

CPC**COOPERATIVE PATENT CLASSIFICATION****A21C****MACHINES OR EQUIPMENT FOR MAKING OR PROCESSING DOUGHS; HANDLING BAKED ARTICLES MADE FROM DOUGH****A21C 1/00**

Mixing or kneading machines for the preparation of dough (domestic mixing or kneading machines [A47J 43/00](#), [A47J 44/00](#); {mixing in general [B01F](#); mixing or kneading of substances in a plastic state in general [B29B 7/00](#)})

A21C 1/003

- . {Plant; Systems, i.e. flow charts or diagrams}

A21C 1/006

- . {Methods}

A21C 1/02

- . with vertically-mounted tools; Machines for whipping or beating

A21C 1/04

- . with inclined rotating mixing arms or levers

A21C 1/06

- . with horizontally-mounted mixing or kneading tools; Worm {or screw} mixers

A21C 1/065

- .. {Worm or screw mixers, e.g. with consecutive mixing receptacles}

A21C 1/08

- . with rollers

A21C 1/083

- .. {by calendering, i.e. working between rollers (using rollers for shaping dough [A21C 3/02](#))}

A21C 1/086

- .. {having a receptacle rotating about a vertical axis cooperating with rotary rollers}

A21C 1/10

- . with additional aerating apparatus for the manufacture of aerated doughs

A21C 1/105

- .. {the gas being introduced through the shaft of a rotary tool}

A21C 1/12

- . for the preparation of dough directly from grain

A21C 1/14

- . Structural elements of mixing or kneading machines; {Parts; Accessories}

A21C 1/1405

- .. {Tools}

A21C 1/141

- ... {having mixing or cutting elements essentially perpendicular to their axes}

A21C 1/1415

- ... {Shafts; Heads therefor}

A21C 1/142

- .. {Feeding mechanisms, e.g. skip lifting mechanisms}

A21C 1/1425

- ... {for feeding in measured doses}

A21C 1/143

- ... {using pneumatic means}

A21C 1/1435

- ... {for liquids ([A21C 1/1425](#) takes precedence)}

A21C 1/144

- .. {Discharge mechanisms}

A21C 1/1445

- ... {using tiltable receptacles; Tilting mechanisms therefor}

A21C 1/145

- .. {Controlling; Testing; Measuring ([A21C 1/1425](#) takes precedence)}

A21C 1/1455

- ... {Measuring data of the driving system, e.g. torque, speed, power}

A21C 1/146

- ... {Measuring properties of the dough, e.g. moisture, electrical conductivity, temperature ([A21C 1/1455](#) takes precedence)}

- A21C 1/1465 .. {Drives}
- A21C 1/147 ... {for planetary motion}
- A21C 1/1475 ... {Brakes therefor}
- A21C 1/148 .. {Safety arrangements ([A21C 1/1485](#) takes precedence)}
- A21C 1/1485 .. {Doors; Closures; Operating, e.g. safety, mechanisms therefor}
- A21C 1/149 .. {Receptacles, e.g. provided with means for carrying or guiding fluids, e.g. coolants}
- A21C 1/1495 .. {Arrangements for cooling or heating ([receptacles with means for guiding fluids per se A21C 1/149](#)); Arrangements for applying super- or sub-atmospheric pressure}

A21C 3/00**Machines or apparatus for shaping batches of dough before sub-division**

- A21C 3/02 . Dough-sheeters; Rolling-machines; Rolling-pins {(mixing or kneading dough by rollers [A21C 1/08](#); non-manual rolling and working of discrete dough pieces [A21C 7/00](#))}
- A21C 3/021 .. {Rolling-pins; Hand-operated spreading or rolling devices ([A21C 11/004](#) takes precedence)}
- A21C 3/022 .. {Laminating or undulating a continuous dough sheet, e.g. by folding transversely or longitudinally onto a moving surface ([combined with filling A21C 9/045](#))}
- A21C 3/024 .. {using one or more rollers with an axis of rotation substantially parallel or oblique to the direction of dough transport ([A21C 3/065](#) takes precedence)}
- A21C 3/025 .. {with one or more rollers moving perpendicularly to its rotation axis, e.g. reciprocally([A21C 3/024](#) takes precedence; hand-operated rollers [A21C 3/021](#))}
- A21C 3/027 ... {with multiple rollers moving in a closed loop, e.g. in an orbital path; Planetary roller systems}
- A21C 3/028 .. {using rollers having a shape other than straight round cylinders ([A21C 3/04](#) takes precedence)}
- A21C 3/04 . Dough-extruding machines; {Hoppers with moving elements, e.g. rollers or belts as wall elements for drawing the dough}
- A21C 3/06 . Machines for coiling sheets of dough, e.g. for producing rolls, {e.g. crescent-rolls ([as part of a machine for further moulding or forming A21C 7/00](#); with filling [A21C 9/06](#))}
- A21C 3/065 .. { the coil axis of the produced rolls being in parallel or oblique position relative to the transport direction; with coiling elements, e.g. rollers, being placed in parallel or oblique position relative to the transport direction}
- A21C 3/08 . Machines for twisting strips of dough, e.g. for making pretzels
- A21C 3/10 . combined with dough-dividing apparatus

A21C 5/00**Dough-dividing machines**

- A21C 5/003 . {with revolving bodies, e.g. with bodies having spaces separated by radially oriented elements or walls}
- A21C 5/006 . {for dispensing liquid or semi-liquid dough, e.g. batter}

- A21C 5/02 . with division boxes and ejection plungers
 - A21C 5/04 . . with division boxes in a revolving body with radially-working pistons
 - A21C 5/06 . . with division boxes in a revolving body with axially-working pistons
 - A21C 5/08 . with radial, i.e. star-like, cutter-blades slidable in the slots of, and relatively to, a pressing-plunger {(A21C 7/06 takes precedence)}
- A21C 7/00 Machines which homogenise the subdivided dough by working other than by kneading**
- A21C 7/005 . {the dough pieces being worked in radially disposed cavities in a rotating drum}
 - A21C 7/01 . with endless bands {(A21C 7/005 takes precedence)}
 - A21C 7/02 . with moulding channels (A21C 7/01 takes precedence)
 - A21C 7/04 . with moulding cups (A21C 7/01 takes precedence)
 - A21C 7/06 . combined with dividing machines with radial, i.e. star-like, cutter-blades slidable in the slots of, and relatively to, a pressing-plunger
- A21C 9/00 Other apparatus for handling dough or dough pieces**
- A21C 9/02 . Apparatus for hanging or distributing strings of dough, such as noodles, spaghetti or macaroni, on bars
 - A21C 9/04 . Apparatus for spreading granular material on, or sweeping or coating the surfaces of, pieces or sheets of dough {(coating baked articles A21C 15/002)}
 - A21C 9/045 . . {Laminating dough sheets combined with applying a filling in between, e.g. lasagna-type products (ravioli-making machines A21C 9/066; making laminated baked wafer sheets A21C 15/02)}
 - A21C 9/06 . Apparatus for filling pieces of dough such as doughnuts {(A21C 11/163 takes precedence; apparatus for filling baked articles A21C 15/007)}
 - A21C 9/061 . . { Making continuous filled tubular products, e.g. with subsequent cutting}
 - A21C 9/063 . . {Applying a folding, wrapping, rolling action (A21C 9/045, A21C 9/061 take precedence)}
 - A21C 9/065 . . {by means of injection into a piece of dough (filling baked articles A21C 15/007)}
 - A21C 9/066 . . {using two separate sheets or pieces of dough with filling in between, e.g. crimped at their edges; Ravioli-making machines (A21C 11/163 takes precedence)}
 - A21C 9/068 . . . {Tools for crimping or trimming of edges or rims, e.g. hand-operated}
 - A21C 9/08 . Depositing, arranging and conveying apparatus for handling pieces, e.g. sheets of dough {(for handling liquid or semi-liquid dough, e.g. batter A21C 5/006)}
 - A21C 9/081 . . { Charging of baking tins or forms with dough}
 - A21C 9/083 . . {Manipulating tins, pans etc., e.g. charging or discharging conveyors, trolleys or ovens}

- A21C 9/085 . . {Separating, spacing, orienting or aligning discrete dough pieces, e.g. after passing a cutting device}
- A21C 9/086 . . {Stacking or unstacking discrete dough sheets (with filling in between sheets [A21C 9/045](#))}
- A21C 9/088 . . {Folding or bending discrete dough pieces or dough strips (twisting strips of dough [A21C 3/08](#); with filling action [A21C 9/063](#); forming toroid-shaped dough pieces [A21C 11/002](#))}

A21C 11/00**Other machines for forming the dough into its final shape before cooking or baking**

- A21C 11/002 . {the shape being toroid-like, e.g. bagels, doughnuts (extruding machines for toroid shaped products [A21C 11/166](#))}
- A21C 11/004 . {forming the dough into a substantially disc-like shape with or without an outer rim, e.g. for making pie crusts, cake shells or pizza bases}
- A21C 11/006 . . {by pressing or press-moulding ([A21C 11/008](#) takes precedence)}
- A21C 11/008 . . {by press-rolling}
- A21C 11/02 . Embossing machines
- A21C 11/04 . . with cutting and embossing rollers or drums {([A21C 11/106](#) takes precedence)}
- A21C 11/06 . . handling regularly pre-shaped sheets of dough
- A21C 11/08 . . with engraved moulds, e.g. rotary machines with die rolls
- A21C 11/10 . combined with cutting apparatus {([A21C 11/004](#) takes precedence)}
- A21C 11/103 . . {having multiple cutting elements slidably or rotably mounted in a diaphragm-like arrangement}
- A21C 11/106 . . {using hand-operated cutting tools ([A21C 9/068](#) takes precedence)}
- A21C 11/12 . Apparatus for slotting, slitting or perforating the surface of pieces of dough
- A21C 11/14 . . for star-like stamping
- A21C 11/16 . Extruding machines
- A21C 11/163 . . {Applying co-extrusion, i.e. extruding two or more plastic substances simultaneously, e.g. for making filled dough products; Making products from two or more different substances supplied to the extruder}
- A21C 11/166 . . {for making toroid-shaped products, e.g. doughnuts ([A21C 11/163](#) takes precedence)}
- A21C 11/18 . . with pistons
- A21C 11/20 . . with worms
- A21C 11/22 . Apparatus with rollers and cutting discs or blades for shaping noodles
- A21C 11/24 . Apparatus for cutting out noodles from a sheet or ribbon of dough by an engaging pair of grooved rollers

- A21C 13/00** **Provers, i.e. apparatus permitting dough to rise** [{\(testing dough properties G01N 33/10\)}](#)
- A21C 13/02 . with endless conveyers [{e.g. for moving the dough pieces progressively through the prover}](#)
- A21C 14/00** **Machines or equipment for making or processing dough, not provided for in other groups of this subclass**
- A21C 15/00** **Apparatus for handling baked articles**
- A21C 15/002 . [{Apparatus for spreading granular material on, or sweeping or coating the surface of baked articles \(of pieces of dough A21C 9/04; for confectionary A23G 3/28\)}](#)
- A21C 15/005 . . [{of which at least the dispensing part is hand-held, e.g. comprising a flexible container, pouch or gun-like applicator}](#)
- A21C 15/007 . [{Apparatus for filling baked articles \(filling pieces of dough A21C 9/06; filled bakery products A21D 13/0019, A21D 13/085\)}](#)
- A21C 15/02 . Apparatus for shaping or moulding baked wafers; Making multi-layer wafer sheets
- A21C 15/025 . . [{ Apparatus for shaping or moulding baked wafers, e.g. to obtain cones for ice cream}](#)
- A21C 15/04 . Cutting or slicing machines or devices specially adapted for baked articles other than bread [\(for cutting or slicing bread B26B, B26D\)](#)