

D. L. STILES.  
STOVE.

No. 173,827.

Patented Feb. 22, 1876.

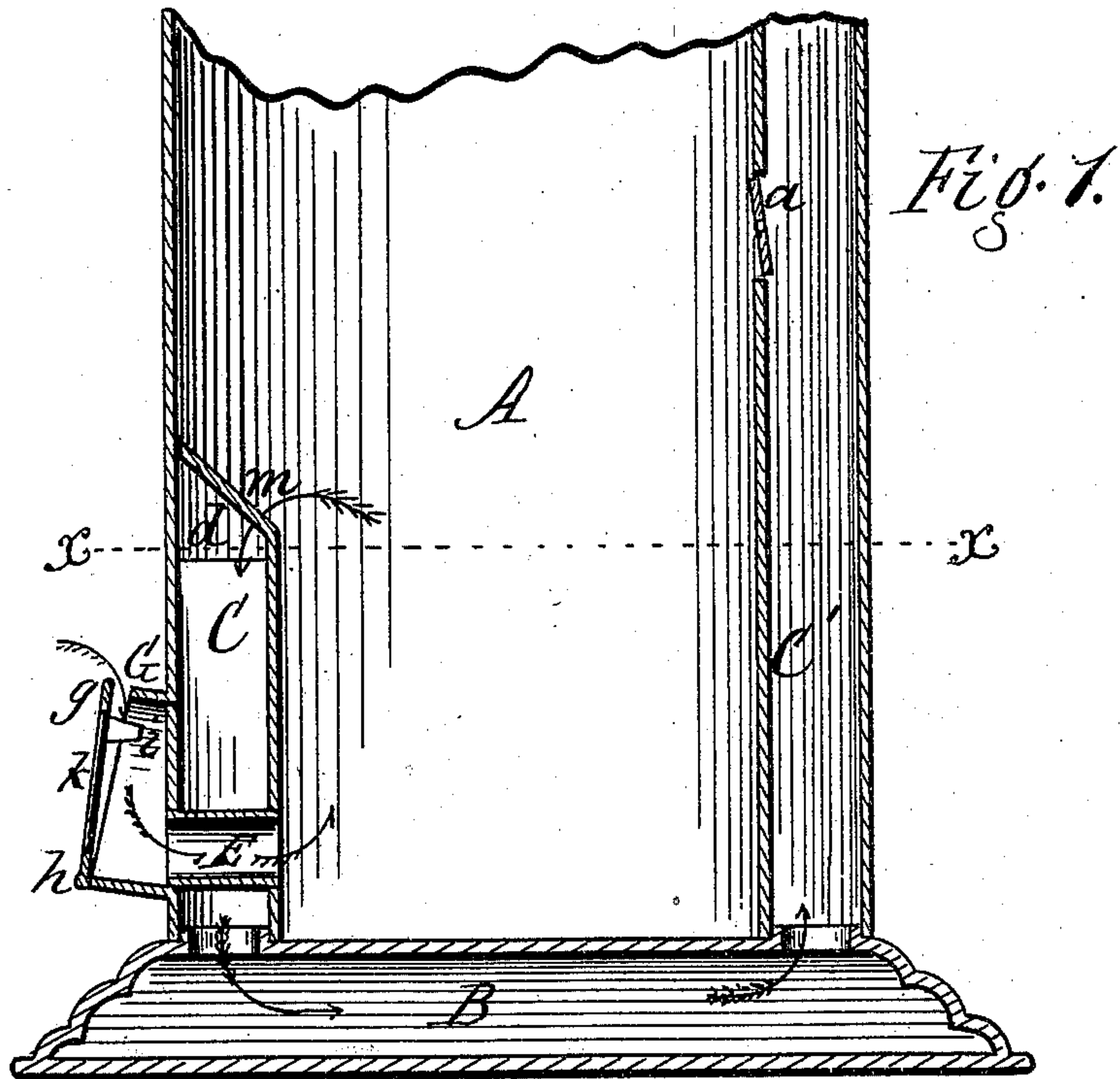
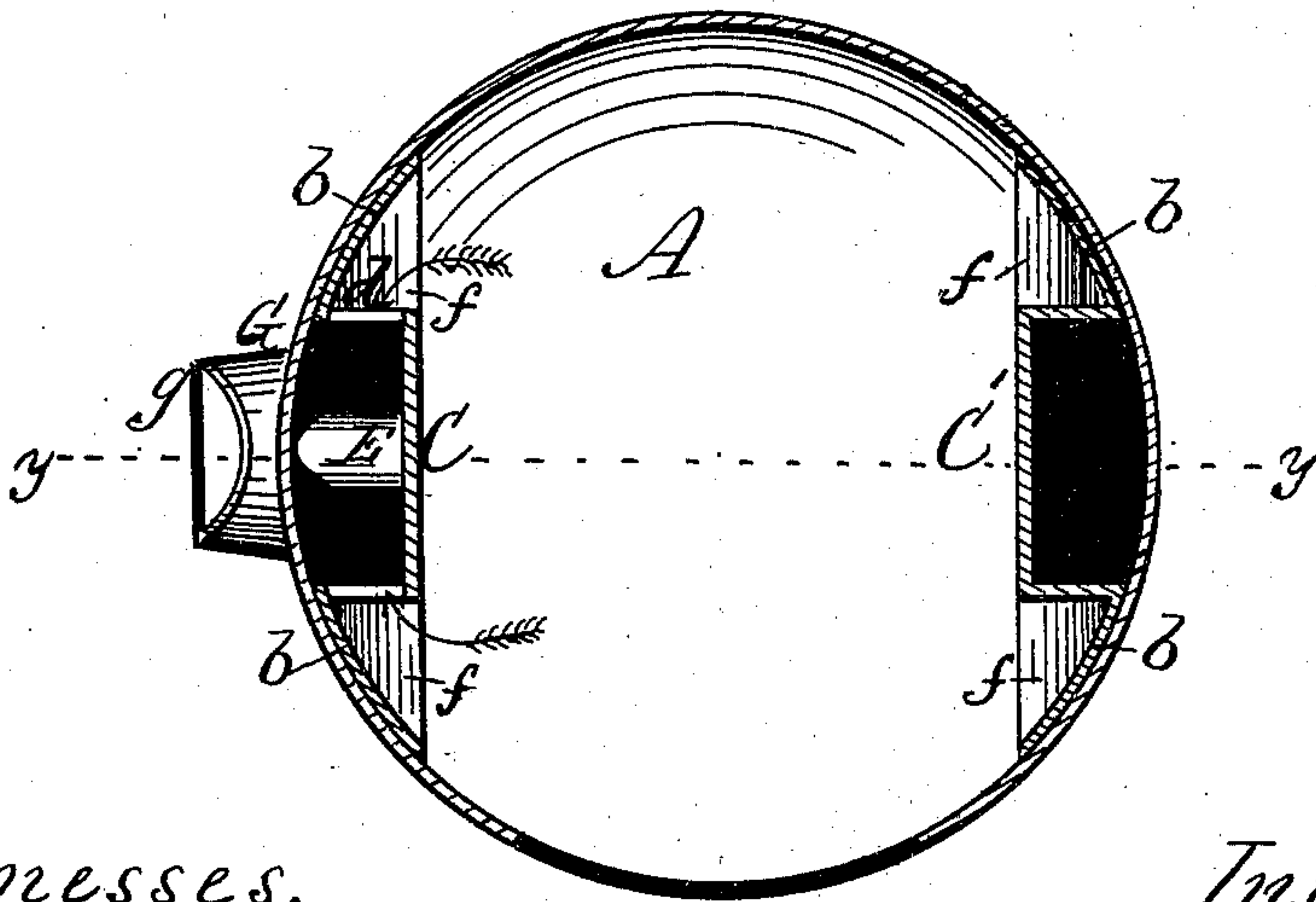


Fig. 2.



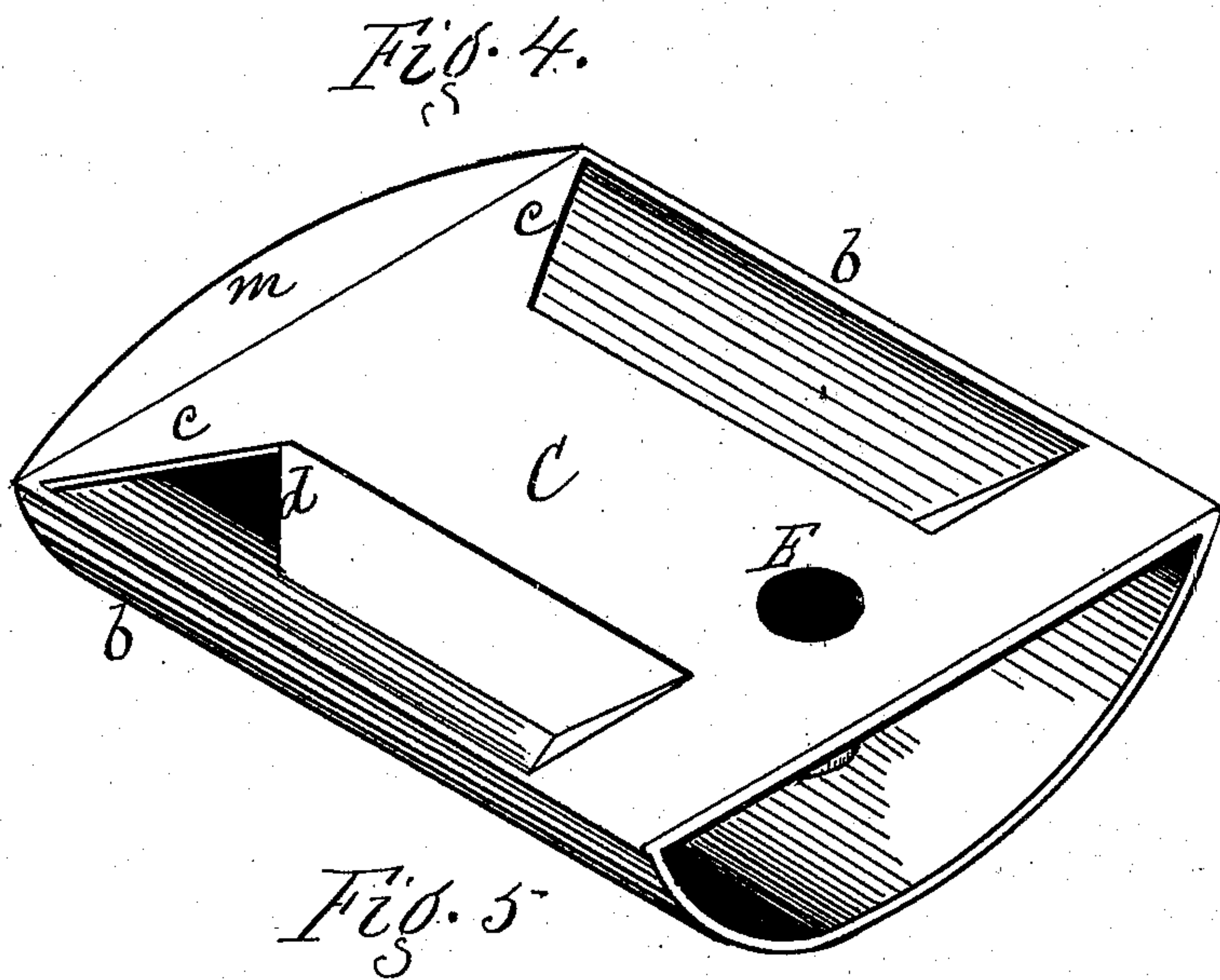
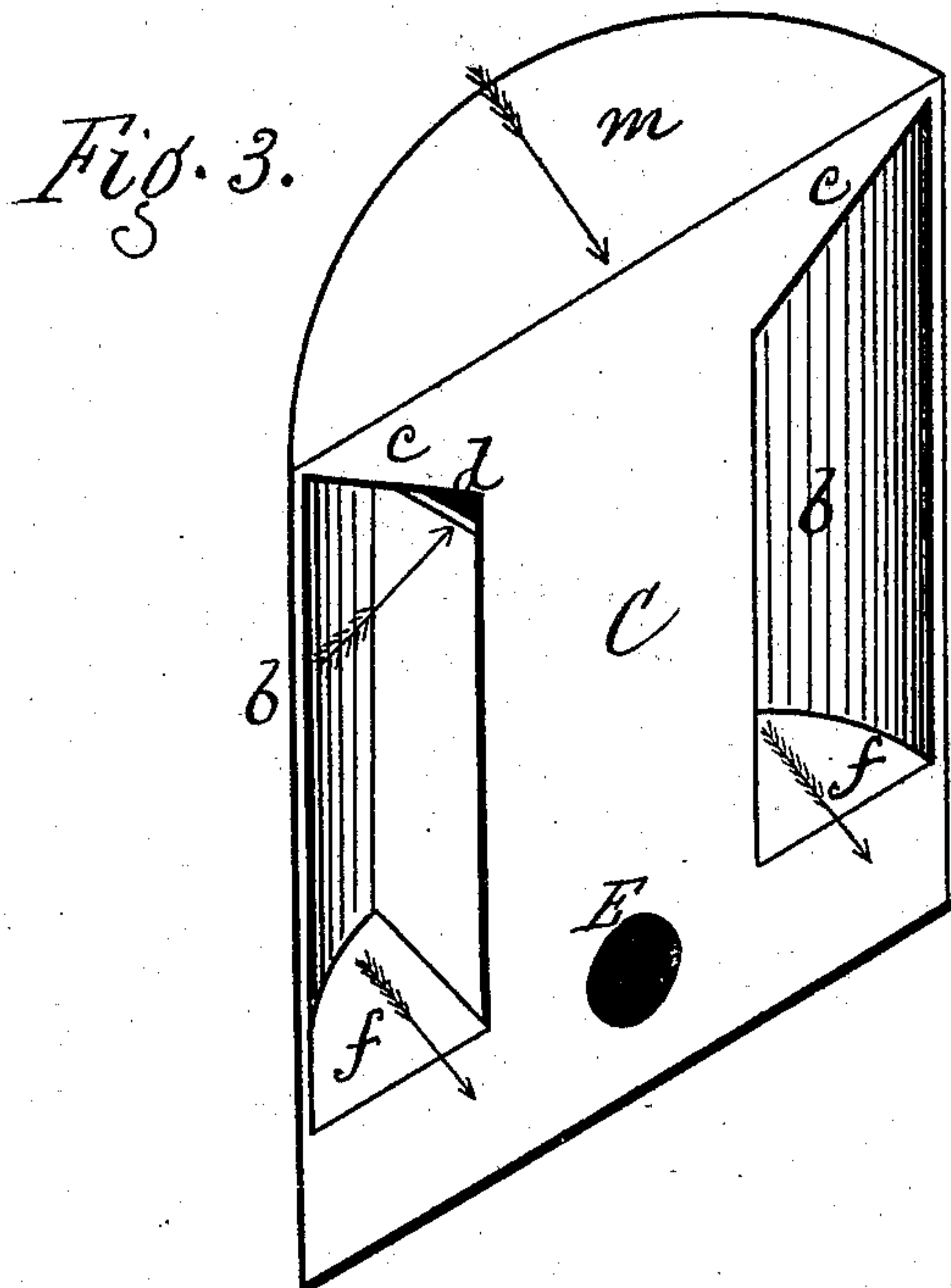
Witnesses.  
E. B. Scott.  
W. Campbell

Inventor.  
David L. Stiles,  
per R. F. Osgood,  
att'y.

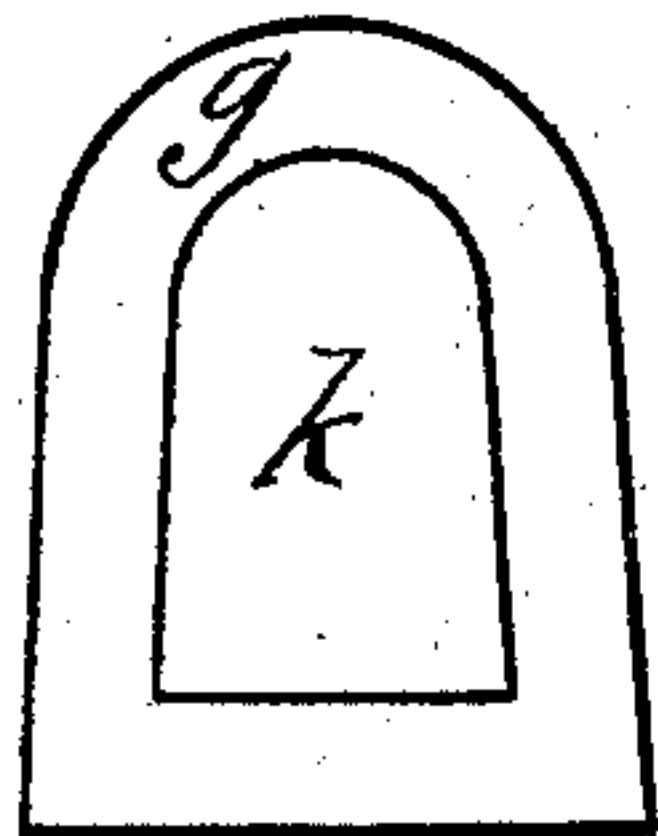
D. L. STILES.  
STOVE.

No. 173,827.

Patented Feb. 22, 1876.



*Fig. 5.*



Witnesses.  
E. B. Scott.  
H. Campbell

Inventor.  
David L. Stiles  
per R. F. Osgood,  
Atty.



# UNITED STATES PATENT OFFICE.

DAVID L. STILES, OF ROCHESTER, NEW YORK.

## IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **173,827**, dated February 22, 1876; application filed December 23, 1875.

*To all whom it may concern:*

Be it known that I, DAVID L. STILES, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Stoves; and I 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 in line *y y*, Fig. 2. Fig. 2 is a cross-section in line *x x* of Fig. 1. Figs. 3 and 4 are perspective views of the interior front flue-plate. Fig. 5 is an elevation of the register.

My improvement relates to wood-stoves, and is of that class in which a diving-flue is used, carrying the draft and products of combustion downward into the hollow base of the stove, and thence upward into the smoke-pipe, where it escapes. The invention consists in the construction of the flue-plate and register, as hereinafter more fully described.

A represents a sheet-iron wood-stove of ordinary cylindrical or other form. B is the cast-iron base, which is made hollow for the passage of the draft and products of combustion. C is the front, and C' the rear, flue-plates, each of which cuts off a segment of the cylinder of the stove. The draft and products of combustion, passing down the front flue, enter the hollow base B, thence pass up the rear flue, and finally escape into the smoke-pipe. A damper, *a*, is, preferably, used in the rear flue to produce a direct draft when desired. Thus far the stove is of ordinary construction.

Ordinarily the flue-plate C is made of plane or straight form, simply cutting off a straight segment of the cylinder, and thereby producing a dead-space occupying the whole segment. The top has usually been slotted or open, to admit the downward draft, which is very objectionable, as it admits ashes, which soon fill and obstruct the passages. This difficulty is aggravated from the fact that in stoves of this kind much wood is burned endwise, and, where large sticks are inserted in this manner, ashes are not only sifted through the slotted top, but coals, pieces of bark, wood, and chips fall through and obstruct the flue. The cutting off of so large a segment of the stove also

obstructs outward radiation of the heat, and much heat is thereby lost, being carried off in a latent state. I construct this flue-plate of peculiar form. The top *m* is shelving or inclined, and is made closed, so as to throw off the ashes, coals, pieces of bark, wood, &c., as indicated by the arrow in Fig. 3. The flue proper, C, is simply a trunk, occupying but part of the width of the plate—say one-third, more or less. On each side of this trunk the balance of the width of the flue-plate is made of a single thickness, *b*, which is curved, and made close-fitting to the cylinder of the stove. This allows the direct radiation of the heat outward through the body of the stove, over the whole space thus covered by the single thickness of the flue-plate, instead of cutting it off by a dead-space, as where the flue-plate is straight across. At the upper end of the plate adjoining the shelf *m* are formed flaps *c c*; and beneath these are the side ports or openings *d d*, which communicate with the interior of the trunk C. These flaps cover and protect the ports, and prevent the entrance of ashes, &c., to the trunk as they fall from above. At the bottom of the cavities formed by the curving of the plates *b b* are also inclines *f f*, which throw off the ashes, and prevent their getting in the cavities, and thereby obviate suction of the ashes into the flue-space. The rear flue-plate C' is similarly constructed, the body being made narrow, having the curved sides *b b*, and also the bottom inclines *f f*, as clearly shown in Fig. 2.

By the construction above described I secure an increase of direct radiating-surface equal to the size of the curved sides *b b*, which, in ordinary stoves of this kind, is lost by the cutting off of said space by a straight flue-plate extending across from side to side of the stove. I also effectually prevent clogging of the ashes by making the whole exposed surface of the flue-plate closed, and inclining the same to throw off the ashes into the body of the stove, while the passages to the flue are housed or covered by the flaps *c c*, so that no ashes can reach them. In these respects my device differs essentially from others of the kind. This improvement may be used with a cylinder or any other shaped stove.

E is a draft-tube, extending through the



front flue-plate near the bottom. Outside the cylinder it is covered by an open casing or bonnet, G, which rises some distance above, as shown. In the front of this casing is fitted a register, *g*, which is simply a door or valve, jointed to turn at the bottom, as shown at *h*, and open by swinging at the top. It may be gaged in its opening by spurs *i i*, which rest inside and catch the edge of the case, or by any equivalent arrangement. It may or may not have a mica light, *k*, as indicated in Fig. 1.

The draft enters from above, as shown by the arrow, and, passing through the tube, supplies the combustion. This arrangement is specially adapted to a wood-stove, in which the fire is liable to snap through the tube, and, if unobstructed, fall upon the flue. The register *g*, standing bodily in front of the tube, prevents this, while the casing or bonnet catches and retains all coals.

In a former patent on wood-stoves I cover a turning register for accomplishing a similar purpose; but this differs from that in being simpler, cheaper, and more easily operated, and also in enabling a much larger mica light to be employed. The register may be used in

connection with a simple opening through the cylinder, instead of the tube E.

Having thus described my invention, I do not claim, broadly, flue-plates for producing downward draft in a stove. Neither do I claim, broadly, a register in front, which will prevent the snapping of coals upon the floor.

What I claim as new is—

1. In a cylinder or other shaped stove, the flue-plate constructed with the central trunk C, curved sides *b b*, and inclines *m f*, with the ports or passages for the entrance of the draft, housed or covered to prevent the entrance of ashes, as herein shown and described.

2. The combination, with the draft opening or tube E, of the exterior casing or jacket G and the swinging door *g*, capable of removal or turning back for the removal of coals, as shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

DAVID L. STILES.

Witnesses:

R. F. OSGOOD,  
E. B. SCOTT.