

1 R	PLANTS	18.3	...Fire tube or flue surrounded by water containing chamber
2	.Garbage		
3	.Motor vehicle	18.31	...Penetrates one side of water chamber to another
1 A	.Air heaters		
1 B	.Once through	18.4	...Water tube surrounded by burned fuel
1 C	.Feed water heaters		
4 R	MISCELLANEOUS	18.5	..And external water tank
4 A	.Electric boiler	19.1	.Water containing chamber or external tank having circulation feature within
4 C	.Water-cooled stoker		
4 D	.Catalyst		
5	GAS-PRODUCER	19.2	.And casing feature for stand boiler or external water tank therefor
5.51	AIR-INJECTED		
5.52	.Combustion gas and vapor contact		
6 R	INDUSTRIAL	20 R	SUBSIDIARY
6.5	.Port	20 A	.Subsidiary-heater firebox
6.6	.Tuyeres	20 B	.Subsidiary-heater offtake flue
6.7	..Forge	29	ANNULAR FIREBOX
7 R	.Waste heat	30	MAGAZINE
7 A	..Steel converter		INDIRECTLY HEATED
7 B	..Additional burner	32	.Separate fluid
7 C	..Waste sulfite	33	..Surface
7 D	..Carbon monoxide	34	...Furnace
8	.Water firebox	34.1	...Separator
9	..Water tube type	31.1	INDIRECTLY HEATED SEPARATE INJECTED FLUID
6 A	.Water-cooled walls	31.2	.Submerged flame
6 B	.Bosh plates	35	ACCUMULATOR
6 C	.Skew arch coolers	36	AUXILIARY STEAM HEATER
10	FOR FLUID FUEL BURNER	37	COMPARTMENT
11	ROTARY		.Auxiliary
12	ROTATABLY SUPPORTED	38	..Draft regulator
13.01	STAND BOILER (E.G., WATER HEATER, ETC.)	39	FILM
13.3	.And delivery means to dispensing feature	40	FLASHER
14.1	.And condition responsive feature	41	.Fluid fuel
14.2	..Controls burner	42	FIRE AND WATER TUBE
14.21	...By other than temperature of water	43	.Fluid fuel
14.22	...By temperature of water in a water containing chamber or external tank	44.1	FIRE TUBE
14.3	..Having water flow control feature	44.2	.With baffle in flue
14.31	...Using valve actuated by flow or pressure (e.g., check valve, etc.)	49	.Horizontal and vertical
15.1	.Heated by liquid or steam (e.g., indirect heating, etc.)	50	.Horizontal or inclined
16.1	.Solid fuel burner	51	..Water firebox
17.1	.Fluid fuel burner	52	...Flue
17.2	..Liquid fuel burner	53	.Horizontal
18.1	..Having heat exchange feature	54	..Plural
18.2	...Preheater	55	...Water tube
		56	..Central firebox
		57	...Double outlet
		58 R	..Cylinder
			..Depending fire tube
			...Rear of bridge wall
			..Double water firebox
			...Alternate smoke return
			..Drop water firebox

59	...Circulation conduit		...Water tube
	...Double	99	....Straddle
60	....Alternate smoke return		...Water tube type
61	...Drop water baffle	100	....Interposed flue
62	...Front and rear water baffle	101	..Water smoke box
63	...Front water baffle		..Water tube
64	...Interposed combustion chamber		...Horizontal
65	...Rear water baffle	102	....Over bridge wall
66	...Water coking chamber	103	...Rear of fire tube
	...Water grate		...Rearwardly declined
67	....Intermediate draft	104	....Over bridge wall
68	...Water tube		...Rearwardly inclined
	....Feed heater	105	....Over bridge wall
69	....Check-valved	106	..Water wall
70	....Feeding air	107	...Drop water firebox
71	....Solid baffle	108	...Subjacent water tube
58 FB	...Fire box construction	109	.Inclined
72	..Projecting into firebox		.Transverse
73	...Drop water firebox	110	..Horizontal boiler
	..Return and reverse	111	..Vertical boiler
74	...Drop water firebox	112	...Water firebox
75	..Return fire tube	113	..Water tube
76	...Drop water firebox	114	.Vertical
77	....Internal water tube	116	..Central fire dome
	...Water firebox	117	..Central magazine
78	....Flue		..Circulation tube
79	..Subjacent water arch	118	...Internal
80	..Subjacent flue	119	..Cylinder
81	..Subjacent transverse fire tube	120	..Offset firebox
	..Superjacent feed heater	121	..Return fire tube
82	...In communication	122	...Water firebox
83	..Transverse diaphragm	123	..Separate compartment
	..Two diameters	124	..Side magazine
84	...Great diameter over firebox	125	..Top water chamber
85	...Small diameter over firebox	126	..Water firebox
86	....Water firebox	127	...Annular
87	..U-coupling	128	...Central magazine
88	..Upper drum		..Water grate
	..Water arch	129	...Downdraft
89	...Rear of fire tube	130	..Water tube
90	..Water firebox	131	...Internal
	...Firebox water heater	132	...Radial loop
91	....Trapped circuit	133	...Spur
92	...Magazine	115	..Fluid fuel
93	...Offset	134	.Volute
94.1	....Water tube type	46	.Magazine
95.1	...Plural with common combustion chamber		.Flue
		47	..Horizontal
95.2	....Multiboilers	48	..Vertical
96	...Superposed	45	.Fluid fuel
	...Water grate	135.1	FLUE
97	....Downdraft	135.2	.Alternative stack
98	....Updraft	135.3	.Sinusoidal flue

136 R	.Horizontal	182.1	..With return fire tube
137	..Plural	182.2	...Having symmetrical arrangement of tubes
138	...Water tube	182.3	...Having tubes offset from firebox
139	..Drop water firebox		..Spiral water conduit
140.1	..Internal water tube	183	...Fluid fuel
140.2	...Having water tube in flue		..Standpipe
	...Longitudinal		...Water tube
141	....Drop water firebox	184	....Annular firebox
142	...Return fire tube	185	....Loop
143	...Spur	186	....Spur
144	..Subjacent firebox	187	..Transverse fire tube
145	..Transverse	164	..Insulated outlet flue
146	....Drop water firebox	156	..Fluid fuel
147	....Return fire tube		HORIZONTAL CYLINDER
148	...Water firebox	188	.Drop water baffle
149	..Return fire tube		.Offset subjacent firebox
150	..Rear water tube	189	..Water roof
	...Water smoke box	190	..Water tube
151	....Separate		.Subjacent fire tube
152	..Water grate in flue	191	..Beyond bridge wall
153	..Water tube	192	.Water bridge wall
154	..Over bridge wall	193	.Water firebox
136 C	..Horizontal-corrugated or finned	194	..Water tube type
155.1	.Vertical	195	.Water tube
155.2	..With flue baffle		..Feed heater
155.3	..Having exterior heating flue	196	...Check-valved
155.4	..Having corrugated flue	197	..Lateral-longitudinal
155.5	..Having undulating flue	198	..Lateral-vertical
157	..Central magazine	199	...Firebox
158	...Water jacket	200	..Over fuel grate
	..Circulation tube	201	..Subjacent internal fire tube
159	...Internal	202	..Trapped circuit
160	..Concentric shell		..Water grate
161	...Fluid fuel	203	...Downdraft
162	...Central magazine	204	...Intermediate draft
163	..Exterior drum	205	...Multiple series
165	..Internal water heater	206	...Solid and water bar
166.1	..With internal water tube	207	...Updraft
166.2	...Loop-type tube		PLATE
168	..Central magazine		.Zigzag conduit
169	...Coil	208	..Fluid fuel
170	....Header	209.1	SECTIONAL
171	...Contracted inlet	209.2	.Feeding air
172	...Header	213	.Plural firebox
173	...Horizontal spur		.Horizontal sections
174	...Internal fire tube	214	..Superimposed
175	...Offset water firebox	215	...Central connection
176	...Transverse	216	....Fluid fuel
177	....Fluid fuel	217	....Water firebox
178	...Vertical aligned fire tube	218	...Water firebox
179	....Fluid fuel	219	....Central magazine
180	....Spur water tube		...Water tube
181	...Vertical spur		
167	...Fluid fuel		

	....Internal fire tube	240.3	..Parallel connected
220	....Water firebox	241	.Firebox in drum
	.Vertical sections	242	.Capillary
221	..Annularly positioned	243	..Fluid fuel
222	...Central magazine		.Coil or loop
223	..Longitudinally positioned	244	..Central standpipe
224	...Casing	245	...Fluid fuel
225 R	..Transversely positioned	246	...Annular firebox
226	...Casing	247	.Coil
227	....Divided section		..Horizontal
228	...Divided section	248	...Fluid fuel
229	...Water grate	249	..Vertical
225 A	...Water heater in flue	250 R	...Fluid fuel
225 B	...Water heater in boiler	250 S	....Standpipe
225 F	...Feeding air	251	...Central magazine
230	..Two-section	252	...Water firebox
212.1	.With magazine	253	.Cross
212.2	..With return or alternate flue	254	..Over bridge wall
211	.Fluid or solid fuel		..Over firebox
210	.Fluid fuel		...Longitudinal
232	.Water grate		....Header
231	.Accessories	255	....Drum
	TANK		...Transverse
233	.Horizontal		....Header
234	.Vertical	256	....Drum
235.11	WATER TUBE		..Transverse
235.12	.Wall structure		...Header
235.13	.With fuel burners having posts and tuyeres	257	....Drum
235.14	.Tube structure	258	.Downflow
235.15	.Headers and connections	259	.Drum type
235.16	.For plural fluids	260	.Flat
235.17	.Having baffles	261	..Volute
235.18	.Having seals	262	.Horizontal
235.19	.D-type tube	263	..Over bridge wall
235.21	..Multiple D-type tubes	264	..Over firebox
235.22	.Wall loop	265	.Inclined
235.23	.Having specific tube patterns	266	.Internal fire tube
235.24	.Screens	267	..Horizontal
235.25	..Floor screens	268	..Inclined
235.26	.Having slag and ash disposal	269	..Plural fire tube
235.27	.Locomotive-type	270	..Straddle
235.28	.Having rotary flame	271	..Vertical
235.29	.Having forced circulation system	272	...Central magazine
235.31	.Having specific intenal drum and head structure	273	.Longitudinal upper drum
235.32	..With combustion	274	..Fluid fuel
235.33	..With convection zone regulation	275	.Loop
235.34	..With parallel multiple fireboxes	276	..Firebox enclosing
235.35	..With serial multiple fireboxes	277	..Over bridge wall
238	.Offset firebox		..Over firebox
239	.Superimposed firebox	278	...Cross
240.1	.Having plural fireboxes	279	...Horizontal
240.2	..Series connected	280	...Rear of bridge wall
		281	....Bridge wall header
			...Standpipe

282	...Vertical	322	..Fluid fuel
283	...Fluid fuel	323	..Annular firebox
	.Over bridge wall	324	.Straddle
284	..Headers at right angles		..Plural upper drum
285	..Transverse water baffle	325	...Plural lower drum
	..Water grate	326	....Cross
286	...Downdraft		..Single upper drum
287	...Intermediate draft	327	...Plural lower drum
	.Over firebox	328	....Fluid fuel
288	..Headers at right angles	329	....Cross
	..Water grate	330	....Plural firebox
289	...Updraft	331	.Transverse horizontal drum
	.Rearwardly declined	332	.Vertical
	..Over bridge wall	333	..Fluid fuel
290	...Front and rear header	334	..Side magazine
291	...Horizontal-longitudinal drum	335	..Annular firebox
292	....Firebox tube	336	..Offset firebox
293	....Longitudinal water baffle	337	...Elevated
294	....Water wall		..Annular lower drum
295	....Internal water tube	338	...Annular upper drum
296	...Longitudinal-declined drum	339	...Central magazine
297	...Transverse drum	340	....Tubes over firebox
	..Over firebox	341	...Fire tube upper drum
	...Front and rear header	342	...Spur tube upper drum
298	...Horizontal-longitudinal drum	343	...Upper drum
299	...Transverse drum	344	...Central magazine
300	...Tubes beyond side wall	345	..Beyond bridge wall
	..Plural upper transverse drum	346	...Gas return
301	..Plural lower transverse drum		...Longitudinal upper drum
302	..Single lower transverse drum	347	...Longitudinal lower drum
	.Rearwardly inclined		..Internal fire tube
	..Over firebox	348	...Fluid fuel
	...Front and rear header	349	..Over firebox
303	...Transverse drum	350	...Gas return
	.Separate banks		..Plural upper longitudinal drum
304	..Opposite fireboxes	351	...Plural lower longitudinal drum
305	.Spur		..Plural upper transverse drum
306	..Bridge wall header		...Plural lower transverse drum
307	..Central standpipe	352	....Offset firebox
308	...Fluid fuel	353	.Water grate
309	...Annular firebox	354	..Downdraft
310	...Central magazine	355	.Zigzag
311	..Cross	356	..Fluid fuel
312	..Horizontal-longitudinal drum		..Over bridge wall
313	..Over bridge wall	357	...Longitudinal drum
	..Over firebox	358	...Transverse drum
314	...Central header	359	..Over firebox
315	...Declined	237	.Magazine
316	...Horizontal	236	.Fluid fuel
317	..Straddle		.Headers
318	..Vertical	360	..Closures and couplings
319	...Fluid fuel	361	...Cleaning
320	...Central magazine	362	...Concentric tube
321	.Standpipe	363	...Drum

364	...Tube closures	397	.Trapped circuit
365	.Drums and couplings	398	..Feeding water
366	WICK	399	..Surface and bottom exit
367.1	HEAT TRANSMITTER	400	..Surface exit
367.2	.Double immersed heat transmitters	401	...Chemical feeder
367.3	.Corrugated and finned heat transmitters	402	...Circulating pump
367.4	.Pebble furnaces	403	...Feed heater
368	WATER FIREBOX	404	...Steam injector
369	.Mud ring	405	.Wash-out nozzle
370	.Plural	406.1	CIRCULATION
371	WATER GRATE	406.2	.Having anticavitation devices
	.Plural firebox	406.3	.Having restrictors and orifices
	..Superimposed	406.4	.Once through
	...Water grate	406.5	.With start-up operations
372	....Updraft	407	.Injector
373	.Cage	408.1	.Having internal conduit
374	.Grate structure	408.2	..With internal geyser tube
375	..Solid and water bar	409	..Horizontal flue boiler
376	.Progressive feed water firebox	410	...Return fire tube
	..Solid and water bar		.Mechanical
	...Updraft	411	..Internal
377	..Updraft	412	FEED HEATERS
378	..Updraft	413	.Ash pan
21	CHEMICAL	414	.Boiler circuit
22	FLUID AND SOLID FUEL		..Feed-injected
23	FLUID FUEL		.Circulation
24	.Explosion	415	..Surface exit
	.Plural burner	417	...Mechanical pump
25	..Superimposed		....Feed-injected
26	FRICITION GENERATOR	418	.Drip plate in boiler
	NONCOMBUSTIBLE HEATER		.Fire-engine boiler
27	.Surface	419	..Auxiliary
28	.Water in contact	420	...Attached
379	CLEANING	421	...Detachable
380	.Agitating circulator	422	.Furnace gases
	.Blow off	423	.Offtake flue
381	..Bottom and surface	424	.Furnace gases and steam
382	..Bottom	425	.Horizontal fire tube boiler
383	...Internal conduit	426	..Smoke box
384	....Ejector	427	...Exhaust pipe
385	....Mud ring	428	...Furnace gases and steam
386	....Pan	429	...Water tube
387	....Scraper	430	..Smoke chamber
388	....Valved	431	.Internal conduit
389	..Surface exit	432	..Automatic sediment valve
390	.Fluid jet	433	..Blow-off delivery
391	..Horizontal fire tube boiler	434	..Filter in boiler
392	..Water tube boiler	435	..Furnace gases
393	.Mud drum	436	..Trap outside boiler
394	.Pans	437	.Locomotive tender
395	.Sandblast	438	.Pan in steam space
396	.Systems		..Spray
			.Safety valve
			.Spray to steam space

439	.Stack		
441	.Steam	471	....Declined drum
442	..Injected		.....Superheater
	...Superposed	472	....Longitudinal drum
443	....Open to steam space		.....Superheater
444	.Water tube boiler	473	..Longitudinal drum
	REGULATION		...Superheater
	.Fuel and water	474	..Over bridge wall
446	..Fluid fuel		...Superheater
447	...Cutoff	475	..Standpipe
	..Automatic control		...Spur tube
449	...Solid fuel	475	....Superheater
450	.Suspended boiler	478	..Transverse drum
448.1	AUTOMATIC CONTROL OF FLUID FUEL	477	...Superheater
	AND WATER	476	..Superheater and feed heater
448.2	.Having fuel or feed bypass		..Superheater
448.3	.Multiple boiler regulation	480	..Damper-controlled
448.4	.Once through	481	..Firebox
451 R	FEEDERS	482	..Fire tube in steam space
	.Automatic	483	..Indirectly heated
451.1	..Thermally controlled	484	..Separate charges
451.2	...Pressure-operated valve	485	..Separate furnace
452	.Boiler pressure	486	..Steam dome
	.Gravity	487	..Water-injected
456	..Automatic	479.1	.Automatic heat regulation of
457	...Heater		superheater
458	..Heater	479.2	..Having gas recirculation
451 S	.Once through	479.3	..Having flame positioning
459	STEAM TREATMENT	479.4	..With variable firing
460	.Boilers with superheaters	479.5	..Having dampers
	.Fire tube boiler	479.6	..Plural furnaces
	..Horizontal	479.7	..Once through
461	...Superheater		SEPARATORS
	....In fire tube	488	.Boiler circulation
462	.....From smoke box	489	.Boiler return
	....Interior steam space	490	.For tilting boilers
463	.....Internal fire tube	491	.Interior of boilers
	....Smoke box	492	.Steam dome
464	.....Fire tube	493	BRACES AND STAYS
465	.....Steam tube	494	CASINGS
466	..Superheater and feed heater	495	CROWN SHEETS PROTECTING
	..Vertical	496	CROWN SHEETS AND STAYS
467	...Superheater	497	FRONTS
	.Flue boiler	498	.Doors
	..Vertical	499	.Mouths
	...Internal water tube	500	..Water firebox
468	....Superheater	501	FLUID-DISPLACER
	.Horizontal boiler	502	.Fluid fuel
	..Superheater	503	FUEL BAFFLES
469	...Rear of firebox	504	SAFETY DEVICES
470	...Waste-heat flue	504.1	.Fusible control
	.Water tube boiler	504.2	.Alarms or indicators
	..Declined over bridge wall		.Fire extinguishers
	...Front and rear header	504.3	..Fusible control

505	..Float-controlled	DIG 11	REMOVABLE STEAM-HEATING ELEMENTS
506	..Pressure-controlled	DIG 13	TUBES - COMPOSITION AND PROTECTION
507	..Self-closing valve		
508	STEAM DOMES	DIG 14	TUBE REPLACEMENT
509	SUBMERGED STEAM CHAMBER	DIG 15	VALVES
510	SUPPORTS	DIG 16	WELDING
511	TUBES AND CONNECTIONS		
512	TUBE SHEETS		

FOREIGN ART COLLECTIONS**FOR 000 CLASS-RELATED FOREIGN DOCUMENTS**

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collections listed below. These Collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

FOR 100	STAND BOILER (122/13.1)
FOR 101	.Electric (122/13.2)
	..Fire tube and water tube (122/unnumbered)
FOR 102	..Fluid fuel (122/16)
	..Fire tube (122/unnumbered)
FOR 103	..Fluid fuel (122/17)
	..Water tube (122/unnumbered)
	..Below boiler (122/unnumbered)
FOR 104	...Fluid fuel (122/18)
	..Casing (122/unnumbered)
FOR 105	...Fluid fuel (122/19)
FOR 106	.Fluid fuel (122/14)
FOR 107	.Solid fuel (122/15)

DIGESTS

DIG 1	AIR HEATER
DIG 2	AIR HEATER - INDIRECTLY HEATED
DIG 3	GAS FLOW BAFFLES
DIG 4	ONCE THROUGH BOILERS
DIG 5	CRITICAL PRESSURE
DIG 6	DAMPER-DIRECTED RADIATION
DIG 7	FEEDING AIR
DIG 10	PORTABLE UNITS