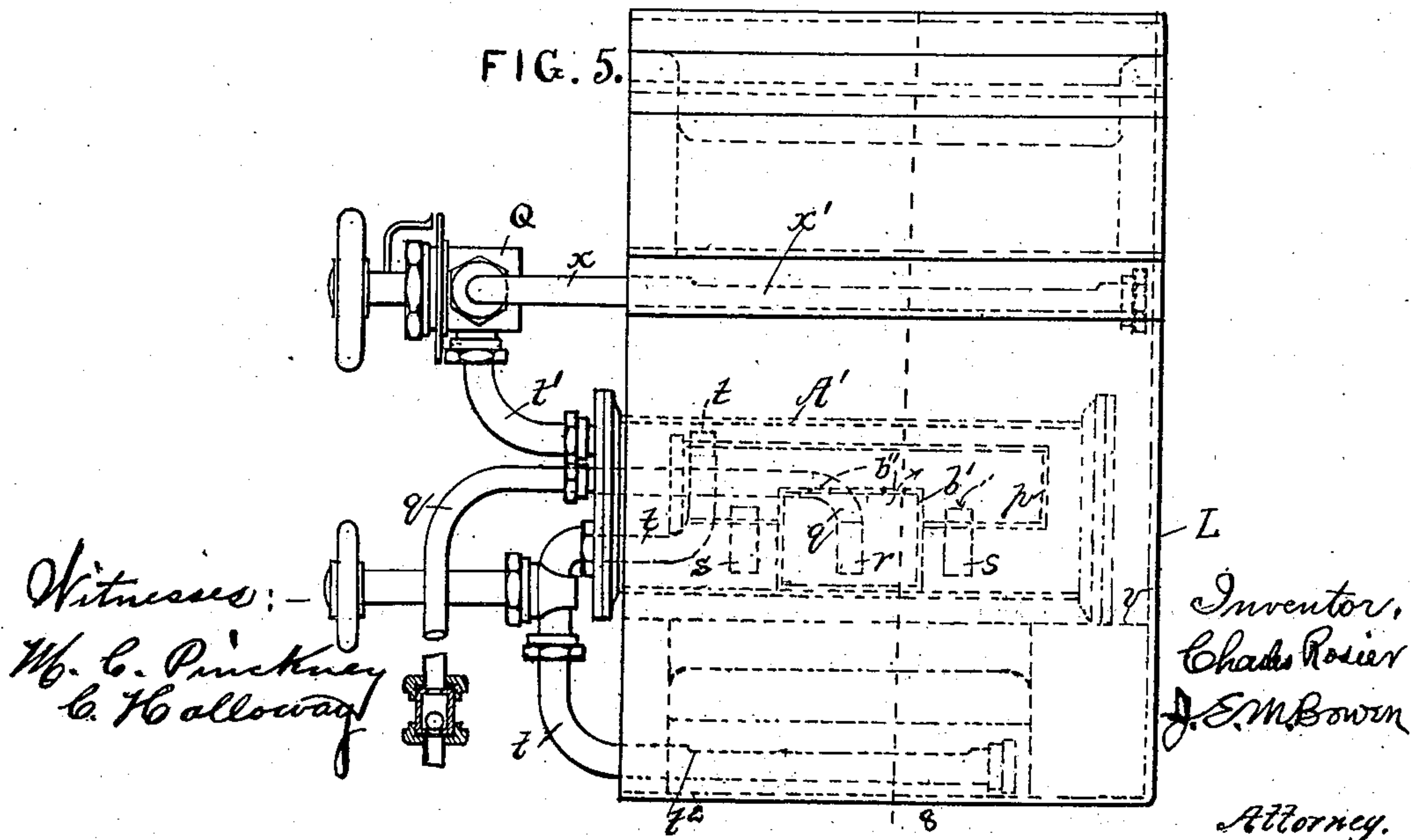
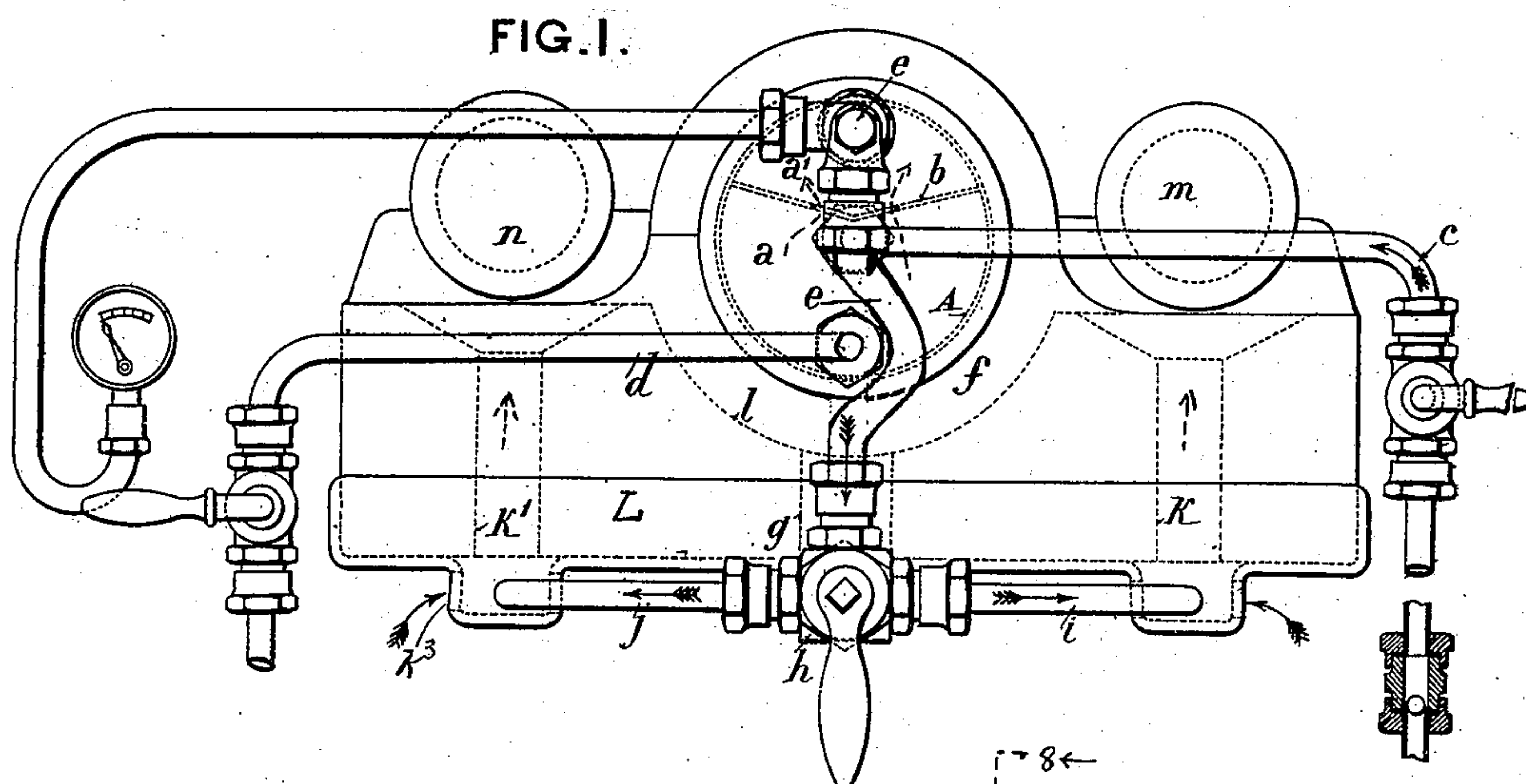


C. ROSIER.
BURNER FOR HYDROCARBURETS.

(Application filed Dec. 15, 1897.)

(No Model.)

4 Sheets—Sheet 1.



No. 620,185.

Patented Feb. 28, 1899.

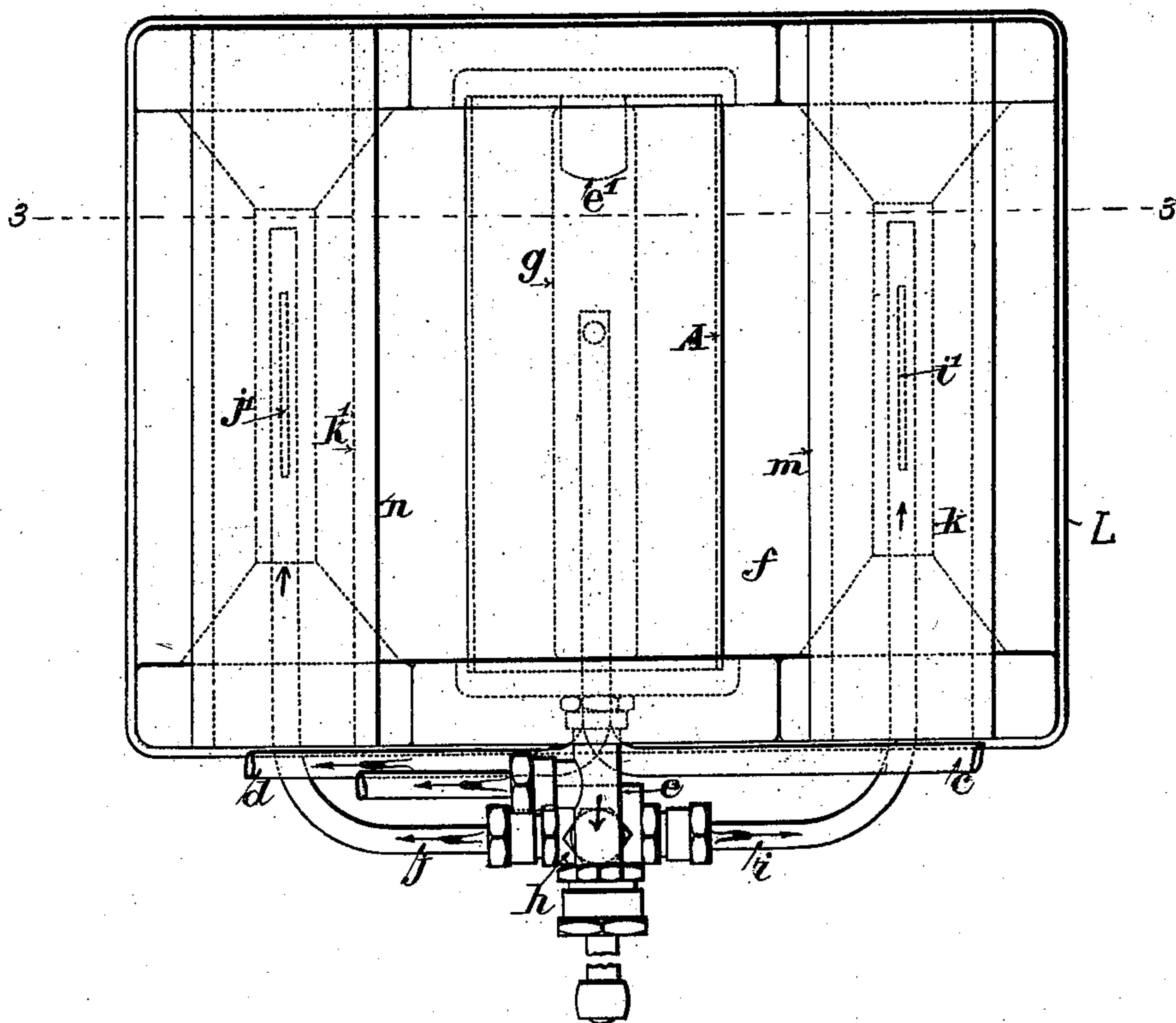
C. ROSIER.
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(Application filed Dec. 15, 1897.)

(No Model.)

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FIG. 2.



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(Application filed Dec. 15, 1897.)

(No Model.)

4 Sheets—Sheet 3.

FIG. 3.

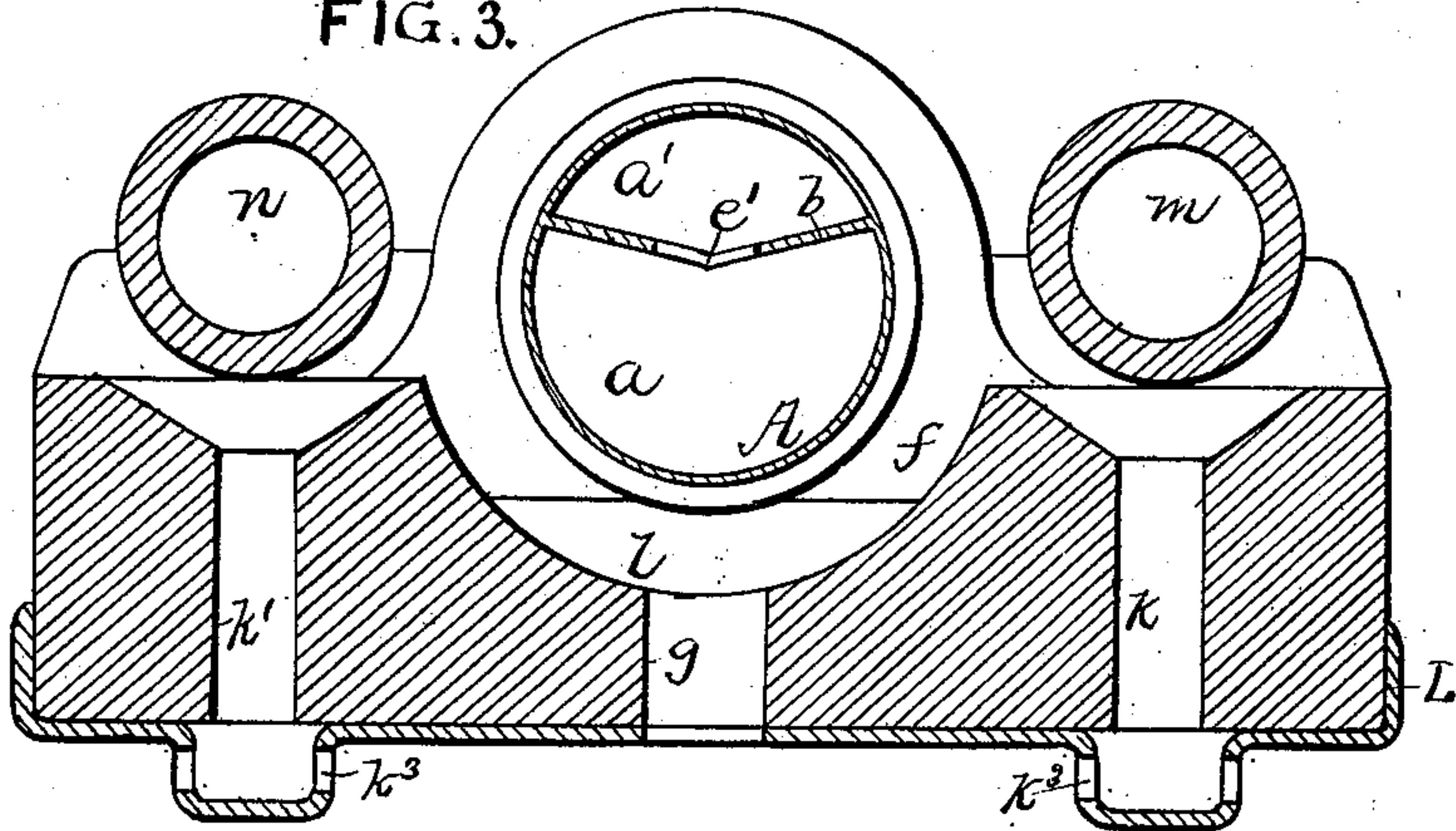


FIG. 4.

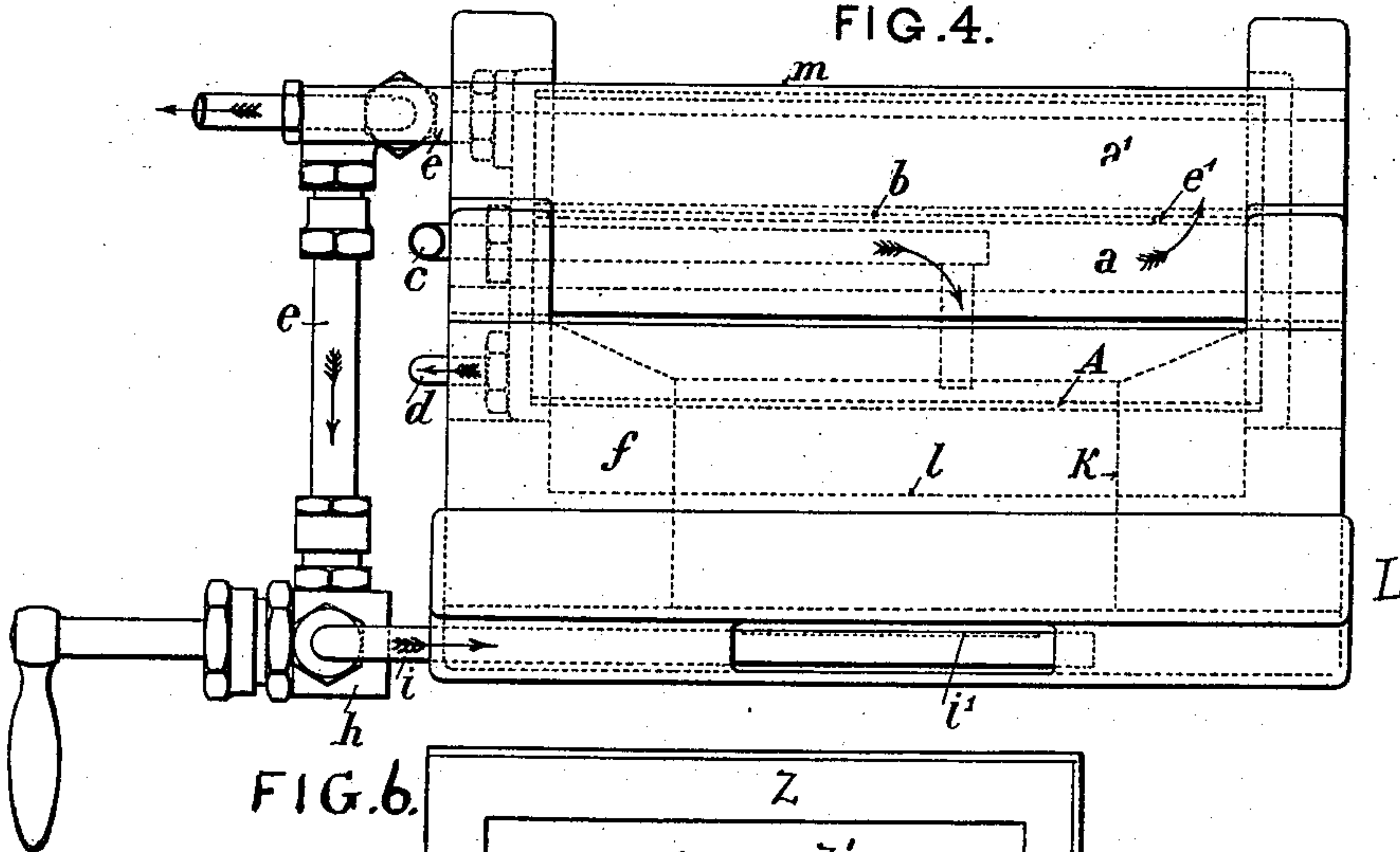
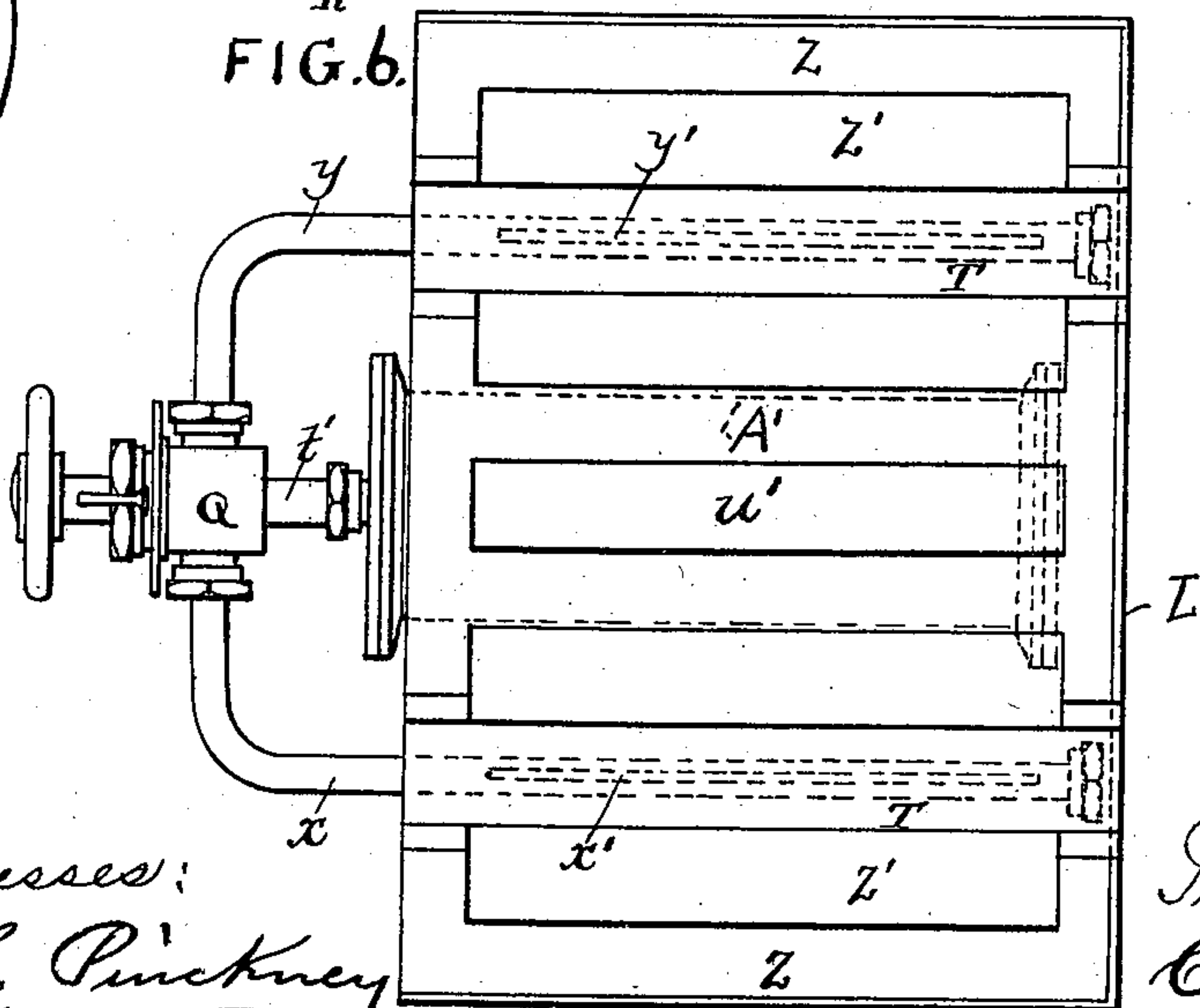


FIG. 6.



Witnesses:
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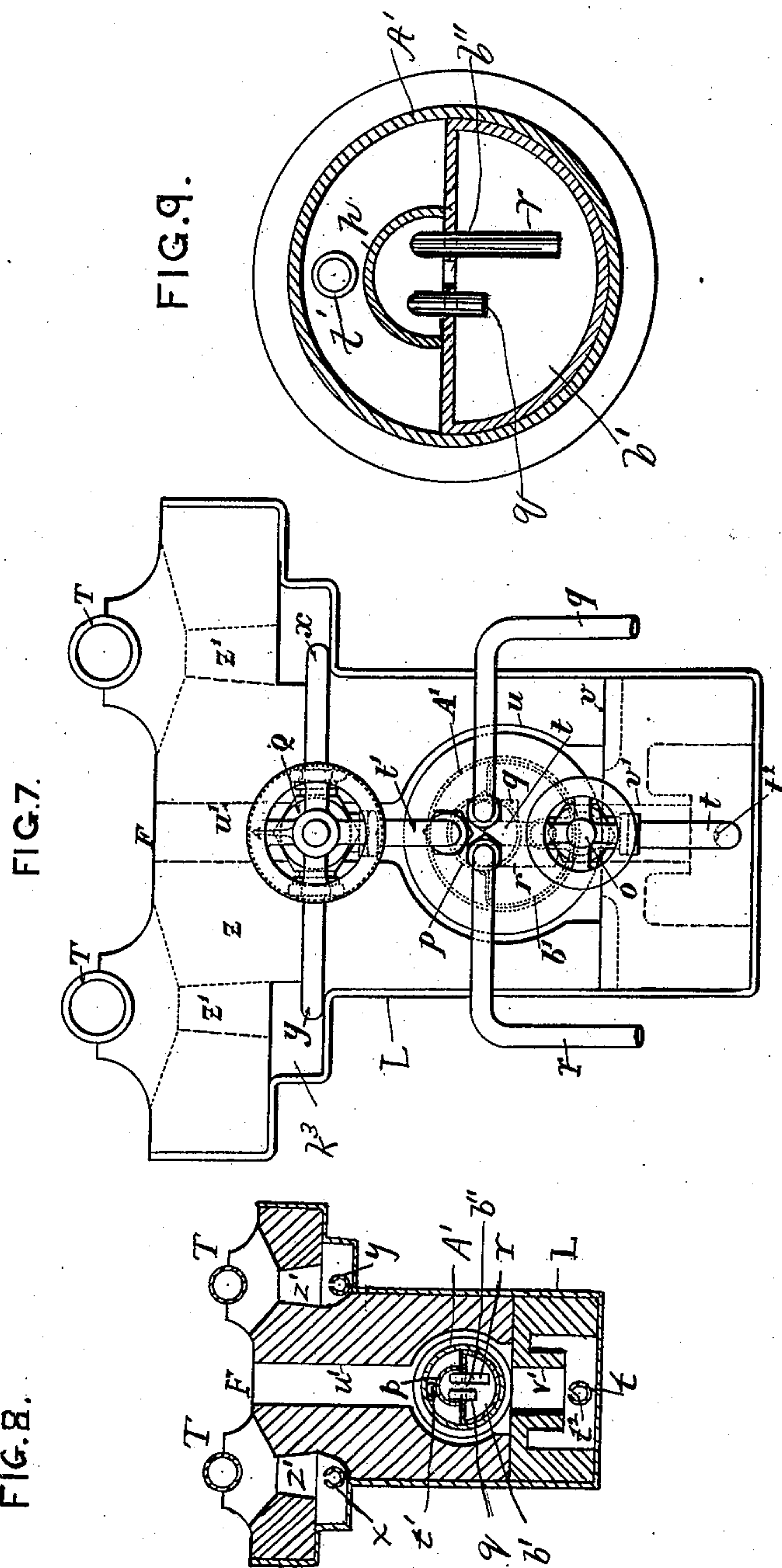
Patented Feb. 28, 1899.

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(Application filed Dec. 15, 1897.)

(No Model.)

4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

CHARLES ROSIER, OF LEVALLOIS-PERRET, FRANCE.

BURNER FOR HYDROCARBURETS.

SPECIFICATION forming part of Letters Patent No. 620,185, dated February 28, 1899.

Application filed December 15, 1897. Serial No. 661,933. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ROSIER, of 62 Rue Chevalier, Levallois-Perret, Seine Department, in the Republic of France, have invented new Improvements in Burners for Hydrocarburets, (for which I have obtained Letters Patent of France for fifteen years, No. 267,993, dated June 18, 1897;) and I do hereby declare that the following is a full and exact description thereof, reference being made to the accompanying drawings.

My invention relates to burners adapted to burn hydrocarburets, as petroleum and the heavy oils, for heating, generating steam, and other like uses.

The apparatus comprises, essentially, a gas-generating retort or chamber, preferably cylindrical, tubes which convey gases generated in the retort to passages where air is mixed therewith and by which the mixed air and gas is directed against fireproof tubes or bodies capable of becoming incandescent. The gas being ignited burns around said tubes. After the gas is once ignited and said tubes are heated the flame is automatically maintained, since if accidentally extinguished it will be immediately reignited by the heat of the incandescent tubes.

The drawings show apparatus particularly adapted for heating bodies, as steam-boilers, placed above it.

Figures 1, 2, 3, and 4 are respectively front elevation, plan, vertical section on line 3 3 of Fig. 2, and side view of the preferred burner.

Figs. 5, 6, and 7 are respectively side view, plan, and front elevation of a modification. Fig. 8 is a section, on a smaller scale, on line 8 8 of Fig. 5; and Fig. 9 is an enlarged section, on the same plane as Fig. 8, of a part of the apparatus.

In Figs. 1 to 4, A is the retort or chamber, which in use is heated from the incandescent tubes *m n* on either side of the retort. Said retort is divided longitudinally into two chambers *a a'* by a partition *b*. Chamber *a* receives hydrocarburet through pipes *c*, which terminate in said chamber. *d* is a pipe extending from chamber *a* for removing material which is not converted into gas. Chamber *a'* receives gas produced from the oil through opening *e'* in partition *b*, and the gas

is further heated in said chamber *a'*. *e* is an outlet-pipe for the gas and conducts it to a distribution-box *h* and by pipes *i j* to the openings K K' and to the points of burning, where it is ignited by any suitable means and maintained until tubes *m n* become heated, after which the flame is automatically maintained, as above described, chamber A being thereafter heated by radiation from the incandescent tubes. Evidently tubes *m n* and the gas-flames would also heat any body placed above them. Retort A is mounted so as to extend into a groove *f* in the fireproof slab or block *l*, the groove being concentric with the retort, whereby an open heating-space is left between the retort and the grooved block. *g* is an opening in block *l*, below retort A, through which a spirit-flame or other flame may be passed to heat the retort in starting the apparatus. Pipes *i j* communicate with openings K K' through long slots *i' j'*. *k³* are air-openings communicating with openings K K'. The tubes *m n* serve to spread the flames so that they will cover the whole top of the apparatus. L is a metal or other casing or holder for the block *l*.

In the modified construction, Figs. 5 to 9, the gas-generating retort A' is at some distance from the incandescent tubes and after having been first heated is kept heated by a portion of gas from the retort. Within the retort A' is a cylindrical distilling-chamber *p*, resting on and communicating with a chamber *b'*, into which the hydrocarburet which is to be converted into gas is fed. The lower side of the part *b'* is concentric with the retort. (See Figs. 7 and 9.) Feed-tube *q* leads to chamber *b'*, and the clearing-out pipe *r* leads from said chamber near its bottom. Chamber *p* communicates with retort A' by pipes *s*. Chamber *b'* communicates with chamber *p* by openings *b''*, and from the retort extends a pipe *t* to the lower part of the apparatus for conducting a part of the gas generated to the bottom of the apparatus, where it escapes through slot *t'* and is burned to heat the retort. Pipe *t'* conducts the greater part of the gas generated to box Q and pipes *x y*, from which it escapes through slots *x' y'* and burns around the incandescent tubes T, which correspond to *m n* of Fig. 1, whereby

the tubes are heated and the flames spread. Retort A' is in a concentric chamber *u*, the walls of which are fireproof. Below the retort is a fireproof body *v*, having a longitudinal opening *v'*, through which passes the gas escaping through slot *t*². The gases, rising through opening *v'*, draw in air and burn in chamber *u*. The amount of gas diverted through pipe *t* may be regulated by adjusting the hand-operated valve or cock *o*. The products of combustion, rising through *u'*, issue at F and mix with the gases burning around the incandescent tubes, said gases being conducted through pipe *t'*, distributing-box Q, and pipes *x y*. The chambers in which pipes *x y* terminate have openings *k*³ for admission of air.

In both forms of apparatus described the fireproof blocks are partially surrounded by suitable sheeting L. No means are shown for maintaining the supply of oil in the retort, but any suitable apparatus may be employed. I do not limit myself to the use of two of the incandescent tubes *m n T*.

What I claim is—

1. The combination of a retort adapted to receive a hydrocarburet to be converted into gas, a grooved fireproof body forming a heating-space around the retort, means for heating the retort to generate gas therein, a pipe adjacent to the retort adapted to become highly heated, means for conducting gas from the retort to a combustion-space adjacent to said pipe for heating it and for spreading the flame, and there being openings through which air enters to commingle with the gas.

2. The combination of a grooved fireproof body, a retort extending into such groove so as to leave a heating-space between the body and the retort, means for heating the retort, tubes adapted to be heated to incandescence, passages for conducting gas to the outside of said tubes, pipes extending from the retort to said passages, inlets for air opening to said passages.

3. The combination, of a fireproof body having a groove therein, a hydrocarburet-holding retort extending partially thereinto, a heating-passage extending through said fireproof body to the space below the retort, incandescent tubes, passages below said tubes, pipes leading from the retort to the last-named passages, and air-inlets, whereby air

is mixed with gas and burns around incandescent tubes, as set forth.

4. The combination, of a fireproof body having a groove therein, a hydrocarburet-holding retort extending partially thereinto, a heating-passage extending through the fireproof body to the space below the retort, incandescent tubes, passages below said tubes, pipes leading from the retort to said passages, a metal casing for the fireproof body, and air-openings communicating with the passages below the incandescent tubes.

5. The combination, of a retort having a chamber into which hydrocarburet may be fed, and having a second chamber connected with the first chamber into which the products of distillation of the hydrocarburets can pass to be further heated, a body supporting the retort, openings in said body, gas-pipes from the retort to said openings, and incandescent pipes above said openings, as set forth.

6. In a hydrocarbon-burner the combination of a retort subdivided into a distilling-chamber and a communicating gas-chamber immediately over the distilling-chamber, whereby gas in the upper chamber will be heated from the distilling-chamber, a refractory body partially surrounding the retort, said body having chimneys or gas-passages, fireproof tubes over said passages and adapted to be kept incandescent by gas passing through said passages and burning around said tubes, and a pipe from the distilling-chamber to the bottom of said openings.

7. In a hydrocarbon-burner the combination of a retort, a refractory body grooved to form a chamber for the retort, the groove being of larger radius than the retort, the retort being held therein so as to form a chamber between the wall of the groove and the retort, said refractory body having gas-flues consisting of openings through said body, refractory tubes over the flues and at about the height of the top of the retort, whereby when the refractory tubes are heated they will maintain the retort heated.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CHARLES ROSIER.

Witnesses:

EUGÈNE WATTIER,
GEO. LAURENT.