

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

SHAPING

B31 MAKING ARTICLES OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER; WORKING PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER

(NOTES omitted)

B31F MECHANICAL WORKING OR DEFORMATION OF PAPER, CARDBOARD OR MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER (making layered products not composed wholly of paper or cardboard [B32B](#))

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|--------|---|--------|---|
| 1/00 | Mechanical deformation without removing material, e.g. in combination with laminating | 1/0058 | {Machines therefor having additional mandrels, e.g. mounted on a turntable, or on chains (B31F 1/0064 takes precedence)} |
| 1/0003 | . {Shaping by bending, folding, twisting, straightening, flattening or rim-rolling; Shaping by bending, folding or rim-rolling combined with joining; Apparatus therefor (shaping of tube ends B31F 1/008)} | 1/0061 | {for making articles of indefinite length} |
| 1/0006 | . . {Bending or folding; Folding edges combined with joining; Reinforcing edges during the folding thereof; (creasing B31F 1/08 , crêping paper B31F 1/12 , corrugating B31F 1/20 ; bending and joining B31F 1/0045 ; reinforcing edges per se B31F 5/08 ; making wound articles B31C , folding thin material per se B65H 45/00)} | 1/0064 | {using internal forming surfaces, on, e.g. mandrels} |
| 1/0009 | . . . {of plates, sheets or webs} | 1/0067 | {using only external forming surfaces, e.g. sleeves} |
| 1/0012 | {combined with making folding lines (B31F 1/0022 takes precedence)} | 1/007 | {for making articles with multilayered walls} |
| 1/0016 | {Folding edges; Folding edges combined with joining; Reinforcing edges during the folding thereof, e.g. by introducing a thread; Folding the edges of a sheathing (B31F 1/0029 takes precedence)} | 1/0074 | {Making essentially non-hollow profiles, e.g. rods, ropes, cords} |
| 1/0019 | {the plates, sheets or webs moving continuously (B31F 5/08 takes precedence)} | 1/0077 | . {Shaping by methods analogous to moulding, e.g. deep drawing techniques} |
| 1/0022 | {combined with making folding lines} | 1/008 | . {Shaping of tube ends, e.g. flanging, belling, closing, rim-rolling or corrugating; Fixing elements to tube ends} |
| 1/0025 | {Making the folding lines using rotary tools} | 1/0083 | . . {Closing} |
| 1/0029 | {Folding edges; Folding edges combined with joining; Reinforcing edges during the folding thereof, e.g. by introducing a thread; Folding the edges of a sheathing} | 1/0087 | . . {Rim-rolling} |
| 1/0032 | . . . {of tubes} | 1/009 | . . . {combined with joining, e.g. for fixing a closure element} |
| 1/0035 | . . {Straightening or flattening} | 1/0093 | . . {Fixing elements to tube ends} |
| 1/0038 | . . {Rim-rolling} | 1/0096 | . {Lining or sheathing (folding the edge of the sheathing B31F 1/0016 , B31F 1/0029)} |
| 1/0041 | . . . {combined with joining} | 1/07 | . Embossing {, i.e. producing impressions formed by locally deep-drawing, e.g. using rolls provided with complementary profiles} (B31F 1/128 takes precedence); corrugating B31F 1/20 ; embossing in combination with printing B41F 19/02 , B41M 1/24 ; typewriters for embossing B41J 3/38 ; stamping in combination with deforming B41K 3/36) |
| 1/0045 | . . {Bending or folding combined with joining (folding edges combined with joining B31F 1/0016 , B31F 1/0029)} | 1/08 | . Creasing (corrugating B31F 1/20 ; zig-zag folding B65H 45/20 {; combined with folding B31F 1/0012 , B31F 1/0022 ; grooving by cutting B26D 3/06 , B26D 3/08 ; by milling grooves B23C 3/30 ; of plastics material B29C 53/06)} |
| 1/0048 | . . . {Bending plates, sheets or webs at right angles to the axis of the article being formed and joining the edges} | 1/10 | . . by rotary tools |
| 1/0051 | {for making articles of definite length} | 1/12 | . Crêping |
| 1/0054 | {using internal forming surfaces, e.g. mandrels} | 1/122 | . . {the paper being submitted to an additional mechanical deformation other than crêping, e.g. for making it elastic in all directions} |
| | | 1/124 | . . {Multiple crêping, e.g. forming crêpes under different angles} |

- 1/126 . . {including making of the paper to be crêped}
- 1/128 . . {Making paper elastic in all directions, other than by crêping (B31F 1/122 takes precedence)}
- 1/14 . . by doctor blades arranged crosswise to the web
- 1/145 . . . {Blade constructions}
- 1/16 . . by elastic belts (B31F 1/18 takes precedence)}
- 1/18 . . by tools arranged in the direction of web feed {; Longitudinal crêping, i.e. providing paper with crêpes parallel to the direction of web movement, e.g. for making paper elastic transversely to this direction}
- 1/20 . Corrugating; Corrugating combined with laminating to other layers
- 1/205 . . {Corrugating tubes (corrugating tube ends B31F 1/008; making tubes, not otherwise provided for, B31F 7/004; corrugating metal tubes B21D 15/00)}
- 1/22 . . Making webs in which the channel of each corrugation is longitudinal with the web feed
- 1/225 . . . {combined with uniting the corrugated web to flat webs; Making corrugated-web structures}
- 1/24 . . Making webs in which the channel of each corrugation is transverse to the web feed
- 1/242 . . . {the corrugations being obliquely inclined to the web feed (B31F 1/247, B31F 1/30 take precedence)}
- 1/245 . . . {by feeding the webs in a channel larger than the thickness of the webs by means of rollers, e.g. involving prefolding}
- 1/247 . . . {by reciprocating members}
- 1/26 . . . by interengaging toothed cylinders {cylinder constructions (B31F 1/242 takes precedence)}
- 1/28 combined with uniting the corrugated webs to flat webs {; Making double-faced corrugated cardboard}
- 1/2804 {Methods}
- 1/2809 {characterised by the chemical composition of the glue}
- 1/2813 {Making corrugated cardboard of composite structure, e.g. comprising two or more corrugated layers}
- 1/2818 {Glue application specially adapted therefor}
- 1/2822 {involving additional operations}
- 1/2827 {Edge treatment}
- 1/2831 {Control}
- 1/2836 {Guiding, e.g. edge alignment; Tensioning}
- 1/284 {Warp prevention}
- 1/2845 {Details, e.g. provisions for drying, moistening, pressing}
- 1/285 {Heating or drying equipment}
- 1/2854 {Means for keeping the sheet in contact with one of the corrugating rollers after corrugating, but before applying the facer sheet, e.g. by air pressure, suction or pressing fingers}
- 1/2859 {Pressing fingers}
- 1/2863 {Corrugating cylinders; Supporting or positioning means therefor; Drives therefor}
- 1/2868 {Exchangeable corrugating cylinders (means for changing cutting members in shearing devices B23D 35/008)}
- 1/2872 {Spraying devices, e.g. for moistening purposes; Lubricating devices}
- 1/2877 {Pressing means for bringing facer sheet and corrugated webs into contact or keeping them in contact, e.g. rolls, belts}
- 1/2881 {for bringing a second facer sheet into contact with an already single faced corrugated web}
- 1/2886 {Additionally reinforcing, e.g. by applying resin or wire}
- 1/289 {from discrete sheets}
- 1/2895 {from corrugated webs having corrugations of particular shape}
- 1/29 . . . by making use of rods, e.g. co-operating with a toothed cylinder {combined with uniting the corrugated web to flat webs (B31F 1/30 takes precedence)}
- 1/30 . . . Tools secured to endless chains {, e.g. toothed belts; combined with uniting the corrugated web to flat webs}
- 1/305 {with sets of interengaging tools each secured to endless chains}
- 1/32 . . Corrugating already corrugated webs
- 1/36 . Moistening and heating webs to facilitate mechanical deformation and drying deformed webs {(during corrugating B31F 1/28)}
- 5/00 Attaching together sheets, strips or webs; Reinforcing edges**
- 5/001 . {by stapling or riveting}
- 5/003 . {by stitching}
- 5/005 . {by folding (rim-rolling B31F 1/0041)}
- 5/006 . {using a strip, e.g. profiled (B31F 5/06 takes precedence)}
- 5/008 . {by friction, e.g. obtained ultrasonic vibrations}
- 5/02 . by crimping or slotting {or perforating}
- 5/022 . . {using a rotary tool}
- 5/025 . . {by slotting}
- 5/027 . . {by perforating, e.g. by folding over the partially cut part}
- 5/04 . by exclusive use of adhesives
- 5/06 . by adhesive tape
- 5/08 . . for reinforcing edges {; Applying a strip or tape to an edge, e.g. for decorating, for protecting}
- 5/085 . . . {combined with folding the strip around the edge, or applying an already folded strip on (folding edges B31F 1/0016, B31F 1/0029)}
- 7/00 Processes not otherwise provided for**
- 7/002 . {tubular articles, e.g. changing the cross-section}
- 7/004 . {Making tubes}
- 7/006 . {edges, e.g. sheet edges}
- 7/008 . {Repairing}
- 7/02 . Breaking coatings, e.g. on paper or cardboard
- 2201/00 Mechanical deformation of paper or cardboard without removing material**
- 2201/07 . Embossing
- 2201/0702 . . by tools working discontinuously
- 2201/0705 . . . Hand operated
- 2201/0707 . . . by tools working continuously
- 2201/0715 . . . The tools being rollers

B31F

- 2201/0717 Methods and means for forming the embossments
- 2201/072 Laser engraving
- 2201/0723 Characteristics of the rollers
- 2201/0725 Hardness
- 2201/0728 Material
- 2201/073 Rollers having a multilayered structure
- 2201/0733 Pattern
- 2201/0735 Pattern inclined with respect to the axis of the roller
- 2201/0738 Cross sectional profile of the embossments
- 2201/0741 Roller cooperating with a non-even counter roller
 - 2201/0743 having a matching profile
 - 2201/0746 and having a self-centering profile
 - 2201/0748 having a dissimilar profile
 - 2201/0751 and having a self-centering profile
- 2201/0753 Roller supporting, positioning, driving means
- 2201/0754 . . . The tools being other than rollers, e.g. belts or plates
- 2201/0756 . . Characteristics of the incoming material, e.g. creped, embossed, corrugated
- 2201/0758 . . Characteristics of the embossed product
- 2201/0761 . . . Multi-layered
- 2201/0764 the layers being nested
- 2201/0766 the layers being superposed tip to tip
- 2201/0769 the layers being shifted
- 2201/0771 . . Other aspects of the embossing operations
- 2201/0774 . . . Multiple successive embossing operations
- 2201/0776 . . . Exchanging embossing tools
- 2201/0779 . . Control
- 2201/0782 . . Layout of the complete embossing machine, of the embossing line
- 2201/0784 . . Auxiliary operations
- 2201/0787 . . . Applying adhesive
- 2201/0789 . . . Joining plies without adhesive
- 2201/0792 . . . Printing
- 2201/0794 . . . Cutting
- 2201/0797 . . . Perforating