

# 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

1/242	. . . {the corrugations being obliquely inclined to the web feed ( <a href="#">B31F 1/247</a> , <a href="#">B31F 1/30 take precedence</a> )}	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 <a href="#">B31F 1/28</a> )}
1/247	. . . {by reciprocating members}	<b>5/00</b>	<b>Attaching together paper or cardboard sheets, strips or webs {or other preformed paper articles (joining by rim-rolling <a href="#">B31F 1/0041</a>, <a href="#">B31F 1/009</a>; closing tube ends by inserting an element <a href="#">B31F 1/008</a>, making boxes <a href="#">B31B</a>)}; Reinforcing edges of paper or cardboard</b>
1/26	. . . by interengaging toothed cylinders {cylinder constructions ( <a href="#">B31F 1/242 takes precedence</a> )}	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 ( <a href="#">rim-rolling <a href="#">B31F 1/0041</a></a> )}
1/2809	. . . . . {characterised by the chemical composition of the glue}	5/006	. {using a strip, e.g. profiled ( <a href="#">B31F 5/06 takes precedence</a> )}
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 ( <a href="#">folding edges <a href="#">B31F 1/0016</a>, <a href="#">B31F 1/0029</a></a> )}
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}	<b>7/00</b>	<b>Processes for working paper or cardboard not otherwise provided for</b>
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 <a href="#">B23D 35/008</a> )}	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}	<b>2201/00</b>	<b>Mechanical deformation of paper or cardboard without removing material</b>
1/2886	. . . . . {Additionally reinforcing, e.g. by applying resin or wire}	2201/07	. Embossing ( <a href="#">not used</a> )
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 ( <a href="#">B31F 1/30 takes precedence</a> )}	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 ( <a href="#">not used</a> )
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

## B31F

- 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