

B. F. STOCKFORD.  
Camp-Stove.

No. 221,749.

Patented Nov. 18, 1879.

Fig 1.

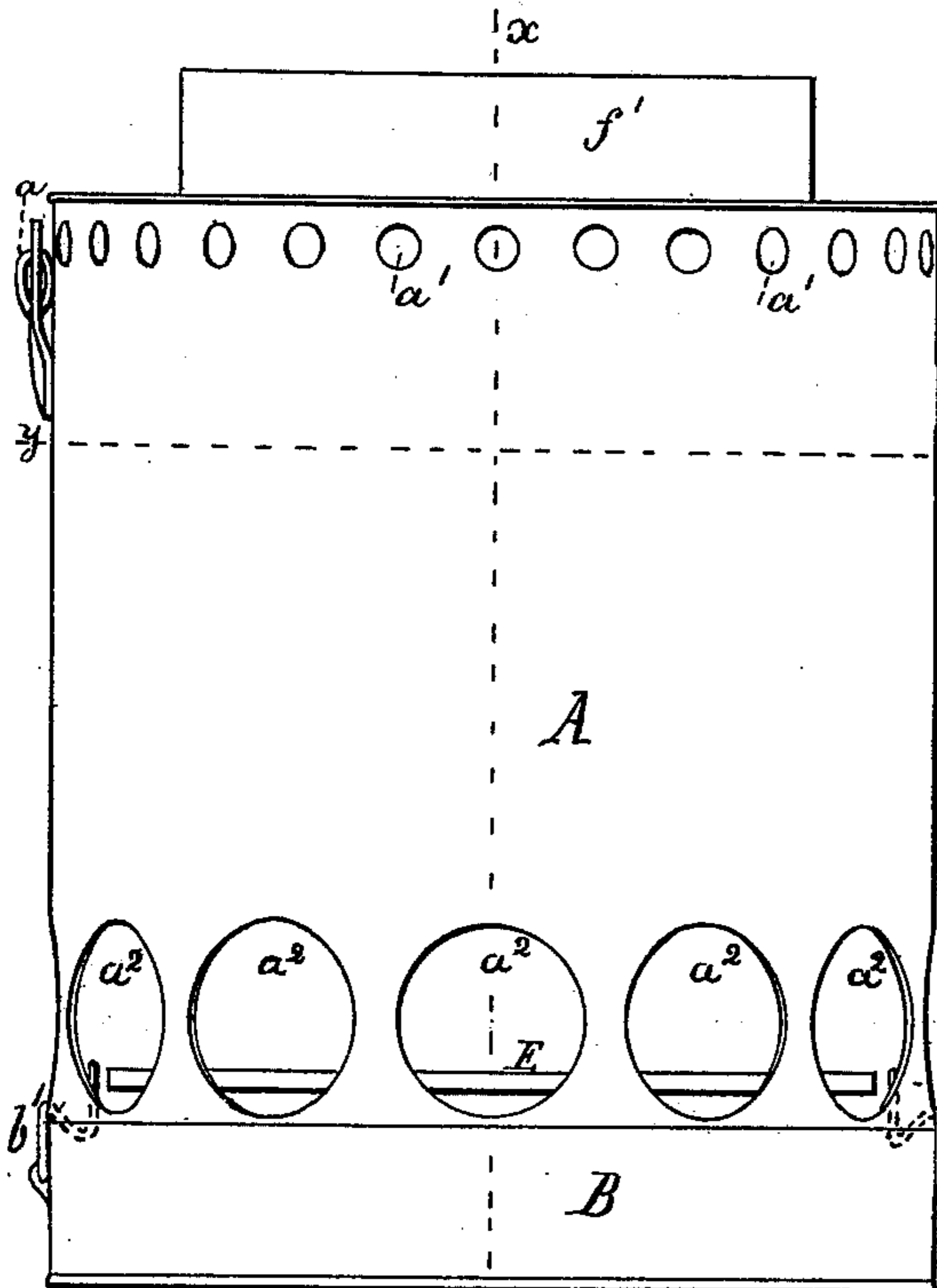


Fig 2.

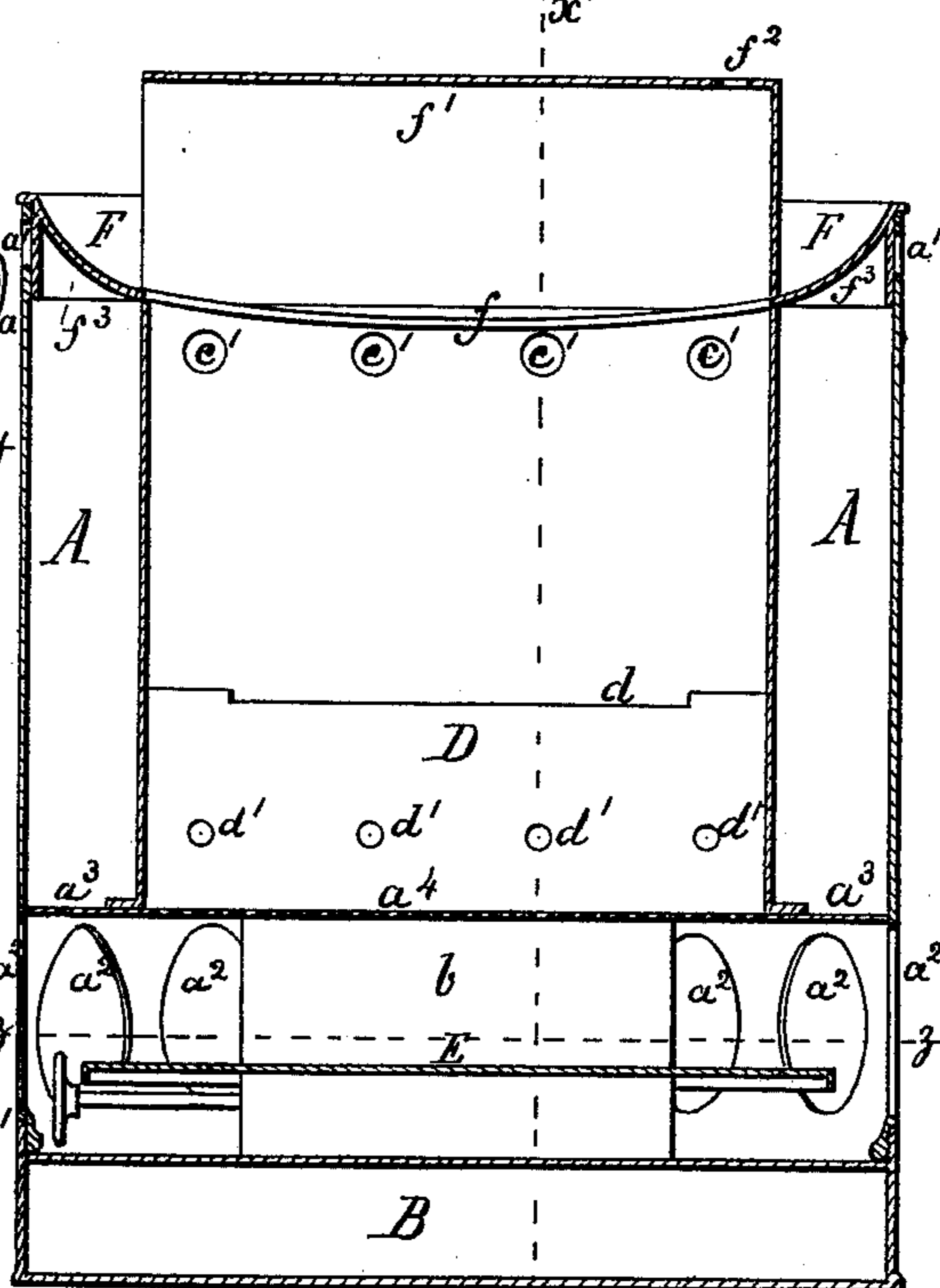


Fig 3.

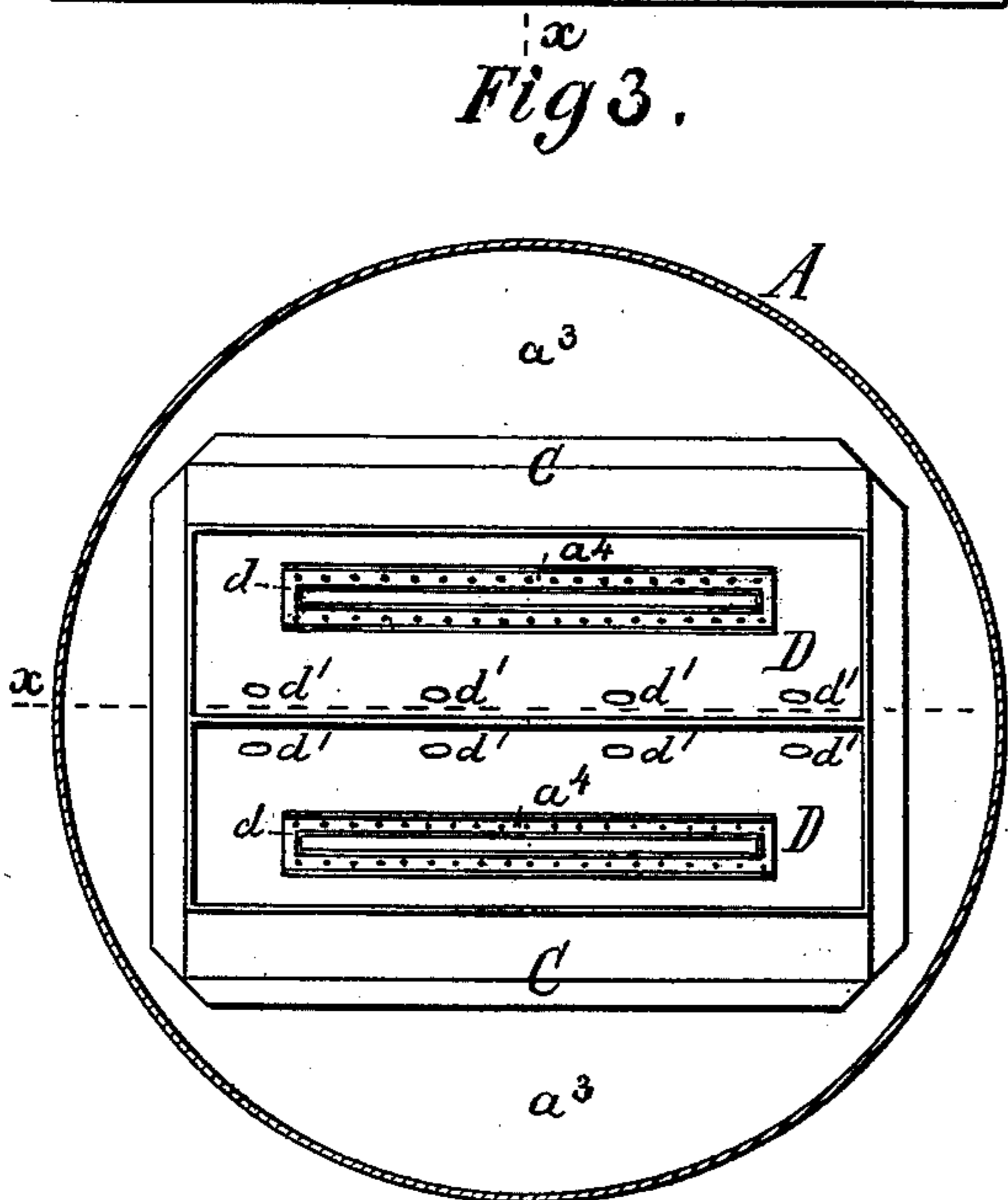
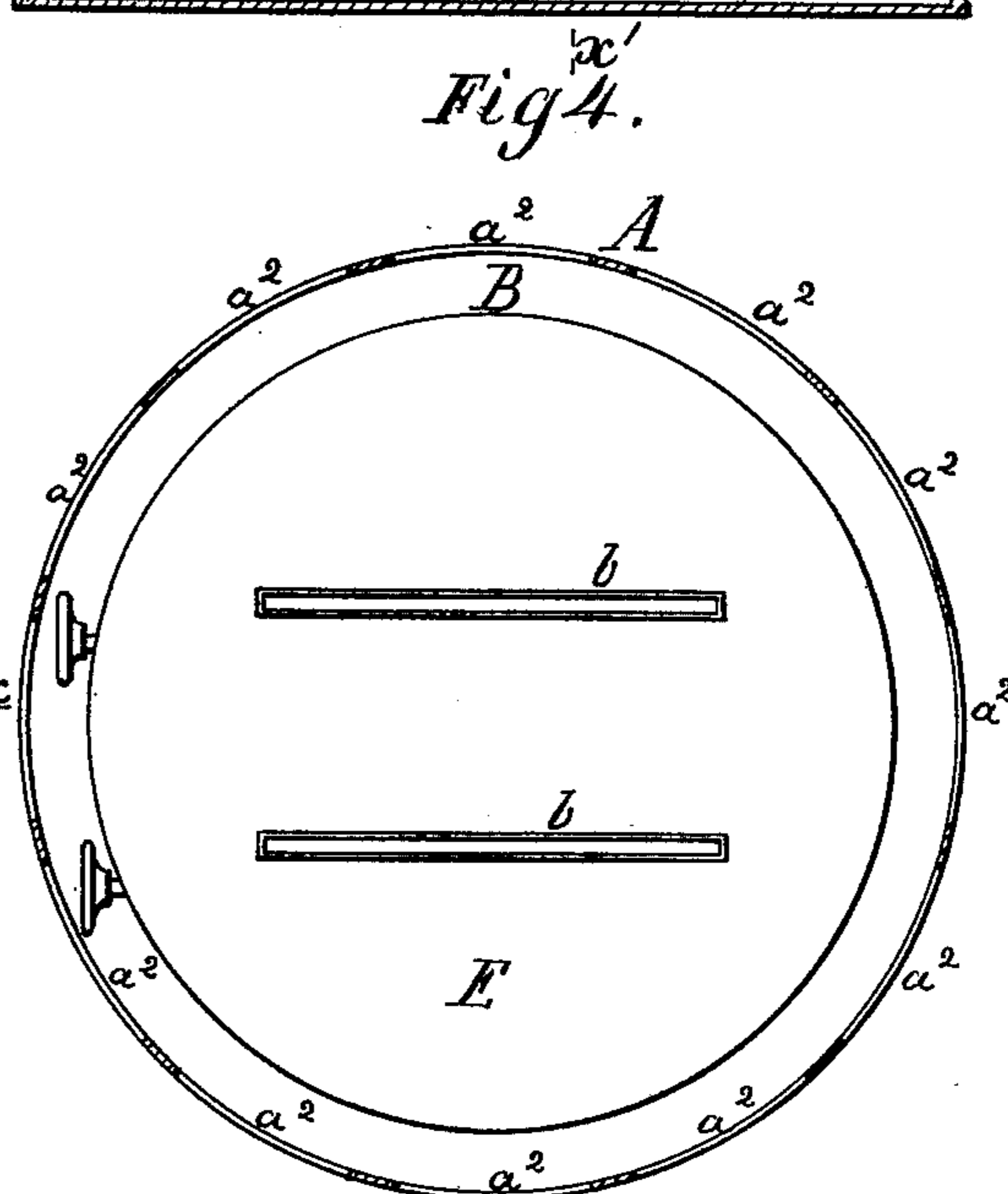


Fig 4.



Witnesses:

J. P. Th. Lang  
R. Boekhor.

Inventor:

Benjamin B. Stockford  
by  
Maurice, Newman & Lawrence

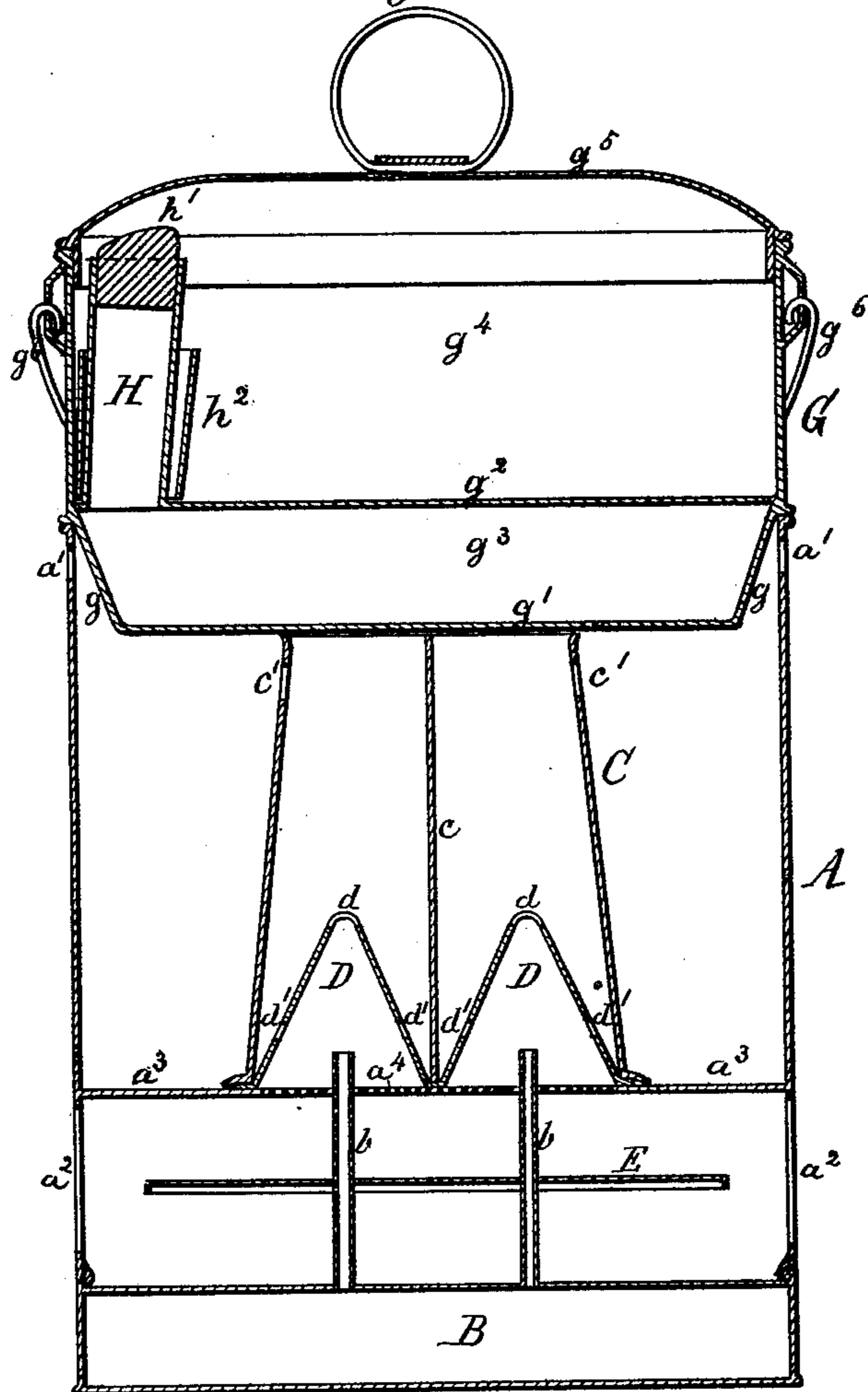
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Fig 5.



Witnesses:  
J. T. Th. Lang  
R. Boeklen.

Inventor:  
Benjamin R. Stockford  
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Marion, Russell & Lawrence

# UNITED STATES PATENT OFFICE.

BENJAMIN F. STOCKFORD, OF SOUTH BEND, INDIANA.

## IMPROVEMENT IN CAMP-STOVES.

Specification forming part of Letters Patent No. **221,749**, dated November 18, 1879; application filed September 16, 1879.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. STOCKFORD, of South Bend, in the county of St. Joseph and State of Indiana, have invented a new and useful Improvement in Portable Camp-Stoves, which improvement is fully described in the following specification and drawings, in which latter—

Figure 1 is an elevation of one of my improved camp-stoves provided with a gridiron. Fig. 2 is a vertical central section of the same on line  $xx$  of Figs. 1 and 3. Fig. 3 is a horizontal section of the same on line  $yy$  of Fig. 1. Fig. 4 is a horizontal section of the same on line  $zz$  of Fig. 2; and Fig. 5, a vertical section of the same on line  $x'x'$  of Fig. 2, with gridiron removed and kettle substituted in its place.

The nature of my invention consists, first, in a stove-body without top and bottom, provided with a detachable lamp, and with a number of large horizontal draft-holes above the lamp, and with a diaphragm above the draft-holes, and through which diaphragm the lamp-burners extend and the draft is allowed to pass up to the flames of the burners, and with a horizontal shield arranged between the said diaphragm and the top of the lamp or oil-reservoir, said shield being of smaller diameter than the body of the stove and standing at, or nearly at, the same elevation as the centers of the large horizontal draft-holes, in order that the currents of air passing through the one circle of draft-holes shall be divided, and thus made to circulate in part over the top of the lamp or oil-reservoir and in part through the passages leading to the tops of the burners, all as will be presently described.

Second, in the combination, with the stove-body provided with a lamp, lower and upper draft-holes, and a diaphragm and shield, of a removable open-top chimney, contracted upward, divided by vertical partitions and provided with side draft-openings at its upper end, said chimney being of less height than the body of the stove, in order that a vessel with tapering bottom extension may rest upon the chimney while the body of the vessel is supported by the body of the stove, and thereby kept from bearing but slightly upon the chimney and its supporting-diaphragm. By

this means the vessel is firmly sustained and the chimney not impaired or pressed down by the weight of the vessel.

Third, in a dinner-kettle (as an extension or top of the body of the stove) having a reduced tapering base, a horizontal diaphragm, and a certain telescoping discharge-pipe, as hereinafter described. Said kettle, being adapted for resting upon the body of the stove and chimney, and for containing both liquid and solid substances used for food and drink, and being portable, is adapted for carrying the cooked food and drink to workmen.

In the annexed drawings, A represents the shell of the stove, B a lamp, and C a metallic chimney. The top portion of the shell A is provided with a bail,  $a$ , a number of draft-induction holes,  $a'$ , and its lower portion with a number of comparatively very large draft-induction holes  $a^2$ . Above the holes  $a^2$  is a horizontal diaphragm,  $a^3$ , which divides the space or interior of the shell A into two compartments of unequal size. Through this diaphragm  $a^3$  the burners  $b$  of the lamp B pass into the upper compartment of the stove, where they are provided with suitable shields D, having slots  $d$  at the top for the upward passage of the flames, and apertures  $d'$  near the base, whereby the surplus of supply air or draft which finds its way under the shields is conducted away from the flames. The portion of the diaphragm  $a^3$  which is occupied by the shields D is perforated, as at  $a^4$ , to admit the draft from below with uniformity around the burners and flames. The shields D are surrounded by a removable metal chimney, C, of oblong form, divided in the middle between the shields by a vertical partition,  $c$ , so as to form two flues with distinct drafts. This chimney, near its top, is provided with draft-holes  $c'$ , whereby the products of combustion are conducted out of the chimney, when it is closed at the top by the bottom of a vessel placed upon it for the purpose of heating its contents.

At a point about midway of the induction-holes  $a^2$ , the burners  $b$  are provided with a horizontal disk, E, of somewhat less diameter than the stove-shell A, which disk serves as a shield to protect the kerosene or other like oil employed from becoming heated in the reservoir of the lamp, while at the same time addi-

tional protection is afforded by the entrance of cool air into the space between the disk and the top of the reservoir through said openings  $a^2$ .

The lamp B is fitted to the lower part of the stove, and held thereto by means of swinging hooks  $b'$ , suitably attached to the lamp and turned over the lower edges of the holes  $a'$  into the stove. The lamp can be readily detached from the stove by simply turning the hooks  $b'$  out of the holes  $a^2$ , and then pulling upon the bail  $a$ .

In Figs. 1 and 2 I have shown a lid or cover, F, having in its center a gridiron,  $f$ , which is surmounted by a case,  $f'$ , open in front, but with closed sides and back, save where it is provided with draft-holes  $f^2$  in its rear portion. The rim  $f^3$  of this lid is so fitted into the stove that the draft-holes  $a'$  are closed thereby, and thus the heated air of the stove is compelled, when this lid or cover is in use, to pass through the gridiron  $f$  and around an object placed thereon before it will escape either through the holes  $f^2$  of the case  $f'$  or the open front of said case, thereby imparting a great amount of heat to the object placed upon the gridiron.

In Fig. 5 I have shown the stove supporting a kettle, G, having two compartments and suitable for culinary purposes, such as boiling coffee, tea, soup, vegetables, and the like. For these purposes the kettle is provided with flaring sides, as at  $g$ , which cause the heated air of the chimney C to pass out of the stove through the holes  $a'$ , while the bottom  $g'$  covers the top of the chimney, and in this way great heat is imparted to the contents of the kettle before the escape of the heated air through the holes  $c'$  of the chimney and the holes  $a'$  of the stove-shell A.

The kettle is divided by a diaphragm,  $g^2$ , into a lower and an upper compartment. (Shown at  $g^3 g^4$ .) An induction and eduction pipe, H, provided on the diaphragm, enables the operator to fill the lower compartment with liquid and empty the same therefrom. This pipe H is closed by a suitable stopper,  $h'$ , when the kettle is not heated; and in order to prevent the contents of the lower compartment from casually spilling into the upper one while being poured out of the kettle the pipe H is made in the shape of an inverted frustum of a cone, and provided with a suitable conical elongation,  $h^2$ , as shown, which, when used, is

pushed up on the pipe H until a tight fit is effected between the two pipes, and thus the upper end of the pipe  $h^2$  will stand sufficiently elevated above the upper rim of the kettle to prevent such spilling. When the pipe  $h^2$  is moved down again, both pipes are then of such height as to permit the kettle to be closed by its lid  $g^5$ . The kettle G is also provided with a bail,  $g^6$ , by means of which it may be carried separately from the stove to any desired locality.

The stove may be carried by means of the bail  $a$ , and when carried is covered by the lid  $g^5$ , and can be thus transported with safety while the lamp is burning.

My improved portable camp-stove, although constructed mainly for culinary purposes, is suitable for other uses, as, for example, that of a tinner's stove for heating soldering-irons, melting solder, and so on; and if of proper size it will heat rooms at a smaller expense for fuel than an ordinary stove for such purpose, with the advantage that it may be moved from one place to another while in operation.

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

1. A portable stove-body, A, without top and bottom, having the diaphragm,  $a^3$ , and upper and lower draft-holes,  $a'$  and  $a^2$ , in combination with a removable lamp, B, having burners  $b$ , and a shield, E, of less diameter than the body, said shield standing opposite the centers, or nearly so, of the holes  $a^2$  and between the top of the lamp and the diaphragm  $a^3$ , substantially as and for the purpose described.

2. The combination of the portable stove-body A, having a diaphragm,  $a^3$ , and draft-holes  $a'$   $a^2$ , lamp B, having burners  $b$ , removable chimney C, contracted and open at the top, and having upper draft-holes,  $c'$ , and vertical partitions  $c$ , and being of less height than the body of the stove, substantially as and for the purpose set forth.

3. The dinner-kettle G, having a reduced conical base,  $g$ , a diaphragm,  $g^2$ , and pipes H  $h^2$ , the same constituting an attachment of the portable oil-stove, substantially as and for the purpose set forth.

BENJAMIN F. STOCKFORD.

In presence of—

JASPER E. LEWIS,

JNO. E. FISHER.