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(54) **FILTRATION STATION**

(57) The present invention relates to liquid filtration station, in particular for use in a mine.

Station filter comprising at least two parallel systems for filtration is characterized in that it comprises a pump

system with solenoid valves which are disposed parallel to the filtration ended circuits connected to drains of the filtration systems into a single outlet.

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Description

[0001] The present invention relates to liquid filtration station, in particular for use in a mine.

[0002] It is known from the description of PL 62743 filtering-pump station for retardant hydraulic fluids. Filtering-pump station for retardant hydraulic fluids it is built from the modular box, inside which the lower wall the pump motor is located. The pump is connected to the supply line with the shut-off valve. In turn, the pump through a conduit connected to a filter located above it. The filter is connected to a conduit disposed above the condenser. The radiator has a built-in thermostat electrically connected with the driver and a fan. With the radiator drain pipe is led out of the shut-off valve. The filter has a built-pollution sensor. The box housing is mounted on wheels.

[0003] From the description of the patent PL 159 896 is known pressure control system and the water intake pipeline for mining pipeline network, particularly pipelines against fire in inclined workings of waste mining waters, characterized in that between, fed by gravity from a higher-level pipeline network for next operating level (I, II ...) and a pipeline network for next lower operating level (II, III ...) has at least one connection line of shut-off throttling valve and the line between the tank with pipeline network the next lower level (II, III ...) between tank and hose connections with the throttle shut-off valve has a control valve.

[0004] From patent PL 184663 is known water distribution antifire pipeline circuit disposed at deeper levels. System transmission of water is characterized in that the upper level (A) contains a large overflow tank connected on one side through the supply line and pump set side-walks water of the same level (a), on the other hand it is connected by shaft pipeline network with antifire pipeline at deeper level (B). The tank is made in the form of concrete filling on both sides almost to the ceiling with betonit ingridients. It is coated on the inside with waterproof bituminous layer.

[0005] In the case of the conditions of the mine it is necessary to provide liquid to be filtered to devices with different parameters pressure. At the same time mine conditions do not allow the use of different stations of filter depending on your needs. The solution aims to introduce one station to allow parameterization of the filtration system in order to obtain the greatest possible flow rate, and as little as a local pressure drop.

[0006] The essence of the solution is the introduction of a pump and filtration stations parallel cleaning devices that allow for any adjustment of the pressure and the amount of liquid to be filtered passing through the system.

[0007] Station filter according to the invention comprising at least two parallel systems for filtration is characterized in that it comprises a pump system with solenoid valves which are disposed parallel to the filtration ended circuits connected to drains of the filtration systems into a single outlet.

[0008] Preferably, when the steering pump and solenoid is remote.

[0009] Preferably, when the filtration system that comprises a system for monitoring parameters of the liquid.

[0010] Station filter according to the invention allows mining conditions for full controlling the amount of liquid to fed the device. Station filter of the invention has at least one pump and connected in parallel to at least two filtering systems according to the prior art, to which the input may be closed by solenoid valves. The control station filter can be manually or automatically according to pre-planned algorithm.

[0011] By adjusting the pressure at the pump and the opening or closing of filtration systems can achieve the required level of pressure filtered liquid. When increasing demand may open additional filtration systems and increase the pressure on the pump. A diminished it is possible to cut off part of the cleaning devices so as to maintain the desired pressure of the filtered liquid. Preferably, when the station is equipped with a system to monitor the quality of filtered liquid and remote control system which enables a quick response to the operating conditions of the filter station.

Claims

1. Filtration station comprising at least two parallel circuits for filtering, **characterized in that** it comprises a pump system for solenoid valves which are disposed parallel to the filtration ended circuits connected to drains of the filtration systems into a single outlet.
2. Filtration station according to claim 1., **characterized in that** the steering pump and the solenoid is remote.
3. Filtration station according to claim 1 or 2, **characterized in that** it comprises a system for monitoring parameters of the liquid.

**DECLARATION**

Application Number

which under Rule 63 of the European Patent Convention EP 15 20 3206 shall be considered, for the purposes of subsequent proceedings, as the European search report

The Search Division considers that the present application, does not comply with the provisions of the EPC to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of all claims

Reason:

1 No meaningful Search Possible
(Rule 63 EPC):

2 The present application fails
to such an extent to comply with the EPC
that it is impossible to carry out a
meaningful search regarding the state of
the art on the basis of the subject-matter
claimed, see Rule 63 EPC and Guidelines
B-VIII, 3. The reasons are outlined below.

1 Clarity and support of
independent apparatus claim 1:

1.1 The application does not meet
the requirements of Article 84 EPC,
because independent apparatus claim 1
is not clear.

1.2 The wording of the claim
specifies a filtration system comprising
two filtering circuits and a pump system
for solenoid valves. From the present
wording the it is not clear in what
relation the pump system and the two
parallel circuits for filtering are
arranged with respect to each other. Thus,
it is unclear how the technical objective
problem underlying the present invention,
namely "to obtain the greatest possible
flow rate and as little as local pressure
drop", is to be solved.

1.3 Moreover, it is unclear what is
to be understood under a pump system for
solenoid valves.

1.4 Furthermore, the claim seeks to
define its subject-matter in terms of a
reference to other entities (cf.
Guidelines F-IV, 4.14), namely filtration
ended circuits connected to drains of the
filtration systems into a single outlet.
It is utterly unclear what is to be

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**CLASSIFICATION OF THE
APPLICATION (IPC)**

INV.
F04B53/20

EPO FORM 1504 (P04F37)

Place of search

Munich

Date

8 November 2016

Examiner

Nicolai, Sébastien

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CLASSIFICATION OF THE APPLICATION (IPC)

Reason:

understood under the above specification. Neither are filtration ended circuits specified in the claim wording nor are drains of the filtration systems or a single outlet further specified. The reader is left in doubt as to the exact scope of protection of the claim.

1.5 In summary, the technical relation between claimed and unclaimed entities is unclear, in particular their functional and causal connection. Moreover, the technical characteristics of the individual entities is unclear.

Therefore, the wording of the claim is unclear to such an extent, that even with a mind willing to understand it is not possible to clearly determine, even if taking the application in its entirety into consideration, the exact subject-matter of independent apparatus claim 1 .

1.6 In view of the application in its entirety, it appears impossible to determine the exact subject-matter of independent apparatus claim 1 . The description does not comprise any drawings nor a detailed description of at least one way of carrying out the invention claimed using examples where appropriate and referring to the drawings (Rule 42(1) EPC). The description encompasses only reference to prior art and a repetition of the claims.

1.7 However, the applicant is invited to file a statement indicating the subject-matter to be searched within the time limit indicated in the present communication (Rule 63(1) EPC).

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Reason:

The applicant's attention is drawn to the fact that a search may be carried out during examination following a declaration of no search under Rule 63 EPC, should the problems which led to the declaration being issued be overcome (see EPC Guideline C-IV, 7.2).

CLASSIFICATION OF THE APPLICATION (IPC)

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Examiner

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- PL 62743 [0002]
- PL 159896 [0003]
- PL 184663 [0004]