A HUMAN NECESSITIES

## FOODSTUFFS; TOBACCO

# MACHINES OR EQUIPMENT FOR MAKING OR PROCESSING DOUGHS; HANDLING BAKED ARTICLES MADE FROM DOUGH 

WARNING<br>\{In this subclass, non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.\}

## Mixing or kneading machines for the preparation of dough

- \{Plant; Systems, i.e. flow charts or diagrams \}
- \{Methods $\}$
- with vertically-mounted tools; Machines for whipping or beating
- with inclined rotating mixing arms or levers
- with horizontally-mounted mixing or kneading tools; Worm \{or screw \} mixers
- . \{Worm or screw mixers, e.g. with consecutive mixing receptacles $\}$
- with rollers
- . \{by calendering, i.e. working between rollers (using rollers for shaping dough A21C 3/02) \}
. . \{having a receptacle rotating about a vertical axis cooperating with rotary rollers \}
- with additional aerating apparatus for the manufacture of aerated doughs
- . \{the gas being introduced through the shaft of a rotary tool $\}$
- for the preparation of dough directly from grain
- Structural elements of mixing or kneading machines; \{Parts; Accessories \}
- . \{Tools \}
. . . \{having mixing or cutting elements essentially perpendicular to their axes \}
-• . \{Shafts; Heads therefor\}
- . \{Feeding mechanisms, e.g. skip lifting mechanisms \}
. . . $\{$ for feeding in measured doses $\}$
- . . \{using pneumatic means \}
- . $\{$ for liquids (A21C 1/1425 takes precedence) $\}$
- . $\{$ Discharge mechanisms $\}$
. . . \{using tiltable receptacles; Tilting mechanisms therefor $\}$
- . \{Controlling; Testing; Measuring (A21C 1/1425 takes precedence) $\}$
. . . \{Measuring data of the driving system, e.g. torque, speed, power\}
. . . \{Measuring properties of the dough, e.g. moisture, electrical conductivity, temperature (A21C 1/1455 takes precedence) $\}$
. . $\{$ Drives $\}$
. . . \{for planetary motion\}
. . . $\{$ Brakes therefor $\}$

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- . \{Safety arrangements (A21C 1/1485 takes precedence) $\}$
. . \{Doors; Closures; Operating, e.g. safety, mechanisms therefor $\}$
-     - \{Receptacles, e.g. provided with means for carrying or guiding fluids, e.g. coolants \}
. . \{Arrangements for cooling or heating (receptacles with means for guiding fluids per se A21C 1/149); Arrangements for applying superor sub-atmospheric pressure\}


## Machines or apparatus for shaping batches of dough before subdivision

. Dough-sheeters; Rolling-machines; Rolling-pins

- . \{Rolling-pins; Hand-operated spreading or rolling devices (A21C 11/004 takes precedence) \}
- . \{Laminating or undulating a continuous dough sheet, e.g. by folding transversely or longitudinally onto a moving surface (combined with filling A21C 9/045) \}
. . \{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) $\}$
. . \{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) \}
. . $\{$ with multiple rollers moving in a closed loop, e.g. in an orbital path; Planetary roller systems \}
. . \{using rollers having a shape other than straight round cylinders (A21C 3/04 takes precedence) \}
- Dough-extruding machines $\{$; Hoppers with moving elements, e.g. rollers or belts as wall elements for drawing the dough $\}$
- Machines for coiling sheets of dough, e.g. for producing rolls
. . \{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\}
- Machines for twisting strips of dough, e.g. for making pretzels
- combined with dough-dividing apparatus


## Dough-dividing machines

- \{with revolving bodies, e.g. with bodies having spaces separated by radially oriented elements or walls $\}$
\{for dispensing liquid or semi-liquid dough, e.g. batter\}
- with division boxes and ejection plungers
- . with division boxes in a revolving body with radially-working pistons
. . with division boxes in a revolving body with axially-working pistons
- with radial, i.e. star-like, cutter-blades slidable in the slots of, and relatively to, a pressing-plunger

Machines which homogenise the subdivided dough by working other than by kneading

- \{the dough pieces being worked in radially disposed cavities in a rotating drum\}
- with endless bands \{(A21C 7/005 takes precedence) \}
. with moulding channels (A21C 7/01 takes precedence)
- with moulding cups ( $\underline{\text { A } 21 \mathrm{C} 7 / 01}$ takes precedence)
- combined with dividing machines with radial, i.e. star-like, cutter-blades slidable in the slots of, and relatively to, a pressing-plunger


## Other apparatus for handling dough or dough pieces

- Apparatus for hanging or distributing strings of dough, such as noodles, spaghetti or macaroni, on bars
- Apparatus for spreading granular material on, or sweeping or coating the surfaces of, pieces or sheets of dough $\{$ (coating baked articles A21C 15/002) $\}$
. . \{Laminating dough sheets combined with applying a filling in between, e.g. lasagnatype products (ravioli-making machines A21C 9/066; making laminated baked wafer sheets A21C 15/02)
. Apparatus for filling pieces of dough such as doughnuts \{(A21C 11/163 takes precedence; apparatus for filling baked articles A21C 15/007) \}
- . \{Making continuous filled tubular products, e.g. with subsequent cutting $\}$
- . \{Applying a folding, wrapping, rolling action (A21C 9/045, A21C 9/061 take precedence) \}
. . \{by means of injection into a piece of dough (filling baked articles A21C 15/007) \}
- . \{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) $\}$
. . . \{Tools for crimping or trimming of edges or rims, e.g. hand-operated \}
- 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) $\}$
- \{Charging of baking tins or forms with dough\}
- . \{Manipulating tins, pans etc., e.g. charging or discharging conveyors, trolleys or ovens\}
- \{Separating, spacing, orienting or aligning discrete dough pieces, e.g. after passing a cutting device $\}$
. . \{Stacking or unstacking discrete dough sheets (with filling in between sheets A21C 9/045) \}
. . \{Folding or bending discrete dough pieces or dough strips (twisting strips of dough A21C 3/08; with filling action $\mathrm{A} 21 \mathrm{C} 9 / 063$; forming toroidshaped dough pieces A21C 11/002) \}


## Other machines for forming the dough into its final shape before cooking or baking

- \{the shape being toroid-like, e.g. bagels, doughnuts (extruding machines for toroid shaped products A21C 11/166)
- \{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 $\}$
. . \{by pressing or press-moulding (A21C 11/008 takes precedence) \}
- . \{by press-rolling\}
. Embossing machines
- . with cutting and embossing rollers or drums $\{($ A21C 11/106 takes precedence) $\}$
. . handling regularly pre-shaped sheets of dough
. . with engraved moulds, e.g. rotary machines with die rolls
- combined with cutting apparatus $\{(\underline{A 21 C} 11 / 004$ takes precedence) \}
. . \{having multiple cutting elements slidably or rotably mounted in a diaphragm-like arrangement \}
. . \{using hand-operated cutting tools (A21C 9/068 takes precedence) $\}$
- Apparatus for slotting, slitting or perforating the surface of pieces of dough
. . for star-like stamping
- Extruding machines
- . \{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\}
. . \{for making toroid-shaped products, e.g. doughnuts (A21C 11/163 takes precedence) $\}$
. . with pistons
. . with worms
- Apparatus with rollers and cutting discs or blades for shaping noodles
- Apparatus for cutting out noodles from a sheet or ribbon of dough by an engaging pair of grooved rollers

Provers, i.e. apparatus permitting dough to rise

- with endless conveyors $\{$, e.g. for moving the dough pieces progressively through the prover\}

Machines or equipment for making or processing dough, not provided for in other groups of this subclass

## Apparatus for handling baked articles

- \{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) \}
. . \{of which at least the dispensing part is handheld, e.g. comprising a flexible container, pouch or gun-like applicator\}

15/007 . \{Apparatus for filling baked articles (filling pieces of dough A21C 9/06; filled bakery products A21D 13/30, A21D 13/80)\}
15/02 . Apparatus for shaping or moulding baked wafers; Making multi-layer wafer sheets
15/025 . . \{Apparatus for shaping or moulding baked wafers, e.g. to obtain cones for ice cream
15/04 . Cutting or slicing machines or devices specially adapted for baked articles other than bread

