

(No Model.)

D. H. ERDMAN.
RANGE.

No. 428,245.

Patented May 20, 1890.

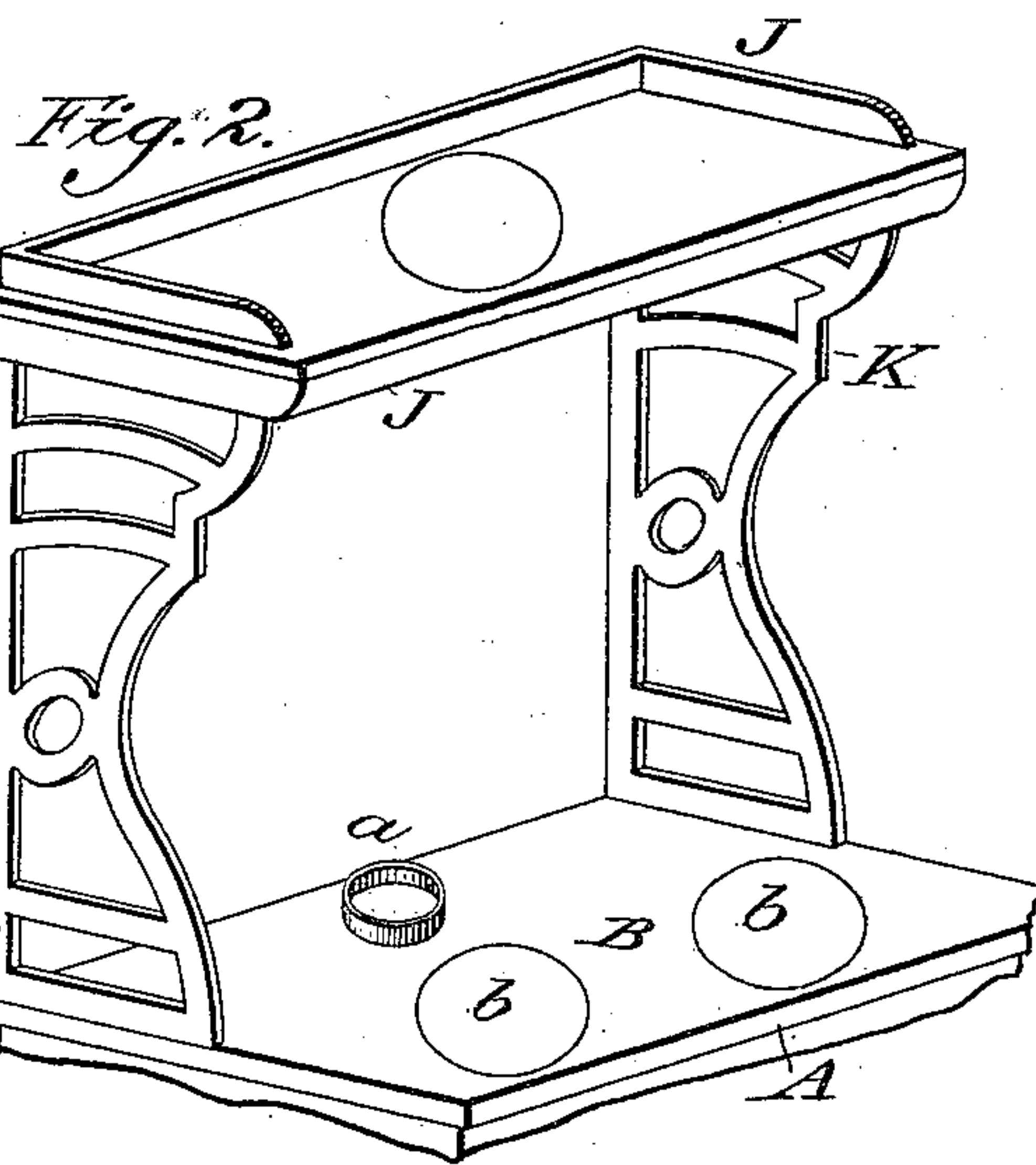
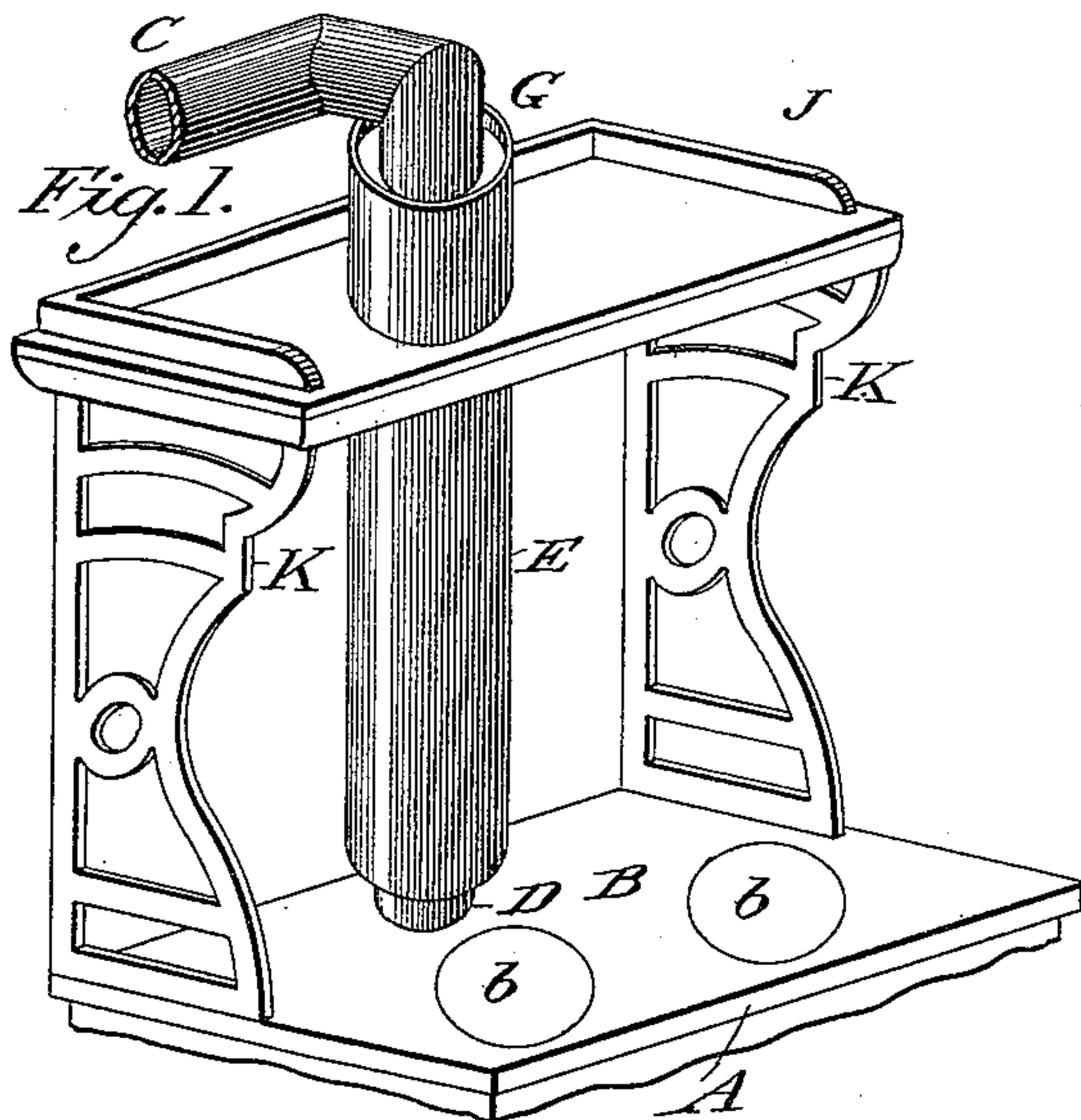


Fig. 3.

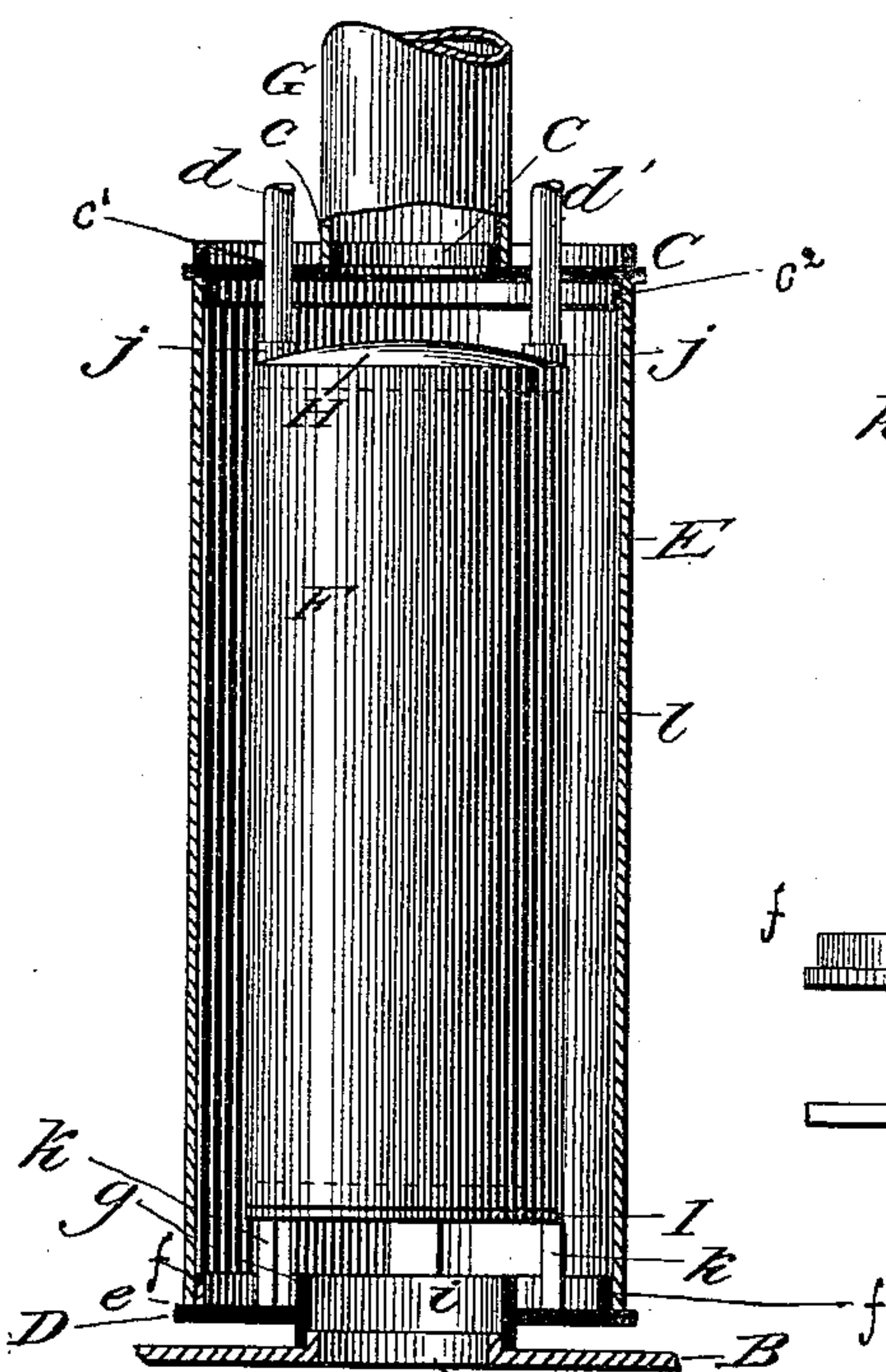


Fig. 4.

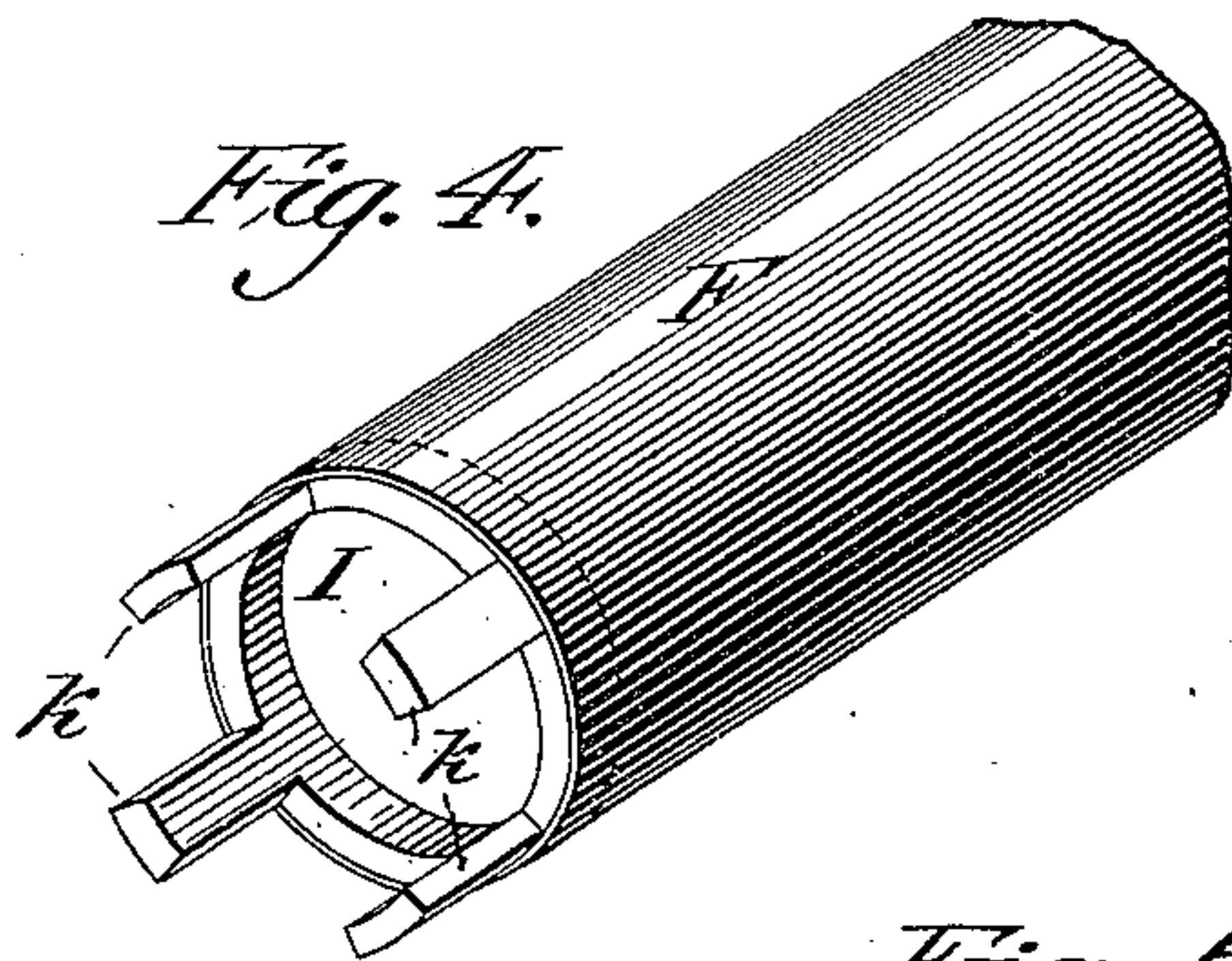


Fig. 5.

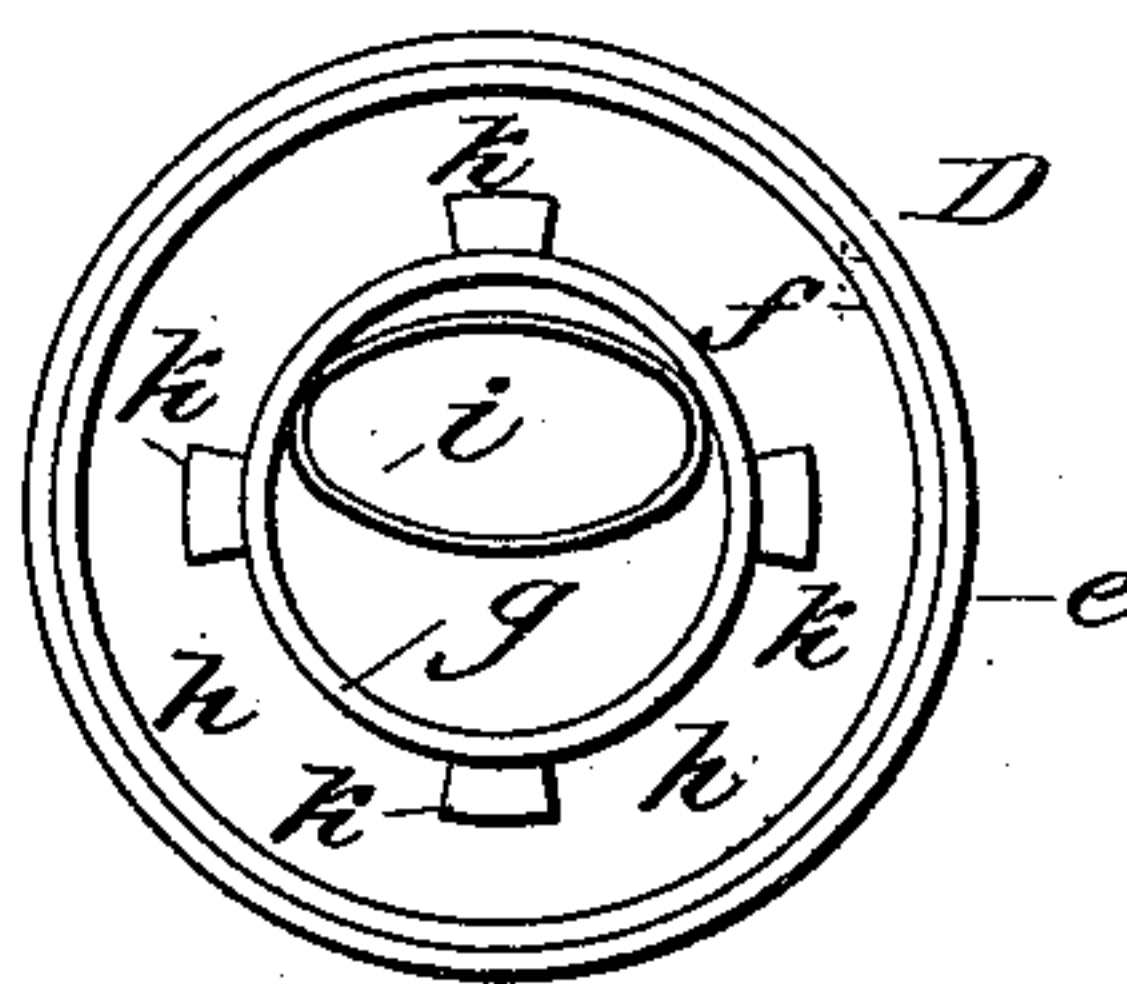


Fig. 6.

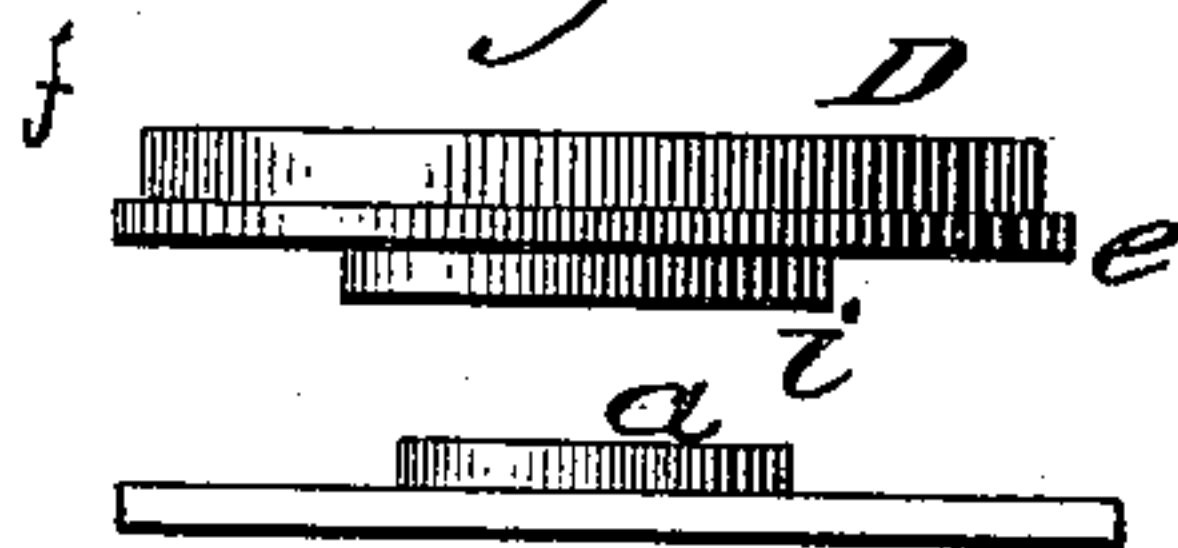


FIG 7

Witnesses:

John R. Jemph

Wm. J. Hoffman

Inventor:

Daniel H. Erdman

by Francis D. Pastorius

Solicitor

UNITED STATES PATENT OFFICE.

DANIEL H. ERDMAN, OF CAMDEN, NEW JERSEY.

RANGE.

SPECIFICATION forming part of Letters Patent No. 428,245, dated May 20, 1890.

Application filed May 13, 1889. Serial No. 310,589. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. ERDMAN, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented new and useful Improvements in Portable Ranges, of which the following is a specification.

The object of my invention is to utilize the waste products of combustion from a portable range in heating water for general household purposes. The bottom of a vertical boiler has legs that bear on the upper face of a drum-head that fits over the usual pipe-neck of the top of a portable range, by which the bottom of the boiler is braced in place, and also raised to permit an uninterrupted draft from the range. To this drum end is fitted a drum that surrounds the boiler, leaving an intervening draft-space. It extends vertically through a mantel that is carried above the top plate of the range on supports. The bottom drum-head and the mantel serve to brace the drum in its vertical position. The inlet and outlet water-connections of the boiler pass from its top through the top head of the drum, and thus keep the boiler from any lateral or vertical movement.

On reference to the accompanying sheet of drawings, making part of this specification, Figure 1 is a vertical and perspective view of a portable range embodying my improvements. Fig. 2 is the same view as Fig. 1, with the exception of the omission of the drum and boiler. Fig. 3 is a vertical and diametrical section showing the drum, boiler, and their attendant parts. For the convenience of explanation, the sectioned heads of the drum are in heavy black lines, instead of section-lines. Fig. 4 is a perspective view of one end of the boiler, showing the legs. Fig. 5 is a plan view of the bottom drum-head. Fig. 6 is a side elevation of Fig. 5. Fig. 7 is an edge view of the range-top and its pipe-neck in elevation; and Figs. 6 and 7, as drawn, show the relative positions of the bottom drum-head and the range-pipe neck before the act of connection.

Similar letters refer to similar parts in the several views.

A is a portable range, and B its top, having a pipe-neck *a* and pot-holes *b*.

C D are the top and bottom heads of a

drum E, surrounding a vertical boiler F. The former C, Fig. 3, is made with a pipe-neck *c* for a stove-pipe G, (shown shortened and above the neck *c*,) and openings C' for the passage of inlet and outlet water-pipes *d* *d'* of the boiler and a downwardly-projecting rim *c*², over which takes the top end of the drum E. The latter D, Figs. 3, 5, and 6, is composed of a flange *e*, rim *f*, collar *g*, annular space *h*, and a neck *i* for making connection with the neck *a* of the top B.

In Figs. 3, 6, and 7 is clearly shown the relative positions of the necks *a i* when joined and before connection.

The boiler F is fixed vertically within the drum E. Its top head H has nozzles *j j'* for making connection with the vertical inlet and outlet water-pipes *d d'*, which pass through openings *c'* in the top head C of the drum E. The bottom of the boiler is provided with legs *k*, that elevate it so as not to interfere with the draft from the range. The ends of the legs take within the groove or annular space *h* in the bottom head D of the drum.

J is a mantel carried above the top B of the range on supports K. The drum E extends through an opening L of the mantel. Its other end fits over the rim *f* of the head D.

The products of combustion from the range A pass through the connected necks *a i* into the space *b* between the drum E and the boiler F, whereby the water of the boiler is heated. The spent heat afterward passes out through the pipe G to the chimney.

As hereinbefore stated, the object of the invention is the utilization of the spent products of combustion for heating water, and the construction and arrangement of the several parts composing it relate to binding and bracing the whole together to form a solid and substantial portable range. The drum E is preserved in its vertical position by the mantel J at the top and the bottom head D. The drum in turn braces the boiler F at the top by the water-pipes *d d'* passing through its head C, while the legs *k*, in connection with the head D, brace the bottom of the boiler.

I do not confine myself to the use of the bottom head D, for the reason that considerable variation of form and detail can be made and yield a good lateral bracing. A strong

and substantial mantel J will make a sufficient bracing for the drum without the head D, where the range is not liable to shocks and rough handling. The bottom of the drum can
5 bear directly on the top of the range, and where a more perfect finish is wanted a flange like that shown at *f*, Fig. 3, can be made to the top B of the range around the pipe-opening *a*. The feet of the boiler can bear di-
10 rectly on the top B, for the weight of the boiler and its contained water will make sufficient downward pressure to prevent any lateral movement unless unusual force is applied. The head D, taking over the neck *a*,
15 forms a perfect bottom finish and brace against any lateral pressure that may arise, tending to shift the bottom end of the drum and boiler; but it can be avoided, as herein-
before set forth, by making the mantel J and
20 its supports K sufficiently strong to resist lateral pressure at the top without breaking. The pipes *d d'* are passed vertically through

the head C of the drum for steadying the boiler within it; but they can be directed laterally, and a bolted brace extended be- 25
tween the top of the boiler and the drum-head C.

I claim as my invention—

In combination with a portable range, a vertical boiler supported above the pipe- 30
opening, a sheet-iron drum inclosing the boiler, and a mantel supporting the boiler and drum from lateral movement, by which the waste products of combustion are utilized in
35 passing out of the pipe-opening and circulating through the annular space between the drum and boiler for heating the water in said boiler.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL H. ERDMAN.

Witnesses:

WM. S. HOFFMAN,

FRANCIS D. PASTORIUS.