

1	CONTROL OF OPERATION BY USE OF TEMPLET, TAPE CARD, OR OTHER REPLACEABLE INFORMATION SUPPLY	29	..To actuate material advancing means
2	..With sensing of numerical information and regulation with mechanical connection between sensing means and regulated means (i.e., Numerical Control)	30 31 32	..Responsive to machine element ..Malfunctioning machine element ...Responsive to stress of machine element
3	CONTROL MEANS ENERGIZED IN RESPONSE TO ACTIVATOR STIMULATED BY CONDITION SENSOR	33 34 35	...To stop machine ..To adjust machine element to preselected position ..Responsive to count of machine element
4	..Cigarette filter making	36	..Responsive to timer
5	..Responsive to temperature	37	WITH MEASURING OR TESTING
6	..Responsive to assembling or coating operation	38 39	SAFETY
7	..Responsive to flowable material (e.g., glue, ink for printer, etc.)	40	CIGARETTE FILTER MAKING
8	..Responsive to work material, the product or means engaging the work material or the product	41	..Filter having indicator or inspection means
9	..By use of pneumatic sensor	42	..With application of heat to secure wrapper
10	..By use of photocell condition sensor	43	..With shaping or compacting of filter material
11	...Responsive to mark or indicia on work	44	..Including heating
12	...Responsive to defective or missing work	45	..Including fluid contact for forming
13	...Plural sensors	46	..Cutting continuous length rod into determinate lengths
14	....Plural interrelated sensors	47	..Prior to assembly with other cigarette filter material
15	....Photocell and diverse-type sensor	48	..By assembling dissimilar filter materials (e.g., fiber and powdered charcoal, etc.)
16	..To eject defective work material or product	49	..With application of forced air, vacuum or vibration to assist handling
17	..By use of plural sensors	50	..Including plasticizer, adhesive, coating, or impregnant
18	...Plural interrelated sensors	51	..Filter of fibrous material
19	....Sensing opposite edges of planar work	52	CONTAINER MAKING
20	....Opposite side edges	53	..Rigid container (e.g., box, carton, cap, cup, etc.)
21	..To actuate timer	54	..With printing or photographic reproduction
22	..To actuate cutting, breaking, tearing, or abrading means	55	...On material prior to assembly with container
23	..To actuate folder	56	...On material to be erected to become container
24	..Sensing indeterminate length work supply	57	..With cutting, breaking, tearing, or abrading
25	..Responsive to size of work or product	58	...By randomly manipulated implement
26	..Responsive to weight of work or product	59	...And embossing
27	..To stop machine		...And form-scoring
28	..Responsive to count		

CLASS 493 MANUFACTURING CONTAINER OR TUBE FROM PAPER; OR OTHER
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60	...Rotary cutting, breaking, tearing, abrading, or form-scoring tool	93	...Liner
61	...Reciprocatory cutting, breaking, tearing, abrading, or form-scoring tool	94	...Partial liner (e.g., fly liner, bottom gasket, etc.)
62	....Severing of web into blanks	95	...Liner permanently secured to wall
63	...Perforating	96	....Prior to erecting of container
64	...By rotary tool	97	....With indeterminate length work supply
65	....On travelling carrier	98	....Assembling by wrapping container about premade liner
66	...Flexibly mounted rotary tool	99	....Secured at container seam
67	...Including assembling of distinct members	100	...Premade liner and premade container
68	....And folding	101	....With venting or vacuumizing of container to allow assembly with liner
69	...Including folding	102	...Including application of distinct closure
70	....Of flap	103	...Closure having metallic portion
71	....With means to advance work or product	104	...Nonrectangular cross section container
72	.....Continuous advance	105	....By use of turret mandrel carrier
73	...By reciprocatory tool	106	.....And frustoconical form
74	...Severing of web into blanks	107	.....Rotary form
75	...Including assembling of distinct members	108	....Circular cross section container
76	....Comprising bringing two members together	109	....With bending to secure closure
77	.....Indeterminate length member	110	...Including laminating or coating of container blank
78	.....Member comprising adhesive backed tape	111	...Including wrapping of container
79	...Including folding	112	...Including use of rotary container support
80	....Of flap	113	...Including use of reciprocatory container support
81	....With means to advance work or product	114	...Securing
82	...With scrap material separation or removal	115	...By application of distinct securing member
83	..With scrap material separation or removal	116	....Tape
84	..Assembling of distinct members	117	.....Applied to moving work
85	...With extruding, drawing, or attenuating	118	....Material penetrating member
86	...Including cutting or tearing edge to container	119	.....Bifurcated member
87	...Including discharge assist means (e.g., valve, pour spout, etc.)	120	...Including use of work supply hopper
88	...Including handle or suspension means	121	..Securing
89	...Including structural reinforcement	122	...Including use of work blank supply hopper
90	...Including internal partition		
91	...Intersecting partitions		
92	...Single shaped partition adapted to touch packaged material on three sides		

123	....And use of vacuum to handle work	159	....By relative rotation of work and tool about work axis
124	.....To place blank onto folder	160	..Including form-scoring
125	.....With conveyor for advance to folder	161	...Continuous advance with form-scoring tool moving with work
126	....And means to transfer blank to folder	162	..Folding
127	.....Comprising folder	163	...By mandrel on endless carrier
128	...With application of adhesive	164	....Assembly of plural mandrels turning about fixed axis
129	....And heat sealing	165	.....To form gable top on container
130	....With work advance between application of adhesive and securing	166	.....Folder driven by stationary cam
131	.....Application of adhesive to moving work	167	...By plunger
132	.....By applicator having surface engaging and moving with work	168	....Forming hollow wall or 270 degree folded edge
133	...Including heat sealing	169	....Plural interrelated plungers (e.g., making separate cover and container)
134	....By direct application of fluid	170	....Flowable plunger or reaction member
135	....Of moving work	171	....Expandable or contractable plunger or reaction member
136	...By interfitting of container portions	172	....Orbitally moving plunger or reaction member
137	....Interlocking tab and slot	173	.....Continuously orbiting
138	.....Including integral internal partition	174	...And reciprocatory reaction member
139	.....Integral interlocking closure	175	...By mandrel
140	...Inwardly folded flange	176	...And reciprocatory arm like tool
141	...Including means to press work while adhesive sets or dries	177	...Work moving transversely to fold line during folding
142	....Work advancing during pressing	178	...Work moving parallel to fold line during folding
143	.....Plunger- and die-type press	179	...On endless conveyor belt or chain
144	.....Roller-type press	180	...With means to advance work or product
145	....Manually actuated press	181	....Of flattened tubular blank
146	....Manually driven	182	....By endless conveyor belt or chain
147	...With means to advance work or product	183	...End flap folding
148	..With coating	184	....Forming gable top
149	...On nonrectangular cross section container	185	..Including crushing or crumpling
150	...Adhesive	186	..Pliable container (e.g., bag, envelope, etc.)
151	....And folding	187	..With printing or photographic reproduction
152	..Nonrectangular cross section container	188	...On work material
153	..Noncircular cross section	189	..Including heat sealing
154	...By use of conical former (e.g., pleating, etc.)	190	...And cooling
155	....Rotary former	191	....Heating or cooling by direct application of fluid
156	...End closing	192	...By direct application of fluid
157By folding over end of tube		
158	...Edge crimping or curling		

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193	...Including supplying indeterminate length work	223	...With cutting, breaking, tearing, or abrading
194	....And cutting, breaking, tearing, or abrading	224	....Subdividing web of material
195	.....At separate station from heat sealing	225	...Drawstring to close container
196	.....With means to advance work or product	226	...Handle or suspension means
197	.....Including work advance during heat sealing	227	..With cutting, breaking, tearing, or abrading
198	...With means to receive interconnected products	228	...Including form-scoring
199	...And cutting, breaking, tearing, or abrading	229	...Notching of work edge
200	...At separate station from heat sealing	230	...Partial severance to form interconnected products
201	....With means to advance work or product	231	...Including folding
202	.....Including work advance during heat sealing	232	...Notching of work edge
203	...Composite heat sealing and severing	233	...Partial severance to form interconnected products
204	....With vertical stacking of product	234	....With application of tension to tear container from web
205	...Heat sealing by means moving with work	235	...Severing of container or container blank from web
206	...By oppositely moving work gripping means	236	....By severing means moving with work
207	...By yieldable, heated means	237	...Notching on work edge
208	...By rotary heat sealer	238	...Partial severance to form interconnected products
209	...By reciprocatory heat sealer	239	...Severing of container or container blank from web
210	..Assembling of distinct members	240	..Including form-scoring
211	...With extruding, drawing, or attenuating	241	...By rotary tool
212	..Means to facilitate opening of container	242	...By reciprocatory tool
213	....Reclosable means (e.g., valve)	243	..Including folding
214	...Closure securing element	244	...Of previously folded material (e.g., refolding, etc.)
215	....Plastically deformable	245	....Flap
216	...Return envelope or message card and main envelope	246	...Plural folding stations folding noncontinuously advancing work
217	...Liner	247	...With work turret
218	...Bottom to square-bottom-folded bag	248	...By infeeding work to passive folder
219	...Bottom to satchel-bottom-folded bag	249	...By buckling
220	...With coating	250	...By mandrel or plunger
221	....Application of adhesive to secure handle or suspension means	251	....Three point, continuous 180 degree folding
222	..Means to permit visual inspection of content (e.g., window, etc.)	252	...Mandrel having rectangular surface
		253	....Forming triangularly folded container surface
		254	...Central fold
		255	...Tube opening and closing
		256	...Including application of fluid pressure or vacuum to work
		257	....By roller having gripper engaging end edge of tube
		258	....And having side fold gripper

259	....By means engaging end edge of tube	294	.With lining of tube
260	...Closing of flap	295	.Polygonal cross section tube
261	....Multiple flaps	296	.Frustoconical tube
262	.....Container moving transersely to fold	297	.Assembling of distinct members
263	.....And parallel to another fold	298	..With plural, orbiting work supply reels
264	..With application of adhesive or securing by adhesive	299	.Spiral winding
265	...And drying	300	..Orbiting work supply reels
266	...Application by work contacting applicator (e.g., roller, brush, etc.)	301	..And advancing by wrapping belt
267	..Method	302	.With advancing of tube axially
268	..Means to assist manual manipulation	303	.Convolute winding
269	TUBE MAKING	304	..By use of external guide member
270	.With printing or photographic reproduction	305	..By use of plural mandrels
271	.With minute size change of formed tube	306	...On turret
272	.With coating	307	..By manually driven or manipulated means
273	..Applied externally of formed tube	308	.Including closing end of tube
274	..And heating or drying	309	CONTAINER OR TUBE ERECTING, OPENING, OR COLLAPSING
275	..By immersion	310	.Including overfolding or reverse bending
276	..Adhesive	311	.Collapsing
277	...By work engaging applicator	312	.Cellular container
278	....Rotary applicator	313	.By direct application of vacuum or fluid pressure
279	.....Having adhesive transferring roller	314	..Internal fluid pressure to erect container or tube
280	.....Nondriven roller	315	..Orbital movement of work contacting vacuum applying means
281	.....And having scraper	316	..Oscillating movement of work contacting vacuum means
282	.....Coacting with opposed work engaging roller	317	...Compound movement
283	.....Nondriven roller	318	.By orbital means
284	.....Brush	319	..Endless belt or chain
285	.....Plural applicators	320	WITH PRINTING OR PHOTOGRAPHIC REPRODUCTION
286	.....And plural sources of adhesive	321	.By rotary printer
287	.With cutting, breaking, tearing, or abrading	322	.By bed and travelling cylinder printer
288	..Severing of formed tube to length	323	.Selective type printer
289	...By severing means moving with work	324	.And cutting, breaking, tearing, or abrading
290	...During relative rotation between work and severing means about work axis	325	..With securing
291	.With surface treatment (e.g., polishing, burnishing, etc.)	326	WITH OR INCLUDING SURFACE PREPARATION FOR COATING
292	.Tube including metal component	327	.Removal of previously applied coating
293	.With extruding, drawing, or attenuating	328	WITH COATING
		329	.By immersion
		330	.Plural diverse materials
		331	.Adhesive
		332	..With heating or drying
		333	..Applied in a repeating pattern

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334	..With assembling of distinct members	365	...Rotary cutter
335	...Indeterminate length work	366	..By relatively adjustable cutting edges or cutting and scoring edges
336	..By work contacting applicator		
337	...Comprising roller	367	...On rotary tool support
338	WITH EXTRUDING, DRAWING, OR ATTENUATING	368	...Adjustable circumferentially
339	.Method	369	.Of moving work
340	WITH CUTTING, BREAKING, TEARING, OR ABRADING	370	.By rotary tool
341	..Including application of heat	371	..With flexibly mounter cutter
342	..With scrap material separation or removal	372	.By reciprocatory tool
343	..Including assembling or disassembling of distinct members	373	WITH SCRAP MATERIAL SEPARATION OR REMOVAL
344	..Comprising bringing two members together	374	ASSEMBLING OR DISASSEMBLING OF DISTINCT MEMBERS
345	...Indeterminate length member	375	.Of tag or label to tether or to article
346	...Plural indeterminate length members	376	..By passing tether through tag or label and article in single stroke
347	...Member comprising adhesive backed tape	377	.Including tear strip
348	...Including use of work supply hopper	378	.Including cutting or tearing edge
349	..Wrapping one member about another member	379	.Comprising bringing two members together
350	...And securing by interfitting	380	..Indeterminate length member
351	...Work penetrating member	381	...Plural indeterminate length members
352	..And with bending	382	...Member comprising adhesive backed tape
353	..By use of composite cutting, breaking, tearing, or abrading tool and folding tool	383	..Including distinct securing member
354	..By use of composite cutting, breaking, tearing, or abrading tool and form scoring or crushing tool	384	...Work penetrating member
355	..Form-scoring	385	...Bifurcated securing member
356	..Folding	386	..Wrapping one member about another member
357	...With means to advance work or product	387	...Including convex or recessed surface (e.g., eyeglass case)
358	...Continuous advance with endless belt folder surface moving with work	388	...By use of rotary work support
359	...Continuous advance with rotary folder surface moving with work	389	...By use of reciprocatory work support
360	...Folding by roller	390	..And securing by interfitting
361	..Plural cutting, breaking, tearing, or abrading stations	391	..Assembling container partitions
362	..With advancing work from first to second station	392	...Work penetrating member
363	..Making plural, separate cuts by distinct cutting edges	393	.Securing
364	..Engaging work on opposite sides	394	SECURING
		395	BENDING
		396	.Form-scoring
		397	..With folding
		398	...Plural work stations
		399	...Folding along score line
		400	..With means to advance or position work or product
		401	...Continuous advance

402	...By rotary tool having surface moving with work	440	.....Plural folding actions
403	.....Roller	441	...Folding by endless belt
404	..Form-scoring along intersecting lines	442	...Folding by roller
405	.Folding	443	...Roller passive reaction member
406	..And tautening or smoothing	444	.....With reciprocatory folding knife
407	..With crushing or crumpling	445	.....Reaction member comprising roller pair yieldably biased together
408	..Overfolding	446	...Folding by passive reaction member
409	..Refolding or unfolding	447	...Including multiple reaction members each presenting one or more shaping edges
410	...Of indeterminate length work	448	.....And provision to allow one reaction member to move relative to another (e.g., zigzag folding, etc.)
411	...Including use of swinging work guiding means (e.g., zigzag folding, etc.)	449	...And cooperating plunger
412	...With elevating work support	450	..By direct application of vacuum or fluid
413	..Folding of indeterminate length work by swinging work guiding means (e.g., zigzag folding, etc.)	451	..By plural relatively movable folding edges approaching work from same side (e.g., zigzag folding, etc.)
414	...Swinging passage	452	..Forming gable top
415	...Defined by feed roll pair	453	..Including folding end flap
416	..With means to advance work or product	454	..By rotary member
417	...And provision to precisely align for folding	455	..By passive reaction member
418	..Folding by direct application of vacuum or fluid	456	...Including multiple shaping edges on reaction member
419	...Folding by buckling	457	...And cooperating reciprocatory folder
420	...Buckle chute folding	458	..Sequential, diverse folds
421	.....Plural folding operations making multiple folds	459	.Pulling over an edge (e.g., curling, etc.)
422	...Continuous advance with folder moving with work	460	.Deflecting
423	....Folding by endless belt	461	..Of longitudinally moving work
424	....Rotary folder	462	...To form convolute coil (e.g., paper "log", etc.)
425	.....Having radial folding blade	463	.Corrugating
426	.....Radially moving folding blade	464	.Crushing or crumpling
427	.....Fold off-roll-type folder	465	FLEXING
428	.....And cooperating, registering cylinder	466	.To present part of workpiece for securing to another part
429	.....Plural folding blades	467	SURFACE TREATMENT
430	.....For zigzag folding	468	TOOL OR TOOL SUPPORT
431	.....Planetary blade	469	.Adapted to be magnetically manipulated
432	.....And cooperating, registering cylinder	470	.Adapted to be heated or cooled
433	.....For zigzag folding	471	.Rotary
434	....Folding by roller	472	.With ejector or stripper
435	.....Roller couple	473	.Plural tools or tool supports
436	...Continuous advance past folder	474	.Expandable or collapsible
437	...Reciprocatory folder		
438	...Folding by passive reaction member		
439Folding indeterminate length work		

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475 .Adjustable
476 ..Folder
477 **MACHINE FRAME**
478 .Adjustable
479 ..Plural, simultaneous
adjustments
480 **MISCELLANEOUS**

CROSS-REFERENCE ART COLLECTIONS

901 **RIGID CONTAINER**
902 .Dished
903 .Insulated thermally
904 .Cushioned
905 .Having window
906 .Having multilayer wall
907 ..Lined
908 ..Covered
909 .Having handle or suspension
means
910 .Cigarette container
911 ..Flip-top
912 .Having internal partition
913 ..Egg container
914 .Eyeglass container
915 .Match container
916 **PLIABLE CONTAINER**
917 .Envelope
918 ..Expandable
919 ..Having window
920 ..Having plural compartments
921 ..Having integrally formed insert
922 ..Having liner
923 ..With opening means (e.g., tear
strip, valve, etc.)
924 .Requiring external support
during filling
925 .Having mesh or window opening
926 .Having handle or suspension
means
927 .Reclosable
928 ..With draw string
929 ..With valve
930 .Having tear strip
931 .Having plural compartments
932 .Having plural openings
933 .Having multilayer wall
934 .Parallelepiped or tetrahedron
shape
935 .Covering bag (e.g., garment
protector, etc.)
936 .Square bottom

937 **TEXTILE**
938 .Apparel
939 **APPAREL SUPPORT**
940 **BELLOWS**
941 **FILTER**
942 **CLEANING IMPLEMENT (E.G., BRUSH,
DUST MOP, ETC.)**
943 **CANDY STICK**
944 **APERTURE CARD OR DISPLAY DEVICE
WITH WINDOW**
945 **COIN HOLDER**
946 **PHONOGRAPH RECORD JACKET**
947 **FILE FOLDER**
948 **IGNITING FUSE**
949 **ELECTRICAL INSULATION**
950 **LAMP SHADE**
951 **SEEDLING CONTAINER**
952 **PHOTO CORNER MOUNT**
953 **STENCIL OR OUTLINE GUIDE**
954 **SPOOL**
955 **DECORATION ARTICLE**
956 .Having appearance of living
plant (e.g., Christmas tree,
etc.)
957 .Festoon
958 .Garland
959 **TOY OR AMUSEMENT ARTICLE**
960 **TOILET ARTICLE**
961 **TAG, MARKER, OR LABEL**
962 **CLOSURE (E.G., TIE STRING, VALVE,
ETC.)**
963 **OPENER (E.G., TEAR STRIP, ETC.)**
964 **PALLET**
965 .Flat or "Boat" (for candy,
crackers, etc.)
966 **HONEYCOMB STRUCTURE**
967 **DUNNAGE, WADDING, STUFFING, OR
FILLING EXCELSIOR**
968 **STRUCTURAL SHAPE**

FOREIGN ART COLLECTIONS

FOR **CLASS-RELATED FOREIGN DOCUMENTS**