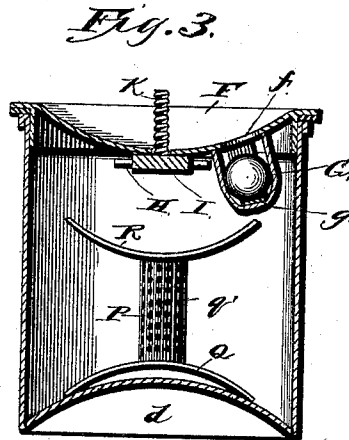
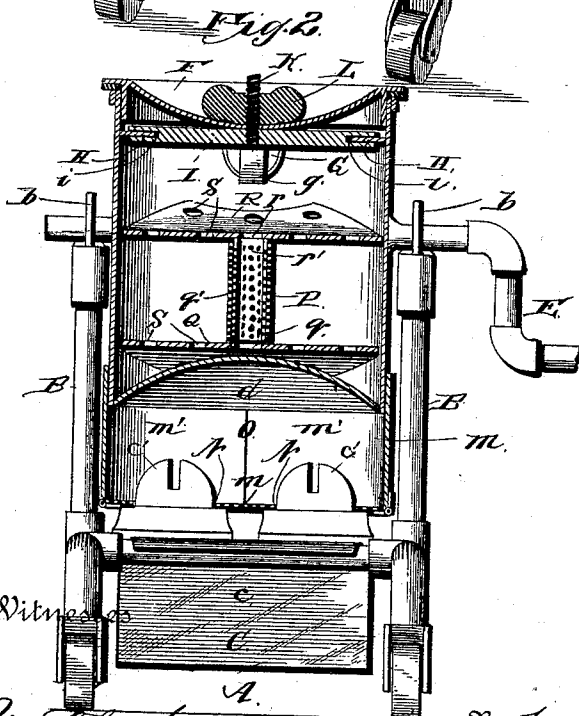
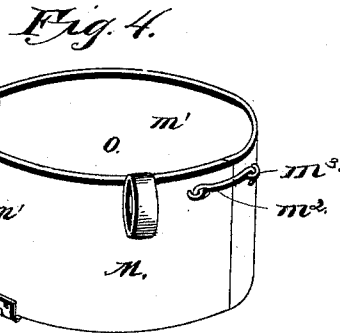
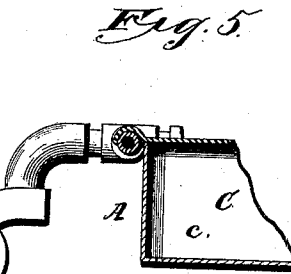
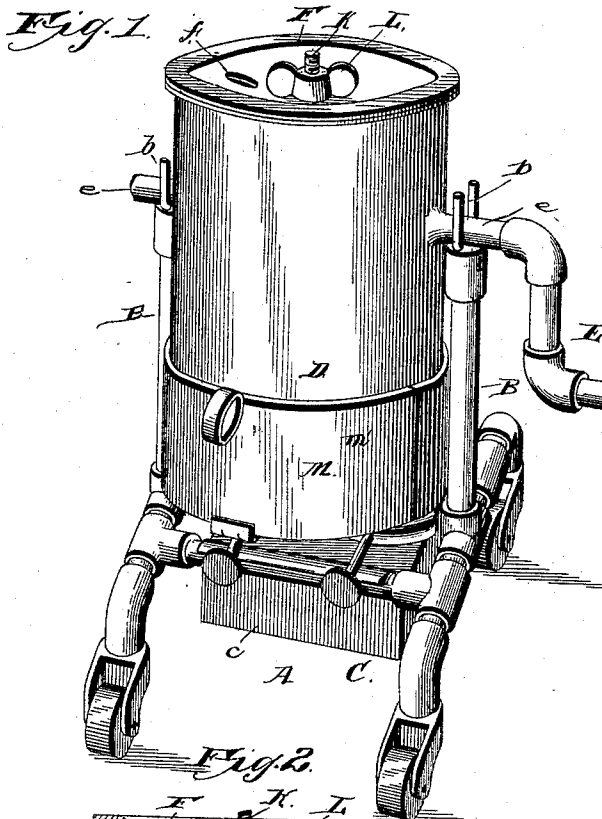


(No Model.)

D. C. McINTIRE.
PORTABLE HEATER.

No. 395,576.

Patented Jan. 1, 1889.



Witnesses

Wm. H. Hays
C. E. Doyle

By *Wm. H. Hays* Attorneys

Inventor,
D. C. McIntire

C. H. Knowlton

UNITED STATES PATENT OFFICE.

DEWITT C. MCINTIRE, OF SALAMANCA, NEW YORK.

PORTABLE HEATER.

SPECIFICATION forming part of Letters Patent No. 395,576, dated January 1, 1889.

Application filed June 28, 1888. Serial No. 278,453. (No model.)

To all whom it may concern:

Be it known that I, DEWITT C. MCINTIRE, a citizen of the United States, residing at Salamanca, in the county of Cattaraugus and State of New York, have invented a new and useful Improvement in Portable Heaters, of which the following is a specification.

My invention relates to a portable heater, having for its object to provide improved means for boiling liquids, whereby all the heat is utilized, and, furthermore, to provide means whereby the contents of the boiler are kept well agitated during the operation of boiling.

The invention consists in a certain novel construction and arrangement of devices, fully set forth hereinafter in connection with the accompanying drawings, wherein—

Figure 1 is a perspective view of the improved heater. Fig. 2 is a vertical central sectional view thereof. Fig. 3 is a sectional view of the boiler, to show the agitator and the devices for securing the cover in place. Fig. 4 is a detail perspective view of the removable cap. Fig. 5 is a detail sectional view of a portion of the heating device.

Referring to the drawings, A designates a truck or frame mounted on rollers, which is provided with uprights or standards B B, having bearings or forks *b b* at their upper ends; and C designates the heating device, which is provided with the reservoir *c* and the burners *c' c'*, arranged between the said uprights or standards.

The boiler D, which is arranged between the uprights or standards over the burners, is provided with the lateral trunnions *e e*, mounted in the bearings or forks *b b*, and the crank E, affixed to one of the trunnions, whereby the boiler may be rotated between the uprights or standards in order to bring either end over the flame of the burners. The boiler is provided with a concave bottom, *d*, in order to concentrate and hold the heat, and the cover F, which fits on the upper end of the boiler, is similarly concaved, and is provided with the vent-opening *f*, beneath which is arranged the ball-valve G, held adjacent to the opening by the basket *g*. When the boiler is reversed, this valve drops by gravity and closes the vent-opening, thereby preventing the contents of the boiler from escaping there-

through. An elastic packing, of rubber, cork, or its equivalent, is arranged between the cover and the upper edge of the boiler in order to form a water-tight joint.

H H represent ears, which are arranged on the inner side of the boiler near its upper end, and the transverse bar I (which is removable from the boiler) is provided with notches *i i* in its ends, which are engaged with the said ears to hold the bars in a transverse horizontal position in the boiler. This bar is provided at its center with the vertical threaded stud or arm K, which extends through a central aperture in the cover, and is engaged by the thumb-nut L, whereby the cover may be forced down tightly on the elastic packing.

M represents a removable cap, which is fitted on the lower end of the boiler, and is provided with a perforated bottom, *m*, having apertures N N to receive the burners of the heating device. This cap is supported on the burners, and its bottom is removed some distance from the bottom of the boiler to form a combustion-chamber, O, in which the heat of the burners is confined and concentrated against the bottom of the boiler. The perforations in the bottom *m* allow a free circulation of air to support combustion. The sides of the cap consist of the semi-cylindrical sections *m' m'*, which are hinged at the centers of their lower ends to the edges of the perforated bottom, and are held in contact at their adjacent side edges by the hooks *m² m²* engaging suitable keepers, *m³ m³*. It will be understood that this cap is allowed to remain on the lower end of the boiler while the contents of the latter are heating; but when it is desired to rotate the boiler the cap must be removed, either by sliding it up until the apertures N N are disengaged from the burners and then swinging the boiler laterally a sufficient distance to allow the cap to be slipped off, or by disengaging the hooks *m²* and spreading the sides of the cap.

P represents an agitator which is arranged in the boiler, and it consists of the lower rounded or curved plate, Q, provided with a central aperture, *q*, and the perforated tube *q'*, arranged over the said aperture, and the upper rounded or curved plate, R, provided

with a central aperture, r , and the perforated tube r' , arranged under the said aperture and fitting within the tube q' . The lower plate is convexed upward at its center to be out of contact with the bottom of the boiler, and the upper plate is convexed downward at its center to be out of contact with the cover, and both plates are provided with perforations S . As the boiler is rotated on its trunnions, this agitator moves from one end thereof to the other, the liquid being forced to pass through the perforations in the tubes and the plates, and thereby kept well agitated.

This device may be used for various purposes where it is desired to heat rapidly and thoroughly and maintain the contents of the boiler in a state of agitation. It may be used as a clothes-boiler, the fabrics being placed in the boiler around the perforated tubes and between the perforated plates. It will be seen that the clothes will be kept out of contact with the heated ends of boiler, and the water will be forced and drawn through them during the rotation of the boiler, thereby rapidly and thoroughly cleansing the same. The boiler may be used for boiling tar, oil, soap, paste, and other similar substances which must be heated to a high degree and should be kept in motion to prevent burning, as maple-sirup, &c. It will also be observed that the contents of the boiler may be readily poured therefrom after the cover is removed by simply inclining it by means of the crank.

The boiler may be made of any suitable material—as copper, brass, galvanized iron, tin, &c.—and the truck may be made either of iron tubing, wood, metal, or other similar material. I prefer to use oil or gasoline as the fuel for the heating device, although coal-gas, natural gas, or any suitable material may be used.

The heating device C is secured in place by flanges, which are bent over upon and partly around the cross-bars or cross-pipes of the frame A , the said flanges being preferably formed integral with the reservoir of the heating device.

Having thus described my invention, I claim—

1. In a portable heater, the combination of the truck or frame provided with the uprights or standards, the heating device arranged between the uprights or standards, the boiler provided with lateral trunnions mounted in bearings on the upper ends of the uprights or standards, and the crank to enable the same to be rotated, and the cover on the upper end of the boiler, provided with a vent-opening and a gravity-valve adjacent thereto, substantially as specified.

2. In a portable heater, the uprights or standards and the heating device arranged between them, in combination with the boiler mounted between the uprights or standards and provided with the concave bottom adapted to concentrate the heat, and the concave cover fitting on the upper end of the boiler and pro-

vided with a vent-opening covered by a gravity-valve, substantially as specified.

3. In a portable heater, the uprights or standards and the heating device arranged between the same, in combination with the boiler mounted between the uprights or standards and provided with a concave bottom, the concave cover fitting on the upper end of the boiler and bearing on an elastic packing-ring, and the transverse bar arranged in the upper end of the boiler and provided with an upright threaded stud extending through a central aperture in the cover and engaged by a thumb-nut, substantially as specified.

4. In a portable heater, the combination of the boiler provided with interior ears near its upper end, the transverse removable bar provided with notches in its ends engaging the said ears, the threaded stud affixed to the center of the said bar, the cover fitting on the upper end of the boiler and provided with a central aperture fitting over the said threaded stud, and the thumb-nut engaging the projecting end of the stud and bearing on the outer side of the cover, substantially as specified.

5. In a portable heater, the uprights or standards and the heating device arranged between the same, in combination with the boiler mounted between the uprights or standards and provided with a suitable cover, and the agitator arranged in the boiler and comprising two perforated plates connected by a perforated tube and adapted to move longitudinally in the boiler as the latter is rotated, substantially as specified.

6. In a portable heater, the uprights or standards and the heating device arranged between the same, in combination with the boiler and the agitator comprising the upper and lower plates provided with central apertures, the perforated tube q' on the lower plate, arranged over the central aperture therein, and the perforated tube r' on the upper plate, arranged over the central aperture therein and fitting within the tube q' , substantially as specified.

7. The boiler provided with a concave bottom, and the cover on the upper end of the boiler, in combination with the agitator arranged in the boiler and comprising the lower curved and perforated plate, Q , provided with a central aperture, the perforated tube q' , affixed to the plate over the said aperture, the oppositely-curved and perforated upper plate, R , provided with a central aperture, and the perforated tube r' , affixed to the under side of the plate under the central aperture and fitting in the tube q' , all constructed and arranged substantially as and for the purpose specified.

8. In a portable heater, the uprights or standards and the heating device provided with the burners $c' c'$, in combination with the revoluble boiler mounted between the uprights or standards, and the cap fitting on the lower end of the boiler and provided with a perforated bottom having apertures $N N$,

fitting on the burners, the interior of the said cap forming a combustion-chamber to concentrate the heat on the bottom of the boiler, substantially as specified.

5 9. In a portable heater, the uprights or standards and the heating device arranged between the same, in combination with the boiler and the cap fitting on the lower end of the boiler, and comprising a perforated bottom and the
10 semi-cylindrical side sections hinged to the bottom, substantially as specified.

10. In a portable heater, the heating device provided with burners c' , and the boiler mounted over the burners, in combination with the
15 removable cap fitting on the lower end of the boiler, and comprising the perforated bottom m , provided with the apertures $N N$, fitting over the burners, and the sides formed of the semi-cylindrical sections $m' m'$, hinged at their centers
20 to the edges of the bottom and provided

with hooks m^2 and keepers m^3 , substantially as specified.

11. The truck or frame A, composed of hollow pipes or sections of pipes connected by couplings, the base of the frame being in the
25 form of a rectangle with the ends or corners bent or turned down and provided with rollers, and the standards B, rising from the base of the frame and having the bearings or forks
30 $b b$ at their upper ends, and the boiler D, arranged between the standards and journaled in the bearings or forks, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

DEWITT C. MCINTIRE.

Witnesses:

W. W. WELLMAN,
TUTT CHAMPLIN.