

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B02 CRUSHING, PULVERISING, OR DISINTEGRATING; PREPARATORY TREATMENT OF GRAIN FOR MILLING

**B02C CRUSHING, PULVERISING, OR DISINTEGRATING IN GENERAL; MILLING GRAIN** (obtaining metallic powder by crushing, grinding or milling B22F 9/04)

#### Subclass index

#### DISINTEGRATING IN GENERAL

Using reciprocating or rotary crushers.....	1/00, 2/00
Using rollers.....	4/00
Using discs.....	7/00
Using rotary beaters.....	13/00
By tumbling.....	17/00
Otherwise.....	15/00, 18/00, 19/00
Auxiliary methods, accessories.....	23/00
DISINTEGRATING PLANT; CONTROL ARRANGEMENTS.....	21/00, 25/00
MILLING METHODS OR MILLS SPECIALLY ADAPTED FOR GRAIN; ACCESSORIES THEREFOR.....	4/06, 4/16, 4/24, 4/38, 7/13, 7/18, 9/00, 11/00

<b>1/00</b>	<b>Crushing or disintegrating by reciprocating members [1, 2006.01]</b>	4/16	• • • specially adapted for milling grain [1, 2006.01]
1/02	• Jaw crushers or pulverisers [1, 2006.01]	4/18	• • in the form of a bar [1, 2006.01]
1/04	• • with single-acting jaws [1, 2006.01]	4/20	• • • wherein the roller is corrugated or toothed [1, 2006.01]
1/06	• • with double-acting jaws [1, 2006.01]	4/22	• • • specially adapted for milling paste-like material, e.g. paint, chocolate, colloids [1, 2006.01]
1/08	• • with jaws coacting with a rotating roller [1, 2006.01]	4/24	• • • specially adapted for milling grain [1, 2006.01]
1/10	• • Shape or construction of jaws [1, 2006.01]	4/26	• • in the form of a grid or grating [1, 2006.01]
1/12	• Mills with non-rotating spiked members [1, 2006.01]	4/28	• Details [1, 2006.01]
1/14	• Stamping mills [1, 2006.01]	4/30	• • Shape or construction of rollers [1, 2006.01]
<b>2/00</b>	<b>Crushing or disintegrating by gyratory or cone crushers [1, 2006.01]</b>	4/32	• • Adjusting, applying pressure to, or controlling the distance between, milling members [1, 2006.01]
2/02	• eccentrically moved [1, 2006.01]	4/34	• • • in mills wherein a roller co-operates with a stationary member [1, 2006.01]
2/04	• • with vertical axis [1, 2006.01]	4/36	• • • in mills specially adapted for paste-like materials [1, 2006.01]
2/06	• • • and with top bearing [1, 2006.01]	4/38	• • • in grain mills [1, 2006.01]
2/08	• • with horizontal axis [1, 2006.01]	4/40	• • Detachers, e.g. scrapers [1, 2006.01]
2/10	• concentrically moved; Bell crushers [1, 2006.01]	4/42	• • Driving mechanisms; Roller speed control [1, 2006.01]
<b>4/00</b>	<b>Crushing or disintegrating by roller mills (with milling members in the form of rollers or balls co-operating with rings or discs B02C 15/00; roller mills or roll refiners exclusively for chocolate A23G 1/10, A23G 1/12) [1, 2006.01]</b>	4/44	• • Cooling or heating rollers or bars [1, 2006.01]
4/02	• with two or more rollers [1, 2006.01]	<b>7/00</b>	<b>Crushing or disintegrating by disc mills (apparatus specially adapted for manufacture or treatment of cocoa or cocoa products exclusively A23G 1/04) [1, 2006.01]</b>
4/04	• • specially adapted for milling paste-like material, e.g. paint, chocolate, colloids [1, 2006.01]	7/02	• with coaxial discs [1, 2006.01]
4/06	• • specially adapted for milling grain [1, 2006.01]	7/04	• • with concentric circles of intermeshing teeth [1, 2006.01]
4/08	• • with co-operating corrugated or toothed crushing-rollers [1, 2006.01]	7/06	• • with horizontal axis (B02C 7/04 takes precedence) [1, 2006.01]
4/10	• with a roller co-operating with a stationary member [1, 2006.01]	7/08	• • with vertical axis (B02C 7/04 takes precedence) [1, 2006.01]
4/12	• • in the form of a plate [1, 2006.01]	7/10	• with eccentric discs [1, 2006.01]
4/14	• • • specially adapted for milling paste-like material, e.g. paint, chocolate, colloids [1, 2006.01]	7/11	• Details [1, 2006.01]

- 7/12 • • Shape or construction of discs [1, 2006.01]
- 7/13 • • • for grain mills [1, 2006.01]
- 7/14 • • Adjusting, applying pressure to, or controlling distance between, discs [1, 2006.01]
- 7/16 • • Driving mechanisms [1, 2006.01]
- 7/17 • • Cooling or heating of discs [1, 2006.01]
- 7/175 • Disc mills specially adapted for paste-like material, e.g. paint, chocolate, colloids [1, 2006.01]
- 7/18 • Disc mills specially adapted for grain [1, 2006.01]
- 9/00 Other milling methods or mills specially adapted for grain [1, 2006.01]**
  - 9/02 • Cutting or splitting grain [1, 2006.01]
  - 9/04 • Systems or sequences of operations; Plant [1, 2006.01]
- 11/00 Other auxiliary devices or accessories specially adapted for grain mills [1, 2006.01]**
  - 11/02 • Breaking up amassed particles, e.g. flakes [1, 2006.01]
  - 11/04 • Feeding devices [1, 2006.01]
  - 11/06 • Arrangements for preventing fire or explosion (methods for preventing or extinguishing fires, devices therefor A62C) [1, 2006.01]
  - 11/08 • Cooling, heating, ventilating, conditioning with respect to temperature or water content (conditioning grain before milling B02B 1/08; air-conditioning or ventilating in general F24F) [1, 2006.01]
- 13/00 Disintegrating by mills having rotary beater elements [1, 2006.01]**
  - 13/02 • with horizontal rotor shaft (with axial flow B02C 13/10) [1, 2006.01]
  - 13/04 • • with beaters hinged to the rotor; Hammer mills [1, 2006.01]
  - 13/06 • • with beaters rigidly connected to the rotor [1, 2006.01]
  - 13/08 • • • and acting as a fan [1, 2006.01]
  - 13/09 • • • and throwing the material against an anvil or impact plate [1, 2006.01]
  - 13/10 • with horizontal rotor shaft and axial flow [1, 2006.01]
  - 13/12 • • with vortex chamber [1, 2006.01]
  - 13/13 • with horizontal rotor shaft and combined with sifting devices, e.g. for making powdered fuel [1, 2006.01]
  - 13/14 • with vertical rotor shaft, e.g. combined with sifting devices [1, 2006.01]
  - 13/16 • • with beaters hinged to the rotor [1, 2006.01]
  - 13/18 • • with beaters rigidly connected to the rotor [1, 2006.01]
  - 13/20 • with two or more co-operating rotors [1, 2006.01]
  - 13/22 • with intermeshing pins [1, 2006.01]
  - 13/24 • • arranged around a vertical axis [1, 2006.01]
  - 13/26 • Details [1, 2006.01]
  - 13/28 • • Shape or construction of beater elements [1, 2006.01]
  - 13/282 • • Shape or inner surface of mill-housings [1, 2006.01]
  - 13/284 • • • Built-in screens [1, 2006.01]
  - 13/286 • • Feeding or discharge [1, 2006.01]
  - 13/288 • • Ventilating, or influencing air circulation [1, 2006.01]
  - 13/30 • • Driving mechanisms [1, 2006.01]
  - 13/31 • • Safety devices or measures [1, 2006.01]
- 15/00 Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs [1, 2006.01]**
  - 15/02 • Centrifugal pendulum-type mills [1, 2006.01]
  - 15/04 • Mills with pressed pendularly-mounted rollers, e.g. spring pressed [1, 4, 2006.01]
  - 15/06 • Mills with rollers forced against the interior of a rotary ring, e.g. under spring action (B02C 15/04 takes precedence) [1, 4, 2006.01]
  - 15/08 • Mills with balls or rollers centrifugally forced against the inner surface of a ring, the balls or rollers of which are driven by a centrally arranged member (B02C 15/02 takes precedence) [1, 2006.01]
  - 15/10 • Mills with balls or rollers centrifugally forced against the inner surface of a ring, the balls or rollers of which are driven by other means than a centrally-arranged member [1, 2006.01]
  - 15/12 • Mills with at least two discs and interposed balls or rollers mounted like ball or roller bearings [1, 4, 2006.01]
  - 15/14 • Edge runners, e.g. Chile mills [1, 2006.01]
  - 15/16 • with milling members essentially having different peripheral speeds and in the form of a hollow cylinder or cone and an internal roller or cone [1, 2006.01]
- 17/00 Disintegrating by tumbling mills, i.e. mills having a container charged with the material to be disintegrated with or without special disintegrating members such as pebbles or balls (high-speed drum mills B02C 19/11) [1, 2006.01]**
  - 17/02 • with perforated container [1, 2006.01]
  - 17/04 • with unperforated container [1, 2006.01]
  - 17/06 • • with several compartments [1, 2006.01]
  - 17/07 • • • in radial arrangement [1, 2006.01]
  - 17/08 • • with containers performing a planetary movement [1, 2006.01]
  - 17/10 • with one or a few disintegrating members arranged in the container [1, 2006.01]
  - 17/14 • Mills in which the charge to be ground is turned over by movements of the container other than by rotating, e.g. by swinging, vibrating, tilting [1, 2006.01]
  - 17/16 • Mills in which a fixed container houses stirring means tumbling the charge [1, 2006.01]
  - 17/18 • Details [1, 2006.01]
  - 17/20 • • Disintegrating members [1, 2006.01]
  - 17/22 • • Lining for containers [1, 2006.01]
  - 17/24 • • Driving mechanisms [1, 2006.01]
- 18/00 Disintegrating by knives or other cutting or tearing members which chop material into fragments (slicing B26D); Mincing machines or similar apparatus using worms or the like (machines for domestic use not covered otherwise A47J 43/04; multi-purpose machines for preparing food A47J 44/00) [1, 2006.01]**
  - 18/02 • with reciprocating knives [1, 2006.01]
  - 18/04 • • Details [1, 2006.01]
  - 18/06 • with rotating knives [1, 2006.01]
  - 18/08 • • within vertical containers [1, 2006.01]
  - 18/10 • • • with drive arranged above container [1, 2006.01]
  - 18/12 • • • with drive arranged below container [1, 2006.01]
  - 18/14 • • within horizontal containers [1, 2006.01]
  - 18/16 • • Details [1, 2006.01]
  - 18/18 • • • Knives; Mountings thereof [1, 2006.01]
  - 18/20 • • • Sickle-shaped knives [1, 2006.01]

- 18/22 • • • Feed or discharge means [1, 2006.01]
- 18/24 • • • Drives [1, 2006.01]
- 18/26 • with knives which both reciprocate and rotate [1, 2006.01]
- 18/28 • with spiked cylinders [1, 2006.01]
- 18/30 • Mincing machines with perforated discs and feeding worms [1, 2006.01]
- 18/32 • • with sharpening devices [1, 2006.01]
- 18/34 • • with means for cleaning the perforated discs [1, 2006.01]
- 18/36 • • Knives or perforated discs [1, 2006.01]
- 18/38 • • Drives [1, 2006.01]
  
- 19/00 Other disintegrating devices or methods (for grain B02C 9/00) [1, 2006.01]**
- 19/06 • Jet mills [1, 2006.01]
- 19/08 • Pestle and mortar [1, 2006.01]
- 19/10 • Mills in which a friction block is towed along the surface of a cylindrical or annular member [1, 2006.01]
- 19/11 • High-speed drum mills (for separating B04B) [1, 2006.01]
- 19/16 • Mills provided with vibrators (tumbling mills B02C 17/14) [1, 2006.01]
- 19/18 • Use of auxiliary physical effects, e.g. ultrasonics, irradiation, for disintegrating [1, 2006.01]
- 19/20 • Disintegrating by grating [1, 2006.01]
- 19/22 • Crushing mills with screw-shaped crushing means [1, 2006.01]
  
- 21/00 Disintegrating plant with or without drying of the material (for grain B02C 9/04) [1, 2006.01]**
- 21/02 • Transportable disintegrating plant [1, 2006.01]
  
- 23/00 Auxiliary methods or auxiliary devices or accessories specially adapted for crushing or disintegrating not provided for in groups B02C 1/00-B02C 21/00 or not specially adapted to apparatus covered by one only of groups B02C 1/00-B02C 21/00 (separating or sorting in general B03, B04, B07) [1, 2006.01]**
- 23/02 • Feeding devices (transport devices in general B65G) [1, 2006.01]
- 23/04 • Safety devices (in general F16P) [1, 2006.01]
  
- 23/06 • Selection or use of additives to aid disintegrating [1, 2006.01]
- 23/08 • Separating or sorting of material, associated with crushing or disintegrating (B02C 23/18 takes precedence) [2, 2006.01]
- 23/10 • • with separator arranged in discharge path of crushing or disintegrating zone [2, 2006.01]
- 23/12 • • • with return of oversize material to crushing or disintegrating zone [2, 2006.01]
- 23/14 • • with more than one separator [2, 2006.01]
- 23/16 • • with separator defining termination of crushing or disintegrating zone, e.g. screen denying egress of oversize material [2, 2006.01]
- 23/18 • Adding fluid, other than for crushing or disintegrating by fluid energy (feeding devices B02C 23/02) [2, 2006.01]
- 23/20 • • after crushing or disintegrating [2, 2006.01]
- 23/22 • • • with recirculation of material to crushing or disintegrating zone [2, 2006.01]
- 23/24 • • Passing gas through crushing or disintegrating zone (B02C 23/38, B02C 23/40 take precedence) [2, 2006.01]
- 23/26 • • • characterised by point of gas entry or exit or by gas flow path [2, 2006.01]
- 23/28 • • • gas moving means being integral with, or attached to, crushing or disintegrating element [2, 2006.01]
- 23/30 • • • the applied gas acting to effect material separation (B02C 23/34 takes precedence) [2, 2006.01]
- 23/32 • • • with return of oversize material to crushing or disintegrating zone (B02C 23/34 takes precedence) [2, 2006.01]
- 23/34 • • • gas being recirculated to crushing or disintegrating zone [2, 2006.01]
- 23/36 • • the crushing or disintegrating zone being submerged in liquid [2, 2006.01]
- 23/38 • • in apparatus having multiple crushing or disintegrating zones [2, 2006.01]
- 23/40 • • with more than one means for adding fluid to the material being crushed or disintegrated [2, 2006.01]
  
- 25/00 Control arrangements specially adapted for crushing or disintegrating [1, 2006.01]**