

CPC**COOPERATIVE PATENT CLASSIFICATION****F04F**

PUMPING OF FLUID BY DIRECT CONTACT OF ANOTHER FLUID OR BY USING INERTIA OF FLUID TO BE PUMPED { ([evacuating by sorption F04B](#)) }; **SIPHONS** { [Conveying materials in bulk by flows of gas, liquid of foam B65G 53/00](#) }

NOTE

Attention is drawn to the notes preceding class [F01](#) .

Combinations of pumps belonging to this subclass with other pumps are only classified in this subclass if such other pumps are fore pumps of diffusion pumps.

F04F 1/00

Pumps using positively or negatively pressurised fluid medium acting directly on the liquid to be pumped ([using only negative pressure F04F 3/00](#); jet pumps [F04F 5/00](#); siphons [F04F 10/00](#))

[F04F 1/02](#)

. using both positively and negatively pressurised fluid medium, e.g. alternating

[F04F 1/04](#)

.. generated by vaporising and condensing

[F04F 1/06](#)

. the fluid medium acting on the surface of the liquid to be pumped ([F04F 1/02](#) takes precedence)

[F04F 1/08](#)

.. specially adapted for raising liquids from great depth, e.g. in wells

[F04F 1/10](#)

.. of multiple type, e.g. with two or more units in parallel ([F04F 1/08](#) takes precedence)

[F04F 1/12](#)

... in series

[F04F 1/14](#)

.. adapted to pump specific liquids, e.g. corrosive or hot liquids

[F04F 1/16](#)

.. characterised by the fluid medium being suddenly pressurised, e.g. by explosion

[F04F 1/18](#)

. the fluid medium being mixed with, or generated from the liquid to be pumped

[F04F 1/20](#)

.. specially adapted for raising liquids from great depths, e.g. in wells

F04F 3/00

Pumps using negative pressure acting directly on the liquid to be pumped ([siphons F04F 10/00](#))

F04F 5/00

Jet pumps, i.e. devices in which flow is induced by pressure drop caused by velocity of another fluid flow ([diffusion pumps F04F 9/00](#); combination of jet pumps with pumps of other than jet type [F04B](#) ; use of jet pumps for priming or boosting non-positive-displacement pumps [F04D](#))

[F04F 5/02](#)

. the including fluid being liquid

[F04F 5/04](#)

.. displacing elastic fluids

[F04F 5/06](#)

... of rotary type

[F04F 5/08](#)

... the elastic fluid being entrained in a free falling column of liquid

[F04F 5/10](#)

.. displacing liquids, e.g. containing solids, or liquids and elastic fluids

F04F 5/12	... of multi-stage type
F04F 5/14	. the inducing fluid being elastic fluid
F04F 5/16	.. displacing elastic fluids
F04F 5/18	... for compressing
F04F 5/20	... for evacuating
F04F 5/22 of multi-stage type
F04F 5/24	.. displacing liquids, e.g. containing solids, or liquid and elastic fluids
F04F 5/26	... of multi-stage type (F04F 5/28 takes precedence)
F04F 5/28	... Restarting of inducing action
F04F 5/30 with axially-slidable combining nozzle
F04F 5/32 with hinged flap in combining nozzle
F04F 5/34	.. characterised by means for changing inducing fluid source
F04F 5/36	.. characterised by using specific inducing fluid
F04F 5/38	... the inducing fluid being mercury vapour
F04F 5/40	... the inducing fluid being oil vapour
F04F 5/42	. characterised by the input flow of inducing fluid medium being radial or tangential to output flow (cyclones B04C)
F04F 5/44	. Component parts, details, or accessories not provided for in, or of interest apart from, groups F04F 5/02 to F04F 5/42
F04F 5/46	.. Arrangements of nozzles
F04F 5/461	... { Adjustable nozzles }
F04F 5/462	... { with provisions for cooling the fluid }
F04F 5/463	... { with provisions for mixing }
F04F 5/464	... { with inversion of the direction of flow }
F04F 5/465	... { with supersonic flow (mixing of supersonic fluids B01F 5/04) }
F04F 5/466	... { with a plurality of nozzles arranged in parallel }
F04F 5/467	... { with a plurality of nozzles arranged in series }
F04F 5/468	... { with provisions for priming }
F04F 5/469	... { for steam engines }
F04F 5/48	.. Control
F04F 5/50	... of compressing pumps
F04F 5/52	... of evacuating pumps
F04F 5/54	. Installations characterised by use of jet pumps, e.g. combinations of two or more jet pumps of different type
F04F 7/00	Pumps displacing fluids by using inertia thereof, e.g. by generating vibration therein
F04F 7/02	. Hydraulic rams
F04F 9/00	Diffusion pumps

F04F 9/02 . of multi-stage type

F04F 9/04 . in combination with fore pumps, e.g. use of isolating valves

F04F 9/06 . Arrangement of vapour traps

F04F 9/08 . Control

F04F 10/00 Siphons

F04F 10/02 . Gravity-actuated siphons

F04F 13/00 Pressure exchangers

F04F 99/00 Subject matter not provided for in other groups of this subclass