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Ejector grating for electric toaster.

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Description

OBJECT OF THE INVENTION

The present invention relates to a grating for an electric toaster, which grating fulfills its conventional purpose as such and acts as ejector element for the pieces of toast, thereby to simplify the toaster's structure, and to provide an enhanced operative reliability.

BACKGROUND OF THE INVENTION

It is a known fact that household toasters are provided with an ornamental housing within which is fitted a support upon which two fixed grids or gratings are assembled, with the same number of resistors and reflective shields being located right outside, for a vertical space to be provided between both grids for insertion of the slice or slices to be toasted, the bottom thereof comprising an ejector plate, having springs urging the same upwards and held in the lower position during toasting by an electric magnet acting upon a metal core purposely provided on the said ejector plate, the electric magnet's action ceasing for the plate to be released, once the set toasting time is up.

Swiss Patent CH- 499.302 is known, which relates to an electric toaster provided with two vertical supports for supporting the toasts, the supports having broken shape for improving said support, at one of its sides being fastened by means of two parallel parts on which parts two holes are provided in connection with a vertical bar for sliding.

British Patent GB- 1.573.012, envisages the realization of the slice supports with a sinusoidal shape in such a way that, laterally and as lateral support of the slices, fixed supports are arranged which on their lower part are provided with certain angle zones projected towards the inner part of the established hole and which are used as toast support when the vertical support comes down.

DESCRIPTION OF THE INVENTION

The ejector grating subject hereof basically has the structure of a conventional electric toaster, allowing the said ejector plate to be eliminated, with the grating as such acting as ejector for the slices of toast.

More specifically, and in order to achieve the above, the lower end of each of the two grids making up the grating has a bar, after which such grid bends obtusely towards the other, the ends of such bars extending through the likewise end walls of the support, for said bars to play in slotted holes allowing vertical displacement of the grating for the grating to fulfill its ejecting purpose.

At one of the ends thereof, the pair of bars in the two grids making up the grating, outside the support, are fixed to a support outside the toasting chamber, which support can slide vertically along a guide or column, with the assistance of a spring provided between the said auxiliary support and the main toaster support, urging the former up, and having a metallic body in order for the classic electric magnet to act holding the same at the lower limiting toasting position.

Furthermore, as another characteristic of the invention, the two grids making up the grating gradually close upon each other as they move down, so that in the lower limiting position such grids clamp the slices to be toasted, the said lateral swinging movement being attained due to the provision, by each of the aforesaid bars and right outside one of the general support's end walls, of a rising arm, bent at its free end that rests upon the relevant edge of an inverted isosceles trapezial slide, the arms in the two bars being related to each other by means of a transverse spring that tends to hold the bends in such arms in close contact with the side edges of the slide, thereby, as the grids go down, for their respective arms to swing closer, the said grids undergoing the said gradual swinging movement in the direction of approximation therebetween.

The provision of a spigot has also been foreseen close to the lower end of this slide, blocking downward displacement of the transverse spring when the grids are being lowered, thereby to further deform the said spring at the terminal downward stage of the grating, thus clamping the same more tightly around the slices to be toasted.

DESCRIPTION OF THE DRAWINGS

In order to provide a fuller description and contribute to the complete understanding of the characteristics of this invention, a set of drawings is attached to the specification which, while purely illustrative and not fully comprehensive, shows the following:

Figure 1.- Is a perspective view of an electric toaster, without its housing, but provided with the ejector grating subject hereof.

Figure 2.- Is a transverse sectional detail of the assembly of the previous figure, showing the two limiting positions for the grating, the dotted line showing one of the wedge-life slides.

PREFERRED EMBODIMENT OF THE INVENTION

In light of these figures, it can be seen that an electric toaster with the ejector plate subject hereof comprises, as any toaster of this sort, a grooved
support (1), with a single or double opening at the top for insertion of the slices to be toasted, and with the ends closed by means of respective covers (3), designed to be housed and fitted within the relevant housing, that does not appear in the drawings, the lateral walls (1) of this support acting as reflective shields for two resistors provided right inside the same and that are obviously there to generate the heat required for the slices to be toasted, within the set time.

Now then, from this basic and conventional structure, the grating subject hereof is essentially characterised in that its structure is formed by two travelling grids (4-4'), each of which forms a dihedral having a substantially obtuse angle, as specifically shown in figure 2, a bar (5-5') being provided at the edge of the respective dihedrals, which bars pass through the end covers (3) in the general support and may travel vertically, just like the grids, along vertically slotted holes (6) purposely provided in such covers (3).

While one of the ends of these bars (5) only projects from the cover (3) to the necessary extent for guiding thereof, the other does so considerably more to receive an auxiliary support (7) relating both bars (5-5'), as shown in figure 1, this auxiliary support (7) being provided with a neck (8) that is sufficiently wide as to ensure that vertical displacement of the assembly is perfectly guided on a column (9) provided between the upper base (10) forming part of the housing and an upper wing (11) that in turn forms part of the main support, a spring (12) being moreover provided between this wing (11) and the auxiliary support (7) urging the grating to take up the upper limiting position outlined in figure 2 and represented by the upper end of the slotted hole (6) in the covers (3).

A metal body, that is not shown in the figures, is duly fixed to the auxiliary support (7), subject to the action of a classic electric magnet, which is not shown in the figures either, in order to hold this travelling assembly in the lower limiting position, when the relevant external control lever is operated and for the set toasting time, at the end of which the electric magnet is energized and the auxiliary support (7) is free to move up the guide (8) taking with it the grids (4-4'), by action of the said spring (12).

Furthermore, as another characteristic of the invention, and as is also shown in figure 2, the grids (4-4') making up the grating grow closer to each other at the upper ends thereof, as they move down into the main support (1), to which end the bars (5-5') are integrally provided at their outermost end and right outside the respective cover (3) with two radial arms (13) that point upwards, their upper and free end being bent (14), related to each other through a transverse spring (15) that urges the said arms towards each other by swinging the arms (5) and, hence, likewise causing the grids (4-4') to swing in the aforesaid direction of approximation. This approximation is checked by a slide (16) that is trapezoidal, isosceles and inverted in shape, its lateral edges supporting the aforesaid bends (12) so that as the auxiliary support (7) goes down, the extent of approximation of the grids making up the grating increases.

Obviously, this gradual approximation of the arms (13) likewise causes the transverse spring (15) to be gradually shortened, and therefore at the end of the downward run, the tension in such spring is almost negligible, the provision of a spigot (17) in the slide (16) being foreseen to solve this problem, same obstructing downward displacement of the spring (15) causing this latter also to be deformed at the latter end of the run, thereby not only to recover the original spring tension, but increasing this latter, for the grids to be duly clamped to the slices to be toasted, at this lower limiting grating position.

When toasting comes to an end, and the electric magnet is deactivated, as is usually the case, the auxiliary support (7) is released and rises suddenly urged by the spring (12), as aforesaid, and on rising the grids (4-4') gradually swing open up to the top limiting position where they are fully open and where they have dragged the slices towards a position which is directly accessible by hand through the mouth of the toaster housing.

Claims

1. Ejector grating of the kind included within toasters for household use, for holding and ejecting slices to be toasted, characterised in that it comprises two grids, each of which forms a dihedral having a substantially obtuse angle, both grids being intended to be arranged in the inner space defined by the toaster and being in connection with inner resistors for heating the toaster, said grids being combined in such a way that they cross each other at their lower ends to define a support base for the slices, the corners of said dihedrals being provided with two bars (5-5') intended for passing through end covers (3) of a main toaster support, and being movable within vertically slotted holes (6) provided in said end covers (3), said bars having one of their ends extending beyond the corresponding end cover to be locked together to an auxiliary support (7) that can move vertically on a guide or column (9) to which it is coupled through a wide neck (8), the main support and the auxiliary support (7) being linked to each other by means of a spring (12) that urges the auxiliary
support and therefore the ejector grating towards an upper limiting position, to which said ejector grating moves automatically when, after a toasting period, a holding electric magnet is no longer operative in respect of a metallic body that is duly locked to the auxiliary support. (7)

2. Ejector grating for electric toaster, as in claim 1, characterised in that the said bars (5)(5') through which the grating grids (4)(4') can swing, said bars being mounted and able to rotate about each other on the auxiliary support (7), are provided with two radial arms that point upwards and are located close to the main support cover near the said auxiliary support, said arms being bent at their top and free ends, through which such arms are related to each other by means of a transverse spring (15), the said bends resting upon the side edges of a trapezoidal, isosceles and inverted slide, all this in such a way that as the grating goes down, its grids automatically swing towards one another, and otherwise.

3. Ejector grating for electric toaster, as in claims 1 and 2, characterised in that the lower and middle end of the said slide has a spigot (17) that obstructs the transverse spring (15) when this spring is moving down, thereby to further deform the same, for the said spring to recover its original working tension at such terminal stage of the run.

Patentansprüche

1. Auswurfgitter der Art, wie sie üblicherweise in Toastern für den Haushalt verwendet wird, welches die zu toastenden Broteischibein hält und ausstößt, dadurch gekennzeichnet, dass es zwei Roste besitzt, die jeweils ein Dieder mit einem im Wesentlichen stumpfen Winkel bilden, und dass die beiden Roste im Inneren des Toasters angeordnet werden und mit inneren Widerständen für das Aufheizen des Toasters ausgestattet sind, wobei diese Roste so miteinander kombiniert werden, dass sie sich an ihren unteren Enden gegenseitig kreuzen, um eine Aufnahme zur Abstützung der Brotscheiben zu bilden, während in den Winkeln dieser beiden Dieder zwei Stangen (5-5') angeordnet werden, die so gestaltet sind, dass sie sich durch die Endabdeckungen (3) einer Hauptaufnahme des Toasters erstrecken und in senkrecht gerillten, in den genannten Endabdeckungen (3) vorgesehenen Öffnungen (6) bewegen, wobei das eine Ende dieser Stangen über die entsprechende äussere Abdeckung hinausragt und beide Stangen zusammen an einer Hilfshalterung (3) befestigt werden können, die sich vertikal in einer Führung oder Säule (9) verschiebt, an welcher sie über einen breiten Hals (8) angebracht wird; die Hauptaufnahme und die Hilfshalterung (7) sind ihrerseits über eine Feder (12) miteinander verbunden, welche die Hilfshalterung und damit das Auswurfgitter in Richtung einer oberen Grenzzstellen verschiebt, in welche sich das Auswurfgitter automatisch begibt, wenn der Elektromagnet nach Ablauf der Toastzeit - nicht mehr auf den vorschriftsmässig an der Hilfshalterung (7) befestigten Metallkörper wirkt.

2. Auswurfgitter für elektrische Toasters, nach Anspruch 1 dadurch gekennzeichnet, dass die erwähnten Stangen (5-5'), mit deren Hilfe die Roste des Gitters (4-4') schwingen können, so angeordnet werden, dass sie sich an der Hilfshalterung (7) miteinander drehen können, dass sie zwei nach oben gerichtete radiale Schenkel aufweisen, die neben der Abdeckung der Hauphalterung, dicht bei der genannten Hilfshalterung liegen und an ihren oberen Enden abgegeben sind; diese Schenkel stehen über eine Querfeder (15) miteinander in Beziehung, und ihre jeweiligen Krümmer liegen auf den seitlichen Rändern eines umgekehrten, gleichschenkligen, trapezförmigen Schiebers in der Weise auf, dass die Roste beim Herunterdrücken des Gitters automatisch in einer Richtung und beim Hochdrücken desselben in der anderen Richtung zueinander schwingen.

3. Auswurfgitter für elektrische Toaster, nach den Ansprüchen 1 und 2 dadurch gekennzeichnet, dass das mittlere und untere Ende des Schiebers einen Zapfen (17) aufweist, der die Querfeder (15) bei ihrer Abwärtsbewegung blockiert und dadurch noch mehr verformt, damit diese Feder in der Endstellung der Verschiebung ihre ursprüngliche Arbeitsspannung zurückgewinnt.

Revendications

1. Treillis d’expulsion du type inclus dans des grille-pains à usage domestique, afin de souténir et d’expulser des tranches de pain que l’on désire griller. Ce treillis se caractérise par le fait qu’il comporte deux grilles, dont chacune forme un dièdre qui a un angle essentiellement obtus, en prétendant que les deux grilles soient placées dans l’espace intérieur défini par le grille-pain et se trouvant en rapport avec des résistances intérieures pour l’échauffement du grille-pain, ces grilles étant combinées de
manière à ce qu'elles se croisent mutuellement à leurs extrémités inférieures pour définir une base d'appui des tranches de pain, en plaçant aux angles de ces dièdres deux barres (5-5') conçues pour qu'elles passent à travers ces couvercles extrêmes (3), ces barres ayant une de leurs extrémités qui s'étend au-delà du couvercle extrême correspondant et pouvant se bloquer ensemble à un support auxiliaire (3) qui se déplace verticalement sur une glissière ou sur une colonne (9) à laquelle il est accouplé à travers un col étroit (8), le support principal et le support auxiliaire (7) étant reliés entre eux à l'aide d'un ressort (12) qui pousse le support auxiliaire et, en conséquence, le treillis d'expulsion en direction d'une position limite supérieure, à laquelle ce treillis d'expulsion se déplace automatiquement lorsque, après la période de l'opération de grillage, l'aimant électrique de retenue en rapport avec un corps métallique dûment bloqué au support auxiliaire (7) ne fonctionne plus.

2. Treillis d'expulsion pour grille-pain électrique, selon la revendication 1, caractérisée par le fait que les barres (5-5') mentionnées précédemment, à travers lesquelles les grilles du treillis (4-4'), ces barres étant montées de manière à ce que l'une puisse tourner autour de l'autre sur le support auxiliaire (7), comportent deux bras radiaux orientés vers le haut et qui sont situés près du couvercle de support principal, près du support auxiliaire mentionné, ces bras se pliant à leurs extrémités libres supérieures, ces bras se trouvant mutuellement en rapport à l'aide d'un ressort transversal (15), les cou- des mentionnés précédemment étant appuyés sur les bords latéraux d'une coulisse trapézoïdale, isocèle et inverte, et tout cela de manière à ce que, lorsque le treillis descend, ses grilles oscillent automatiquement l'une en direction de l'autre, et le contraire lorsqu'il monte.

3. Treillis d'expulsion pour grille-pain électrique, selon les revendications 1 et 2, caractérisé par le fait que l'extrémité moyenne et inférieure de cette coulisse ait un pivot (17), qui obstrue le ressort transversal (15) lorsque ce dernier ressort se déplace vers le bas, déformant ainsi davantage ce dernier, pour que ce ressort récupère sa tension originale de travail dans cette phase terminale de déplacement mentionnée.