

C. M. GEARING.  
Hydrocarbon-Furnaces.

No. 158,931.

Patented Jan. 19, 1875.

Fig. 1.

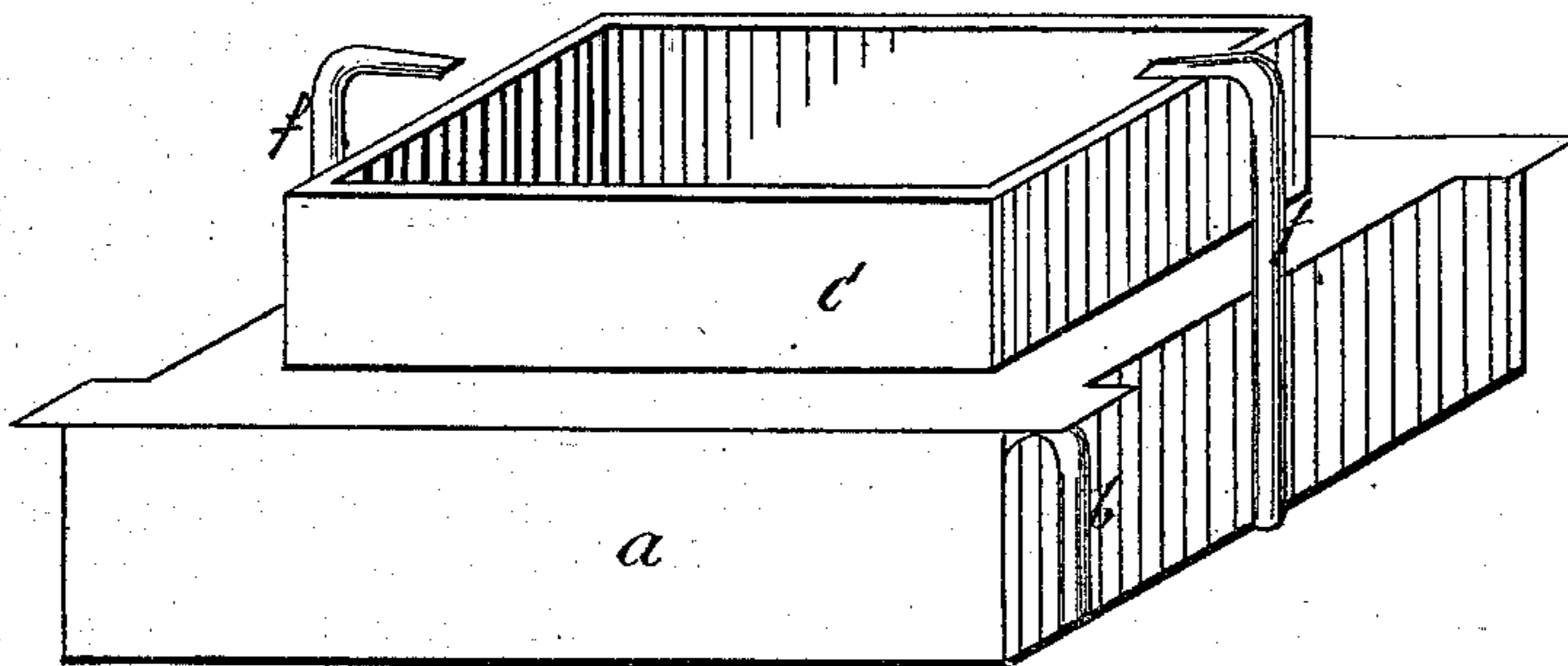
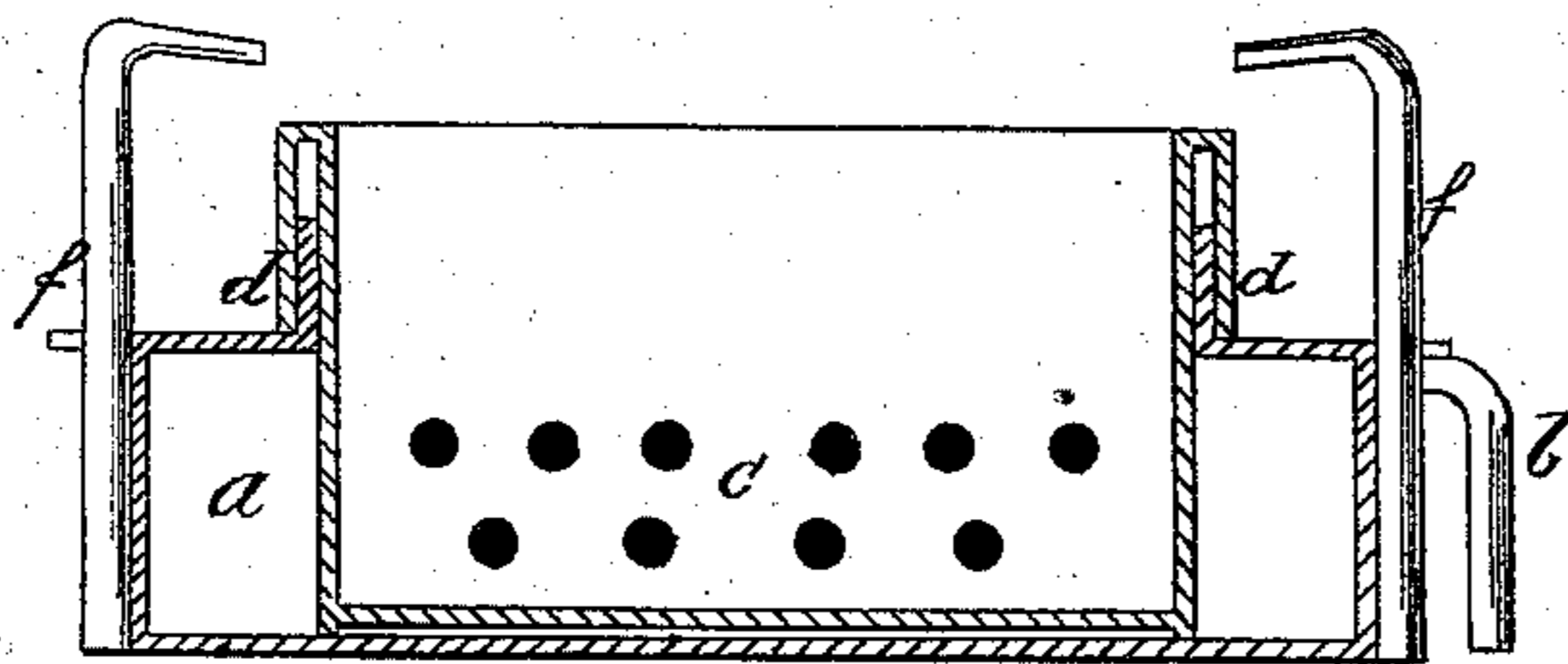


Fig. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

CHARLES M. GEARING, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN HYDROCARBON-FURNACES.

Specification forming part of Letters Patent No. **158,931**, dated January 19, 1875; application filed June 17, 1874.

*To all whom it may concern:*

Be it known that I, CHARLES M. GEARING, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Burning Oils and other Fluids as Fuel; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a perspective view of my improved apparatus, and Fig. 2 is a vertical longitudinal section thereof.

Like letters of reference indicate like parts in each.

My invention consists in an improved device or apparatus for burning oils or other similar fluids as fuel in furnaces, &c., and generally where such devices are applicable; and it consists of a tank or reservoir, to which the fluid fuel is supplied, a fibrous material extending down into the tank to operate as a wick or conductor for the oil, said fibrous material confined in a basket or grating, together with blast-pipes in a device for supplying air or oxygen gas on the top and at the center of the point of combustion.

To enable others skilled in the art to make and use my improvement, I will describe its construction and operation.

I form a tank, *a*, of any desired shape and material, having an inlet-pipe, *b*, by which the oil or other fluid fuel is supplied, and in the center of the tank, which is provided with an opening, I insert a grating or perforated basket, *c*, which extends down to or near to the bottom of the tank. The tank is supported by lugs *d*, which rest upon any suitable support. The basket *c* is filled with any suitable fibrous substance for conducting the oil or other fluid from the tank to the burning-point, operating as a wick in a lamp.

The substance I prefer to use is asbestos, since it is indestructible by fire; but any other fibrous material will answer the purpose.

At the ends, or at any other desired or suitable point, I arrange air-injecting pipes *f*,

which have their nozzles directed to deliver a blast of air or oxygen gas on or across the top of the fire-basket *c*, or so as to deliver their stream into the center of the flame, which, it is well known, is occupied by volume of unconsumed gas.

This is well illustrated by the dark portion of the flame of the candle. The design of supplying the air at this point is evident, it being for the purpose of increasing the combustion of the gas generated by the flame.

I am aware that it has been proposed to burn hydrocarbon and other oils by saturating a bed or stratum of incombustible or refractory materials with oil and burning it upon the surface thereof, both with and without the air-blasts; but the devices heretofore employed do not admit of general use, because the construction is such that they are not readily controlled or cleaned, soon becoming clogged and inoperative.

By my improvement I am enabled to burn in a perfect manner fluid fuel, thus accomplishing a result which has frequently heretofore been tried with many and oftentimes very intricate devices.

One of the chief recommendations of my apparatus is its extreme simplicity, the utter impossibility of its becoming clogged, and the ease with which it can be cleaned. This may be done either by withdrawing the basket from the tank, or by means of a man-hole made in the side of the tank, through which access is gained to the interior.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the outer tank or reservoir *a*, the inner perforated basket *c*, supported on the reservoir and filled with fibrous material, and the blast-nozzles *f*, substantially as and for the purpose specified.

In testimony whereof I, the said CHARLES M. GEARING, have hereunto set my hand.

CHARLES M. GEARING.

Witnesses:

T. B. KERR,

FREDERICK STANDISH.