

CPC**COOPERATIVE PATENT CLASSIFICATION****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](#)})

F15C 1/00**Circuit elements having no moving parts****F15C 1/001**

- {for punched-card machines (punched-card machines [G06K](#)); for typewriters (typewriters [B41J](#)); for keyboards; for conveying cards or tape; for conveying through tubes (transport through tubes [B65G 51/00](#), [B65G 53/00](#)); for computers (non-electric computers [G06C](#), [G06D](#), [G06G](#)); for dc-ac transducers for information processing (dc-ac converters [H02M](#)); for signal transmission (telegraphic apparatus [H04L](#))}

F15C 1/002

- {for controlling engines, turbines, compressors (starting, speed regulation, temperature control or the like) (control of internal-combustion piston engines [F02D](#); of turbines [F01D](#), [F02C](#); of fans [F04D 27/00](#); speedometers [G01P](#))}

F15C 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 [D06F 33/00](#); electric regulation of mechanical working machines [B23Q 35/00](#), [G05B 19/00](#); valve-controlled servomotors [F15B 9/08](#); thread feeding devices for sewing machines [D05B 51/00](#); special provisions on lathes [B23B 25/00](#), [B23Q](#); non-electric signal transmission [G08C 23/00](#))}

F15C 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 [F15B 5/00](#); postal sorting according to size [B07C 1/10](#); dial gauges, spherometers [G01B 3/22](#), [G01B 5/22](#); gyroscopic apparatus [G01C 19/00](#); viscosimeters [G01N 11/00](#); speed measurement, flowmeters [G01P](#))}

F15C 1/006

- {for aeronautics; for rockets (drives, controls); for satellites; for air cushion vehicles; for controlling vessels or torpedoes (injectors [F04F 5/00](#); aircraft control by jet reaction [B64C 15/00](#); air pressure regulation in aircraft [B64D 13/04](#); instruments adapted to be mounted in aircraft [B64D 43/00](#))}

F15C 1/007

- {for indicating devices for fluid signals (output arrangements in electronic computers [G06F 3/14](#); luminous advertising [G09F 13/00](#); name or number plates with interchangeable characters [G09F 7/00](#); fluid operating means for indicating or recording members in measuring instruments [G01D 5/42](#); fluid information or pulse transducers for converting variations of fluid pressure into other physical quantities [F15B 5/003](#))}

F15C 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}

F15C 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 [F15B 11/05](#)); Switch boards; Programme devices (hydraulic programme control [F15B 21/02](#))}

- F15C 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 F15B 5/00; electric regulation with electro-fluid amplifiers G05B 7/02; fluid operating means for indicating or recording members in measuring instruments G01D 5/42; distribution or supply devices for servomotors with electrically-controlled pilot valves F15B 13/043)}
- F15C 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 (F15C 5/00 takes precedence)}

NOTE

Group F15C 1/22 takes precedence over groups F15C 1/08 to F15C 1/20.

- F15C 1/08 . Boundary-layer devices, e.g. wall-attachment amplifiers {coanda effect (fluid oscillators of pulse generators F15B 21/12)}
- F15C 1/10 . . for digital operation, e.g. to form a logical flip-flop, OR-gate, NOR-gate, {AND-gate; Comparators; Pulse generators}
- F15C 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}
- F15C 1/14 . Stream-interaction devices; Momentum-exchange devices, e.g. operating by exchange between two orthogonal fluid jets; {Proportional amplifiers}
- F15C 1/143 . . {for digital operation, e.g. to form a logical flip-flop, OR-gate, NOR-gate, AND-gate (F15C 1/10 takes precedence)}
- F15C 1/146 . . {multiple arrangements thereof, forming counting circuits, sliding registers, integration circuits or the like (F15C 1/12 take precedence)}
- F15C 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)}
- F15C 1/18 . Turbulence devices, i.e. devices in which a controlling stream will cause a laminar flow to become turbulent; {Diffusion amplifiers}
- F15C 1/20 . Direct-impact devices i.e., devices in which two collinear opposing power streams are impacted
- F15C 1/22 . Oscillators

F15C 3/00 **Circuit elements having moving parts** (valves, construction of valves F16K)

NOTE

Group F15C 3/16 takes precedence over groups F15C 3/02 to F15C 3/14.

- F15C 3/002 . {using fluid droplets or similar deformable bodies (using solid balls F15C 3/06)}
- F15C 3/005 . {using loose plates or foils (using diaphragms F15C 3/04)}
- F15C 3/007 . {using a spiral spring which allows fluid bass upon deformation (using reeds F15C 3/08)}
- F15C 3/02 . using spool valves
- F15C 3/04 . using diaphragms ({using loose plates or foils F15C 3/005}; connection of valves to inflatable elastic bodies B60C 29/00)

- F15C 3/06 . using balls {or pill-shaped disks (using fluid drops or similar deformable bodies [F15C 3/002](#))}
- F15C 3/08 . using reeds {(using spiral springs [F15C 3/007](#))}
- F15C 3/10 . using nozzles or jet pipes {(fluid information or pulse transducers [F15B 5/00](#))}
- F15C 3/12 . . the nozzle or jet pipe being movable
- F15C 3/14 . . the jet the nozzle being intercepted by a flap
- F15C 3/16 . Oscillators

- F15C 4/00** **Circuit elements characterised by their special functions**

- F15C 5/00** **Manufacture of fluid circuit elements; Manufacture of assemblages of such elements {integrated circuits}**

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