

# CPC COOPERATIVE PATENT CLASSIFICATION

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

### ENGINEERING IN GENERAL

## F15 FLUID-PRESSURE ACTUATORS; HYDRAULICS OR PNEUMATICS IN GENERAL

## F15C FLUID-CIRCUIT ELEMENTS PREDOMINANTLY USED FOR COMPUTING OR CONTROL PURPOSES (transducers [F15B 5/00](#), {[F15B 21/00](#)}; fluid dynamics in general [F15D](#); computer comprising fluid elements [G06D](#), [G06G](#); {electric control by means of electro-hydraulic or electro-pneumatic amplifiers [G05B 7/02](#)})

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| <p><b>1/00</b>     <b>Circuit elements having no moving parts</b></p> <p>1/001     • {for punched-card machines (punched-card machines <a href="#">G06K</a>); for typewriters (typewriters <a href="#">B41J</a>); for keyboards; for conveying cards or tape; for conveying through tubes (transport through tubes <a href="#">B65G 51/00</a>, <a href="#">B65G 53/00</a>); for computers (non-electric computers <a href="#">G06C</a>, <a href="#">G06D</a>, <a href="#">G06G</a>); for dc-ac transducers for information processing (dc-ac converters <a href="#">H02M</a>); for signal transmission (telegraphic apparatus <a href="#">H04L</a>)}</p> <p>1/002     • {for controlling engines, turbines, compressors (starting, speed regulation, temperature control or the like) (control of internal-combustion piston engines <a href="#">F02D</a>; of turbines <a href="#">F01D</a>, <a href="#">F02C</a>; of fans <a href="#">F04D 27/00</a>; speedometers <a href="#">G01P</a>)}</p> <p>1/003     • {for process regulation, (e.g. chemical processes, in boilers or the like); for machine tool control (e.g. sewing machines, automatic washing machines); for liquid level control; for controlling various mechanisms; for alarm circuits; for ac-dc transducers for control purposes (automatic washing machines <a href="#">D06F 33/00</a>; electric regulation of mechanical working machines <a href="#">B23Q 35/00</a>, <a href="#">G05B 19/00</a>; valve-controlled servomotors <a href="#">F15B 9/08</a>; thread feeding devices for sewing machines <a href="#">D05B 51/00</a>; special provisions on lathes <a href="#">B23B 25/00</a>, <a href="#">B23Q</a>; non-electric signal transmission <a href="#">G08C 23/00</a>)}</p> <p>1/005     • {for measurement techniques, e.g. measuring from a distance; for detection devices, e.g. for presence detection; for sorting measured properties (testing); for gyrometers; for analysis; for chromatography (fluid information or impulse transducers <a href="#">F15B 5/00</a>; postal sorting according to size <a href="#">B07C 1/10</a>; dial gauges, spherometers <a href="#">G01B 3/22</a>, <a href="#">G01B 5/22</a>; gyroscopic apparatus <a href="#">G01C 19/00</a>; viscosimeters <a href="#">G01N 11/00</a>; speed measurement, flowmeters <a href="#">G01P</a>)}</p> <p>1/006     • {for aeronautics; for rockets (drives, controls); for satellites; for air cushion vehicles; for controlling vessels or torpedoes (injectors <a href="#">F04F 5/00</a>; aircraft control by jet reaction <a href="#">B64C 15/00</a>; air pressure regulation in aircraft <a href="#">B64D 13/04</a>; instruments adapted to be mounted in aircraft <a href="#">B64D 43/00</a>)}</p> | <p>1/007     • {for indicating devices for fluid signals (output arrangements in electronic computers <a href="#">G06F 3/14</a>; luminous advertising <a href="#">G09F 13/00</a>; name or number plates with interchangeable characters <a href="#">G09F 7/00</a>; fluid operating means for indicating or recording members in measuring instruments <a href="#">G01D 5/42</a>; fluid information or pulse transducers for converting variations of fluid pressure into other physical quantities <a href="#">F15B 5/003</a>)}</p> <p>1/008     • {Other applications, e.g. for air conditioning, medical applications, other than in respirators, derricks for underwater separation of materials by coanda effect, weapons}</p> <p>1/02     • Details {, e.g. special constructional devices for circuits with fluid elements, such as resistances, capacitive circuit elements; devices preventing reaction coupling in composite elements (servomotor systems adapted for maintaining constant speed <a href="#">F15B 11/05</a>); Switch boards; Programme devices (hydraulic programme control <a href="#">F15B 21/02</a>)}</p> <p>1/04     • . Means for controlling fluid streams to fluid devices, e.g. by electric signals {or other signals, no mixing taking place between the signal and the flow to be controlled (fluid information or pulse transducers <a href="#">F15B 5/00</a>; electric regulation with electro-fluid amplifiers <a href="#">G05B 7/02</a>; fluid operating means for indicating or recording members in measuring instruments <a href="#">G01D 5/42</a>; distribution or supply devices for servomotors with electrically-controlled pilot valves <a href="#">F15B 13/043</a>)}</p> <p>1/06     • . Constructional details; Selection of specified materials {Constructional realisation of one single element; Canal shapes; Jet nozzles; Assembling an element with other devices, only if the element forms the main part (<a href="#">F15C 5/00</a> takes precedence)}</p> <p style="text-align: center;"><b>NOTE</b></p> <p style="text-align: center;">Group <a href="#">F15C 1/22</a> takes precedence over groups <a href="#">F15C 1/08</a> - <a href="#">F15C 1/20</a>.</p> <p>1/08     • Boundary-layer devices, e.g. wall-attachment amplifiers {coanda effect (fluid oscillators of pulse generators <a href="#">F15B 21/12</a>)}</p> |
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- 1/10 . . for digital operation, e.g. to form a logical flip-flop, OR-gate, NOR-gate { , AND-gate; Comparators; Pulse generators }
- 1/12 . . . Multiple arrangements thereof for performing operations of the same kind, e.g. majority gates, identity gates { (static stores [G11C 25/00](#)); Counting circuits; Sliding registers }
- 1/14 . Stream-interaction devices; Momentum-exchange devices, e.g. operating by exchange between two orthogonal fluid jets { ; Proportional amplifiers }
- 1/143 . . {for digital operation, e.g. to form a logical flip-flop, OR-gate, NOR-gate, AND-gate ([F15C 1/10](#) takes precedence)}
- 1/146 . . {multiple arrangements thereof, forming counting circuits, sliding registers, integration circuits or the like ([F15C 1/12](#) take precedence)}
- 1/16 . Vortex devices, i.e. devices in which use is made of the pressure drop associated with vortex motion in a fluid { (vortex chambers [F15D 1/0015](#); vortex chambers as resistances [F15C 1/02](#); vortex chambers associated with amplifiers for improving the switching time by interaction [F15C 1/14](#)) }
- 1/18 . Turbulence devices, i.e. devices in which a controlling stream will cause a laminar flow to become turbulent { ; Diffusion amplifiers }
- 1/20 . Direct-impact devices i.e., devices in which two collinear opposing power streams are impacted
- 1/22 . Oscillators

**3/00** **Circuit elements having moving parts (valves, construction of valves [F16K](#))**

**NOTE**

Group [F15C 3/16](#) takes precedence over groups [F15C 3/02](#) - [F15C 3/14](#).

- 3/002 . {using fluid droplets or similar deformable bodies (using solid balls [F15C 3/06](#)) }
- 3/005 . {using loose plates or foils (using diaphragms [F15C 3/04](#)) }
- 3/007 . {using a spiral spring which allows fluid bass upon deformation (using reeds [F15C 3/08](#)) }
- 3/02 . using spool valves
- 3/04 . using diaphragms ({using loose plates or foils [F15C 3/005](#)}; connection of valves to inflatable elastic bodies [B60C 29/00](#)) }
- 3/06 . using balls {or pill-shaped disks (using fluid drops or similar deformable bodies [F15C 3/002](#)) }
- 3/08 . using reeds { (using spiral springs [F15C 3/007](#)) }
- 3/10 . using nozzles or jet pipes {(fluid information or pulse transducers [F15B 5/00](#)) }
- 3/12 . . the nozzle or jet pipe being movable
- 3/14 . . the jet the nozzle being intercepted by a flap
- 3/16 . Oscillators

**4/00** **Circuit elements characterised by their special functions**

**5/00** **Manufacture of fluid circuit elements; Manufacture of assemblages of such elements {integrated circuits}**

**7/00** **Hybrid elements, i.e. circuit elements having features according to groups [F15C 1/00](#) and [F15C 3/00](#)**