

B29D

PRODUCING PARTICULAR ARTICLES FROM PLASTICS OR FROM SUBSTANCES IN A PLASTIC STATE (making granules [B29B 9/00](#); making preforms [B29B 11/00](#))

Definition statement

This place covers:

the production of particular plastic or plastic-like articles; namely:

- articles with screw-threads;
- elements of slide fasteners; combined making and attaching of elements of slide fasteners;
- flat articles, e.g. films or sheets;
- optical elements, e.g. lenses, prisms;
- frames;
- gear wheels or similar articles with grooves or projections, e.g. control knobs;
- articles with corrugations;
- carriers of records containing fine grooves or impressions, e.g. disc records for needle playback, cylinder records; record discs from master stencils;
- buttons or semi-finished parts of buttons;
- hair combs or similar toothed or slotted articles;
- hollow articles;
- tubular articles;
- articles with hollow walls;
- frameless domes;
- nets or the like;
- belts or bands;
- pneumatic or solid tyres or parts thereof;
- bushes for bearings;
- footwear;
- profiled members, e.g. beams;
- wall or panel-like structures, e.g. for hulls, fuselages, or buildings;
- blades or the like, e.g. blades for turbines, propellers, or wings;
- rolling bodies, e.g. rollers, wheels, pulleys or pinions;
- countertops;
- plain balls;
- rods;
- membranes;
- sealings;
- floor coverings;
- casings, e.g. accumulator cases;
- wearing apparel, e.g. gloves, masks, bathing caps;
- filamentary materials;
- articles in the form of closed loops, e.g. rings;
- honeycomb structures;
- upholstery articles, e.g. cushions, seats;
- closure members for containers, e.g. closure caps or stoppers.

Relationships with other classification places

This subclass is often connected with the following subclasses, ordered decreasingly according to its incidence:

- [B29C](#), which deals with the shaping or joining of plastics, shaping of substances in a plastic state, in general, and after-treatment of the shaped products;
- [B32B](#), which covers layered products, i.e. products built-up of strata of flat or non-flat elements, e.g. cellular or honeycomb form, as well the method of making these products;
- [G02B](#), which refers to optical elements, characterised by the material of which they are made, and also optical systems or apparatuses that make use thereof;
- [B60C](#), which deals with constructional aspects of vehicle tyres or parts thereof and several aspects related to vehicle tyres, such as, tyre inflation, tyre changing, connecting valves to inflatable elastic bodies in general, devices or arrangements related to tyres;
- [C08L](#), which contains compositions of macromolecular compounds;
- [A43B](#), which treats of footwear or part thereof characterised by the material, shape or by the assembling of the individual parts.

References

Limiting references

This place does not cover:

Making granules	B29B 9/00
Making preforms	B29B 11/00
Shaping composites, i.e. plastics material comprising reinforcements, fillers or preformed parts, e.g. inserts	B29C 70/00
Methods and apparatuses for making layered products	B32B 37/00 - B32B 41/02 .

Informative references

Attention is drawn to the following places, which may be of interest for search:

Plastic collars	A41B 3/16
Footwear or part thereof characterised by the material, shape or by the assembling of the individual parts	A43B
Seats or covers for all kinds of closets, made of plastic materials	A47K 13/02
Manufacture of rings from wire	B21F 37/00
Machines, devices or processes for grinding or polishing	B24B
Layered products, i.e. products built-up of strata of flat or non-flat elements, e.g. cellular or honeycomb form	B32B
Constructional form of tyres or parts thereof; tyre inflation; tyre changing	B60C
Connection of valves to tyres or rims	B60C 29/00
Sealing or packing elements; sealings formed by liquid or plastics material	B65D 53/00
Compositions of macromolecular compounds	C08L
Woven fabrics, methods of weaving and looms	D03D
Making nets by knotting of filamentary material, making knotted carpets or tapestries and knotting not otherwise provided for	D04G

Driving-belts made of plastics with reinforcement bonded by the plastic material	F16G 1/16
V-belts made of plastics with reinforcement bonded by the plastic material	F16G 5/14
Protection helmets made of plastics or plastic head-shield	F41H 1/08
Testing static or dynamic balance of tyres for wheeled vehicles	G01M 17/02
Optical elements, characterised by the material of which they are made; optical systems or apparatuses that make use thereof	G02B
Spectacles; sunglasses or goggles insofar as they have the same features as spectacles; contact lenses	G02C
Plastic bearings	G04B 31/016
Information storage based on relative movement between record carrier and transducer	G11B

Special rules of classification

- The working of plastics is, as far as possible, classified primarily according to the particular shaping technique used, e.g. in subclass [B29C](#).
- Classification according to production of particular articles in subclass [B29D](#) is restricted to:
 - aspects which are characteristic for the production of a particular article, and not classifiable in subclass [B29B](#) or [B29C](#);
 - combined operations for making the particular article which are not fully classifiable in subclass [B29C](#).
- Products per se are not classified in this class. However, if a product is characterised by the way it is produced and not by its structure or composition, the production method should be classified in this class.
- In this subclass it is desirable to add the Indexing Codes of the subclass [B29K](#).
- Inventive and additional information disclosed in documents to be classified should be identified by allocation the appropriate classification symbols provided in [B29D](#). In particular attention should be paid to the so called break down Indexing Codes, forming a further subdivision of a group or a subgroup, which are only present at additional information level.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Plastic	is defined as a macromolecular compound or composition based on such a compound
In a plastic state	refers to a state in which the material is more or less easily deformable, locally or as a whole, by force in any direction, to assume and retain any desired shape
Bearing	a plastic device to allow constrained relative motion between two or more parts, typically rotation or linear movement
Bush	a thin plastic sleeve or tubular lining serving as a bearing or guide.
Carrier of records	a kind of plastic support that enables some information to be recorded on

B29D 1/00

Producing articles with screw-threads

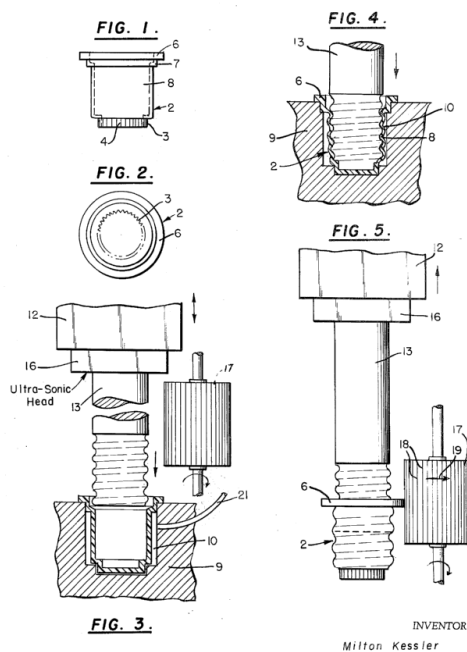
Definition statement

This place covers:

- the production of screw-threads, whereby said method is characteristic for making said screw-threads and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making screw-threads, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 1/00](#)

U.S. Patent Oct. 7, 1975 Sheet 1 of 2 3,911,074



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Making screw threads by injection moulding	B29C 45/2618
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B29D 1/005

{fibre reinforced}

Definition statement

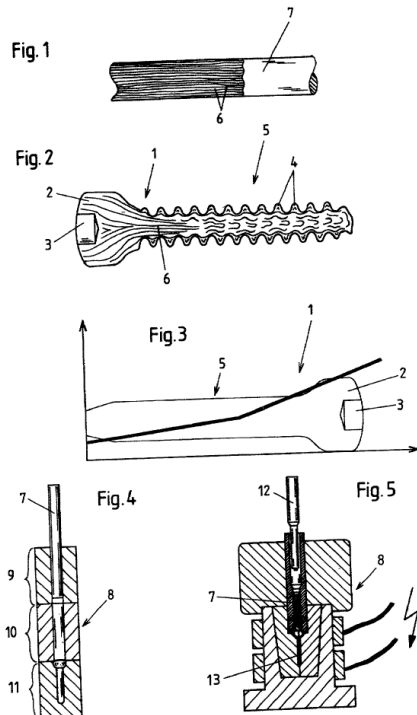
This place covers:

- the production of fibre reinforced screw-threads, whereby said method is characteristic for making said screw-threads and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making fibre reinforced screw-threads, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 1/005](#)

Fibrous reinforcements are at least present in the threaded part of the moulded article

Patent Application Publication Mar. 27, 2003 Sheet 1 of 2 US 2003/0057590 A1



B29D 5/00

Producing elements of slide fasteners; Combined making and attaching of elements of slide fasteners

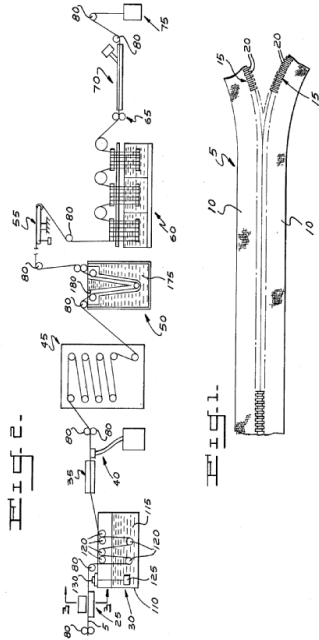
Definition statement

This place covers:

- the production of elements of slide fasteners, whereby said method is characteristic for making said elements and not classifiable in subclass [B29B](#) or [B29C](#)
- combined making and attaching of elements of slide fasteners, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 5/00](#)

U.S. Patent Jul. 31, 1979 Sheet 1 of 4 4,162,892



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Slide fasteners per se	A44B 19/00
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B29D 5/02

the fasteners having separate interlocking members

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 5/02](#)

Patent Application Publication Jul. 12, 2001 Sheet 5 of 19 US 2001/0007165 A1

FIG. 5A

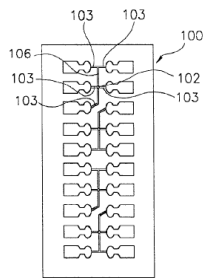
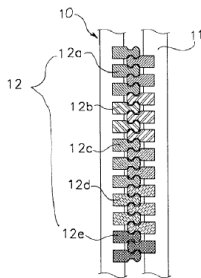


FIG. 5B



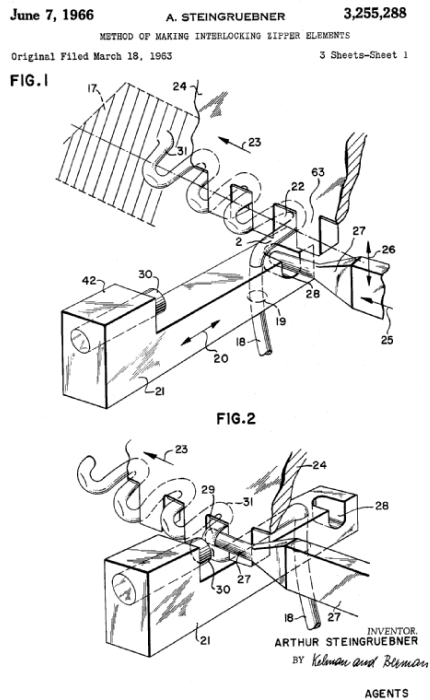
B29D 5/04

the interlocking members being formed by continuous meander of filamentary material

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 5/04](#)

**B29D 5/06**

the interlocking members being formed by continuous helix

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 5/06](#)

B29D 5/08

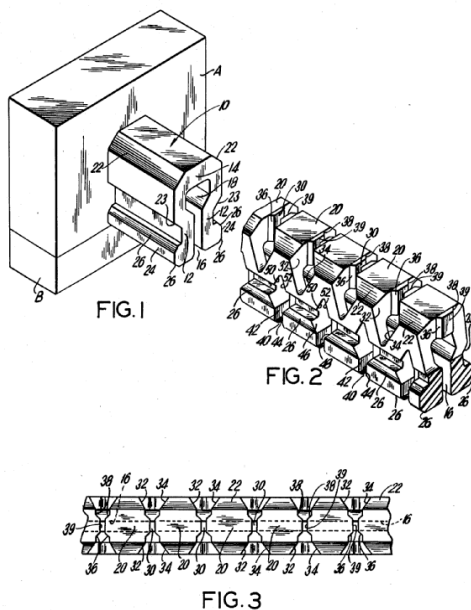
the interlocking members being formed by profiled or castellated edge of a stringer

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 5/08](#)

U.S. Patent Dec. 13, 1977 Sheet 1 of 2 4,062,919

**B29D 5/10**

the interlocking members being formed by continuous profiled strip

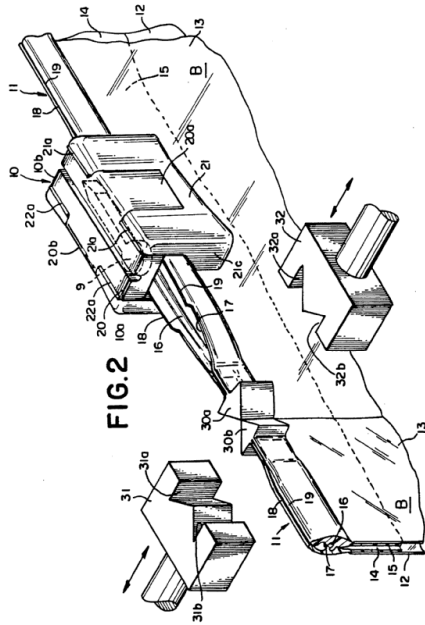
Definition statement

This place covers:

e.g. closure element typically used in "zip bags". The cross section of the elements being predominantly constant over the length of the slide fastener and the respective cross sectional shapes being such that it allows engaging and disengaging functionality (e.g. male/female type of cross sections)

Illustrative example of subject matter classified in [B29D 5/10](#)

U.S. Patent July 21, 1992 Sheet 2 of 2 5,131,121



WO 2012/075007

PCT/US2011/062397

4 / 13

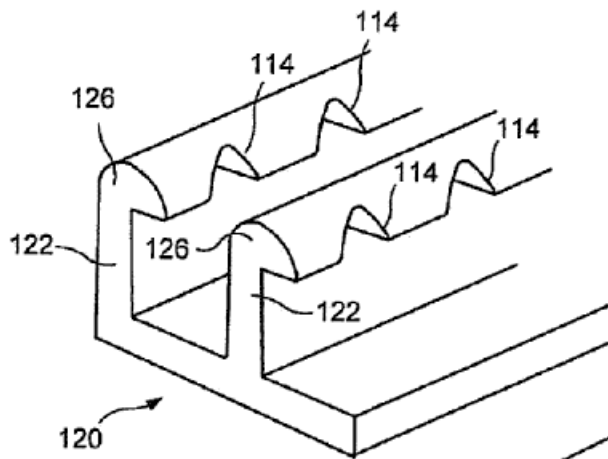


FIG. 7D

FIG. 8

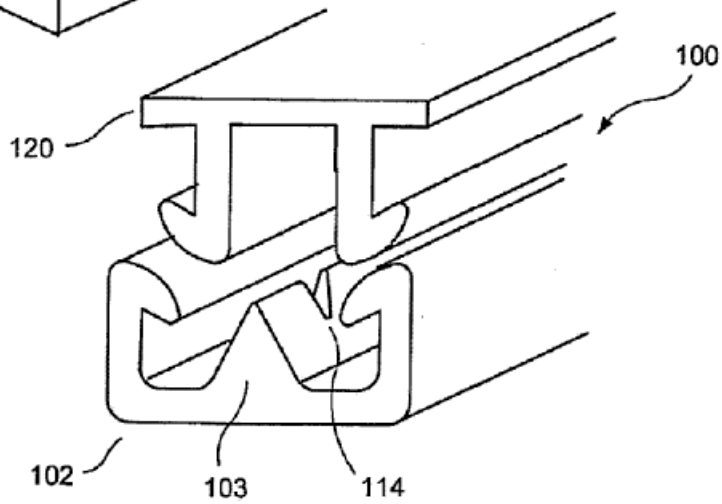
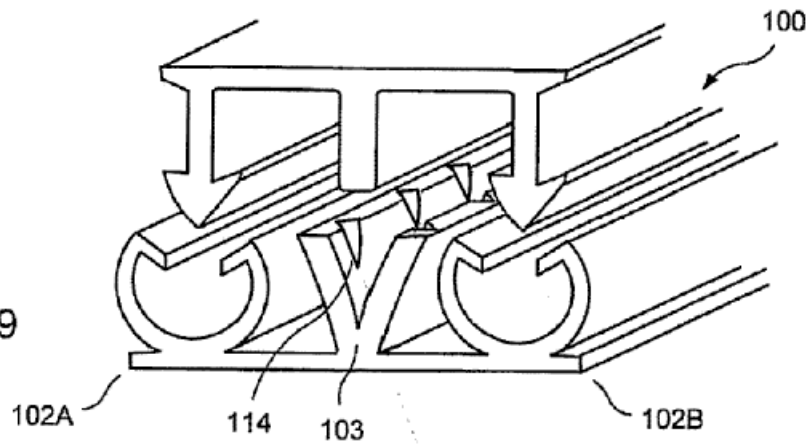


FIG. 9



(figures 8 and 9)

B29D 7/00

Producing flat articles, e.g. films or sheets ([B29D 24/00](#) takes precedence)

Definition statement

This place covers:

Manufacturing of flat articles characterised by special physical or application properties (e. g. good sliding properties, high conductivity, antistatic properties, easily tearable, sealable, printable etc.)

References

Limiting references

This place does not cover:

Shaping films or sheets by stretching	B29C 55/00
Manufacture of films or sheets characterised by the chemical composition	C08J 5/18

Informative references

Attention is drawn to the following places, which may be of interest for search:

Film laminates	B32B 27/00
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Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "films", "sheets", "webs", "tapes", "ribbons", "slabs", "plates", "plaques" and "boards"

B29D 11/00

Producing optical elements, e.g. lenses or prisms (grinding or polishing of optical elements [B24B](#); constructional form of optical elements [G02B](#); {optical parts of spectacles [G02C 7/00](#)})

Definition statement

This place covers:

Methods for making optical elements of polymeric materials

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Machines for grinding glass optical work	B24B 9/14
Making optical elements of glass	C03B

B29D 12/00

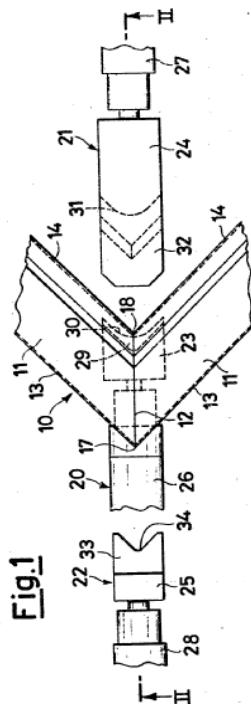
Producing frames

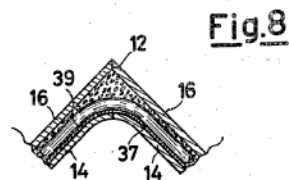
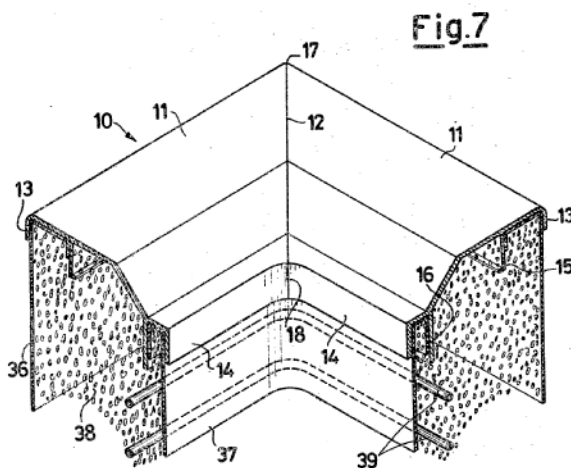
Definition statement

This place covers:

- the production of frames, whereby said method is characteristic for making said frames and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making frames, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 12/00](#)





FR2576839

B29D 12/02

Spectacle frames (constructional form [G02C](#))

Definition statement

This place covers:

- the production of spectacle frames, whereby said method is characteristic for making said frames and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making spectacle frames, which are not fully classifiable in subclass [B29C](#)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Constructional form of spectacle frames	G02C
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B29D 15/00

Producing gear wheels or similar articles with grooves or projections, e.g. control knobs

Definition statement

This place covers:

- the production of gear wheels or similar articles with grooves or projections, whereby said method is characteristic for making said gear wheels and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making gear wheels, which are not fully classifiable in subclass [B29C](#)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Gear wheels per se	F16H
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B29D 16/00

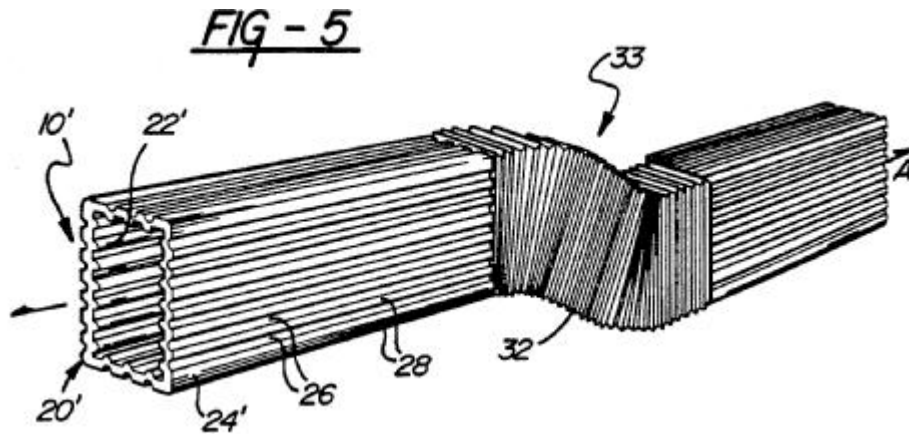
Producing articles with corrugations ([B29D 23/18](#) takes precedence)

Definition statement

This place covers:

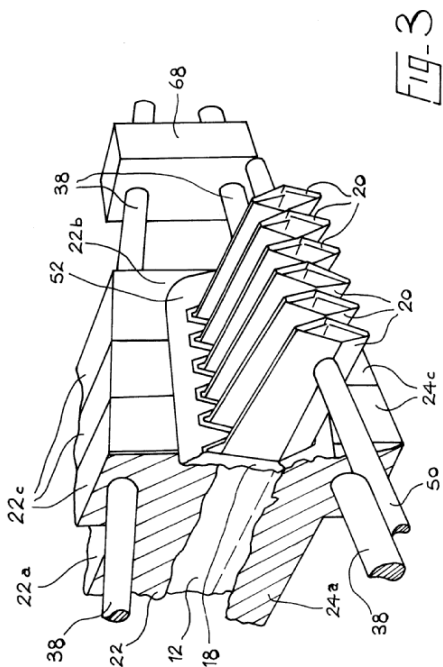
- the production of articles with corrugations, whereby said method is characteristic for making said articles and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making articles with corrugations, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 16/00](#)



US5169590

EP 0 549 105 A1



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Corrugating metal	B21D 13/00 , B21D 15/00
Extrusion moulding using dies or die parts movable in a closed circuit, e.g. for making corrugated articles:	B29C 48/303
Producing corrugated articles by winding and joining	B29C 53/586
Corrugating paper	B31F 1/20

B29D 17/00

Producing carriers of records containing fine grooves or impressions, e.g. disc records for needle playback, cylinder records (recording sound or other information using formed grooves or the equivalent [G11B](#)); Producing record discs from master stencils

Definition statement

This place covers:

- the production of carriers of records containing fine grooves or impressions, whereby said method is characteristic for making said records and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making records containing fine grooves or impressions, which are not fully classifiable in subclass [B29C](#)
- producing record discs from master stencils

Illustrative example of subject matter classified in [B29D 17/00](#)

U.S. Patent Apr. 23, 1996 Sheet 3 of 5 5,509,991

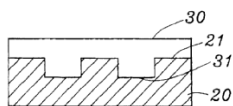
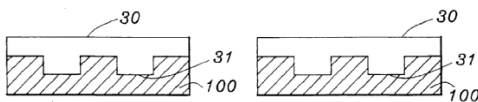
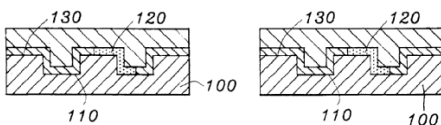
FIG. 3A*FIG. 3B**FIG. 3C*

FIG. 3D

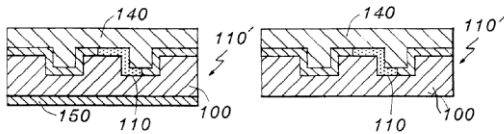
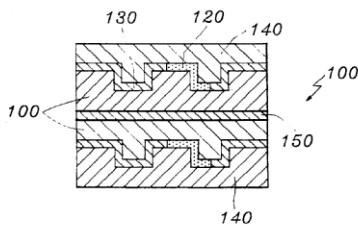


FIG. 3E



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Recording sound or other information using formed grooves or the equivalent	G11B
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B29D 19/00

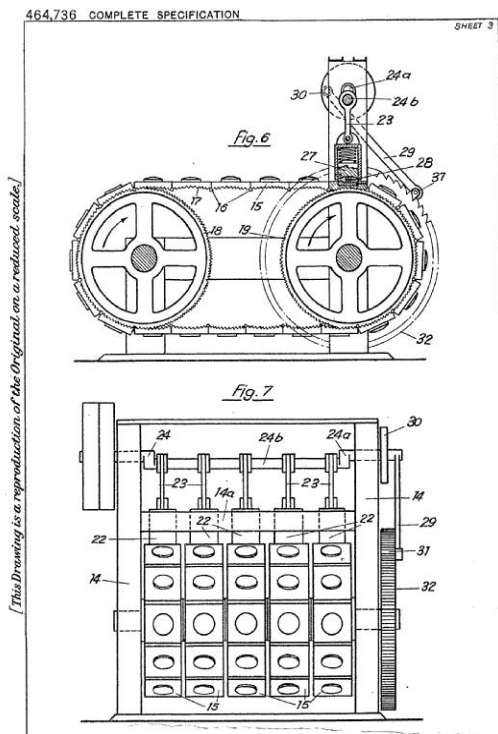
Producing buttons or semi-finished parts of buttons

Definition statement

This place covers:

- the production of buttons or semi-finished parts of buttons, whereby said method is characteristic for making said buttons and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making buttons or semi-finished parts of buttons, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 19/00](#)



GB464736

B29D 21/00

Producing hair combs or similar toothed or slotted articles

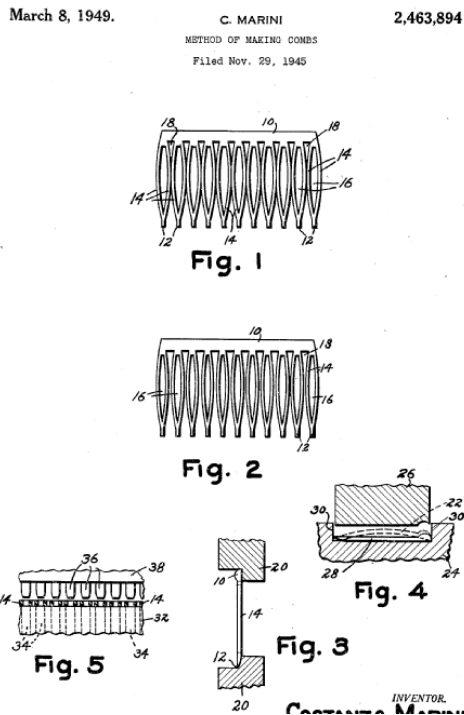
Definition statement

This place covers:

- the production of hair combs or similar toothed or slotted articles, whereby said method is characteristic for making said articles and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making hair combs or similar toothed or slotted articles, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 21/00](#)

US2463894



B29D 22/00

Producing hollow articles (tubular articles [B29D 23/00](#); pneumatic tyres [B29D 30/00](#))

Definition statement

This place covers:

- the production of hollow articles, whereby said method is characteristic for making said articles and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making hollow articles, which are not fully classifiable in subclass [B29C](#)

References

Limiting references

This place does not cover:

Producing tubular articles	B29D 23/00
Producing pneumatic tyres	B29D 30/00

B29D 22/023

{Air springs; Air bellows (construction of fluid springs [F16F 9/00](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Construction of fluid springs	F16F 9/00
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B29D 22/026

{Ring shaped inner tubes with ends (endless inner tubes [B29D 23/24](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Tyre inner tubes with ends as such	B60C 5/10
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B29D 23/00

Producing tubular articles ([B29D 24/00](#) takes precedence)

Definition statement

This place covers:

- the production of tubular articles, whereby said method is characteristic for making said articles and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making tubular articles, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 23/00](#)

U.S. Patent Aug. 28, 2001 US 6,279,616 B1

FIG. 1

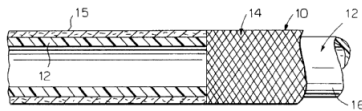
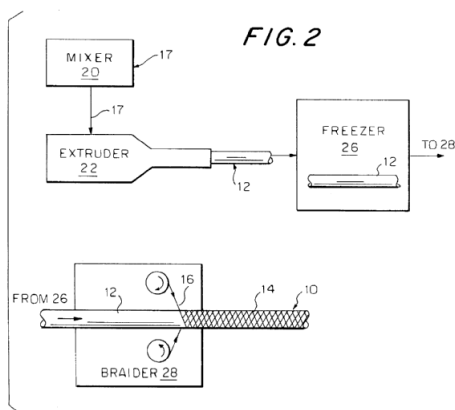


FIG. 2



B29D 23/18**Pleated {or corrugated} hoses****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Corrugated plastic hoses	F16L 11/11
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B29D 24/00**Producing articles with hollow walls {(B29D 99/0028 takes precedence)}****Definition statement**

This place covers:

- the production of articles with hollow walls, whereby said method is characteristic for making said articles and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making articles with hollow walls, which are not fully classifiable in subclass [B29C](#)

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Producing wall or panel like structure for hulls, fuselage or buildings	B29D 99/001
General building construction: walls, e.g. partitions; roofs; floors; ceilings; insulation or other protection of buildings	E04B

B29D 24/001

{formed of hollow ridges or ribs, e.g. separate ridges; continuous corrugated structure ([B29D 24/008](#) takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 24/001](#)

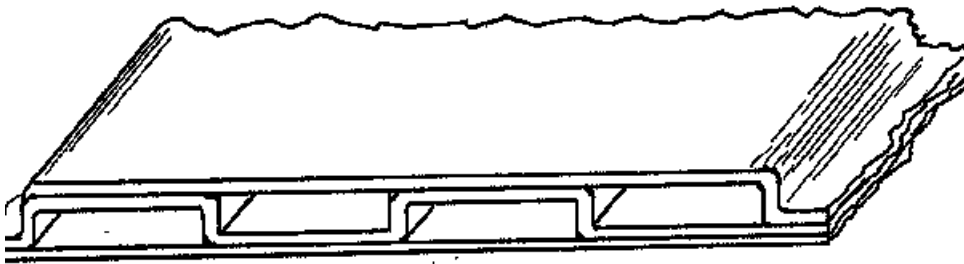


FIG. 9

GB1522432

B29D 24/005

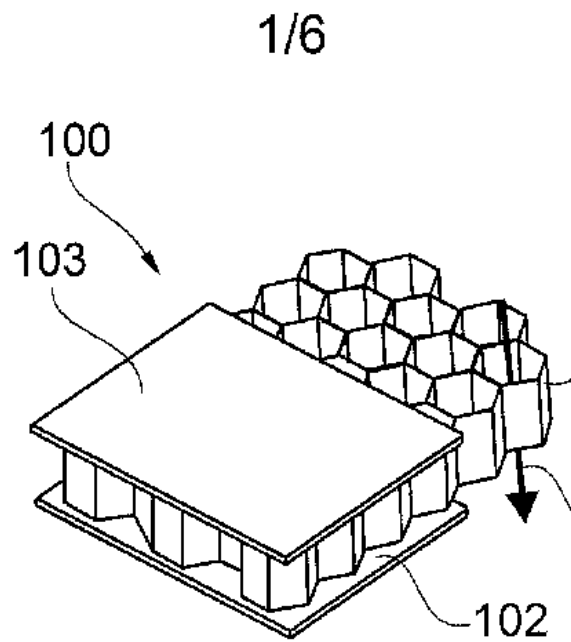
{the structure having joined ribs, e.g. honeycomb}

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 24/005](#)

WO 2009/153248



B29D 24/008

{the structure having hollow ridges, ribs or cores}

Definition statement

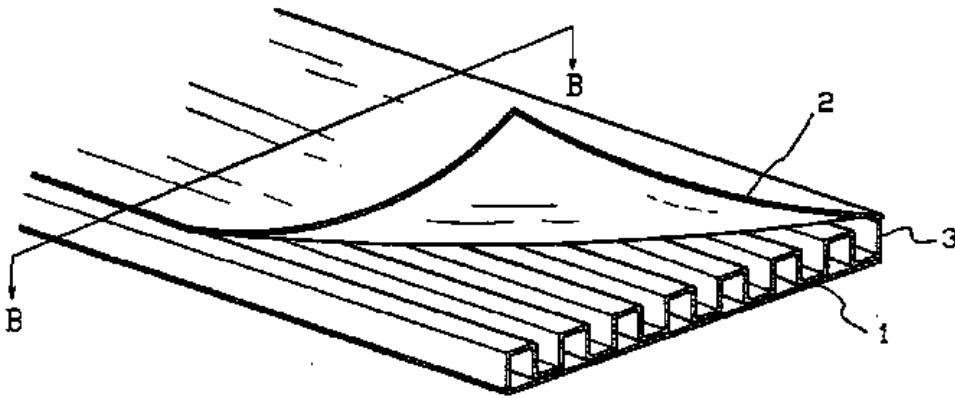
This place covers:

Illustrative example of subject matter classified in [B29D 24/008](#)

Patent Application Publication May 5, 2005 Sheet 1 of 5

US 2005/0095405 A1

Fig. 1

**B29D 25/00**

Producing frameless domes

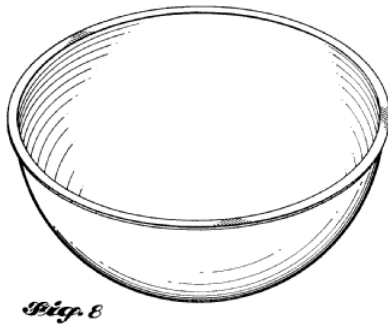
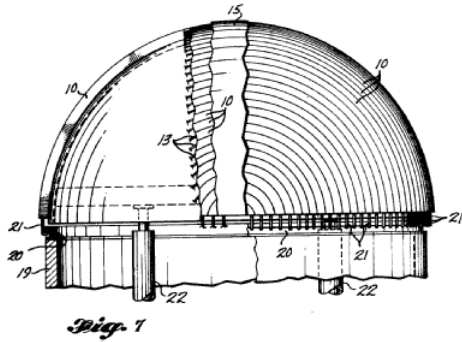
Definition statement

This place covers:

- the production of frameless domes, whereby said method is characteristic for making said domes and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making frameless domes, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 25/00](#)

US3795559



B29D 28/00

Producing nets or the like, {e.g. meshes, lattices} (by knotting [D04G](#))

Definition statement

This place covers:

The production of reticular products like nets, grids, meshes, lattices not limited to a specific application.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Nets for protecting crops or plants	A01G
Nets for animals	A01K , A01M 3/00
Screens	B07B 1/00
Non-woven fabrics	D04H 3/04
Grids for geological applications	E02D 17/00 , E02D 29/00

B29D 29/00

Producing belts or bands

Definition statement

This place covers:

The manufacture of belts or bands, either essentially consisting of plastics (including rubber or the like), or comprising various kinds of reinforcements embedded in a matrix of plastic material, including rubber or the like.

References

Limiting references

This place does not cover:

Producing belts as tyre components	B29D 30/70
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Driving-belts	F16G 1/00
V-belts, i.e. belts of tapered cross-section	F16G 5/00

Special rules of classification

In this group it is desirable to identify the type of produced belt or band by allocating the appropriate Indexing Codes as provided in the subclass [B29L](#), e.g.:

- belts or bands: [B29L 2029/00](#);
- conveyor belts: [B29L 2031/7092](#);
- driving belts: [B29L 2031/7094](#);
- fourdrinier belts: [B29L 2031/733](#)

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Belt	is a loop of flexible material used to link two or more rotating shafts mechanically. Belts may be used as a source of motion, to transmit power, or to track relative movement.
Conveyor belt	is one application where the belt is adapted to continually carry a load between two points.

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- English words "band", "strip", "tape" and "ribbon"
- German words "riemen", "gürtel", and "band"
- French words "bande", "courroie", and "ceinture"

B29D 29/08

Toothed driving belts

Definition statement

This place covers:

the manufacture of driving belts (aka synchronous belts) comprising patterns of typically tooth-shaped protruding elements. These elements mesh with the grooves of a pulley in a synchronous belt drive. Timing belts maintain constant speed during power transmission and do not slip.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Driving-belts with a contact surface of special shape, e.g. toothed	F16G 1/28
V-belts, i.e. belts of tapered cross-section, with a contact surface of special shape, e.g. toothed	F16G 5/20

B29D 29/085

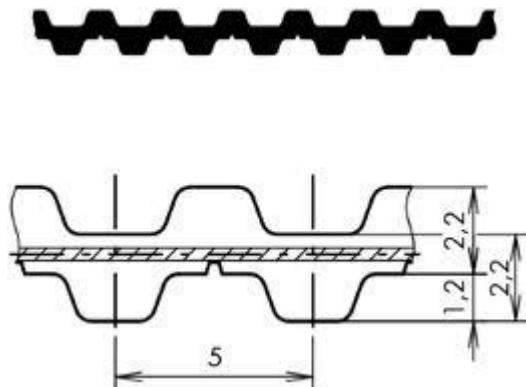
{Double-toothed driving belts}

Definition statement

This place covers:

Making of double-toothed belts, i.e. belts being provided with teeth-like protrusions on both sides of the belts, namely on the upper and lower sides.

An illustrative schematic example thereof is the following:



B29D 29/10

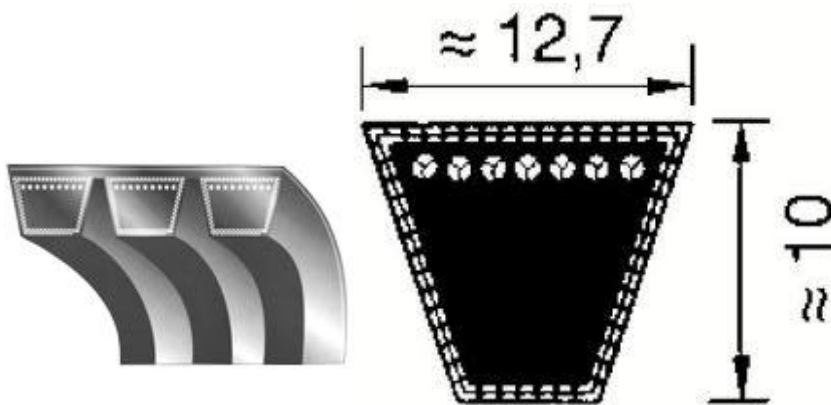
Driving belts having wedge-shaped cross-section

Definition statement

This place covers:

Making of driving belts having a wedge-shaped cross-section

An illustrative schematic example thereof is the following:



B29D 29/103

{Multi-ribbed driving belts}

Definition statement

This place covers:

Making of multi-ribbed driving belts, that is belts having a plurality of rib-like elements, typically extending parallel to each other and to the longitudinal direction of the belt

An illustrative schematic example thereof is the following:



B29D 29/106

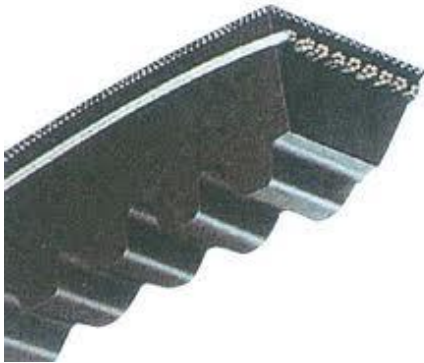
{Cogged driving belts}

Definition statement

This place covers:

Making of cogged belts being a driving belt designed to avoid slipping; a.k.a.: timing belts or synchronous belts . The belts are typically provided with a plurality of protrusions moulded onto their inner surface.

An illustrative schematic example thereof is the following:



B29D 30/00

Producing pneumatic or solid tyres or parts thereof (producing inner tubes [B29D 23/24](#); constructional form of tyres or parts thereof [B60C](#); connection of valves to inflatable elastic bodies [B60C 29/00](#); testing of tyres [G01M 17/02](#))

Definition statement

This place covers:

Methods and apparatuses for manufacturing pneumatic or solid tyres or parts thereof.

This group also covers the following manufacturing issues:

- resilient fillings for rubber tyres: [B29D 30/04](#);
- injection moulding specially adapted for tyres or parts thereof: [B29D 30/0678](#);
- centrifugal casting specially adapted for tyres or parts thereof: [B29D 30/0679](#);
- building up green tyres on toroidal cores: [B29D 30/10](#);
- building green tyres on cylindrical drums: [B29D 30/20](#);
- tyre building drums: [B29D 30/24](#);
- curing the the green tyres using vulcanizers or presses: [B29D 30/0601](#);
- tyre moulds with incorporated heating or cooling means using liquids, gas or steam: [B29D 30/0601](#);
- flexible cores for vulcanizing tyres: [B29D 30/0654](#);
- after-treatment specially adapted for vulcanising tyres: [B29D 30/0633](#);
- cooling tyres during post cure inflation: [B29D 30/0643](#);
- retreading tyres: [B29D 30/54](#);
- seals on envelopes used in tyre retreading: [B29D 30/542](#);
- applying spikes to the tyre tread: [B29D 30/66](#).

Most of the modern pneumatic radial tyres are manufactured according to the following main steps:

- a carcass including the tyre beads is built either on a toroidal core (the shape of said core being substantially correspondent to the shape of the finished tyre), or on a cylindrical drum; thereafter, the carcass built on the cylindrical drum is expanded into the final toroidal shape;
- the belt and the tread are applied to the toroidally expanded carcass;
- the sidewalls are applied to the toroidally expanded carcass;
- the green tyre so obtained is cured in a suitable mould.

Other tyre manufacturing techniques include casting, centrifugal casting, compression moulding, injection moulding.

References

Limiting references

This place does not cover:

Producing inner tubes	B29D 23/24
Producing tyre components by a single moulding technique, not including injection moulding or centrifugal casting	B29C
Means for sealing or repairing damaged tyres	B29C 73/00
Self-sealing arrangements or agents	B29C 73/16
Repairing of tyres	B29C 73/305 , B29C 73/325 .

Informative references

Attention is drawn to the following places, which may be of interest for search:

Producing hollow articles	B29D 22/00
Producing tubular articles	B29D 23/00
Selectively separating reinforcements from matrix material by destroying the interface bound before desintegrating the matrix to particles or powder, e.g. from tyres or belts	B29B 17/0206
Cores or mandrels in general, e.g. inflatable	B29C 33/04 , B29C 33/505
Bags, bleeder sheets or cauls for isostatic pressing	B29C 43/3642
Constructional forms of tyres or parts thereof	B60C
Connection of valves to inflatable elastic bodies	B60C 29/00
Sealing compositions per se: see section C , e.g.	C09K 3/10
Testing of tyres	G01M 17/02

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Tyre (also spelled as tire)	a ring-shaped, typically toroidal, covering for a wheel, usually made of rubber reinforced with cords of steel, nylon or other material. It may be either solid or hollow and inflated (see pneumatic tyre), and is mounted over the rim of a wheel to provide traction, resistance to wear and to provide flexible cushion that absorbs shock while keeping the wheel in close contact with the ground
Bias-ply tyre	a pneumatic tyre having crossed layers of ply cord running diagonally to the tread. See also: radial tyre
Green tyre	a pneumatic tyre which has not yet undergone the moulding and vulcanizing process. Since the rubber is uncured, the green tyre is tacky, soft and not capable of maintaining its shape

Pneumatic tyre	a tyre made of reinforced rubber, holding compressed air. Pneumatic tyres consist of bands of corded fabric, or "plies," coated with rubber. Bias ply tyres have the plies overlaid at an angle to the other layers. Radial tyres have all plies laid at 90 degrees to the tyre body or casing. See also: solid tyre
Radial tyre	a particular type of tyre construction which utilizes beads that run perpendicular (90 degrees) to the direction of travel, stretched from bead to bead. They are typically reinforced with steel or nylon belts. See also: bias-ply tyre
Run-Flat tyre	a type of tyre that permits travel with reduced internal pressure (deflated) for a limited mileage range at a limited speed
Solid tyre	solid tyres have no hollow center and hold no air (non-pneumatic tyre). They are typically made of plastic or a composite of rubber/plastic and are used mostly on lawnmowers, skateboards, scooters, etc. The fact that pneumatic tyres can be punctured and lose air pressure makes them unsuitable for certain applications. For instance, tyres used by the military, in construction and on forklifts are often made with solid rubber or filled with resilient foam
Studded tyre	tyre that comes with small metal studs embedded into the tread blocks, or holes where studs can be manually inserted, to provide better traction in inclement driving conditions
Tubeless tyre	a pneumatic tyre which does not require a rubber inner tube to hold the air pressure. Tubeless tyres have a stiff bead on the edges of the sidewall that form an airtight seal with the wheel, eliminating the need for an inner tube. See also: solid tyre, inner tube, inner liner
Apex (aka bead filler)	tyre component made from a very hard rubber compound, which is extruded so as to form a wedge; it is joined to bead core on its radially external surface
Bead	the innermost portion of a tyre on either side, where it seats to the rim. A bead is reinforced with concentric steel wires to ensure a tight seal against the rim. It also prevents damage to the tyre during installation and removal
Bead ring (aka bead core)	a structure composed of high tensile strength steel wire formed into hoops which function as anchors for the plies and hold the tyre assembly onto the rim of the wheel
Belt (aka breaker)	one or more layers of rubber-coated tyre cord or rubber-encased steel cords located directly beneath the tread that run circumferentially in the crown of the tyre. The belt purpose is to reinforce the tread and help maintain a tyre's shape under a wide variety of conditions including tyre pressure variations, centrifugal forces and cornering and braking forces, for example. Belts also improve tread wear and help resist damage from impacts and penetration
Bias Ply (aka as Cross-Ply)	bias ply tyres have belts that run diagonally across and on top of each other from bead to bead, typically at angles in the range of 30 to 40 degrees. This provides the advantage of allowing the tyre body more flexibility. This allows for a smoother ride over rough surfaces

Carcass (aka casing)	a typical structural part of a pneumatic tyre, comprising a network of cords or other reinforcing elements embedded in rubber, which typically gives the tyre its shape. The tread or sidewalls are not part of the carcass
Chafer	a narrow strip of rubber-coated abrasion-resistant material folded around the outside of the bead that protects the carcass cords against wear and cutting by the rim, distributes flex above the rim, and prevents dirt and moisture from getting into the tyre
Cord	a strand of fabric, typically made of nylon, steel, rayon, fiberglass, polyester, or some combination of these materials, used in the making of carcass plies, belts or other reinforcing parts
Crown	the entire outer perimeter of the contact surface of a tyre. This area houses the tread pattern of a tyre
Inner Liner	the layer of air-impervious rubber (typically butyl rubber) that coats the inside of a tubeless tyre
Inner Tube	the rubber balloon in the shape of a long circular tube which is inserted into a tyre to retain air pressure. Most automotive tyres are tubeless
Ply	a layer of fabric cord extending from bead to bead, that forms much of the body of a tyre between tread and inner lining
Retreading	the practice of applying a new tread to a used tyre casing. Most commonly used on medium and heavy commercial trucks tyres
Safety Strips (aka Overlays)	two substantially continuous reinforcing strips wound symmetrically over the lateral edges of the belt, designed to maintain the integrity of the tyre and prevent catastrophic tread separations by decreasing stresses at the belt edges
Shoulder	the upper rounded portion of the sidewall just below the tread edge and affects tyre heat behaviour and cornering characteristics
Sidewall	the portion of a tyre between the bead and the tread pattern. It is typically compounded of rubber with high flex and weather resistance to control the ride and provide support
Sipes	small slits cut into tread blocks that help evacuate water away from the crown of the tyre for improved wet traction. Sipes also provide "biting edges" for improved traction on ice- and snow-covered roads
Tread	the part of a tyre designed to make contact with the road surface. The tread is made from tough rubber for high traction and low wear
Tread blocks	individual sections of the tread separated by lateral grooves
Tread pattern	the arrangement of grooves, blocks, sipes and channels on the tread that permit water to drain away from the footprint

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- English words "tire" and "tyre"
- German words "reifen" and "luftreifen"
- French expressions "pneumatique", "pneu", and "bandage pneumatique"

B29D 30/0005**{Pretreatment of tyres or parts thereof, e.g. preheating, irradiation, precuring}****References****Limiting references***This place does not cover:*

Pretreatment, e.g. coating of, or impregnating of reinforcements or fillers	B29B 15/08 - B29B 15/14
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B29D 30/0016**{Handling tyres or parts thereof, e.g. supplying, storing, conveying
([B29D 30/2607](#) takes precedence; loading and unloading vulcanizing presses
[B29D 30/0603](#))}****Definition statement***This place covers:*

manipulating, supporting, grasping, holding tyres or parts thereof (e.g. baskets or the like), with no specific relation to loading/unloading the press or the mould.

References**Limiting references***This place does not cover:*

Loading/unloading the tyre curing press press	B29D 30/0603
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Informative references*Attention is drawn to the following places, which may be of interest for search:*

Gripping heads	B25J 15/00
Article or material handling devices associated with conveyors	B65G 47/00
Storing webs, tapes, or filamentary material, e.g. on reels	B65H 75/00
Internally-expanding grippers for handling hollow articles	B66C 1/54

B29D 30/0061**{Accessories, details or auxiliary operations not otherwise provided for}****Definition statement***This place covers:*

accessories, details or auxiliary operations, related to producing pneumatic or solid tyres or parts thereof, not covered by groups [B29D 30/0005](#), [B29D 30/0016](#), [B29D 30/005](#), [B29D 30/02](#), [B29D 30/04](#) and [B29D 30/06](#)

References

Limiting references

This place does not cover:

Packaging annular articles, e.g. tyres	B65B 25/24
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B29D 30/02

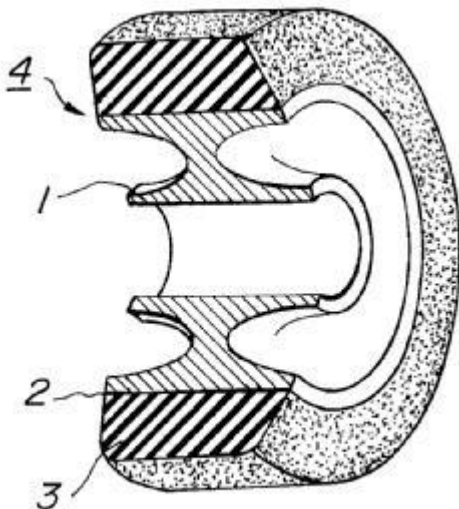
Solid tyres {; Moulds therefor}

Definition statement

This place covers:

An illustrative schematic example thereof is the following:

US 4244413



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Non-inflatable or solid tyres	B60C 7/00
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B29D 30/04

Resilient fillings for rubber tyres; Filling tyres therewith

Definition statement

This place covers:

methods of providing pneumatic tyres with a resilient filler to provide cushioning of the vehicle ride. The filler is typically a foamed elastomeric material, normally expanded in situ. This group also covers the materials used therefor

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Non-inflatable or solid tyre characterised by means for increasing resiliency	B60C 7/10
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B29D 30/0602

{the vulcanising medium being in direct contact with the tyre}

Definition statement

This place covers:

apparatuses and methods of curing tyres, wherein the vulcanizing medium (typically steam, hot nitrogen or other hot fluids) comes directly in contact with the tyre during vulcanization; also known as "bladderless" curing: an inflatable vulcanizing bladder or core, preventing contact between the steam or the vulcanizing fluid on one side and the tyre from the other side, is not present.

B29D 30/0603

{Loading or unloading the presses}

Definition statement

This place covers:

apparatuses and methods of loading the vulcanizing presses or moulds with green (i.e. uncured) tyres and to unload the cured (i.e. vulcanized) tyres from the vulcanizing presses or moulds.

References

Limiting references

This place does not cover:

Manipulating, supporting, grasping, holding tyres, e.g. baskets or the like, with no specific relation with loading or unloading the presses or the moulds	B29D 30/0016
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Special rules of classification

Typically, the tyre vulcanizing press (a.k.a. tyre vulcanizer) is an apparatus comprising the following sub-assemblies:

- one or more metallic mould(s);
- devices for opening, closing, locking and unlocking the mould(s) [e.g. mechanical means: levers, kinematical systems, actuators, etc.];
- devices for introducing/removing the toroidal bladder (when present) inside the toroidal space formed by the closed mould;
- devices for supplying to /removing from the bladder, the vulcanizing medium (e.g. steam, Nitrogen), which pressurizes the uncured
- tyre and supplies thermal energy for carrying out the vulcanization;
- devices for supplying thermal energy to the tyre mould;
- various devices (sensors, etc.) for controlling the vulcanization.

The tyre loaders/unloaders (which are typically kinds of "manipulators" for inserting the green tyre inside the open mould and removing the cured tyre from the open mould) are typically NOT part of the tyre mould and NOT part of the press: in the sense that when the press is closed and/or the mould containing the tyre is closed, during the vulcanization cycle, the tyre loaders/unloaders remain outside the press/mould.

B29D 30/0605

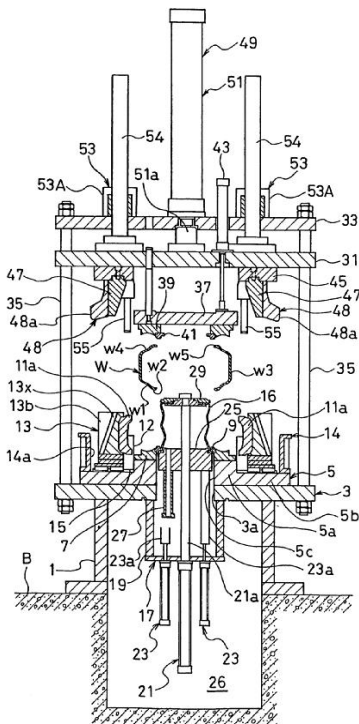
{Vulcanising presses characterised by moulds integral with the presses having radially movable sectors}

Definition statement

This place covers:

Machines (presses) comprising moulds with radially movable sectors and means for opening or closing the moulds, means for exerting pressure and means for supplying fluids and/or energy for curing the tyres including means for controlling the vulcanizing process. A mould with radially movable sectors typically comprises two substantially disc-shaped plates for moulding the tyre sidewalls and a plurality of circumferential sectors (aka segments) for moulding the tyre tread. The sectors are movable synchronously inward, to form a continuous cavity and to mould the tyre tread, and are movable synchronously outward, to allow the removal of the cured tyre from the mould.

WO03/041933 - A



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Presses in general	B30B
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B29D 30/0606

{Vulcanising moulds not integral with vulcanising presses (for solid tyres
[B29D 30/02](#))}

Definition statement

This place covers:

constructional features of moulds for vulcanizing tyres, e.g. details of the moulding surface (ribs, grooves, sipes, venting plugs, means, porous surfaces), means for opening/closing the mould or mould segments, details of fluid circulating means (channels), sensors.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Moulds or cores, characterised by the shape of the moulding surface, e.g. ribs, grooves	B29C 33/42
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B29D 30/0629

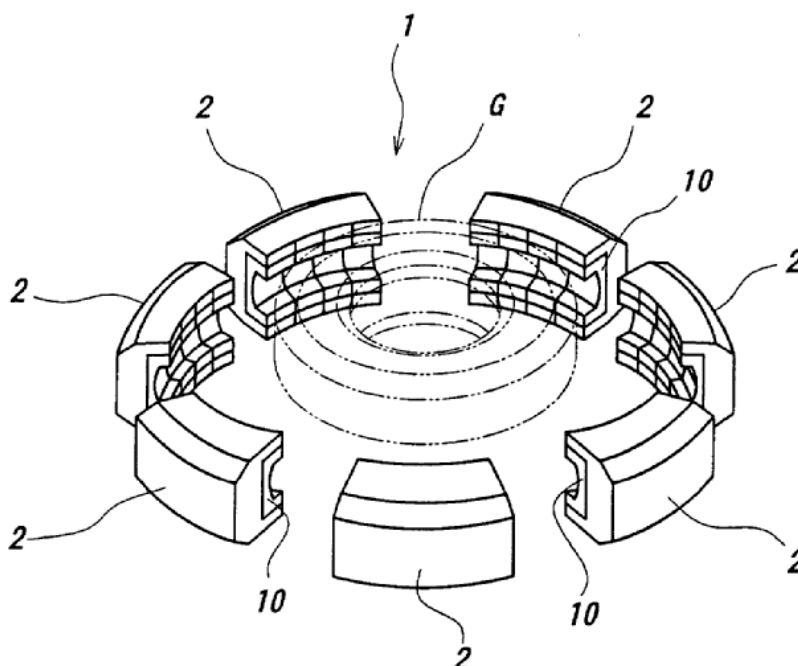
{with radially movable sectors}

Definition statement

This place covers:

mould with radially movable sectors typically comprising two substantially disc-shaped plates for moulding the tyre sidewalls and a plurality of circumferential sectors (aka segments) for moulding the tyre tread

An illustrative schematic example thereof is the following



EP 1232843 - A

B29D 30/0633**{After-treatment specially adapted for vulcanising tyres}****Definition statement***This place covers:*

- improving tyre uniformity, e.g. by adding or removing material, or deforming the tyre; e.g. US 3017669, BE 568778, DE 4006182;
- measuring tyre uniformity;
- marking, labelling tyres;
- awling, venting tyres.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Machines or devices designed for grinding surfaces of revolution on work, including those which also grind adjacent plane surfaces; accessories therefor; single-purpose machines or devices; for grinding tyres	B24B 5/366
Measuring or gauging equipment for controlling the feed movement of the grinding tool or work; arrangements of indicating or measuring equipment, e.g. for indicating the start of the grinding operation, taking regard of the load; for grinding tyres	B24B 49/165
Testing static or dynamic balance of machines or structures	G01M 1/00
Determining unbalance	G01M 1/14
Compensating unbalance	G01M 1/30
Testing of vehicles; of wheeled or endless-tracked vehicles; of tyres	G01M 17/02

B29D 30/0643**{Cooling during post cure inflation; Post cure inflators used therefor}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

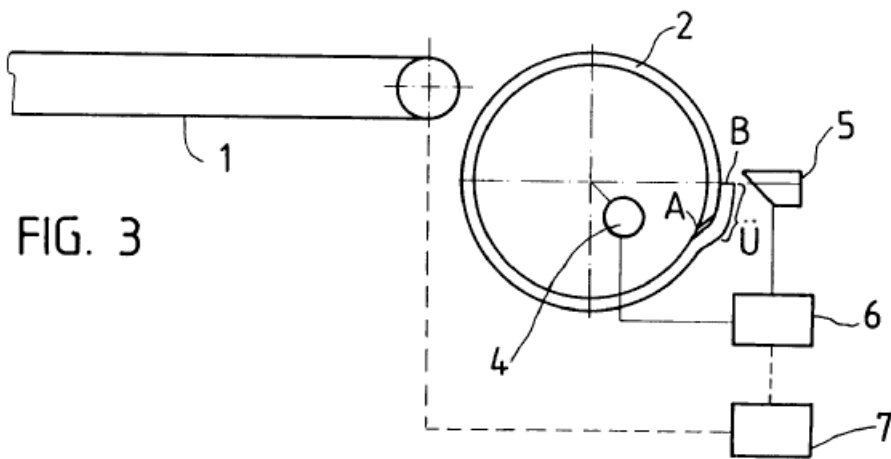
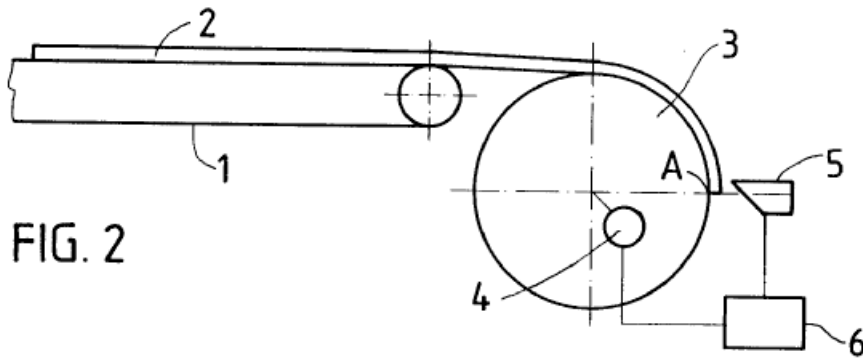
Cooling in moulding processes in general	B29C 35/16
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B29D 30/065**{Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other}****Definition statement***This place covers:*

tyre-vulcanising presses comprising a plurality of curing moulds, the moulds being for instance stacked upon each other, or arranged side by side

An illustrative schematic example of [B29D 30/065](#) is the following:

EP 0 530 673 - A



B29D 30/3057

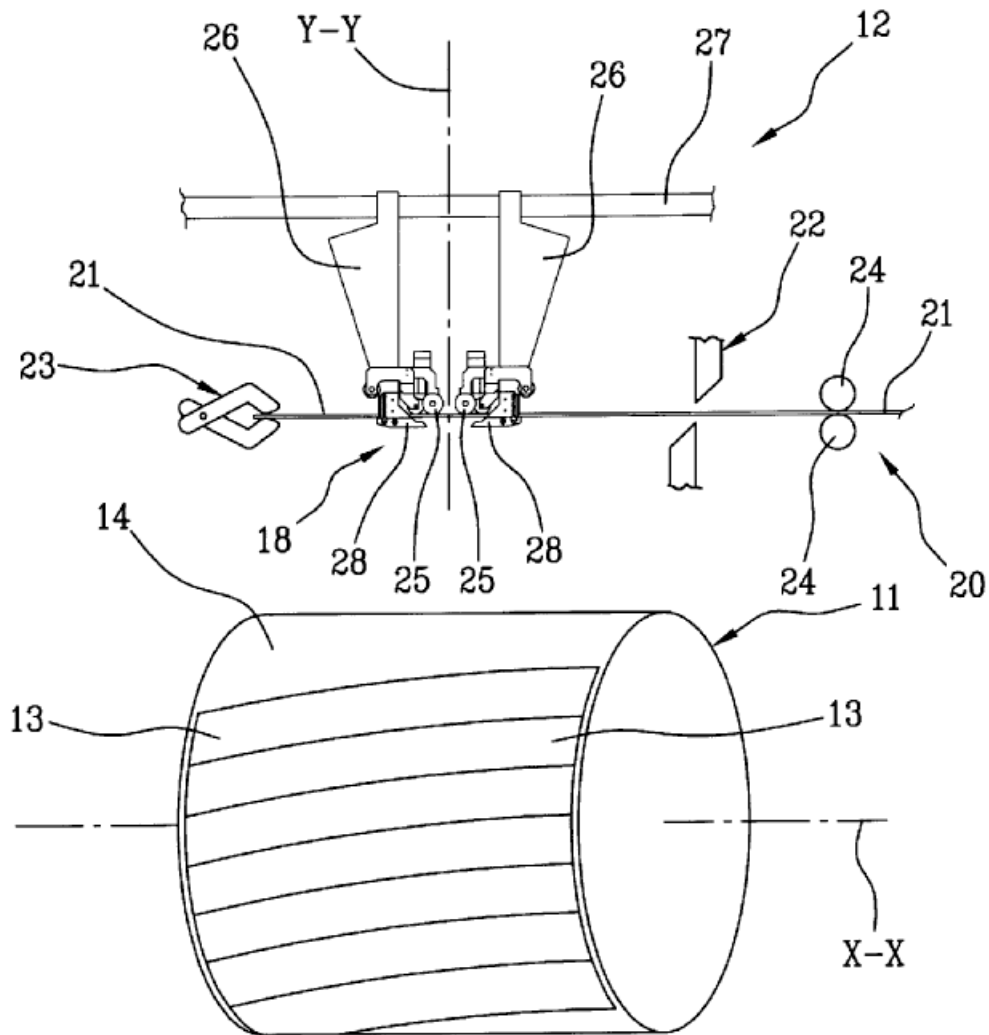
{by feeding cut-to-length pieces in a direction inclined with respect to the drum axis and placing the pieces side-by-side to form an annular element}

Definition statement

This place covers:

Illustrative example of subject matter classified in [B29D 30/3057](#)

WO 2009068939 - A



B29D 30/38

Textile inserts, e.g. cord or canvas layers, for tyres (making woven fabrics [D03D](#)); Treatment of inserts prior to building the tyre (pretreatment of inserts [B29B 15/00](#); manufacture of layers comprising fibrous parallel reinforcements of substantial or continuous length [B29C 70/20](#))

References

Limiting references

This place does not cover:

Coating or impregnating of reinforcements or fillers	B29B 15/08 - B29B 15/14
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Reinforcing cords or wires for rubber or plastic articles, the cords being characterised by an anti-corrosive or adhesion-promoting coating	D07B 1/0666
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B29D 30/48

Bead-rings or bead-cores (from wire [B21F 37/00](#)); Treatment thereof prior to building the tyre

Definition statement

This place covers:

the manufacture of bead-rings or bead-cores, typically by winding a plurality of turns of a continuous steel wire to form a substantially un-stretchable ring.

This group also covers the application of the filler rubber or apex to the bead core, unless otherwise specified.

References**Limiting references**

This place does not cover:

Pretreatment of reinforcements or fillers; coating or impregnating	B29B 15/10
Coating wires to promote adhesion to rubber/plastics: reinforcing cords for rubber or plastic articles; the wires being characterised by an anti-corrosive or adhesion promoting coating	D07B 1/0666

B29D 30/52

Unvulcanised treads, e.g. on used tyres; Retreading (apparatus for forming {treads by extrusion [B29C 48/00](#); apparatus for} vulcanising treads [B29C 35/02](#); apparatus characterised by the means for holding wheels or parts thereof [B60B 30/00](#))

Definition statement

This place covers:

- manufacturing of tyre treads;
- retreading;
- application of anti-skid spikes or studs to the tread.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Tyre tread bands per se; tread patterns; anti-skid inserts	B60C 11/00
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Tread	part of the tyre which protects the carcass plies from mechanical damage and the effects of moisture. The thickest part, the section in contact with the road, has patterned projections and recesses of various sizes and shapes; the tread pattern determines the adhesion between the tyre and the road, rolling resistance, resistance to abrasion, performance under difficult road conditions, running noise, and ease of control.
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B29D 30/54

Retreading

Definition statement

This place covers:

Retreading of tyres, i.e. processes and means to fit a worn tyre with a new tread.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Machines or devices designed for grinding surfaces of revolution on work, including those which also grind adjacent plane surfaces; accessories therefor; single-purpose machines or devices; for grinding tyres	B24B 5/366 .
Measuring or gauging equipment for controlling the feed movement of the grinding tool or work; arrangements of indicating or measuring equipment, e.g. for indicating the start of the grinding operation; taking regard of the load; for grinding tyres	B24B 49/165 .

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- (EN)"retreading", "recapping", (DE)"runderneuerung" and (FR)"rechapage"

B29D 30/58

Applying bands of rubber treads, i.e. applying camel backs

Definition statement

This place covers:

the application of uncured bands of rubber tread to the tyre casing, either during the manufacture of a new tyre or in tyre retreading. Camel back is a synonym of rubber tread (see glossary).

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Camelback (or "camel-back" or "camel back") is a strip of uncured rubber, which becomes the tyre tread once applied on the carcass; this strip has a certain profile and a width corresponding to the tread of the tyre; usually on one side of this strip there is a link film providing adherence between tread

and carcass. The expression derives from the characteristic shape of this strip having a convex curve suggesting a camel's hump.

B29D 30/70

Annular breakers

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Structure or arrangement of belts or breakers, crown-reinforcing or cushioning layers	B60C 9/18
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Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

The breaker is a tyre component which is designed to provide a strong bond between the carcass plies and the outermost rubber layer (the tread); it is usually made of several layers of rubberized textile or metal cord. In bias-ply tyres the cords of the breaker run at the same angle as the carcass plies; in radial-ply tyres they run at an angle of 70°–85°, thus forming an inextensible belt that carries the major portion of the forces acting on the tyres as a result of inflation pressure and external loads. Because of the combination of flexible carcass plies and a stiff breaker, radial-ply tyres have a longer life, consume less power in overcoming rolling friction, and possess other service advantages over bias-ply tyres.

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "belt" and "breaker"

B29D 30/72

Side-walls

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Tyre sidewalls	B60C 13/00
Decorating or marking the sidewalls	B60C 13/001
Protecting the sidewalls against exterior elements	B60C 13/002

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "side-wall" and "sidewall"

B29D 33/00

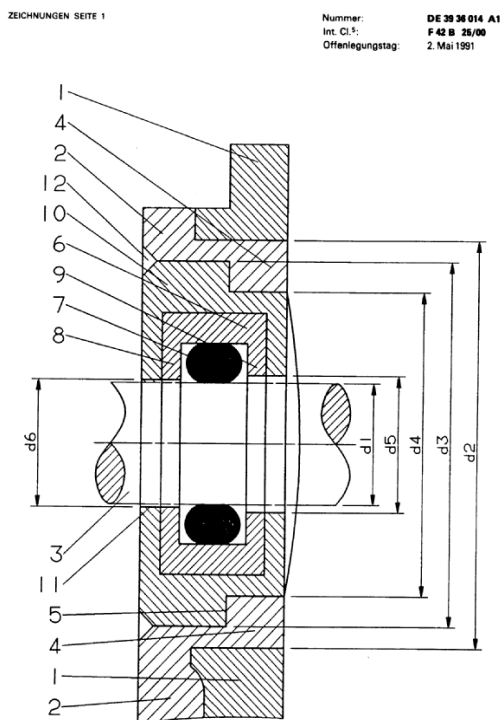
Producing bushes for bearings

Definition statement

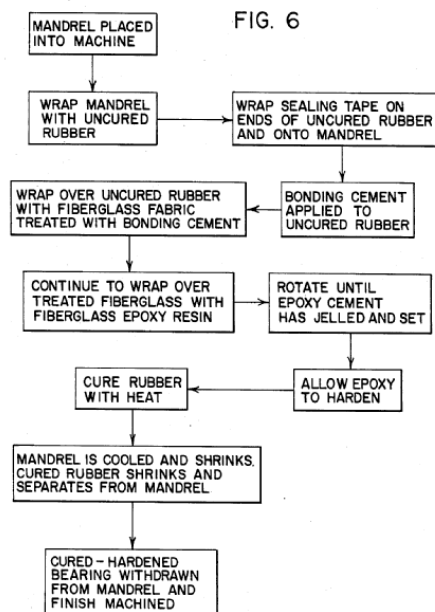
This place covers:

- the production of bushes for bearings, whereby said method is characteristic for making said bushes and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making bushes for bearings, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 33/00](#)



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B29D 35/00

Producing footwear

Definition statement

This place covers:

Producing a footwear or a part of it using moulding technique.

Relationships with other classification places

[A43B](#) relating to footwear itself, part of it, shape and use of it, etc...

[A43C](#) relating to attachments for footwear, including the lace and the studs.

[A43D](#) relating to machines to produce footwear (with the exception of [B29D 35/00](#) dedicated to the moulding)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Relating respectively in case of injection moulding or compression moulding is used in the process of producing a footwear (meaning also part of it)	B29D 35/0009 , B29D 35/0054
When the whole shoe is moulded in one piece	B29D 35/02
When the sole is moulded to the upper assembly	B29D 35/06 , B29D 35/10
In case part of the footwear is produced, and also if the mould is of interest	B29D 35/12

B29D 35/0009**{by injection moulding; Apparatus therefor}****Definition statement***This place covers:*

Producing a footwear (meaning also part of it) using injection moulding.

B29D 35/0054**{by compression moulding, vulcanising or the like; Apparatus therefor}****Definition statement***This place covers:*

Producing a footwear (meaning also part of it) using compression moulding/vulcanisation.

B29D 35/02**made in one piece using a moulding technique, e.g. by injection moulding or casting****Definition statement***This place covers:*

Complete whole shoes moulded in one piece.

B29D 35/06**having soles or heels formed and joined on to preformed uppers using a moulding technique, e.g. by injection moulding, pressing and vulcanising****Definition statement***This place covers:*

Footwear where the sole is moulded to the upper assembly.

References**Limiting references***This place does not cover:*

Footwear assembled by cementing/gluing a sole to an upper assembly.

Informative references*Attention is drawn to the following places, which may be of interest for search:*

When the preformed sole is moulded to the upper assembly	B29D 35/10
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B29D 35/10

having preformed soles or heels joined on to preformed uppers using a moulding technique, e.g. by feeding or injecting plastics material between the parts to be joined

Definition statement

This place covers:

Footwear made by moulding a preformed sole to the upper assembly.

B29D 35/12

Producing parts thereof, e.g. soles, heels, uppers, by a moulding technique

Definition statement

This place covers:

Parts of the footwear produced by moulding, and also the moulds thereof.

B29D 99/00

Subject matter not provided for in other groups of this subclass

Definition statement

This place covers:

Methods of making articles as provided in the subgroups only

B29D 99/0014

{provided with ridges or ribs, e.g. joined ribs}

Definition statement

This place covers:

- the production of wall or panel-like structures provided with ribs, whereby said method is characteristic for making said structures and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making wall or panel-like structures provided with ribs, which are not fully classifiable in subclass [B29C](#)

Illustrative example of subject matter classified in [B29D 99/0014](#)

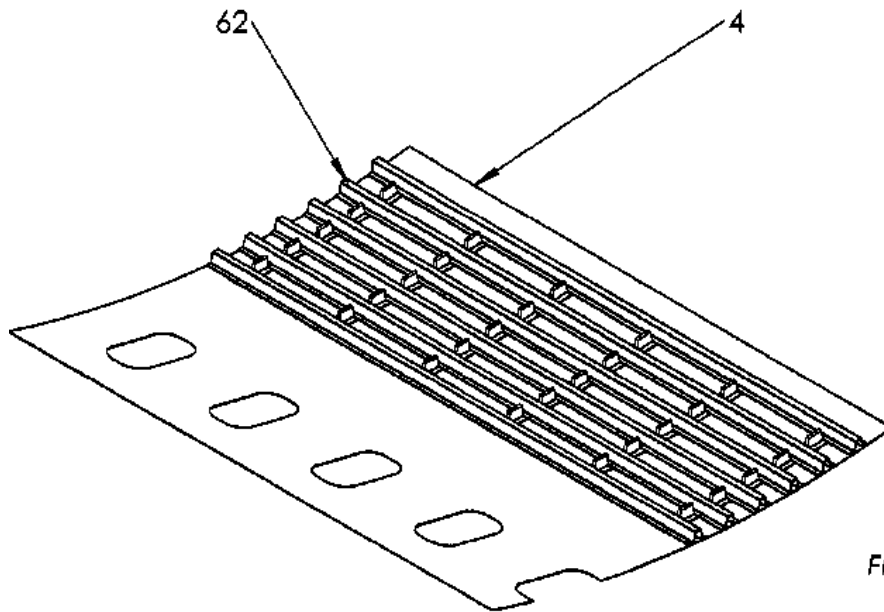


Fig. 10

DE1020090600706

B29D 99/0025

{Producing blades or the like, e.g. blades for turbines, propellers, or wings}

Definition statement

This place covers:

- the production of blades or the like, whereby said method is characteristic for making said blades and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making blades, which are not fully classifiable in subclass [B29C](#)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Blades for propellers	B64C 11/16
Blades for rotors	B64C 27/46
Blades of composite material	F01D 5/282
Construction of rotors of wind motors	F03D 1/065

B29D 99/0028**{hollow blades}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Hollow blades	F01D 5/18
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B29D 99/0035**{rollers or cylinders having an axial length of several times the diameter, e.g. for embossing, pressing, or printing}****Definition statement***This place covers:*

- the production of rolling bodies, the rollers or cylinders having an axial length of several times the diameter, whereby said method is characteristic for making said rolling bodies and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making rolling bodies, the rollers or cylinders having an axial length of several times the diameter, which are not fully classifiable in subclass [B29C](#)

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Moulding shells for rollers of printing machines	B41N 7/005
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B29D 99/0089**{Producing honeycomb structures (consisting of porous ceramic ware [C04B 38/0006](#))}****Definition statement***This place covers:*

- the production of honeycomb structures, whereby said method is characteristic for making said structures and not classifiable in subclass [B29B](#) or [B29C](#)
- combined operations for making honeycomb, which are not fully classifiable in subclass [B29C](#)

References**Limiting references***This place does not cover:*

Making honeycomb structures of papers	B31D 3/0284
Honeycomb structures of porous ceramic ware and the preparation thereof	C04B 38/0006

Informative references

Attention is drawn to the following places, which may be of interest for search:

Honeycomb filters	B01D 46/2418
Filtering structures for exhaust or silencing apparatus	F01N 3/022