

CPC COOPERATIVE PATENT CLASSIFICATION

B31F MECHANICAL WORKING OR DEFORMATION OF PAPER OR CARDBOARD (making layered products not composed wholly of paper or cardboard [B32B](#))

- 1/00 Mechanical deformation of paper or cardboard without removing material, e.g. in combination with laminating**
- 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](#))}
- 1/0006 . . {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](#))}
- 1/0009 . . . {of plates, sheets or webs}
- 1/0012 {combined with making folding lines ([B31F 1/0022](#) takes precedence)}
- 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)}
- 1/0019 {the plates, sheets or webs moving continuously ([B31F 5/08](#) takes precedence)}
- 1/0022 {combined with making folding lines}
- 1/0025 {Making the folding lines using rotary tools}
- 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}
- 1/0032 . . . {of tubes}
- 1/0035 . . {Straightening or flattening}
- 1/0038 . . {Rim-rolling}
- 1/0041 . . . {combined with joining}
- 1/0045 . . {Bending or folding combined with joining ([Folding edges combined with joining B31F 1/0016](#), [B31F 1/0029](#))}
- 1/0048 . . . {Bending plates, sheets or webs at right angles to the axis of the article being formed and joining the edges}
- 1/0051 {for making articles of definite length}
- 1/0054 {using internal forming surfaces, e.g. mandrels}
- 1/0058 {Machines therefor having additional mandrels, e.g. mounted on a turntable, or on chains ([B31F 1/0064](#) takes precedence)}
- 1/0061 {for making articles of indefinite length}
- 1/0064 {using internal forming surfaces, on, e.g. mandrels}
- 1/0067 {using only external forming surfaces, e.g. sleeves}
- 1/007 {for making articles with multilayered walls}
- 1/0074 {Making essentially non-hollow profiles, e.g. rods, ropes, cords}
- 1/0077 . {Shaping by methods analogous to moulding, e.g. deep drawing techniques}
- 1/008 . {Shaping of tube ends, e.g. flanging, bellling, closing, rim-rolling, corrugating; Fixing elements to tube ends}
- 1/0083 . . {Closing}
- 1/0087 . . {Rim-rolling}
- 1/009 . . . {combined with joining, e.g. for fixing a closure element}
- 1/0093 . . {Fixing elements to tube ends}
- 1/0096 . {Lining or sheathing ([folding the edge of the sheathing B31F 1/0016](#), [B31F 1/0029](#))}
- 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](#))}
- 1/08 . 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](#))}
- 1/10 . . by rotary tools
- 1/12 . Crêping paper or cardboard {, i.e. providing paper or cardboard with small irregular crinkles; Making paper or cardboard elastic in all directions}
- 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; {Logitudinal 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 paper or cardboard 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

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| 1/242 | . . . {the corrugations being obliquely inclined to the web feed (B31F 1/247 , B31F 1/30 take precedence)} | 1/32 | . . Corrugating already corrugated webs |
| 1/245 | . . . {by feeding the webs in a channel larger than the thickness of the webs by means of rollers, e.g. involving prefolding} | 1/36 | . Moistening and heating webs to facilitate mechanical deformation and drying deformed webs {(during corrugating B31F 1/28)} |
| 1/247 | . . . {by reciprocating members} | 5/00 | Attaching together paper or cardboard sheets, strips or webs {or other preformed paper articles (joining by rim-rolling B31F 1/0041, B31F 1/009; closing tube ends by inserting an element B31F 1/008, making boxes B31B)}; Reinforcing edges of paper or cardboard |
| 1/26 | . . . by interengaging toothed cylinders {cylinder constructions (B31F 1/242 takes precedence)} | 5/001 | . {by stapling or riveting} |
| 1/28 | combined with uniting the corrugated webs to flat webs; {Making double-faced corrugated cardboard} | 5/003 | . {by stitching} |
| 1/2804 | {Methods} | 5/005 | . {by folding (rim-rolling B31F 1/0041)} |
| 1/2809 | {characterised by the chemical composition of the glue} | 5/006 | . {using a strip, e.g. profiled (B31F 5/06 takes precedence)} |
| 1/2813 | {Making corrugated cardboard of composite structure, e.g. comprising two or more corrugated layers} | 5/008 | . {by friction, e.g. obtained ultrasonic vibrations} |
| 1/2818 | {Glue application specially adapted therefor} | 5/02 | . by crimping or slotting {or perforating} |
| 1/2822 | {involving additional operations} | 5/022 | . . {using a rotary tool} |
| 1/2827 | {Edge treatment} | 5/025 | . . {by slotting} |
| 1/2831 | {Control} | 5/027 | . . {by perforating, e.g. by folding over the partially cut part} |
| 1/2836 | {Guiding, e.g. edge alignment; Tensioning} | 5/04 | . by exclusive use of adhesives |
| 1/284 | {Warp prevention} | 5/06 | . by adhesive tape |
| 1/2845 | {Details, e.g. provisions for drying, moistening, pressing} | 5/08 | . . for reinforcing edges; {Applying a strip or tape to an edge, e.g. for decorating, for protecting} |
| 1/285 | {Heating or drying equipment} | 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)} |
| 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} | 7/00 | Processes for working paper or cardboard not otherwise provided for |
| 1/2859 | {Pressing fingers} | 7/002 | . {tubular articles, e.g. changing the cross-section} |
| 1/2863 | {Corrugating cylinders; Supporting or positioning means therefor; Drives therefor} | 7/004 | . {Making tubes} |
| 1/2868 | {Exchangeable corrugating cylinders (means for changing cutting members in shearing devices B23D 35/008)} | 7/006 | . {edges, e.g. sheet edges} |
| 1/2872 | {Spraying devices, e.g. for moistening purposes; Lubricating devices} | 7/008 | . {Repairing} |
| 1/2877 | {Pressing means for bringing facer sheet and corrugated webs into contact or keeping them in contact, e.g. rolls, belts} | 7/02 | . Breaking the coating on paper or cardboard |
| 1/2881 | {for bringing a second facer sheet into contact with an already single faced corrugated web} | 2201/00 | Mechanical deformation of paper or cardboard without removing material |
| 1/2886 | {Additionally reinforcing, e.g. by applying resin or wire} | 2201/07 | . Embossing (not used) |
| 1/289 | {from discrete sheets} | 2201/0702 | . . by tools working discontinuously |
| 1/2895 | {from corrugated webs having corrugations of particular shape} | 2201/0705 | . . . Hand operated |
| 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)} | 2201/0707 | . . by tools working continuously |
| 1/30 | . . . Tools secured to endless chains {, e.g. toothed belts; combined with uniting the corrugated web to flat webs} | 2201/071 | . . . Type and characteristics of the embossing tools (not used) |
| 1/305 | {with sets of interengaging tools each secured to endless chains} | 2201/0712 | Other than rollers, e.g. belts, plates |
| | | 2201/0715 | Rollers |
| | | 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
- 2201/0756 . . 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