July 25, 1939. F. L. RENGA 2,167,489

ELECTRICAL APPLIANCE HINGE

Filed May 23, 1938

FIG. 1.

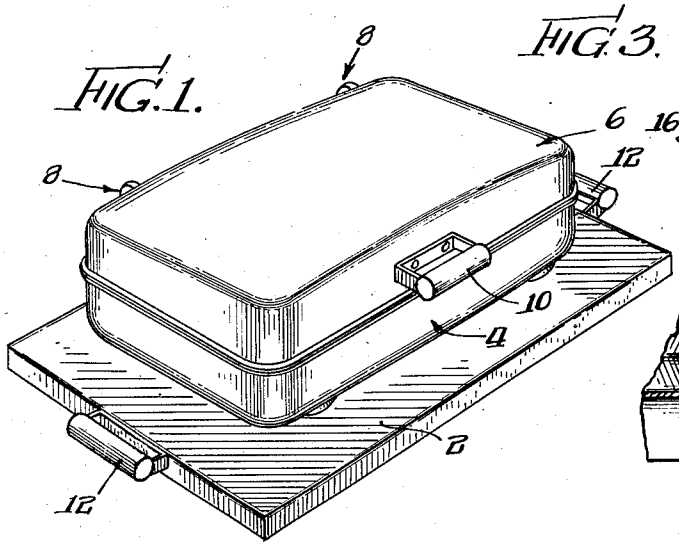


FIG. 3.

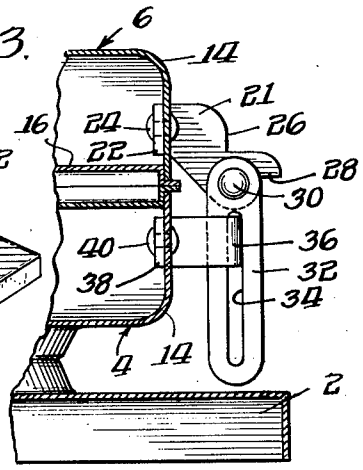


FIG. 2.

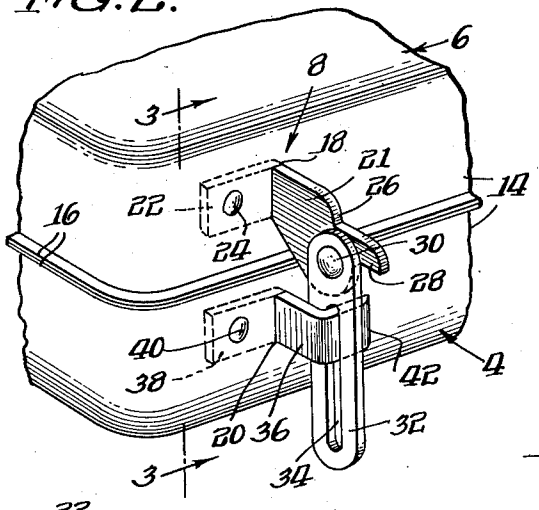


FIG. 4.

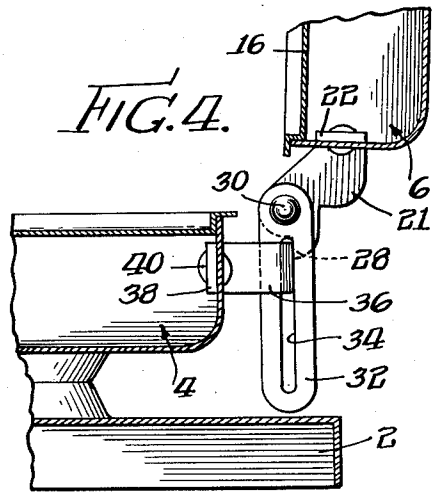


FIG. 5.

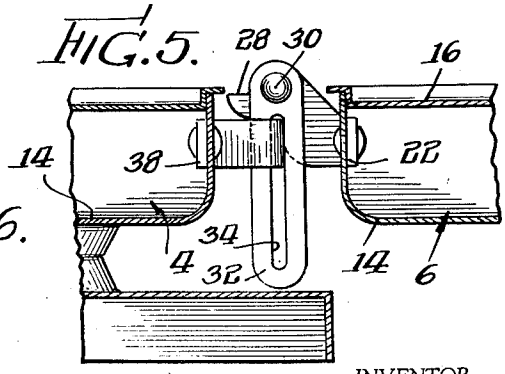
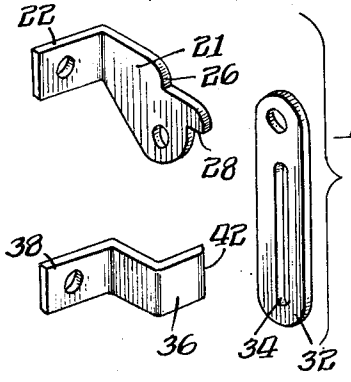


FIG. 6.



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ELECTRICAL APPLIANCE HINGE

Fernando L. Renga, Chicago, Ill., assignor to Chicago Electric Manufacturing Company, Chicago, Ill., a corporation of Illinois

Application May 23, 1938, Serial No. 209,480

6 Claims. (Cl. 16—179)

This invention relates to an electrical heating appliance, and particularly to a sandwich toaster or waffle iron.

An object of the invention is to provide in an electrical heating appliance, and particularly a sandwich toaster or a waffle iron, a simple and inexpensive hinge permitting ready manipulation of one of the heating sections relative to the other from a closed position to a position at right angles thereto and to an inverted position wherein the sections are substantially parallel and lie in a common plane, and wherein the hinge provides a strong support for the movable section in each of said positions.

A further object of the invention is to provide a hinge of the above stated character which shall be self-adjustable to accommodate sandwiches or other articles of variant thicknesses.

Applicant's invention also contemplates the provision of hinge means which will prevent movement or shifting of the sections parallel to each other while at the same time permitting one of the sections to be moved from a closed position relative to the other to a position at right angles thereto and to an inverted position wherein the sections are parallel and lie in a substantially common plane, the hinge means being so designed as to support the movable sections in each of said positions.

A further object of applicant's invention is to provide hinge means of the above stated character, which, by reason of its construction, occupies a small amount of space and may therefore be used to hingedly connect the sections of a low mounted type of electrical heating appliance.

Other and further objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawing, wherein:

Fig. 1 is a view in perspective of a low mounted type of electric sandwich toaster embodying the invention.

Fig. 2 is a perspective view of one rear corner of the toaster of Fig. 1 and showing the hinge means in association with said sections.

Fig. 3 is a fragmentary view in vertical elevation taken substantially along the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 3 but showing one heating section disposed at right angles to the other.

Fig. 5 is a view similar to Figs. 3 and 4 but showing the movable section in inverted position.

Fig. 6 is an exploded view in perspective of the elements of the hinge.

The hinges employed for joining the two sections of electrical heating appliances such as sandwich toasters are subject to a number of objections and possess a number of disadvantages or defects which it is the object of this invention to overcome. For example, such hinges become easily warped or twisted, making it difficult or impossible to open the sections a proper amount or to place the movable section into the several positions for which the hinge was originally designed.

Projecting lugs or tabs are frequently employed but in the prior devices were limited to such a size that after a relatively short period of use they become broken or bent and incapable of performing their function in holding the movable section in the several positions relative to the stationary section.

Furthermore, known hinges for this purpose permit the movable section to be shifted in the plane parallel to the stationary section, which movement not only permits misalinement of the sections when they should be alined, as during toasting, but also permits the application of lateral forces to the somewhat fragile shells of the two sections, which causes buckling and warping of the sections and in some cases causes a breaking of a hinge element from one of the sections.

These and other disadvantages of known hinges are overcome or avoided by the hinge of applicant's invention, which is strikingly simple and inexpensive from a manufacturing standpoint, rugged in character, and readily attachable to the heating appliance.

As shown in Fig. 1, the electrical heating appliance is of the low mounted type having a substantially flat base 2 supporting a bottom heating portion 4 and an upper or movable heating section 6 connected to the lower or stationary heating section by hinge means 8 disposed along the rear of the toaster and adjacent opposite ends thereof. The upper heating section 6 carries a handle 10 for moving said section into its several positions and the base 2 is provided at its opposite ends with handles 12 for lifting the toaster.

Each of the heating sections comprises a hollow or pan-like shell 14 in which is mounted a pan, griddle or waffle plate 16 and the usual heating element or means (not shown).

The hinge means 8 comprises an upper hinge element 18 and a lower hinge element 20, the upper hinge element comprising a bracket having an arm 21 extending through a suitable slot

in the shell 14 of the section 6 and a right angularly bent foot 22 extending along the inner surface of the shell 14 and secured to said shell in any suitable manner, preferably by a rivet 24. The arm 21 of the bracket is cut away to provide a shoulder 26, a finger or lug 28, and is apertured to receive a pivot pin or stud 30. A plate or strap 32, having a longitudinally extending slot 34 is pivotally connected to the pin 30. A bottom edge of the arm 21 is inclined downwardly away from the foot 22 so that the center of the pivot stud 30 will lie substantially in the plane passing through the meeting edges of the sections 4 and 6.

The lower hinge element 20 comprises a bracket having an arm 36 passing through a suitable slot in the shell 14 of the lower section 4 and a right angularly bent foot 38 extending along the inner surface of said shell and secured thereto in any suitable manner, as for example by a rivet 40. The arm 36 is bent intermediately to provide a portion 42 extending at right angles to the remainder of the arm and substantially parallel to the rear face of the shell 14 of the lower section. When in assembled relation the end portion 42 extends through the slot 34 in the plate or strap 32 and limits the vertical movement of the section 6 relative to the section 4. When the upper or movable section 6 is swung about the hinge pins 30 of the pair of hinge means 8, the finger or lug 28 of each upper hinge element engages the outer face of the portion 42 of each lower hinge element which extends beyond or inwardly of the plate or strap 32 and supports the upper section in this position.

In order to move the upper section from this substantially right angled position to a fully inverted position wherein the upper section lies substantially in a common plane with the lower section, as shown in Fig. 5, the upper section is first lifted so that the fingers 28 of the spaced hinge means clear the portions 42 of the lower hinge elements 20, and is then swung about the pivot pins 30 into such position that the shoulder 26 of each hinge means engages the rear face of the portion 42 of the hinge element 20. Since the weight of the upper section tends to rotate it clockwise from this position, the portions 42, in engaging the shoulders 26, offer a relatively rigid support for the upper section.

In order that the upper section, when moved to its inverted positon, may lie in a substantially common plane with the lower section, the shoulder 26 of each upper hinge element preferably extends parallel to the rear edge or face of the shell 14 of the upper section and the portion 42 of each lower hinge element preferably extends parallel to the rear edge or face of the shell 14 of the lower heating section.

The face or edge of the finger or lug 28 which engages the portion 42 of the lower hinge element preferably extends outwardly in a plane above the horizontal plane through the axis of the pivot pin 30 as seen in Fig. 3. Therefore, when the finger 28 engages the portion 42, the upper section 6 will have been moved a slight distance beyond the exact position at right angles to the lower heating section so that the weight of the upper heating section, acting through the finger 28 against the lower hinge element, will tend to maintain the upper section in this position.

The width or height of the portion 42 in the vertical direction is sufficiently great to substantially prevent any tilting or swinging of the plate or strap 32 on the lower hinge element and consequently prevent shifting of the upper section backwardly and forwardly relative to the lower section, but is of such value in relation to the length of the slot 34 in said strap or plate 32 that the upper section may be moved or positioned vertically a sufficient distance above the lower section to accommodate a sandwich, waffle or other article of the maximum thickness for which said appliance might reasonably be called upon to accommodate.

It will be seen from Fig. 4 that when the upper section 6 is pivoted about the pins 30, the inner edge of each finger or lug 28 engages the outer face of the laterally directed portion 42 of each lower hinge element 20, thereby retaining the upper section in a position substantially at right angles to the lower section 4 but slightly greater than an exact right angle in order that the weight of the upper section may retain it in such position.

In order to move the section 6 from the position shown in Fig. 4 to the inverted position shown in Fig. 5, the upper section is moved vertically to release the finger 28 of each upper hinge element from the portion 42 of each lower hinge element and is then rotated about the pivot pins 30 to the inverted position, in which position the shoulder 26 of each hinge engages the outer face of the laterally directed portion 42 of each lower hinge element to limit the movement of the upper section and to retain the upper section in a position lying in a substantially common plane with the lower section.

It will be seen from the foregoing description that applicant has provided a simple and inexpensive hinge means which will prevent movement of the sections parallel to each other while at the same time permitting one of the sections to be moved from a closed position relative to the other to a position at right angles thereto and to an inverted position wherein the sections are parallel and lie in a substantially common plane, the hinge means being so designed as to support the movable sections in each of said positions.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. In a hinge construction for an electric heating appliance comprising a pair of heating sections, said hinge means comprising a bracket adapted to be secured to each of said sections and a slotted member receiving one of said brackets and pivotally connected to the other of said brackets for maintaining said sections in parallel relation during raising of one section relative to the other and for permitting swinging of said sections relatively, the slot engaging bracket having a flat elongated wall section engaging within said slot over a substantial longitudinal portion of said slot to prevent relative rotation of the slotted element with respect thereto, whereby to provide a hinge construction properly alining said sections in predetermined closing relationship at all times.

2. In a hinge construction for an electric heating appliance comprising a pair of heating sections, said hinge means comprising a bracket adapted to be secured to each of said sections and a slotted member receiving one of said brackets and pivotally connected to the other of said

brackets for maintaining said sections in parallel relation during raising of one section relative to the other and for permitting swinging of said sections relatively, and means associated with one of said brackets for engaging the other of said brackets to hold the sections in a position substantially at right angles to each other, the slot engaging bracket having a flat elongated wall section engaging within said slot over a substantial longitudinal portion of said slot to prevent relative rotation of the slotted element with respect thereto, whereby to provide a hinge construction properly alining said sections in predetermined closing relationship at all times.

3. In a hinge construction for an electric appliance comprising a pair of heating sections each adapted to contain a heating element, a heated element and a shell enclosing said heating element and supporting the heated element, said hinge means comprising a bracket having a pair of arms substantially at right angles to each other and a second bracket having a central portion and opposite end portions extending substantially at right angles to said central portion, means for securing the first bracket to the shell of the upper section, means for securing the second bracket to the shell of the lower section, a slotted member pivotally secured to the first bracket and slidably receiving one end portion of the other bracket, said first bracket having a lug extending beyond said slotted member in one direction to engage an end portion of the second bracket and maintain the upper section in a position substantially at right angles to the lower section, and said first bracket having a portion forming a shoulder extending beyond said second bracket in a direction substantially at right angles to the engaging edge of said lug to engage the said end portion of said second bracket and retain the upper section in an inverted position substantially in a common plane with the lower section.

4. In a hinge construction for an electric heating appliance comprising a pair of heating sections, said hinge means comprising a bracket adapted to be secured to each of said sections and a slotted member receiving one of said brackets and pivotally connected to the other of said brackets for maintaining said sections in parallel relation during raising of one section relative to the other and for permitting swinging of said sections relatively, and means associated with one of said brackets for engaging the other of said brackets to hold the sections in a position substantially at right angles to each other, said slotted member being disposed in a substantially vertical plane and being retained against tilting by the bracket received therein whereby said holding means may be released by vertically shifting the movable section, the slot engaging bracket having a flat elongated wall section engaging within said slot over a substantial longitudinal portion of said slot to prevent relative rotation of the slotted element with respect thereto, whereby to provide a hinge construction properly alining said sections in predetermined closing relationship at all times.

5. In a hinge construction for an electric heating appliance comprising a pair of heating sections, said hinge means comprising a bracket adapted to be secured to each of said sections and a slotted member receiving one of said brackets and pivotally connected to the other of said brackets for maintaining said sections in parallel relation during raising of one section relative to the other and for permitting swinging of said sections relatively, and means associated with one of said brackets for engaging the other of said brackets to hold the sections in a position substantially at right angles to each other, the bracket to which said slotted member is secured being provided with means to engage the other bracket to support the movable section in an inverted position substantially parallel to the other section, the slot engaging bracket having a flat elongated wall section engaging within said slot over a substantial longitudinal portion of said slot to prevent relative rotation of the slotted element with respect thereto, whereby to provide a hinge construction properly alining said sections in predetermined closing relationship at all times.

6. In a hinge construction for an electric appliance comprising a pair of heating sections each adapted to contain a heating element, a heated element and a shell enclosing said heating element and supporting the heated element, said hinge means comprising a bracket having a pair of arms substantially at right angles to each other and a second bracket having a central portion and opposite end portions extending substantially at right angles to said central portion, means for securing the first bracket to the shell of the upper section, means for securing the second bracket to the shell of the lower section, a slotted member, said slotted member being pivotally secured to said first bracket for movement about an axis lying in a plane with the meeting edges of said sections, said slotted member slidably receiving an end portion of the other bracket, said first bracket having a lug extending above said plane and beyond said slotted member in one direction to engage an end portion of the second bracket and maintain the upper section in a position substantially at right angles to the lower section, and said first bracket having a portion forming a shoulder extending beyond said second bracket in a direction substantially at right angles to the engaging edge of said lug to engage the said end portion of said second bracket and retain the upper section in an inverted position substantially in a common plane with the lower section.

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