

**CPC****COOPERATIVE PATENT CLASSIFICATION****B02C**

**CRUSHING, PULVERISING, OR DISINTEGRATING IN GENERAL; MILLING GRAIN** ( { clod-crushers for soil-working machines [A01B 17/00C](#); household tools and machines for pulverising foodstuffs, e.g. coffee and spice mills [A47J 42/00](#); pharmaceutical mortars [A61J 3/02](#); mechanical processing of refuse and garbage [B03B 9/06](#); dressing mould materials by grinding [B22C 5/04](#) }; obtaining metallic powder by crushing, grinding or milling [B22F 9/04](#); { recovery of plastics by desintegration [B29B 17/00](#); crushing raw materials in starch making [C08B 30/02](#); shredding devices for sugar beet and sugar cane [C13C 1/00](#); beaters for papermaking [D21D 1/02](#); crushing devices specially for transport in mines [E21F 13/002](#); slag crushing devices [F23J 1/00](#); fuel milling devices in combustion apparatus [F23K 1/00](#); household devices for crushing coal [F24B 15/02](#); ice desintegrating devices [F25C 5/02](#) }) **C2011.10**

**Guidance heading:****B02C 1/00****Crushing or disintegrating by reciprocating members**

- B02C 1/005 . {hydraulically or pneumatically operated }
- B02C 1/02 . Jaw crushers or pulverisers
- B02C 1/025 .. {Jaw clearance or overload control }
- B02C 1/04 .. with single-acting jaws
- B02C 1/043 ... {with cooperating single acting jaws }
- B02C 1/046 ... {of the plural stage type }
- B02C 1/06 .. with double-acting jaws
- B02C 1/08 .. with jaws coacting with rotating roller
- B02C 1/10 .. Shape or construction of jaws
- B02C 1/12 . Mills with non-rotating spiked members
- B02C 1/14 . Stamping mills

**B02C 2/00****Crushing or disintegrating by gyratory or cone crushers** { (with non-coaxial discs with intersecting axes [B02C 7/005](#)) }

- B02C 2/005 . {Lining }
- B02C 2/007 . {Feeding devices }
- B02C 2/02 . eccentrically moved
- B02C 2/04 .. with vertical axis
- B02C 2/042 ... {Moved by an eccentric weight }
- B02C 2/045 ... {and with bowl adjusting or controlling mechanisms ([B02C 2/042](#), [B02C 2/06](#) take precedence) }

- B02C 2/047 . . . {and with head adjusting or controlling mechanisms ([B02C 2/042](#), [B02C 2/06](#) take precedence) }
- B02C 2/06 . . . and with top bearing { ([B02C 2/042](#) takes precedence) }
- B02C 2/08 . . with horizontal axis
- B02C 2/10 . concentrically moved; Bell crushers
- B02C 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](#))
- B02C 4/02 . with two or more rollers
- B02C 4/04 . . specially adapted for milling paste-like material, e.g. paint, chocolate, colloids
- B02C 4/06 . . specially adapted for milling grain
- B02C 4/08 . . with co-operating corrugated or toothed crushing-rollers
- B02C 4/10 . with a roller co-operating with a stationary member
- B02C 4/12 . . in the form of a plate
- B02C 4/14 . . . specially adapted for milling paste-like material, e.g. paint, chocolate, colloids
- B02C 4/16 . . . specially adapted for milling grain
- B02C 4/18 . . in the form of a bar
- B02C 4/20 . . . wherein the roller is corrugated or toothed
- B02C 4/22 . . . specially adapted for milling paste-like material, e.g. paint, chocolate, colloids
- B02C 4/24 . . . specially adapted for milling grain
- B02C 4/26 . . in the form of a grid or grating
- B02C 4/28 . Details
- B02C 4/283 . . {Lateral sealing shields }
- B02C 4/286 . . {Feeding devices }
- B02C 4/30 . . Shape or construction of rollers
- B02C 4/305 . . . {Wear resistant rollers }
- B02C 4/32 . . Adjusting, applying pressure to, or controlling the distance between, milling members
- B02C 4/34 . . . in mills wherein a roller co-operates with a stationary member
- B02C 4/36 . . . in mills specially adapted for paste-like materials
- B02C 4/38 . . . in grain mills
- B02C 4/40 . . Detachers, e.g. scrapers
- B02C 4/42 . . Driving mechanisms; Roller speed control
- B02C 4/423 . . . {with vibrating or oscillating mechanisms }
- B02C 4/426 . . . {Torque counterbalancing mechanisms }
- B02C 4/44 . . Cooling or heating rollers or bars
- B02C 7/00** **Crushing or disintegrating by disc mills** (apparatus specially adapted for manufacture or treatment of cocoa or cocoa products exclusively [A23G 1/04](#))
- B02C 7/005 . . {Crushers with non-coaxial toothed discs with intersecting axes }

- B02C 7/02 . with coaxial discs
- B02C 7/04 . . with concentric circles of intermeshing teeth
- B02C 7/06 . . with horizontal axis ([B02C 7/04 takes precedence](#))
- B02C 7/08 . . with vertical axis ([B02C 7/04 takes precedence](#))
- B02C 7/10 . with eccentric discs
- B02C 7/11 . Details
- B02C 7/12 . . Shape or construction of discs
- B02C 7/13 . . . for grain mills
- B02C 7/14 . . Adjusting, applying pressure to, or controlling distance between, discs
- B02C 7/16 . . Driving mechanisms
- B02C 7/17 . . Cooling or heating of discs
- B02C 7/175 . Disc mills specially adapted for paste-like material, e.g. paint, chocolate, colloids
- B02C 7/18 . Disc mills specially adapted for grain
- B02C 7/182 . . {with horizontal axis }
- B02C 7/184 . . {with vertical axis }
- B02C 7/186 . . {Adjusting, applying pressure to, or controlling distance between, discs }
- B02C 7/188 . . {Driving mechanisms }
- B02C 9/00 Other milling methods or mills specially adapted for grain**
- B02C 9/02 . Cutting or splitting grain
- B02C 9/04 . Systems or sequences of operations; Plant
- B02C 11/00 Other auxiliary devices or accessories specially adapted for grain mills**
- B02C 11/02 . Breaking up amassed particles, e.g. flakes
- B02C 11/04 . Feeding devices
- B02C 11/06 . Arrangements for preventing fire or explosion ([methods for preventing or extinguishing fires, devices therefor A62C](#) )
- B02C 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](#) )
- B02C 13/00 Disintegrating by mills having rotary beater elements; {Hammer mills }**
- B02C 13/02 . with horizontal rotor shaft ([with axial flow B02C 13/10](#))
- B02C 13/04 . . with beaters hinged to the rotor; Hammer mills
- B02C 13/06 . . with beaters rigidly connected to the rotor

- B02C 13/08 . . . and acting as a fan
- B02C 13/09 . . . and throwing the material against an anvil or impact plate { (with vertical axis [B02C 13/1807](#)) }
- B02C 13/095 . . . . {with an adjustable anvil or impact plate }
- B02C 13/10 . with horizontal rotor shaft and axial flow
- B02C 13/12 . . with vortex chamber
- B02C 13/13 . with horizontal rotor shaft and combined with sifting devices, e.g. for making powdered fuel
- B02C 13/14 . with vertical rotor shaft, e.g. combined with sifting devices
- B02C 13/16 . . with beaters hinged to the rotor
- B02C 13/18 . . with beaters rigidly connected to the rotor
- B02C 13/1807 . . . {the material to be crushed being thrown against an anvil or impact plate (with horizontal axis [B02C 13/09](#); centrifugal acceleration of material through radially extending channels [B02C 19/0025](#); centrifugal acceleration of material by means of an open top rotor [B02C 19/0031](#)) }
- B02C 13/1814 . . . . {by means of beater or impeller elements fixed on top of a disc type rotor }
- B02C 13/1821 . . . . . {the beater or impeller elements being rotatably fixed around their own axis }
- B02C 13/1828 . . . . . {with dead bed protected beater or impeller elements }
- B02C 13/1835 . . . . {by means of beater or impeller elements fixed in between an upper and lower rotor disc }
- B02C 13/1842 . . . . . {with dead bed protected beater or impeller elements }
- B02C 13/185 . . . . {Construction or shape of anvil or impact plate }
- B02C 13/20 . with two or more co-operating rotors
- B02C 13/205 . . {arranged concentrically }
- B02C 13/22 . with intermeshing pins; {Pin Disk Mills }
- B02C 13/24 . . arranged around a vertical axis
- B02C 13/26 . Details
- B02C 13/28 . . Shape or construction of beater elements
- B02C 13/2804 . . . {the beater elements being rigidly connected to the rotor }
- B02C 13/282 . . Shape or inner surface of mill-housings
- B02C 13/284 . . . Built-in screens
- B02C 13/286 . . Feeding or discharge
- B02C 13/288 . . Ventilating, or influencing air circulation
- B02C 13/30 . . Driving mechanisms
- B02C 13/31 . . Safety devices or measures
- B02C 15/00** **Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs { (high-speed drum mills [B02C 19/11](#)) }**
- B02C 15/001 . {Air flow directing means positioned on the periphery of the horizontally rotating milling surface }

- B02C 15/003 . {Shape or construction of discs or rings }
- B02C 15/004 . {Shape or construction of rollers or balls }
- B02C 15/005 . . {Rollers or balls of composite construction }
- B02C 15/006 . {Ring or disc drive gear arrangement }
- B02C 15/007 . {Mills with rollers pressed against a rotary horizontal disc (with pendularly mounted rollers [B02C 15/04](#)) }
- B02C 15/02 . Centrifugal pendulum-type mills
- B02C 15/04 . Mills with pressed pendularly-mounted rollers, e.g. spring pressed
- B02C 15/045 . . {pressed against the interior of a ring rotating in a vertical plane }
- B02C 15/06 . Mills with rollers forced against the interior of a rotary ring, e.g. under spring action ([B02C 15/04](#) takes precedence)
- B02C 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)
- B02C 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
- B02C 15/12 . Mills with at least two discs {or rings } and interposed balls or rollers mounted like ball or roller bearings
- B02C 15/123 . . {with rings and interposed rollers }
- B02C 15/14 . Edge runners, e.g. Chile mills
- B02C 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
- B02C 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](#); {drums for polishing or grinding [B24B](#) })**
- B02C 17/002 . {with rotary cutting or beating elements }
- B02C 17/005 . {the charge being turned over by magnetic forces }
- B02C 17/007 . {specially adapted for disintegrating refuse }
- B02C 17/02 . with perforated container
- B02C 17/04 . with unperforated container
- B02C 17/06 . . with several compartments
- B02C 17/07 . . . in radial arrangement

- B02C 17/08 . . with containers performing a planetary movement
- B02C 17/10 . with one or a few disintegrating members arranged in the container
- B02C 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 { (mills provided with vibrators in general [B02C 19/16](#)) }
- B02C 17/16 . Mills in which a fixed container houses stirring means tumbling the charge
- B02C 17/161 . . {Arrangements for separating milling media and ground material }
- B02C 17/163 . . {Stirring means }
- B02C 17/166 . . {of the annular gap type }
- B02C 17/168 . . {with a basket media milling device arranged in or on the container, involving therein a circulatory flow of the material to be milled }
- B02C 17/18 . Details
- B02C 17/1805 . . {Monitoring devices for tumbling mills }
- B02C 17/181 . . {Bearings specially adapted for tumbling mills }
- B02C 17/1815 . . {Cooling or heating devices }
- B02C 17/182 . . {Lids }
- B02C 17/1825 . . {Lifting devices (lifting devices associated with the lining for containers [B02C 17/22](#)) }
- B02C 17/183 . . {Feeding or discharging devices }
- B02C 17/1835 . . . {Discharging devices combined with sorting or separating of material ([B02C 17/186](#) takes precedence) }
- B02C 17/184 . . . . {with separator arranged in discharge path of crushing zone }
- B02C 17/1845 . . . . . {with return of oversize material to crushing zone }
- B02C 17/185 . . . . {with more than one separator }
- B02C 17/1855 . . . . {with separator defining termination of crushing zone, e.g. screen denying egress of oversize material }
- B02C 17/186 . . . {Adding fluid, other than for crushing by fluid energy }
- B02C 17/1865 . . . . {after crushing }
- B02C 17/187 . . . . . {with recirculation of material to crushing zone }
- B02C 17/1875 . . . . {passing gas through crushing zone }
- B02C 17/188 . . . . . {characterised by point of gas entry or exit or by gas flow path }
- B02C 17/1885 . . . . . {the applied gas acting to effect material separation ([B02C 17/1895](#) takes precedence) }
- B02C 17/189 . . . . . {with return of oversize material to crushing zone ([B02C 17/1895](#) takes precedence) }
- B02C 17/1895 . . . . . {gas being recirculated to crushing zone }
- B02C 17/20 . . Disintegrating members
- B02C 17/205 . . . {Adding disintegrating members to the tumbling mill }
- B02C 17/22 . . Lining for containers
- B02C 17/225 . . . {using rubber or elastomeric material }
- B02C 17/24 . . Driving mechanisms
- B02C 18/00** **Disintegrating by knives or other cutting or tearing members which chop material**

**into fragments { (tree stump comminutors [A01G 23/067](#)) }**

- B02C 18/0007 . {specially adapted for disintegrating documents }
- B02C 18/0076 . {with cutting or tearing members fixed on endless flexible members (without cutting or tearing members [B02C 19/0006](#)) }
- B02C 18/0084 . {specially adapted for disintegrating garbage, waste or sewage }
- B02C 18/0092 . . {for waste water or for garbage }
- B02C 18/02 . with reciprocating knives
- B02C 18/04 . . Details
- B02C 18/06 . with rotating knives
- B02C 18/062 . . {with rotor elements extending axially in close radial proximity of a concentrically arranged slotted or perforated ring }
- B02C 18/065 . . {within rotatable bowls, e.g. meat cutters }
- B02C 18/067 . . {Tub-grinders }
- B02C 18/08 . . within vertical containers { ([B02C 18/062](#), [B02C 18/065](#) take precedence) }
- B02C 18/083 . . . {with a disc rotor having generally radially extending slots or openings bordered with cutting knives }
- B02C 18/086 . . . {specially adapted for disintegrating plastics, e.g. cinematographic films (for plastic bottles [B02C 19/0093](#), disintegrating plastics [B29B 17/00](#)) }
- B02C 18/10 . . . with drive arranged above container { ([B02C 18/083](#) takes precedence) }
- B02C 18/12 . . . with drive arranged below container { ([B02C 18/083](#) takes precedence) }
- B02C 18/14 . . within horizontal containers { ([B02C 18/062](#), [B02C 18/065](#) take precedence) }
- B02C 18/141 . . . {with axial flow }
- B02C 18/142 . . . {with two or more inter-engaging rotatable cutter assemblies }
- B02C 18/143 . . . {with a disc rotor having generally radially extending slots or openings bordered with cutting knives }
- B02C 18/144 . . . {with axially elongated knives }
- B02C 18/145 . . . {with knives spaced axially and circumferentially on the periphery of a cylindrical rotor unit }
- B02C 18/146 . . . {with a rotor comprising a plurality of axially contiguous disc-like segments each having at least one radially extending cutting element }
- B02C 18/148 . . . {specially adapted for disintegrating plastics, e.g. cinematographic films (for plastic bottles [B02C 19/0093](#), disintegrating plastics [B29B 17/00](#)) }
- B02C 18/16 . . Details
- B02C 18/18 . . . Knives; Mountings thereof
- B02C 18/182 . . . . {Disc-shaped knives }
- B02C 18/184 . . . . . {with peripherally arranged demountable cutting tips or elements }
- B02C 18/186 . . . . {Axially elongated knives }
- B02C 18/20 . . . . Sickel-shaped knives
- B02C 18/22 . . . Feed or discharge means
- B02C 18/2216 . . . . {Discharge means }

- B02C 18/2225 . . . . {Feed means }
- B02C 18/2233 . . . . {of ram or pusher type }
- B02C 18/2241 . . . . {of conveyor belt type ([B02C 18/225](#) takes precedence) }
- B02C 18/225 . . . . {of conveyor belt and cooperating roller type }
- B02C 18/2258 . . . . {of screw type }
- B02C 18/2266 . . . . {of revolving drum type }
- B02C 18/2275 . . . . {using a rotating arm }
- B02C 18/2283 . . . . {using rollers ([B02C 18/225](#) takes precedence) }
- B02C 18/2291 . . . . {Feed chute arrangements }
- B02C 18/24 . . . Drives
  
- B02C 18/26 . with knives which both reciprocate and rotate
  
- B02C 18/28 . with spiked cylinders
  
- B02C 18/30 . Mincing machines with perforated discs and feeding worms
- B02C 18/301 . . {with horizontal axis }
- B02C 18/302 . . . {with a knife-perforated disc unit }
- B02C 18/304 . . . {with several axially aligned knife-perforated disc units }
- B02C 18/305 . . {Details }
- B02C 18/32 . . with sharpening devices
- B02C 18/34 . . with means for cleaning the perforated discs
- B02C 18/36 . . Knives or perforated discs
- B02C 18/362 . . . {Knives }
- B02C 18/365 . . . {Perforated discs }
- B02C 18/38 . . Drives
  
- B02C 19/00 Other disintegrating devices or methods (for grain [B02C 9/00](#))**
  
- B02C 19/0006 . {Crushing by endless flexible members (with cutting or tearing members [B02C 18/0076](#)) }
  
- B02C 19/0012 . {Devices for disintegrating materials by collision of these materials against a breaking surface or breaking body and/or by friction between the material particles (also for grain) }
  
- B02C 19/0018 . . {using a rotor accelerating the materials centrifugally against a circumferential breaking surface (rotors with beater elements [B02C 13/09](#), [B02C 13/1807](#)) }
- B02C 19/0025 . . . {by means of a rotor with radially extending channels }
- B02C 19/0031 . . . {by means of an open top rotor }
- B02C 19/0037 . . . . {with concentrically arranged open top rotors }
- B02C 19/0043 . . {the materials to be pulverised being projected against a breaking surface or breaking body by a pressurised fluid (jet mills [B02C 19/06](#)) }
- B02C 19/005 . . {the materials to be pulverised being disintegrated by collision of, or friction between, the material particles (jet mills [B02C 19/06](#)) }
  
- B02C 19/0056 . {specially adapted for specific materials not otherwise provided for }



- B02C 19/0062 . . {specially adapted for shredding scrap metal, e.g. automobile bodies }
- B02C 19/0068 . . {specially adapted for breaking-up fluorescent tubes }
- B02C 19/0075 . . {specially adapted for disintegrating medical waste (disposal of medical waste [B09B 3/0075](#), sterilisation of refuse [A61L 11/00](#)) }
- B02C 19/0081 . . {specially adapted for breaking-up bottles }
- B02C 19/0087 . . . {for glass bottles }
- B02C 19/0093 . . . {for plastic bottles }
  
- B02C 19/06 . Jet mills
- B02C 19/061 . . {of the cylindrical type ([B02C 19/068](#) takes precedence) }
- B02C 19/063 . . {of the toroidal type ([B02C 19/068](#) takes precedence) }
- B02C 19/065 . . {of the opposed-jet type ([B02C 19/068](#) takes precedence) }
- B02C 19/066 . . {of the jet-anvil type ([B02C 19/068](#) takes precedence) }
- B02C 19/068 . . {of the fluidised-bed type }
  
- B02C 19/08 . Pestle and mortar
  
- B02C 19/10 . Mills in which a friction block is towed along the surface of a cylindrical or annular member
  
- B02C 19/11 . High-speed drum mills (for separating [B04B](#) )
  
- B02C 19/16 . Mills provided with vibrators ( {roller mills [B02C 4/423](#) }; tumbling mills [B02C 17/14](#) )
  
- B02C 19/18 . Use of auxiliary physical effects, e.g. ultrasonics, irradiation, for disintegrating
- B02C 19/186 . . {Use of cold or heat for disintegrating ([B02C 4/44](#), [B02C 7/17](#), [B02C 11/08](#) take precedence) }
  
- B02C 19/20 . Disintegrating by grating { ([domestic food grating devices A47J 43/25](#)) }
  
- B02C 19/22 . Crushing mills with screw-shaped crushing means
  
- B02C 21/00** **Disintegrating plant with or without drying of the material** (for grain [B02C 9/04](#); {combined with devices for sorting the material, provisionally [B02C 23/00B](#) })
  
- B02C 21/002 . {using a combination of a roller mill and a drum mill }
- B02C 21/005 . . {the roller mill having cooperating rollers }
  
- B02C 21/007 . {using a combination of two or more drum or tube mills }
  
- B02C 21/02 . Transportable disintegrating plant
- B02C 21/026 . . {self-propelled }
  
- B02C 23/00** **Auxiliary methods or auxiliary devices or accessories specially adapted for crushing or disintegrating not provided for in preceding groups or not specially adapted to apparatus covered by a single preceding group** ( {specially adapted for grain mills [B02C 11/00](#); } separating or sorting in general [B03](#) , [B04](#) , [B07](#) )
  
- B02C 23/02 . Feeding devices ( {for grain mills [11/04](#); for roller mills [B02C 4/286](#) }; transport devices

in general [B65G](#) )

- [B02C 23/04](#) . Safety devices (in general [F16P](#) ; {for rotary mills [B02C 13/31](#) } )
- [B02C 23/06](#) . Selection or use of additives to aid disintegrating
- [B02C 23/08](#) . Separating or sorting of material, associated with crushing or disintegrating ([B02C 23/18](#) takes precedence; {beater mills combined with sifting devices [B02C 13/13](#), [B02C 13/14](#); for tumbling mills [B02C 17/1835](#) } )
- [B02C 23/10](#) . . with separator arranged in discharge path of crushing or disintegrating zone
- [B02C 23/12](#) . . . with return of oversize material to crushing or disintegrating zone
- [B02C 23/14](#) . . with more than one separator
- [B02C 23/16](#) . . with separator defining termination of crushing or disintegrating zone, e.g. screen denying egress of oversize material
- [B02C 23/18](#) . Adding fluid, other than for crushing or disintegrating by fluid energy ( {for tumbling mills [B02C 17/186](#); } feeding devices [B02C 23/02](#) )
- [B02C 23/20](#) . . after crushing or disintegrating
- [B02C 23/22](#) . . . with recirculation of material to crushing or disintegrating zone
- [B02C 23/24](#) . . Passing gas through crushing or disintegrating zone ( {[B02C 15/001](#) }, [B02C 23/38](#), [B02C 23/40](#) take precedence)
- [B02C 23/26](#) . . . characterised by point of gas entry or exit or by gas flow path
- [B02C 23/28](#) . . . gas moving means being integral with, or attached to, crushing or disintegrating element
- [B02C 23/30](#) . . . the applied gas acting to effect material separation ([B02C 23/34](#) takes precedence)
- [B02C 23/32](#) . . . with return of oversize material to crushing or disintegrating zone ([B02C 23/34](#) takes precedence)
- [B02C 23/34](#) . . . gas being recirculated to crushing or disintegrating zone
- [B02C 23/36](#) . . the crushing or disintegrating zone being submerged in liquid
- [B02C 23/38](#) . . in apparatus having multiple crushing or disintegrating zones
- [B02C 23/40](#) . . with more than one means for adding fluid to the material being crushed or disintegrated

## **[B02C 25/00](#) Control arrangements specially adapted for crushing or disintegrating**

### **Guidance heading:**

- [B02C 2002/00](#) Crushing or disintegrating by gyratory or cone crushers { (with non-coaxial discs with intersecting axes [B02C 7/005](#) ) }**
- [B02C 2002/002](#) . the bowl being a driven element for providing a crushing effect
- [B02C 2013/00](#) Disintegrating by mills having rotary beater elements; {Hammer mills }**
- [B02C 2013/14](#) . with vertical rotor shaft, e.g. combined with sifting devices

- B02C 2013/145 . . with fast rotating vanes generating vortexes effecting material on material impact
- B02C 2013/18 . . with beaters rigidly connected to the rotor
- B02C 2013/1807 . . . {the material to be crushed being thrown against an anvil or impact plate (with horizontal axis [B02C 13/09](#); centrifugal acceleration of material through radially extending channels [B02C 19/0025](#); centrifugal acceleration of material by means of an open top rotor [B02C 19/0031](#)) }
- B02C 2013/1857 . . . . rotating coaxially around the rotor shaft
- B02C 2013/1864 . . . . rotatable around its own axis
- B02C 2013/1871 . . . . vertically adjustable
- B02C 2013/1878 . . . . radially adjustable
- B02C 2013/1885 . . . . of dead bed type
- B02C 2013/1892 . . . . cooled or heated
- B02C 2013/26 . Details
- B02C 2013/28 . . Shape or construction of beater elements
- B02C 2013/2808 . . . the beater elements are attached to disks mounted on a shaft
- B02C 2013/2812 . . . the beater elements are attached to a hollow cylindrical rotor
- B02C 2013/2816 . . . of chain, rope or cable type
- B02C 2013/282 . . Shape or inner surface of mill-housings
- B02C 2013/2825 . . . with fastening means for fixing lining members to the inner surface of mill-housings
- B02C 2013/286 . . Feeding or discharge
- B02C 2013/28609 . . . Discharge means
- B02C 2013/28618 . . . Feeding means
- B02C 2013/28627 . . . . of ram or pusher type
- B02C 2013/28636 . . . . of conveyor belt type
- B02C 2013/28645 . . . . of conveyor belt and cooperating roller type
- B02C 2013/28654 . . . . of screw type
- B02C 2013/28663 . . . . using rollers
- B02C 2013/28672 . . . . Feed chute arrangements
- B02C 2013/28681 . . . . Feed distributor plate for vertical mill
- B02C 2013/2869 . . . Arrangements of feed and discharge means in relation to each other
- B02C 2013/29 . . devices for manipulating beater elements
- B02C 2015/00 Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs { (high-speed drum mills [B02C 19/11](#)) }**
- B02C 2015/002 . combined with a classifier
- B02C 2015/008 . Roller drive arrangements
- B02C 2015/12 . Mills with at least two discs {or rings } and interposed balls or rollers mounted like ball or roller bearings
- B02C 2015/126 . . of the plural stage type
- B02C 2015/14 . Edge runners, e.g. Chile mills

- B02C 2015/143 . . . each runner pivot carrying more than one runner
- B02C 2015/146 . . . Step-shaped runners
  
- B02C 2017/00** **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](#); {drums for polishing or grinding [B24B](#) })**
  
- B02C 2017/04 . . with unperforated container
- B02C 2017/06 . . . with several compartments
- B02C 2017/065 . . . . with several compartments in the form of multiwell blocks
  
- B02C 2017/16 . . Mills in which a fixed container houses stirring means tumbling the charge
- B02C 2017/165 . . . with stirring means comprising more than one agitator
  
- B02C 2018/00** **Disintegrating by knives or other cutting or tearing members which chop material into fragments { (tree stump comminutors [A01G 23/067](#) ) }**
  
- B02C 2018/0007 . . {specially adapted for disintegrating documents }
- B02C 2018/0015 . . . for disintegrating CDs, DVDs and/or credit cards
- B02C 2018/0023 . . . Switching devices
- B02C 2018/003 . . . Removing clips, pins or staples before disintegrating
- B02C 2018/0038 . . . Motor drives
- B02C 2018/0046 . . . Shape or construction of frames, housings or casings
- B02C 2018/0053 . . . hand-operated
- B02C 2018/0061 . . . with compacting devices for the disintegrated material
- B02C 2018/0069 . . . with stripping devices
  
- B02C 2018/06 . . with rotating knives
- B02C 2018/14 . . . within horizontal containers { ([B02C 18/062](#), [B02C 18/065](#) take precedence) }
- B02C 2018/147 . . . . of the plural stage type
- B02C 2018/16 . . . Details
- B02C 2018/162 . . . . Shape or inner surface of shredder-housings
- B02C 2018/164 . . . . Prevention of jamming and/or overload
- B02C 2018/166 . . . . Lubricating the knives of the cutting mechanisms
- B02C 2018/168 . . . . User safety devices or measures in shredders
- B02C 2018/18 . . . . Knives; Mountings thereof
- B02C 2018/188 . . . . . Stationary counter-knives; Mountings thereof
- B02C 2018/22 . . . . Feed or discharge means
- B02C 2018/2208 . . . . . for weblike material
  
- B02C 2018/30 . . Mincing machines with perforated discs and feeding worms
- B02C 2018/305 . . . {Details }
- B02C 2018/307 . . . . Cooling arrangements in mincing machines
- B02C 2018/308 . . . with separating devices for hard material, e.g. bone

- B02C 2018/36 . . Knives or perforated discs  
 B02C 2018/367 . . . Resiliently mounted knives or discs
- B02C 2019/00 Other disintegrating devices or methods** (for grain [B02C 9/00](#))
- B02C 2019/18 . Use of auxiliary physical effects, e.g. ultrasonics, irradiation, for disintegrating  
 B02C 2019/183 . . Crushing by discharge of high electrical energy
- B02C 2021/00 Disintegrating plant with or without drying of the material** (for grain [B02C 9/04](#); {combined with devices for sorting the material, provisionally [B02C 23/00B](#) })
- B02C 2021/02 . Transportable disintegrating plant  
 B02C 2021/023 . . for disintegrating material on the surface of the ground
- B02C 2023/00 Auxiliary methods or auxiliary devices or accessories specially adapted for crushing or disintegrating not provided for in preceding groups or not specially adapted to apparatus covered by a single preceding group** ( {specially adapted for grain mills [B02C 11/00](#); } separating or sorting in general [B03](#) , [B04](#) , [B07](#) )
- B02C 2023/08 . Separating or sorting of material, associated with crushing or disintegrating ([B02C 23/18](#) takes precedence; {beater mills combined with sifting devices [B02C 13/13](#), [B02C 13/14](#); for tumbling mills [B02C 17/1835](#) })
- B02C 2023/16 . . with separator defining termination of crushing or disintegrating zone, e.g. screen denying egress of oversize material  
 B02C 2023/165 . . . Screen denying egress of oversize material

**Guidance heading:****B02C 2201/00 Codes relating to disintegrating devices adapted for specific materials**

- B02C 2201/02 . for reinforced concrete
- B02C 2201/04 . for used tyres
- B02C 2201/06 . for garbage, waste or sewage  
 B02C 2201/063 . . for waste water or sewage  
 B02C 2201/066 . . for garden waste

**Guidance heading:****B02C 2210/00 Codes relating to different types of disintegrating devices**

- B02C 2210/01 . Indication of wear on beaters, knives, rollers, anvils, linings and the like
- B02C 2210/02 . Features for generally used wear parts on beaters, knives, rollers, anvils, linings and the like