

B02C

CRUSHING,PULVERISING OR DISINTEGRATING IN GENERAL; MILLING GRAIN ([N: clod-crushers for soil-working machines A01B17/004; household tools and machines for pulverising foodstuffs, e.g. coffee and spice mills A47J42/00; pharmaceutical mortars A61J3/02; mechanical processing of refuse and garbage B03B9/06; dressing mould materials by grinding B22C5/04]; obtaining metallic powder by crushing, grinding or milling B22F9/04; [N: recovery of plastics by disintegration B29B17/00; crushing raw materials in starch making C08B30/02; shredding and crushing devices for sugar beet and sugar cane C13B5/04 and C13B10/06; beaters for papermaking D21D1/02; crushing devices specially for transport in mines E21F13/002; slag crushing devices F23J1/00; fuel milling devices in combustion apparatus F23K1/00; household devices for crushing coal F24B15/02; ice disintegrating devices F25C5/02])

Definition statement

This subclass/group covers:

- Apparatus and methods for crushing, pulverizing, comminuting, disintegrating by using reciprocating or rotary crushers, by using rollers or balls, discs or rotary beaters, by tumbling, by using knives or other cutting or tearing members, by using fluid jets.
- Auxiliary devices, accessories for such devices e.g. safety, and auxiliary methods.
- Whole disintegration plants.
- Control arrangements for crushing or disintegrating.
- Combinations of such apparatus with other devices, e.g. for separating or sorting.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Preparing specimens for investigation involving mechanical work, e.g. chopping, disintegrating, compacting, homogenising	G01N 1/286
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B02C 1/00

Crushing or disintegrating by reciprocating members

Definition statement

This subclass/group covers:

Crushing where the crushing or disintegrating members are only reciprocating.

B02C 1/12

Mills with non-rotating spiked members

References relevant to classification in this group

This subclass/group does not cover:

Disintegrating devices with spiked members specially adapted for breaking-up bottles: [B02C 19/0081](#).

B02C 2/00

Crushing or disintegrating by gyratory or cone crushers [N: (with non-coaxial discs with intersecting axes B02C7/005)]

Definition statement

This subclass/group covers:

Crushers with a gyrating conical head and a bowl assembly surrounding the head; normally the head is driven.

References relevant to classification in this group

This subclass/group does not cover:

Cone crushers with non-coaxial discs with intersecting axes	B02C 7/005
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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 B02C15/00; roller mills or roll refiners exclusively for chocolate A23G1/10, A23G1/12)

Definition statement

This subclass/group covers:

Roller mills with two or more rollers; with a roller co-operating with a stationary member like a plate, a bar a grid or grating or co-operating with a conveyor.

References relevant to classification in this group

This subclass/group does not cover:

Roller mills with milling members in the form of rollers or balls co-operating with rings or discs	B02C 15/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Roller mills or roll refiners exclusively for chocolate	A23G 1/10 , A23G 1/12
Presses characterised by the use of rotary pressing members, e.g. rollers, rings, discs	B30B 3/00

Special rules of classification within this group

In the cases where the roller mill is adapted for milling a paste-like material or grain, the document is classified in the appropriate subgroup of [B02C 4/00](#), e.g. [B02C 4/04](#), [B02C 4/06](#), [B02C 4/22](#). For searching, other classes, where the roller mill is not adapted for the specific material concerned, have to be considered.

B02C 7/00

Crushing or disintegrating by disc mills (apparatus specially adapted for manufacture or treatment of cocoa or cocoa products exclusively A23G1/04)

Definition statement

This subclass/group covers:

Disc mills used to grind, fiberize, pulverize, granulate or refine a feedstock which is fed between opposing discs or plates. The discs may be grooved, serrated or spiked.

References relevant to classification in this group

This subclass/group does not cover:

Apparatus specially adapted for manufacture or treatment of cocoa or cocoa products	A23G 1/04
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B02C 7/12

Shape or construction of discs

Informative references

Attention is drawn to the following places, which may be of interest for search:

Discs for disc mills for refining paper pulp	D21D 1/306
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B02C 9/00

Other milling methods or mills specially adapted for grain

Definition statement

This subclass/group covers:

Methods or mills, systems, plants or sequences of operations specially adapted for grain with the meaning of cereal grain.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Combined processes for grain treatment	B02B 5/02
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B02C 11/00

Other auxiliary devices or accessories specially adapted for grain mills

Definition statement

This subclass/group covers:

All auxiliary devices and accessories specially adapted for grain mills like disagglomerators, special sifting and separating, feeding, cooling, heating, conditioning arrangements.

B02C 13/00

Disintegrating by mills having rotary beater elements; [N: Hammer mills]

Definition statement

This subclass/group covers:

Mills with beaters rigidly connected or hinged for swinging movement to a horizontally or vertically arranged rotor for crushing material by impact. The material may be thrown against an anvil or impact member.

References relevant to classification in this group

This subclass/group does not cover:

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 gra)	B02C 19/0012
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B02C 13/22

with intermeshing pins; [N: Pin Disk Mills]

Special rules of classification within this group

Mills with intermeshing elements like pins or other impact members, where both disks are rotating, are additionally classified in [B02C 13/205](#).

B02C 15/00

Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs

Definition statement

This subclass/group covers:

Mills with rollers or balls co-operating with stationary or rotating rings arranged according to the titles of the sub-groups; many for coal or ore.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cocoa; Cocoa products, e.g. chocolate; Substitutes therefore; Mixing apparatus; Roller mills for preparing chocolate	A23G 1/10
Selective separation of solid materials carried by, or dispersed in, gas currents using centrifugal force	B07B 7/08
Selective separation of solid materials carried by, or dispersed in, gas currents, gas currents using centrifugal force, generated by rotating vanes, discs, drums, or brushes	B07B 7/083
Machines or devices specially designed for dressing or handling the mould material so far as specially adapted for that purpose by grinding, blending, mixing, kneading, or stirring	B22C 5/04
Casting in, on, or around objects which form part of the product; for manufacturing or repairing tools	B22D 19/06
Preparation of lump or pulverulent fuel in readiness for delivery to combustion apparatus	F23K 1/00

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 B02C19/11 ; [N: drums for polishing or grinding B24B])

Definition statement

This subclass/group covers:

Mills having a rotating, perforated or un-perforated or a fixed container, charged with the material to be disintegrated, with or without special

disintegrating members such as pebbles or balls, and/or with or without special stirring means; feeding and discharging devices with the associated sorting or separating arrangements.

Shape, material of grinding media, e.g. balls, pebbles, rods.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Medicinal preparations characterised by special physical form; Particulate form, e.g. powders	A61K 9/14
Mixing	B01F
Machines or devices designed for polishing or abrading surfaces on work by means of tumbling apparatus or other apparatus in which the work and/or the abrasive material is loose; Accessories therefore; involving rotary barrels	B24B 31/02

Special rules of classification within this group

Discharging devices combined with sorting or separating of material, as well as adding fluid, other than for crushing by fluid energy are classified in the appropriate sub-groups of [B02C 17/1835](#) and [B02C 17/186](#) and not in the sub-groups of [B02C 23/08](#) and [B02C 23/18](#). For searching the [B02C 23/00](#) and subgroups should be considered.

B02C 18/00

Disintegrating by knives or other cutting or tearing members which chop material into fragments [N: (tree stump comminutors A01G23/067)]

Definition statement

This subclass/group covers:

- Shredding of material into fragments; knives therefore and mountings thereof; feed or discharge means therefore.
- Mincing machines with perforated discs and feeding worms.

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cutting apparatus specially adapted for cutting hay, straw or the like	A01F 29/005
Cutting implements specially adapted for horticultural purposes, for comminuting plant waste	A01G 3/002
Forestry; extracting or eliminating stumps by comminuting the tree stumps	A01G 23/067
Fodder distributors with mixer or shredder	A01K 5/001
Processing meat, poultry or fish	A22C
Fodder mashers	A23N 17/02
Kitchen equipment; coffee mills; spice mills; apparatus for making beverages	A47J
Machines for domestic use not covered elsewhere, e.g. for grinding, mixing, stirring, kneading, emulsifying, whipping or beating foodstuffs, e.g. power-driven	A47J 43/04
Cutting; Details common to machines for perforating, punching, cutting-out, stamping-out or severing	B26D
Cutting through work characterised by the nature or movement of the cutting member; Apparatus or machines therefore; Cutting members therefore	B26D 1/00
Manufacture of wood shavings, chips, powder, or the like	B27L 11/00
Working of plastics; Conditioning or physical treatment of the material to be shaped by grinding, e.g. by triturating; by sieving; by filtering	B29B 13/10

Recovery of plastics or other constituents of waste material containing plastics; Disintegrating plastic	B29B 17/04
Disintegrating apparatus specially adapted for installation in waste pipes or outlets	E03C 1/2665
Pumps adapted for handling specific fluids with means for comminuting, mixing stirring or otherwise treating	F04D 7/045

B02C 18/16

Details

Definition statement

This subclass/group covers:

Details in relation to the shredder housing, jam prevention, safety, lubrication of the knives and the like.

References relevant to classification in this group

This subclass/group does not cover:

Disintegrating by knives or other cutting or tearing members which chop materials into fragments, specially adapted for disintegrating documents	B02C 18/0007
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B02C 19/00

Other disintegrating devices or methods

Definition statement

This subclass/group covers:

- Crushing by endless flexible members; by collision of materials against a breaking surface or breaking body and/or by friction between the material particles;

- Disintegrating devices or methods specially adapted for specific materials;
- Jet mills; pestle and mortar arrangements; mills in which a friction block is towed along the surface; mills provided with vibrators; use of auxiliary physical effects, e.g. ultrasonics, irradiation, cold or heat for disintegrating; grating; crushing mills with screw-shaped crushing means.

References relevant to classification in this group

This subclass/group does not cover:

Rotors with beater elements	B02C 13/09 , B02C 13/14
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B02C 19/0068

[N: specially adapted for breaking-up fluorescent tubes]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Recovery of material from discharge tubes or lamps	H01J 9/52
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B02C 19/0081

[N: specially adapted for breaking-up bottles]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Presses specially adapted for consolidating empty containers, e.g. cans	B30B 9/321
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B02C 19/08

Pestle and mortar

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pill breaking or crushing devices	A61J 7/0007
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B02C 21/00

Disintegrating plant with or without drying of the material (for grain B02C9/04)

Definition statement

This subclass/group covers:

Disintegrating plants normally with at least two disintegration devices; transportable disintegration plants may be equipped solely with one crusher or disintegration device.

References relevant to classification in this group

This subclass/group does not cover:

Milling plants specially adapted for grain	B02C 9/04
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Cutting implements specially adapted for horticultural purposes, for comminuting plant waste	A01G 3/002
Forestry; extracting or eliminating stumps by comminuting the tree stumps	A01G 23/067
Transportable screening plants	B07B 1/005
Crushing, pulverising or disintegrating apparatus	E01C 19/05

B02C 23/00

Auxiliary methods or auxiliary devices or accessories

pecially adapted for crushing or disintegrating not provided for in preceding groups or not specially adapted to apparatus covered by a single preceding group ([N: specially adapted for grain mills B02C11/00 ;] separating or sorting in general B03, B04, B07)

Definition statement

This subclass/group covers:

Feeding devices, safety devices, disintegrating additives, separating or sorting of material associated with crushing or disintegrating, adding fluid, liquids or gases which are not intended for crushing or disintegrating.

References relevant to classification in this group

This subclass/group does not cover:

Places in relation to which this group is residual:

Feeding devices for gyratory or cone crushers	B02C 2/007
Feeding devices for roller mills	B02C 4/286
Feeding devices specially adapted for grain mills	B02C 11/04
Arrangements for preventing fire or explosion in grain mills	B02C 11/06
Feeding or discharge for mills having rotary beater elements	B02C 13/286
Safety devices or measures for mills having rotary beater elements	B02C 13/31
Feeding or discharging devices for tumbling mills	B02C 17/183
Feed or discharge means for disintegraters with knives or other cutting or tearing members	B02C 18/22

B02C 25/00

Control arrangements specially adapted for crushing or

disintegrating

Definition statement

This subclass/group covers:

Overall control arrangements and methods.

References relevant to classification in this group

This subclass/group does not cover:

Jaw clearance or overload control for jaw crushers	B02C 1/025
Crushing or disintegrating by gyratory or cone crushers moved by an eccentric weight	B02C 2/042
Crushing or disintegrating by gyratory or cone crushers eccentrically moved with vertical axis and with bowl adjusting or controlling mechanisms	B02C 2/045
Adjusting, applying pressure to or controlling the distance between milling members in roller mills	B02C 4/32
Driving mechanisms; Roller speed control in roller mills	B02C 4/42
Controlling the distance between discs in disc mills	B02C 7/14
Controlling the distance between discs in disc mills adapted for grain	B02C 7/186
Monitoring devices for tumbling mills	B02C 17/1805