

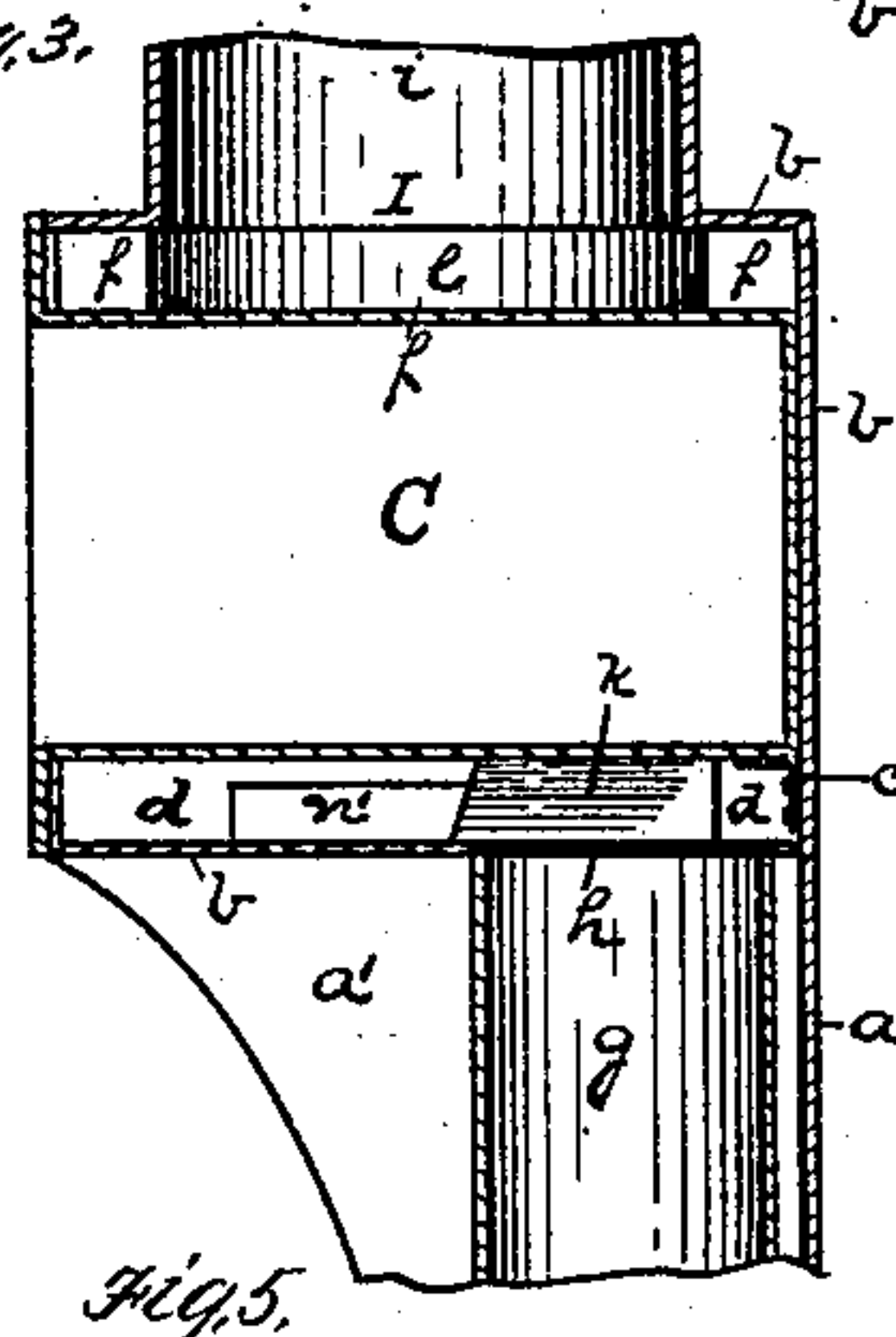
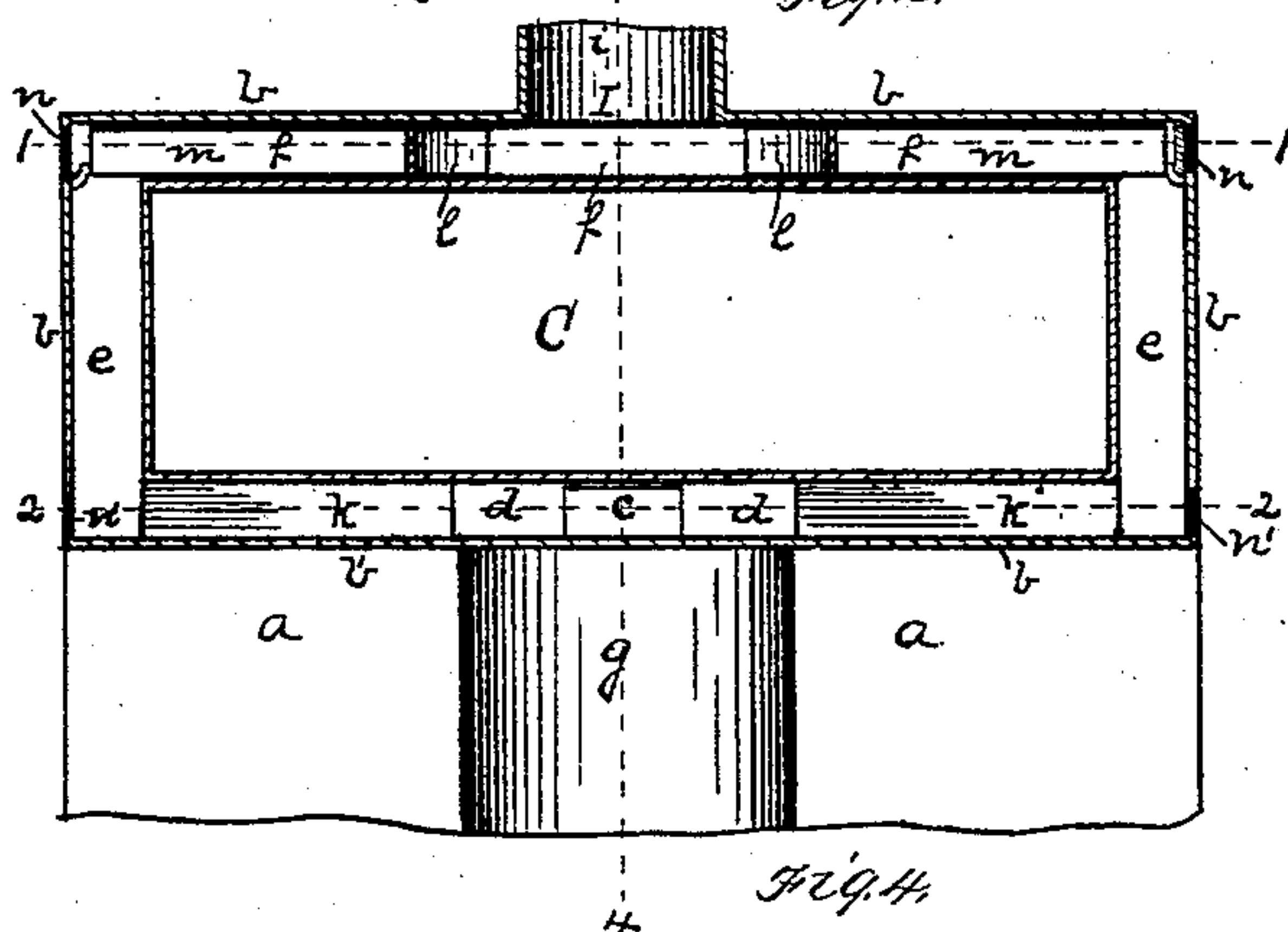
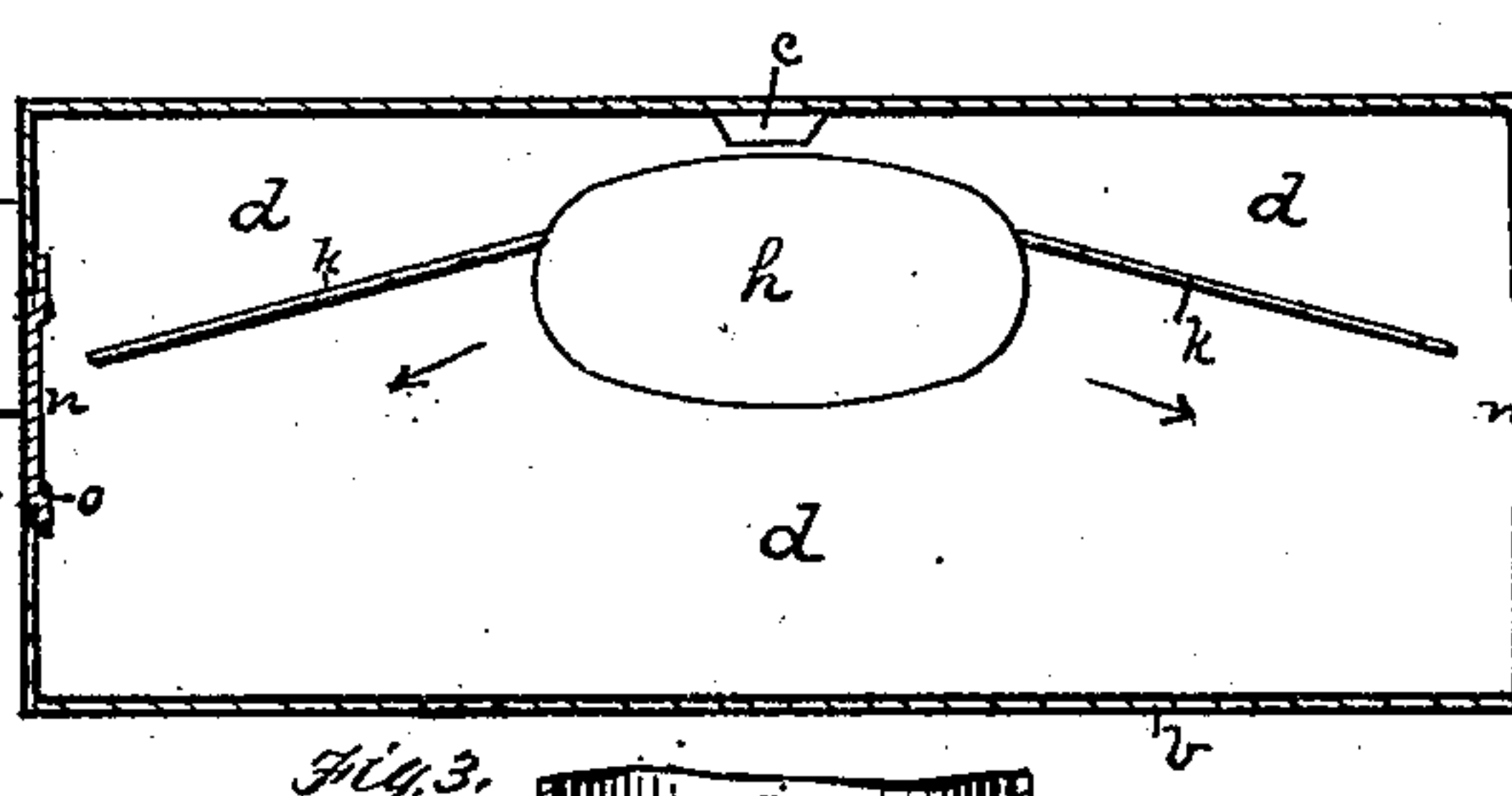
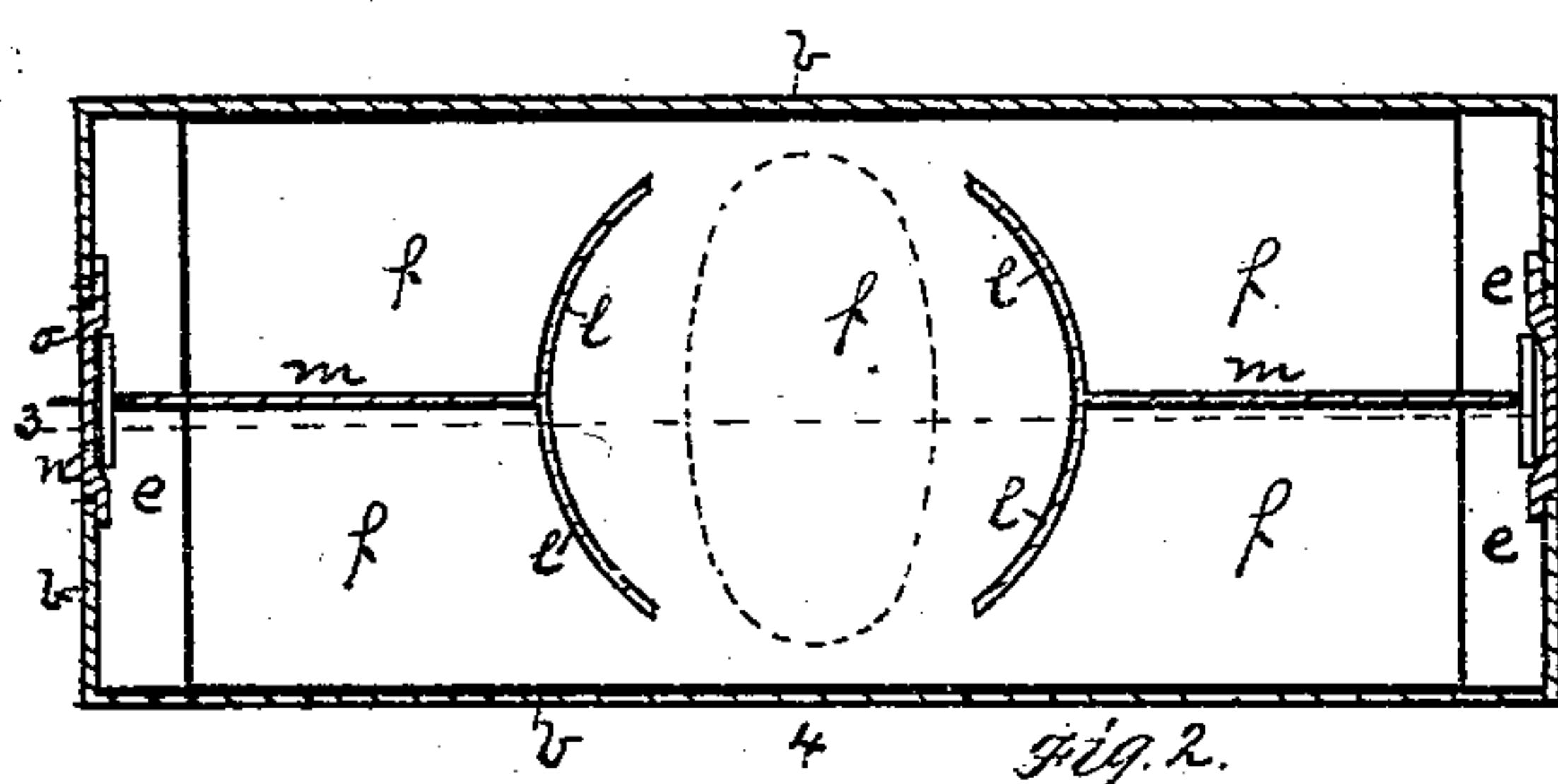
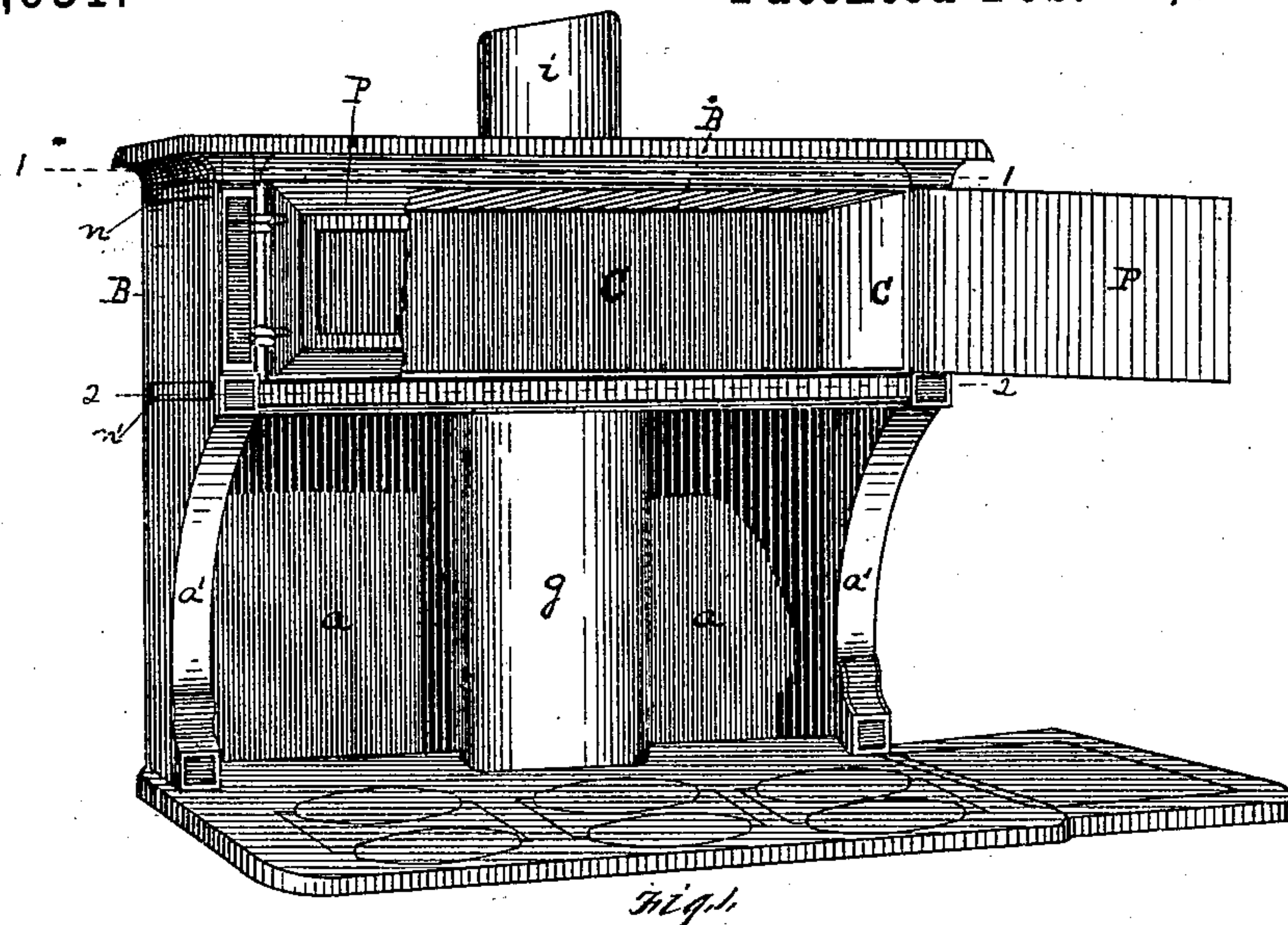
(No Model.)

J. J. H. SCHLAG, T. J. GRAFF & J. F. McKEE.

ELEVATED OVEN FOR RANGES.

No. 253,631.

Patented Feb. 14, 1882.



WITNESSES_

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UNITED STATES PATENT OFFICE.

J. J. HENRY SCHLAG, OF MILLVALE, AND THOMAS J. GRAFF AND JAMES F. MCKEE, OF PITTSBURG, PENNSYLVANIA.

ELEVATED OVEN FOR RANGES.

SPECIFICATION forming part of Letters Patent No. 253,631, dated February 14, 1882.

Application filed June 25, 1881. (No model.)

To all whom it may concern:

Be it known that we, J. J. HENRY SCHLAG, of Millvale borough, and THOMAS J. GRAFF and JAMES F. MCKEE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Elevated Ovens for Portable Ranges and Stoves; and we do hereby the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of the upper portion of a portable range, illustrating our invention. Fig. 2 is a horizontal sectional view of the baking-oven on the line 1 1, Figs. 1 and 4. Fig. 3 is a like view on the line 2 2, Figs. 1 and 4. Fig. 4 is a longitudinal vertical section on the line 3 3, Fig. 2; and Fig. 5 is a cross-section on the line 4 4, Fig. 4.

Like letters indicate like parts in each.

Our invention relates to the portable ranges and stoves used for cooking and other culinary purposes; and its object is to provide these portable ranges and stoves with an elevated bake-oven above the surface on which the usual culinary operations are performed. These portable stoves and ranges differ from each other in the course of the products of combustion from the grate to the discharge, these products passing off in the rear in stoves and at the side in portable ranges. They are provided with the usual baking-oven in the body of the stove or range, and the heated products of combustion are thrown under and around this oven before passing to the discharge. These ovens are, however, difficult to work, being so low down that much stooping is necessary in their use, which is found to be tiring and wearing to the operator. The portable ranges are also sometimes provided with a warming-chamber supported above the body, through which the stove-pipe passes, the heat radiated from the smoke-pipe being generally sufficient for warming purposes, but never strong enough for cooking or baking. By our invention we provide an elevated oven for such portable ranges and stoves, having sufficient heat for all such culinary operations.

It consists in certain improvements, first, in the arrangement of certain deflecting-plates within the oven-flues to obtain a more even distribution of the heat within the chamber; second, in the relative arrangement of the inlet and discharge openings for the products of combustion; and, third, in the arrangement of the ports for cleaning the flues.

To enable others skilled in the art to make and use our invention, we will describe its construction and operation.

In the drawings our invention is illustrated in connection with a portable range, the upper surface only of the range being shown. At the back of the range are the upright back plate, *a*, and side brackets, *a'*, the oven *B* being supported above the range by these brackets. The outer case or walls, *b*, of the oven are formed of cast-iron, being secured to the back plate and brackets, and the inner chamber, *C*, is generally formed of sheet-iron and slipped within the cast-iron case, being supported at the back by the bracket *c* on the oven-case. The inner chamber, *C*, fits against the back wall of the case *b*.

Between the inner chamber and the bottom of the case is the lower horizontal flue, *d*, which extends under the entire surface of the chamber, and connects at either end with the perpendicular end flues, *e*, formed between the chamber and the end walls. These end flues, *e*, in turn connect with upper horizontal flue, *f*, extending entirely over the top of the inner chamber, between it and the top of the oven-case. The bottom flue, *d*, is connected with the stove or range by the smoke pipe or flue *g*, which is oval in cross-section and passes into the oval smoke-entrance *h* in the bottom of the oven-case, behind the center thereof, the oval smoke-entrance *h* being of greatest diameter lengthwise of the oven, so that the pipe, while giving full room for the passage of the smoke and products of combustion, occupies much less room than where a circular pipe is employed. The smoke and heated products pass from the smoke-pipe *g* around the inner chamber to the discharge-opening *I*, which leads by the pipe *i* to the chimney.

The discharge-opening *I* is formed in the

center of the oven top plate, and is oval in cross-section, its greatest diameter being cross-wise of the oven-case, as shown in dotted lines, Fig. 2, so that the smoke and heated products are drawn more to the front of the upper flue, *f*.

In order to cause a more even distribution of the heated products in the flues and to obtain more heat from these products as they pass through the flues, I form deflecting-plates in the upper and lower flues. The deflecting-plates *k* in the lower flue extend from the smoke-entrance *g* toward the end flues and extend diagonally forward from the back part of the smoke-entrance, as shown in Fig. 3, so as to throw the major portion of the heated products to the front of the flue. The deflecting-plates *l* in the upper flue are arranged around the discharge-opening *I*, and the ends approach the side walls of the case, so that the heated products must pass around the outer edges of these plates before reaching the discharge, being thus deflected out of their course to the front and back of the oven. The plates are generally curved in form, but may be straight or angular, if desired. Extending from the back of these plates *l* toward the ends of the flue are the plates *m*, which distribute the heated products as they rise through the end flues, so that part is thrown to the front and part to the rear of the upper flue. These deflecting-plates are cast with the oven-case, and preferably extend out so as to fit against the inner chamber, *C*.

The oven is provided with the cleaning-ports *n n'*, located at the ends thereof and passing through the walls of the oven-case. The ports *n* are formed opposite the upper flue, so that the soot deposited from the smoke may be scraped by the proper tool off the upper surface of the inner chamber into the end flues, and will fall through these to the bottom of the lower flue.

The ports *n'* are formed opposite the lower flue, and the bases of the ports are preferably even with the bottom of the lower flue, so that the soot can be easily scraped through these ports, and the oven-flues thus be kept clean, this being of great importance in baking-ovens to obtain the greatest heat from the fuel used. The ports are closed by small doors *o*, either hinged or sliding, as desired.

The oven is provided with the usual doors, *P*, and, if desired, shelves may be arranged in them in the usual way.

The operation of my improved oven is as follows: The smoke and heated products of combustion pass from the portable range or stove up through the smoke-pipe *g* into the lower flue, *d*, and as its only escape is through the end flues, *e*, there being no rear flue, it necessarily passes along the lower surface of the inner or baking chamber, *C*, to these flues, and from these flues through the upper flue to the discharge, its course being thus entirely around either end of the inner chamber, and a large portion of the heat from the smoke and pro-

ducts of combustion being radiated into the inner chamber, so that the chamber is raised to a heat sufficiently high for all baking and other culinary operations. As the smoke and heated products seek the most direct course, and therefore would pass directly from the smoke-entrance in the rear of the lower flue to the discharge-opening extending across the upper flue, though it would be drawn partially forward by the transverse discharge-opening, still the walls of the inner chamber would not be evenly heated, and very little heat would be thrown to the front of the chamber.

To cause a more even distribution of the heated products, we employ the deflecting-plates in the upper and lower flues, and the plates *k* in the lower flue serve to throw the major part of the heated products forward, only a small portion being permitted to take the direct course back of the plates. The heated products then rise through the end flues, *e*, and when they reach the upper flue the plates *m* continue the distribution made by the plates *k*, holding the full portion to the front of the flue. The heated products then come in contact with the plates *l*, and as they must necessarily pass around the outer ends of these plates before entering the discharge, they are thrown to the front and back of the flue by the plates, and so cause the heating of the entire upper central surface of the baking-chamber. The different deflecting-plates also serve to retard the draft through the flues, so that a much higher and more even heat is radiated through into the inner chamber.

The elevated bake-oven thus formed is found by practice efficient for all different kinds of baking, and much more convenient for use than the ordinary oven in the body of the portable range or stove, and we are thus enabled to supply a want long felt in connection with portable cooking stoves and ranges at but a slight extra cost, and to impart to these stoves or ranges all the advantages of the usual stationary range built into the wall. As these portable stoves and ranges are generally employed where stationary ranges could not well be used, the addition of an elevated bake-oven will be found an efficient and valuable aid in culinary operations.

In cleaning the elevated oven all that is necessary is to remove the port-doors *o*, and by the usual scraper draw the soot from the upper flue to either end, when it will fall through the end flues to the lower flue, and can then be scraped out through the lower ports, *n'*, which can be easily accomplished, as the bottom of the lower flue and base of the ports are on the same level.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. An elevated bake-oven for portable ranges and stoves, provided with an inner baking-chamber, flues around said chamber, a smoke-entrance having its greatest diameter length-wise of the oven, and a smoke-discharge hav-

ing its greatest diameter crosswise of the oven, substantially as and for the purposes set forth.

2. An elevated bake-oven for portable ranges and stoves, provided with an inner baking-chamber, C, a bottom flue, *d*, end flues, *e*, and top flue, *f*, around said chamber, said bottom flue having a smoke-entrance, *g*, and deflecting-plates *k* for throwing the products of combustion forward in the flue, substantially as set forth.

3. An elevated bake-oven for portable ranges and stoves, provided with an inner baking-chamber, C, a bottom flue, *d*, end flues, *e*, and top flue, *b*, around said chamber, said top being provided with the deflecting-plates *l* and *m* for distributing the products of combustion in the flue, substantially as set forth.

4. In an elevated bake-oven for portable ranges and stoves, the inner baking-chamber, C, in combination with the bottom flue, *d*, having deflecting-plates *k*, end flues, *e*, and top flues having deflecting-plates *l m*, substantially as and for the purposes set forth.

5. In an elevated bake-oven for portable

ranges and stoves, the top flue, *f*, provided with the discharge-opening I, having its greatest diameter crosswise of the oven, in combination with the deflecting-plates *l* in said flue around said opening, substantially as and for the purposes set forth.

6. An elevated bake-oven for portable ranges and stoves, provided with an inner baking-chamber, C, bottom flue, *d*, end flues, *e*, top flue, *f*, and cleaning-ports *n n'*, located in the ends of the oven-case and in line with the top and bottom flues, respectively, substantially as and for the purposes set forth.

In testimony whereof we, the said J. J. HENRY SCHLAG, THOMAS J. GRAFF, and JAMES F. MCKEE, have hereunto set our hands.

J. J. HENRY SCHLAG.
THOMAS J. GRAFF.
JAMES F. MCKEE.

Witnesses:

A. W. WALL,
JAMES I. KAY.