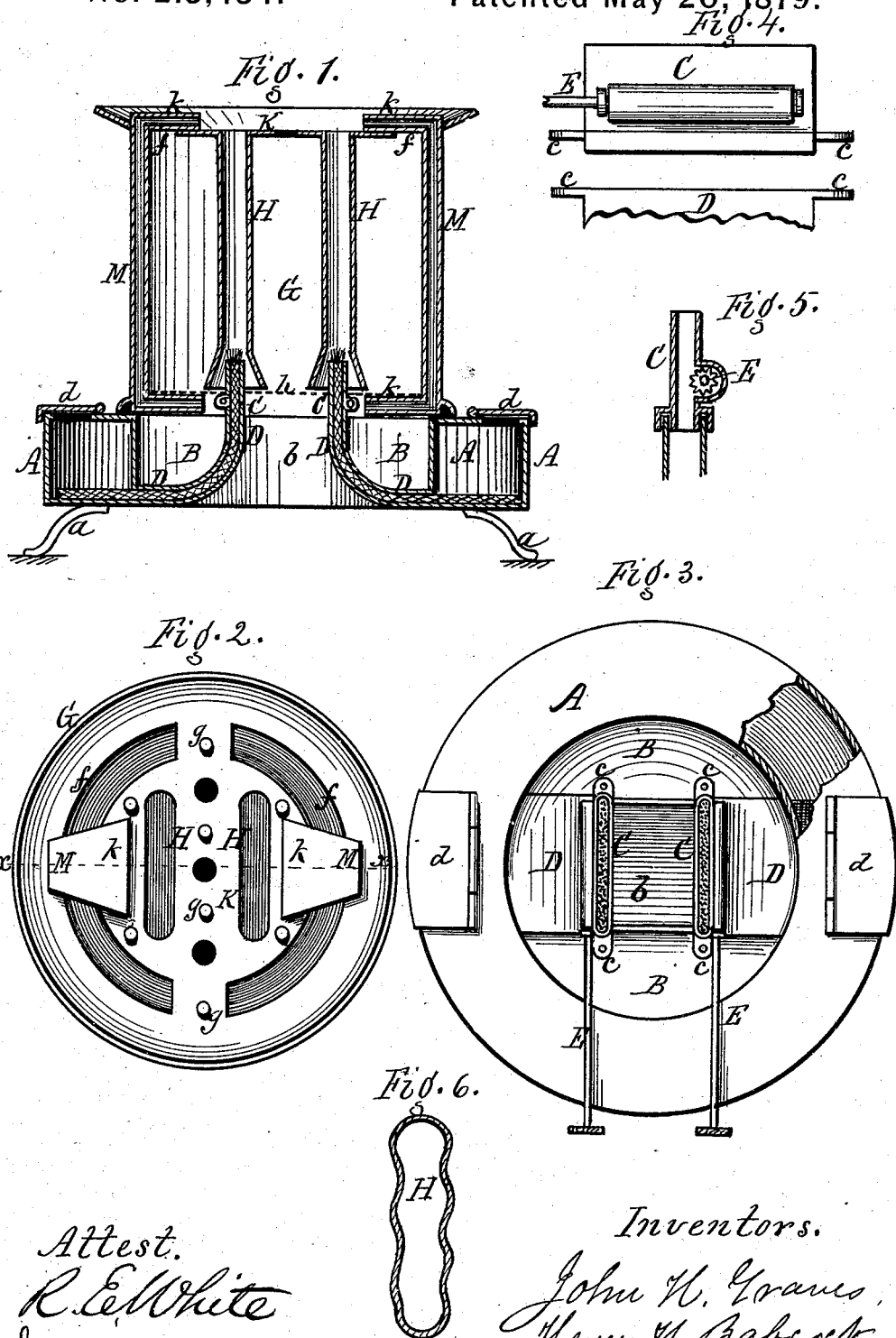


J. H. GRAVES & H. H. BABCOCK.
Oil-Stove.

No. 215,454.

Patented May 20, 1879.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN OIL-STOVES.

Specification forming part of Letters Patent No. **215,454**, dated May 20, 1879; application filed May 4, 1877.

To all whom it may concern:

Be it known that we, JOHN H. GRAVES and HENRY H. BABCOCK, both of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Oil-Stoves; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of our improvement in line *xx* of Fig. 2. Fig. 2 is a plan of the top of the stove. Fig. 3 is a plan of the base. Figs. 4, 5, and 6 are detail views.

Our improvement relates to stoves for burning kerosene and other liquids; and the invention consists in the construction and arrangement of parts hereinafter more fully described and definitely claimed.

A represents the base of the stove, which is in the form of a hollow annular ring, which forms the oil-reservoir. This ring rests on feet *a a*, and incloses a dish-shaped receptacle, B, which forms the water-chamber, the bottom being closed while the top is open, as shown most clearly in Figs. 1 and 3. In the center of this chamber is an opening, *b*, through which the air passes up to support the combustion. The walls of the opening are carried up as high as the sides of the chamber to prevent overflow of the water.

C C are the burners, of which two or more may be used. They are connected with the annular oil-reservoir by passages or tubes D D, which pass down vertically, and then extend horizontally through the water-chamber at the bottom and open through the sides of the oil-reservoir. The burners are made detachable from the tops of the tubes D D by means of lugs *c c*, with pins passing through them, or by vertical lugs with pins, or by screws, or by some equivalent means. By this means when new wicks are to be inserted the burners may be taken off from the tubes, the ends of the wicks inserted in them, and the burners then replaced and locked in place, and the wicks may then be run down through the curved tubes D D by turning the spurshafts E E, as usual. These wicks, fitting

loosely in the tubes, are driven back into the reservoir without trouble.

d d are hinged lids on top the oil-reservoir, covering holes through the reservoir. They are located in line with the wick-tubes D D, and are preferably made of about the same width. They are intended more especially to furnish access to the ends of the wicks within the reservoir A, to enable said wicks to be reached and adjusted, or to withdraw the same outward, or remove any kinks or twists. The lids serve the additional purposes of a gas-escape and for filling the reservoir with oil.

G is the cylinder or body of the stove. It is hinged to the base on one side, so as to be turned over. The top of the cylinder is made flaring, and pins or other devices are used to support the articles placed thereon. H H are vertical chimneys or flues in the cylinder, extending from top to bottom and shutting over the burners C C. When the cylinder is upright these chimneys inclose the tops of the burners, but without touching the same. The lower ends may be flaring, leaving space to allow free admission of air. The top of the flues is left open to produce proper draft. The walls of the flues are made corrugated in cross-section, as shown in Fig. 6, by which greater strength is secured and a greater heating-surface obtained. These flues serve an important purpose in producing a more active draft, and in conveying the heat directly to the top of the stove, where it comes in contact with the article to be heated, instead of being dissipated or distributed throughout the body of the cylinder, as in ordinary stoves of this kind. The flues may have mica windows to enable the blaze to be seen, for the purpose of regulating the same. In common stoves the burners are located in the open space of the cylinder, and the draft is feeble, the heat is diffused, and the combustion is very imperfect, producing smoking of the burners, which is not only offensive, but taints the food. The flues herein described obviate difficulty of this kind.

K is a disk or head at the top of the cylinder. Annular openings *f f* between this disk and the sides of the cylinder allow such heat as is produced in the cylinder outside of the

flues H H to pass up and come in contact with the article to be heated. The disk K is provided with studs *g g*, projecting up as high as the rim at the top of the stove, and serving to help support the article placed thereon. *h* is a removable perforated disk, made of wire or sheet metal, placed over the chamber B and around the burners C C, to prevent currents of air striking the flame with force, also preventing the spilling of the water, also shutting off the passage of the flame downward to the oil-reservoir. It must be made removable to enable the burners to be removed to insert or remove the wicks, as before described.

M M are two vertical air-passages on opposite sides of the cylinder G. They extend from over the disk K to beneath the perforated disk *h*. At top and bottom they have funnel-shaped heads *k k*, extending in at right angles toward the center, and made open-ended. They serve as means of communication between the bottom and the top of the stove around the cylinder, whereby the vapors of the water may be carried off, also assisting the draft, and, furthermore, absorbing the odors of the cooking and of the burning oil, and conveying them to the flame. They serve as ventilators between the bottom and the top.

By the construction of the base as before described—viz., with the oil-reservoir in the form of a ring, inclosing the water-chamber within it, and with the wick-tubes running horizontally beneath the water, also having the cold-air passage for supplying the draft directly in the center—the whole is combined in very compact form and in circular shape, so that it can be easily set in a supporting-frame, either single or double, and not occupy unnecessary space. In this form the burners are entirely cut off from the oil-reservoir by a water-chamber directly beneath.

An important feature is the running of the wicks through tubes which underlie a body of water, so that the tubes are surrounded by water, and the wicks being so covered are always kept cool.

If desired a larger number of wicks than two may be employed, arranged in a circuit around the draft-opening *b*, which serves to feed them all with air, as well as keep the wicks cool.

The arrangement of the wick-tubes is such that the wicks will always lie extended and straight, and cannot get twisted or kinked, as in ordinary oil-stoves.

We are aware that a water-chamber has been

used in an oil-stove directly over the oil-chamber. Such we do not claim.

We claim—

1. In an oil-stove, the combination of the heating-drum G and an annular oil-ring, A, arranged with the drum resting directly upon the ring, the central space inclosed by the ring being of a diameter as large as or larger than that of the drum, so that the heat deflected downward from the drum will not strike upon the oil-ring, and provided with wick-tubes D D, which lie wholly within the central space and enter the oil-ring horizontally and without passing below the bottom of the ring, as herein shown and described.

2. In an oil-stove, the combination of the heating-drum G, the annular oil-ring A, arranged with the drum resting directly upon the ring and over the space B, inclosed by the sides of the ring, the wick-tubes D D, resting wholly in said space and not extending below the bottom of the ring, and the hinged doors or valves *d d* on top of the ring in line with the wick-tubes, as shown and described, and for the purpose specified.

3. In combination with the hollow annular ring A, forming the reservoir, and one or more wick-conducting tubes, D D, connecting with the ring and extending to the burners, the water-chamber B, formed within the space inclosed by the ring, as herein shown and described, and for the purpose specified.

4. In combination with the burner C, made removable from the wick-tube, the locking devices for fastening said burner to the wick-tube, consisting of the lugs and pins *c c*, as shown and described, and for the purpose specified.

5. In an oil-stove, the flues M M, passing around the cylinder G, provided at their upper and lower ends with the funnel-shaped heads *k k*, opening inward, in the manner and for the purpose specified.

6. The oil-reservoir A, water-chamber B, draft-opening *b*, wick-tubes D D, chimneys or flues H H, removable burners C C, and side flues, M M, arranged to operate in the manner and for the purpose specified.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

JOHN H. GRAVES.
HENRY H. BABCOCK.

Witnesses:

R. F. OSGOOD,
JACOB SPAHN.