

1	<b>PROCESSES OF CHEMICAL LIBERATION, RECOVERY OR PURIFICATION OF NATURAL CELLULOSE OR FIBROUS MATERIAL</b>	27	.Mechanical defibration of logs or blocks after chemical treatment
2	.Animal fibers	28	.With plural or specified mechanical defibering step
3	.Mineral fibers	29	.With regeneration, reclamation, reuse, recycling or destruction of digestion fluid
4	.Waste paper or textile waste		
5	..With organic agent		
6	..With chlorine, chlorine compounds, oxygen, ozone, or per-compounds	30.1	..With destruction of organic ingredient in or smelting of liquor
7	..With sulfur or sulfur compound	30.11	...Treatment of kraft pulping chemicals
8	..With alkali metal, alkaline earth metal, or ammonium compound	31	...Flames combustion
9	.With chemical or physical modification of liberated fiber	32	...Liquor from digestion using organic compound or including element other than Na, Ca, Mg, O, C, H or S
10	.With non-fiber material added to product	33	...With mixing of liquors from different digestions
11	..Fiber supplied constituent	34	...Plural diverse digestion of same fibrous material
12	..Added to web or article	35	...Residue converted into liquor different from original liquor
13	.With formation of web or article	36	...Sulfur dioxide or sulfite containing spent liquor
14	.Including recovery of organic by-product	37	..Digestion fluid reused on different fibrous materials
15	..From digester relief gases	38	...With addition of chemicals prior to reuse
16	..From waste liquor	39	...In digester
17	.Continuous chemical treatment or continuous charging or discharging	40	...Without treatment or modification
18	..With compression, squeezing or compacting of fibrous material during charging	41	..Recirculation (includes separation from fibers)
19	..Plural diverse stage treatment	42	..With treatment of fluids during recirculation
20	.With decortication or mechanical preparation of textile fibers	43	...Removal and/or separation of portion of recirculating fluid
21	.Defibration by projection or explosion	44	....With recombining
22	..With chemical other than water or steam	45	...With addition of chemicals to recirculating fluid
23	.Mechanical defibration in the presence of heated gas or gas under pressure	46	...Steam only
24	.Chemical treatment after start or completion of mechanical defibration	47	.With heat recovery
25	..With additional chemical treatment before start of defibration	48	.With cleaning, preserving or conditioning of apparatus
26	.Simultaneous mechanical defibration and chemical treatment	49	.With testing, sampling or analyzing
		50	.Utilizing electrical or radiant energy
		51	.Digestion odor control
		52	.Charging and/or discharging fibrous material
		53	.Vacuum treatment

54	.Freezing	88	...Plural diverse stage treatments
55	.With classifying, separating or screening of pulp (solids from solids)	89	...Alkali metal, ammonium, alkaline earth metal or magnesium hydroxide or carbonate in at least one stage
56	.With squeezing, compression, rubbing, kneading	90	..Alkali metal, ammonium, alkaline earth metal or magnesium hydroxide or carbonate
57	.With agitation or forced circulation	91	.Particular raw cellulosic materials
58	..In rotating vessel	92	..Fossilized (e.g., peat)
59	..Closed circuit circulation	93	..Bark
60	.With washing	94	..Bamboo
61	.Regulatory	95	..Cotton fibers or linters
62	..Concentration of chemicals	96	..Sugar cane, bagasse or cornstalks
63	.Gas, vapor or mist contact	97	..Cereal grasses or straws
64	..Sulfur dioxide	98	..Bast (e.g., flax, hemp, jute, ramie, sisal)
65	..Oxygen, ozone or air	99	..Non-wood
66	..Chlorine containing material	100	<b>PROCESSES AND PRODUCTS</b>
67	...Chlorine dioxide	101	.Pore forming in situ (e.g., gas generation)
68	..Steam only	102	.Utilizing non-aqueous suspending medium
69	.Non-continuous liquid phase	103	.Including solid non-waterlaid preform
70	.Treatment with particular chemical	104	..Between separately formed webs
71	..Treatment of ground-wood or sawdust	105	..Metallic
72	..Organic	106	...Electrical conductor
73	...With inorganic chlorine containing material	107	..Glass
74	...Chlorine containing	108	..Woven fabric or parallel strands
75	...Fat, fatty oil or higher fatty acid	109	.Non-uniform, irregular or configured web or sheet
76	...Acids, salts or esters	110	..Watermarking
77	...Alcohols or phenols	111	..Creping and/or crinkling
78	..Per-compound (e.g., peroxide, perborate)	112	...With coating and/or laminating
79	..Heavy metal or aluminum containing	113	...With additional deformation
80	..Phosphorus, boron or silicon containing	114	..By perforating
81	..Nitrogen oxide, acid, or salt thereof	115	..By fluid pressure
82	..Sulfur containing	116	..By configured forming mold
83	...Sulfur dioxide or sulfite	117	..Subsequent treatment by irregular or configured die
84	....Plural diverse stage treatment	118	.With winding or roll forming
85	.....Chlorine containing material in at least one stage	119	..With coating
86	....Alkali metal, ammonium, alkaline earth metal or magnesium hydroxide or carbonate in at least one stage	120	..With cutting and/or removing material
87	..Chlorine containing	121	..With heat
		122	..With pressure

123	.Multi-layer waterlaid webs or sheets	157.7	...Regenerated cellulose, viscose or rayon
124	..With non-fiber added between layers	158	.Non-fiber additive
125	..Layers of different properties	159	..Fire proofing agent
126	...Color	160	..Preservative or antioxidant
127	...Organic additive	161	...Biocidal
128	...Inorganic additive	162	..Coloring agent
129	...Fiber	163	..Fiber supplied constituent
130	....Dimension	164.1	..Synthetic resin
131	....Orientation	164.2	...Ion exchange resin or molecular sieve
132	..Separately formed webs subsequently united	164.3	...Epoxy containing reactant
133	...On common felt or carries (non-mold)	164.4	...Silicon containing
134	.With printing and/or variegated coloring	164.5	...Sulfur containing
135	.With coating after drying	164.6	...Nitrogen containing
136	..With treatment subsequent to coating	164.7	...Ester type
137	..Plural layer coating	165	...Phenol-aldehyde
138	.Electrical or magnetic product characteristic	166	...Amine- or amide-aldehyde
139	.Cigarette paper	167	...With additional organic reactant
140	.Safety, identification and fraud preventing paper	168.1	...Polymerized unsaturated compound
141	.Plural fiber containing	168.2	....Nitrogen containing compound
142	..Undigested cellulosic fiber	168.3	.....Acrylamide containing
143	..Animal or proteinaceous	168.4	.....Heterocyclic N or S or epoxy component
144	...Leather	168.5	....Heterocyclic N or S or epoxy component
145	..Mineral	168.6	...Hetero S or epoxy component
146	..Synthetic (including chemically modified cellulose)	168.7	...Ester type
147	..Waste paper or textile waste	169	...From polyene compound
148	..Non-wood	170	..Natural hydrocarbon gum (rubber)
149	..Fibers of different dimensions	171	..Bitumen
150	.Undigested cellulosic fiber	172	..Wax
151	.Animal or proteinaceous fiber	173	..Hydrocarbon
152	.Mineral fiber	174	..Protein
153	..Asbestos	175	..Carbohydrate
154	...With Portland cement	176	...Cellulose (non-fibrous)
155	...With organic additive	177	...Cellulose derivative (e.g., cellulose ester)
156	..Glass	178	...Gum
157.1	.Synthetic fiber (including chemically modified cellulose)	179	..Fat, fatty oil, or higher fatty acid
157.2	..Synthetic resin	180	..Natural resin
157.3	...Polyamide, polyester or polyurethane	181.1	..Inorganic
157.4	...Polymerized unsaturated compound	181.2	...Metal salt other than silicate
157.5	....Hydrocarbon or halohydrocarbon	181.3	....Sulfate or sulfite
157.6	..Cellulosic	181.4	...Metal oxide or hydroxide
		181.5	...Metal other than alkali metal, magnesium, or alkaline earth metal
		181.6	...Silicon containing additive other than clay

181.7	....Alkali metal silicate	216	...Mechanical treatment of slurry in head box or approach flow
181.8	...Clay		
181.9	..Free metal or free carbon containing	217	..Suction through mold
182	..With preparatory chemical treatment of fiber	218	.Article forming processes (pulp molding)
183	..Incorporation procedures	219	..Plural stage deposition
184	...Application to formed web	220	..Pressing with flexible diaphragm
185	....Part added to furnish or pulp	221	..Treatment subsequent to removal from forming mold
186	....On mold		
187	..Hydration and/or gelatinization	222	...Surface treatment
188	..Non-uniform internal structure	223	...Reshaping (i.e., changing configuration)
189	..Reclamation, salvage or reuse of materials	224	...Heat and/or mechanical pressure
190	..White water		
191	..Broke or trim	225	...Boards or sheets
192	..Utilizing electrical or wave energy	226	..Applying heat to work on forming mold
193	..Lead strip forming and/or guiding	227	..Applying mechanical pressure to work on forming mold
194	..With cutting and/or slitting	228	..Accretion from bulk
195	..Fluid deckle or shower	229	...Vibration of mold and/or slurry
196	..With folding or twisting (e.g., roving)	230	..Separation from mold or core
197	..With stretching, tensioning, decurling, flexing or breaking	231	.Articles
198	..With measuring, inspecting and/ or testing	232	<b>APPARATUS</b>
199	..Conditioning, preparing or repairing of apparatus	233	.Digester
200	..Wire stringing	234	..With mechanical defibering means
201	..Combined processes	235	...Concurrent
202	..Running or indefinite length work forming and/or treating processes (e.g., web)	236	...Continuous
203	..Forming single web between opposed forming surfaces	237	..Continuous
204	..Subsequent treatment of formed web	238	..Automatic control
205	...Pressure	239	..With recovery means
206	...With heating and/or cooling	240	...With incinerator or evaporator
207	..Heating, cooling, gas or vapor contact	241	..Plural
208	..Treatment of slurry on mold surface	242	..Combined
209	...Vibration or agitation	243	..With pulp agitating or circulating means
210	...Pressure member	244	...Rotating digester
211	..Inhibiting or restricting drainage through mold	245	..Removable basket or retaining means
212	..Directing slurry into association with mold	246	..Charging and/or discharging means (including blow pits)
213	...Projecting or slinging stock	247	...Target, impact, explosion
214	...Pressure forming	248	..Forced circulation or percolation of fluid only
215	...Counter or transverse of mold movement	249	...With heating
		250	..Heating means
		251	..Strainers
		252	.Automatic control
		253	..Of plural operations
		254	..Of stock working device

255	..Of lead strip former and/or break sensing	291	..Moving impermeable member applying stock to mold
256	..Of mold movement	292	..Means flinging or projecting stock against mold
257	...Transverse movement of wire	293	..Product slides relative to molding surface (e.g., extrusion molding)
258	..Of stock consistency	294	..Mold intermittently moving relative to supply
259	..Of stock feed to forming device	295	..Concave molding surface in longitudinal or transverse section
260	..Of product cutting device	296	..Irregular or configured molding surface (e.g., corrugated)
261	..With beating, refining, and/or disintegrating means	297	..Pneumatic pressure or vacuum means acting directly on stock on mold surface
262	..Electric controls or systems	298	..Plural separate streams of stock applied to mold
263	..Measuring, testing, inspecting, indicating or illuminating	299	...Longitudinally spaced points of application
264	..White water or broke recovery, recirculation or treatment	300	..Plural molds or plural spaced areas of application on a single mold
265	..With coating or impregnating means (including printing)	301	...Common vat or stock feed
266	..Acting on product on mold	302	...Tangent cylinder molds
267	..Molding pulp and non-pulp insert or preform	303	...Molds converge to unit web
268	..Running or indefinite length work	304	...Webs united on common carrier (e.g., felt)
269	..With product stacking or piling means	305	..Molds with subsequent separate pressing means
270	..Flexing, bending, straightening or decurling means	306	..Means removing web product from molding surface
271	..Sheet or web	307	...Blow off acting through mold
272	..Apparatus repair, cleaning or conditioning	308	..Means treating stock on molding surface
273	..Wire changing and/or tensioning	309	...Irregular treating member or acting non-uniformly across web product
274	..Of porous or foraminous member (e.g., felt or mold)	310	...Fluid jet or suction means (e.g., shower deckle)
275	...Means applying fluid	311	...Submerged in supply
276	....To cylinder	312	...Solid treating member
277	....Reciprocating	313	....Moving
278	.....With suction means	314	....Rotary
279	....And suction means	315	..Means directing stock into contact with molding surface
280	..Web creping or crinkling type	316	...On to under surface only of mold
281	..Cylinder and doctor	317	...Confined stock stream on forming surface (e.g., pressure forming)
282	..Circumferentially grooved cylinder	318	...Cylinder mold with endless forming belt about
283	..With product winding or reeling means		
284	..Tube winding type		
285	..With tube cutting or slitting means		
286	..With cutting, scoring, perforating or tearing		
287	..With folding, rolling or twisting means		
288	..Molding and burnishing means		
289	..Running or indefinite length product forming and/or treating means		
290	..Molding and heat exchange means		

319	....Superposed or lateral stock pool	352	....Wire bottom scrappers or deflectors
320	...Superposed or lateral stock pool type	353	...Mask, deckle, or apron
321	....Cylinder mold	354	...Table structure
322	...With diverse non-pulp material inlet	355	...Vibrating or shaking (e.g., shake frames)
323	...Immersion vat type (e.g., cylinder machine vat)	356	.....Perpendicular to plane of wire
324	....Stock flow direction reversing means	357	..Cylinder molds, per se
325	....Stock directed transversely of mold direction	358.1	..Press and felt
326	....Stock applied at plural points on mold periphery	358.2	...With felt structure or felt composition
327	....Baffles diverting or directing flow against cylinder mold	358.3	...Extended nip press
328	.....Concentric with cylinder	358.4	....With impermeable belt structure or impermeable belt composition
329	.....Adjustable to or from cylinder	358.5	....With heating means
330	....Fluid level control	359.1	..With separate heated drying means
331	....Side seals	360.2	...Plural sequential presses
332	....Mold hanging	360.3	...Having three or more coating rolls (e.g., compact press, etc.)
333	.....Centerless	361	..Solid means acting on formed web
334	....Mask, deckle or apron	362	...Marking or embossing
335	....With drain or suction means, for white water	363	..Suction devices
336	...Flow box, slice, and/or approach flow	364	...Systems
337	....Recirculation skimming or excess stock take-off	365	...Reciprocating
338	....Transversely crossing inlet into flow box	366	...Adjustable width
339	....Closed to atmosphere	367	...Traveling suction face
340	.....Air cushion at above atmospheric pressure	368	....Rotary pervious cylinder
341	....Vibratile or moving member treating stock	369	.....With non-rotating internal suction box
342	.....Immersed rotary member (e.g., rectifier roll)	370	.....Plural suction areas
343	....With vanes or pulp stream dividing means	371	.....Box carried seals
344	....Slice	372	.....Shell structure
345	.....Plural, longitudinally spaced	373	...Roller face (suction not through rollers)
346	.....Width adjustment	374	...Wear face structures and materials
347	.....Flexible or pivoted	375	..With heat exchange means
348	..Flexible endless band type mold (e.g., Fourdrinier)	376	..Heated foraminous forming mold
349	...Concurrently moving back up	377	..Heated die
350	...Variable slope	378	...Contacting work on forming mold
351	..Means retarding or controlling drainage through mold	379	....Plural successive heated dies
		380	..Slurry supply conditioning or condition maintaining
		381	..Combined
		382	..Foraminous forming mold for discrete articles (pulp molding)

383 ..Differing areas of porosity or  
of suction on single mold  
surface (including masking)

384 ..Centrifugal

385 ..With moving slurry supply  
container

386 ..With handle or hand grip

387 ..Accretion from bulk (i.e.,  
immersed mold)

388 ...Means moving mold through,  
into or out of slurry

389 ...Relatively moving or separate  
mold and suction backup

390 ...Plural and/or compartmented  
slurry container

391 ...Rotary or swinging carrier

392 ....With compressor

393 ...Reciprocating carrier

394 ....With compressor

395 ...With compressor

396 ..Press felting (i.e., pressure  
member acting on pulp on mold)

397 ...Plural molds (cavities)

398 ...Plate or sheet type (i.e.,  
opposed flat platens)

399 ...Plate or sheet type

400 ...With cores (e.g., molding of  
apertured plates)

401 ..Flexible diaphragm

402 ...About foraminous core

403 ..Contracting matrix

404 ...About foraminous core

405 ..Expanding and/or contracting  
core

406 ...About foraminous core

407 ..Mold charging means

408 ...Pressure charging

409 ...Plural discrete areas of mold

410 ..Article ejecting

411 ..Dipping molds, per se

415 ..Compressor

416 ..Configured die (non-planar)

903 **PAPER FORMING MEMBER (E.G.,  
FOURDRINIER, SHEET FORMING  
MEMBER, ETC.)**

904 **WITH SPECIFIED SEAM STRUCTURE OF  
PAPERMAKING BELT**

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