

Feb. 26, 1952

J. MANTELET

2,587,186

HOUSEHOLD GRATER OPERATING BY MEANS OF A DRUM

Filed Nov. 24, 1947

3 Sheets-Sheet 1

FIG. 1.

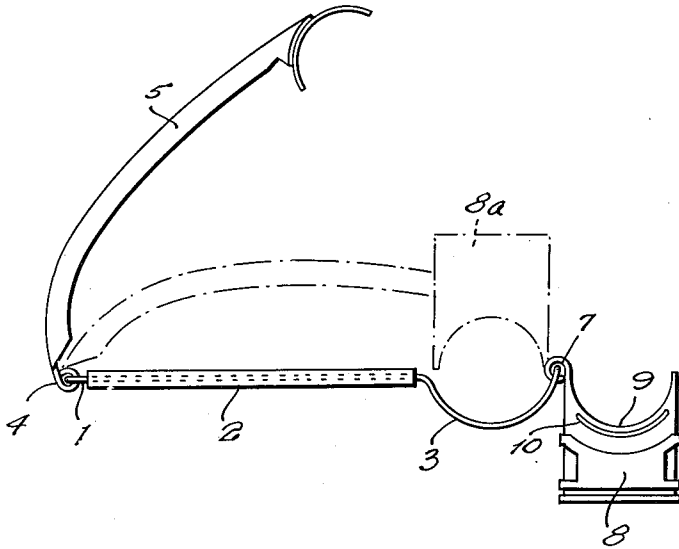


FIG. 2.

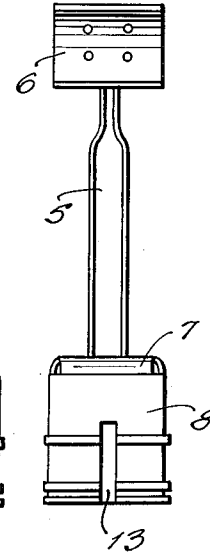
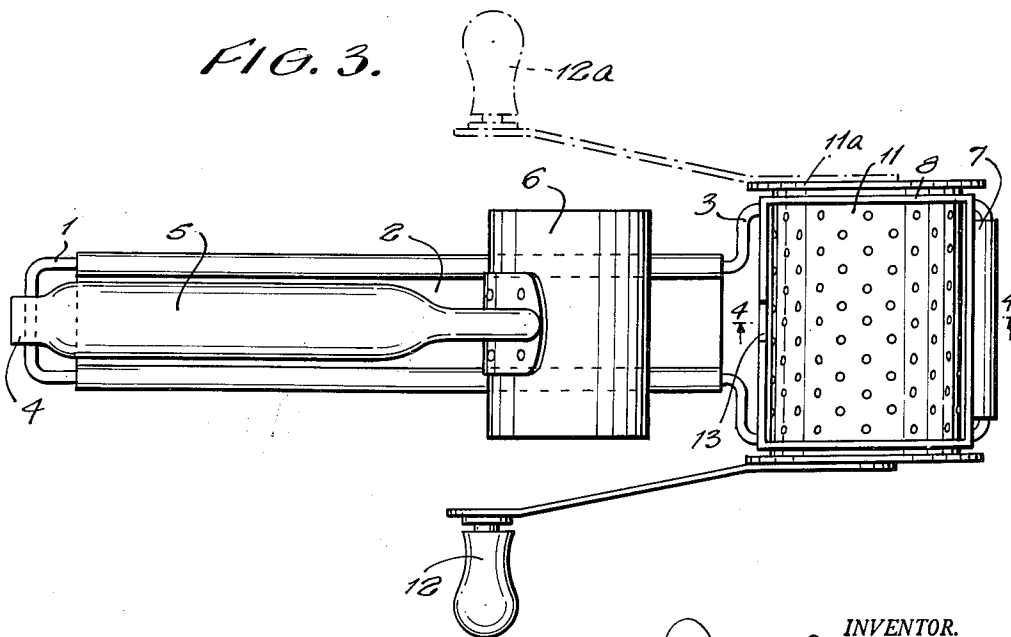


FIG. 3.



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FIG. 4.

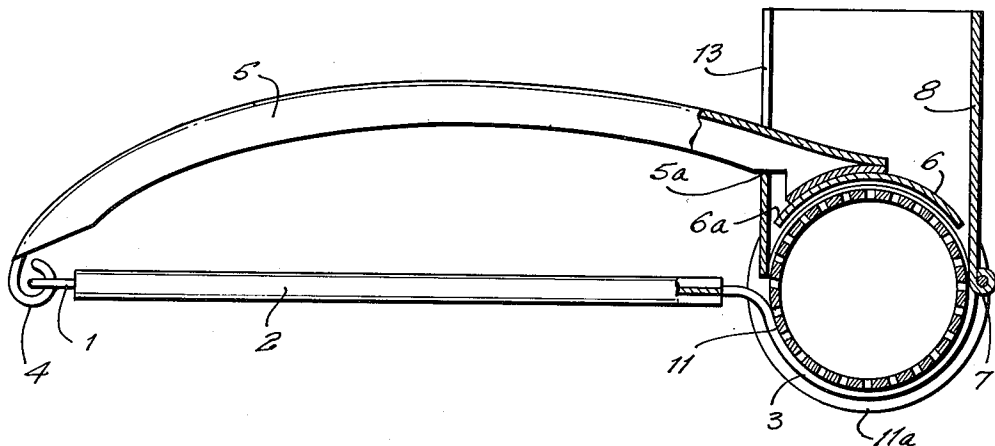
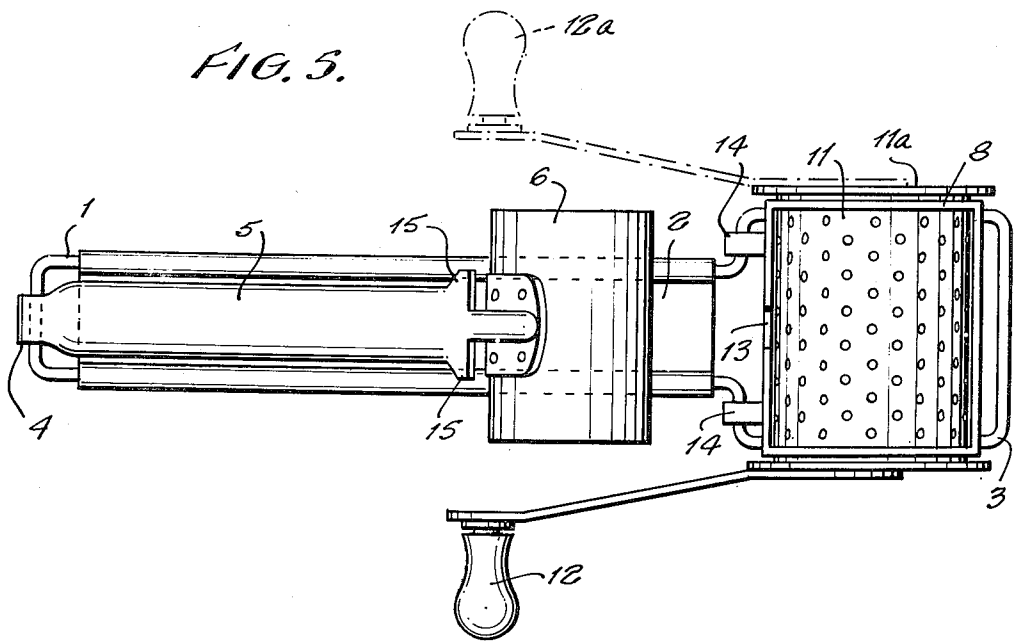


FIG. 5.



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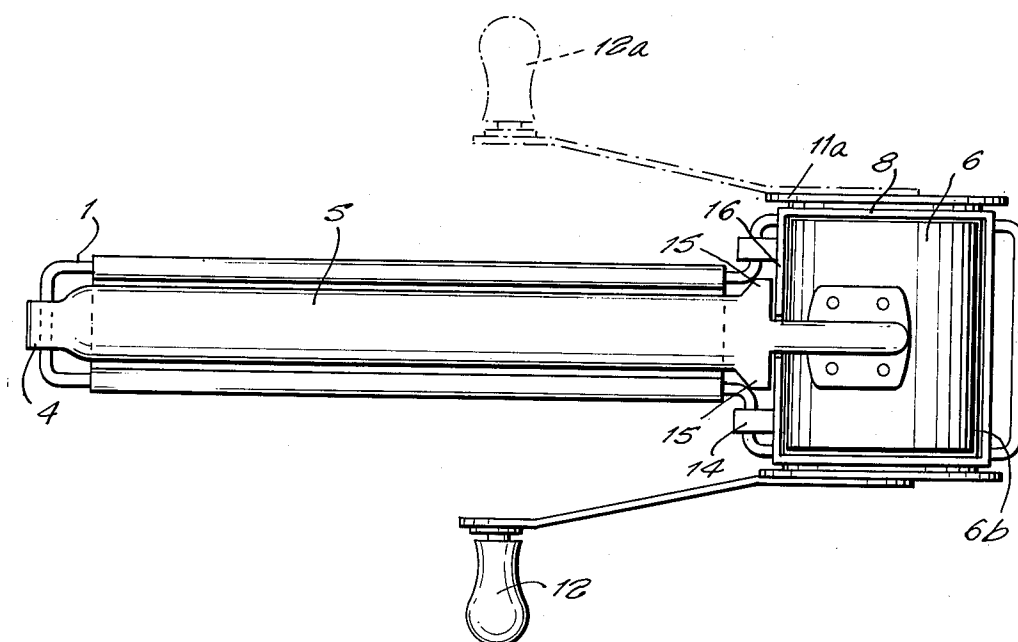
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HOUSEHOLD GRATER OPERATING BY MEANS OF A DRUM

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FIG. 6.



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HOUSEHOLD GRATER OPERATING BY
MEANS OF A DRUM

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Patent expires September 13, 1965

8 Claims. (Cl. 146—177)

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The present invention relates to household graters which comprise, in a known manner, a magazine adapted to contain the substance to be grated and pivotally mounted at the end of a handle, a rotary drum forming a grater secured to a crank and closing the outlet opening of said magazine, and a pusher pivotally connected to the handle and adapted to penetrate into the magazine so as to press against the drum the substance to be grated contained in the magazine.

The improvements which are provided according to the invention in graters of the aforesaid type relate in particular to the known manner of construction in which the rotary drum is journaled in a support formed by a lower cradle and the lower edge of the magazine, and are intended more particularly to cover the locking of the rotary drum in the operative position.

The improvements according to the invention are characterised by the following main points which may exist separately or in combination:

a. The locking of the pivoting magazine, in the operative position, is effected by means of elements forming an abutment and which become operative as soon as the pusher is engaged in the magazine.

b. The locking elements are secured to the pusher and/or to the lever which supports same.

c. When the magazine is pivoted in such a manner that its opening movement is effected outwardly, the locking element is formed by the pusher itself which co-operates with an inner surface of the magazine.

d. When the magazine is so pivoted that its opening movement is effected towards the handle, the locking element is formed by heels or the like which are secured to the lever supporting the pusher and which co-operate with an outer face of the magazine.

The invention furthermore includes other features which will become apparent from the ensuing description and from the accompanying drawing, in which:

Fig. 1 shows an elevational view of a grater according to the invention in the open position (continuous lines) and in the operative position (dot-and-dash lines).

Fig. 2 is an end view thereof.

Fig. 3 is a plan view thereof.

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Fig. 4 is an elevational view thereof in part section along the line IV—IV of Fig. 3, the grater being assumed to be in the operative position and the pusher at the end of its travel.

Fig. 5 is a similar view to that of Fig. 3, showing a modification of a grater according to the invention, and

Fig. 6 shows this modified grater in the operative position.

The grater shown in Figs. 1 to 4 comprises a handle formed by a wire 1 shaped as shown in Fig. 3 and reinforced by a sheet metal plate 2. The front end of said wire is bent so as to form a cradle 3 forming the lower part of the support intended to receive the rotary drum 11, the flanges 11a of which prevent any lateral movement.

To the rear part of the wire 1 forming the handle is pivotally connected, at 4, a lever 5, the front end of which supports in a known manner the curved pusher 6 adapted to engage in the magazine 8 and press against the substances to be grated.

The magazine 8 containing the substances to be grated is pivotally connected at 7 to the front part of the wire forming the cradle 3. It should be noted that the hinge 7 extends substantially over the entire width of the magazine 8 so as to effect a perfect guiding during the rocking movement of said magazine.

The lower side edge 9 of the magazine 8 is so shaped as to form the upper part of the support in which is journaled the drum 11 which is prevented from effecting any lateral movement by the flanges 11a. For this purpose, the edge 9 is reinforced by ribs 10 preferably formed by stamping.

The rear wall of the magazine 8 is provided at its medial portion with a vertical slot through which the front end of the lever 5 passes when the pusher 6 engages in the magazine 8 (see Fig. 4). The system is so arranged that the rear edge 6a of the pusher 6 moves in the immediate vicinity of the inner face of the rear wall of the magazine 8 on the one hand, and that in the final position of the pusher 6 said edge 6a is located at a level substantially above the plane of the hinge 7. By means of this arrangement, when the magazine 8 is in the operative position shown in Figs. 1 and 4, the edge 6a co-operating

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with the rear wall of the magazine 8 forms an abutment which prevents the magazine 8 from pivoting about the hinge 7 so as to lock it in the operative position. The lower edge 5a of the arm 5 supporting the pusher 6 moreover abuts at the end of its travel against the bottom of the slot 13 (Fig. 4) and forms an additional locking means.

The operation of the device is obvious. In the dismantled state, for example for cleaning, the elements of the grater assume the position shown in Fig. 1. In this position, the magazine 8 is swung outwards, the rotary drum 11 is removed, and the lever 5 supporting the pusher 6 is raised so as to render accessible the angle formed between said lever and the handle.

To restore the grater to the operative state, the rotary drum 11 is placed on the cradle 3. It should be noted that the drum may be arranged indiscriminately in such a manner that its crank 12 is located on the right or on the left (position 12a in dotted lines), thereby enabling the grater to be used by a right-handed or by a left-handed person.

When the drum 11 is in position, the magazine 8 is swung down on to same according to Fig. 4 so as to enclose the drum in its support formed by the cradle 3 and the lower edge 9 of the magazine 8, the axial movement of the drum being prevented by the lateral flanges 11a.

When the substance to be grated has been placed in the magazine, it is only necessary to engage the pusher 6 in the upper opening of the magazine 8 by swinging the lever 5. By means of this movement, the front portion of the lever 5 engages in the slot 13 provided in the rear wall of the magazine 8. At the same time, the edge 6a of the pusher 6 assumes a position behind the rear wall of the magazine 8 so as to prevent any pivotal movement of said magazine about the hinge 7. It is apparent from the foregoing that the engagement of the pusher 6 in the magazine 8 automatically locks the same in the operative position without its being necessary to provide complementary means or effect particular locking operations.

This locking is maintained from the start of the operation of the device until the substance contained in the magazine 8 has been completely exhausted, the members at the end of the operation being located in the positions shown in Fig. 4.

Figs. 5 and 6 show a modification in which the magazine 8 is hinged in such a manner that it can pivot towards the handle.

In this embodiment, the magazine 8 is hinged by means of two tongues 14 to the cradle 3 so that it can swing towards the handle. The lever 5 supporting the pusher 6 is provided at its front part and a short distance from the rear edge of the pusher 6, with heels 15, the whole arrangement being such that the rear wall 16 of the magazine 8 is confined between the rear edge of the pusher 6 and the heels 15 as soon as the pusher 6 is engaged in the magazine 8 and the front part of the lever 5 penetrates into the vertical slot 13. The front edge 6b of the pusher 6 moreover forms an abutment which prevents any swinging of the front wall of the magazine.

The operation of this embodiment is similar to that explained with reference to the embodiment shown in Figs. 1 to 4. In order to take the grater to pieces, the lever 5 is raised so as to disengage the pusher 6 from the magazine 8, thereby enabling said magazine to be swung down

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towards the handle and thus releasing the drum 11 which can then be removed. To re-assemble the grater, the operation is effected in the opposite order. In this embodiment, the crank of the drum can be indiscriminately placed on the right (position 12 in Fig. 5) or on the left (position 12a in dot-and-dash lines), as in the previous embodiment.

Of course, the embodiments hereinbefore described and illustrated in the drawing are merely given by way of non-limitative examples and it is possible to alter in any suitable manner, the shape, the nature, the arrangement and the mounting of their elements without exceeding the scope of the invention.

I claim:

1. A household grater comprising in combination grater handle means; a grater drum; supporting means arranged at one end of said grater handle means freely turnably and freely removably supporting said grater drum when the same is placed on said supporting means; a turning member secured to said grater drum for turning the same; a grater casing having an inlet and an outlet opening for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said grater drum freely removably supported by said supporting means, thus preventing removal of said grater drum, and inoperative position tilted away from said grater drum so as to permit free removal of said grater drum from said supporting means; and a pushing member turnably pivoted to said grater handle means entering said inlet opening of said freely tiltable grater casing when the same is in operative position and thereby holding said freely tiltable grater casing in operative position preventing unintentional removal of said grater drum.

2. A household grater comprising in combination grater handle means; a grater drum; supporting means arranged at one end of said grater handle means freely turnably and freely removably supporting said grater drum when the same is placed on said supporting means; a turning member secured to said grater drum for turning the same; a grater casing having an inlet and an outlet opening for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said grater drum freely removably supported by said supporting means, thus preventing removal of said grater drum, and inoperative position tilted away from said grater drum so as to permit free removal of said grater drum from said supporting means; a pushing member turnably pivoted to said grater handle means entering said inlet opening of said freely tiltable grater casing when the same is in operative position; and locking means on said turnable pushing member arranged so as to engage said freely tiltable grater casing when said turnable pushing member enters the same so as to hold it in operative position preventing unintentional removal of said freely removable grater drum.

3. A household grater comprising in combination grater handle means; a tubular grater drum having a cylindrical grating surface; supporting means arranged at one end of said grater handle means freely rotatably and freely removably supporting said grater drum at the opposite edge portions of its grater drum surface when the same is placed on said supporting means; a crank

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secured to said tubular grater drum for turning the same; a grater casing having oppositely arranged inlet and outlet openings for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said grater drum freely removably supported by said supporting means, thus preventing removal of said grater drum, and inoperative position tilted away from said grater drum so as to permit free removal of said grater drum from said supporting means; and locking means adapted to hold said freely tiltable grater casing in operative position, whenever desired.

4. A household grater comprising in combination grater handle means; a tubular grater drum having a cylindrical grating surface; supporting means arranged at one end of said grater handle means freely rotatably and freely removably supporting said grater drum at the opposite edge portions of its drum surface when the same is placed on said supporting means; a crank secured to said tubular grater drum for turning the same; a grater casing having oppositely arranged inlet and outlet openings for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said freely removable grater drum supported by said supporting means and inoperative position tilted away from said grater drum so as to permit free removal of said grater drum from said supporting means; a pushing member turnably pivoted to said grater handle means entering said inlet opening of said freely tiltable grater casing when the same is in operative position; and locking means on said turnable pushing member arranged so as to engage said freely tiltable grater casing when said turnable pushing member enters the same so as to hold it in operative position preventing unintentional removal of said freely removable grater drum.

5. A household grater comprising in combination grater handle means; a grater drum; supporting means arranged at one end of said grater handle means freely turnably and freely removably supporting said grater drum when the same is placed on said supporting means; a turning member secured to said grater drum for turning the same; a grater casing having an inlet and an outlet opening for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said freely removable grater drum supported by said supporting means, thus preventing removal of said grater drum, and inoperative position tilted away from said freely removable grater drum so as to permit free removal of said grater drum from said supporting means; arcuate cut-outs in opposite walls of said freely tiltable grater casing arranged so as to serve as supplementary supporting means for said freely removable grater drum when said grater casing is in operative position; a pushing member turnably pivoted to said grater handle means entering said inlet opening of said freely tiltable grater casing when the same is in operative position; and locking means on said turnable pushing member arranged so as to engage said freely tiltable grater casing when said turnable pushing member enters the same so as to hold it in operative position preventing unintentional removal of said freely removable grater drum.

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6. A household grater comprising in combination grater handle means; a tubular grater drum having a cylindrical grating surface; supporting means arranged at one end of said grater handle means freely rotatably and freely removably supporting said grater drum at the opposite edge portions of its grater drum surface when the same is placed on said supporting means; a crank secured to said tubular grater drum for turning the same; a grater casing having oppositely arranged inlet and outlet openings for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said freely removable grater drum supported by said supporting means, thus preventing removal of said grater drum, and inoperative position tilted away from said freely removable grater drum so as to permit free removal of said freely removable grater drum from said supporting means; arcuate cut-outs in opposite walls of said freely tiltable grater casing arranged so as to serve as supplementary supporting means for said freely removable grater drum when said freely tiltable grater casing is in operative position; and locking means adapted to hold said freely tiltable grater casing in operative position, whenever desired.

7. A household grater comprising in combination grater handle means; a tubular grater drum having a cylindrical grating surface; supporting means arranged at one end of said grater handle means freely rotatably and freely turnably supporting said grater drum at the opposite edge portions of its grater drum surface when the same is placed on said supporting means; a crank secured to said tubular grater drum for turning the same; a grater casing having oppositely arranged inlet and outlet openings for the substances to be grated; pivoting means attaching said grater casing to one of said means freely tiltably between operative position with its outlet opening closed by said freely removable grater drum supported by said supporting means, thus preventing removal of said grater drum, and inoperative position tilted away from said freely removable grater drum so as to permit free removal of said freely removable grater drum from said supporting means; arcuate cut-outs in opposite walls of said freely tiltable grater casing arranged so as to serve as supplementary supporting means for said freely removable grater drum when said freely tiltable grater casing is in operative position; a pushing member pivoted to said grater handle means entering said inlet opening of said freely tiltable grater casing when the same is in operative position; and locking means on said pushing member arranged so as to engage said freely tiltable grater casing when said pushing member enters the same so as to hold it in operative position preventing unintentional removal of said freely removable grater drum.

8. A household grater comprising in combination a grater drum; a grater handle having one end portion shaped so as to be adapted to freely turnably and freely removably support said grater drum when the same is placed thereon; a turning member secured to said grater drum for turning the same; a grater casing having an inlet and outlet opening for the substances to be grated; pivoting means attaching said grater casing to said grater handle freely tiltably between operative position with its outlet opening closed by said freely removable grater drum sup-

ported by said grater handle, thus preventing removal of said grater drum, and inoperative position tilted away from said freely removable grater drum so as to permit free removal of the same; and a pushing member pivoted to said grater handle entering said inlet opening of said freely tiltable grater casing when the same is in operative position keeping it thereby in such operative position and prevent unintentional removal of said freely removable grater drum.

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