

**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](#))