

CPC**COOPERATIVE PATENT CLASSIFICATION****A01C**

PLANTING; SOWING; FERTILISING (combined with general working of soil [A01B 49/04](#); parts, details or accessories of agricultural machines or implements, in general [A01B 51/00](#) to [A01B 75/00](#); {apparatus for spreading sand or salt [E01C](#); sowing and fertilising with aircraft [B64D 1/16](#) to [B64D 1/20](#)})

A01C 1/00

Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#) {irradiation in general [B01J 19/08](#)})

A01C 1/005

- . {Potato seed cutters}

A01C 1/02

- . Germinating apparatus; Determining germination capacity of seeds or the like (germinating in preparation of malt [C12C 1/027](#))

A01C 1/025

- . . {Testing seeds for determining their viability or germination capacity}

A01C 1/04

- . Arranging seeds on carriers, e.g. on tapes, on cords {Carrier compositions}

A01C 1/042

- . . {Tapes, bands or cords}

A01C 1/044

- . . {Sheets, multiple sheets or mats}

A01C 1/046

- . . {Carrier compositions}

A01C 2001/048

- . . {Machines}

A01C 1/06

- . Coating or dressing seed {(encapsulated embryos or artificial seeds [A01H 4/006](#); Seed coating compositions [C09D](#))}

A01C 1/08

- . Immunising seed

A01C 3/00

Treating manure; Manuring ({ploughs with additional arrangements for putting manure under the soil [A01B 17/002](#); dung forks [A01D 9/00](#); {treating of waste water, sewage or sludge [C02F](#)} organic fertilisers from waste or refuse [C05F](#))

A01C 3/02

- . Storage places for manure, e.g. cisterns for liquid manure; Installations for fermenting manure (sewerage structures [E03F 5/00](#); silos, bunkers [E04H 7/22](#))

A01C 3/021

- . . {for composted manure}

A01C 3/023

- . . {Digesters}

A01C 3/025

- . . {with heat recuperation means}

A01C 3/026

- . . {with mixing or agitating devices}

A01C 3/028

- . . {Covers, roofs or other structures for covering manure storage places (production of methane or biogas [C02F 11/04](#); coverings for swimming or splash baths or pools [E04H 4/10](#))}

A01C 3/04

- . Manure loaders (loaders in general [B65G](#))

A01C 3/06

- . Manure distributors, e.g. dung distributors

A01C 3/063

- . . {Side-spreaders}

A01C 3/066

- . . {Spreading by using worm or screw conveyors}

A01C 3/08

- . . for manure already laying on the soil

A01C 5/00

Making or covering furrows or holes for sowing, planting or manuring

A01C 5/02

- . Hand tools for making holes for sowing, planting or manuring (transplanting devices for trees [A01G 23/02](#))

- A01C 5/04 . Machines for making or covering holes for sowing or planting
- A01C 5/045 . . {with piercing buckets (devices for laying-out or removing protective coverings for plants [A01G 13/02](#))}
- A01C 5/06 . Machines for making or covering drills or furrows for sowing or planting ({seeders depositing seeds in rows [A01C 7/08](#); ploughs for making ridges [A01B 13/02](#); {lifting devices for agricultural machines [A01B 63/00](#)})
- A01C 5/062 . . {Devices for making drills or furrows}
- A01C 5/064 . . . {with rotating tools}
- A01C 5/066 . . {Devices for covering drills or furrows}
- A01C 5/068 . . . {Furrow packing devices, e.g. press wheels}
- A01C 5/08 . Machines for both manuring and sowing or both manuring and planting

- A01C 7/00** **Sowing** ({with centrifugal wheels [A01C 17/00](#)} arrangements for driving working parts [A01C 19/00](#))
- A01C 7/002 . {Dibble seeders}
- A01C 7/004 . {using liquid seeding techniques}
- A01C 7/006 . {Minimum till seeding}
- A01C 7/008 . {Sod or grassland seeding ([A01C 7/08](#) takes precedence)}
- A01C 7/02 . Hand sowing implements ({fertiliser distributors for hand use [A01C 15/02](#); tools for cultivation [A01G 1/12](#))}
- A01C 7/04 . Single-grain seeders with or without suction devices ({regulation [A01C 7/10](#); for quantities of seed [A01C 7/18](#)})
- A01C 7/042 . . {using pneumatic means}
- A01C 7/044 . . . {Pneumatic seed wheels}
- A01C 7/046 {with perforated seeding discs}
- A01C 7/048 . . {Seed tape planters}
- A01C 7/06 . Seeders combined with fertilising apparatus ({conducting and depositing seed [A01C 7/20](#); apparatus for two kinds of fertiliser [A01C 15/00](#); combinations with soil working tools [A01B 49/04](#))}
- A01C 7/08 . Broadcast seeders; Seeders depositing seeds in rows ({machines for making furrows [A01C 5/06](#); combination of seed machines with other soil-working tools [A01B 49/06](#); foldable apparatus [A01B 73/00](#)})
- A01C 7/081 . . {Seeders depositing seeds in rows using pneumatic means}
- A01C 7/082 . . . {Ducts, distribution pipes or details thereof for pneumatic seeders (non-pneumatic seed pipes [A01C 7/206](#))}
- A01C 7/084 . . . {Pneumatic distribution heads for seeders}
- A01C 7/085 . . {Broadcast seeders}
- A01C 7/087 . . {Tramlining}
- A01C 7/088 . . {Sectional seeding}
- A01C 7/10 . . Devices for adjusting the seed-box {Regulation of machines for depositing quantities at intervals}
- A01C 7/102 . . . {Regulating or controlling the seed rate}
- A01C 7/105 {Seed sensors}
- A01C 7/107 {Calibration of the seed rate}

- A01C 7/12 . . Seeders with feeding wheels
- A01C 7/121 . . . {for sowing seeds of different sizes}
- A01C 7/122 {using more than one feeding wheel; using double-run feeding wheels}
- A01C 7/123 . . . {Housings for feed rollers or wheels}
- A01C 7/124 {with top delivery of the seeds}
- A01C 7/125 {with bottom delivery of the seeds}
- A01C 7/126 . . . {Stubbed rollers or wheels}
- A01C 7/127 . . . {Cell rollers, wheels, discs or belts}
- A01C 7/128 {Cell discs}
- A01C 7/14 . . . Seeders with spoon or bucket wheels
- A01C 7/16 . . Seeders with other distributing devices, e.g. brushes, discs, screws, slides ({with distributing slots [A01C 15/06](#); with slides [A01C 15/124](#); with chains [A01C 15/18](#))}
- A01C 7/163 . . . {Gravity distributors}
- A01C 7/166 . . . {Centrifugal distributors (pneumatic distributors [A01C 15/04](#))}
- A01C 7/18 . Machines for depositing quantities of seed at intervals {(dibble seeders [A01C 7/002](#); single-grain seeders [A01C 7/04](#); regulation [A01C 7/102](#); ridge marking [A01B 69/02](#))}
- A01C 7/185 . . {Foot valves}
- A01C 7/20 . Parts of seeders for conducting and depositing seed {(combined with fertilising apparatus [A01C 7/06](#))}
- A01C 7/201 . . {Mounting of the seeding tools}
- A01C 7/203 . . . {comprising depth regulation means}
- A01C 7/205 . . . {comprising pressure regulation means}
- A01C 7/206 . . {Seed pipes}
- A01C 7/208 . . {Chassis; Coupling means to a tractor or the like; Lifting means; Side markers (hoppers for seeders or spreaders [A01C 15/006](#))}

- A01C 9/00** **Potato planters** ({planting by hand [A01C 7/02](#); combinations with soil working tools [A01B 49/04](#))
- A01C 9/02 . with conveyer belts
- A01C 9/04 . with bucket wheels {(with other distributing devices [A01C 9/08](#))}
- A01C 9/06 . with piercing or grasping devices
- A01C 9/08 . with other distributing devices e.g. flaps, screws, horizontal turning plates {(with bucket wheels [A01C 9/04](#))}

- A01C 11/00** **Transplanting machines** ({hand sowing [A01C 7/02](#); carriers for supporting persons [A01B 75/00](#); transplanting devices for trees [A01G 23/02](#))
- A01C 11/003 . {for aquatic plants; for planting underwater, e.g. rice}
- A01C 11/006 . {Other parts or details or planting machines}
- A01C 11/02 . for seedlings
- A01C 11/025 . . {Transplanting machines using seedling trays; Devices for removing the seedlings from the trays}
- A01C 11/04 . for deeper setting or shifting of plants

A01C 13/00 **Machines or apparatus for consolidating soil around plants****A01C 14/00** **Methods or apparatus for planting not provided for in other groups of this subclass****A01C 15/00** **Fertiliser distributors** ([A01C 7/06](#) takes precedence; {combined with seeders [A01C 7/06](#)}; arrangements for driving working parts [A01C 19/00](#); {harrows with special additional arrangements [A01B 19/00](#)}; sand, gravel or salt spreaders for roads [E01C 19/20](#))

- A01C 15/001 . {with slowly turning wheels}
- A01C 15/002 . {with oscillating distributing spouts}
- A01C 15/003 . {Bulk fertiliser or grain handling in the field or on the farm}
- A01C 15/005 . {Undercarriages, tanks, hoppers, stirrers specially adapted for seeders or fertiliser distributors}
- A01C 15/006 . . {Hoppers}
- A01C 15/007 . . . {with agitators in the hopper}
- A01C 15/008 . . {Aprons; Deflecting plates; Band-spreading attachments}
- A01C 15/02 . for hand use {(hand sowing [A01C 7/02](#))}
- A01C 15/04 . using blowers
- A01C 15/06 . with distributing slots, {i.e. for dosing, e.g. adjustable openings}
- A01C 15/08 . . with pushers or stirrers in the slots
- A01C 15/10 . . . with reciprocating pushers {or stirrers in front of the slots (with endless chains [A01C 15/18](#))}
- A01C 15/12 . with movable parts of the receptacle
- A01C 15/122 . . {with moving floor parts (with endless chains [A01C 15/18](#))}
- A01C 15/124 . . {with adjustable shutters or slits}
- A01C 15/126 . . . {with pushers or stirrers in the slits}
- A01C 15/128 . . . {with pushers or stirrers in front of the slits (with endless chains [A01C 15/18](#))}
- A01C 15/14 . with means for lifting out the fertiliser {(feeding wheels, cell wheels, discs [A01C 7/12](#), bucket wheels [A01C 7/14](#))}
- A01C 15/16 . with means for pushing out the fertiliser, e.g. by a roller
- A01C 15/18 . with endless chains, {i.e. side transporting elements, e.g. auger or screw conveyers, swash plates}

A01C 17/00 **Fertilisers or seeders with centrifugal wheels** ({hand-used implements [A01C 7/02](#), [A01C 15/02](#); fertiliser distributors [A01C 15/00](#)}; mechanical throwing machines for articles or solid bulk materials, in general [B65G 31/00](#); sand, gravel or salt spreaders [E01C 19/20](#))

- A01C 17/001 . {Centrifugal throwing devices with a vertical axis}
- A01C 17/003 . {Centrifugal throwing devices with a horizontal axis}
- A01C 17/005 . {Driving mechanisms for the throwing devices}
- A01C 17/006 . {Regulating or dosing devices}
- A01C 17/008 . . {Devices controlling the quantity or the distribution pattern}

A01C 19/00	Arrangements for driving working parts of fertilisers or seeders {(A01C 17/005 takes precedence)}
A01C 19/02	. by a motor
A01C 19/04	. by a ground-engaging wheel
A01C 19/045	. . {the drive coupling being controlled by lifting or lowering of the seeding tools}
A01C 21/00	Methods of fertilizing, {sowing or planting} (fertilisers C05 ; soil-conditioning or soil-stabilising materials C09K 17/00)
A01C 21/002	. {Apparatus for sowing fertiliser; Fertiliser drill}
A01C 21/005	. {Following a specific plan, e.g. pattern (precision agriculture in general A01B 79/005 ; steering or guiding agricultural machines or implements A01B 69/00)}
A01C 21/007	. {Determining fertilization requirements}
A01C 23/00	Distributing devices specially adapted for liquid manure or other fertilising liquid, including ammonia, e.g. transport tanks, sprinkling wagons (watering fields in general A01G 25/00 ; spraying or applying liquids or other fluent materials in general B05)
A01C 23/001	. {Sludge spreaders, e.g. liquid manure spreaders}
A01C 23/002	. . {provided with auxiliary arrangements, e.g. pumps, agitators, cutters}
A01C 23/003	. . {Distributing devices, e.g. for rotating, throwing}
A01C 23/005	. . . {Nozzles, valves, splash plates}
A01C 23/006	. {Distribution of liquid fertilisers by gravity flow (distribution of liquid ammonia in or on the soil A01C 23/024 ; under pressure A01C 23/04)}
A01C 23/007	. {Metering or regulating systems}
A01C 23/008	. {Tanks, chassis or related parts}
A01C 23/02	. Special arrangements for delivering the liquid directly into the soil
A01C 23/021	. . {Sludge injectors, i.e. liquid manure injectors}
A01C 23/022	. . . {Continuous injection tools (devices for making drill or furrows A01C 5/066)}
A01C 23/023	. . {for liquid or gas fertilisers}
A01C 23/024	. . . {for ammonia}
A01C 23/025	. . . {Continuous injection tools}
A01C 23/026	. . . {Localised non-continuous injection tools, e.g. pal injectors, spike wheels}
A01C 23/027	. . {Other methods for delivering fertiliser into the soil (sowing granular fertiliser A01C 21/002 ; subirrigation A01G 25/06)}
A01C 23/028	. . . {Contactless injection into the soil}
A01C 23/04	. Distributing under pressure; Distributing mud; Adaptation of watering systems for fertilising-liquids
A01C 23/042	. . {Adding fertiliser to watering systems (adding insecticides or herbicides A01M 7/00)}
A01C 23/045	. . {Filling devices for liquid manure or slurry tanks (arrangements for connecting hoses of the quick-acting type F16L 37/00)}
A01C 23/047	. . {Spraying of liquid fertilisers (gravity flow A01C 23/006 ; watering gardens, fields, sports grounds or the like A01G 25/00)}