

O. EDWARDS.
STOVE FOR BURNING OIL.

No. 176,609.

Patented April 25, 1876.

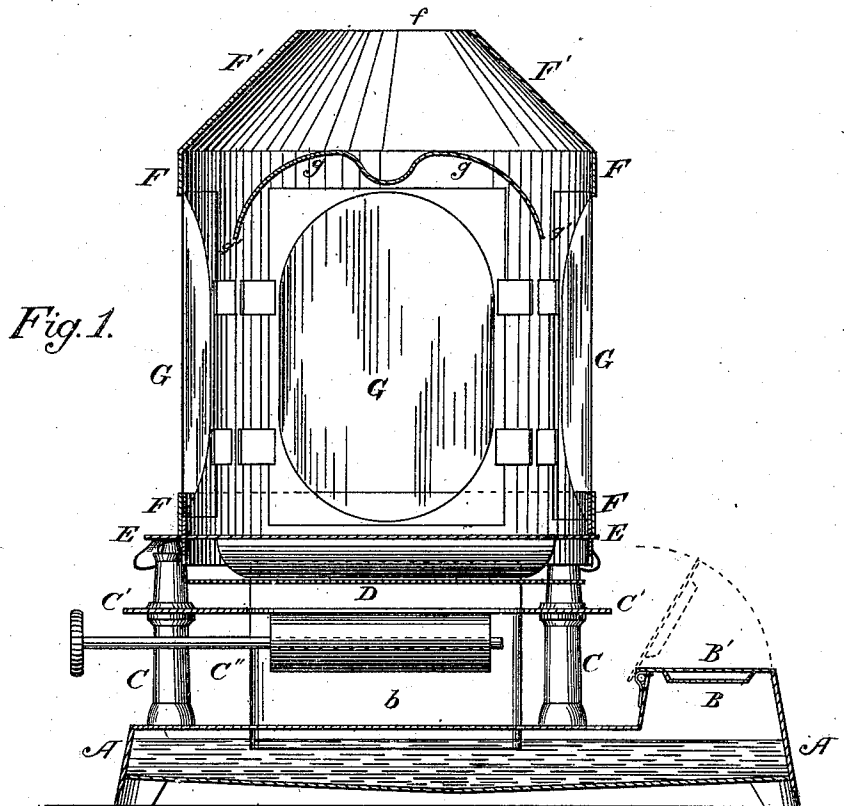
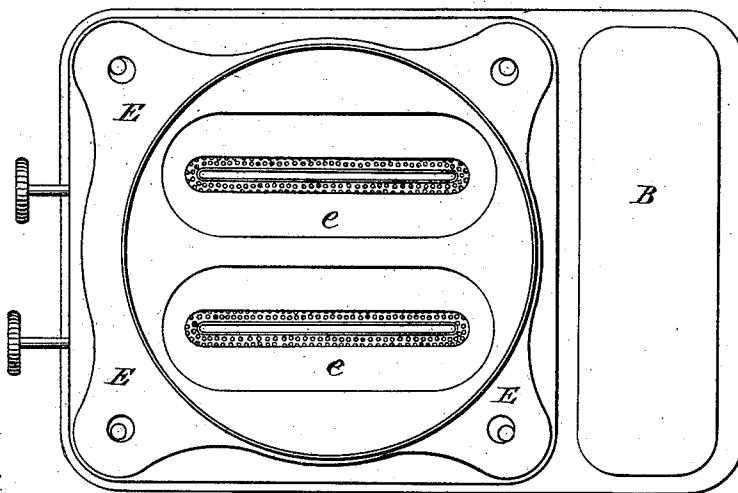


Fig. 2.



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Fig. 3.

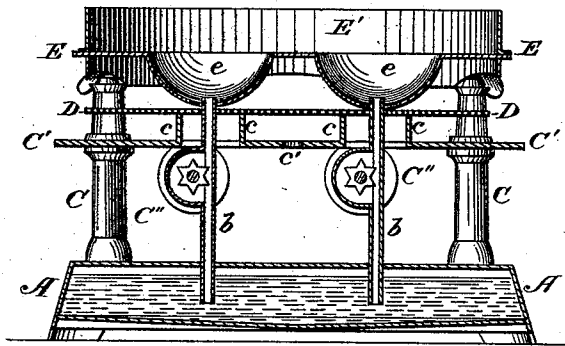
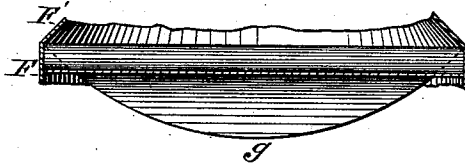


Fig. 4.



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UNITED STATES PATENT OFFICE.

OLIVER EDWARDS, OF FLORENCE, MASSACHUSETTS.

IMPROVEMENT IN STOVES FOR BURNING OIL.

Specification forming part of Letters Patent No. **176,609**, dated April 25, 1876; application filed March 11, 1876.

To all whom it may concern:

Be it known that I, OLIVER EDWARDS, of Florence, in the county of Hampshire, in the State of Massachusetts, have made certain Improvements in Stoves for Burning Hydrocarbon Oils, of which the following is a specification:

The object of this invention is to produce a stove in which petroleum or hydrocarbon oil is used for fuel in place of wood or coal, and of such construction as will insure a more perfect combustion of the oils than has heretofore been obtained, and consequently giving more heat to the same amount of oil consumed than has heretofore been obtained without smoke or gaseous odors; also, of such construction as to radiate the heat downward to the best advantage, and, at the same time, keep the oil in the reservoir or base perfectly cool.

The more perfect combustion and downward radiation is produced by a solid plate suspended over the burners. This plate may be flat; but it is better to be made in curved form, to impart to the smoke or hot gases a downward and rotary motion, a sufficient space being left between the circumference of the plate and the hot-air cylinder to allow the heated air to escape. The plate not only causes the gases to rotate downward into the flame, but it also greatly increases the radiation of heat toward the base of the stove. The construction of the oil-reservoir is such that it extends outward to the rear of the stove, to give increased capacity for oil without the use of supplemental reservoirs, and the bottom slopes from all sides to the space under the wick-tubes. A graduated scale is combined with the reservoir to show how long the oil in the reservoir will burn. At a suitable distance above the oil-reservoir is suspended a plate of zinc, the space all around the sides being open to allow free circulation of air. This plate may be of perforated metal or solid, save having openings around the wick-tubes for increased supply of air to the upper air-chamber. It may be of other metal than zinc, though zinc is preferable, as it is a good non-conductor of heat. This plate protects the oil-reservoir from all heat from the stove, which is indispensable for safety, and it enables me to make a stove that will radiate the heat downward and be perfectly safe.

In the drawing, Figure 1 represents a vertical longitudinal section of an oil-stove having my improvements applied thereto; and Fig. 2, a plan view of base-section of the oil-reservoir and base of the stove. Fig. 4 represents a view of the radiating-plate that is suspended over the flames or burners. Fig. 3 represents a sectional view of the base-plate, wick-tubes, horizontal plates, and the base or oil-reservoir.

To enable others skilled in the art to make and use my invention, I will now proceed to describe it in detail.

The oil-reservoir A may be made of thin cast-iron, galvanized, or of plate metal soldered together. B represents the mouth through which the reservoir is filled with oil, and is provided with a hinged cover, B'. In the upper side of the reservoir wick-tubes *b* are inserted and soldered tight, as many in numbers as there are lamps to be used. The wick-tubes are provided with ratchets for raising and lowering the wicks in the same manner as in ordinary lamps for burning petroleum. C C C C are four zinc supporting-pillars standing upon and attached to the top of the oil-reservoir A. They are made of zinc, preferably, because zinc is a poor conductor of heat, and will not conduct heat from the stove to the oil-reservoir. These pillars are the supports to the body of the stove. C' is a horizontal zinc plate, perforated to admit the wick-tubes to pass upward through it. The metal for the perforations for the passage of the tubes is, when cut, turned upward to become a support for another plate, as seen at *c*, Fig. 3. This plate C' is, preferably, of sheet-zinc, although it may be made of other metals that are bad conductors of heat, as the object of such bad-conductor metal plate is to prevent the heat thrown off by the flame of the burning oil from heating the surface of the oil-reservoir or the oil in the reservoir. This plate may have other perforations through it, as seen at *c'*, Fig. 3, to admit freely the passage of air upward to the point of combustion at the top of the wick-tubes. The space C'', between the oil-reservoir A and plate C', forms a supplemental air-reservoir, and from which the air, or some of it, is supplied to the point of combustion. D is a horizontal foraminous plate, resting upon the supports *c* of plate C',

and prevents any floating substance in the air from coming in contact with the flame, as well as it distributes the air evenly to the flame, and prevents currents, so that the flame will be steady and of equal volume. E is the base of the stove, and is supported upon the four pillars C, has depressions or pits *e* descending below the base, and perforated to receive the top of the wick-tubes *b*, and in these pits the combustion takes place, while the sides of the pits form reflectors to reflect the heat. E' is a flange or rim extending upwardly from the base E, and around which the cylinder of the stove closely fits, and by which it is held. F is the stove-cylinder, of any desirable form, extending upward from the base to the dome or conical part F', which is open at its apex *f*, to allow the heated gases to pass out. G G are mica windows in the cylinder to admit the light made by the flame at the top of the wick-tubes to be seen outside of the stove or cylinder. *g* is a deflector fastened within the cylinder F, and near its top, of less diameter than the cylinder, and curved, as seen in Fig. 1, so that as the heated gases go upward and strike the plate *g* they will be deflected downward toward the base, and finally escape through the space *g'* between the deflecting-plate and cylinder, thence out at the top through opening *f*.

In constructing these stoves, as above described, I do not wish to confine myself to the precise form, as other forms than that described may be used without departing from

my invention in producing the result sought for, which is to effect the best combustion, to deflect or radiate the heat downward, and keep the oil in the oil-reservoir perfectly cool.

Having thus described my invention, what I claim as new is—

1. The reflecting and radiating plate *g*, of sheet metal, bent in the form to deflect the heated gases downward and outward from the center, in combination with the cylinder F of an oil-burning stove, as and for the purposes described.

2. The plate C', interposed between the top of the wick-tubes and the oil-reservoir, constructed of sheet-zinc, or other metal that is a bad conductor of heat, in combination with the pillars C of an oil-burning stove, constructed as and for the purpose described.

3. In an oil-burning stove, the pillars C, standing upon the oil-reservoir and supporting the superstructure, and constructed of zinc, or other metal that is a bad conductor of heat, substantially as and for the purposes described.

4. An oil-burning stove composed of the combination of the oil-reservoir A, supporting-pillars C, zinc plate C', air-space C'', wick-tubes *b*, foraminous plate D, base E, having flange E', stove-cylinder F, and plate *g* therein, all constructed and arranged to operate substantially as described.

OLIVER EDWARDS.

Witnesses:

CALVIN PORTER,
THOMAS PORTER.