

R. D. Granger,

Cook Stove.

No. 37,396.

Patented Jan. 13. 1863.

Fig. 5. D, d.

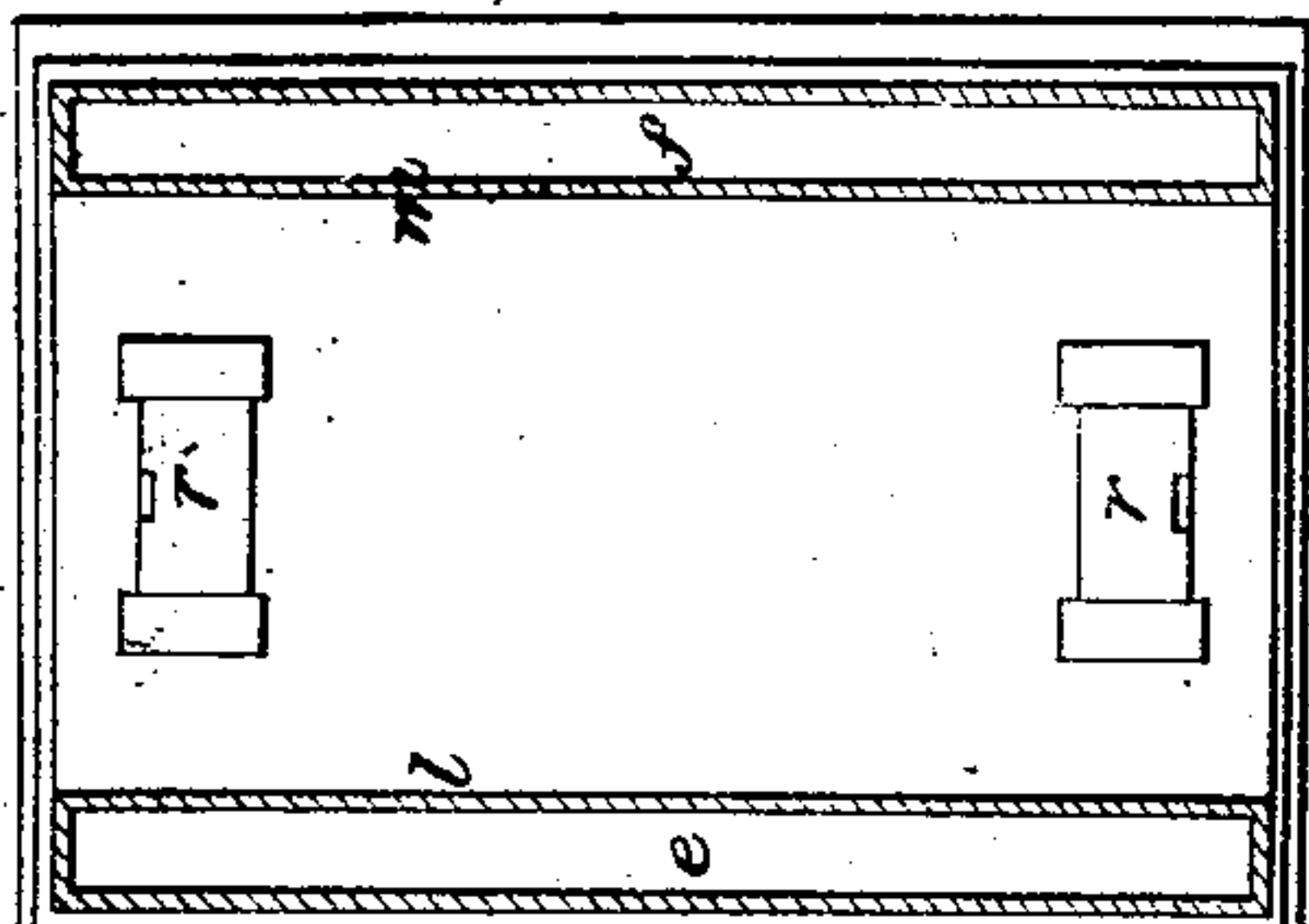


Fig. 4. C, c.

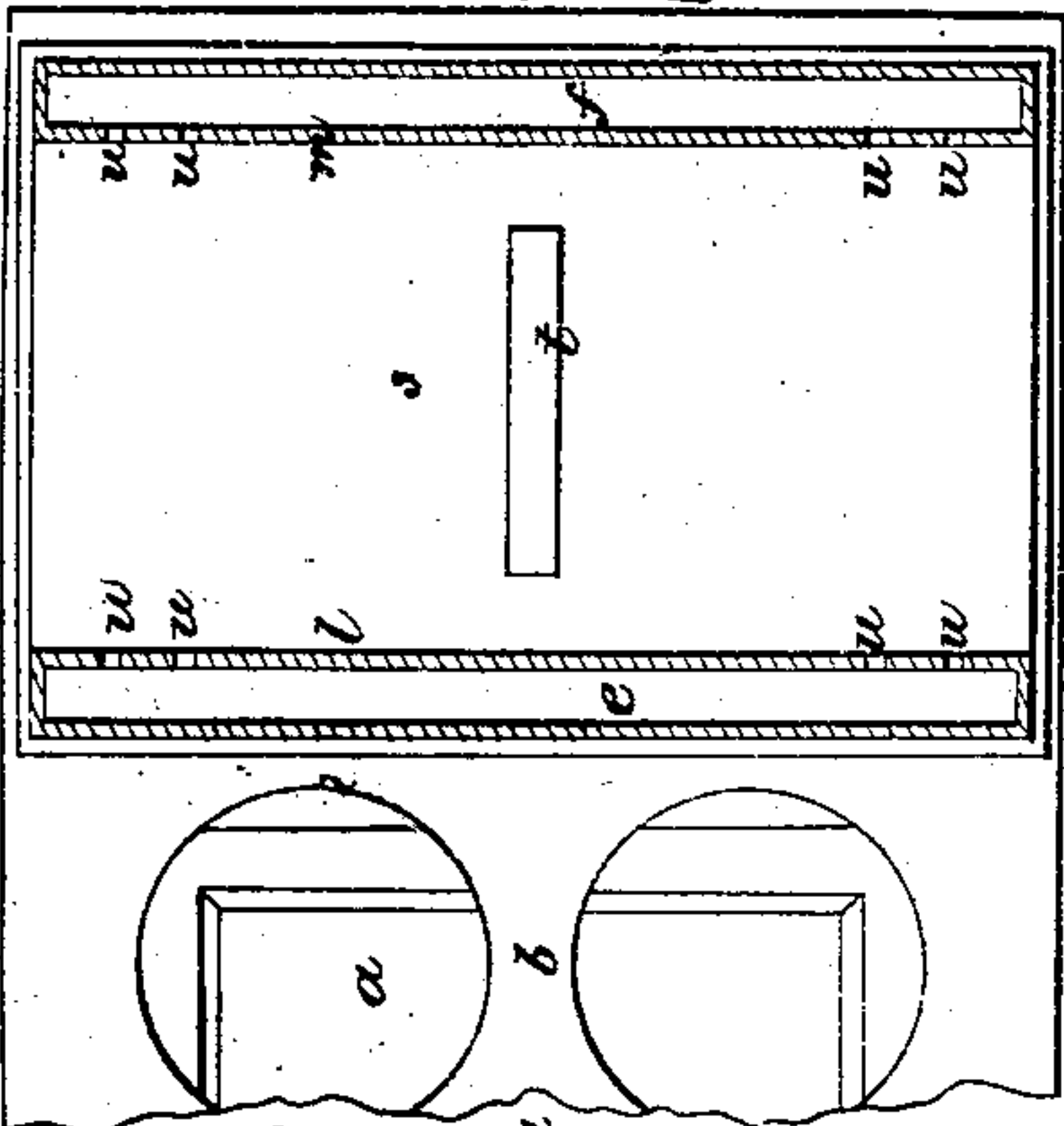
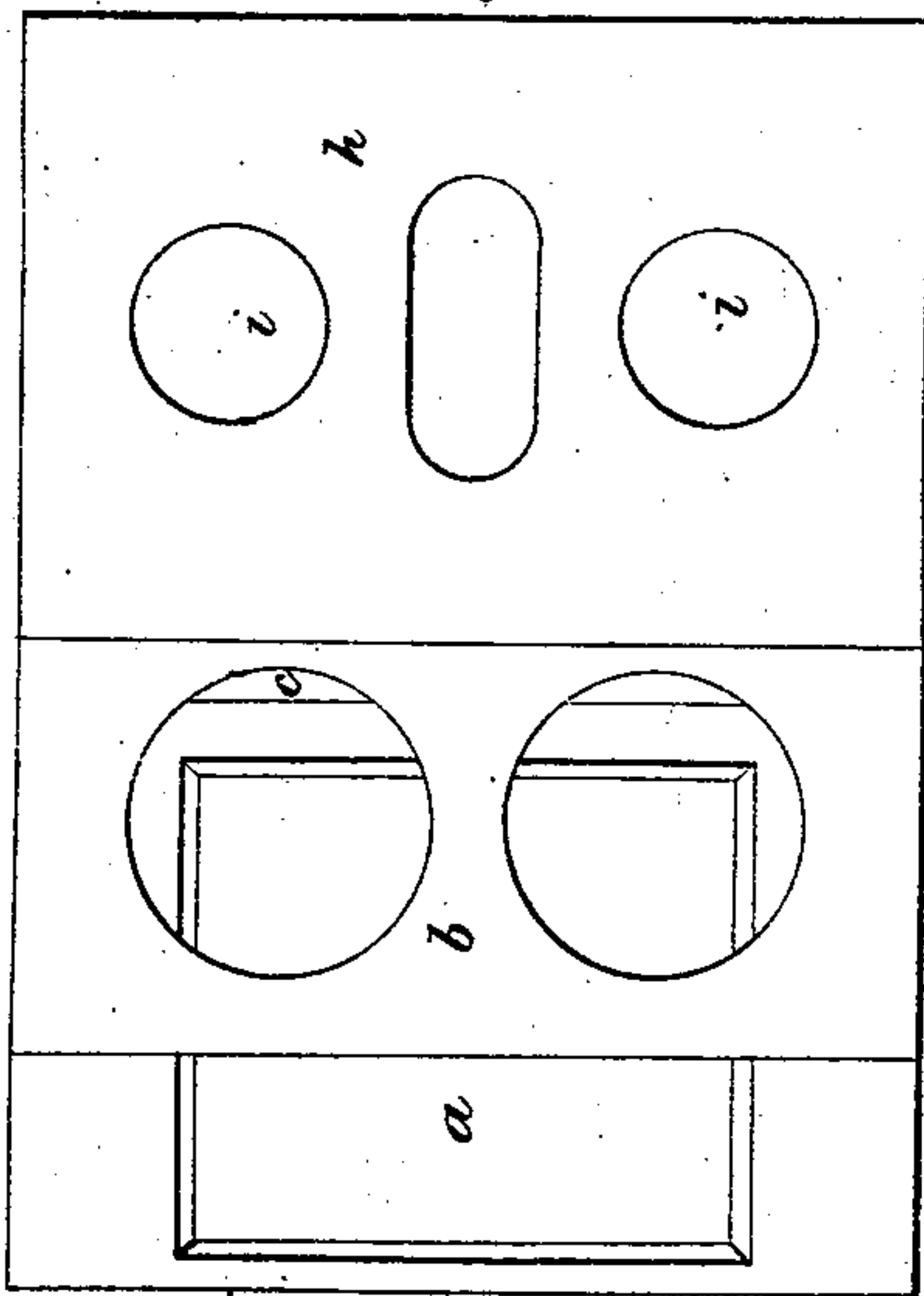


Fig. 1.



Witnesses;

*James A. Greig,
J. A. Greig*

Fig. 6. E, e.

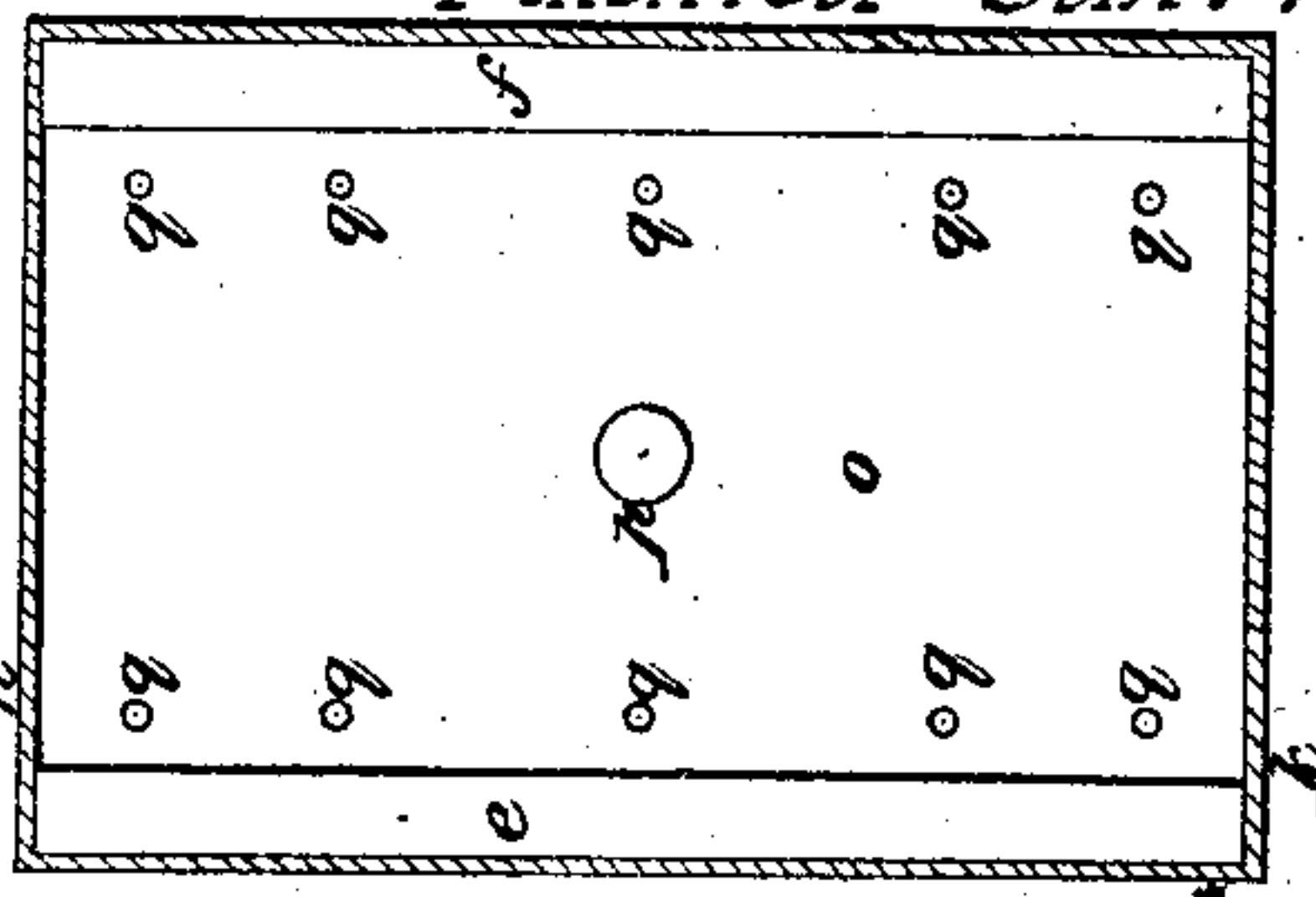


Fig. 3. B, b.

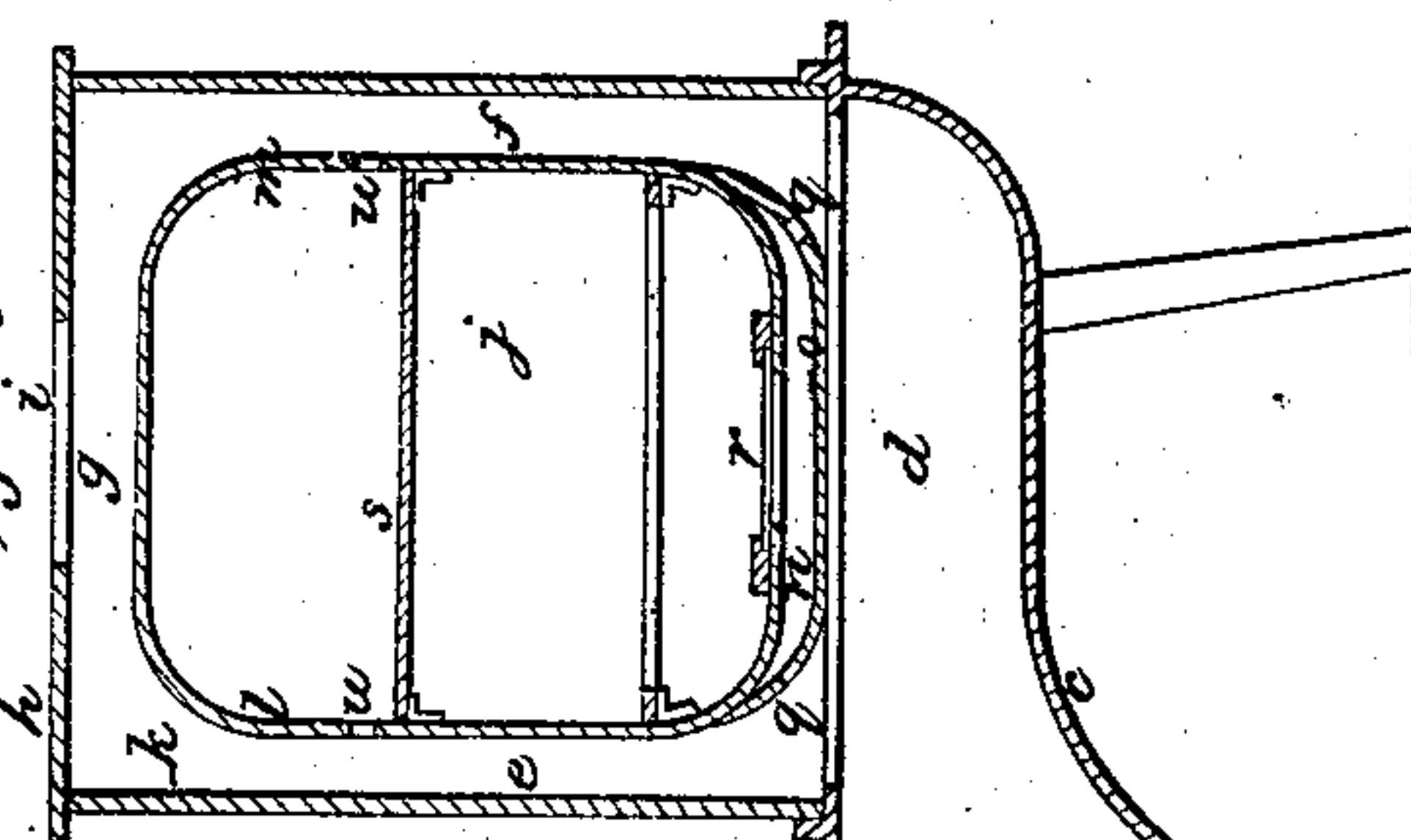
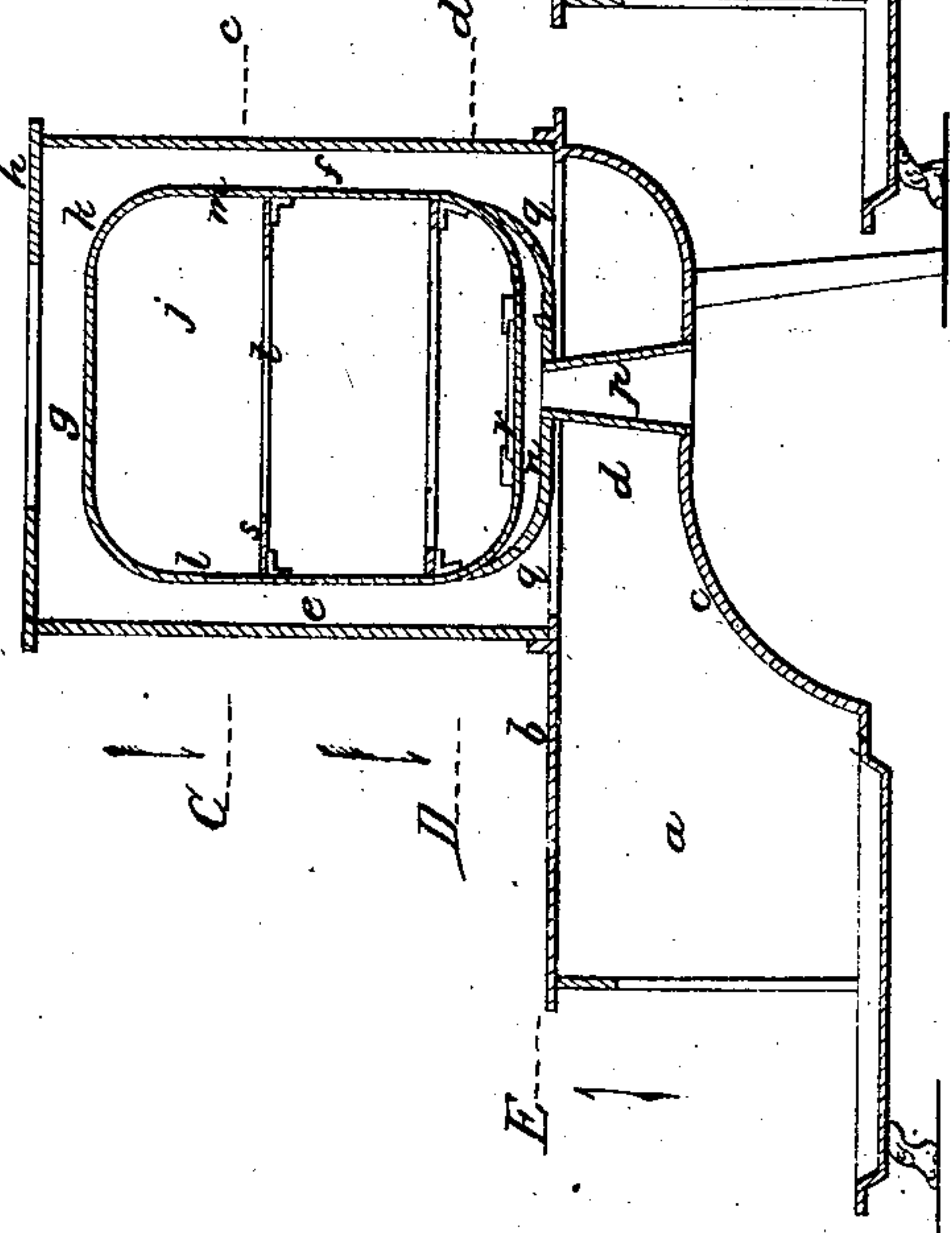


Fig. 2. A, a.



Inventor;

R. D. Granger

UNITED STATES PATENT OFFICE.

R. D. GRANGER, OF ALBANY, NEW YORK.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. 37,396, dated January 13, 1863.

To all whom it may concern:

Be it known that I, RENSSELAER D. GRANGER, of Albany, in the State of New York, have invented a new and useful Improvement in Cooking-Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan, and Figs. 2 and 3 vertical sections taken at the lines A *a* and B *b* of Fig. 1; Figs. 4 and 5, horizontal sections taken at the lines C *c* and D *d* of Fig. 2; and Fig. 6 a section taken at the line E *e* of Fig. 2, and looking upward.

The same letters indicate like parts in all the figures.

In that class of cooking-stoves in which the oven is elevated above the body of the stove serious inconveniences have been experienced. As the bottom of the oven has heretofore formed the top plate of the direct flue from the fire-chamber, the bottom of the oven has always been heated more than the front, the back, and the top, and in consequence such ovens have not been well adapted to baking, the bottom of articles—such as bread—being frequently burned before the top could be properly browned; and in all attempts to make such stoves for baking with two tiers, one above the other, the bottom of the lower one would be overheated and the bottom of the upper one could not be sufficiently heated. These defects I have avoided by my said invention.

In the accompanying drawings, *a* represents the fire-chamber, constructed, as is usual in this class of stoves, with the top plate, *b*, thereof provided with boiler-plates, and extending back to form a rim on which the elevated oven rests, but cut out so as not to form the bottom of the oven. The plate *c*, which forms the fire-back, is curved back, and then extends back horizontally to within a short distance of the back of the oven, where it extends up in a curve to the rear edge of the plate *b*, the space between these two plates forming the flue-space *d* for the products of combustion to pass directly from the fire-chamber to the two flue-spaces *e* and *f* between the front and back of the elevated oven, both of which flue-spaces extend up to and communicate with the flue-space *g* above the oven, the top plate, *h*, above

the oven being provided with an exit-pipe leading to a chimney, and, if desired, with boiler-holes *i i* each side of the exit-pipe. The plates forming the elevated oven *j* are the end plates, *k k*, the front and back plates, *l* and *m*, and the top plate, *h*, before described.

Instead of making the bottom of the oven the top plate of the flue-space *d*, as such stoves have been heretofore made, I make an air-chamber, *n*, under the bottom of the oven by the addition of another plate, *o*, and this chamber receives air from the room through a pipe, *p*, extending from this chamber down through the flue-space *d* and through the plate *c*, and this air-chamber *n* in turn communicates with the flue-spaces *e* and *f* in front and back of the oven by a series of small holes, *q q*, near the front and the back edges of the plate *o*, so that the air which enters the chamber shall circulate through it and escape into the flues and mingle with the products of combustion, and by circulating through this chamber prevent the oven-bottom from being overheated. The bottom of the oven is provided with apertures *r r* near each end, which, if desired, may be controlled by dampers, so that air which enters the air-chamber *n* through the central pipe, *p*, shall spread both ways under the oven-bottom before entering the oven, and thus not only prevent the oven-bottom from being overheated, but at the same time equalize the heat of the entire oven-bottom. The oven is divided into two compartments, an upper and a lower one, by a horizontal plate, *s*, and this plate has a long narrow aperture, *t*, in the middle, so that the heated air which enters the lower compartment of the oven near the ends from the air-chamber *n* shall in rising strike against the under side of the horizontal plate *s*, which forms the bottom of the upper oven, to reach the central aperture to pass into the upper compartment, and thereby not only heat this, (the bottom plate of the upper compartment,) but at the same time carry out all fumes, vapors, and gases generated in the lower compartment, and prevent the vapors or fumes from being condensed. The heated air, charged with vapor, &c., which enters the upper compartment at or near the middle of its length, is in turn caused to circulate towards the ends, and there to escape into the flue-spaces *e* and *f* through holes *u u* in the front and back oven plates and near the ends thereof, the current

of air being induced to circulate in the manner described from the air chamber *n* through the oven and into the flues not only by being heated, but by the draft in the flues; and although I have described the several apertures as being so located that the air enters the air-chamber at or near the center, then passes into the bottom oven near the ends, and thence enters the upper oven at or near the middle, and thence escapes into the flues through apertures before described, I do not wish to be understood as limiting this arrangement of the several apertures, as it will be obvious that the same result will be produced by inverting the order of the arrangement—that is to say, by introducing the air into the chamber *n* near the ends, causing it to enter the bottom oven at or near the middle, thence to pass into the upper oven at or near the ends, and escape into the flues at or near the middle; but I prefer the order first specified, as I have found that to be the best in practice.

By the construction and arrangement above described I avoid all the difficulties heretofore experienced in the use of elevated-oven cooking-stoves, while at the same time I retain all the admitted advantages of this class of stoves.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the elevated oven,

making the bottom of the oven double, with an air-space between the two, provided with a pipe, *p*, or its equivalent, for the supply of cold air, substantially as described, whether such air-space be made to communicate directly with the flue or with the oven, as described, to insure the circulation of air through the said air-chamber, and thereby prevent the overheating of the bottom of the oven.

2. In combination with the elevated oven and the air-chamber at the bottom of the oven, substantially as described, connecting the said oven by apertures with the said air-chamber and the flue-spaces, substantially as described, so as to cause a circulation of heated air through the oven, as described.

3. In combination with the two compartments, one above the other, and separated by a plate, the arrangement, substantially as described, of the apertures for the circulation of air through the said ovens, whether the air be admitted so as to circulate in the lower oven from the ends to the middle and in the upper one from the middle toward the ends, or vice versa, as described.

R. D. GRANGER.

Witnesses:

JAMES A. GREIG,
JOEL R. REED.