

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](#))