CPC  COOPERATIVE PATENT CLASSIFICATION

B  PERFORMING OPERATIONS; TRANSPORTING
(NOTES omitted)

SHAPING

B28  WORKING CEMENT, CLAY, OR STONE

B28B  SHAPING CLAY OR OTHER CERAMIC COMPOSITIONS, SLAG, OR MIXTURES CONTAINING CEMENTITIOUS MATERIAL, e.g. PLASTER (foundry moulding B22C; working stone or stone-like material B28D; shaping of substances in a plastic state, in general B29C; making layered products not composed wholly of these substances B32B; shaping in situ, see the relevant classes of section E)

NOTE
In this subclass, the following term is used with the meaning indicated:
• “the material” means:
  a. clay or other ceramic compositions;
  b. slag;
  c. mixtures with water-setting properties given by clay, cementitious material, or slag.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   B28B 23/08 covered by B28B 21/60, B28B 23/06
2. 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.

1/00  Producing shaped (prefabricated) articles from the material (using presses B28B 3/00; shaping on moving conveyors B28B 5/00; producing tubular articles B28B 21/00 [: producing articles with embedded elements B28B 23/0)]

1/001 . (Rapid manufacturing of 3D objects by additive depositing, agglomering or laminating of material (selective deposition modelling of metallic powder B22F 3/008; rapid manufacturing of 3D objects in general and in particular of plastics B29C 64/00)]

1/002 . (assembled from preformed elements)]

1/004 . (Devices for shaping artificial aggregates from ceramic mixtures or from mixtures containing hydraulic binder (from slag C04B 5/00; composition of artificial aggregates C04B 18/02)]

1/005 . (Devices or processes for obtaining articles having a marble appearance (producing decorative effects B44C; design of stone surfaces, e.g. marble, B44F 9/04)]

1/007 . (by freezing the material)]

1/008 . (made from two or more materials having different characteristics or properties (casting for producing layered articles B28B 1/16; feeding several successive layers, optionally of different materials B28B 13/022; coating B28B 11/04; applying material to surfaces to form a permanent layer thereon B28B 19/00)]

1/02 . by turning or jiggering [in moulds or moulding surfaces on rotatable supports]

1/025 . . [Potters wheels]

1/04 . by tamping or ramming (followed by pressing B28B 3/02)]

1/045 . . [combined with vibrating or jolting]

1/08 . by vibrating or jolting (of moulding sand B22C 15/10; of concrete in general E04G 21/063)]

1/081 . . [Vibration-absorbing means]

1/082 . . [combined with a vacuum, e.g. for moisture extraction (in general E04G 21/061)]

1/084 . . [the vibrating moulds or cores being moved horizontally for making strands of moulded articles]

1/085 . . [Introducing non-longitudinal reinforcing elements, e.g. spirally shaped]

1/087 . . [by means acting on the mould [: Fixation thereof to the mould]]

1/0873 . . . [the mould being placed on vibrating or jolting supports, e.g. moulding tables]

2001/0876 . . . . [Supports, e.g. tables, therefor]

1/093 . . . [by means directly acting on the material, e.g. by cores wholly or partly immersed in the material (or elements acting on the upper surface of the material) [:B28B 1/084 takes precedence;] internal vibrators for compacting concrete in situ E04G 21/08]

1/0935 . . . [using only elements wholly or partly immersed in the material, e.g. cores]

1/10 . . [and applying pressure otherwise than by the use of presses]

1/105 . . . [this load also being actively vibrated or jolted]
boring by removing material from solid section preforms

hollow articles by forcing cores into filled moulds for forming

by applying the material on to a core or other

by centrifugal or rotational casting (slip-casting

by injection moulding [{injection moulding of
ceramic slips B28B 1/265; of tubular articles
B28B 21/38})]

by slip-casting, i.e. by casting a suspension or
dispersion of the material in a liquid-absorbent
or porous mould, the liquid being allowed to
soak into or pass through the walls of the mould;
Moulds therefor (B28B 1/52 takes precedence) {: specially for manufacturing articles starting from a ceramic slip; Moulds therefor (of tubular articles B28B 21/08)}

by centrifugal axis}

by profiling or stricking the material in open
moulds or on moulding surfaces (in rotary moulds
B28B 1/02; by means of profiled rollers B28B 3/12, B28B 3/123)

by applying the material on to a core or other
moulding surface to form a layer thereon (to form a permanent layer B28B 19/00)

by projecting, e.g. spraying (spraying in general
B05B, B05D)

by centrifugal force [{centrifugally acting
implements for applying plaster or the like to walls E04F 21/101}]

by dipping (in general B05C, B05D {: shaping from synthetic resin B29C 41/14})

by wrapping, e.g. winding

using mixtures containing fibres, e.g. for
making sheets by slitting the wound layer

by forcing cores into filled moulds for forming hollow articles

{Hollow punches or cores}

by removing material from solid section preforms for forming hollow articles, e.g. by punching or boring

specially adapted for producing articles of expanded
textile or plastic materials (C04B)

{Moulds therefor}

{with means for, or adapted for, cutting
the moulded article into pieces (in general
B28B 7/14)}

specially adapted for producing articles from
mixtures containing fibres, e.g. asbestos cement
(by wrapping on to mandrels B28B 1/42)

(from dry mixtures to which a setting agent is
applied after forming (B28B 1/526, B28B 1/527
take precedence))

for producing multi-layered articles
(B28B 1/526, B28B 1/527 take precedence)

containing metal fibres (B28B 1/526, B28B 1/527 take precedence)

containing organic fibres, e.g. wood fibres
(B28B 1/526, B28B 1/527 take precedence)

by delivering the materials on a conveyor of the
endless-belt type

by delivering the materials on a rotating drum, e.g. a sieve drum, from which the materials are picked up by a felt

for producing corrugated sheets (B28B 1/526, B28B 1/527 take precedence)

specially adapted for producing articles from molten
textile or plastic materials, e.g. slag (refractory ceramic materials (chemical aspects C04B {: from molten bituminous material B29C})

Producing shaped articles from the material
by using presses (shaping on moving conveyors
B28B 5/00); Presses specially adapted therefor
(presses in general B30B)

Pressing by means acting upon the material
via flexible mould wall parts, e.g. by means of
inflatable cores, isostatic presses (isostatic presses in general B30B 5/02)

Pressing by atmospheric pressure, as a result of vacuum generation or by gas or liquid pressure acting directly upon the material, e.g. jets of compressed air (moulds for treating with gases or degassing B28B 7/44; compacting concrete by means of vacuum in general E04G 21/061)

wherein a ram exerts pressure on the material in a
moulding space; Ram heads of special form

{Ram heads of special form}

(combined with vibrating or jolting)

{the pressure on the material being transmitted
through flexible or resilient wall parts, e.g. flexible cushions on the ramming surface, resilient wall parts pressing as a result of deformation caused by ram pressure}

{Hot pressing, e.g. of ceramic materials}

{using a bottom press ram actuated upwardly
through mould covers}

{Centering the press head, e.g. using guiding pins or chamfered mould edges}

with one ram per mould (B28B 3/10 takes precedence)

with two or more ram and mould sets

with two or more rams per mould

{The juxtaposed rams working in the same
direction}
B28B

3/086 . . . [The rams working in different directions]
3/10 . . . each charge of material being compressed against previously formed body
3/12 . . . wherein one or more rollers exert pressure on the material
3/123 . . . [on material in moulds or on moulding surfaces moving continuously underneath or between the rollers, e.g. on an endless belt]
3/126 . . . [on material passing directly between the co-operating rollers]
3/14 . . . with co-operating pocketed rollers
3/16 . . . with co-operating profiled rollers
3/18 . . . Roller-and-ring machines, i.e. with roller disposed within a ring and co-operating with the inner surface of the ring
3/20 . . . wherein the material is extruded [(extrusion moulding of plastics B29C 48/00)]
3/201 . . . [Means for heating or cooling the barrel]
2003/203 . . . [for multi-channeled structures, e.g. honeycomb structures]
3/205 . . . [using vibrations]
3/206 . . . [Forcing the material through screens or slots]
3/208 . . . [Exchangeable wear parts, e.g. liners]
3/22 . . . by screw or worm
3/222 . . . [Screw or worm constructions]
3/224 . . . [Twin screw extruders, e.g. double shaft extruders]
3/226 . . . [Means for heating or cooling the screw]
3/228 . . . [Slipform casting extruder, e.g. self-propelled extruder]
3/24 . . . by reciprocating plunger
3/26 . . . Extrusion dies
3/2609 . . . [Containing rotating elements perpendicular to the axis of extrusion]
3/2618 . . . [using lubricating means]
3/2627 . . . [using means for making hollow objects with transverse walls, e.g. hollow objects closed on all sides]
3/2636 . . . [using means for co-extruding different materials]
3/2645 . . . [using means for inserting reinforcing members]
3/2654 . . . [Means for heating or cooling the die]
3/2663 . . . [Exchangeable wear parts, e.g. liners]
3/2672 . . . [Means for adjusting the flow inside the die, e.g. using choke means]
3/2681 . . . [Adjustable dies, e.g. for altering the shape of the product]
3/269 . . . [For multi-channeled structures, e.g. honeycomb structures]
5/00 Producing shaped articles from the material in moulds or on moulding surfaces, carried or formed by, in, or on conveyors irrespective of the manner of shaping (shaping aspects see the relevant groups)
5/02 . . . on conveyors of the endless-belt or chain type (in combination with pressing rollers B28B 3/12)
5/021 . . . [the shaped articles being of definite length]
5/022 . . . [the moulds or the moulding surfaces being individual independent units and being discontinuously fed (feeding B28B 13/0215 and sub-groups)]
5/023 . . . [Moulds mounted on an endless chain conveyor for making pottery ware]
5/025 . . . [the moulds or the moulding surfaces being divided by separating walls and being continuously fed (feeding B28B 13/02)]
5/026 . . . [the shaped articles being of indefinite length]
5/027 . . . [the moulding surfaces being of the indefinite length type, e.g. belts, and being continuously fed (feeding B28B 13/02)]
5/028 . . . [the moulding surfaces being of definite length, e.g. succession of moving pallets, and being continuously fed (feeding B28B 13/02)]
5/04 . . . in moulds moved in succession past one or more shaping stations (on turn-tables B28B 5/06)
2005/041 . . . [with compacting of the material]
2005/042 . . . [only by vibrating or jolting]
2005/044 . . . [only by tamping or ramming]
2005/045 . . . [only by pressing]
2005/047 . . . [by tamping, ramming or pressing as well as by vibrating, jolting or by rolling]
2005/048 . . . [in moulds carried on a conveyor of the endless-belt type]
5/06 . . . in moulds on a turntable
5/08 . . . intermittently rotated
5/10 . . . in moulds carried on the circumference of a rotating drum
5/12 . . . intermittently rotated
2005/125 . . . [Revolving presses]

7/00 Moulds; Cores; Mandrels (specially adapted for the production of the tubular articles B28B 21/00; for casting metals B27C 9/00; moulds for plastic materials in general B29C 33/00; falsework, forms or shutterings for forming buildings or parts thereof in situ E04G 9/00 - E04G 15/00)]
7/0002 . . . [Auxiliary parts or elements of the mould]
7/0005 . . . [Mould identification means, e.g. by radio frequency identification device [RFID]]
7/0008 . . . [Venting channels, e.g. to avoid vacuum during demoulding or allowing air to escape during feeding, pressing or moulding]
7/0011 . . . [Mould seals]
7/0014 . . . [Fastening means for mould parts, e.g. for attaching mould walls on mould tables; Mould clamps (clamping means especially adapted for countering a pressure being applied on a slip or on the moulded article in the mould B28B 1/266)]
7/0017 . . . [for attaching mould walls on mould tables]
7/002 . . . [using magnets]
7/0023 . . . [using vacuum]
7/0026 . . . [using adhesive]
7/0029 . . . [Moulds or moulding surfaces not covered by B28B 7/0058 - B28B 7/36 and B28B 7/40 - B28B 7/465, e.g. moulds assembled from several parts]
7/0032 . . . [Moulding tables or similar mainly horizontal moulding surfaces]
7/0035 . . . [Moulds characterised by the way in which the sidewalls of the mould and the moulded article move with respect to each other during demoulding]
7/0038 . . . [the sidewalls of mould and moulded article moving only past each other, e.g. box-shaped moulds which are lifted off from the moulding]
Moulds provided with means for tilting or inverting mould walls on mould tables; Mould clamps

Moulds with adjustable parts { specially for deformation or the change of its size by moulding article, between previously shaped articles }

Moulds in which at least one surface of the mould walls driven during moulding or of parts acting during demoulding characterised by special surfaces for producing a desired surface of a moulded article, e.g. profiled or polished moulding surfaces (B28B 7/36 takes precedence; producing decorative effects B44C designs of stone surfaces B44F)

Moulds with moulding surfaces simulating natural effects, e.g. wood or stone

Moulds with moulding surfaces simulating assembled bricks or blocks with mortar joints (B28B 7/007 takes precedence)

Moulds with surfaces for moulding letters or marks

Moulds with surfaces for moulding interlocking means, e.g. grooves and ribs

Moulds with surfaces for moulding parallel grooves or ribs (B28B 7/0073, B28B 7/0079 takes precedence)

Moulds with surfaces for moulding chamfers

Moulds in which at least one surface of the moulded article serves as mould surface, e.g. moulding articles on or against a previously shaped article, between previously shaped articles

Transformable moulds allowing the change of shape of an initial moulded preform by preform deformation or the change of its size by moulding on the preform

Moulds for concrete test samples

Press moulds; Press-mould and press-ram assemblies

Moulds with adjustable parts { specially for modifying at will the dimensions or form of the moulded article }

{ the mould surface being made of or being supported by a plurality of small elements, e.g. to create double curvatures }

one or more of the parts being pivotally mounted

Moulds with flexible parts

{ Casting in sack or bag like moulds } Moulds provided with means for tilting or inverting

{ Tiltable moulding tables or similar moulding surfaces (specially for casting and erecting walls or parts thereof during construction work E04G 11/32) }

Moulds with means incorporated therein, or carried thereby, for ejecting or detaching the moulded article (flexible moulds bent open for ejecting B28B 7/06; ejecting by tilting or inverting the mould B28B 7/08; devices, not forming part of the mould, for ejecting the moulded article B28B 13/06)

. . . by fluid pressure, e.g. acting through flexible wall parts or linings of the moulds

Moulds with means incorporated therein, or carried thereby, for cutting the moulded article into parts (for expanded material B28B 1/506; cutting means independent of the mould B28B 11/14)

Moulds for making shaped articles with cavities or holes open to the surface, e.g. with blind holes

{ for building blocks or similar block-shaped articles }

{ for plates, panels, or similar sheet- or disc-shaped articles }

{ for oblong articles, e.g. hollow masts }

{ for holders or similar hollow articles, e.g. vaults, sewer pits }

the holes passing completely through the article

{ for building blocks or similar block-shaped objects }

{ for plates, panels or similar sheet- or disc-shaped objects, also flat oblong moulded articles with lateral openings, e.g. panels with openings for doors or windows, grated girders }

Moulds for making shaped articles with undercut recesses, e.g. dovetails

Moulds for making units for prefabricated buildings, e.g. units each comprising an important section of at least two limiting planes of a room or space, e.g. cells (for making rooms or entire buildings in situ E04G 11/02); Moulds for making prefabricated stair units

{ for making stairs or stair units comprising more than one step (in situ E04G 13/06) }

Unitary mould structures with a plurality of moulding spaces, e.g. moulds divided into multiple moulding spaces by integratable partitions, mould part structures providing a number of moulding spaces in mutual co-operation (assemblies of individually complete moulds B28B 7/26)

{ Detachable assemblies of mould parts providing only in mutual co-operation a number of complete moulding spaces }

{ for making plates, panels or similar sheet- or disc-shaped objects }

{ using transportable mould batteries }

{ for making oblong objects, e.g. girders }

{ using angle-shaped mould parts, e.g. L-parts }

Assemblies of separate moulds, i.e. of moulds or moulding space units, each forming a complete mould or moulding space unit independently from each other

{ for making plates, panels or similar sheet- or disc-shaped objects }

{ for making oblong objects, e.g. girders }

Cores; Mandrels (B28B 1/44 takes precedence; of special materials in general B28B 7/34; cores for making blind holes in situ E04G 15/04; for making recesses E04G 15/06)
Apparatus or processes for treating or working the shaped [or preshaped] articles (specially adapted for tubular articles B28B 21/02; decoration or surface treatment in general B05, B44; compacting concrete in situ in connection with building E04G 21/06; drying F26)

11/00

11/001. [Applying decorations on shaped articles, e.g. by painting]

11/002. [Apparatus for washing concrete for decorative purposes or similar surface treatments for exposing the texture]

11/003. [the shaping of preshaped articles, e.g. by bending (B28B 11/08 takes precedence)]

11/005. [Using heat to allow reshaping, e.g. to soften ceramic articles]

11/006. [Making hollow articles or partly closed articles]

11/007. [Using a mask for plugging]

11/008. [Blow moulding, e.g. with or without the use of a membrane]

11/02. [for attaching appendages, e.g. handles, spouts]

11/04. [for coating (or applying engobing layers) (glazing, engobing C04B)]

11/041. [for moulded articles undergoing a thermal treatment at high temperatures, such as burning, after coating]

11/042. [with insulating material]

11/043. [filling cavities or chambers of hollow blocks]

11/044. [with glaze or engobe or enamel or varnish]

11/045. [by dipping]

11/046. [by rolling]

11/047. [by pooring, e.g. curtain coating]

11/048. [by spraying or projecting]

11/049. [Recycling of the coating material]

11/06. [with powdered or granular material, e.g. sanding of shaped articles]

11/08. [for reshaping the surface, e.g. smoothing, roughening, corrugating, making screw-threads]

11/0809. [Hand tools therefore]

11/0818. [for roughening, profiling, corrugating]

11/0827. [for corrugating, profiling or the like of plates such as asbestos cement sheets]

11/0836. [for pottery articles]

11/0845. [for smoothing]

11/0854. [for making screw-threads or the like in the surface of the shaped article]

11/0863. [for profiling, e.g. making grooves]

11/0872. [Non-mechanical reshaping of the surface, e.g. by burning, acids, radiation energy, air flow, etc.]

11/0881. [Using vibrating mechanisms, e.g. vibrating plates for ageing stones]

11/089. [Using impacting tools]

11/10. [by using presses]

11/12. [for removing parts of the articles by cutting]

11/125. [Cutting-off protruding ridges, also profiled cutting]

11/14. [for dividing shaped articles by cutting]

11/145. [for dividing block-shaped bodies of expanded materials, e.g. cellular concrete]

11/16. [for extrusion (or for materials supplied in long webs)]

11/161. [in vertically operating extrusion presses]

11/163. [in which the cutting device is moved longitudinally with the moving strand]

11/165. [mounted on a carrier]

11/166. [with devices for determining the correct cutting moment, e.g. measuring rollers or the like]

11/168. [in which the material is cut-out from a strand or web by means of a frame-shaped knife]

11/18. [for removing burr ([combined with the mould B28B 7/0058])]

11/22. [for cleaning]

11/24. [for curing, setting or hardening (processes for influencing or modifying the setting or hardening ability of mortars, concrete or artificial stone compositions, in general C04B 40/00)]
Feeding the unshaped material to moulds or apparatus for producing shaped articles; Discharging shaped articles from such moulds or apparatus (feeding or discharging devices incorporated in, or operatively associated with, a particular type of shaping apparatus, or specially designed to supply materials to a particular type of shaping apparatus, see the relevant groups for the apparatus)

13/02 . Feeding the unshaped material to moulds or apparatus for producing shaped articles

13/0205 . . (supplied to the moulding device in form of a coherent mass of material, e.g. a lump or an already partially preshaped tablet, pastil or the like)

13/021 . (by fluid pressure acting directly on the material, e.g. using vacuum, air pressure)

13/0215 . . (Feeding the moulding material in measured quantities from a container or silo)

13/022 . . . (Feeding several successive layers, optionally of different materials)

13/0225 . . . (Feeding specific quantities of material at specific locations in the mould)

13/023 . . . (by using a feed box transferring the moulding material from a hopper to the moulding cavities)

13/0235 . . . . (the feed box being provided with agitating means, e.g. stirring vanes to avoid premature setting of the moulding material (agitation in general B01B))

2013/024 . . . . . (the feed box being provided with means for transporting the moulded products, e.g. out of the machine)

13/0245 . . . . . (Rotatable feed frames, e.g. horizontally rotated over 90 degrees)

13/025 . . . . . . (the feed box being vibrated, e.g. to promote discharging of the material)

13/0255 . . . . . . (Disposal of residual material, e.g. by means of the return stroke of the feed drawer)

13/026 . . . . . (by using a movable hopper transferring the moulding material to the moulding cavities)

2013/0265 . . . . . . (Feeding a slurry or a ceramic slip)

13/027 . . . . . . (by using a removable belt or conveyor transferring the moulding material to the moulding cavities)

13/0275 . . . . . (Feeding a slurry or a ceramic slip)

13/028 . . . . . (Deflecting the flow of the unshaped material)

13/0285 . . . . (the material being rearranged on a sheet, e.g. using a decal)

13/029 . . . . (through a sieve or grid, e.g. to ensure evenly filling of cavities)

13/0295 . . . . . (Treating the surface of the fed layer, e.g. removing material or equalization of the surface)

13/04 . Discharging the shaped articles ((discharging tubular articles after shaping B28B 21/00; conveying systems for ceramic mouldings B65G 49/08)

13/06 . . . Removing the shaped articles from moulds (by means incorporated in, or carried by, the moulds B28B 7/01)

13/062 . . . . . (by elastically deforming the mould, e.g. bending flexible moulds)

13/065 . . . . . (by applying electric current or other means of discharging, e.g. pneumatic or hydraulic discharging means)

13/067 . . . . . (by applying blows or vibrations followed by, or during, the removal of a mould part)

15/00 General arrangement or layout of plant (Industrial outlines, plant installations)

15/002 . . . . Mobile plants, e.g. on vehicles or on boats

15/005 . . . . Machines using pallets co-operating with a bottomless mould; Feeding or discharging means for pallets (feeding pallets for making a continuous moulding surface B28B 5/025, B28B 5/028)

15/007 . . . . (Plant with two or more identical shaping or moulding devices)

17/00 Details of, or accessories for, apparatus for shaping the material; Auxiliary measures taken in connection with such shaping (moulds B28B 7/00; after-treatment B28B 11/00; feeding or discharging B28B 13/00; arrangements for embedding elements in the material B28B 23/00; details, accessories, or auxiliary measures special to any one type of shaping, machine or method of shaping, see the relevant groups for such machines or methods)

17/0009 . . (Shaping of preshaped articles (shaping the surface of articles B28B 11/08))

17/0018 . . . . (Separating articles from each other)

17/0027 . . . . (Accessories for obtaining rubblestones)

17/0036 . . . . (Cutting means, e.g. water jets)

17/0045 . . . . (Tensioning devices for cutting means)

17/0054 . . . . (Cleaning devices for cutting means)

17/0063 . . . . (Control arrangements)

17/0072 . . . . . (Product control or inspection)

17/0081 . . . . (Process control)

17/009 . . . . (Changing the forming elements, e.g. exchanging moulds, dies)

17/02 . . Conditioning the material prior to shaping (for mixtures containing clay or cement B28C)

17/023 . . . . (Conditioning gypsum)

17/026 . . . . (Conditioning ceramic materials)

17/04 . . . . (Exhausting or laying dust)

19/00 Machines or methods for applying the material to surfaces to form a permanent layer thereon (making shaped articles on mandrels B28B 1/30; applying liquids or other fluent materials to surfaces in general B05C; glazing or engobing C04B; applying the material to walls or other fixed structures, see the relevant classes of section E)

19/0007 . . . (for producing articles with exposed aggregate)

19/0015 . . . (on multilayered articles)

19/0023 . . (Lining the inner wall of hollow objects, e.g. pipes)

19/003 . . . (to insulating material)
Methods, apparatus, or machines, specially adapted for the production of tubular or reinforced articles

21/00 Methods or machines specially adapted for the production of tubular articles

21/02 by casting into moulds
21/04 by simple casting, the material being neither positively compacted nor forcibly fed
21/06 into moulds having sliding parts (B28B 21/26 takes precedence; forms, shutterings, or falsework for making rooms as a whole, whole stories, or whole buildings in situ E04G 11/02)
21/08 by slip-casting; Moulds therefor
21/10 using compacting means
21/12 tamping or ramming the material or the mould elements
21/14 vibrating, e.g. the surface of the material
21/16 one or more mould elements
21/18 using expansible or retractable mould or core elements
21/20 using inflatable cores, e.g. having a frame inside the inflatable part of the core (connection of valves to inflatable elastic bodies B60C 29/00)
21/205 having a rigid frame inside the inflatable part of the core
21/22 using rotatable mould or core parts
21/24 using compacting heads, rollers, or the like
21/242 the working diameter of the compacting mechanism being adjustable, e.g. the compacting rollers on the head being displaceable
21/245 using a horizontal compacting roller in a horizontally rotatable mould
21/247 the rollers of the compaction head being driven, e.g. to overcome or modify the tangential force
21/26 with a packer head serving as a sliding mould or provided with guiding means for feeding the material
21/28 combined with vibration means
21/30 Centrifugal moulding
21/305 Moulding machines with vertical rotation axis
21/32 Feeding the material into the moulds
21/34 combined with vibrating or other additional compacting means
21/36 applying fluid pressure or vacuum to the material (combined with slip-casting B28B 21/08)
21/38 introducing the material wholly or partly under pressure (; Injection-moulding machines)
21/40 by evacuating one or more of the mould parts (; Vacuum machines)
21/42 by shaping on or against mandrels or like moulding surfaces
21/44 by projecting, e.g. spraying
21/46 by dipping
21/48 by wrapping, e.g. winding
21/50 Details of compression or compacting means
21/52 by extruding
21/54 Mouthpieces for shaping sockets, bends, or like peculiarly-shaped tubular articles
21/56 incorporating reinforcements { or inserts}
21/563 (Gaskets)
21/566 (Climbing elements)
21/58 Steel tubes
21/60 prestressed reinforcements
21/62 circumferential (laterally tensioned)
21/64 Winding arrangements
21/66 Reinforcing mats
21/68 and applying centrifugal forces
21/70 by building-up from preformed elements
21/72 Producing multilayer tubes
21/74 Producing pipe bends, sockets, sleeves; Moulds therefor (combined with extrusion presses B28B 21/54)
21/76 Moulds (for slip-casting B28B 21/08)
21/765 (Top or bottom rings)
21/78 with heating or cooling means, e.g. steam jackets
21/80 adapted to centrifugal or rotational moulding
21/82 built-up from several parts; Multiple moulds; Moulds with adjustable parts
21/84 Moulds with one or more pivoting parts
21/86 Cores (in general B28B 7/00)
21/88 adjustable, collapsible or expansible (using inflatable cores B28B 21/20 (; for compacting B28B 21/18))
21/90 Methods or apparatus for [demoulding or] discharging after shaping
21/905 (Removing from a mandrel)
21/92 Methods or apparatus for treating or reshaping
21/925 [for wrapping]
21/94 for impregnating or coating by applying liquids or semi-liquids
21/96 for smoothing, roughening, corrugating or for removing burr
21/965 [for grooving or corrugating]
21/98 for reshaping, e.g. by means of reshape moulds

23/00 Arrangements specially adapted for the production of shaped articles with elements wholly or partly embedded in the moulding material; [Production of reinforced objects] (B28B 21/00 takes precedence; in units for prefabricated buildings B28B 7/22)

23/006 the reinforcement consisting of aligned, non-metal reinforcing elements
23/0012 Producing brick netting
23/0018 Producing metal-clad stones, such as oven stones
23/0025 with installation or service material, e.g. tubes for electricity or water
Methods, apparatus, or machines, specially adapted for the production of tubular or reinforced articles

23/0031  [with product identification means, e.g. labels on test products or integrated circuit tags inside products RFID]
23/0037  [with elements being able to conduct light, e.g. light conducting fibers]
23/0043  [with gaskets or sealing elements, e.g. for tunnelings or man holes (B28B 21/563 takes precedence)]
23/005  [with anchoring or fastening elements for the shaped articles]
23/0056  [Means for inserting the elements into the mould or supporting them in the mould (B28B 23/022 takes precedence)]
23/0062  [forcing the elements into the cast material, e.g. hooks into cast concrete]
23/0068  [Embedding lost cores]
23/0075  [for decorative purposes]
23/0081  [Embedding aggregates to obtain particular properties]
23/0087  [Lightweight aggregates for making lightweight articles]
23/0093  [Heavy aggregates or scrap material for making heavy articles]
23/02  wherein the elements are reinforcing members (B28B 23/0006 takes precedence)
23/022  [Means for inserting reinforcing members into the mould or for supporting them in the mould (inserting during extrusion B28B 3/2645)]
23/024  [Supporting means]
23/026  [Mould partitioning elements acting as supporting means in moulds, e.g. for elongated articles]
23/028  [for double-wall articles]
23/043  the elements being stressed
23/046  [Post treatment to obtain pre-stressed articles]
23/06  for the production of elongated articles
23/10  the shaping being effected by centrifugal or rotational moulding
23/12  to form prestressed circumferential reinforcements
23/14  by wrapping, e.g. winding, apparatus
23/16  Prestressed reinforcing nets
23/18  for the production of elongated articles (B28B 23/06 takes precedence)
23/20  the shaping being effected by centrifugal or rotational moulding (B28B 23/10 takes precedence)
23/22  assembled from preformed parts