Appeal decision

Appeal No. 2018-11401

Finland
Appellant Metso Minerals, Inc.

Patent Attorney KAWAMORITA Koki

The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2015-533654, titled "METHOD FOR CONTROLLING MINERAL MATERIAL PROCESSING PLANT AND MINERAL MATERIAL PROCESSING PLANT" [WO2014/053702, the international publication published on Apr. 10, 2014. Tokuhyo(Patent Application No.) 2015-535737, the national publication published on Dec. 17, 2015] has resulted in the following appeal decision.

Conclusion

The appeal of the case was groundless.

Reason

No. 1 History of the procedures

The application was originally filed on Oct. 2, 2013 (claim of priority under the Paris Convention was received by the foreign receiving office on Oct. 2, 2012, (FI) Finland) as an International Patent Application. A written opinion and a written amendment were submitted on Jan. 17, 2018 against a notice of reasons for refusal dated Sep. 7, 2017. However, a decision of refusal dated Apr. 16, 2018 was issued. Against this, the appeal against the examiner's decision of refusal was made on Aug. 23, 2018 along with a written amendment.

No. 2 The Invention

The inventions according to the claims of the present application are specified by the matters described in Claims 1 to 8 of the scope of claims amended by the amendment made on Aug. 23, 2018. The invention according to Claim 1 thereof (hereinafter, referred to as the "Invention") is as follows.

"[Claim 1]

A control method of a mineral material processing plant (100), the method comprising:

recognizing a need to switch off a standby mode automatically;

raising, when a need to switch off the standby mode is recognized, a running speed of a motor (104) or a plurality of motors of the mineral material processing plant (100) from a standby speed (Rsb) to a process speed (Rf); and

enabling feeding of mineral material into the processing plant (100), wherein,

in the standby mode, it is made in such a way that mineral material is not fed to the mineral material processing plant, wherein

the control method further comprises recognizing the need to switch off the standby mode by recognizing mineral material that arrives for processing, and the recognizing mineral material that arrives for processing includes at least any of

- recognizing proximity of an external machine to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant, or a part of the external machine, and

- recognizing a tag arranged in the mineral material."

No. 3 Reason for refusal stated in the examiner's decision

The reason for refusal stated in the examiner's decision is that the Invention falls under Article 29(1)(iii) of the Patent Act and Appellant should not be granted a patent for that because it is an invention disclosed in the following Cited Document 1, which was distributed or available to the public through electric communication lines in Japan or abroad before the priority claim date of the present application.

Cited Document 1. Tokukai (Japanese Patent Application Publication No.) 2000-136739

No. 4 Descriptions in Cited Document and Cited Invention

1 Descriptions of Cited Document 1

In Cited Document 1, the following are described. The underlines were added by the body.

"[0001]

[Field of The Invention] The present invention relates to an engine control device for a crushing machine to crush rocks, discarded construction materials, and the like, and, more particularly, to an engine control device for a crushing machine that can reduce energy loss, noise, and an amount of exhaust gas by reducing the rotation speed of an engine in

a standby state where operation of each piece of equipment such as a crushing device is stopped."

"[0047] ... FIG. 2 is a side view indicating the whole structure of a self-travelling crushing machine that is an application target of an engine control device according to the present embodiment, ...
[0048] In FIG. 2 to FIG. 5, a self-travelling crushing machine 1 schematically includes a hopper 3, which rocks, discarded construction materials, and the like (hereinafter, referred to as debris (not shown)), which are an object to be crushed by an operating tool such as a bucket of an oil pressure shovel, are thrown to, a jaw crusher 4, which has a side cross-section shape of an approximately v-shape and functions as a crushing device for crushing thrown debris into a predetermined size, and a crushing machine body 8 , which has a feeder 5 leading the debris charged from the hopper 3 to the jaw crusher 4 ... , and a running body 11"

"[0052] A hydraulic driving device shown in FIG. 1 is a device that is provided in the self-travelling crushing machine 1 mentioned above, and includes an engine 15 of a so-called publicly known electronic governor type, a first oil pressure pump 16, and a second oil pressure pump 18 of a variable capacity type that are driven by the engine 15, a pilot pump 19 of a fixed displacement type that is driven by the engine 15 similarly, six oil pressure motors to which pressure oil discharged from each of the first and the second oil pressure pumps 16 and 18 is supplied"

"[0053] The six oil pressure motors 19-23 include the feeder oil pressure motor 19 that generates drive power for operating a feeder 5, the crushing oil pressure motor 20 that generates drive power for driving the jaw crusher 4, the conveyor oil pressure motor 21 that generates drive power for driving the conveyor 6, the magnetic-separator oil pressure motor 22 that generates drive power for driving the magnetic separator 7, and the left and right running oil pressure motors 23L and 23R that generate drive power to the left and right crawlers 9L and 9R."

"[0071] In a hydraulic driving device as stated above, an engine control device according to the present embodiment is provided. The engine control device includes: a rotational speed setting means, such as a throttle device 101 similar to the one aforementioned in FIG. 25, for example, for manually performing setting and input of a rotational speed of the engine 15 by an operator; ... the engine control unit 45d mentioned above (refer to

FIG. 7) provided in the controller 45; and a selection switch 114 for manually selecting by an operator whether to execute the automatic idling function (a function to reduce an engine speed when all of the jaw crusher 4, the feeder 5, the conveyor 6, the magnetic separator 7, and the running body 11 assume the stop state, or when the running body 11 assumes the stop state, and, in addition, the jaw crusher 4 and the feeder 5 assume an idling state)." (0071)

"[0087] On the occasion of crushing operation, an operator sets a rotational speed of the engine 15 accordingly by operating a dial (not shown) of the throttle device 101. For example, a rotational speed is made to be relatively high in such a way that the first oil pressure pump 16 can discharge pressure oil according to the maximum load to be added to the crushing oil pressure motor 20 during the crushing operation. Then, when the automatic idling function is executed, the operator makes a position of the selection switch 114 to the ON position at which the automatic idling function is performed. ...This series of operation is not continuous usually, and, there is a case where, after a certain amount of debris is charged from the hopper 3, crushed, and taken out, operation is suspended during a period until the next debris is charged to assume a standby state. During this period, although the operation becomes an unloaded condition where there is almost no debris existing in each piece of equipment, ...each piece of equipment 4, 5, 6, and 7 stands by in an idling state while maintaining driving the same as that at the time of the crushing performed just before. Then, it is detected through pressure sensors 201, 202, and 203 that the feeder 5 and the jaw crusher 4 are in an unloaded idling state ... and, in the engine control unit 45d of the controller 45, ...a fuel injection quantity is immediately limited to a first predetermined value by the response characteristic that is of approximately rectangular wave shape, and the rotational speed of the engine 15 is limited to the automatic idling rotational speed that is of a low-speed. A time chart of a fuel injection quantity at that time is shown in FIG. 9.

After that, when operation is resumed and debris is charged again into the hopper 3, the feeder 5 and the jaw crusher 4 return to an actual operation state, and, therefore, the judgement of the engine control unit 145d in step 122 is satisfied, and a fuel injection quantity returns immediately by the approximately rectangular-wave-shape response characteristic at step 140 (refer to FIG. 9), and, by this, the rotational speed of the engine 15 also returns to the set rotational speed of the throttle device 101."

"[0116] (C) In the case where a position of such as a bucket and the like of an oil pressure shovel is detected, and return operation is carried out according to this.

In other words, this is a case in which, as shown in FIG. 20, an operation situation of an operating tool for charging the debris 2 to the hopper 3 (in the example of the figure, the bucket 121 and the arm 122 and the like of the oil pressure shovel) is detected using an ultrasound sensor (it may be an electromagnetic wave sensor) 115B supported by a structure similar to those of the above-mentioned (A) and (B), by detecting that the position of the operating tool comes under the sensor. In this case, although, unlike the above-mentioned (A) and (B), the ultrasound sensor 115B does not constitute the first or the second operation state detection means, it constitutes a part of the aforementioned first detection means and the second detection means. A detection signal of the ultrasound sensor 115B is inputted to the engine control unit 45d of the controller 45, and is used for judging whether to make the operation to return from the automatic idling or not. FIG. 21 shows a control flow by the engine control unit 45d at that time." (0116)

"[0119] By making it be such flow, ... when, conversely, returning to a usually state from the automatic idling, the returning will be performed if any one of the conditions of 'the feeder 5 is in an actual operation state', 'the bucket and the like is over the hopper', and 'the jaw crusher 4 is in an actual operation state' is satisfied."

2 Technical matters described in Cited Document 1

According to the above descriptions, the following technical matters are disclosed in Cited Document 1.

(1) The technology described in Cited Document 1 relates to an engine control method for a crushing machine to crush rocks, discarded construction materials, and the like. Its object is to achieve reduction of energy loss, reduction of noise, and reduction of an exhaust gas quantity by reducing an engine speed in the standby state where some devices such as a crushing device are stopped ([0001]).

(2) A self-travelling crushing machine to which the present engine control device is applied has a crushing machine body which is equipped with a hopper in which things to be crushed, that is, rocks, discarded construction materials, and the like (hereinafter, referred to as "debris") are charged by an operating tool such as a bucket of an oil pressure shovel, a jaw crusher as a crushing device to crush debris, and the feeder 5 to lead debris charged from the hopper to the jaw crusher ([0047], [0048]).

(3) An engine provided in the self-travelling crushing machine controls driving of each piece of equipment such as the hopper, the jaw crusher, and the feeder through an oil pressure pump and an oil pressure motor ([0052], [0053]).

(4) In crushing, the engine speed is set high according to the maximum load ([0087]).

(5) It includes an automatic idling function to make the engine speed lowered from the "high" state described in the above (4) when all pieces of equipment such as the hopper, the jaw crusher, and the feeder are stopped or a standby state is detected, when there are few debris in each piece of equipment, the running body is in a standstill state, and all pieces of equipment such as the jaw crusher and the feeder are in an idling state (hereinafter, this is referred to as "standby state", and is synonymous with "standby state" cited in the above a) ([0071], [0087]).

(6) In the standby state, all pieces of the equipment are stopped, or all pieces of the equipment are idling in a no-load state when there is little debris existing therein. Therefore, it is recognized that substantially in the standby state no debris is fed to the crushing machine ([0071], [0087]).

(7) When crushing operation is resumed from the standby state and debris are charged, the engine control device make the engine speed back to the high set in the above (4) ([0088]).

(8) In order to perform the control of the above (7), an ultrasound sensor is provided in the crushing machine, and, when it is detected that the position of an operating tool such as a bucket and an arm of the oil pressure shovel that charges debris into the hopper comes under the sensor, the engine control device makes the engine speed to high set in the above (4) from low ([0116], [0119]).

3 Cited Invention

Taking into consideration all those descriptions of Cited Document 1, it is recognized that Cited Document 1 discloses the following invention (hereinafter, referred to as the "Cited Invention").

"An engine control method for a self-travelling crushing machine including an engine to drive an oil pressure pump and an oil pressure motor for driving each piece of equipment

such as a hopper, a jaw crusher, and a feeder provided in a crushing machine body for crushing debris such as rocks and discarded construction materials charged into the hopper, wherein

the engine is set, on the occasion of crushing operation, in such a way that a rotational speed of the engine is made high according to a maximum load, and, when it is detected that all the equipment such as the jaw crusher and the feeder are in a stop state, or it is detected that, in a state where there is almost no debris existing in each piece of equipment, the equipment is in a standby state where debris is not substantially fed to the crushing machine, the rotational speed of the engine is controlled to a low rotational speed from the high rotational speed, wherein

an ultrasound sensor provided in the crushing machine makes the rotational speed of the engine return to the high rotational speed from the low rotational speed in order to resume crushing operation, upon detecting that, in the standby state, a position of an operating tool such as a bucket and an arm of the oil pressure shovel that charges debris into the hopper comes under the sensor."

No. 5 Comparison

1 Comparison of the Invention and the Cited Invention

The Invention and the Cited Invention are compared.

(1) "Self-travelling crushing machine", "oil pressure motor", and "operating tool such as a bucket and an arm of the oil pressure shovel that charges debris into the hopper" of Cited Invention respectively correspond to "mineral material processing plant", "motor", and "external machine to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant, or a part of the external machine" of the Invention.

(2) "Low rotational speed" and "high rotational speed" in an engine of Cited invention respectively correspond to "standby speed (Rsb)" and "process speed (Rf)" of the Invention because each oil pressure motor is driven by the relevant engine, and a rotational speed varies.

(3) "Standby state where debris is not substantially fed to the crushing machine" of Cited invention corresponds to "in the standby mode, mineral material is not fed to the mineral material processing plant" of the Invention.

(4) "Detecting that a position of an operating tool such as a bucket and an arm of the oil pressure shovel that charges debris into the hopper comes under the sensor" by an ultrasound sensor of Cited invention corresponds to "recognizing proximity of an external machine to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant, or a part of the external machine" of the Invention because "an operating tool comes under a sensor" means that the operating tool reaches a distance range capable of being detected by the sensor.

(5) Furthermore, "makes the rotational speed of the engine return to the high rotational speed from the low rotational speed in order to resume crushing operation, upon detecting that, in the standby state, a position of an operating tool such as a bucket and an arm of the oil pressure shovel that charges debris into the hopper comes under the sensor" of Cited invention corresponds to "recognizing a need to switch off a standby mode automatically; raising, when the need to switch off the standby mode is recognized, a running speed of a motor or a plurality of motors of the mineral material processing plant from a standby speed (Rsb) to a process speed (Rf); and enabling feeding of mineral material into the processing plant" of the Invention.

2 Regarding corresponding features and different features

From the above, the Invention and Cited Invention are identical in that they are "A control method of a mineral material processing plant, the method comprising:

recognizing a need to switch off a standby mode automatically;

raising, when the need to switch off the standby mode is recognized, a running speed of a motor or a plurality of motors of the mineral material processing plant from a standby speed (Rsb) to a process speed (Rf); and

enabling feeding of mineral material into the processing plant, wherein,

in the standby mode, it is made in such a way that mineral material is not fed to the mineral material processing plant, wherein

the control method further comprises recognizing the need to switch off the standby mode by recognizing mineral material that arrives for processing, and the recognizing mineral material that arrives for processing includes

- recognizing proximity of an external machine to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant, or a part of the external machine", and there is no different feature between these.

3 Appellant's allegation

Appellant alleges in the written appeal that Cited Document 1 does not disclose the "recognizing proximity of an external machine or a part thereof used for transportation of the mineral material to a feeder apparatus in the mineral material processing plant" or "recognizing a tag arranged in the mineral material", which the Invention includes. The allegation is examined hereinafter.

First, regarding the allegation that there is no description in Cited Document 1 about the matter of the "recognizing proximity of an external machine or a part thereof to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant", it can be said that the matter is substantially described in Cited Document 1 as examined in the above 1(4) in No. 5.

Next, regarding the allegation that there is no description in Cited Document 1 about the matter of "recognizing a tag arranged in the mineral material," there is no description about such matter in Cited Document 1 as alleged by Appellant. However, the Invention is as follows.

"A method, wherein the control method further comprises recognizing the need to switch off the standby mode by recognizing mineral material that arrives for processing, and the recognizing mineral material that arrives for processing includes at least any of

- recognizing proximity of an external machine to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant, or a part of the external machine, and
- recognizing a tag arranged in the mineral material."

Thus, "recognizing a tag arranged in the mineral material" is one of the options that realize "recognizing mineral material that arrives for processing," which is a matter specified in the Invention. Therefore, it cannot be said that the Invention and Cited Invention are different only because there is no description about such matters in Cited Document 1.

As described above, "recognizing proximity of an external machine or a part thereof to be used for transportation of the mineral material to a feeder apparatus of the mineral material processing plant," which is another one of the options is described in Cited Document 1.

Therefore, even if the Appellant's allegation is taken into consideration, the above finding of the corresponding feature and the different feature is not overturned.

No. 6 Judgment

Accordingly, the Invention is described in Cited Document 1, and it falls under Article 29(1)(iii) of the Patent Act. Therefore, Appellant should not be granted a patent for that.

No. 7 Closing

The Invention falls under Article 29(1)(iii) of the Patent Act, and, without examining the other claims, Appellant should not be granted a patent for that, and the present application should be rejected by the reason of Examiner's decision.

Therefore, the appeal decision shall be made as described in the conclusion.

May 8, 2019

Chief administrative judge: OHASHI Kenichi
Administrative judge: KUSHIBIKI Akiyoshi
Administrative judge: TOYONAGA Shigehiro