

**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 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** ( 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](#) ) }
- A01C 2001/00** **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 2001/04 . Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions }
- A01C 2001/048 .. Machines