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D. W. MORPHY ET AL
ELECTRIC TOASTER

2,659,297

Original Filed Dec. 5, 1949

2 Sheets-Sheet 1

FIG. 1.

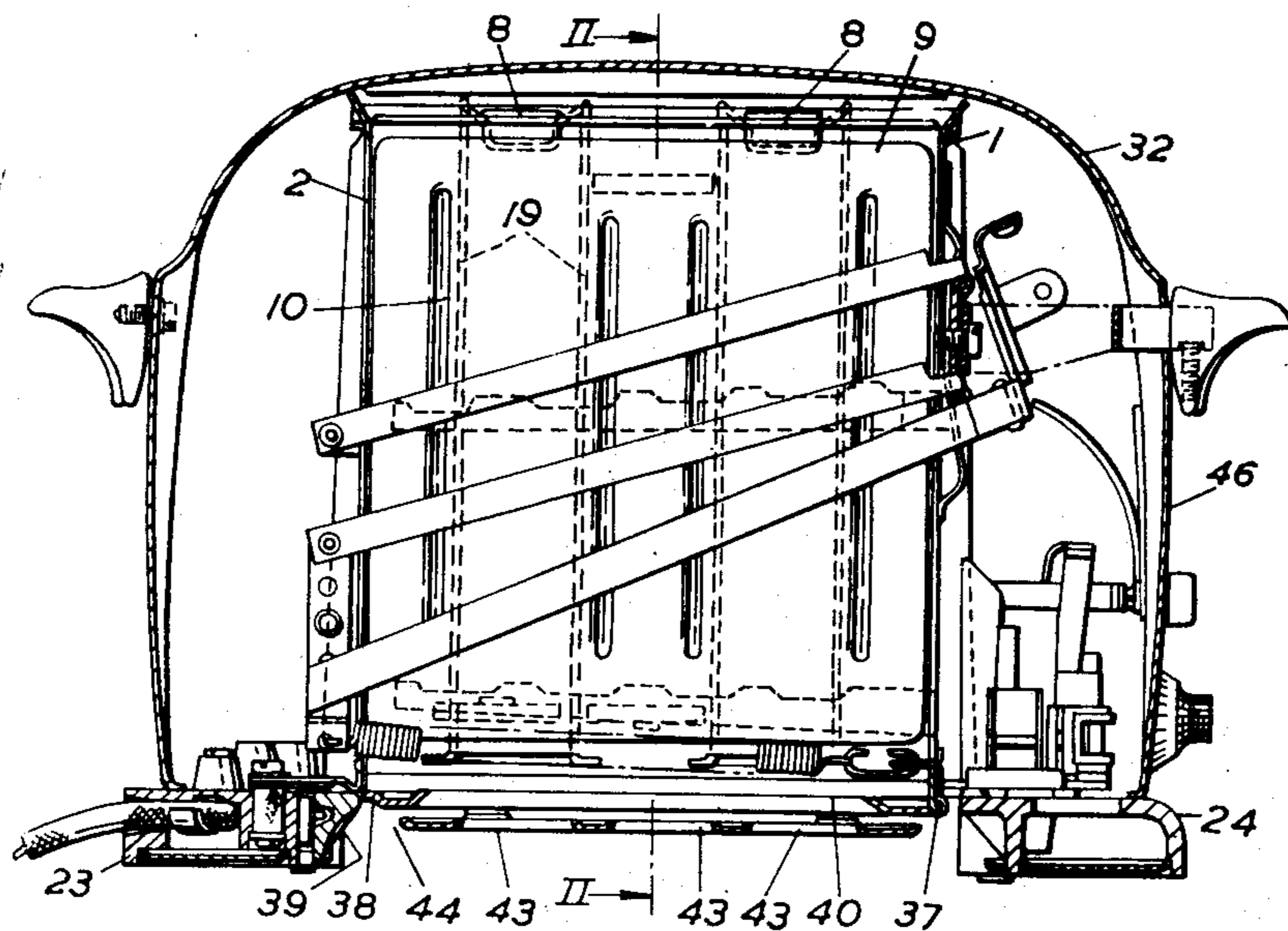
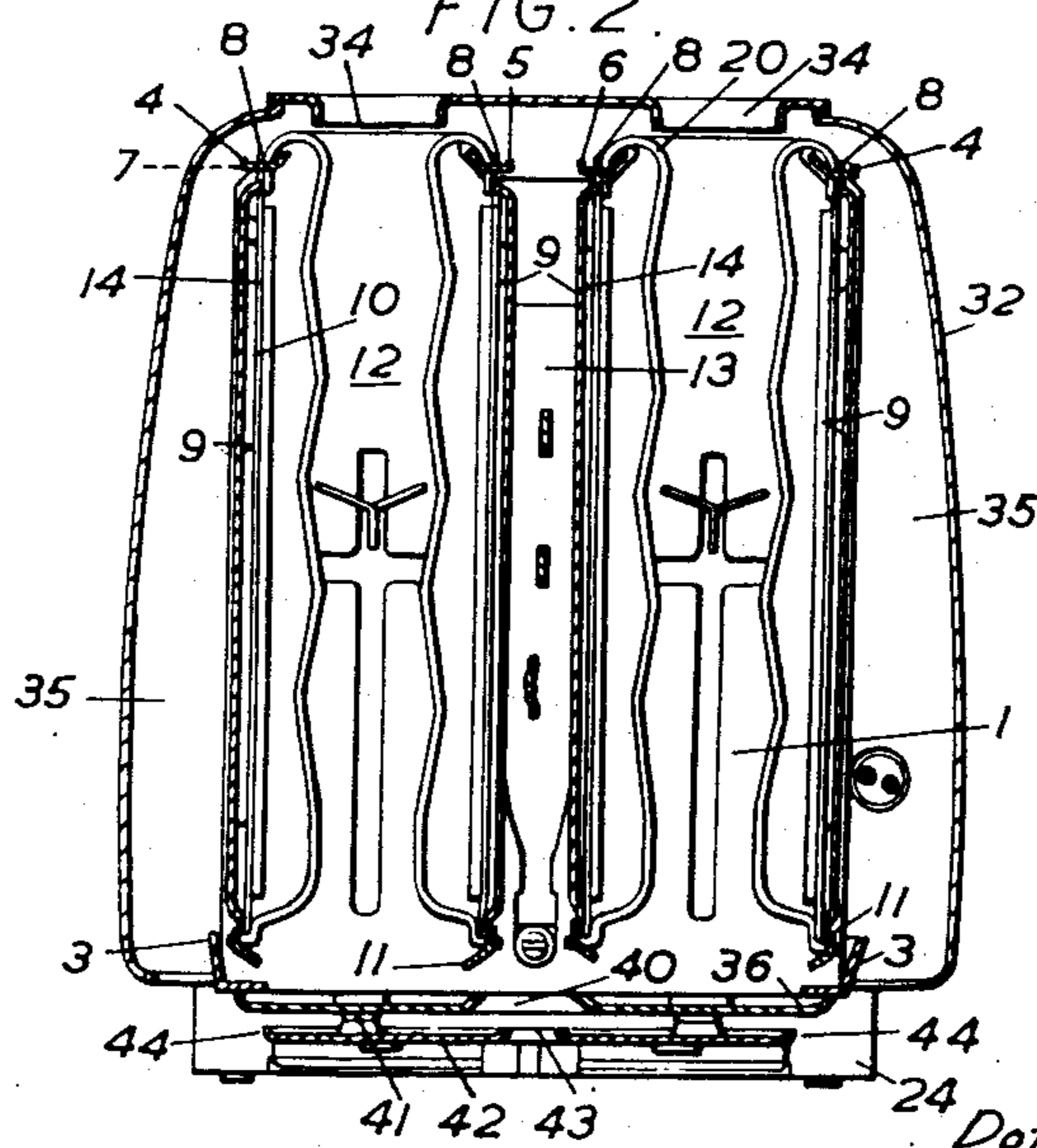


FIG. 2.



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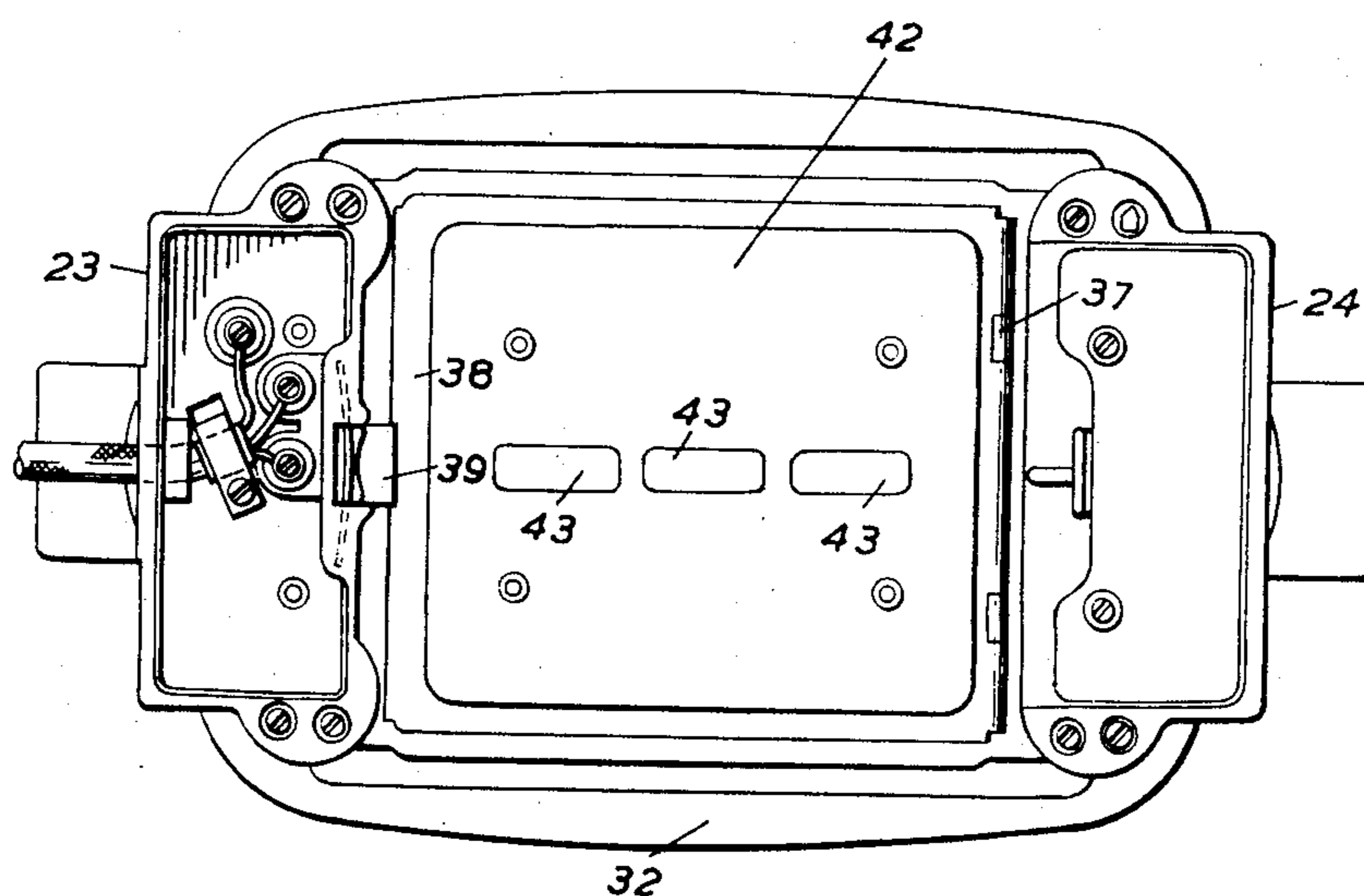
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FIG. 3.



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UNITED STATES PATENT OFFICE

2,659,297

ELECTRIC TOASTER

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Original application December 5, 1949, Serial No. 131,226. Divided and this application December 18, 1950, Serial No. 201,298

Claims priority, application Great Britain December 7, 1948

5 Claims. (Cl. 99—400)

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This application is a division of applicant's prior application Serial Number 131,226, filed December 5, 1949 and which has resulted in Patent No. 2,641,993.

This invention relates to crumb-trays or under-trays for electric toasters and like appliances and of the kind having one or more air supply openings or slots therein through which a flow of air is induced, by convection, to the interior of the appliance, for example to a central chimney separating two toasting chambers.

Such trays are usually of metal so that they tend to radiate heat downwards on to the table or other supporting surface which may thus be damaged, and the present invention has for its object to obviate or reduce this risk.

A tray according to the invention comprises an upper part or tray having one or more air supply openings therein, and a lower part or table shield extending beneath the tray, one or more lateral air inlet openings being provided through which air can enter and flow between the tray and shield towards, and transversely to the direction of flow through, the supply opening or openings. Thus, the air entering through the lateral inlet opening or openings tends to cool both the tray and shield and thus to limit radiation to the table or other supporting surface.

The invention may be carried into practice in various ways but one embodiment, as applied to an electric toaster, is shown by way of example in the accompanying drawings, in which

Figure 1 shows the toaster in longitudinal section,

Figure 2 is a section on the line II—II of Figure 1, and

Figure 3 is a bottom plan of the toaster.

In the construction shown in the drawings, the toaster comprises a metal frame having two plate-like vertical end walls, 1, 2 secured at their lower ends to two foot-strips 3, and at their upper ends to two longitudinal side strips 4 and two intermediate ties 5, 6. The side strips 4 and intermediate ties 5, 6 are mutually parallel and horizontally spaced apart with the two intermediate ties 5, 6 lying somewhat nearer to each other than to the side strips 4, as shown in Figure 2.

Each tie 5, 6 and side strip 4 is provided with two elongated slots 7 longitudinally spaced apart in the strip and in which engage two tongues 8 at the upper edge of a metal reflector plate 9 having a plurality of vertical flutes or ribs 10 indented therein and a flange 11 along its lower

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edge. Three chambers are thus formed, namely two outer or toasting chambers 12 and a central mechanism chamber or "chimney" 13 (Figure 2). Lying spaced from the reflecting sides of the plates 9 are four mica formers 14 carrying heating elements, each toasting chamber 12 being thus bounded on two sides by two of the toasting elements respectively.

The four ends of the foot strips 3 are secured to two blocks 23, 24 of insulating material which form the two feet of the toaster and a hood 32 formed of sheet metal fits over the metal frame, as shown in Figures 1 and 2 and is furnished at its lower edge with inwardly directed lugs whereby the hood 32 is secured to the two feet 23, 24. The upper surface of the hood 32 is provided with two elongated openings 34, which register respectively with the two toasting chambers 12, a clearance 35 being provided between the metal frame and the hood 32 all round so that air can flow not only up through the chimney 13 and thence out through the elongated slots 34, but also between the inner surface of the hood 32 and the non-reflecting surfaces of the outermost reflector plates 9, to the said slots. The hood 32 is thus always maintained at a temperature sufficiently low to allow handling without discomfort.

Arranged beneath the metal frame is a crumb tray 36 hinged at 37 and having a flange 38 for cooperating with a spring-loaded releasable stop 39. The crumb tray 36 is provided with a central elongated slot 40 so that cooling air can flow through the said slot 40 and upwards through the chimney 13 to be discharged through the slots 34. Secured by studs 41 to the lower surface of the crumb tray 36 is a table shield 42 having apertures 43 which register with the central slot 40 in the crumb tray 36. When, therefore, the pivoted crumb tray is in the closed position (as shown in Figures 1 and 2) air can flow upwards through the slots 43 in the table shield 42 and thence through the slot 40 in the crumb tray to the chimney 13, this vertical draught inducing an inward flow of air all round at 44 between the edge of the table shield 42 and the crumb tray 36. It will be seen from Figures 1 and 2 that the edges of the openings 40 and 43 as also the outer edges of the tray 36 and shield 42 are upwardly curved or deflected so as to tend to prevent crumbs being spilt from the tray and shield on to the table beneath.

When, therefore, the toaster is in operation, air will flow vertically through the openings 43 formed in the shield 42 and thence directly

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through the opening 40 in the upper part or tray 36, this vertical air flow inducing a horizontal flow through the clearance or lateral air inlet openings 44 between the tray 42 and shield 36. It will thus be apparent that in addition to the cooling of the hood 32 itself, as above described, the table or other supporting surface for the toaster is protected by the shield 42 against damage from radiant heat.

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

1. An electric toaster having an outer casing open at its bottom, supporting means for said casing separating it from the surface upon which the roaster rests, at least two toasting chambers within the casing separated by a vertical chimney space also open at its bottom, a food support and a heater in each toasting chamber and a crumb tray releasably carried by said supporting means extending horizontally beneath the openings in said casing and chimney space but above the lower extremity of the supporting means, said crumb tray comprising two vertically spaced plates permanently secured together and imperforate beneath said toasting chambers, but having an aperture in at least the uppermost plate directly beneath the chimney space, the space between the plates having direct communication at its edges with the exterior of the casing so that cooling air from outside said casing may be convectively drawn between said plates and up through said aperture in the uppermost plate to cool said plates and thereby prevent heat damage to the surface upon which the toaster rests.

2. A toaster as claimed in claim 1 in which the lowermost plate of the crumb tray has an opening directly beneath the aperture in the upper plate.

3. An electric toaster comprising a casing open at its lower end, supporting means for said casing separating it from the surface on which the toaster rests, at least one vertical partition in said casing dividing the interior of said casing into a chimney and at least one toasting chamber, said chimney and said toasting chamber

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being open at both their upper and their lower ends, a food support and a heater in said toasting chamber, a crumb tray extending substantially horizontally beneath the open lower end of said casing and releasably supported by said supporting means so as to be spaced from the surface on which the toaster rests, said crumb tray comprising two superimposed plates permanently secured together in spaced relationship, the upper of said plates having an aperture therein directly beneath the open lower end of said chimney but being imperforate below said toasting chamber, the space between the plates having direct communication at its edges with the exterior of the casing so that cooling air from outside said casing may be convectively drawn between said plates and up through said aperture in the uppermost plate to cool said plates and thereby prevent heat damage to the surface upon which the toaster rests.

4. A toaster as claimed in claim 3 in which the lowermost plate of the crumb tray has an opening directly beneath the aperture in the upper plate.

5. A toaster as claimed in claim 3, in which the upper plate of the crumb tray is formed with an upturned rim at its periphery and at the periphery of the aperture therein.

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