

**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](#) )