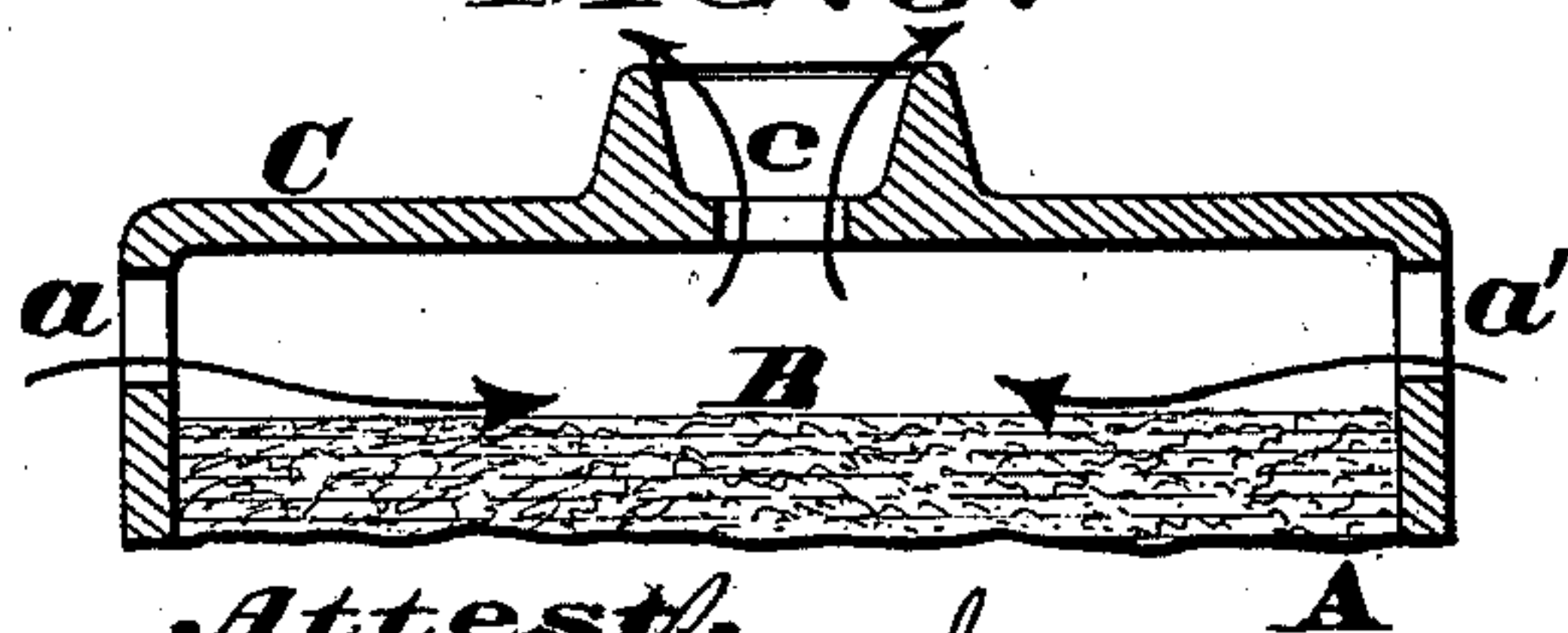
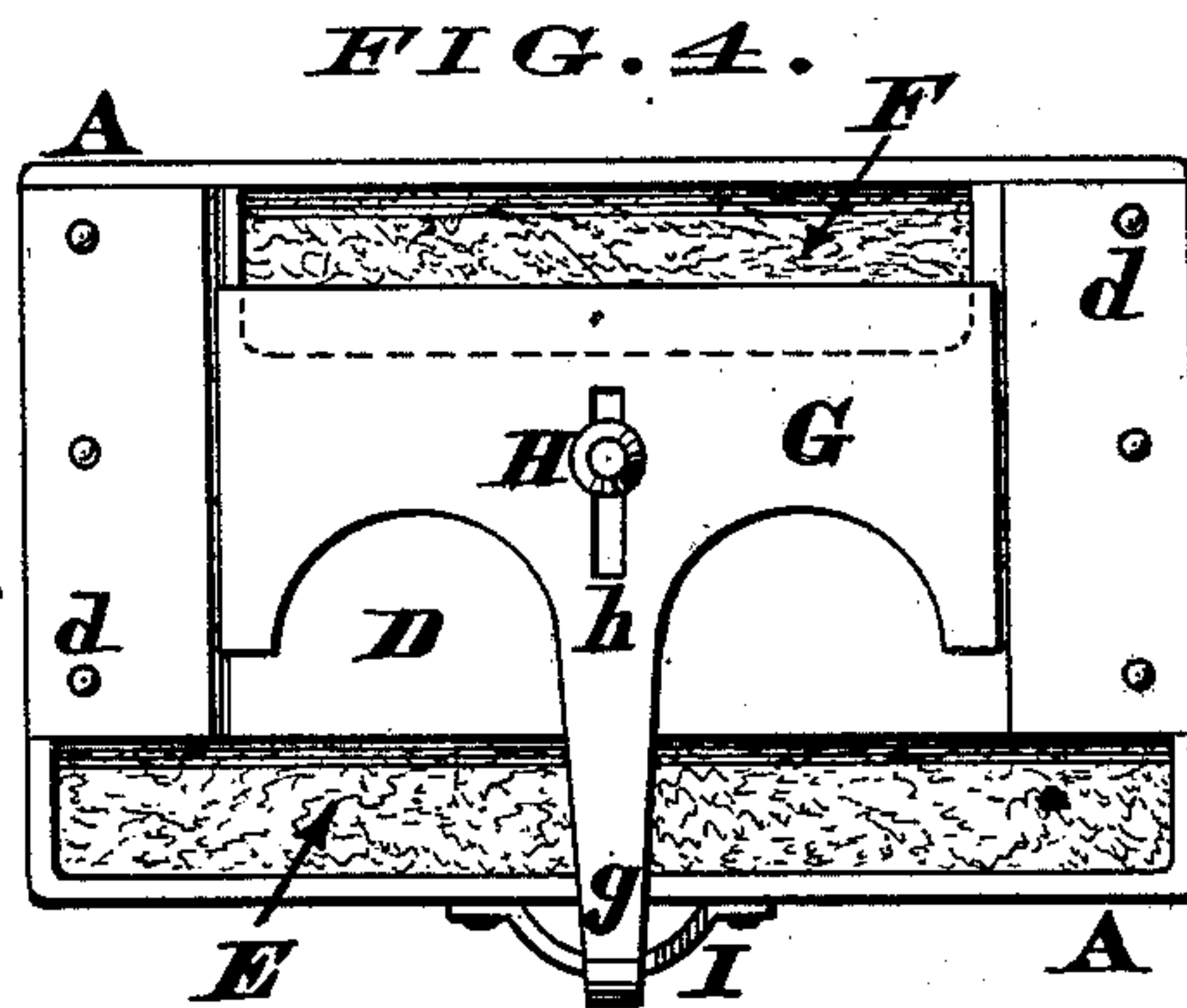
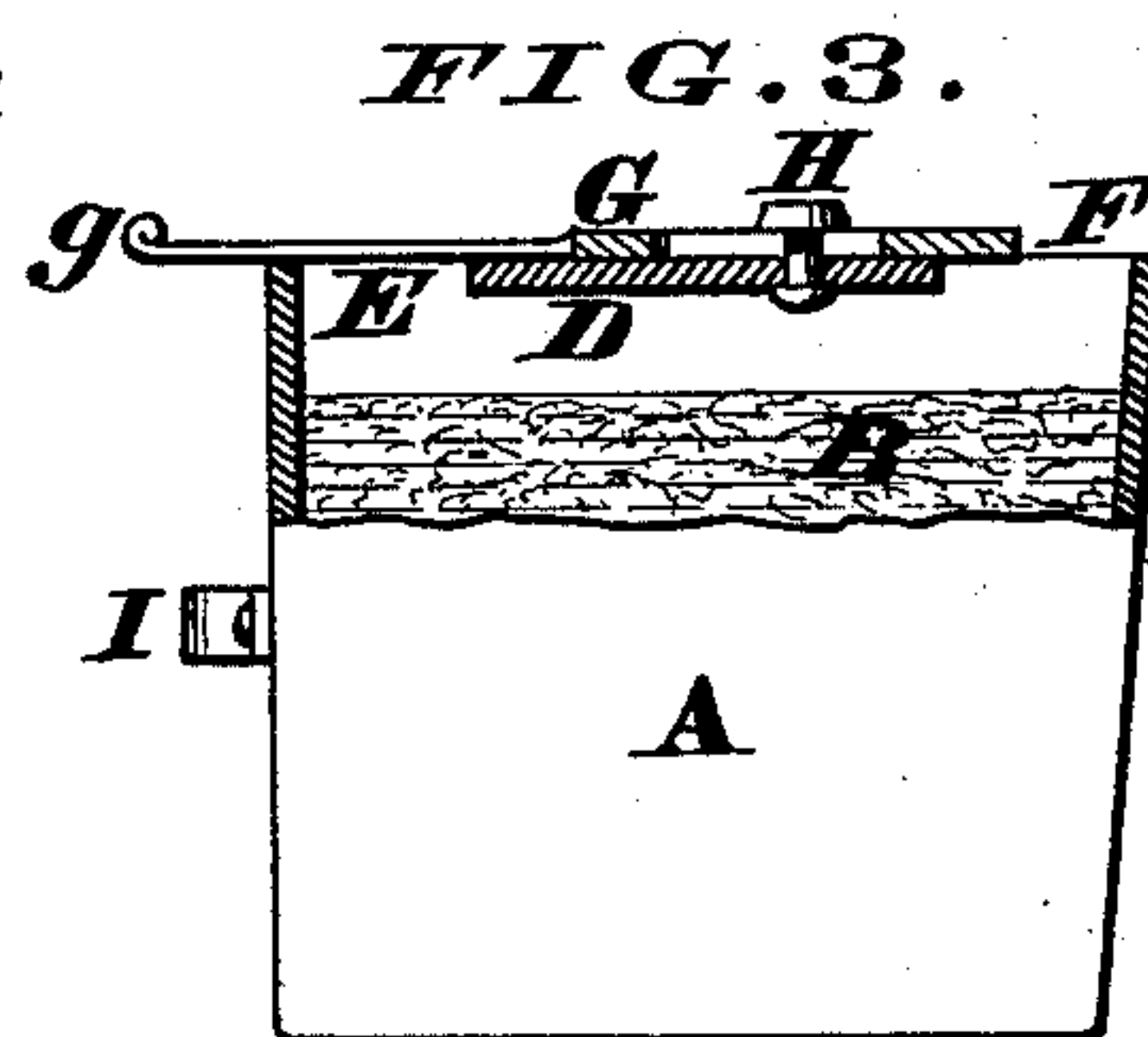
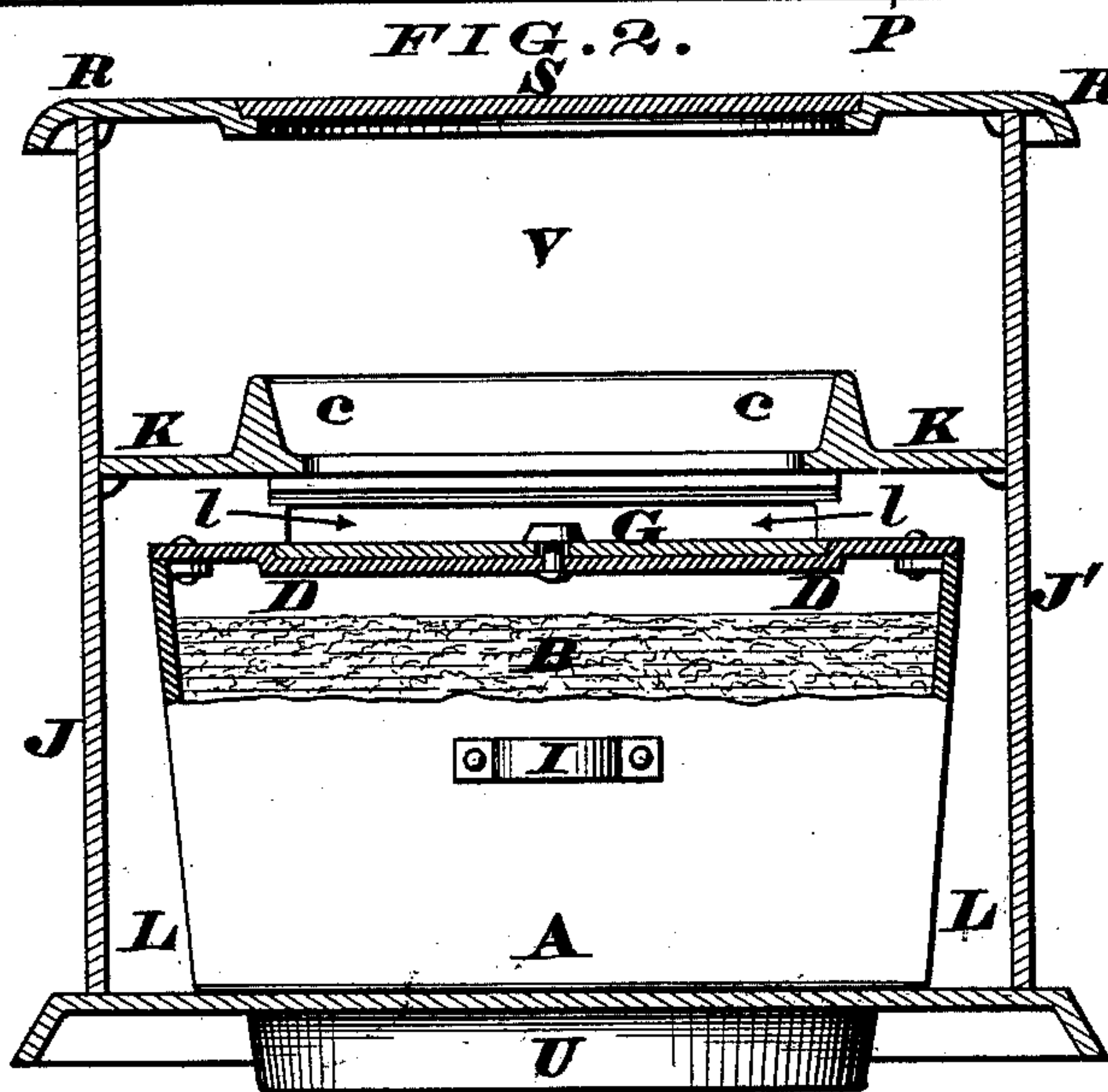
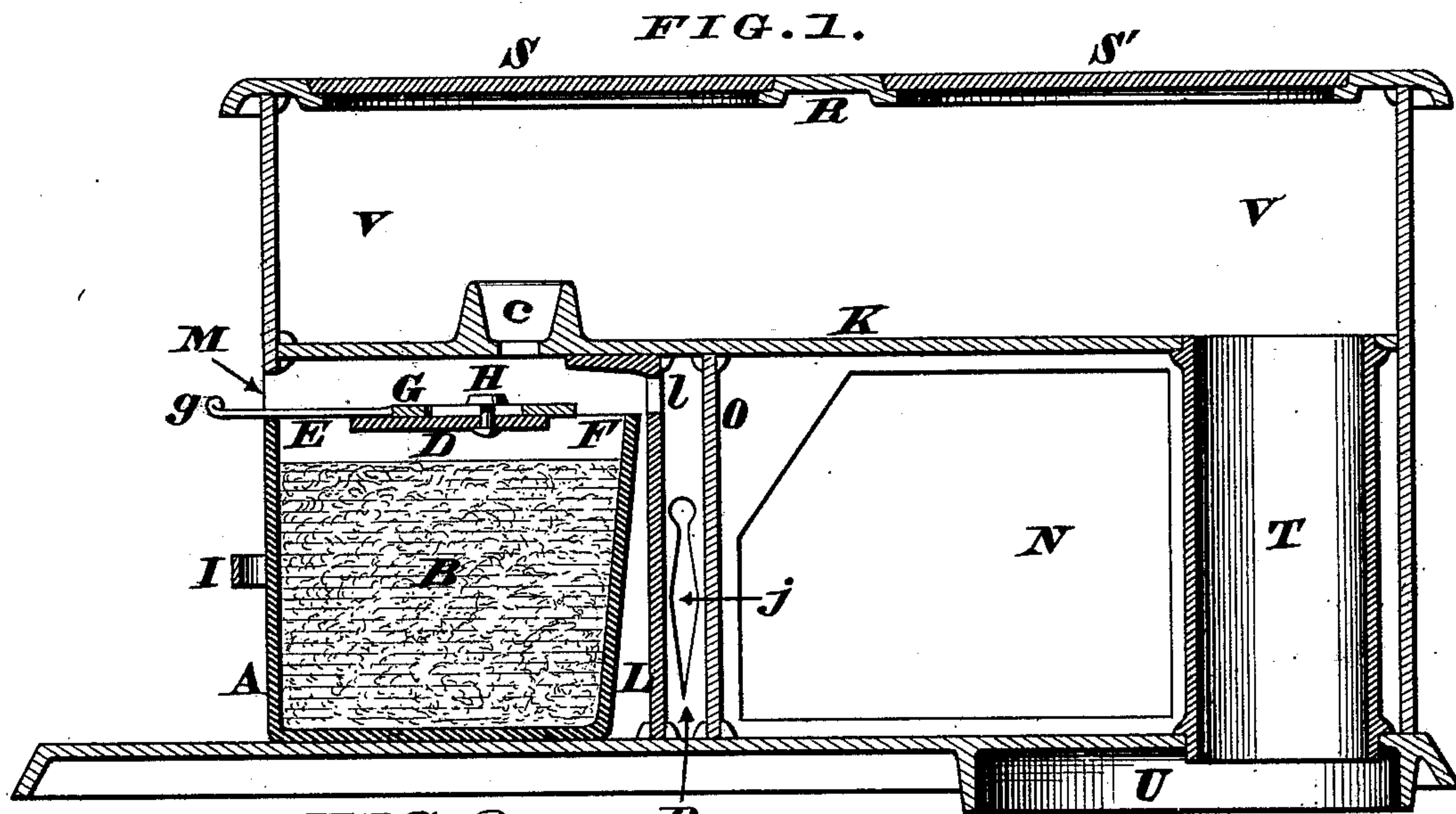


C. TRUESDALE.
Coal-Oil Stove.

No. 218,089.

Patented July 29, 1879.



Attest.
J. C. Robinson Jr.
George H. Kolker

Inventor.
Charles Truesdale
by James H. Layman.
his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES TRUESDALE, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM RESOR & CO., OF SAME PLACE.

IMPROVEMENT IN COAL-OIL STOVES.

Specification forming part of Letters Patent No. **218,089**, dated July 29, 1879; application filed April 21, 1879.

To all whom it may concern:

Be it known that I, CHARLES TRUESDALE, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Coal-Oil Stoves, of which the following is a specification.

This invention relates to those wickless stoves which are provided with a filling of asbestos or other porous but non-combustible material to contain the charge of coal-oil or other suitable burning-fluid; and the first part of my improvements comprises a novel arrangement of air-inlets and ventage for the purpose of insuring the most complete combustion. These air-inlets, of which two are preferably employed, are situated at opposite sides of the box or pan, or other receptacle that contains the aforesaid filling, and near the upper end of the same, while the ventage or discharge-flue consists of one or more slots or enlarged perforations in the top plate of said box. By this arrangement air enters the stove from two opposite directions, and sweeps across the surface of the hydrocarbon before escaping at the ventage where the flames issue. Consequently the flames are surrounded with currents of air that not only promote combustion, but prevent any accumulation of soot on the walls of the narrow ventage, which accumulation of soot is further guarded against by making the mouth or receiving end of the ventage as capacious as the size of the stove will permit. But this feature of my invention may be modified by providing the box with a single air-inlet, which inlet may be made in the top plate of the apparatus, the receiving end or mouth of the ventage in this form of stove being as capacious as possible; or this box may have a single air-inlet either at top or on one side, while a second inlet may be arranged in the summer-stove or other cooking or heating apparatus that contains said box.

The second part of my invention comprises a peculiar combination of slotted or perforated back plate, diaphragm, and vented flue-plate, whereby the above-described device is rendered capable of being readily applied to a portable summer-stove, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a lon-

gitudinal section through a summer-stove provided with my oil-burning attachment; and Fig. 2 is a transverse section of the same, taken in the plane of the ventage. Fig. 3 is a sectionized elevation of the oil-receptacle detached from the stove, and Fig. 4 is a plan of said receptacle. Fig. 5 is a vertical section through a form of oil-receptacle adapted for general use.

The more simple form of my wickless stove, as represented in Fig. 5, consists, essentially, of a box or pan or other receptacle, A, of any suitable size and shape, said box being filled almost full with asbestos, or "mineral wool," or other absorbent but refractory material or materials, B. Sufficient space, however, is left between the surface of this filling and top plate, C, of the box to allow a free passage of air. This stove is pierced on opposite sides or ends, and near the top, with slots or apertures or other air-inlets *a a'*, while one or more slots, *c*, in the top plate serves as the ventage for said stove; or these inlets *a a'* may be made in said top plate, C.

The ventage *c* may be guarded on all sides by a flange or wall projecting a slight distance from the under side of plate C, so as to form a depending neck or collar; but whatever construction may be adopted for this part of the apparatus, care must be taken to have the lower end or mouth of said ventage as capacious as practicable, and not contract its area by means of small apertures or passages, as they would obstruct the upward flow of air, and thereby cause an accumulation of soot in the ventage; but where this slot *c* is quite long, it may be divided at suitable intervals by transverse bars or bridges, provided they do not encroach on the area of the ventage to such an extent as to cause the latter to be soon choked up with soot.

To use this device, it is only necessary to charge the filling B with sufficient coal-oil or other burning-fluid, and then light the same, and as soon as the oil ignites the flames escape through ventage *c*, the air that supports combustion being drawn in at slots *a a'*, as indicated by arrows. These currents of air, entering from opposite sides of the stove, completely surround the flame at ventage *c*, and thus

produce the most perfect combustion. Furthermore, these currents of air prevent any actual contact of the flames with the walls or sides of the ventage, and consequently there is no accumulation of soot on said walls.

This form of stove is adapted for a great variety of purposes; but in order to render the same useful in summer-stoves, I prefer the construction shown more fully in Fig. 1. Here the receptacle A is represented as provided at top with a diaphragm, D, which may be secured to said receptacle with screws or rivets *d*.

This diaphragm does not extend completely across from the front to the back of receptacle A; but sufficient spaces are left to afford two slots, E F, the area of the rear slot, F, being controlled by a cut-off or regulator, G, having a handle, *g*.

H is the retaining device, and *h* the guiding-slot of said regulator. I is the handle of receptacle A, which latter is adapted to occupy a chamber formed by the side plates, J J', flue-plate K, and back plate, L, of a summer-stove, the ventage *c* being now made in flue-plate K, the lower end of said ventage being free from such obstructions as would materially contract the area of slot *c*, and cause an accumulation of soot in the same.

Back plate, L, has a slot, *l*, which performs the function of inlet *a'*, (seen in Fig. 5,) while an opening, M, in the front of the summer-stove takes the place of the other inlet, *a*.

Interposed between plate L and oven N is an imperforate plate, O, a passage, P, being left between said plates, into which passage air enters through proper openings *j* in the side plates, J.

R is the top plate of the stove, and S S' are customary lids of the same. T is the descending or rear flue, and U is a circular flange or neck adapted to enter either of the openings of an ordinary cook-stove.

To use this form of apparatus, the filling B is first saturated with coal-oil, and receptacle A is then placed in the chamber at the front end of the summer-stove, after which act the oil is ignited. The flames now escape almost wholly through the rear slot, F, thence up at ventage *c* into flue V, and down the rear flue, T, into the cook-stove, thus thoroughly heating any vessels that may be applied to top plate, R, or placed in oven N.

When the stove is in action, a current of air enters at opening M and then divides, one portion of the same passing down through slot E, and thence under diaphragm D to the rear slot, F, while the other portion of said current flows rearwardly above the cut-off G. At the same time a separate and distinct current of air enters at opening *j*, ascends within passage P to slot *l*, and then escapes at ventage *c*.

It will thus be seen that the apparatus illustrated in Fig. 1 operates in precisely the same manner as the more simple form of device shown in Fig. 5—that is to say, the flames are surrounded by currents of air that promote combustion and prevent the accumulation of soot in ventage *c*.

In some cases it may be advisable to admit a current of air or jets of the same into flue V, immediately behind or above the ventage *c*, or at some other locality.

As my form of receptacle A allows the burning-fluid to be consumed in the open air, and not in a closed vessel, it is evident there can be no accumulation of gas in the apparatus, and, consequently, an explosion of the stove is impossible.

Finally, the wickless devices seen in Figs. 3 and 5 may be employed with any kind of cooking or heating apparatus, or for any other purpose.

I am aware it is not new to charge a coal-oil stove with asbestos or other refractory fillings, and cause the products of combustion to escape through a chimney whose lower end is perforated to admit the gases, as such a device is seen in Letters Patent No. 193,089, issued July 17, 1877, to J. J. Jarves.

Such being the state of the art, my claim to this feature of the invention is expressly limited to a wickless coal-oil stove whose fluid-receptacle is adapted to contain a refractory filling, and has one or more air-inlets and one or more ventages, the mouths of said ventages being free from small apertures or channels, in order that the products of combustion may have unobstructed egress from said receptacle, as herein described.

I claim as my invention—

1. A wickless coal-oil stove consisting of a receptacle, A, charged with a suitable refractory filling that contains the burning fluid, said receptacle being provided with one or more air-inlets, *a*, and one or more ventages, *c*, which ventages have unobstructed or open mouths, as herein described.

2. The coal-oil stove A, having a diaphragm, D, two slots, E F, and an adjustable regulator, G, as herein described.

3. The oil-receptacle A D E F, combined with the slotted back plate, L *l*, flue-plate K, and ventage *c* of a summer-stove, as herein described.

4. The combination, in a summer-stove, of oil-receptacle A D E F, slotted back plate, L *l*, flue-plate K, ventage *c*, passage P, and inlet *j*, as herein described.

In testimony of which invention I hereunto set my hand.

CHARLES TRUESDALE.

Witnesses:

JAMES H. LAYMAN,
RANKIN D. JONES.