

Appeal decision

Appeal No. 2015- 12947

Tokyo, Japan

Demandant

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The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2013-39303, entitled "Stop Control Device of Vehicle" (the application published on September 11, 2014, Japanese Unexamined Patent Application Publication No. 2014-167279), 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 filed on February 28, 2013, and a notice of reasons for refusal was issued on August 27, 2014, and despite submission of a written opinion and written amendment on November 4, 2014, a decision for refusal was issued on April 3, 2015. Against this, an appeal against the examiner's decision of refusal was demanded on July 7, 2015, and a written amendment was simultaneously submitted.

No. 2 Decision to dismiss amendment about the amendment dated July 7, 2015

[Conclusion of dismissal of amendment]

The amendment dated July 7, 2015 (hereinafter, referred to as the "Amendment") is dismissed.

[Reason]

[1] Details of the Amendment

The Amendment includes amending Claim 1 indicated in the following (1) before being amended by the Amendment to Claim 1 indicated in the following (2),

concerning the scope of claims for patent.

(1) Claim 1 of the scope of claims for patent before the Amendment

"[Claim 1]

A stop control device of a vehicle which executes an automatic stop automatically stopping an internal combustion engine which is a power source of the vehicle, when a predetermined stop condition is satisfied, and automatically restarts the internal combustion engine when a predetermined restart condition is satisfied, comprising vehicle speed acquiring means for acquiring the speed of the vehicle;

including that the acquired speed is equal to or less than a first predetermined vehicle speed greater than a value 0, and the fact that a predetermined prohibition flag set for prohibiting the automatic stop of the internal combustion engine is not set, in the predetermined stop condition; and

further comprising prohibition flag setting means for setting the prohibition flag when the internal combustion engine is restarted due to the satisfaction of the restart condition, before the vehicle stops, while the automatic stop of the internal combustion engine is executed, and resetting the prohibition flag when a predetermined release condition is satisfied."

(2) Claim 1 of the scope of claims for patent after the Amendment

"[Claim 1]

A stop control device of a vehicle which executes an automatic stop automatically stopping an internal combustion engine which is a power source of the vehicle before the stopping of the vehicle, when a predetermined stop condition is satisfied during the traveling of the vehicle, and automatically restarts the internal combustion engine before the stopping of the vehicle, when a predetermined restart condition is satisfied during the traveling of the vehicle and during the execution of the automatic stop, comprising vehicle speed acquiring means for acquiring the speed of the vehicle;

including that the acquired speed is equal to or less than a first predetermined vehicle speed greater than a value 0, and the fact that a predetermined prohibition flag set for prohibiting the automatic stop of the internal combustion engine is not set, in the predetermined stop condition; and

further comprising prohibition flag setting means for setting the prohibition flag when the internal combustion engine is restarted due to the satisfaction of the restart condition, before the vehicle stops, while the automatic stop of the internal combustion

engine is executed, and resetting the prohibition flag when a predetermined release condition is satisfied." (underlines are added by the demandee to indicate the amended portions.)

[2] Purpose of the Amendment

The Amendment, concerning Claim 1, limits "a predetermined stop condition" for executing an automatic stop to one satisfied "during the traveling of the vehicle", limits "an automatic stop automatically stopping" to the stop carried out "before the stopping of the vehicle", limits "a predetermined restart condition" for automatically restarting the internal combustion engine to one satisfied "during the traveling of the vehicle and during the execution of the automatic stop", and limits "automatically restarts the internal combustion engine" to the restart carried out "before the stopping of the vehicle".

Therefore, the Amendment of Claim 1 of the scope of claims for patent limits the matters specifying the invention described in Claim 1 before the Amendment, and the invention described in Claim 1 before the Amendment and the invention described in Claim 1 after the Amendment are the same in terms of the field of industrial application and the problems to be solved. Thus, the Amendment is to aim at the restriction of the scope of claims stipulated in Article 17-2(5)(ii) of the Patent Act.

Then, we will examine whether or not the invention according to Claim 1 amended by the Amendment (hereinafter, referred to as the "Amended Invention") could be independently granted a patent for the invention at the time of patent application (whether or not the Amended Invention falls under the provisions of Article 126(7) of the Patent Act which is applied mutatis mutandis pursuant to the provisions of Article 17-2(6) of the Patent Act), as follows.

[3] Judgment on independent requirements for patentability

1. Publication

(1) Described matters in Publication

Japanese Unexamined Patent Application Publication No. 2012-77625 (hereinafter, referred to as "Publication") which is cited in reasons for the examiner's decision, and is a publication distributed before the application was filed, describes the following matters with drawings.

a) "[Claim 1]"

An engine control device, which is applied to a vehicle to which braking force is given according to brake operation amount by a driver, automatically stops an engine when a predetermined stop condition is satisfied during the operation of the engine, and then restarts the engine when a predetermined restart condition is satisfied,

including the fact that vehicle speed is decreased to predetermined stop permission vehicle speed as the stop condition, and comprising :

variation width detecting means for detecting the variation width of the brake operation amount while brake operation is carried out by the driver, in a predetermined speed-reduction period from a speed-reduction start of the vehicle until the vehicle speed is decreased to the predetermined stop permission vehicle speed; and

stop determining means for determining whether or not the engine automatic stop should be carried out when the stop condition is satisfied, on the basis of the variation width detected by the variation width detecting means." ([Claim 1] of [the scope of claims for patent])

b) "[0024]

As is well known, an ECU 30 is mainly configured by a microcomputer (hereinafter, referred to as a microcomputer) composed of a CPU, a ROM, a RAM, and the like, and executes various control programs stored in the ROM to carry out various controls related to the operation of the engine 10 or the vehicle. Concretely, on the basis of detection results and the like of various sensors provided in the system, the ECU 30 carries out various engine controls such as fuel injection amount control by an injector, and ignition control by an ignition device, drive control by the starter 22, brake control by the brake actuator 19, and transmission gear ratio control by the automatic transmission device 12. Concerning sensors, in particular, to the ECU 30, there are connected an accelerator sensor 24 for detecting the treading amount of the accelerator pedal 23, a brake sensor 25 for detecting the treading amount of the brake pedal 21, and, although unillustrated, a vehicle speed sensor for detecting vehicle speed, a brake pressure sensor for detecting pressure (brake pressure) inside a master cylinder, a G sensor for detecting acceleration and the like, and detection signals of each sensor are successively inputted in the ECU 30. In addition, the system is provided with a rotational speed sensor, a load sensor (an air flow meter, an intake pressure sensor) and the like." (Paragraph [0024])

c) "[0025]

Next, the idle stop control carried out in the above system structure is described

in detail. The idle stop control, roughly speaking, automatically stops the engine 10 when the predetermined engine stop condition is satisfied during the idle operation of the engine 10, and then restarts the engine 10 when the predetermined restart condition is satisfied. Fuel consumption is reduced by this control. In the engine stop condition, as a vehicle speed condition, it is included that the vehicle speed is decreased below to a predetermined IS permission vehicle speed V_{is} . In this embodiment, the IS permission vehicle speed V_{is} is set on a higher vehicle speed side than a vehicle speed area (a creep vehicle speed area) in which the vehicle can travel with creeping force; for example, it is set to 7 km/h.

[0026]

As the engine stop condition, in addition, at least any one of the facts that brake operation is carried out, accelerator operation becomes zero, a shift position of the automatic transmission device 12 is at a travel range (for example, a D range), and the battery voltage of an on-vehicle battery is a predetermined value or more, may be included. Furthermore, as the engine restart condition, for example, at least either one of the facts that the accelerator operation is carried out or the brake operation is released, in the engine stop state is included.

[0027]

In the idle stop control of the system, until the vehicle speed exceeds a predetermined speed (first determination vehicle speed V_{th1}) after the engine restart, the next engine automatic stop is prohibited. For example, during traffic congestion, it can be thought that the driver repeatedly carries out the on/off operation of the brake pedal 21 to travel at a low speed. However, according to the stop prohibition control, it can be avoided that the engine automatic stop/restart is frequently carried out."

(Paragraphs [0025]-[0027])

d) "[0034]

Fig. 2 and Fig. 3 are time charts showing a specific form of engine automatic stop processing of this embodiment. Among those, Fig. 2 shows a case which carries out the engine automatic stop, and Fig. 3 shows a case which does not carry out the engine automatic stop. Furthermore, in Fig. 2 and Fig. 3, there is assumed a case in which the vehicle speed exceeds the first determination vehicle speed V_{th1} (for example, 12 km/h) after the engine restart, and the engine automatic stop is permitted." (Paragraph [0034])

e) "[0045]

First, IS permission lamp lighting processing is explained by reference to Fig. 4.

In Fig. 4, it is determined whether or not '0' is set to an engine stop prohibition flag Fisx, in a step S11. The engine stop prohibition flag Fisx is a flag in which '1' is set during the prohibition of the engine automatic stop. In this embodiment, after the engine restart, before the vehicle speed exceeds the first determination vehicle speed Vth1, or when the engine automatic stop is not permitted on the basis of the brake variation width during the vehicle speed-reduction, '1' is set." (Paragraph [0045])

f) "[0051]

Next, engine automatic stop processing is explained by reference to Fig. 6. In Fig. 6, it is determined whether or not '0' is set to the engine stop prohibition flag Fisx, in a step S41. If the result of step S41 is YES, in a step S42, it is determined whether or not an IS notifying lamp 27 is being currently lighted. If the IS notifying lamp 27 is being lighted, in a step S43, it is determined whether or not the vehicle speed is an IS permission vehicle speed Vis or less, and if the step S43 is NO, in the step S44, it is determined whether or not the brake variation width is a predetermined amount β or less. Here, it is determined whether or not difference between actual brake pressure detected by the brake pressure sensor and second reference brake pressure B2 is the predetermined amount β or less. In a step S45, it is determined whether or not vehicle deceleration is a determination value $\delta 2$ or less. Then, if the result of either of the steps S44 or S45 is NO, proceeding to a step S46, the IS notifying lamp 27 is extinguished after blinking for a predetermined period, and an IS permission lamp 26 is extinguished. Furthermore, '1' is set to the engine stop prohibition flag Fisx.

[0052]

On the other hand, if the results of both of the steps S44 and S45 are YES, '0' has been still set to the engine stop prohibition flag Fisx, and the next steps S41 and S42 will result in YES. If the vehicle speed drops below the IS permission vehicle speed Vis, the step S43 will result in YES, and proceeding to a step S47, the fuel injection and ignition of the engine 10 are stopped to automatically stop the engine 10. In a step S48, the IS permission lamp 26 and the IS notifying lamp 27 are extinguished, and this routine is finished. Furthermore, for example, when the vehicle speed becomes 0 or the vehicle speed exceeds the predetermined value, the engine stop prohibition flag Fisx is reset to '0'." (Paragraphs [0051] and [0052])

g) From Fig. 2, it can be seen that the engine is stopped when the engine stop prohibition flag Fisx is 0 and the vehicle speed is decreased to the IS permission vehicle speed Vis greater than 0.

(2) Facts understood by the descriptions of (1) a)-g) and the descriptions of Fig. 1-Fig. 6

h) According to the description of Fig. 1, it can be understood that the engine 10 is a drive source for driving the vehicle.

i) According to the descriptions of (1) a) and g), it can be understood that if the predetermined stop condition is satisfied during the traveling of the vehicle, the engine is automatically stopped, at a point of time when the vehicle speed is decreased to the IS permission vehicle speed V_{is} greater than 0; namely, before the vehicle stops.

j) According to the description of (1) a) "automatically stops an engine when a predetermined stop condition is satisfied during the operation of the engine, and then restarts the engine when a predetermined restart condition is satisfied" and the description of (1) c) "[0026]...as the engine restart condition, for example, at least either one of the facts that the accelerator operation is carried out or the brake operation is released, in the engine stop state is included", it can be understood that the engine is restarted when the predetermined restart condition is satisfied during the automatic stop.

k) According to the description of (1) b) "although unillustrated, a vehicle speed sensor for detecting vehicle speed, a brake pressure sensor for detecting pressure (brake pressure) inside a master cylinder, a G sensor for detecting acceleration, and the like are connected, and detection signals of each sensor are successively inputted in the ECU 30", it can be understood that the engine control device is equipped with the vehicle speed sensor for detecting the vehicle speed.

l) According to the descriptions of (1) f) and g) and the description of Fig. 6, it can be understood that the predetermined stop condition includes the facts that the vehicle speed is the IS permission vehicle speed V_{is} or less and that "0" is set to the engine stop prohibition flag F_{isx} .

m) According to the descriptions of (1) c), e), and f), concerning the engine stop prohibition flag F_{isx} , it can be understood that "1" is set to the engine stop prohibition flag F_{isx} , after the engine is restarted when the engine restart condition is satisfied during the automatic stop of the engine, and the engine stop prohibition flag F_{isx} is reset to "0" when the vehicle speed becomes 0 or the vehicle speed exceeds the

predetermined value.

n) According to the description of (1) b), it can be understood that the starter 22 carrying out the start of the engine is automatically controlled by the ECU 30.

o) According to the description of (1) c) "[0026]...as the engine restart condition, for example, at least either one of the facts that the accelerator operation is carried out or the brake operation is released, in the engine stop state is included", although the engine restart condition includes at least either one of the facts that the accelerator operation is carried out or the brake operation is released, it is not described especially about the vehicle stop.

Although it is the presupposition of "the engine control device" in the Publication to stop the engine by determining an intention of vehicle stop of the driver on the basis of the variation width of brake operation amount by the driver during vehicle deceleration, the description of (1) c), in "the engine control device" in the Publication, is to explain that the engine restart can be carried out by the accelerator operation or the releasing of the brake operation, so that it does not eliminate carrying out the restart after stopping the engine during the traveling of the vehicle.

Then, in the description of the Publication, it is substantially included that when the predetermined restart condition is satisfied, the internal combustion engine is automatically restarted, before the vehicle stops, and during the traveling of the vehicle.

(3) When above stated (1), (2), and the descriptions of Figs. are integrated, the Publication describes as follows.

"An engine control device which automatically stops an engine which is a drive source of a vehicle before the vehicle stops, when a predetermined stop condition is satisfied during the traveling of the vehicle, and automatically restarts the engine before the vehicle stops when a predetermined restart condition is satisfied, during the traveling of the vehicle and during the automatic stop of the engine, comprising a vehicle speed sensor which detects vehicle speed;

including the facts that the vehicle speed is equal to or less than IS permission vehicle speed V_{is} larger than 0, and that '0' is set to an engine stop prohibition flag F_{isx} , in the predetermined stop condition; and

further comprising means for setting '1' to the engine stop prohibition flag F_{isx} , after the restart of the engine when the engine restart condition is satisfied, before the

vehicle stops, during the automatic stop of the engine, and resetting the engine stop prohibition flag Fisx to '0' when the vehicle speed becomes 0 or the vehicle speed exceeds a predetermined value." (hereinafter, referred to as "Cited Invention 1")

"An engine control device which automatically stops an engine which is a drive source of a vehicle, when a predetermined stop condition is satisfied, and automatically restarts the engine when a predetermined restart condition is satisfied,

comprising, a vehicle speed sensor which detects vehicle speed,

including the facts that the vehicle speed is equal to or less than an IS permission vehicle speed Vis greater than 0, and that '0' is set to an engine stop prohibition flag Fisx, in the predetermined stop condition, and

further comprising means for setting '1' to the engine stop prohibition flag Fisx, after the restart of the engine when the engine restart condition is satisfied, before the vehicle stops, during the automatic stop of the engine, and resets the engine stop prohibition flag Fisx to '0' when the vehicle speed becomes 0 or the vehicle speed exceeds a predetermined value." (hereinafter, referred to as "Cited Invention 2")

2. Comparison / judgment

The Amended Invention and the Cited Invention 1 are compared.

"A drive source of a vehicle" in the Cited Invention 1 corresponds to "a power source of a vehicle" in the Amended Invention, as viewed from its function, structure, and technical meaning. Similarly, "an engine" corresponds to "an internal combustion engine", "before the vehicle stops" to "before the stopping of the vehicle", "automatically stops" to "executes an automatic stop automatically stopping", "during the automatic stop of the engine" to "during the execution of the automatic stop", "an engine control device" to "a stop control device of a vehicle", "a vehicle speed sensor which detects vehicle speed" to "vehicle speed acquiring means for acquiring the speed of the vehicle", "vehicle speed" to "acquired vehicle speed", "IS permission vehicle speed Vis larger than 0" to "first predetermined vehicle speed larger than a value 0", "'0' is set to the engine stop prohibition flag Fisx" to "a predetermined prohibition flag set for prohibiting the automatic stop of the internal combustion engine is not set", "during the automatic stop of the engine" to "while the automatic stop of the internal combustion engine is executed", "before the vehicle stops" to "before the vehicle stops", "the engine restart condition is satisfied" to "the satisfaction of the restart condition", "sets '1' to the engine stop prohibition flag Fisx, after the restart of the engine" to "setting the prohibition flag when the internal combustion engine is restarted due to the

satisfaction of the restart condition", "when the vehicle speed becomes 0 or the vehicle speed exceeds a predetermined value" to "when a predetermined release condition is satisfied", and "means for resetting the engine stop prohibition flag Fisx to '0'" to "prohibition flag setting means for resetting the prohibition flag".

Therefore, the two are common in the following points.

"A stop control device of a vehicle which executes an automatic stop automatically stopping an internal combustion engine which is a power source of the vehicle before the stopping of the vehicle, when a predetermined stop condition is satisfied during the traveling of the vehicle, and automatically restarts the internal combustion engine before the stopping of the vehicle, when a predetermined restart condition is satisfied during the traveling of the vehicle and during the execution of the automatic stop, comprising vehicle speed acquiring means for acquiring the speed of the vehicle;

including that the acquired speed is equal to or less than a first predetermined vehicle speed greater than a value 0, and that a predetermined prohibition flag set for prohibiting the automatic stop of the internal combustion engine is not set, in the predetermined stop condition; and

further comprising prohibition flag setting means for setting the prohibition flag when the internal combustion engine is restarted due to the satisfaction of the restart condition, before the vehicle stops, while the automatic stop of the internal combustion engine is executed, and resetting the prohibition flag when a predetermined release condition is satisfied."

Then, the Cited Invention 1 is equipped with all of the matters specifying the Invention of the Amended Invention.

Consequently, the Amended Invention is the invention described in the Publication.

3. Summary

Therefore, the Amended Invention is the invention described in the Publication, and falls under the invention of Article 29(1)(iii) of the Patent Act, so that the appellant should not be granted a patent for it independently at the time of patent application.

4. Closing

As mentioned above, the Amendment violates the provision of Article 126(7) of the Patent Act which is applied mutatis mutandis in the provisions of Article 17-2(6) of the Patent Act, so that it should be dismissed in accordance with the provisions of

Article 53(1) of the Patent Act which is applied mutatis mutandis by replacing certain terms pursuant to Article 159(1) of the Patent Act.

Therefore, the appeal decision shall be made as described in [Conclusion of Decision to Dismiss Amendment].

No. 3 Regarding the Invention of the case

1. The Invention

As the Amendment is dismissed as mentioned above, the invention relating to Claim 1 of the present application (hereinafter, the "Invention") is as described in "No. 2 [Reasons][1](2)", as viewed from the patent specification and the claims amended by the written amendment filed on November 4, 2014, and the description of the drawings attached to the application at the time of application.

2. Description and the like of Publication

The Publication cited for reasons for the examiner's decision, Described matters in Cited Publications, and the Cited Invention 2 are as described in "No. 2 [Reasons][3]1."

3. Comparison / judgment

The Invention and the Cited Invention 2 are compared.

"A drive source of a vehicle" in the Cited Invention 2 corresponds to "a power source of a vehicle" in the Invention, as viewed from its function, structure, and technical meaning . Similarly, "an engine" corresponds to "an internal combustion engine", "automatically stops" to "executes an automatic stop automatically stopping", "an engine control device" to "a stop control device of a vehicle", "a vehicle speed sensor which detects vehicle speed" to "vehicle speed acquiring means for acquiring the speed of the vehicle", "vehicle speed" to "acquired vehicle speed", "IS permission vehicle speed V_{is} larger than 0" to "first predetermined vehicle speed larger than a value 0", "'0' is set to the engine stop prohibition flag F_{isx} " to "a predetermined prohibition flag set for prohibiting the automatic stop of the internal combustion engine is not set", "during the automatic stop of the engine" to "while the automatic stop of the internal combustion engine is executed", "before the vehicle stops" to "before the vehicle stops", "the engine restart condition is satisfied" to "the satisfaction of the restart condition", "sets '1' to the engine stop prohibition flag F_{isx} , after the restart of the engine" to "setting the prohibition flag when the internal combustion engine is restarted due to the

satisfaction of the restart condition", "when the vehicle speed becomes 0 or the vehicle speed exceeds a predetermined value" to "when a predetermined release condition is satisfied", and "means for resetting the engine stop prohibition flag Fisx to '0'" to "prohibition flag setting means for resetting the prohibition flag".

Therefore, the two are common in the following points.

"A stop control device of a vehicle which executes an automatic stop automatically stopping an internal combustion engine which is a power source of the vehicle, when a predetermined stop condition is satisfied, and automatically restarts the internal combustion engine, when a predetermined restart condition is satisfied, comprising vehicle speed acquiring means for acquiring the speed of the vehicle;

including the facts that the acquired speed is equal to or less than a first predetermined vehicle speed greater than a value 0, and that a predetermined prohibition flag set for prohibiting the automatic stop of the internal combustion engine is not set, in the predetermined stop condition; and

further comprising prohibition flag setting means for setting the prohibition flag when the internal combustion engine is restarted due to the satisfaction of the restart condition, before the vehicle stops, while the automatic stop of the internal combustion engine is executed, and resetting the prohibition flag when a predetermined release condition is satisfied."

Then, the Cited Invention 2 is equipped with all of the matters specifying the Invention of the Invention.

Consequently, the Invention is the invention described in the Publication.

4. Summary

Therefore, the Invention is the invention described in the Publication, and falls under the invention of Article 29(1)(iii) of the Patent Act, so that appellant should not be granted a patent for it.

No. 4 Closing

As described in No. 3, the Invention falls under the invention of Article 29(1)(iii) of the Patent Act, and appellant should not be granted a patent for it, so that the application should be rejected.

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

February 22, 2016

Chief administrative judge: ITO, Asahito

Administrative judge: MATSUSHITA, Akira

Administrative judge: KANAZAWA, Toshio