

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](#))