CPC COOPERATIVE PATENT CLASSIFICATION

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

ENGINES OR PUMPS

F01 MACHINES OR ENGINES IN GENERAL; ENGINE PLANTS IN GENERAL; STEAM ENGINES

MACHINES OR ENGINES, IN GENERAL OR OF POSITIVE-DISPLACEMENT TYPE, e.g. STEAM ENGINES (of rotary-piston or oscillating-piston type <u>F01C</u>; of non-positive-displacement type <u>F01D</u>; internal-combustion aspects of reciprocating-piston engines <u>F02B 57/00</u>, <u>F02B 59/00</u>; crankshafts, crossheads, connecting-rods <u>F16C</u>; flywheels <u>F16F</u>; gearings for interconverting rotary motion and reciprocating motion in general <u>F16H</u>; pistons, piston rods, cylinders, for engines in general <u>F16J</u>)

NOTES

- 1. This subclass <u>covers</u>, with the exception of the matter provided for in subclasses <u>F01C</u> <u>F01P</u>:
 - engines for elastic fluids, e.g. steam engines;
 - engines for liquids and elastic fluids;
 - · machines for elastic fluids;
 - · machines for liquids and elastic fluids.
- 2. Attention is drawn to the note preceding class F01, especially as regards the definitions of "steam" and "special vapour".

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00	Reciprocating-piston machines or engines	1/0641	{Details, component parts specially adapted for
	characterised by number or relative disposition		such machines}
	of cylinders or by being built-up from separate	1/0644	• • • {Pistons}
	cylinder-crankcase elements (F01B 3/00, F01B 5/00	1/0648	• • • {Cams}
	take precedence)	1/0651	• • • {consisting of several cylindrical elements,
1/01	• with one single cylinder		e.g. rollers}
1/02	 with cylinders all in one line 	1/0655	• • {cylinders}
1/04	 with cylinders in V-arrangement 	1/0658	• • • {Arrangements for pressing or connecting the
1/06	 with cylinders in star or fan arrangement 		pistons against the actuating or actuated cam}
1/0603	{the connection of the pistons with an element	1/0662	• • • {hydraulically}
	being at the outer ends of the cylinders}	1/0665	• • • {Disconnecting the pistons from the actuating
1/0606	• • { with cam-actuated distribution member(s)}		or actuated cam (in general F01B 31/24)}
1/061	{with two or more series radial piston-cylinder	1/0668	• • • {Supporting and guiding means for the piston}
	units}	1/0672	{Draining of the machine housing;
1/0613	{directly located side by side}		arrangements dealing with leakage fluid}
1/0617	• • • {coupling of several cylinders-barrels}	1/0675	• • {Controlling}
1/062	{the connection of the pistons with an actuating	1/0679	• • • {by using a valve in a system with several
	or actuated element being at the inner ends of the		pump or motor chambers, wherein the flow
	cylinders}		path through the chambers can be changed, e.g.
1/0624	• • • {with cam-actuated distribution member(s)}		series-parallel}
1/0627	• • • { each machine piston being provided	1/0682	• • • {by changing the effective cross sectional
	with channels, which are coacting with		piston working surface}
	the cylinder and are used as a distribution	1/0686	• • • {by changing the effective piston stroke}
	member for another piston-cylinder unit}	1/0689	• • • {by changing the excentricity of one element
1/0631	• • • {the piston-driving or -driven cam being		relative to another element}
	provided with an inlet or an outlet}	1/0693	• • • {by changing the phase relationship between
1/0634	• • • { with two or more series radial piston-cylinder		two actuating or actuated cams}
1/0/25	units}	1/0696	• • • {by changing the phase relationship between
1/0637	• • • {directly located side by side}		the actuating or actuated cam and the
			distributing means}

with more than one main shaft, e.g. coupled to common output shaft (combinations of two or more machines or engines 101B 1200) 1/12 Separate cylinder-rankouse elements coupled regether to form a unit 3/103 Separate cylinder-rankouse elements coupled regether to form a unit 3/104 Similar to form a unit 3/105 Separate cylinder-rankouse elements coupled together to form a unit 3/106 (Increachines with rotary cylinders) 3/107 (Increachines with rotary cylinders) 3/108 (Inhaving two or more sets of cylinders or pistons) 3/109 (Inhaving two or more sets of cylinders or pistons) 3/100 (Inhaving two or more sets of cylinders or pistons) 3/101 (Component parts, details, e.g. scalings, tobercating distribution members) 3/102 (Component parts, details, e.g. scalings, tobercating distribution or members) 3/109 (Component parts, details, e.g. scalings, tobercating distribution or members) 3/100 (Component parts, details, e.g. scalings, tobercating means or driving or arctuated elements) 3/100 (Component parts, details, e.g. scalings, tobercating means or driving or arctuated elements) 3/100 (Component parts, details, e.g. scalings, tobercating, and the properties of the swash plate (with fixed inclination of the axis of the cylinder barrel radius to the swash plate (with fixed inclination) 3/100 (Component parts, details, e.g. scalings, tobercating, and the properties of the cylinder scales are ranged substantially tangentially to a criteric or the pistons with an actuated or actuating delement because against the valve plate, e.g. fluid prossure) 3/1002 (Casings, housings) 3/1003 (Casings, housings) 3/1004 (Component parts, details, e.g. valve, scalings, tobercating, and the valve plate) (Component parts, details, e.g. valve, scalings, e.g. fluid prossure) 3/1005 (Component parts, details, e.g. valve, scalings, e.g. fluid prossure) 3/1006 (Component parts, details, e.g. valve, scalings, e.g. fluid prossure) 3/1007 (Component parts, details, e.g. valve, scalings, e.g. fluid prossure) 3/1008 (Component	1/08	with cylinders arranged oppositely relative to main shaft and of "flat" type	3/10	Control of working-fluid admission or discharge peculiar thereto (suitable for more general
numerines of regines EIII 2.1000 South Separate cylinder cranks are elements coupled together to form a unit 2.1000 Reciprocating-piston machines or engines with cylinder axes coaxfal with, or parallel or inclined to main shaft axis 2.1000 South	1/10	. with more than one main shaft, e.g. coupled to		application <u>F01L</u>)
position of the swash plate positi			3/101	• • {for machines with stationary cylinders}
together to form a unit Reciprocating-piston machines or engines with cylinder axes coaxial with, or parallel or inclined to, main shall axis 3/0005 (having statonary cylinders) 3/0005 (having two or more sets of cylinders or pistons) 3/00005 (having two or more sets of cylinders or pistons) 3/00005 (having two or more sets of cylinders or pistons) 3/00014 (Cylinderal distribution members, e.g., acutated by working fluid) 3/0017 (Component parts, details, e.g. sealings, lubrication) 3/0018 (Component parts, details, e.g. sealings, lubrication) 3/0029 (Cylinders) 3/0029 (Cylinders) 3/0029 (Cylinders) 3/0031 (Actuating or actuated elements bearing means or driving or driven axis bearing means or line and the contacting area between cylinder barrel and valve plate (plate) and pressure) 3/0031 (Learner and valve plate, g. fluid pressure) 3/0032 (Cylinder barrel) 3/0033 (Cylinder barrel) 3/0034 (Component parts, details, e.g. valves, sealings, lubrication) 3/0035 (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel and valve plate) (Particularities in the contacting area between cylinder barrel barring means) (Particularities in the contacting area between cylinder barrel barring means) (Particularities in the contacting area between cylinder barrel barring means) (Particularities in the contacting area between cylinder barring the contacting area between cylinder barring the contacting area between cylinder barring the contacting area between cyl		machines or engines F01B 21/00)	3/102	{Changing the piston stroke by changing the
Source Section Secti	1/12	Separate cylinder-crankcase elements coupled		position of the swash plate}
Section of the plate		together to form a unit	3/103	• • {for machines with rotary cylinder block}
regilider axes constal with, or parallel or inclined to, main shaft axis (Invine stationary cylinders) 3,0005 (Invine two or more sets of cylinders or pistons) 3,0005 (Invine two or more sets of cylinders or pistons) 3,0006 (Invine two or more sets of cylinders or pistons) 3,00014 (Cylindrical distribution members) 3,00014 (Component parts, details, e.g. sealings, lubrication) 3,00023 (Cylinders) 3,00023 (Cylinders) 3,00024 (Cylinders) 3,00025 (Invine more or driving or driven axis bearing means or driving or driven axis bearing means or driving or driven axis bearing significant two parts of the piston members or pistons; and the contacting area between cylinder borrel and valve plate) 3,0004 (Component parts, details, e.g. valves, sealings, lubrication) 3,0005 (Invine two or more sets of cylinders or pistons) 3,0004 (Component parts, details, e.g. valves, sealings, lubrication) 3,0005 (Invine two or more sets of cylinders or pistons) 3,0004 (Component parts, details, e.g. valves, sealings, lubrication) 3,0005 (Invine two or more sets of cylinders or pistons) 3,0004 (Cylinders) 3,0005 (Invine two or more sets of cylinders or pistons) 3,0005 (Cylinder burel) 3,0	2/00		3/104	
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30002 (Cylindra satisfies being self-acting distribution members) 30011 (Component parts, details, e.g., sealings, labrication) 30012 (Component parts, details, e.g., sealings, labrication) 3002 (Cylindra distribution members) 3002 (Cylindra) 3002 (Cylindra) 3003 (Cylindra) 3002 (Cylindra) 3003 (Actuating or actuated elements) 3002 (Casings, housings) 30030 (Inhaving two or more sets of cylinders or pistons) 30030 (Inhaving two or more sets of cylinders or pistons) 30031 (Inhaving two or more sets of cylinders or pistons) 30041 (Component parts, details, e.g., valves, sealings, labrication) 30042 (Component parts, details, e.g., valves, sealings, labrication) 30053 (Inhaving two or more sets of cylinder barrel and valve plate) 30064 (Component parts, details, e.g., valves, sealings, labrication) 30075 (Valve means) 30085 (Cylindra barrel) 30096 (Commetion between cylindra barrel and valve plate) 30097 (Valve means) 30097 (Swash plate) 30097 (Cylindra valve means) 30097 (Cylindra barrel barrel parts) 30098 (Cylindra barrel barrel parts) 30098 (Cylindra barrel barrel parts) 30099 (Casings, housings) 30098 (Petails) 30099 (Casings, postions) 30098 (Petails) 30099 (Casings, housings) 30099 (Casings, housing	2/222			
30000 Comical distribution members, e.g. actuated by working fluid) 30014 Comical distribution members) 30014 Comical distribution members) 30015 Comical distribution members) 30016 Comical distribution members) 30020 Comical distribution members) 30021 Comical distribution members) 30022 Comical distribution members) 30023 Comical distribution members) 30024 Comical distribution members) 30025 Comical distribution members) 30026 Comical distribution members) 30027 Comical distribution members) 30029 Comical distribution members) 30020 Comical garribution of the axis of the cylinders leaves between exist of the cylinders arranged substantially tangentially to a circle centred man shaft axis (the connection of the pistons with an actuated or actuating element being at the outer ends of the cylinders) 10020 Components for pressing the cylinder barrel and valve plate; c.g. fluid pressure) 30030 Components for pressing means or divine members or engines with two or more pistons reciprocating within same cylinder or within exertifiating within same cylinder or within exertifiating within same cylinder or within exertifiating within same cylinder or within exertifiative to main shaft Axis 30030 Components for pressing means or driving or driven means or driving or driven means or driving or driven means or dri			3/106	
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30011 (Comical distribution members) 30017 (Component parts, details, e.g. sealings, lubrication) 3002 (Cylinders) 3002 (Cylinders) 30032 (Actuating or actuated elements hearing means or driving or driven axis bearing				
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soult Component parts, details, e.g. sealings, lubrication (Cylinders) 3002 (Cylinders) 3002 (Actualing or actuated elements) 3002 (Casings, housings) 3003 (Include to main shaft axis) 3004 (Component parts, details, e.g. valves, sealings, lubrication) 3004 (Component parts, details, e.g. valves, sealings, lubrication) 3005 (Particularities in the contacting area between cylinder barrel and valve plate) 3005 (Cylinder barrel) 3006 (Cylinder barrel) 3006 (Colindical valve means) 3006 (Colindical valve means) 3006 (Colinder barrel) 3007 (Swash plate 3008 (Pistons) 3008 (Pistons) 3008 (Pistons) 3008 (Pistons) 3009 (Connection of the pistons with an actuated or actuating element being at the outer ends of the cylinders 4004 (Component parts, details, e.g. valves, sealings, lubrication) 4005 (Component parts, details, e.g. valves, sealings, lubrication) 3005 (Cylinder barrel end valve plate) 3006 (Cylinder barrel) 3007 (Cylinder barrel) 3008 (Cylinder barrel) 3009 (Connection of the pistons with an actuated or actuating element being at the outer ends of the cylinders 400 (Component parts, details, e.g. valves, sealings, lubrication) 400 (Walve means, e.g., valves, sealings, lubrication) 401 (Valve means, e.g., valves plate) 3006 (Colinder lubren) 3007 (Cylinder barrel learning means) 3007 (Swash plate eleming means) 3008 (Cylinder barrel end inclined swash plate) 3008 (Cylinder barrel end inclined swash plate) 3009 (Particularities in the contacting means) 3009 (3/0014	• • {Conical distribution members}	3/100	
3/002 (Cylinders) 3/0023 (Actuating or actuated elements) 3/0026 (Actuating or actuated element bearing means or driving or driven axis bearing means or driving or driven means or driving or driven means or driving or driven axis bearing means or driving or driven means or driving or driven axis bearing means or driving or driven means or driving or driven axis bearing means or driving	3/0017	• • {Component parts, details, e.g. sealings,	3/109	
3002		lubrication}		
South Comment Commen	3/002	{Cylinders}		(101B 3/100 takes precedence)
means or driving or driven axis bearing means) 3/0029 (Casings, housings) 3/0032 (having rotary cylinder block) 3/0035 (having rotary cylinder block) 3/0036 . (having rotary cylinder block) 3/0038 . (inclined to main shaft axis) 3/0041 . (Arrangements for pressing the cylinders or pistons) 3/0044 . (Component parts, details, e.g., fuil or pressure) 3/0045 . (Particularities in the contacting area between cylinder barrel and valve plate; or .) 3/005 . (Bearing arrangements) 3/005 . (Valve means, e.g. valve plate) 3/005 . (Valve means, e.g. valve means) 3/006 . (Conical valve means) 3/006 . (Conical valve means) 3/007 . (Swash plate) 3/007 . (Swash plate) 3/007 . (Swash plate) 3/007 . (Connection of the pistons with an actuated or actuating element being at the inner ends of the cylinders) 4/04 . acting on same main shaft case in plate to the context of the context of the cylinders) 4/06	3/0023	{Actuating or actuated elements}	5/00	Reciprocating-piston machines or engines with
means or driving or driven axis bearing means) 3.0029 (Casings, housings) 3.0032 . (having rotary cylinder block) 3.0035 . (having two or more sets of cylinders or pistons) 3.0038 . (inclined to main shaft axis) 3.0041 . (Arrangements for pressing the cylinder barrel against the valve plate, e.g. fluid pressure) 3.0044 . (Component parts, details, e.g. valves, sealings, lubrication) 3.005 . (Particularities in the contacting area between cylinder barrel and valve plate) 3.005 . (Particularities in the contacting area between cylinder barrel and valve plate) 3.005 . (Cylinder barrel) 3.005 . (Valve means, e.g. valve plate) 3.005 . (Valve means, e.g. valve means) 3.005 . (Cylinder barrel) 3.005 . (Cylinder barrel) 3.005 . (Cylinder barrel) 3.005 . (Cylinder barrel) 3.006 . (Conical valve means) 3.006 . (Conical valve means) 3.007 . (cylinder barrel bearing means or driving or driven axis bearing means or driving or driven axis bearing means 3.007 . (Connection of the pistons with an actuated or actuating element being at the outer ends of the cylinders) Machines or engines with two or more pistons reciprocating within same cylinder or within essentially coaxial cylinders (in opposite arrangement relative to main shaft FoIB 1/08)	3/0026	{Actuating or actuated element bearing		cylinder axes arranged substantially tangentially
South Sout				to a circle centred on main shaft axis
3/0029 (Casings, housings) 3/0032 (having rotary cylinder block) 3/0038 (Inclined to main shaft axis) 3/0038 (inclined to main shaft axis) 3/0041 (Arrangements for pressing the cylinder barrel against the valve plate, e.g. fluid pressure) 3/0044 (Component parts, details, e.g. valves, sealings, lubrication) 3/0047 (Particularities in the contacting area between cylinder barrel and valve plate) 3/0052 (Rearing arrangements) 3/0053 (Rearing arrangements) 3/0054 (Rearing arrangements) 3/0055 (Cylinder barrel) 3/0055 (Cylinder barrel) 3/0056 (Cylinder barrel) 3/0058 (Cylinder barrel) 3/0064 (Machine housing) 3/0067 (cylinder barrel barrel parrel main shaft some cylinder or within exemption or cylinder some or diving or driven means) 3/0067 (cylinder barrel) 3/0067 (cylinder barrel bearing means or driving or driven axis bearing means or driving or driven axis bearing means) 3/0076 (Connection between cylinder barrel and inclined swash plate) 3/0076 (Connection between cylinder barrel and inclined swash plate) 3/0077 (Casings, housings) 3/0088 (Pistons) 3/0089 (Pistons) 3/0089 (Pistons) 3/0091 (Casings, housings) 3/0092 (Iterating means) 3/0093 (Pistons) 3/0094 (Pistons) 3/0095 (Pistons) 3/0096 (Pistons) 3/0097 (Connection between cylinder barrel and inclined swash plate) 3/0076 (Connection between cylinder barrel and inclined swash plate) 3/0077 (Connection between cylinder barrel and inclined swash plate) 3/0078 (Connection between cylinder barrel barrel barrel and inclined swash plate) 3/0089 (Pistons) 3/0080 (Pistons) 3/0081 (Pistons) 3/0081 (Pistons) 3/0082 (Pistons) 3/0083 (Pistons) 3/0084 (Pistons) 3/0085 (Pistons) 3/0086 (Pistons) 3/0086 (Pistons) 3/0087 (Connection between cylinder side of the other arrangement value to the other arrangeme			5/003	. {the connection of the pistons with an actuated or
3/0032 (having rotary cylinder block) 3/0035 . (having two or more sets of cylinders or pistons) 3/0036 . (invined two or more sets of cylinders or pistons) 3/0041 . (Arrangements for pressing the cylinder barrel against the valve plate, e.g. fluid pressure) 3/0042 . (Component parts, details, e.g. valves, sealings, labrication) 3/0043 . (Particularities in the contacting area between cylinder barrel and valve plate) 3/0045 . (Bearing arrangements) 3/005 . (Bearing arrangements) 3/005 . (Valve means, e.g. valve plate) 3/0055 . (Valve means, e.g. valve plate) 3/0056 . (Coincid valve means) 3/0064 . (Machine housing) 3/0064 . (Machine thousing) 3/0065 . (cylindrical valve means) 3/0066 . (Coincid valve means) 3/0067 . (swash plate) 3/0073 . (swash plate bearing means or driving or driven axis bearing means) 3/0079 . (Econnection between cylinder barrel and inclined swash plate) 3/0079 (Details) 3/0080 . (Pistons) 3/0080 . (Pistons) 3/0080 . (Pistons) 3/0080 . (Pistons) 3/0090 . (Driving or driven means) 3/0091 . (Zasings, housings) 3/0092 . (Driving or driven means) 3/0093 . (Pistons) 3/0094 . (Driving or driven means) 3/0095 . (Pistons) 3/0086 . (Pistons) 3/0087 . (Pistons) 3/0088 . (Pistons) 3/0089 . (Pistons) 3/0089 . (Pistons) 3/0080 . (Pistons)	3/0029			actuating element being at the outer ends of the
3/0038 (Inclined to main shaft axis) 3/0038 (Inclined to main shaft axis) 3/0039 (Inclined to main shaft axis) 3/0039 (Iranagements for pressing the cylinder barrel against the valve plate, e.g. fluid pressure) 3/0041 (Component parts, details, e.g. valves, sealings, lubrication) 3/0047 (Particularities in the contacting area between cylinder barrel and valve plate) 3/005 (Bearing arrangements) 3/005 (Rearing arrangements) 3/005 (Cylinder barrel and valve plate) 3/005 (Cylinder barrel and valve plate) 3/005 (Cylinder barrel shaft) 3/006 (Conical valve means) 3/006 (Cylinder barrel bearing means) 3/007 (swash plate) 3/007 (conction between cylinder barrel and inclined swash plate) 3/007 (conction between cylinder barrel and inclined swash plate) 3/008 (Pistons) 3/008 (Pistons) 3/008 (Pistons) 3/008 (Pistons) 3/008 (Pistons) 3/009 (Z-shafts, i.e. driven or driving shafts in Z-form) 3/00 (by multi-turn helical surfaces and automatic reversal means) transmitted by curved 3/04 (by two or more curved surfaces, e.g. for two or more pistons in one cylinder) 3/06 . by multi-turn helical surfaces and automatic reversal the balage area and automatic reversal the shalest shaft are and automatic reversal the shalest shaft are and automatic reversal the shalest shalest area and automatic reversal the shalest shale area and automatic reversal the shalest shalest shale are and automatic reversal the shalest shale area and automatic reversal the				cylinders}
3,0038 (inclined to main shaft axis) 3,0041 (Arrangements for pressing the cylinder barrel against the valve plate, e.g. fluid pressure) 3,0044 (Component parts, details, e.g. valves, sealings, lubrication) 3,0047 (Particularities in the contacting area between cylinder barrel and valve plate) 3,005 (Bearing arrangements) 3,005 (Cylinder barrel) 3,0055 (Valve means, e.g. valve plate) 3,0055 (Valve means, e.g. valve plate) 3,0064 (Conical valve means) 3,0064 (Conical valve means) 3,0065 (Sylinderical valve means) 3,0066 (Conical valve means) 3,007 (Swash plate) 3,007 (Swash plate) 3,007 (Swash plate barrel bearing means or driving or driven axis bearing means) 3,007 (Swash plate barring means) 3,007 (Conication between cylinder barrel and inclined swash plate) 3,008 (Details) 3,008 (Pistons) 3,008 (Pistons) 3,008 (Pistons) 3,009 (Zasings, housings) 3,009 (Zasings, housings) 3,009 (Zasings, housings) 3,009 (Easings, housings) 3,009 (Easings, housings) 3,009 (Easings, housings) 3,009 (Easings, housings) 3,009 (Eyshafts, i.e. driven or driving shafts in Z-form) 4,004 (by two or more curved surfaces on a duutomatic reversal 3,005 (by two or more curved surfaces, e.g. for two or more pistons in one cylinder) 3,006 (by two or more curved surfaces, e.g. for two or more pistons in one cylinder) 4,007 (cylinder barrel barring means) 3,008 (by two or more curved surfaces, e.g., for two or more pistons in one cylinder) 3,004 (by two or more curved surfaces, e.g., for two or more pistons in one cylinder) 4,005 (by two or more curved surfaces, e.g., for two or more pistons in one cylinder) 4,006			5/006	
3/0041 . {Arrangements for pressing the cylinder barrel against the valve plate, e.g. fluid pressure}				actuating element being at the inner ends of the
against the valve plate, e.g. fluid pressure) 3/0044 . (Component parts, details, e.g. valves, sealings, lubrication) 3/0047 {Particularities in the contacting area between cylinder barrel and valve plate} 7/02 3/005 {Bearing arrangements} 7/04 3/0052 {Cylinder barrel and valve plate} 7/06 3/0055 {Valve means, e.g. valve plate} 7/06 3/0055 {Valve means, e.g. valve plate} 7/06 3/0058 {Cylindrical valve means} 7/08 3/0064 {Conical valve means} 7/10 3/0067 {cylinder barrel bearing means} 7/10 3/0070 {Swash plate} 7/10 3/0071 {swash plate bearing means or driving or driven means} 7/10 3/0072 . {Connection between cylinder barrel and inclined swash plate} 7/10 3/0073 {swash plate bearing means or driving or driven means} 7/10 3/0074 . {Connection between cylinder barrel and inclined swash plate} 7/10 3/0075 . {Pistons shoe retaining means} 7/10 3/0076 . {Consection between cylinder barrel and inclined swash plate} 7/10 3/0079 . {Include barrel bearing means or driving or driven means} 7/10 3/0085 . {Pistons shoe retaining means} 7/10 3/0085 . {Pistons shoe retaining means} 7/10 3/0085 . {Piston shoe retaining means} 7/10 3/0086 . {Piston shoe retaining means} 7/10 3/0087 . {Z-shafts, i.e. driven or driving shafts in Z-form} 9/02 3/0087 . {Z-shafts, i.e. driven or driving shafts in Z-form} 9/02 3/0087 . {Driving or driven means} 7/08 3/0088 . {Piston motion being transmitted by curved surfaces e.g. for two or more pistons in one cylinder or within essentially coaxial cylinders (in opposite arrangement relative to main shaft folds 1/08 3/0076 . {Valve means, e.g. valve plate} 7/08 3/0077 . * {Valve means, e.g. valve plate} 7/10 3/0078 . * {Valve means, e.g. valve plate} 7/14 3/0079 . * {Swash plate plate means or driving or driving means} 7/16 3/0089 . * {Pistons plate bearing means or driving or driven means} 7/16 3/0089 . * {Piston shoe retaining means} 7/10 3/0089 . * {Piston shoe retaining means} 7/10 3/0089 . * {Piston shoe retaining means} 7/10 3/0089 . * {Piston				
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driven axis bearing means} 3/0076 . {Connection between cylinder barrel and inclined swash plate} 3/0079 . {having pistons with rotary and reciprocating motion, i.e. spinning pistons} 3/0082 . {Details} 3/0085 . {Pistons} 3/0086 {Pistons} 3/0091 . {Casings, housings} 3/0094 . {Driving or driven means} 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z-form} 3/02 . with wobble-plate 3/04 . the piston motion being transmitted by curved surfaces 3/045 . {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/08	3/007	• • {Swash plate}	7/14	 acting on different main shafts
3/0076 {Connection between cylinder barrel and inclined swash plate} 3/0079 . {having pistons with rotary and reciprocating motion, i.e. spinning pistons} 3/0082 . {Details} 3/0085 . {Pistons} 3/0088 {Piston shoe retaining means} 3/0091 . {Casings, housings} 3/0094 . {Driving or driven means} 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z-form} 3/02 . with wobble-plate 3/04 . the piston motion being transmitted by curved surfaces 3/045 . {by two or more curved surfaces, e.g. for two or more pistons in one cylinder?} 3/08 . the balliese being arranged on the pistons 3/08 . the balliese being arranged on the pistons 3/08 . the balliese being arranged on the pistons 3/09 . the balliese being arranged on the pistons 3/08 . the piston motion being transmitted by curved 3/08 . the balliese being arranged on the pistons 3/09 . the balliese being arranged on the pistons 3/09 . the balliese being arranged on the pistons 3/09 . the balliese being arranged on the pistons 3/09 . the	3/0073	• • • • {swash plate bearing means or driving or	7/16	 with pistons synchronously moving in tandem
swash plate} 3/0079 . {having pistons with rotary and reciprocating motion, i.e. spinning pistons} 3/0082 . {Details} 3/0085 . {Pistons} 3/0086 {Pistons} 3/0091 . {Casings, housings} 3/0094 . {Driving or driven means} 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z-form} 3/02 . with wobble-plate 3/04 . the piston motion being transmitted by curved surfaces 3/045 {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/08 the helices being arranged on the pistons 3/08 the piston motion being transmitted by curved		driven axis bearing means}		arrangement
3/0079 . {having pistons with rotary and reciprocating motion, i.e. spinning pistons} 3/0082 . {Details} 3/0085 . {Pistons} 3/0088 {Piston shoe retaining means} 3/0091 . {Casings, housings} 3/0094 . {Driving or driven means} 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z-form} 3/02 . with wobble-plate 3/04 . the piston motion being transmitted by curved surfaces 3/045 {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/08 by multi-turn helical surfaces and automatic reversal 3/08 the holicae heirs erranged on the pistons 3/08 the holicae heirs erranged on the pistons 3/08 the holicae heirs erranged on the pistons 3/08 the piston motion being transmitted by curved 3/08 the piston motion being transmitted by curved 3/08 the holicae heirs erranged on the pistons 3/08 the piston motion being transmitted by curved 3/08 the piston motion being transmitted by curved 3/08 the piston motion being transmitted by curved 3/08 the positions with rotary and reciprocating ene within another, e.g. one piston forming cylinder of the other 8/00	3/0076	{Connection between cylinder barrel and inclined	7/18	• with differential piston (F01B 7/20 takes
motion, i.e. spinning pistons} 3/0082		swash plate}		precedence)
motion, i.e. spinning pistons} 3/0082	3/0079	• {having pistons with rotary and reciprocating	7/20	 with two or more pistons reciprocating one within
3/0082 . {Details} 3/0085 . {Pistons} 3/0086 {Pistons} 3/0088 {Piston shoe retaining means} 3/0091 . {Casings, housings} 3/0094 . {Driving or driven means} 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z-form} 3/02 . with wobble-plate 3/04 . the piston motion being transmitted by curved surfaces 3/045 . {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/08 . the palicaes being arranged on the pistons 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved		motion, i.e. spinning pistons}		another, e.g. one piston forming cylinder of the
3/0085 . {Pistons} 3/0088 {Piston shoe retaining means} 3/0091 . {Casings, housings} 3/0094 . {Driving or driven means} 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z-form} 3/02 . with wobble-plate 3/04 . the piston motion being transmitted by curved surfaces 3/04 . {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/06 . by multi-turn helical surfaces and automatic reversal 3/08 . the plates being arranged on the pistons 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved 3/08 . the piston motion being transmitted by curved	3/0082			other
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3/094 . {Driving or driven means} (connections disengageable during idling F01B 31/24) 2003/0097 {Z-shafts, i.e. driven or driving shafts in Z- form} 9/02 . with crankshaft 9/02 . with crankshaft 9/02 . {Go Bourke-type or Scotch yoke} 3/04 . the piston motion being transmitted by curved surfaces 9/026 . {Rigid connections between piston and rod; Oscillating pistons} 9/04 . with rotary main shaft other than crankshaft 3/045 . {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/06 . by multi-turn helical surfaces and automatic reversal 9/047 . {the connections comprising gear transmissions} 9/047 . {with rack and pinion} 2/08 . the helices being arranged on the pistons 1/08 . the piston motion being transmitted by curved				
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form} 3/02 with wobble-plate 3/04 the piston motion being transmitted by curved surfaces 3/04 • by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/06 • by multi-turn helical surfaces and automatic reversal 3/08 4 with wobble-plate 9/023 • {Rigid connections between piston and rod; Oscillating pistons} • with rotary main shaft other than crankshaft • {the connections comprising gear transmissions} 2/09/045 • {Planetary gearings} • {with rack and pinion} - {with rack and p			0./02	
3/02 with wobble-plate 3/04 with wobble-plate 3/04 the piston motion being transmitted by curved surfaces 3/04 surfaces 3/04 the piston motion being transmitted by curved surfaces, e.g. for two or more pistons in one cylinder} 3/05 by multi-turn helical surfaces and automatic reversal 3/08 the helicas being arranged on the pistons	2003/0077			
3/04 • the piston motion being transmitted by curved surfaces 3/045 • {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/06 • by multi-turn helical surfaces and automatic reversal 3/08 • the piston motion being transmitted by curved Oscillating pistons } 9/04 • with rotary main shaft other than crankshaft 2009/045 • {the connections comprising gear transmissions} 2009/045 • {Planetary gearings} 9/047 • {with rack and pinion} 9/047 • the piston motion being transmitted by curved	3/02	,		
surfaces 3/045 • {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/06 • by multi-turn helical surfaces and automatic reversal 3/08 • the helices being arranged on the pistons 9/04 • with rotary main shaft other than crankshaft 9/042 • {the connections comprising gear transmissions} 2009/045 • {Planetary gearings} 9/047 • with rack and pinion} 9/04 • the piston motion being transmitted by curved			9/026	
3/045 • {by two or more curved surfaces, e.g. for two or more pistons in one cylinder} 3/06 • by multi-turn helical surfaces and automatic reversal 3/08 • the helices being arranged on the pistons 3/08 • the helices being arranged on the pistons	3/04			
more pistons in one cylinder} 3/06 • by multi-turn helical surfaces and automatic reversal 2009/045 • {Planetary gearings} • {with rack and pinion} 9/06 • the helicas being arranged on the pistons	2/045			
3/06 • by multi-turn helical surfaces and automatic reversal 3/08 • the helicas being arranged on the pistons 2/08 • the helicas being arranged on the pistons	3/045			
reversal 9/06 the piston motion being transmitted by curved	2/07			
3/08 the helices being erronged on the pictors.	3/06	•	9/047	
5/06 the hences being arranged on the pistons surfaces	2/00		9/06	the piston motion being transmitted by curved
	3/08	the hences being arranged on the pistons		surfaces

2009/061	{by cams}	13/067	• • • {with pistons and cylinders having two
2009/063	{Mono-lobe cams}	13/068	different parallel axis of rotation }
2009/065	{Bi-lobe cams}	13/008	• • { the connection of the pistons with an actuated or actuating element being at the inner ends of
2009/066 2009/068	{Tri-lobe cams} {Quadri-lobe cams}		the cylinders}
9/08	with ratchet and pawl	4.5.000	•
9/08	• • with ratchet and pawr	15/00	Reciprocating-piston machines or engines with
11/00	Reciprocating-piston machines or engines without		movable cylinders other than provided for in group F01B 13/00 (with movable cylinder sleeves for
	rotary main shaft, e.g. of free-piston type		working fluid control <u>F01L</u>)
11/001	• {in which the movement in the two directions is	15/002	• {having cylinders in star or fan arrangement, the
11/002	obtained by one double acting piston motor}		connection of the pistons with the actuated or
11/002	(one side of the double acting piston motor being always under the influence of the fluid under		actuating element being at the outer ends of the
	pressure}		cylinders}
11/003	• • • {the fluid under pressure being continuously	15/005	• {having cylinders in star or fan arrangement, the
	delivered to one motor chamber and reacting		connection of the pistons with the actuated or
	the other chamber through a valve located in		actuating element being at the inner ends of the
	the piston, to bring the piston back in its start-	15/007	cylinders}
	position}	15/007	 {having spinning cylinders, i.e. the cylinders rotating about their longitudinal axis}
11/004	• {in which the movement in the two directions is	15/02	with reciprocating cylinders (with one piston within
	obtained by two single acting piston motors, each	13/02	another F01B 7/20)
2011/005	acting in one direction}	15/04	• with oscillating cylinder
2011/005	• • {with oscillating pistons, i.e. the pistons are	15/06	Control of working-fluid admission or discharge
	arranged in ring like cylinder sections and oscillate with respect to the center of the ring}	10,00	peculiar thereto
11/006	• • {one single acting piston motor being always	15/065	• • {by cam-actuated distribution members}
11/000	under the influence of the fluid under pressure}	4=100	
11/007	• {in which the movement in only one direction is	17/00	Reciprocating-piston machines or engines characterised by use of uniflow principle
	obtained by a single acting piston motor, e.g. with	17/02	Engines
	actuation in the other direction by spring means}	17/02	• • {with fluid heating}
11/008	• • {with actuation in the other direction by gravity}	17/022	• • {with fluid heating} • • {using liquid air}
11/009	• {in which the movement in two directions is	17/023	 (using separators)
	obtained by two or more double acting piston	17/04	Steam engines
	motors}	17701	_
11/02	• Equalising or cushioning devices		NOTE
11/04	• Engines combined with reciprocatory driven		in this group the following indexing codes are
11/06	devices, e.g. hammers (with pumps F01B 23/08)		used:
11/08	 for generating vibration only with direct fluid transmission link (F01B 11/02 		<u>F01B 2170/0411</u> - <u>F01B 2170/0494</u>
11/08	takes precedence)	19/00	Positive-displacement machines or engines of
			flexible-wall type
13/00	Reciprocating-piston machines or engines	19/02	 with plate-like flexible members
	with rotating cylinders in order to obtain the	19/04	• with tubular flexible members
	reciprocating-piston motion (machines or engines of	21/00	
13/02	flexible-wall type <u>F01B 19/00</u>) with one cylinder only	21/00	Combinations of two or more machines or engines (F01B 23/00) takes precedence; combinations of two
13/02	with more than one cylinder {(F01B 3/0032 takes		or more pumps $\underline{F04}$; fluid gearing $\underline{F16H}$)
13/04	precedence)}	21/02	• the machines or engines being all of reciprocating-
13/045	• • {with cylinder axes arranged substantially	21, 02	piston type
15/015	tangentially to a circle centred on main shaft axis}	21/04	• the machines or engines being not all of
13/06	• in star arrangement		reciprocating-piston type, e.g. of reciprocating
13/061	• • • {the connection of the pistons with the actuated		steam engine with steam turbine
	or actuating element being at the outer ends of	23/00	Adaptations of machines or engines for special
	the cylinders}	25/00	use; Combinations of engines with devices driven
13/062	(cylinder block and actuating or actuated		thereby (F01B 11/00 takes precedence; fluid gearing
	cam both rotating ($\underline{F01B \ 13/064}$ and		<u>F16H</u>)
12/062	F01B 13/066 take precedence)	23/02	 Adaptations for driving vehicles, e.g. locomotives
13/063	• • • { with two or more series radial piston- cylinder units }	23/04	the vehicles being waterborne vessels
13/064	{cylinder block and actuating or actuated	23/06	 Adaptations for driving, or combinations with,
15/007	cam both rotating (F01B 13/066 takes		hand-held tools or the like
	precedence)}	23/08	. Adaptations for driving, or combinations with,
13/065	{directly located side by side}	00/10	pumps
13/066	{cylinder block and actuating or	23/10	 Adaptations for driving, or combinations with, electric generators
	actuated cam both rotating}		electric generators

23/12	 Adaptations for driving rolling mills or other heavy reversing machinery 	31/04	Means for equalising torque in reciprocating-piston machines or engines (compensation of inertial
25/00	Regulating, controlling, or safety means (regulating or controlling in general <u>G05</u>)	31/06	forces, suppression of vibration in systems <u>F16F</u>) Means for compensating relative expansion of component parts
	NOTE	31/08	 Cooling of steam engines (cooling of fluid machines
	in this group the following indexing codes are	31/00	or engines in general <u>F01P</u>); Heating; Heat insulation (heat insulation in general <u>F16L 59/00</u>)
	used: <u>F01B 2250/001</u> - <u>F01B 2250/009</u>	31/10	. Lubricating arrangements of steam engines (of fluid
25/02	 Regulating or controlling by varying working-fluid admission or exhaust, e.g. by varying pressure or quantity (distributing or expansion valve gear <u>F01L</u>) 	31/12	machines or engines in general <u>F01M</u>) Arrangements of measuring or indicating devices (warning apparatus <u>F01B 25/26</u> ; measuring instruments or the lile person <u>F01D</u>
25/04	Sensing elements	31/14	instruments or the like <u>per se G01</u>) Changing of compression ratio
25/06	responsive to speed	31/14	Silencers specially adapted for steam engines
25/08	Final actuators	31/10	(arrangements of exhaust pipes or tubes on steam
25/10	Arrangements or adaptations of working- fluid admission or discharge valves (valves in		engines <u>F01B 31/30</u> ; gas-flow silencers or exhaust silencers for machines or engines in general <u>F01N</u>)
	general <u>F16K</u>)	31/18	• Draining
25/12	Devices dealing with sensing elements or final	31/20	of cylinders
	actuators or transmitting means between them,	31/22	• Idling devices, e.g. having by-passing valves
	e.g. power-assisted (sensing elements alone F01B 25/04; final actuators alone F01B 25/08)	31/24	Disengagement of connections between pistons and main shafts
25/14	peculiar to particular kinds of machines or engines	31/26	 Other component parts, details, or accessories, peculiar to steam engines
25/16	 Safety means responsive to specific conditions 	31/28	. Cylinders or cylinder covers
	(against water hammer or the like in steam engines	31/30	Arrangements of steam conduits
	<u>F01B 31/34</u>)	31/32	Arrangements or adaptations of vacuum breakers
25/18	 preventing rotation in wrong direction 	31/34	Safety means against water hammers or against
25/20	 Checking operation on safety devices 		the penetration of water (steam traps <u>F16T</u>)
25/22	 Braking by redirecting working-fluid 	31/36	automatically cutting-off steam supply
25/24	 thereby regenerating energy 		, , , , , , , , , , , , , , , , , , , ,
25/26	Warning devices	2170/00	Steam engines, e.g. for locomotives or ships
27/00	Chart's a few all and a second of the	2170/04	To-be-deleted with administrative transfer to parent
27/00	Starting of machines or engines (starting combustion engines <u>F02N</u>)	2170/0405	group • To-be-deleted with administrative transfer to
27/02	 of reciprocating-piston engines 	217070100	parent group
27/04	• • by directing working-fluid supply, e.g. by aid of	2170/0411	for locomotives
	by-pass steam conduits		for locomobiles driven by small motors
27/06	• • • specially for compound engines		Single acting steam engines with 1, 2 or 3
27/08	 Means for moving crank off dead-centre (turning- gear in general F16H) 		cylinders
			Double acting high pressure machines
29/00	Machines or engines with pertinent characteristics other than those provided for in preceding main		• • Compound machines with double or plural expansion; Auxiliaries driven by main engine
	groups	2170/0441	Compound engines with monolytic pistons in
29/02	 Atmospheric engines, i.e. atmosphere acting against 		1. 1
	vacuum	2170/0447	same cylinder Machines with more than one piston in a
29/04	vacuum	2170/0447	Machines with more than one piston in a
29/04	vacuum characterised by means for converting from one		Machines with more than one piston in a cylinder and with counter moving pistons
	vacuum characterised by means for converting from one type to a different one	2170/0452	Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods
29/06	vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine	2170/0452	Machines with more than one piston in a cylinder and with counter moving pistons
	vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not	2170/0452 2170/0458	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements
29/06	vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine	2170/0452 2170/0458	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with
29/06 29/08	vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for	2170/0452 2170/0458 2170/0464	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines
29/06 29/08 29/10 29/12	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) 	2170/0452 2170/0458 2170/0464 2170/047	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines
29/06 29/08 29/10	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not	2170/0452 2170/0458 2170/0464 2170/047 2170/0476	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space
29/06 29/08 29/10 29/12	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to
29/06 29/08 29/10 29/12	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482 2170/0488	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to parent group
29/06 29/08 29/10 29/12 31/00	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those peculiar to steam engines, F16M)	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482 2170/0488 2170/0494	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to parent group with fixed cylinder space
29/06 29/08 29/10 29/12	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482 2170/0488	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to parent group with fixed cylinder space Accessories of steam engines; Arrangements or
29/06 29/08 29/10 29/12 31/00	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those peculiar to steam engines, F16M) {Silencing equipment (silencing for steam engines	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482 2170/0488 2170/0494	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to parent group with fixed cylinder space
29/06 29/08 29/10 29/12 31/00	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those peculiar to steam engines, F16M) {Silencing equipment (silencing for steam engines F01B 31/16)} 	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482 2170/0488 2170/0494	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to parent group with fixed cylinder space Accessories of steam engines; Arrangements or control devices of piston pumps, compressors
29/06 29/08 29/10 29/12 31/00	 vacuum characterised by means for converting from one type to a different one from steam engine into combustion engine Reciprocating-piston machines or engines not otherwise provided for Engines (refrigeration machines F25B) Steam engines (toy steam engines A63H 29/16) Component parts, details, or accessories not provided for in, or of interest apart from, other groups (machine or engine casings, other than those peculiar to steam engines, F16M) {Silencing equipment (silencing for steam engines F01B 31/16)} De-icing means for engines having icing 	2170/0452 2170/0458 2170/0464 2170/047 2170/0476 2170/0482 2170/0488 2170/0494	 Machines with more than one piston in a cylinder and with counter moving pistons Engines without connecting rods Moving cylinders for steam engines, e.g. with telescopic cylinder arrangements Oscillating cylinders for steam engines General arrangements for steam engines Components or parts for steam engines with toroidal cylinder space To-be-deleted with administrative transfer to parent group with fixed cylinder space Accessories of steam engines; Arrangements or control devices of piston pumps, compressors without crank shafts or condensors for so far as

F01B

2250/002	• Valves, brakes, control or safety devices for steam
	engines
2250/003	 Apparatus for control or receiver or condensor
	pressure
2250/004	. Devices for draining or idling of steam cylinders or
	for uncoupling piston and connecting rod
2250/005	 Oil separators for steam engines
2250/006	. Arrangement of or controlling of piston pumps or
	compressors without crank shaft
2250/007	 Condensing devices for steam engines
2250/008	. Surface condensors for so far as they influence the
	functioning of the engine
2250/009	 Condenser pumps for steam engines