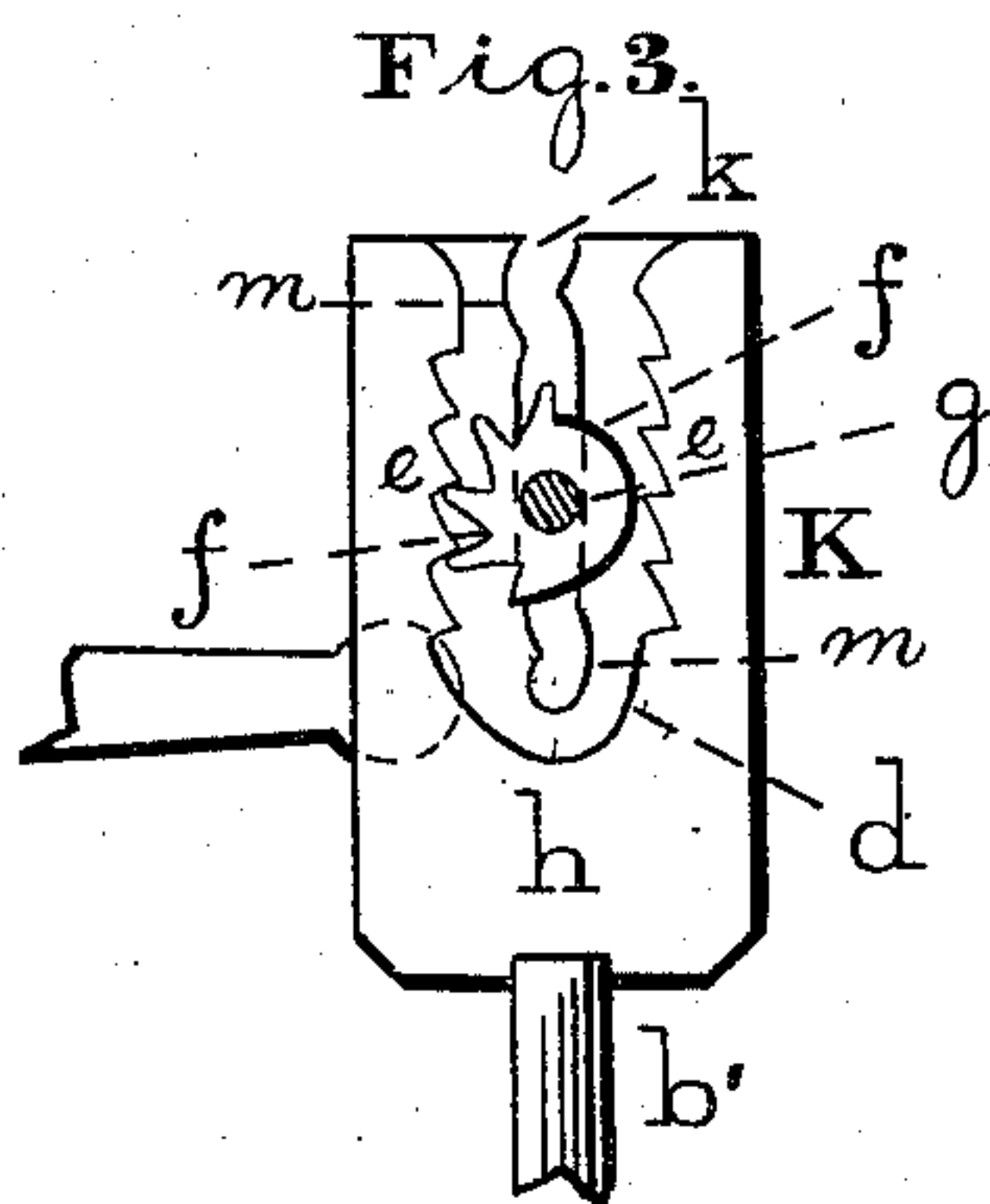
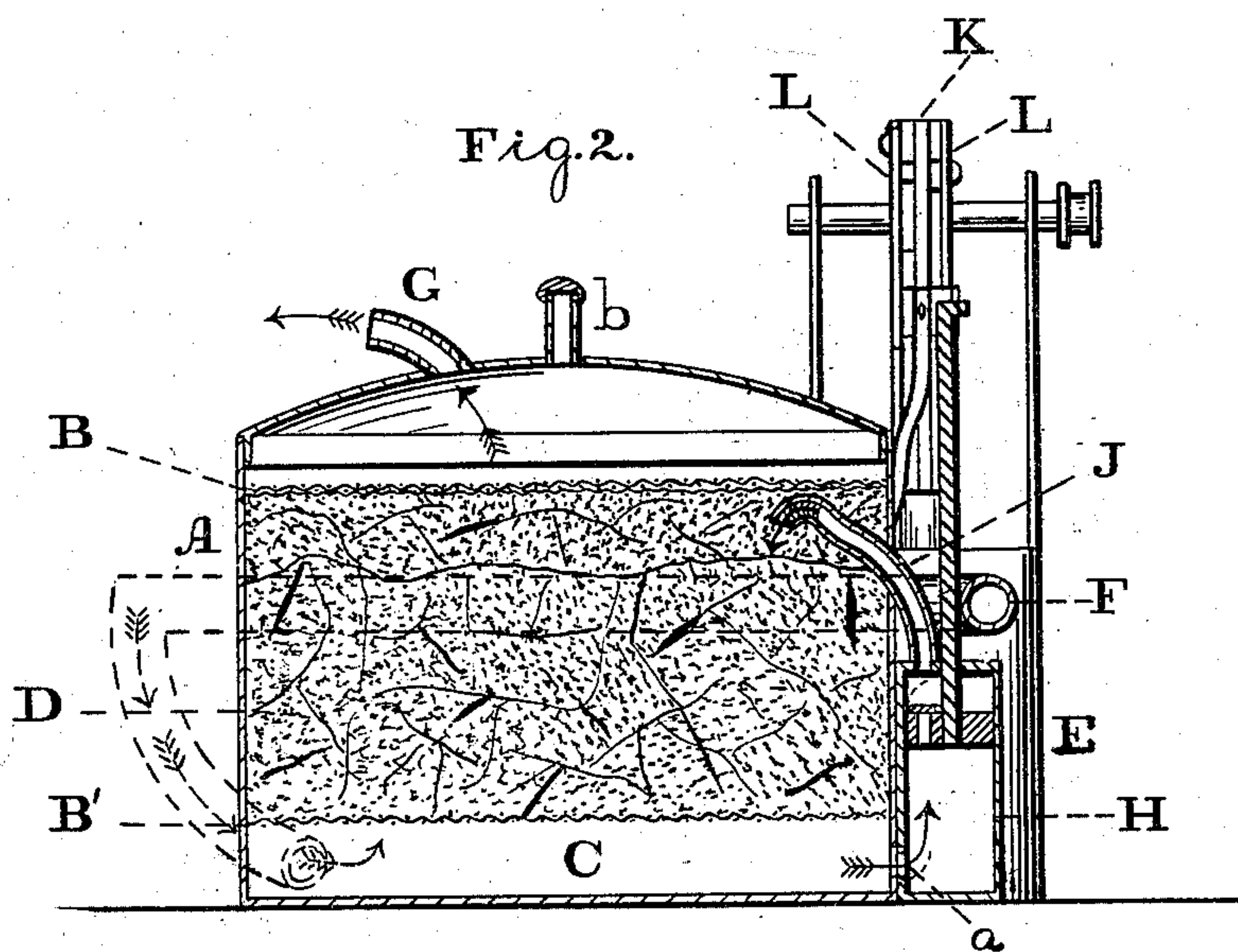
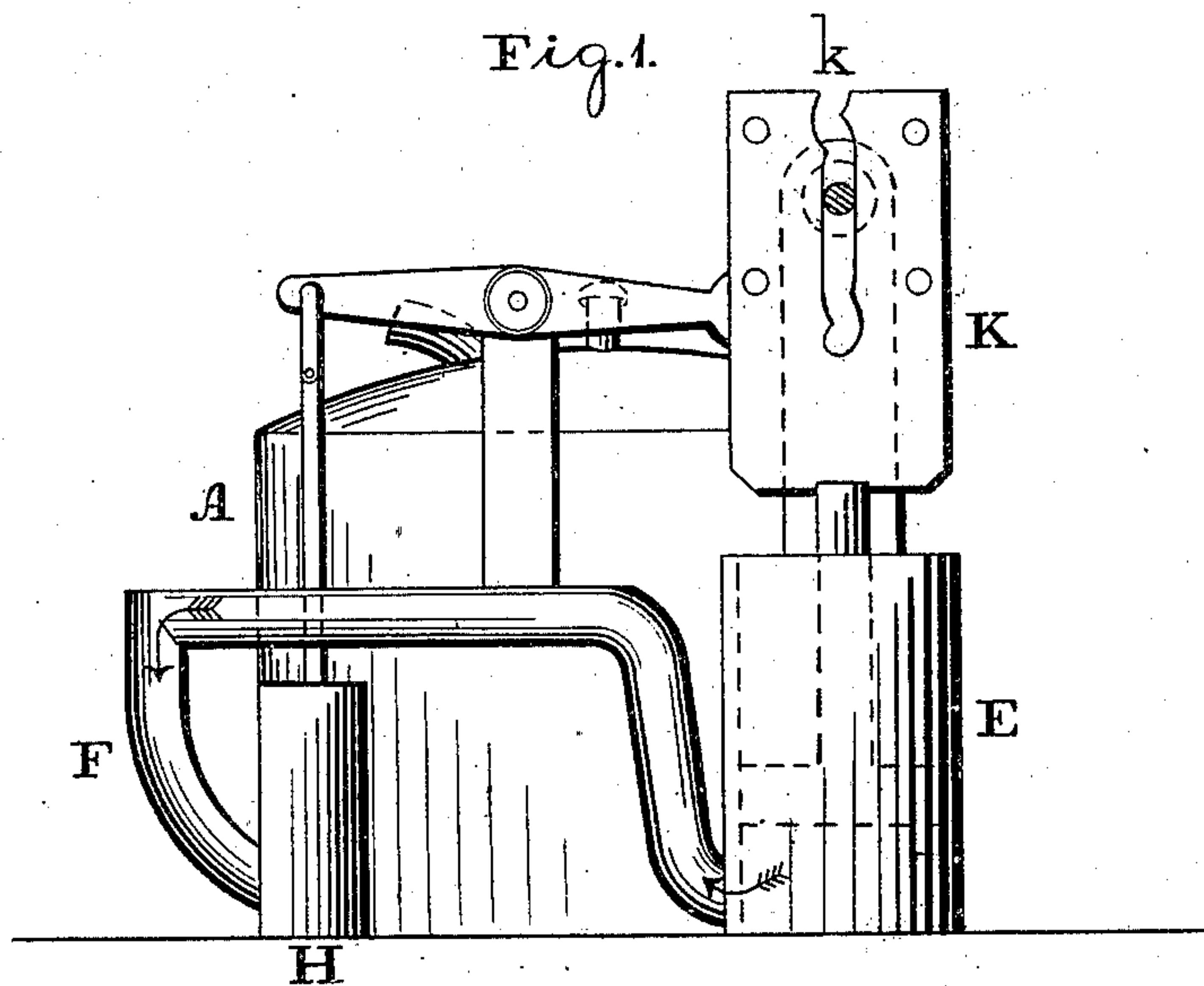


P. WERNI.  
CARBURETING APPARATUS.

No. 169,872.

Patented Nov. 9, 1875.



Witnesses:

L. F. Brous,  
Atty. P. Grant.

Inventor:  
Pelag Werni.  
by *Paul Werni*  
Atty.



# UNITED STATES PATENT OFFICE.

PELAG WERNI, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO E. LUCIEN RICHIE, OF SAME PLACE.

## IMPROVEMENT IN CARBURETING APPARATUS.

Specification forming part of Letters Patent No. **169,872**, dated November 9, 1875; application filed April 13, 1875.

*To all whom it may concern:*

Be it known that I, PELAG WERNI, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Carbureting Apparatus; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a side view of the device embodying my invention. Fig. 2 is a transverse vertical section thereof. Fig. 3 is a face view of the mechanism by which the pump is operated.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to a gas apparatus; and the invention consists in a carbureter provided with an air-receiving and sediment or heavy-oil chamber, a carbureting-chamber, and a distributing-chamber, combined with an air-forcing pump and a pump for restoring the sediment or heavy oil to the carbureting-chamber, substantially as hereinafter specified.

Referring to the drawings, A represents the carbureting-chamber, within which, at the upper and lower ends thereof, are arranged diaphragms B B', the lower one, B', of which leaves a space, C, between the same and bottom of the carbureting-chamber A. Within the chamber A, and resting on the lower diaphragm B', is a packing, D, formed of sawdust and sponge, which will absorb the hydrocarbon fluid placed in the chamber. E represents an air-pump or forcing apparatus, which communicates with the carbureting-chamber A by means of a pipe, F, opening thereinto below the lower diaphragm B', so that air forced into said chamber will pass upward through the mass of hydrocarbon, and escape in a carbureted state through the pipe G to the place of usage or service. Communicating with the space C, by means of a valve-opening, a, is a pump, H, whose cylinder has, at its upper end, an exit-pipe, J, which pro-

jects into the upper portion of the carbureting-chamber below the top diaphragm B.

The hydrocarbon fluid is introduced into the chamber A through the feed-pipe b, or otherwise, and will be absorbed by the sponge and sawdust. The pump E, being operated, forces air through the pipe F into the space C of the chamber A, and then through the hydrocarbon mass, which is sufficiently dense to prevent the escape of air therethrough without being carbonized, and yet does not materially resist the passage of air. The carbureted air now fills the upper portion of the chamber A, and is directed through the pipe G to the place of service.

Some or all of the heavy oil or heavy matters in the hydrocarbon will settle at the bottom of the chamber A, in the space C, and the action of the pump H will take up said oil or matters and redeposit them, through the pipe J, into the upper portion of the chamber A, where the air will again reach or act on them. In the event of fire, the upper diaphragm B will prevent the passage thereof into the mass of hydrocarbon fluid below said diaphragm.

The piston-rod b' of the pump is connected to a head, K, which has a vertical opening, d, on the inner face of whose walls there are formed teeth e e, which project toward each other, and with which engages a pinion, f, whose surface is partly untoothed or plain. The axis of the pinion f has its axial rod g on uprights h, mounted on the pump-cylinder, or otherwise. On the outer faces of the head K there are secured plates L, which are slotted vertically, as at k, to permit passage of the head past the axial rod g of the pinion f, and the upper and lower portions of the slots k are curved laterally, as at m, for purposes to be explained. The piston-rod of the heavy-oil pump H is operated by a rocking arm or beam, which is connected to the head K.

The head K receives a reciprocating motion, and as the teeth of the pinion f engage with the teeth e on one side of the opening d of the head K, they cause the head to rise, while the untoothed portion of the pinion moves freely past the teeth of the other side of said opening. Then, when the head has made its full motion, the pinion, rotating, en-

gages with the teeth *e*, from which it was first disengaged, and causes the descent of the head, the untoothed portion of the pinion moving freely past the teeth *e*, with which it was first engaged. When the engagement of the teeth of the pinion with the teeth of the opening is about to occur, the axial pin *g* of the pinion moves in the lateral curves *m* of the slots *k*, and directs the pinion toward the toothed side of the opening with which it is to engage, and at the same time prevents the extreme ends of the said slots *k* reaching the axial pin *g*, so that the return motions of the head are greatly eased.

It will also be seen that the slots *k* guide the head *K*, and, consequently, the piston-rod

of the pump *E*, the motions of the rod being uniform and easy.

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

In a gas-machine, the combination of an air-receiving chamber, *C*, carbureting-chamber *D*, distributing-chamber, air-forcing pump *E*, and pump *H*, the latter provided with a pipe, *J*, conducting therefrom to the chamber *D*, substantially as and for the purpose described.

PELAG WERNI.

Witnesses:

JOHN A. WIEDERSHEIM,  
ALBERT H. HOECKLEY.