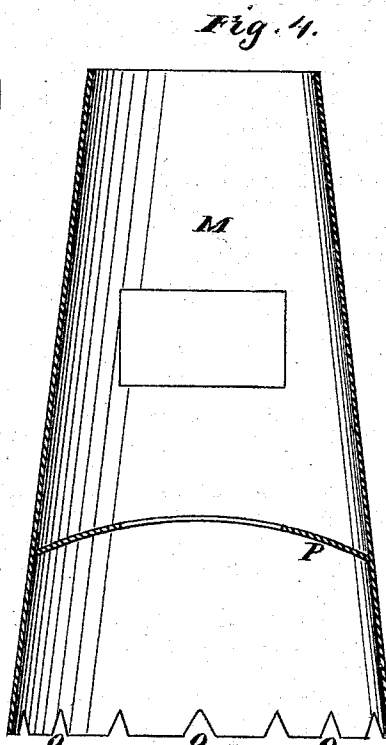
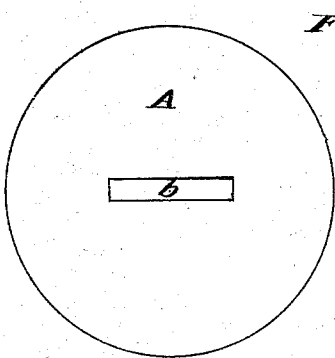
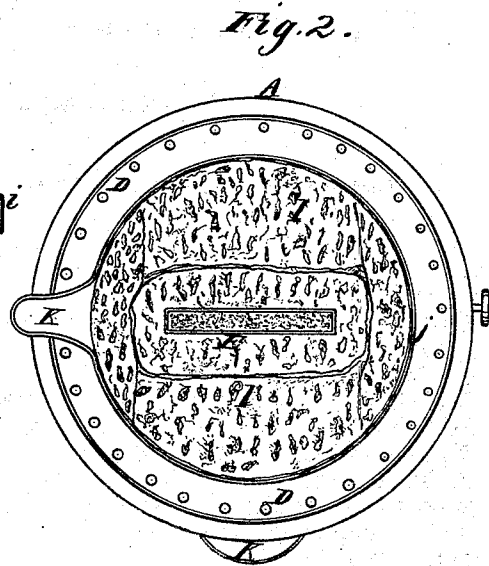
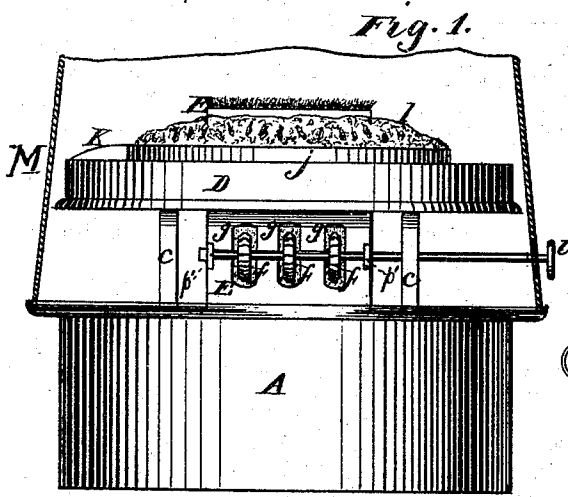


B. R. SWEETLAND.
Coal-Oil Stoves.

No. 156,683.

Patented Nov. 10, 1874.



Witnesses
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C. M. Richardson

Inventor
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Attys

UNITED STATES PATENT OFFICE.

BENJAMIN R. SWEETLAND, OF SACRAMENTO, CALIFORNIA.

IMPROVEMENT IN COAL-OIL STOVES.

Specification forming part of Letters Patent No. **156,683**, dated November 10, 1874; application filed September 22, 1874.

To all whom it may concern:

Be it known that I, BENJAMIN R. SWEETLAND, of Sacramento city and county, State of California, have invented an Improved Coal-Oil Stove; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to improvements in that class of coal-oil stoves in which a water-chamber is introduced between the oil-reservoir and the point of combustion, for the double purpose of keeping the oil-tube cool, and supplying elements of combustion to the flame.

My improvement consists in a peculiar arrangement of the water-chamber, whereby I present a more extended water-surface for vaporization, and at the same time avoid the difficulty which has heretofore been encountered by the entanglement of the toothed wheels which raise and lower the oil-wicks with the water-wicks.

In order to more fully explain my improvements reference is had to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a side elevation of my device. Fig. 2 is a top view. Fig. 3 is a sectional elevation of the top.

A is the oil vessel or reservoir, having a slot, *b*, in the center of its top. The top of this vessel projects slightly beyond the sides of the pan, and has four short upright standards, *c*, secured upon it, as shown. D is a shallow pan, having the flat tube E extending downward from the center of its under side, so that when the bottom of the pan rests upon the standards *c* the tube E will pass through the slot *b* into the oil-reservoir, and to near its bottom. This tube E also extends above the bottom of the pan inside of it, and serves as the wick-tube for holding the wick which raises the oil to be burned. The toothed wheels *f*, which raise and lower the wick, operate through holes *g* in the wick-

tube E below the pan D. The shaft upon which they are secured is supported by hangers *p'*, so that the thumb-wheel *i*, by which it is turned, is clear of the edge of the pan. Inside of the pan D I secure a vertical circular rim, *j*, which is concentric with the outer rim of the pan, so as to leave an annular space between the two rims. This inside rim *j* is slightly higher than the outer rim of the pan, and is bent outward at one side, so as to form a spout, K, which extends through the outer rim for the supply of water. Inside of the inner rim *j*, and surrounding the upper end of the wick-tube, I pack pieces of sponge, *l*, or other fibrous or porous material, until I fill the entire space to the height of the rim, as shown. The bottom of the annular space is perforated with numerous holes for admitting air to the flame. The chimney is made of metal, and of the proper size to fit down over the outside rim of the pan D or water-reservoir, and rests upon the projecting rim of the top of the oil-reservoir. Notches O are made in the lower edge of the chimney to admit air inside of it. Inside of this chimney, a short distance above the upper edge of the ring *j*, I secure a concave deflector, P.

In operation, the sponge-chamber around the wick-tube will be kept nearly filled with water, so that a large surface of saturation will be presented. The heat of the flame will be radiated by the deflector P and concentrated upon the sponge surface, thus vaporizing the water. As the steam thus generated comes in contact with the flame, it is decomposed, and a certain portion of the oxygen is taken up by the flame, while the liberated hydrogen again combines with another proportion of oxygen, and is burned, thus giving an intense heat.

The water which is held by the sponge is held in a state of saturation, so that it cannot slop over when the stove is moved, and by separating the water-chamber from the oil-chamber, and applying the wick-raising device between them, I avoid all trouble of their becoming entangled with the water-wicks.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The pan D, provided with the inner rim *j*, with its spout K, in combination with the standards *c* and wick-tube E, substantially as and for the purpose set forth.

In witness whereof I hereunto set my hand and seal.

BENJAMIN R. SWEETLAND. [L. S.]

Witnesses:

JNO. L. BOONE,

C. M. RICHARDSON.