

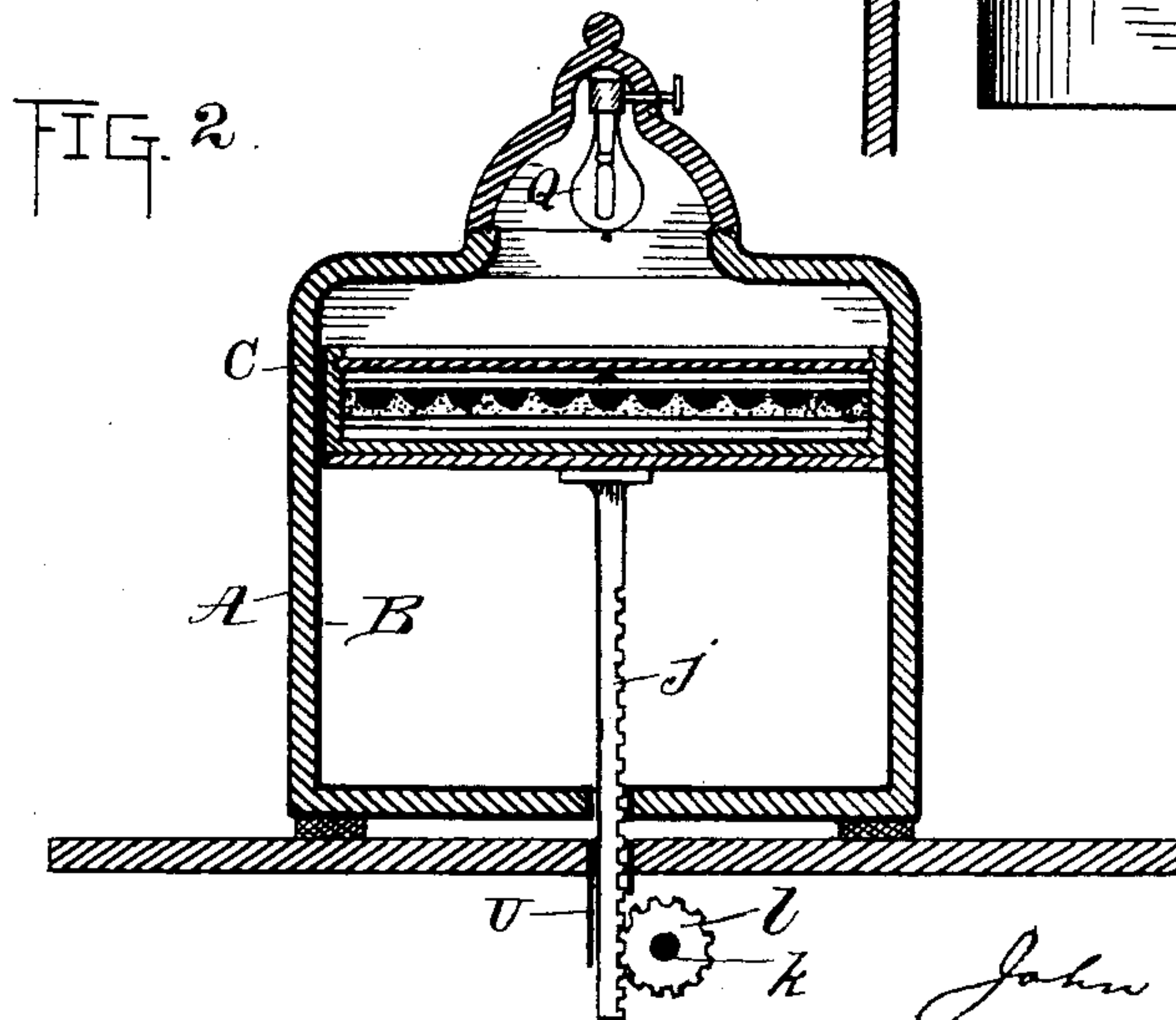
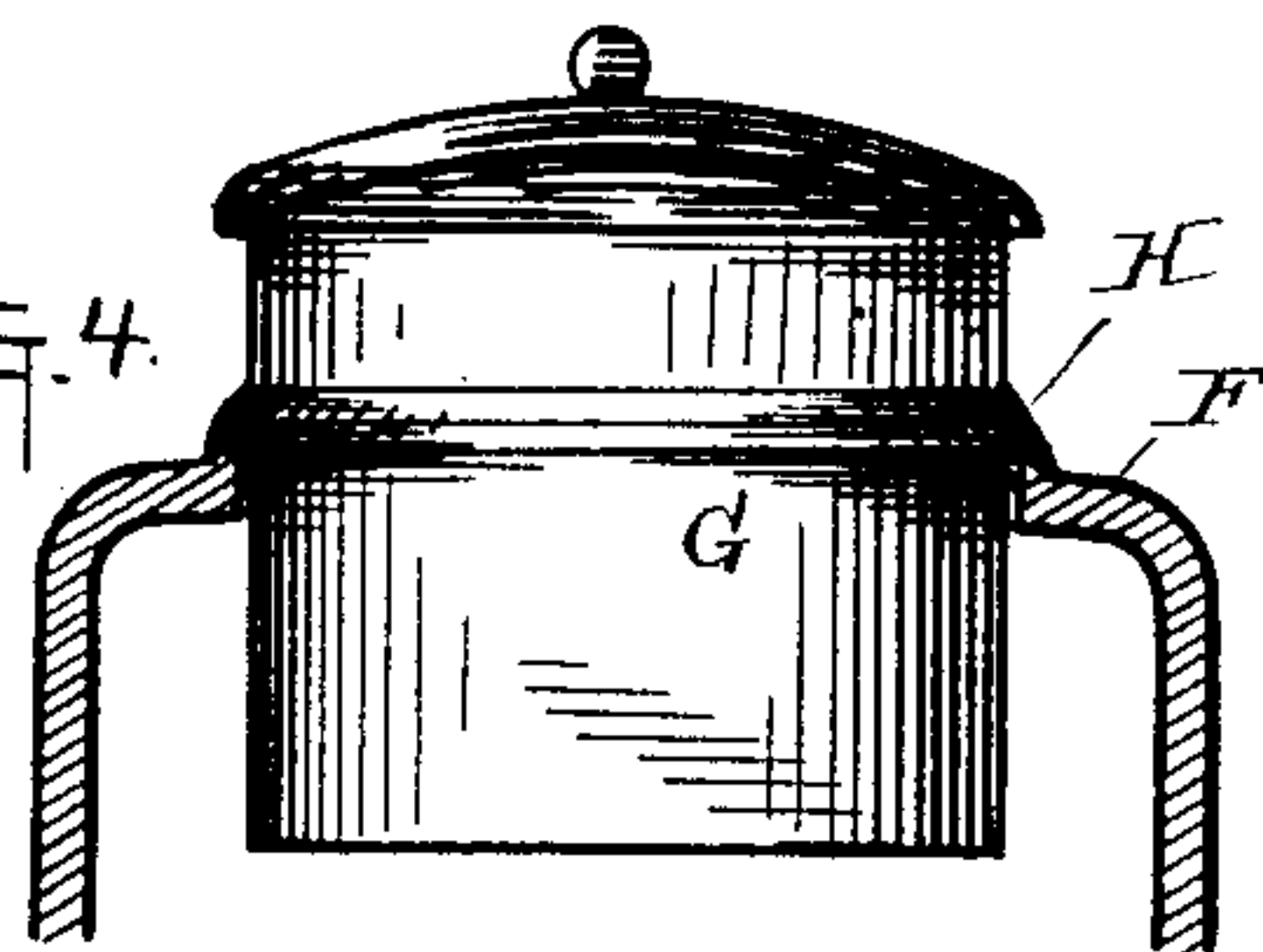
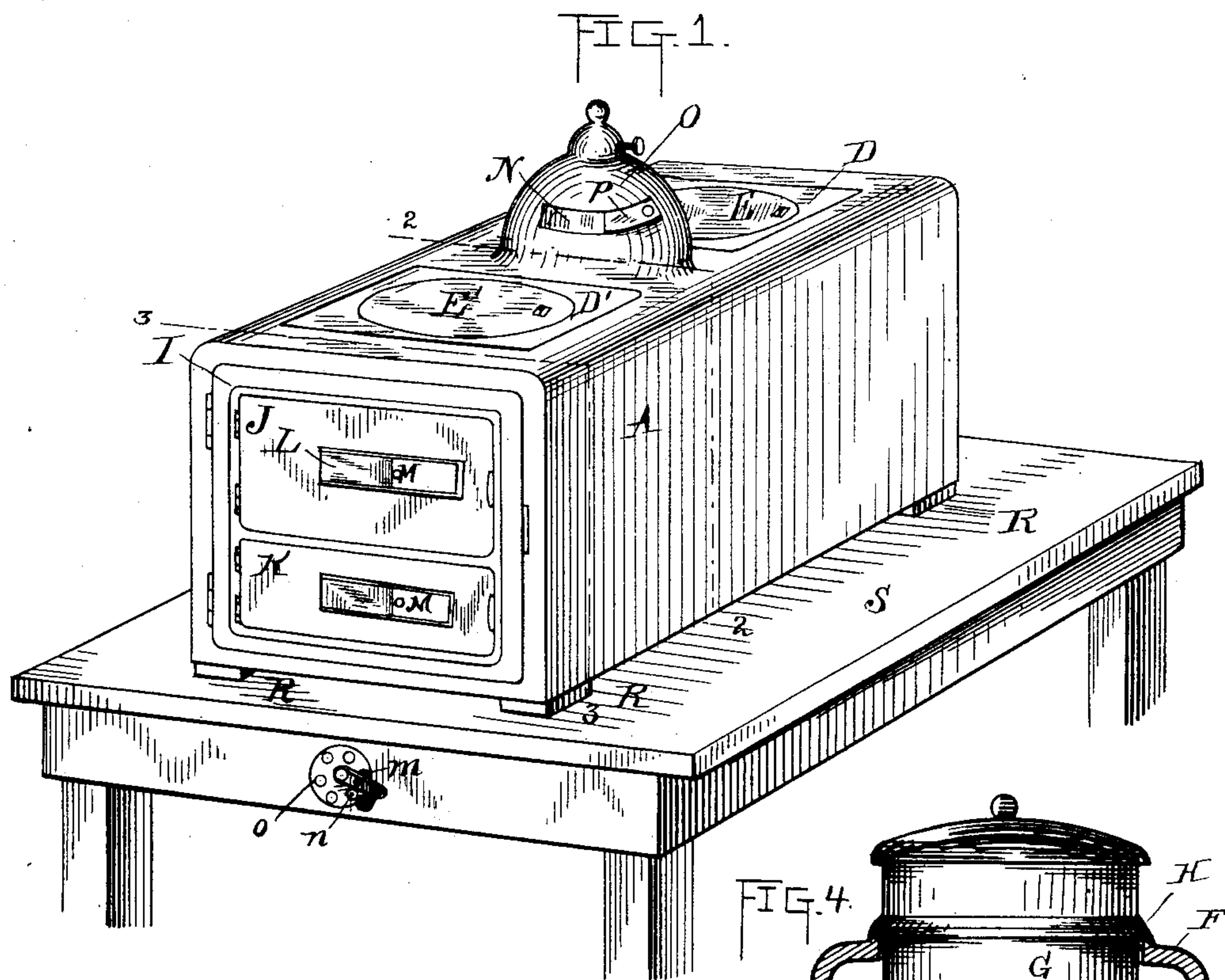
(No Model.)

2 Sheets—Sheet 1.

J. V. CAPEK.
ELECTRICAL COOKING STOVE.

No. 424,922.

Patented Apr. 1, 1890.



Witnesses
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William Rizer

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By his Attorneys
John D. Long

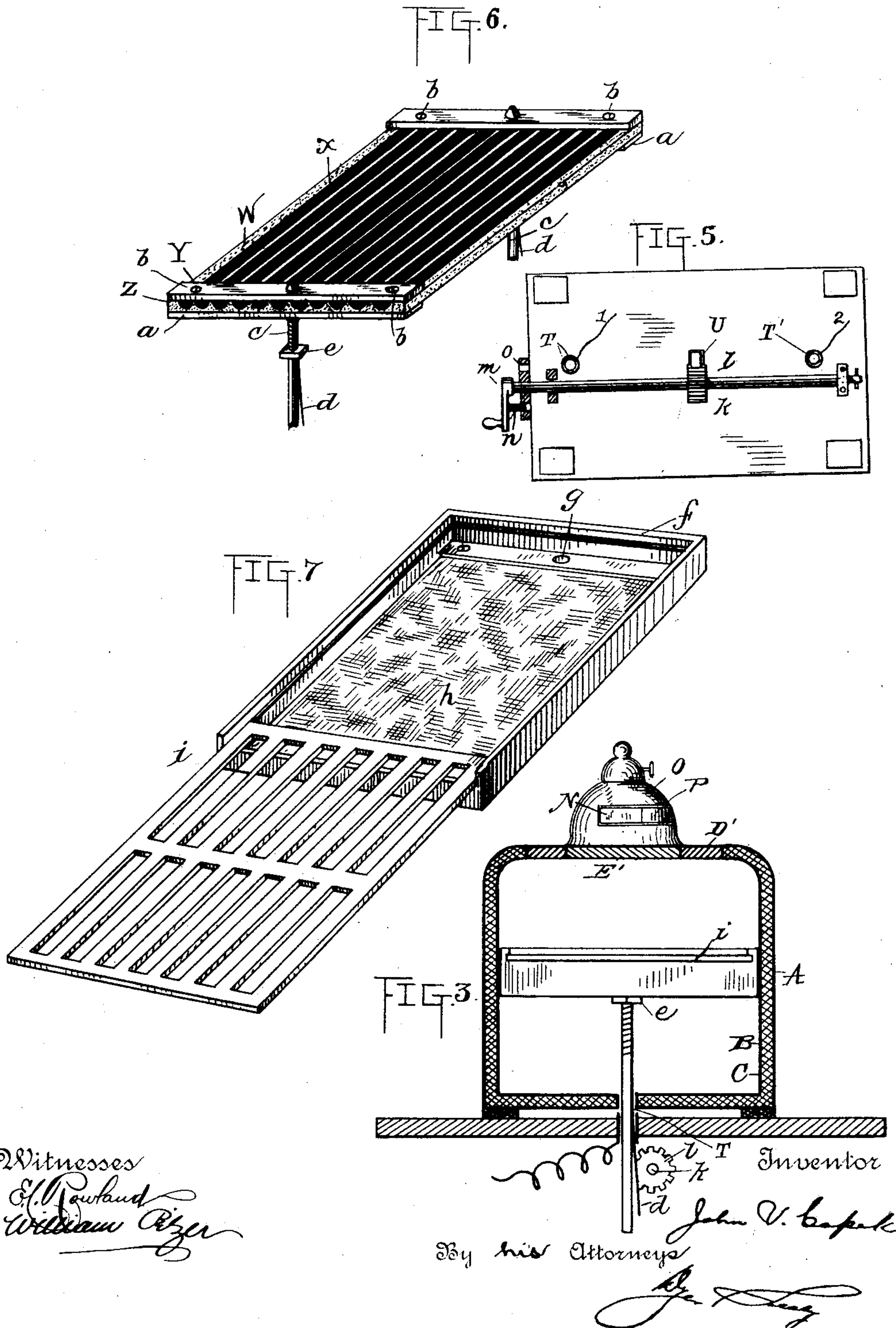
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UNITED STATES PATENT OFFICE.

JOHN V. CAPEK, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, AND EDWARD
H. JOHNSON, OF GREENWICH, CONNECTICUT.

ELECTRICAL COOKING-STOVE.

SPECIFICATION forming part of Letters Patent No. 424,922, dated April 1, 1890.

Application filed October 26, 1889. Serial No. 328,272. (No model.)

To all whom it may concern:

Be it known that I, JOHN V. CAPEK, a citizen of the United States, residing at New York city, in the county and State of New York, have invented a new and useful Improvement in Electrical Cooking-Stoves, of which the following is a specification.

The object of my invention is to produce a practical, economical, and effective electrical cooking-stove.

Heretofore the use of electricity as a heating medium has been suggested for the purposes of cooking; but, so far as I am aware, no practical application of such suggestions has resulted, owing, possibly, to the failure of inventors to devise a practical device to carry out such suggestions.

My invention consists in the devices and combination of devices hereinafter described, and particularly set forth in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of my electrical cooking-stove and a supporting-table. Fig. 2 is a cross-section thereof, taken on the plane of the line 2 2 of Fig. 1. Fig. 3 is another cross-section taken on the plane of the line 3 3 of Fig. 1. Fig. 4 is a sectional detail of a modification of the stove-casing. Fig. 5 is a bottom plan view of the supporting-table on a reduced scale. Fig. 6 is a perspective view of the heating-plate, and Fig. 7 is a perspective view of the receptacle for the heating-plate.

In the drawings, A is the outside wall of the stove; B, the inside wall, and C a filling of heat-insulating material—such as asbestos—placed between the two walls. It is evident, however, that one of said metal walls may be dispensed with, and the wall of the stove composed of a layer of insulating material and a single layer of metal. I prefer, however, to employ the construction illustrated. These walls A and B are preferably of steel, the outer walls A being ornamented to improve the appearance of the stove. These walls may be shaped to produce any desired form of stove, and may be provided with lids and doors, as is usual in other forms of stove, the lids and doors being also formed with a lining of heat-insulating material.

D D' are square lids fitting into correspond-

ing square holes in the top of the stove, and E E' are round lids fitting into round holes in the square lids D D'. This arrangement of lids is designed to permit either a square or round vessel or cooking utensil to be placed into the heating-space of the stove.

In Fig. 4 the hole in the stove-casing is shown provided with a lip F, and a cooking utensil G is shown as provided with a flange H, which, when the cooking utensil is placed in the stove, overhangs the lip F and tends to preserve the heating-space in the stove airtight, and also prevents overflows from the cooking utensil entering said heating-space.

The stove is provided with a main door I at one end, which may be opened to admit the heater and large articles to be cooked. The heater is preferably of such dimensions that it makes close contact with the inner surface of the side and end walls of the stove. In the door I two smaller doors J and K are placed, as shown. Each of these doors is preferably provided with a mica window L on the inner wall closed by a slide M on the outer wall.

The top of the stove is preferably provided with a window of mica N, which may be located in a dome O, said mica window being provided with a slide P. An incandescent electric lamp Q may be located in the dome for the purpose of lighting the interior of the stove for facility of observation. Current will be supplied to said lamp Q in any convenient manner. The stove is provided with legs R, so that an air-space is left between its bottom and the support upon which it is placed.

S is a table or other suitable support, upon which the stove may be placed. This table is preferably provided with metal tubes T T', to which the supply-wires are carried. The tube U is also provided in said support, for a purpose hereinafter to be explained.

The electric heater is composed, preferably, of a platform or backing of non-conducting material and a facing or filling of a suitable refractory conducting material. By this arrangement it is possible to provide in a great measure against the risk of breaking the conducting material, which as a rule would be of a brittle character, the backing being made of material to withstand as far as possible the

danger from rough handling and accidents. For the backing of the heater I prefer to employ a plate of fire-brick grooved or furrowed longitudinally. I prefer to employ as the refractory conducting material a compound of graphite, feldspar, and a glass-forming salt. These will be mixed to form a dough, which is pressed into the grooves of the fire-brick and the whole dried slowly by moderate heat. By the application of the current or by further heating, a slight glazing may be brought out on the surface of the compound, which glazing tends to render the compound firmer, raise its resistance, and lessen the chance of short-circuiting or shocks by accidental contact. By filling the grooves in the backing to within a short distance of their tops—the method I prefer—danger of short-circuiting and shocks is still further reduced, as the ridges of fire-brick present a non-conducting surface. Iron cooking utensils may be placed directly upon a heater-plate provided with ridges extending above the conducting material without effecting a short circuit, or if the glazing is carried to the extent of coating the backing as well as the filling of the heater-plate the same result will be accomplished. Preferably in mixing I add to the compound above described some powdered metallic oxide, suboxide of iron being preferred on account of its high melting-point. The object of this addition is to automatically mend the plate should it receive an accidental crack in use. Should such crack occur, the arc resulting would melt the compound, and it would flow between the edges of the crack and produce a bridge, thus effecting a connection between the parts.

At each end the heater is provided with a strip of graphitized iron or nickel *Y*, embedded in a layer *Z* of moistened graphite. On the under side of the heater opposite the strip of graphitized iron *Y* is located a strip of metal *a*. These two metal strips are secured in place by screws or bolts *b b'* passing through them and the heater. A rod *c* passes through these plates and through the strips and the heater, and is provided with a flat spring *d*, a nut *e* working on the threaded portion of the rod *c*.

Preferably the heater just described is inclosed in a receptacle *f*, of steel, having apertures *g* cut in the bottom thereof to admit of the passage of the rods *c* and springs *d* thereon, and is held in such receptacle by screwing the nut *e* against the bottom thereof. The object of this is to still further guard against breakage of the heater. The inside of the bottom of this receptacle is provided with a layer of insulating material *h*. A slide or cover *i*, which may be in the form of a grid, as shown, is preferably used, so that cooking utensils will not touch any part of the heater-plate. The casing *f* on its under side is provided with a rack-bar *j*, secured to it in any suitable manner. On the under side of the support *S* a horizontal shaft *k* is supported in

uitable bearings and carries a pinion *l* in position to engage with the teeth of the rack *j*. The shaft *k* is rotated by turning the crank *m*, and by its rotation causes the elevation of the receptacle *f* and heater in the heating-space of the stove. The heater and its receptacle are held at any desired elevation by means of a pin *n* on the crank *n*, which may be inserted in any of the series of holes *o*, the shaft *k* having a slight lengthwise play in its bearings, and the teeth of the pinion *l* being of sufficient width to permit of this play without disengagement from the rack *j*. The rack *j* and rods *c c* are of sufficient length to permit the heater and its receptacle, to which they are respectively attached, to be elevated to any required height in the heating-space of the stove without being withdrawn from the tubes *T*, *T'*, and *U*. It is obvious that the devices for conveying current to the heater and for elevating it might be applied directly to it instead of to the heater-receptacle.

Current is conveyed to the heater-plate by wires 1 2, running to the tubes *T T'*, and to the rods *C* by the springs *d*, pressing against the tubes, thus insuring good contact between said wires and said rods *C*, no matter what the elevation of the heater may be in the heating-space.

By the adjustment of the heater in the heating-space of the stove it is possible to reduce the size of such space when necessary, and therefore economize either current or time required for cooking. It will also be seen that it is possible to cook within the heating-space of the stove, as by placing the article to be cooked upon the grid *i* or upon a pan which may be placed on top thereof; and also it is possible to cook at the same time by inserting utensils through openings in the top of the stove. It will also be seen that by the construction above described it is possible to watch the progress of cooking within the heating-space without being obliged to open the doors thereof, allowing thereby the accumulated heat to escape.

The arrangement of the layer of non-conducting material between the walls of the stove permits the heating-space of the stove to become in fact a heat-storer, growing hotter and hotter while the current is on.

What I claim is—

1. The combination, in an electrical cooking-stove, of a casing, a movable electric heater located therein, an electric circuit, and means for maintaining the circuit in any position of the heater in the stove, substantially as set forth.

2. In an electrical cooking-stove, the combination of a casing, a vertically-movable electric heater located therein, mechanism for altering the position of said heater, and sliding contacts for maintaining the circuit, substantially as set forth.

3. In an electrical cooking-stove, the combination of a casing, an electric heater lo-

cated therein, a rack and pinion for elevating said heater in said stove, and means for holding said heater at any required height, substantially as set forth.

5 4. An electric heater for an electric cooking-stove, comprising a grooved base of fire-clay and a filling for said grooves of a refractory conducting material, substantially as set forth.

10 5. The heating resistance for an electrical cooking-stove, comprising a grooved backing of non-conducting material and a filling for said grooves composed of graphite, feldspar, and a glass-forming salt, substantially as set forth.

15 6. An electric heater for an electric cooking-stove, comprising a grooved backing of fire-brick and a filling of a material of low electrical conductivity placed in said grooves to near their tops, substantially as set forth.

20 7. An electric heater for an electric cooking-stove, comprising a backing of non-conducting material, a filling or facing of a material of low electrical conductivity, and a glazing for said conducting material, substantially as set forth.

25 8. A heating-conductor for an electric cooking-stove, composed of graphite, feldspar, a glass-forming salt, and oxide of iron, substantially as set forth.

30 9. In an electrical cooking-stove, the combination, with a casing and heater thereof, of an incandescent lamp located within said casing, and windows in said casing, substantially as set forth.

35 10. The combination, in an electrical cooking-stove, of a heater, a receptacle therefor provided with a layer of insulating material, and a grid located above said heating resistance on said receptacle, substantially as set forth.

40 11. A casing for an electric cooking-stove, provided with inner and outer metallic walls

and a thickness of heating insulating material between said walls, substantially as set forth. 45

12. A casing for an electric cooking-stove, provided with an inner metallic wall, an outer heat-insulating wall, said walls being broken for lids and doors, and said lids and doors being provided with corresponding layers of 50 metal and non-conducting material, substantially as described.

13. A casing for an electric cooking-stove, provided with an inner metallic wall and an outer heat-insulating wall, said walls being 55 broken for windows, and said windows having a mica pane on the inner wall and a slide on the outer wall, substantially as set forth.

14. In an electrical cooking-stove, the combination of a casing, a movable electric heater 60 located therein in close contact with the inner surface of the walls of said casing, an electric circuit, and means for maintaining the circuit in any position of the heater in the casing, substantially as set forth. 65

15. An electric heater for an electric cooking-stove, comprising a backing or platform of non-conducting material, a facing or filling of conducting material, and contacts for said conducting material of graphitized iron or 70 nickel embedded therein, substantially as set forth.

16. An electric heater for an electric cooking-stove, comprising a backing or platform of non-conducting material, a facing or filling 75 of conducting material, strips Y, embedded in layer Z of graphite, strips a, and bolts securing said strips in place, substantially as set forth.

This specification signed and witnessed this 80 1st day of October, 1889.

JOHN V. CAPEK.

Witnesses:

WILLIAM PELZER,
D. H. DRISCOLL.