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)

1/00  Mechanical deformation 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; creping 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]

WARNING

Group B31F 1/0041 is impacted by reclassification into group B31F 5/00.
Groups B31F 1/0041 and B31F 5/00 should be considered in order to perform a complete search.

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, belling, closing, rim-rolling or corrugating; Fixing elements to tube ends]

WARNING

Group B31F 1/008 is impacted by reclassification into group B31F 5/00.
Groups B31F 1/008 and B31F 5/00 should be considered in order to perform a complete search.

1/0083  [Closing]

1/0087  [Rim-rolling]
1/009 . . . [combined with joining, e.g. for fixing a closure element]

**WARNING**

Group B31F 1/009 is impacted by reclassification into group B31F 5/00. Groups B31F 1/009 and B31F 5/00 should be considered in order to perform a complete search.

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; 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 5/08; by milling grooves B23C 3/30; of plastics material B29C 53/06)
1/10 . by rotary tools
1/12 . Créping
1/122 . . . {the paper being submitted to an additional mechanical deformation other than créping, e.g. for making it elastic in all directions}
1/124 . . . {Multiple créping, 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 créping (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 unifying 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 theretofor}
1/2822 . . . {involving additional operations}
1/2827 . . . {Edge treatment}
1/2831 . . . {Control}
1/2836 . . . {Guiding, e.g. edge alignment; Tenoning}
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 unifying 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 1/281]
5/00 Attaching together sheets, strips or webs; Reinforcing edges

WARNING

Group B31F 5/00 is incomplete pending reclassification of documents from groups B31F 1/0041, B31F 1/008 and B31F 1/009. Groups B31F 5/00, B31F 1/0041, B31F 1/008 and B31F 1/009 should be considered in order to perform a complete search.

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
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

2201/0756 Characteristics of the incoming material, e.g. creped, embossed, corrugated