G. A. HUGHES.

ELECTRICAL STOVE.

APPLICATION FILED APR. 14, 1915.

1,169,827.

Patented Feb. 1, 1916.

2 SHEETS—SHEET 1.

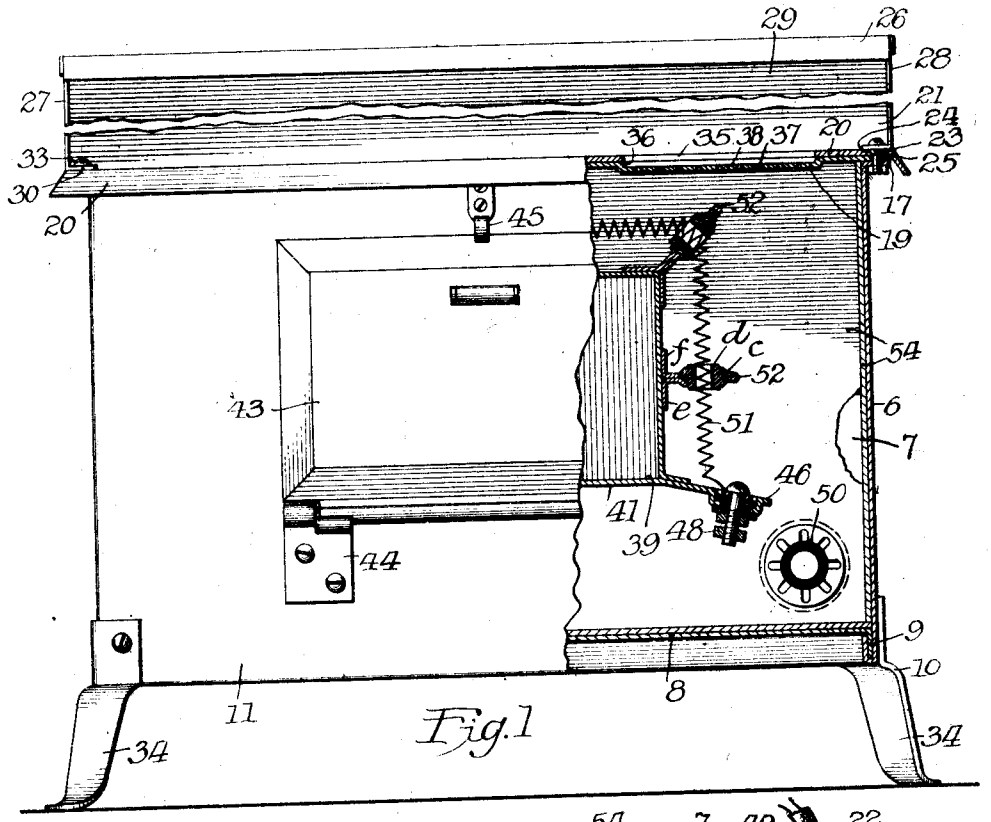


Fig. 1

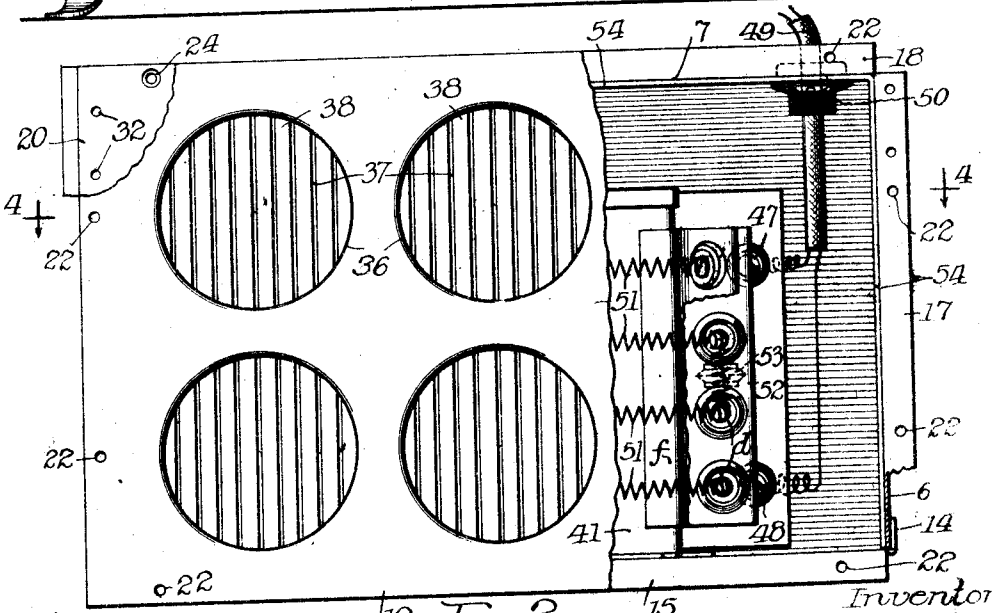


Fig. 2

Witnesses

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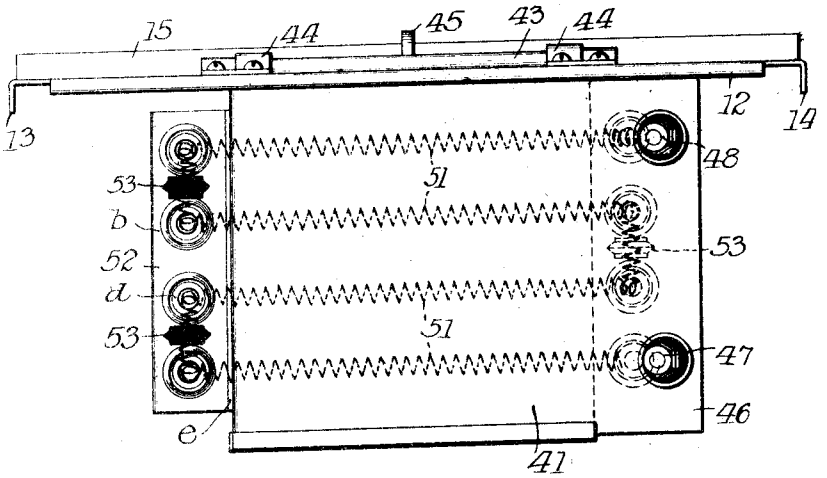


Fig. 3

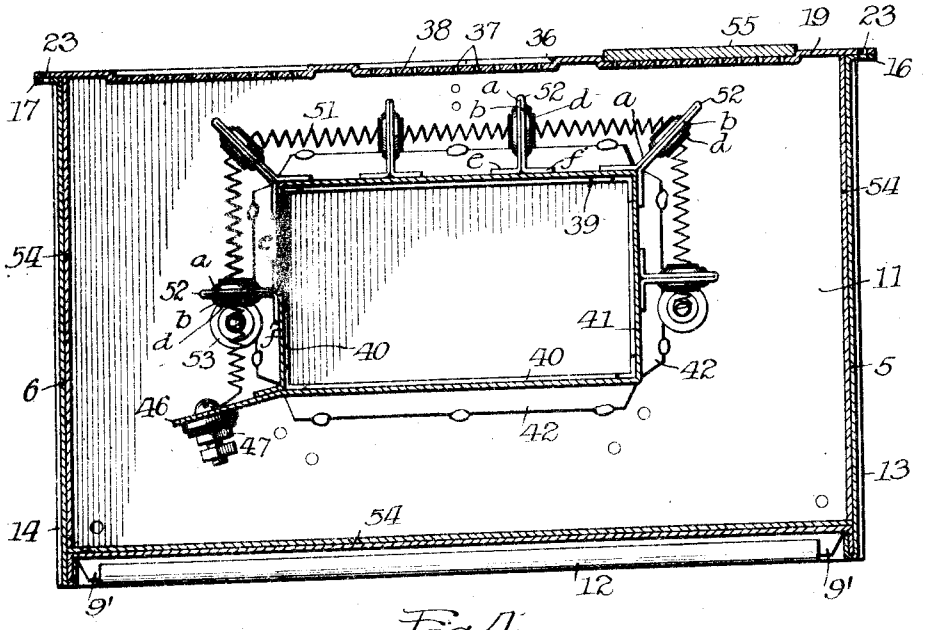


Fig. 4

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UNITED STATES PATENT OFFICE.

GEORGE A. HUGHES, OF CHICAGO, ILLINOIS, ASSIGNOR TO HUGHES ELECTRIC HEATING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ELECTRICAL STOVE.

1,169,827. Specification of Letters Patent. Patented Feb. 1, 1916.

Application filed April 14, 1915. Serial No. 21,204.

To all whom it may concern:

Be it known that I, GEORGE A. HUGHES, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electrical Stoves, of which the following is a specification.

My invention relates to electrical stoves and particularly to stoves of toy size which can be used with safety and efficiency by children and even older persons for cooking, baking, heating, etc.

Among the important objects of the invention are to produce a simple, light, inexpensive and durable stove of sheet metal stampings; to arrange for readily assembling the stampings to form the stove and to readily disconnect them in order that inspection and repairs may quickly be made; to provide improved conductor arrangement which will efficiently supply heat to the oven and to the stove top openings; and in general to provide a neat, useful and inexpensive stove of small size which can be used with safety by children and which will bake and cook as efficiently as an ordinary full-sized stove.

The various features of my invention are clearly illustrated on the accompanying drawings in which—

Figure 1 is a front elevational view of the stove with parts broken away to more clearly show the interior arrangement and construction; Fig. 2 is a top view with parts removed and broken away; Fig. 3 is a plan view of the front wall of the stove and the oven and heating mechanism supported therefrom, and Fig. 4 is a sectional view on plane 4—4, Fig. 2.

In the stove shown a piece of sheet metal is bent to form the sides 5 and 6 and the rear wall 7. Another piece of sheet metal is bent to form the base 8 with the downwardly extending peripheral flanges 9, the lower end of the sides 5 and 6 and the wall 7 being turned upwardly as indicated at 10 to receive the flange 9 on the bottom. For reasons which will appear later, the front wall 11 is made detachable and to this end its lower edge is turned upwardly to form a tongue or hook 12 for receiving the front flange 9′ extending from the bottom 8 (Figs. 1 and 4), such engagement securely holding the front wall in place at its lower end. At its sides the front wall has the rearwardly extending flanges 13 and 14 for engaging with the fronts of the side walls 5 and 6. At the top of the front wall is the forwardly extending horizontal flange 15 which, when the front is applied, lies in the same plane with similar top flanges 16 and 17 on the side walls 5 and 6 and the flange 18 on the rear wall 7, all these top flanges forming a seat for the top parts of the stove. As shown, these top parts comprise a hot plate 19, a top plate 20 and a canopy structure 21. The various top flanges 15, 16, 17 and 18 have holes 22 therethrough and the hot plate has adjacent its edge similar holes 23 while the top 20 is shown as having counter-sunk openings 24, these openings all registering for receiving rivets or bolts 25 by means of which the top, hot plate, and top flanges may be secured together. Thus when the front wall is hooked up at its lower edge against the bottom flange 9′ and the bolts 25 are applied, the front will be securely locked in place and all the parts will be securely held together and readily separable by removing the bolts. The canopy can be of the ordinary construction comprising the top 26, the sides 27 and 28 and the back 29, and in order to secure the canopy in place the lower ends of its side walls are turned in to form flanges 30 and 31 and these flanges are provided with suitable openings (not shown) for registering with openings 32 through the top 20 in order that bolts 33 may be inserted to secure the canopy in place over the back part of the top. The bolts 33 can of course also extend through registering openings in the hot plate and the top flanges 16 and 17. At the lower corners of the stove body suitable feet 34 are provided and are secured in any suitable manner. Where bolts are used for securing the various parts of the stove frame together, the stove can be more readily taken apart for more compact shipping or for inspection or repairs, but it is evident that instead of using bolts the various frame parts could be permanently secured together by welding.

The top plate 20 has any desired number of openings 35 and the hot plate 19 has registering opening sections 36, these sections being preferably deflected downwardly a distance as clearly shown in Fig. 1. The heating element, which will presently be described, is within the stove body and the

light from the incandescent wires is reflected through the stove openings. In order to give the stove more the appearance of the ordinary sized stoves in which individual heating units are set in the stove openings, the hot plate opening sections 36 are slitted as indicated at 37 to leave the parallel sections 38, and through these parallel slits the light from the heating element will shine and will give the same appearance as though individual heating elements were used with their parallel incandescent conductor sections. This barred arrangement of the openings will also afford safety in preventing accidental contact with or tampering with the heating conductors and circuits within the stove. The top plate 20 could of course be omitted and the plate 19 would then form the top of the stove but preferably both are used, the hot plate being of heavier material in order to assist in storing and distributing heat and the top being more ornamental and usually nickel-plated on top to give a neater appearance to the stove.

The front wall 11 has the rectangular opening 39 the sections of metal adjacent which are turned inwardly to form flanges 40. These flanges are received in the open end of a rectangular box 41 built up of sheet metal and having the lateral flanges 42 around its entrance for engaging against the back of the wall 11. This box 41 forms the oven to which access is had through the opening 39 in the wall 11 and the oven structure is securely supported from the wall 11 preferably by welding its flanges 42 to the wall 11 and by welding the flanges 40 to the oven structure sides. The opening 39 is adapted to be closed by a suitable door 43 which is hinged along its lower edge to the wall 11 as indicated at 44. A suitable spring catch 45 serves to hold the door in closed position.

The conductors for translating electrical energy into heat are all mounted on the oven structure. As shown, the lower wall of the oven structure is extended laterally a distance to form a supporting shelf 46 for the terminals 47 and 48, these terminals being adapted for connection with the supply cord 49 which is shown leading through a suitable insulating bushing 50 secured in the rear wall 7. Connected with the terminals is the resistance conductor 51 and this conductor may be arranged in any desired manner to give the necessary amount of resistance. As shown it extends only along the top and sides of the oven structure, and this is perhaps the most desirable arrangement as the oven is heated from the top which is best for baking purposes, and the stove top is heated from underneath, heat radiating directly upwardly through the slits in the hot plate and against the cooking utensils set over the openings, and some of the heat is conveyed to the hot plate and conducted therefrom to the utensils. On the stove structure I provide bushing holders 52 such as are described and claimed in my co-pending application Serial No. 9886, filed February 23, 1915. These bushing holders are each formed by bending and folding a piece of sheet metal along its middle line to bring the sides *a* and *b* together, the sheet metal being first perforated and deflected about the perforations to form pockets *c* after the folding operation and in which pockets suitable insulating bushings *d* are confined. The ends of the sides *a* and *b* are deflected outwardly to form seating flanges *e* and *f* which are secured to the oven structure wall preferably by welding. As shown, the frames are secured to the sides, top and top corners of the oven structure with their bushings in alinement and the conductor 51 passes from one terminal back and forth through the bushing rows to the other terminal to be thus in series with the current supply circuit. More terminals could of course be provided and the heating conductor separated into heat controlling sections, which by suitable switch mechanisms could be connected in various combinations with the supply circuit to give the desired amount of heat. However, to make the stove safer for children, the heating conductor is preferably in series with the supply circuit which is in the form of a cord 49 provided at its end with an ordinary socket which can be screwed into a convenient fixture. In order to insure insulation of the bends of the heating conductor, these bends are passed through insulating bushings 53, these bushings preventing contact of the conductor with the sheet metal supports.

The stove structure I have described above is very simple and compact but very strong and light, no castings being required as all the parts can be readily stamped and formed up from sheet metal by simple die operations. The oven structure being supported on the front wall 11 which is readily detachable, the heating conductor can be very readily applied thereon and at any time, by merely loosening the bolts, the front wall with the oven structure can be removed and inspection and repairs can quickly be made. The heat is very uniformly and efficiently distributed, the oven receiving heat from the top, which is best for baking, and the heat also passing upwardly to the hot plate and through the slits to the cooking utensils, and very little heat is wasted. In order to effect further heat insulation the stove body may be lined by suitable heat insulating material 54 such as asbestos. As before stated, the slitted sections of the hot plate are depressed and this is mainly for the purpose of forming pockets for receiving lids

for closing off the stove openings as desired. I do not of course desire to be limited to the exact construction and arrangement shown and described as modifications are no doubt possible which would still come within the scope of the invention, and

I claim as follows:

1. In an electrical stove, the combination of a body comprising front, rear, side and bottom walls, the front wall having an opening, an oven structure secured to the front wall and extending into the body and having an inlet in registration with said front wall opening, a door on the front wall for closing the oven structure, a plate mounted on the tops of said walls and having circular utensil sections, said sections being perforated for the passage of light and heat, and a resistance conductor within said body mounted on the oven structure and adapted for connection with a current supply circuit, the heat from said resistance conductor passing through the walls of the oven structure to the interior thereof and passing upwardly through said utensil section perforations.

2. In an electrical stove, the combination of a stove body comprising side, rear and bottom walls, a downwardly extending flange formed at the front of said bottom, a front wall having an upwardly directed tongue at its bottom for hooking around said flange for securing the bottom of said front wall to the bottom, and a top for said stove adapted to be secured to the front wall to hold the top thereof in place.

3. In an electrical stove, the combination of a rectangular body having utensil openings in its top, an oven structure within the body accessible from the exterior of the body, and uncovered heating conductors at the outside of the oven structure for heating the interior thereof, there being considerable air space between said oven structure and the stove body for circulation whereby part of the heat generated by said heating conductors will be carried through said utensil openings.

4. In an electrical stove, the combination of a rectangular sheet metal body having utensil openings in its top, a sheet metal oven structure within the body and accessible from the exterior thereof, electrical heating conductors surrounding said oven structure ad spaced therefro mand from the utensil openings to apportion the generated heat between said oven and said openings.

5. In an electrical stove, the combination of a rectangular sheet metal body having utensil openings at its top and an opening in one of its sides, a rectangular sheet metal oven structure within the body having an open side communicating with said body side opening, said oven structure being considerably smaller than the body in order to leave considerable intervening air space, and uncovered resistance conductors mounted on the outside of said oven structure, said conductors being spaced from the oven walls and from said utensil openings to apportion the generated heat between them.

6. In an electrical stove, the combination of a body having utensil openings in its top, an oven structure within the body, and a common electrical heating element at the outside of said oven for supplying heat to said oven and to said openings.

In witness whereof I have hereunto set my hand this 10th day of April, A. D., 1915.

GEORGE A. HUGHES.

Witnesses:

LURLINE BULLWINKEL,

EMILIE ROSE.