

# 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

## F15D FLUID DYNAMICS, i.e. METHODS OR MEANS FOR INFLUENCING THE FLOW OF GASES OR LIQUIDS

### NOTE

This subclass covers boundary-layer control and other arrangements and methods, not provided for in other classes, for influencing the flow of fluids relative to constraining surfaces and after leaving these surfaces, e.g. producing or removing turbulence, deflecting jets, guiding flow through bends in conduits, affecting distribution of fluid in a conduit, reducing fluid friction.

<b>1/00</b>	<b>Influencing flow of fluids</b>		
1/0005	. {Baffle plates}	1/04	. . Arrangements of guide vanes in pipe elbows or duct bends; Construction of pipe conduit elements for elbows with respect to flow, e.g. for reducing losses of flow
1/001	. {Flow of fluid from conduits such as pipes, sleeves, tubes, with equal distribution of fluid flow over the evacuation surface}	1/06	. . by influencing the boundary layer
1/0015	. {Whirl chambers, e.g. vortex valves}	1/065	. . . {Whereby an element is dispersed in a pipe over the whole length or whereby several elements are regularly distributed in a pipe}
1/002	. {by influencing the boundary layer}	1/08	. of jets leaving an orifice
1/0025	. . {using passive means, i.e. without external energy supply}	1/10	. around bodies of solid material
1/003	. . . {comprising surface features, e.g. indentations or protrusions (F15D 1/0055, F15D 1/006 take precedence)}	1/12	. . by influencing the boundary layer
1/0035	. . . . {in the form of riblets}	1/14	. Diverting flow into alternative channels
1/004	. . . . . {oriented essentially parallel to the direction of flow}		
1/0045	. . . . . {oriented essentially perpendicular to the direction of flow}		
1/005	. . . . {in the form of dimples}		
1/0055	. . . {comprising apertures in the surface, through which fluid is withdrawn from or injected into the flow}		
1/006	. . . {comprising moving surfaces, wherein the surface, or at least a portion thereof is moved or deformed by the fluid flow}		
1/0065	. . {using active means, e.g. supplying external energy or injecting fluid}		
1/007	. . . {comprising surfaces being moved by external supplied energy}		
1/0075	. . . {comprising electromagnetic or electrostatic means for influencing the state of the fluid, e.g. for ionising the fluid or for generating a plasma}		
1/008	. . . {comprising fluid injection or suction means}		
1/0085	. . {Methods of making characteristic surfaces for influencing the boundary layer}		
1/009	. {by means of vortex rings}		
1/0095	. {by means of injecting jet pulses of fluid wherein the injected fluid is taken from the fluid and re-injected again, e.g. synthetic jet actuators (F15D 1/008 takes precedence)}		
1/02	. in pipes or conduits		
1/025	. . {by means of orifice or throttle elements}		