

(21) Application No 0024916.9	(51) INT CL ⁷ A47J 42/04
(22) Date of Filing 11.10.2000	(52) UK CL (Edition S) B2A A3F A3R11D A3R5 A3R7
(30) Priority Data (31) 09426605 (32) 26.10.1999 (33) US	(56) Documents Cited GB 2352411 A GB 1486393 A
(71) Applicant(s) Chung Lun Yip Flat A 16th Floor, Block 1, King's Park Villa, Hong Kong	(58) Field of Search UK CL (Edition S) B2A INT CL ⁷ A47J 42/00 42/02 42/04 42/06 42/08 42/10 42/12 42/14 42/16 42/18 42/20 42/22 42/24 42/26 42/28 42/30 42/32 42/34 42/36 ONLINE DATABASE: EPODOC, JAPIO, WPI
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(54) Abstract Title
Food grinder

(57) A manually operated food grinder has grinding elements comprising a vertical cylindrical housing 17, a rotatable feeding screw 16 and a metallic apertured plate 18, which closes off the bottom of the housing 17 and is adjacent to the lower surfaces of the screw 16. The housing 17 and screw 16 are made of ceramic. The main grinding action takes place over virtually the whole area of the plate 18 leading to greater through-put as against similar sized prior art grinders as well as enabling the production of finer grounds.

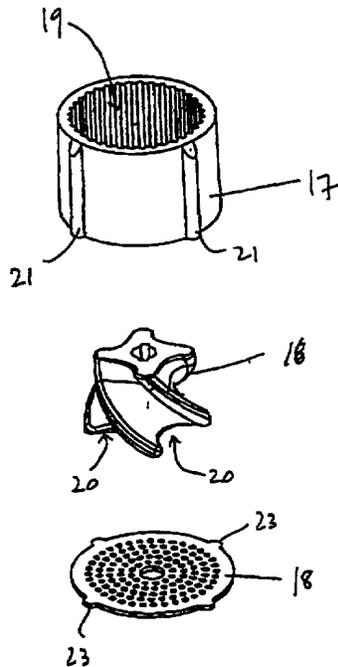


FIGURE 2.

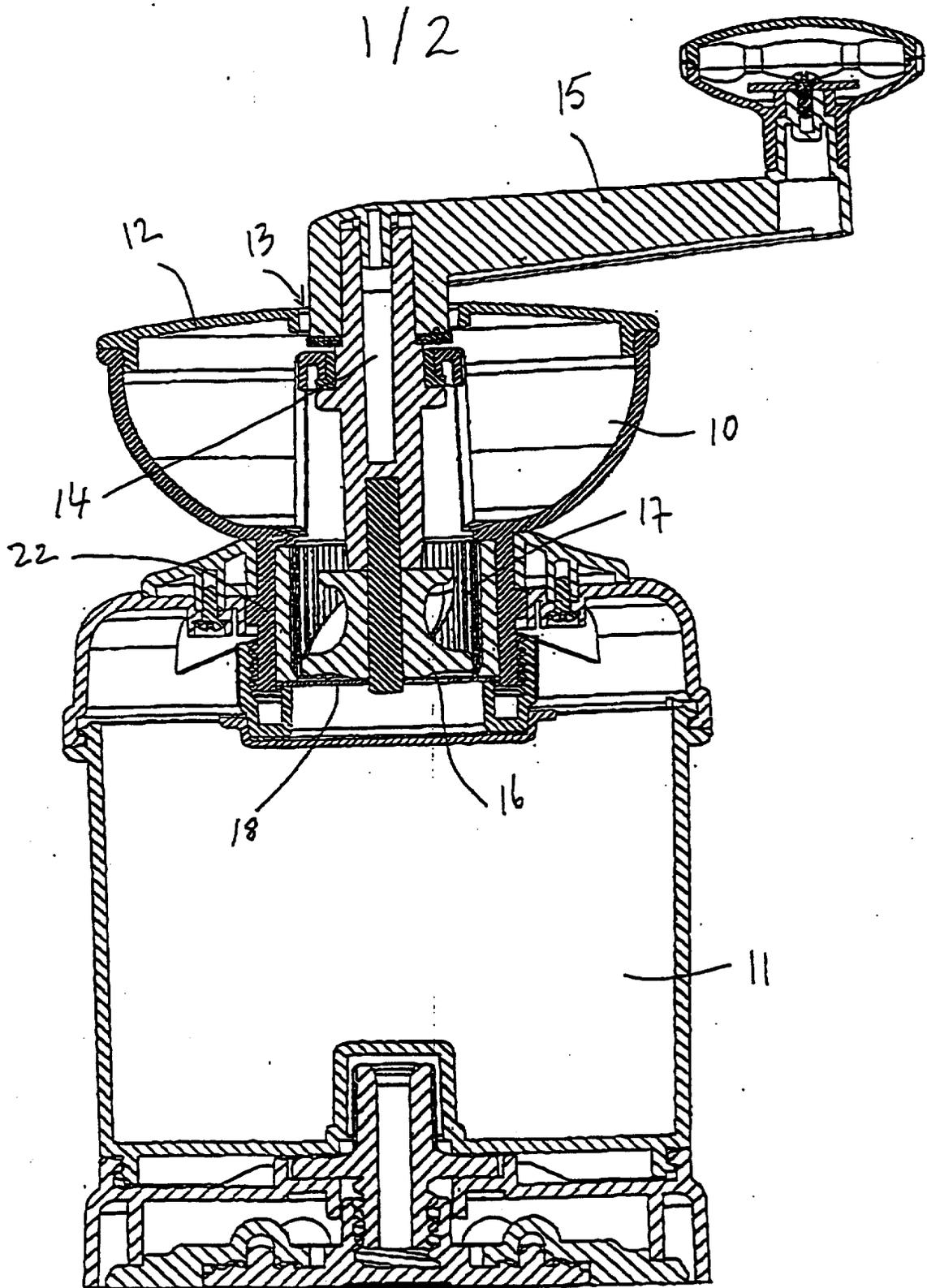


FIGURE 1

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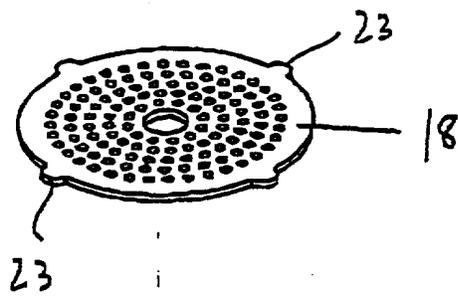
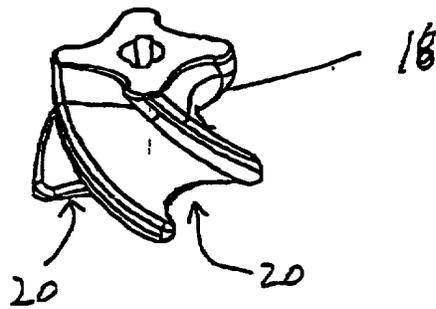
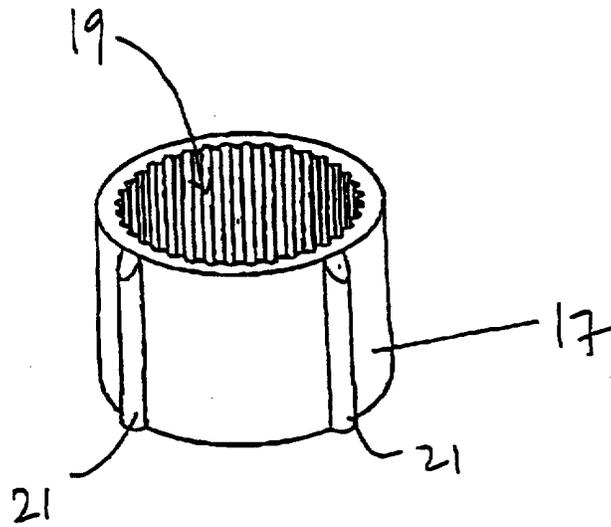


FIGURE 2.

FOOD GRINDERBackground of the Invention

5 1. Field of the Invention

The invention relates to food grinders.

10 2. Description of Prior Art

The invention relates more particularly to manual food grinders especially for grinding coffee beans, peppercorns and the like. Currently, the grinders consist of a grinding wheel with a part conical peripheral end that is arranged to rotate within a fixed conical ring. The cooperating surfaces are formed with grinding surfaces, generally in the form of "gearing", that are used to crush coffee beans as they are passed between the cooperating surfaces. A working separation, usually adjustable, provided between the cooperating surfaces allows coffee grounds to fall through into a grounds collecting chamber. Traditionally, both the grinding wheel and the fixed ring are each formed of metallic material integrally formed with suitable gearing. The suitably prepared metallic materials parts tend to be expensive.

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Summary of the Invention

It is an aim of the invention to overcome or at least reduce this problem.

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According to the invention there is provided a food grinder in which the grinding elements comprise a cylindrical upstanding housing having a central longitudinal vertical axis, a food particle feeding screw rotatable mounted about the axis within the housing to urge the food particles downwards, and an apertured plate closing off a bottom of the housing and adjacent to which lower surfaces of the screw are held so that food particles are forced against and swept over and through the plate by the screw to grind the food particles in use.

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The inner surfaces of the housing is preferably formed with a plurality of ribs each extending generally vertically downwards.

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The housing may have a number of external protruding ribs that are held stationary in a frame of the food grinder to prevent rotation of the housing.

25

The plate may be circular and provided with a number of short wings that are held in a frame of the food grinder to prevent rotation of the plate.

The housing and screw are preferably formed of porcelain.

5 The plate is preferably formed of stainless steel.

Brief Description of the Drawings

10 A food grinder according to the invention will now be described by way of example with reference to the accompanying drawings in which :

Figure 1 is a sectional elevation of the grinder; and

15 Figure 2 is an exploded isometric view of grinding elements for the grinder.

Description of the Preferred Embodiment

20 Referring to the drawings, in Figure 1 the food grinder is of a generally conventional form having a bean hopper 10 and a grounds collection chamber 11 which supports the hopper. A removable lid 12 for the hopper has a central aperture 13 through which a drive shaft 14 of a
25 handle 15 passes to engage and rotate a grinder feeding screw 16.

Grinder elements of the food grinder comprise the screw

16, a cylindrical housing 17 and an apertured plate 18, all of which are shown more clearly in Figure 2. The screw 16 and the housing 17 are formed of porcelain, and the plate 18 is made of stainless steel. The inner surface of the housing is integrally formed with a plurality of vertically extending ribs 19.

In use, the hopper 10 is charged with coffee beans and the drive shaft 14 fitted to rotate the screw 16. Beans are forced downwards by rotation of the screw 16 and restrained from moving easily around inside the housing 17 by the ribs 19. This resistance causes some crushing of the beans in use. The beans are forced against plate 18 and swept by discontinuous lower surfaces 20 of the screw formation over the plate 18. The screw 16 is held down so that the surfaces 20 are adjacent the upper surface of the plate 18. As a result coffee grounds are produced and pass through the plate into the chamber 11. The handle 15 is turned until all the beans originally placed in the hopper 10 have been ground and collected in the chamber 11.

It will be noted that the housing 17 is formed with outer ribs 21 that can lock to a frame 22 of the coffee grinder to prevent rotation of the housing 17 in use. Likewise, the plate 18 is provided with four short wings 23 that also prevent rotation of the plate 18 when it is fitted in the frame 22.

The screw 16 and the housing 17 are formed of porcelain which is much cheaper than suitably prepared metal parts used as grinding elements in present day grinders.

5 Porcelain is also generally harder and more suitable to use in grinding operations than most metals especially for foodstuffs. The ground coffee produced in the described grinder is more evenly formed and can be provided in grounds of generally smaller grain size, where required. As grinding is carried out over a

10 relatively larger effective area as compared to prior art arrangements, the grinding capacity of the described grinder is, "size for size", greater and so speedier grinding is possible.

15 Embodiments of the invention can be used for grinding coffee beans as described and also peppercorns, and relatively dry salt crystals for example. Other foodstuff may also be ground that can be generally

20 crushed down from relatively large particles to smaller powder like constituency. The grinder is therefore described as a "food grinder" and the coffee beans, peppercorns, "salt crystals" and so forth, are referred to generically in the claims as "food particles".

WE CLAIM:

1. A food grinder in which the grinding elements
comprise a cylindrical upstanding housing having a
5 central longitudinal vertical axis, a food particle
feeding screw rotatable mounted about the axis within
the housing to urge the food particles downwards, and an
apertured plate closing off a bottom of the housing and
adjacent to which lower surfaces of the screw are held
10 so that food particles are forced against and swept over
and through the plate by the screw to grind the food
particles in use.

2. A food grinder according to claim 1, in which the
15 inner surfaces of the housing is formed with a plurality
of ribs each extending generally vertically downwards.

3. A food grinder according to claim 1, in which the
housing has a number of external protruding ribs that
20 are held stationary in a frame of the food grinder to
prevent rotation of the housing.

4. A food grinder according to claim 1, in which the
plate is circular and is provided with a number of short
25 wings that are held in a frame of the food grinder to
prevent rotation of the plate.

5. A food grinder according to claim 1, in which the

housing is formed of porcelain.

6. A food grinder according to claim 1, in which the screw is formed of porcelain.

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7. A food grinder according to claim 1, in which the plate is formed of stainless steel.

8. A food grinder substantially as hereinbefore described with reference to, and as illustrated in, the accompanying Figures of drawings.



INVESTOR IN PEOPLE

Application No: GB 0024916.9
Claims searched: All

Examiner: Helen Edwards
Date of search: 26 February 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): B2A

Int Cl (Ed.7): A47J: 42/00 to 42/36

Other: Online database: EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2352411 A CHENG	
A	GB 1486393 A JOHANSSON	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.