J. McFARLAND.

FIRE-KINDLER.

No. 186,593. Patented Jan. 23, 1877.

Fig. 1.

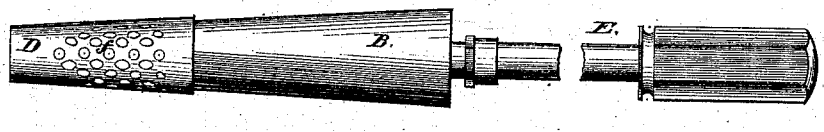


Fig. 2.

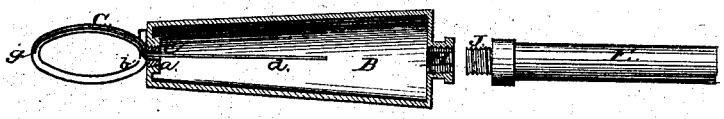
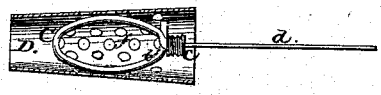


Fig. 3.



Witnesses;

N. C. Kremmbitter

Gilbert A. Stewart

Inventor;

Josiah McFarland

UNITED STATES PATENT OFFICE.

JOSIAH McFARLAND, OF COLUMBUS, OHIO.

IMPROVEMENT IN FIRE-KINDLERS.

Specification forming part of Letters Patent No. **186,593**, dated January 23, 1877; application filed September 23, 1876.

To all whom it may concern:

Be it known that I, JOSIAH McFARLAND, of Columbus, in the county of Franklin and State of Ohio, have invented a new and useful Improvement in Fire-Kindlers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to produce a sufficient heat to kindle hard or soft coal, green or dry wood, without the aid of any other kindlings than the use of benzine, gasoline, or some other fluid of a similar nature, in the manner described in this specification.

Figure 1 is a fire-kindler complete, showing the condensing-cylinder B, nozzle D, (which may be removable or not at pleasure,) the handle E, and the perforations *f* in the nozzle, all of which are more fully described in Figs. 2 and 3.

Fig. 2 shows a section of the condensing-cylinder B. This cylinder may be manufactured from cast or wrought metal, as iron, copper, German silver, brass, &c., and may be of any desired shape.

C is a small metallic tube inserted into the condensing-cylinder at *a* by a screw cut on the tube, so as to be perfectly gas-tight. The tube C is so bent as to be in an elliptical form with a very fine and small hole, *b*, near the end, through which the gasoline or other similar fluid escapes, and fire being applied soon heats the tube C to redness, and a powerful stream of superheated gas is the result, which will ignite any kind of coal in from five to ten minutes, and any kind of wood in from three to five minutes. To add to the condensing-power of the cylinder B a wire, *d*, is inserted into the tube C from the cylinder at the point *c*. This wire should pass through about one-half the length of the tube C, as shown at *g*, and be extended into the cylinder B in a straight, spiral, or any other form for any desired distance.

Fig. 3 shows a section of the nozzle D with a section of the tube C and the wire heater *d* extended into the tube C to the point *g*.

Figs. 1 and 3—*f f* are a series of holes or openings in the nozzle D to supply the burner with air.

The handle E may be made of either cast or wrought metal, Fig. 1. H in Fig. 2 is the aperture to receive the benzine, gasoline, or other similar fluid into the cylinder B, and when charged must be carefully closed by a fine-threaded screw cut on the handle E at J.

Method of using: Put benzine, gasoline, or other similar fluid into cylinder B at aperture H, and, having securely closed said aperture, apply fire at nozzle D, and apply kindler to wood or coal.

I claim as my invention—

The combination of the condensing-cylinder B, the tube or burner C, the heater *d*, and the nozzle D, substantially as and for the purposes set forth.

JOSIAH McFARLAND.

Witnesses:

H. C. KRONENBITTER,

GILBERT H. STEWART.