

101	PROCESS	125	.With removing or reshaping of filler material or flash after bonding
102	..With condition responsive, program, or timing control	126	.Encasing a rodlike core within a substantially coextensive tube by complete bonding therebetween
103	..With measuring, testing, indicating, inspecting, or illuminating	127	..Thermally induced pressure weld
104	..Nondestructive testing	128	..With mechanical interlock
105	..Using optical viewing means (e.g., microscope)	129	..By bending planar part to form tube around rodlike core
106	..Using a compliant cushioning medium	130	...Progressively
107	..Using explosive energy	131	..By fitting rodlike core within tube
108	..Specific rate of explosive burn or approach of preforms	132	...Joining through filler
109	..Critical spacing between preforms	133	....Preplacing solid tubular filler
110.1	..Using high frequency vibratory energy (e.g., ultrasonic)	134	....Applying molten filler from top reservoir
111	..With treating other than heating	135	.With supplementary mechanical joining
111.5	..Soldering or liquid phase bonding	136	..Deforming of work part
112.1	..Using dynamic frictional energy (i.e., friction welding)	137	...Lock seaming
113	..Inertia type	138	..Attaching of bridge or tie member
114	..With treating other than heating	139	..Using separate fastener
114.5	..By rotating one work surface relative to another about an axis	140	...Threaded fastener
115	..Using only pressure (e.g., cold welding)	141.1	.With shaping
116	..With pretreating of work	142	..Corner mitering
117	..Cold rolling	143	..Of multilayer tube from single web
118	..Using bond inhibiting separating material	144	..And edge joining of one piece blank or strip
119	..Repairing, restoring, or renewing product for reuse	145	...To form helically seamed tube
120	..Mechanically joining metal/nonmetal and bonding to the metal	146	...Progressively bending and joining
121	..Bonding nonmetals with metallic filler	147	....Forming indefinite length member
122.1	..Metal to nonmetal with separate metallic filler	148	.....Sheathing, cable or wire
123.1	..Semiconductor-type nonmetallic material	149	...Uniform thickness thin blank or strip
124.1	..With treating	150	....Elongated seam
124.5	..Active or reactive filler component	151	....Butt joining
124.6	..Forming hermetic seal (e.g., welding lid to container)	152	...Irregular thick blank or strip
124.7	..Forming joint of rotary shaft	153	..Lap joining of parts of nonplanar surfaces
		154	...For telescoping sleeve
		155	..Subsequent to bonding
		156	...Drawing elongated member through die

157	...Spreading or expanding work between bond joints (e.g., honeycomb or heat exchanger making, etc.)	180.5	...Wire bonding
158	...Rolling	181	..Honeycomb structure
159	...Removing of material	182	..Of mechanical article
160	....By cutting	183	...Heat exchanger structure
161	.....Producing internal cavity, aperture, or opening	184	...Pressure vessels, tanks, and container-type structures
162	.....Abrading	185	..Noncoextensive lamina to common base in regular pattern
163	....By melting	186	..Preliminary sealing of joints
164	..Prior to bonding	187	..Separate successive bonds at different temperatures
165	...Forming channel, groove, or aperture for reception of filler material	188	..Including nonmetallic base
166	....Elongated seam	189	..Using bridge or spacer
167	....Planar intersecting channel walls	190	..Of concurrently bonded stacked laminae
168	....Annular seam	191	.With disassembling of bonded joint (e.g., desoldering)
169	.....Having U-shaped or curved cross section	192	.Chain link
170	...By cutting	193	.Diffusion type
171	....Producing opposed complementary matching bonding surface	194	..Using intermediate diffusion facilitating material
172	....Abrading	195	..With incipient melting of bonding surface
173.1	...By deforming	196	.Autogenous fusion
173.2	....Pressing first work part against second work part	197	..With diffusion of atoms or nuclear particles
173.3	....Preforming work faying surface	198	.Chemical reaction produces filler material in situ
173.4	....Tube or frame member	199	.With subsequent treating other than heating of bonded parts and/or filler material
173.5	....Rod, bar, or wirelike object	200	..Cooling under particular conditions
173.6	....Sheet material	201	..Cleaning
173.7	.....Continuously feeding sheet material	202	...Chemical
174	...Forming channel, groove, or aperture	203	.With pretreating other than heating or cooling of work part of filler prior to bonding and any application of filler
265	..With concurrent bonding	204	..Applying porous or capillary feed material
175	.Plural diverse bonding	205	..Cleaning
176	.Combined	206	...Chemical
177	.Alternative bonding	207	....Applying flux
178	.Plural joints	208	..Applying preliminary bond facilitating metal coating
179.1	..Of electrical device (e.g., semiconductor)	209	...Chemical deposition
180.1	...Simultaneous bonding of multiple joints (e.g., dip soldering of printed circuit boards)	210	...Mechanically secured
180.21	....Component terminal to substrate surface (i.e., nonpenetrating terminal)	211	..Chemical
180.22	.....Lead-less (or "bumped") device	212	.With clamping or holding
		213	..And unclamping

214	.With protecting of work or filler or applying flux	256	.Applying or distributing fused filler
215	..By confining filler	257	..By gravity
216	...Using backup means	258	..By capillary action
217	..Using getter	259	..By immersing in stagnant pool
218	..Using gas, vapor, vacuum, or reactive flame	260	..Using pumped stream or jet
219	...Gas or vapor	261	..Using spray
220	...Reducing gas	262	..With agitating or vibrating (e.g., using ultrasonic energy)
221	...Vacuum	262.1	.Critical work component, temperature, or pressure
222	..Using cooling means (e.g., heat sink or barrier)	262.2	..Nonmetal work component without metallic filler
223	..Applying flux	262.21	...Solid state bonding
224	...Flux affixed to or incorporated with filler	262.3	..Nickel or cobalt member
225	.Plural filler applying	262.31	...Brazing or soldering
226	..Diverse fillers	262.4	..Ferrous metal member
227	.Plural heat applying	262.41	...Steel member
228	..And applying pressure	262.42	...Brazing or soldering
229	..Separate and distinct heating of work and filler	262.43	....And nonferrous metal member
230	..Diverse heating	262.44	....And nonferrous metal member
231	..Including post-heating	262.45	...Brazing or soldering
232	..Including preheating	262.5	..Aluminum or magnesium member
233.1	.Specific rate of varying pressure or schedule of distinct pressures	262.51	...Brazing or soldering
233.2	.Specific rate of varying temperature or schedule of distinct temperatures	262.6	..Copper or noble metal member
234.1	.Specific mode of heating or applying pressure	262.61	...Brazing or soldering
234.2	..Vapor phase heating	262.7	..Refractory metal member
234.3	..Exothermic reaction heating	262.71	...Titanium or zirconium member
235.1	..Mode of applying pressure	262.72	...Brazing or soldering
235.2	...Roll bonding	262.8	...Brazing or soldering
235.3	....At specific temperature level	262.9	..Brazing or soldering
244	.Feeding unfused filler into fusing contact with work part	264	PROCESS OF DISASSEMBLING BONDED SURFACES, PER SE (E.G., DESOLDERING)
245	.Preplacing solid filler	1.1	MEANS TO APPLY VIBRATORY SOLID-STATE BONDING ENERGY (E.G., ULTRASONIC, ETC.) TO WORK
246	..Particular size or shape	2.1	INCLUDING MEANS TO PROVIDE HEAT BY FRICTION BETWEEN RELATIVELY MOVING SURFACES (I.E., FRICTION WELDER)
247	...Indefinite length	2.3	.Means to rotate one surface relative to the other about a fixed axis
248.1	..Applied in powdered or particulate form	2.5	EXPLOSIVE WELDING MEANS
248.5	..Nonhomogeneous metal filler particles	3.1	MEANS TO BOND BY APPLYING ONLY PRESSURE (E.G., FOR COLD WELDING, ETC.)
249	..Joint interposed	4.1	WITH MEANS TO JUXTAPOSE AND BOND PLURAL WORKPIECES
250	...Butt	4.5	.Wire lead bonder
251	...Lap	5.1	.With means to treat workpieces (e.g., cutting, deforming, etc.)
252	...Coextensive sheet		
253	...Attaching filler to work part		
254	....Adherent solid layer or coating (e.g., pretinned)		
255	....Mechanically secured		

5.5	.Including compliant cushioning medium	29	.Orbital or plane curvilinear motion
5.7	.Strip leading end to trailing end bonder	30	..Of roller applicator
6.1	.Plural discrete workpieces	31	...With associated bath of liquid flux or filler
6.2	..With electrical connection made at joint	32	.Means to move applicator
7	WITH MACHINE PART RESPONSIVE TO TEMPLATE OR PATTERN OR TO INDICIA CARRIED BY AUXILIARY RECORD (E.G., TAPE, CARD, ETC.)	33	INCLUDING MEANS TO APPLY FLUX OR FILLER TO WORK OR APPLICATOR
		34	.With means to skim dross
		35	.By brush, wick, or pad
		36	.By partial or total immersion of work or applicator into liquid
8	WITH CONTROL MEANS RESPONSIVE TO SENSED CONDITION	37	..Flowing flux or filler (e.g., wave former, etc.)
9	.Work-responsive (e.g., temperature, orientation of work, etc.)	38	..With means to roll or orbit work portion
10	..Presence of work	39	..With means to mask or stop work
11	...To control feed of filler	40	..Comprising work immersion
12	.Responsive to position of work carrier	41	.Solid flux or solid filler
13	WITH MEANS TO CUT OR SEPARATE WORK, FILLER, FLUX, OR PRODUCT	42	.Gaseous flux
14	.Plus means to apply cut filler or cut flux to work	43	.Moving work
15.1	WITH MEANS TO DEFORM WORK, FILLER, OR FLUX PORTION BEFORE FUSION	44.3	INCLUDING MEANS TO FORCE OR CLAMP WORK PORTIONS TOGETHER DURING BONDING
16	.By a funnel-shaped conduit (e.g., welding bell, etc.)	44.5	.Comprising tube aligning means
17	.By roller means	44.7	.Work portion comprises electrical component
17.5	.Comprising means forming one-piece blank into a tubular shape	45	INCLUDING MEANS TO MOVE OR GUIDE APPLICATOR
17.7	..Helical tubular shape	46	WITH MEANS TO COOL WORK OR PRODUCT
18	COMBINED	47.1	WITH MEANS TO HANDLE WORK OR PRODUCT
19	WITH MEANS TO REMOVE, COMPACT, OR SHAPE APPLIED FLUX OR FILLER	48	.Including means to rotate cylindrical work
20.1	.By fluid blast or suction	49.1	.Including means to orient work or position work portion relative to another work portion
20.5	..Hand tool	49.2	..Means to rotate work and to position work about a different axis
21	.With shield or guide for removed material	49.3	..Pipe joint aligner
22	.Including wiper	49.4	..Sheet aligner
23	..Comprising endless wiper	49.5	.Work portion comprises electrical component
24	INCLUDING REPETITIVE IMPACT FUSION-BONDING MEANS	49.6	.Work portion comprises can body
25	INCLUDING APPLICATOR MOVABLE DURING FUSION	50	SEAM BACKUP MEANS
26	.Including "flying" applicator engaging moving work	51	METALLIC HEAT APPLICATOR (E.G., SOLDERING IRON, ETC.)
27	.With lateral oscillation along path of seam	52	.With means to handle flux or filler
28	.Reciprocatory or oscillatory motion	53	..With means to heat applicator
		54	.Tip or head alloy or polymetallic structure

- 55 .Adjustable or detachable head or tip
- 56.1 **SPECIALIZED POT**
- 56.2 .Having means to treat flux or filler
- 56.3 **SOLDER FORM**
- 56.5 **WITH SIGNAL, INDICATOR, GAUGE, OR STOP**
- 58 **APPARATUS FOR BONDING BATTERIES (I.E., PLURAL CELLS)**
- 59 **HEAT SHIELD**
- 60 **TUBE END CLOSING**
- 57 **MISCELLANEOUS**

CROSS-REFERENCE ART COLLECTIONS

- 901 **PROCESS OF BONDING BATTERIES USING FLAME**
- 902 **METAL TO NONMETAL**
- 903 **WIRE BONDING**

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

