

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)}