

SECTION B — PERFORMING OPERATIONS; TRANSPORTING

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

B02B PREPARING GRAIN FOR MILLING; REFINING GRANULAR FRUIT TO COMMERCIAL PRODUCTS BY WORKING THE SURFACE (making dough from cereals directly A21C; preservation or sterilisation of cereals A23B; cleaning fruit A23N; preparation of malt C12C)

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| <p>1/00 Preparing grain for milling or like processes (hulling, husking, decorticating, polishing, removing the awns, or degerming B02B 3/00)</p> <p>1/02 • Dry treatment (sifting or sorting in general B07)</p> <p>1/04 • Wet treatment, e.g. washing, wetting, softening</p> <p>1/06 • • Devices with rotary parts</p> <p>1/08 • Conditioning grain with respect to temperature or water content (air conditioning or ventilating of silos F24F; drying apparatus F26B; hygrometers G01N)</p> <p>3/00 Hulling; Husking; Decorticating (decorticating textile fibres D01B 1/14); Polishing; Removing the awns (in threshing machines A01F 12/42); Degerming</p> | <p>3/02 • by means of discs</p> <p>3/04 • by means of rollers</p> <p>3/06 • by means of screws or worms</p> <p>3/08 • by means of beaters or blades</p> <p>3/10 • by means of brushes</p> <p>3/12 • by means of fluid</p> <p>3/14 • Producing flour or meal directly</p> <p>5/00 Grain treatment not otherwise provided for</p> <p>5/02 • Combined processes</p> <p>7/00 Auxiliary devices</p> <p>7/02 • Feeding or discharging devices</p> |
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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

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| <p>1/00 Crushing or disintegrating by reciprocating members</p> <p>1/02 • Jaw crushers or pulverisers</p> <p>1/04 • • with single-acting jaws</p> <p>1/06 • • with double-acting jaws</p> <p>1/08 • • with jaws coacting with a rotating roller</p> <p>1/10 • • Shape or construction of jaws</p> <p>1/12 • Mills with non-rotating spiked members</p> <p>1/14 • Stamping mills</p> <p>2/00 Crushing or disintegrating by gyratory or cone crushers</p> <p>2/02 • eccentrically moved</p> <p>2/04 • • with vertical axis</p> <p>2/06 • • • and with top bearing</p> | <p>2/08 • • with horizontal axis</p> <p>2/10 • concentrically moved; Bell crushers</p> <p>4/00 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)</p> <p>4/02 • with two or more rollers</p> <p>4/04 • • specially adapted for milling paste-like material, e.g. paint, chocolate, colloids</p> <p>4/06 • • specially adapted for milling grain</p> <p>4/08 • • with co-operating corrugated or toothed crushing-rollers</p> <p>4/10 • with a roller co-operating with a stationary member</p> <p>4/12 • • in the form of a plate</p> |
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- 4/14 • • • specially adapted for milling paste-like material, e.g. paint, chocolate, colloids
- 4/16 • • • specially adapted for milling grain
- 4/18 • • in the form of a bar
- 4/20 • • • wherein the roller is corrugated or toothed
- 4/22 • • • specially adapted for milling paste-like material, e.g. paint, chocolate, colloids
- 4/24 • • • specially adapted for milling grain
- 4/26 • • in the form of a grid or grating
- 4/28 • Details
- 4/30 • • Shape or construction of rollers
- 4/32 • • Adjusting, applying pressure to, or controlling the distance between, milling members
- 4/34 • • • in mills wherein a roller co-operates with a stationary member
- 4/36 • • • in mills specially adapted for paste-like materials
- 4/38 • • • in grain mills
- 4/40 • • Detachers, e.g. scrapers
- 4/42 • • Driving mechanisms; Roller speed control
- 4/44 • • Cooling or heating rollers or bars
- 7/00 Crushing or disintegrating by disc mills** (apparatus specially adapted for manufacture or treatment of cocoa or cocoa products exclusively A23G 1/04)
 - 7/02 • with coaxial discs
 - 7/04 • • with concentric circles of intermeshing teeth
 - 7/06 • • with horizontal axis (B02C 7/04 takes precedence)
 - 7/08 • • with vertical axis (B02C 7/04 takes precedence)
 - 7/10 • with eccentric discs
 - 7/11 • Details
 - 7/12 • • Shape or construction of discs
 - 7/13 • • • for grain mills
 - 7/14 • • Adjusting, applying pressure to, or controlling distance between, discs
 - 7/16 • • Driving mechanisms
 - 7/17 • • Cooling or heating of discs
 - 7/175 • Disc mills specially adapted for paste-like material, e.g. paint, chocolate, colloids
 - 7/18 • Disc mills specially adapted for grain
- 9/00 Other milling methods or mills specially adapted for grain**
 - 9/02 • Cutting or splitting grain
 - 9/04 • Systems or sequences of operations; Plant
- 11/00 Other auxiliary devices or accessories specially adapted for grain mills**
 - 11/02 • Breaking up amassed particles, e.g. flakes
 - 11/04 • Feeding devices
 - 11/06 • Arrangements for preventing fire or explosion (methods for preventing or extinguishing fires, devices therefor A62C)
 - 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)
- 13/00 Disintegrating by mills having rotary beater elements**
 - 13/02 • with horizontal rotor shaft (with axial flow B02C 13/10)
 - 13/04 • • with beaters hinged to the rotor; Hammer mills
 - 13/06 • • with beaters rigidly connected to the rotor
 - 13/08 • • • and acting as a fan
 - 13/09 • • • and throwing the material against an anvil or impact plate
- 13/10 • with horizontal rotor shaft and axial flow
- 13/12 • • with vortex chamber
- 13/13 • with horizontal rotor shaft and combined with sifting devices, e.g. for making powdered fuel
- 13/14 • with vertical rotor shaft, e.g. combined with sifting devices
- 13/16 • • with beaters hinged to the rotor
- 13/18 • • with beaters rigidly connected to the rotor
- 13/20 • with two or more co-operating rotors
- 13/22 • with intermeshing pins
- 13/24 • • arranged around a vertical axis
- 13/26 • Details
- 13/28 • • Shape or construction of beater elements
- 13/282 • • Shape or inner surface of mill-housings
- 13/284 • • • Built-in screens
- 13/286 • • Feeding or discharge
- 13/288 • • Ventilating, or influencing air circulation
- 13/30 • • Driving mechanisms
- 13/31 • • Safety devices or measures
- 15/00 Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs**
 - 15/02 • Centrifugal pendulum-type mills
 - 15/04 • Mills with pressed pendularly-mounted rollers, e.g. spring pressed [4]
 - 15/06 • Mills with rollers forced against the interior of a rotary ring, e.g. under spring action (B02C 15/04 takes precedence) [4]
 - 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)
 - 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
 - 15/12 • Mills with at least two discs and interposed balls or rollers mounted like ball or roller bearings [4]
 - 15/14 • Edge runners, e.g. Chile mills
 - 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
- 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)
 - 17/02 • with perforated container
 - 17/04 • with unperforated container
 - 17/06 • • with several compartments
 - 17/07 • • • in radial arrangement
 - 17/08 • • with containers performing a planetary movement
 - 17/10 • with one or a few disintegrating members arranged in the container
 - 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
 - 17/16 • Mills in which a fixed container houses stirring means tumbling the charge
 - 17/18 • Details
 - 17/20 • • Disintegrating members
 - 17/22 • • Lining for containers
 - 17/24 • • Driving mechanisms

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)	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)
18/02	• with reciprocating knives	23/02	• Feeding devices (transport devices in general B65G)
18/04	• • Details	23/04	• Safety devices (in general F16P)
18/06	• with rotating knives	23/06	• Selection or use of additives to aid disintegrating
18/08	• • within vertical containers	23/08	• Separating or sorting of material, associated with crushing or disintegrating (B02C 23/18 takes precedence) [2]
18/10	• • • with drive arranged above container	23/10	• • with separator arranged in discharge path of crushing or disintegrating zone [2]
18/12	• • • with drive arranged below container	23/12	• • • with return of oversize material to crushing or disintegrating zone [2]
18/14	• • within horizontal containers	23/14	• • with more than one separator [2]
18/16	• • Details	23/16	• • with separator defining termination of crushing or disintegrating zone, e.g. screen denying egress of oversize material [2]
18/18	• • • Knives; Mountings thereof	23/18	• Adding fluid, other than for crushing or disintegrating by fluid energy (feeding devices B02C 23/02) [2]
18/20	• • • • Sickle-shaped knives	23/20	• • after crushing or disintegrating [2]
18/22	• • • Feed or discharge means	23/22	• • • with recirculation of material to crushing or disintegrating zone [2]
18/24	• • • Drives	23/24	• • Passing gas through crushing or disintegrating zone (B02C 23/38, B02C 23/40 take precedence) [2]
18/26	• with knives which both reciprocate and rotate	23/26	• • • characterised by point of gas entry or exit or by gas flow path [2]
18/28	• with spiked cylinders	23/28	• • • gas moving means being integral with, or attached to, crushing or disintegrating element [2]
18/30	• Mincing machines with perforated discs and feeding worms	23/30	• • • the applied gas acting to effect material separation (B02C 23/34 takes precedence) [2]
18/32	• • with sharpening devices	23/32	• • • with return of oversize material to crushing or disintegrating zone (B02C 23/34 takes precedence) [2]
18/34	• • with means for cleaning the perforated discs	23/34	• • • gas being recirculated to crushing or disintegrating zone [2]
18/36	• • Knives or perforated discs	23/36	• • the crushing or disintegrating zone being submerged in liquid [2]
18/38	• • Drives	23/38	• • in apparatus having multiple crushing or disintegrating zones [2]
19/00	Other disintegrating devices or methods (for grain B02C 9/00)	23/40	• • with more than one means for adding fluid to the material being crushed or disintegrated [2]
19/06	• Jet mills	25/00	Control arrangements specially adapted for crushing or disintegrating
19/08	• Pestle and mortar		
19/10	• Mills in which a friction block is towed along the surface of a cylindrical or annular member		
19/11	• High-speed drum mills (for separating B04B)		
19/16	• Mills provided with vibrators (tumbling mills B02C 17/14)		
19/18	• Use of auxiliary physical effects, e.g. ultrasonics, irradiation, for disintegrating		
19/20	• Disintegrating by grating		
19/22	• Crushing mills with screw-shaped crushing means		
21/00	Disintegrating plant with or without drying of the material (for grain B02C 9/04)		
21/02	• Transportable disintegrating plant		