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IN THE HIGH COURT OF JUDICATURE AT MADRAS

DATED: **24.09.2024**

CORAM

THE HONOURABLE **MR.JUSTICE SENTHILKUMAR RAMAMOORTHY**

CMA(PT) No.8 of 2024

TVS Motor Company Limited
"Chaitanya", No.12 Khader Nawaz Khan Road,
Nungambakkam ,Chennai 600 006,
Tamil Nadu, India. ... Appellant

-vs-

The Assistant Controller of Patents and Designs,
Patent Office,
Intellectual Property Building,
GST Road, Guindy,
Chennai - 600 032. ... Respondent

PRAYER: Civil Miscellaneous Appeal (Patents) is filed under Section 117-A of the Indian Patents Act, 1970, praying to set aside the order dated 9th November 2023 passed by the Respondent in Indian Patent Application No.202141013547 and further allow Indian Patent Application No.202141013547.

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For Appellant : Mr.Thriyambak J.Kannan

For Respondent : Mr.J.Madanagopal Rao, SPC

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JUDGMENT

Background

This appeal is directed against an order dated 09.11.2023 rejecting the Patent Application No.202141013547. The said application was in respect of an invention titled "SYSTEM FOR SELECTIVELY OPERATING REGENERATIVE BRAKING IN A VEHICLE AND METHOD THEREOF". Upon a request being made after the filing of the application, the First Examination Report (FER) was issued by the respondent on 20.05.2022. In the FER, objections were raised both on the grounds of novelty and inventive step by citing prior art document D1. In addition, objections were raised in respect of sufficiency of disclosure. The appellant replied to the FER on 10.11.2022 and endeavoured to distinguish the claimed invention from prior art document D1. The appellant also asserted that

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sufficient disclosure was made. Amended claims were appended to such reply. This was followed by first hearing notice dated 04.01.2023, wherein the respondent maintained the objections relating to lack of inventive step by citing not only prior art document D1 but also D2. The appellant filed written submissions in response on 25.01.2023; a second hearing notice was issued on 10.04.2023; and the hearing was held on 08.05.2023. Pursuant thereto, the appellant filed written submissions and enclosed current claims 1 to 29. The order impugned herein was issued in these facts and circumstances on 09.11.2023.

Contentions of counsel

2. Learned counsel for the appellant invited my attention both to the original claims, i.e. as filed with the complete specification, and the current claims. On such basis, he contends that the technical advance and non-obvious solution provided in the claimed invention relates to the selection by the user of the regenerative braking mode.

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He further submits that such regeneration is activated by the choice of regeneration mode but it is also dependent on vehicle parameters comprising the state of charge of battery pack, the temperature of the battery pack and the fault condition of the battery pack.

3. After pointing out that the FER referred to prior art document D1, by referring to paragraph [0007] of such prior art, learned counsel contends that D1 is patent literature in respect of a regenerative braking system for a vehicle, but it does not enable the user to select the regeneration mode. After pointing out that D1 was the only prior art cited in the FER, he referred to the second hearing notice and to prior art document D2. As regards D2, he submits that it relates to the improvement of the regeneration rate in a power-assisted bicycle, wherein the re-generation is dependent on the speed of peddling. By contrast, learned counsel contends that the claimed invention enables the user to select the regeneration mode without being dependent for such selection on the speed of the vehicle.

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4. As regards disclosure, learned counsel referred to the second paragraph at internal page 3 of the written submissions dated 23.05.2023 and to paragraph 1 of internal page 4 thereof to contend that a person skilled in the art (PSITA) would be in a position to work the invention without further experimentation because PSITA would clearly know that the information from the battery can be obtained through one or more methods like the battery management system and / or the sensors in the battery. He also relied on the guidelines issued by the Indian Patent Office by way of the Indian Patents Manual to contend that it is sufficient if the complete specification provides enough information to allow PSITA to carry out substantially all that falls with the ambit of what is claimed.

5. By referring to the impugned order, learned counsel contended that the obviousness analysis therein was confined to prior art document D1. He further submitted that the respondent

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failed to appreciate that the inventive step in the claimed invention largely related to the ability of the user to select the regeneration mode and erroneously rejected the claim on the ground that regeneration is dependent on parameters like vehicle speed and brake operation, which would be evident from the prior art and common general knowledge. As regards disclosure, learned counsel pointed out that the respondent erroneously concluded that the vehicle parameters are the essential features of the alleged invention and that the non disclosure thereof leads to the conclusion that there is insufficient enablement.

6. In response to these contentions, Mr. J. Madanagopal Rao, learned SPC, submits that both prior art documents D1 and D2 deal with regenerative braking systems and the dependency of regeneration on vehicle parameters and that, therefore, the claimed invention lacks an inventive step. He further submits that the appellant failed to disclose necessary vehicle parameters, such as the

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predefined value of the state of charge of the battery pack, and, therefore, the rejection of the application contains no infirmity.

Discussion, analysis and conclusion

7. The current claims of the appellant were annexed to written submissions dated 23.05.2023. Independent claim 1, dependent claims 2,3 and 5 and independent claim 18 are set out below:

> *"1. A system (100) for selectively operating regenerative braking in a vehicle, the system (100) comprising:*
>
> *a user-operable input device (110) for selecting a regenerative mode;*
>
> *a motor (120) for driving the vehicle; and*
>
> *a controller (130) coupled with the motor (120) and the user-operable input device (110), the controller (130) configured to:*
>
> ***characterised by***
>
> ***receive an input signal corresponding to the regenerative mode selected by a user;***
>
> ***receive a vehicle parameter,***
>
> *wherein the vehicle parameter comprises a*

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state of charge of the battery pack (140), a temperature of the battery pack (140), and a fault condition of the battery pack (140); and

control operation of the motor (120) in the selected regenerative mode, said controlling operation of the motor (120) comprising one of enabling and disabling the regenerative braking in the vehicle, based on the regenerative mode selected by the user and the vehicle parameter.

2. The system (100) as claimed in claim 1, wherein ***the regenerative mode being a high regenerative mode whereby the motor (120) supplies a charging current more than a predefined regenerative current, during the regenerative braking****.*

3. The system (100) as claimed in claim 2, wherein ***the regenerative mode being a low regenerative mode whereby the motor (120) supplies a charging current less than a predefined regenerative current, during the regenerative braking****.*

5. The system (100) as claimed in claim 4, wherein the controller (130) being configured to:

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monitor the state of charge of the battery pack (140), the temperature of the battery pack (140), and the fault condition of the battery pack (140) ; and

control operation of the motor (120) to supply the predetermined charging current from the motor (120) to the battery pack (140) during the regenerative braking if: the state of charge of the battery pack (140) being less than a predefined value, the temperature of the battery pack (140) being less than a predefined temperature, and the fault condition of the battery pack (140) being absent;

wherein the predefined temperature being 60 degree Celsius.

18. A method for selectively operating regenerative braking in a vehicle said method comprising:

enabling selection (301), by a user-operable input device (110), of a regenerative mode by a user;

characterised by

receiving (302), by a controller (130), an input signal corresponding to the regenerative

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***mode selected by the user**, the controller (130) being coupled with the user-operable input device (110) and a motor (120) for driving the vehicle;*

***receiving (303), by the controller (130), a vehicle parameter**, the vehicle parameter comprises a state of charge of the battery pack (140), a temperature of the battery pack (140), and a fault condition of the battery pack (140); and*

***controlling operation of the motor (120) comprising one of enabling and disabling (304), by the controller (130), the regenerative braking, based on the regenerative mode selected by the user and the vehicle parameter.**"*

(emphasis added)

8. On examining independent claims 1 and 18, it is evident that the claims relate to a system or method, as the case may be, for selectively operating regenerative braking in a vehicle by receiving an input signal corresponding to the regenerative mode selected by a user; receiving a vehicle parameter; and controlling the operations of

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the motor based on the regenerative mode selected by the user and the vehicle parameters. Dependent claims 2 and 3 reveal that there is a high and low regenerative mode and the user triggers the process by selecting one of the modes. These claims should be compared with the independent claim in prior art D1 and the complete specification thereof before examining the findings on inventive step in the impugned order.

9. Independent claim 1 of D1 and paragraph [0007] of the complete specification thereof are as under:

> *"1. A vehicle, comprising:*
> *at least two wheels;*
> *an electric motor operatively coupled to at least one of the at least two wheels to drive at least one wheel;*
> *a rechargeable battery;*
> *a handlebar for steering at least one wheel of the at least two wheels; and*
> ***a regenerative braking system comprising:***
> ***a combination regenerative braking and***

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reverse switch operable between at least a regenerative braking mode and a reverse mode;

a brake actuation device configured for movement by a user and disposed outside of the handlebar;

a brake actuation device sensor assembly operatively coupled to the brake actuation device;

a regenerative device associated with the batteries and at least one of the wheels for generating an electric current by decelerating the wheel;and

one or more controllers coupled to the brake actuation device sensor assembly, the battery, and the combination regenerative braking and reverse switch such that in the regenerative mode the one or more controllers cause the regenerative device to decelerate the vehicle and charge the battery and in the reverse mode the one or more controllers control the electric motor to drive the at least one wheel in reverse." (emphasis added)

[0007] An aspect of the present invention involves a vehicle including at least two wheels; an electric

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motor operatively coupled to at least one of the at least two wheels to drive the at least one wheel; a rechargeable battery; a handlebar for steering at least one wheel of the at least two wheels; and a regenerative braking system comprising: a combination regenerative braking and reverse switch operable between at least a regenerative braking mode and a reverse mode; a brake actuation device configured for movement by a user and disposed outside of the handlebar; a brake actuation device sensor assembly operatively coupled to the brake actuation device; a regenerative device associated with the batteries and at least one of the wheels for generating an electrical current by decelerating the wheel, and one or more controllers coupled to the brake actuation device sensor assembly, the battery, and ***the combination regenerative braking and reverse switch such that in the regenerative braking mode one or more controllers cause the regenerative device to decelerate the vehicle and charge the battery and in the reverse mode one or more controllers control***

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> ***the electric motor to drive at least one wheel in reverse.***" *(emphasis added)*

Prima facie, it appears that two modes are disclosed in D1: a regenerative mode and a reverse mode. But, a high and low regenerative mode is not discernible. Against this backdrop, I turn to the findings in the impugned order on the lack of inventive step.

10. The respondent recorded the following findings in the impugned order, at page 74 of the paper book, as regards obviousness and lack of inventiveness over prior art document D1:

> "***Therefore the regeneration mode by an input device, the degree of regeneration is determined by the control unit based on numerous parameters like vehicle speed, brake operation.*** *Applicant states that the document D1 does not disclose the vehicle parameters of the battery pack that is to be charged based on the selective operation of regenerative braking by the user. While the vehicle parameters*

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(how to determine the vehicle parameters (state of charge of the battery pack; temperature of the battery pack and fault condition of the battery pack) and threshold value of the parameters to enable or disable the regenerative braking) of the battery pack is not disclosed in the complete specification.

Hence, the claimed subject matter of the claims is obvious and lacks inventive step under section 2(1)(ja) of the Patents Act, 1970 (as amended)."

(emphasis added)

The above extract discloses that the respondent failed to examine the claim for inventiveness on the basis of the user being in a position to select a particular regenerative mode from and out of more than one mode, and such selection being the trigger for the regenerative braking process to operate after reckoning specific vehicle parameters. The respondent also failed to record any reasons in support of the conclusion that the claimed invention would be

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obvious to PSITA from D1. On this aspect, therefore, the impugned order calls for interference.

11. As regards sufficiency of disclosure, claim 5 of the current claims of the appellant specifies a predefined temperature of 60° Celsius. The predefined regenerative and charging current values and the predefined value of the state of charge of the battery pack are, however, not mentioned in the complete specification. On this issue, learned counsel for the appellant contended that these predefined values were not mentioned in the complete specification because they are dependent on variables such as the manner in which the vehicle is driven, road conditions and the like. He also pointed out that the extent of disclosure made would be sufficient for PSITA to work the invention especially in view of the fact that all the vehicle parameters may be readily obtained through the battery management system or the sensor.

12. In the impugned order, at pages 70 and 71 of the paper

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book, the following findings were recorded with regard to the sufficiency of disclosure:

> *"It is evident from the above that the controlling operation of the motor to enable or disable the regenerative braking is depend on the mode selected by the user and* ***vehicle parameters (state of charge of the battery pack; temperature of the battery pack and fault condition of the battery pack).*** *Thus the vehicle parameters are the essential features of the alleged invention....*
>
> *The applicant fails to provide information regarding essential features (vehicle parameters* ***(state of charge of the battery pack; temperature of the battery pack and fault condition of the battery pack)),*** *how to obtain these parameters* ***(state of charge of the battery pack; temperature of the battery pack and fault condition of the battery pack)*** *(how to measure state of charge of the battery pack; how to measure temperature of battery pack and how to determine the fault condition in the battery pack). Only a statement given in the complete*

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specification that controller receives the vehicle parameters; whereas applicant fails to disclose how to obtain these parameters and what is the threshold value of these parameters to enable or disable the regenerative braking. Therefore, the best method of performing the invention is not disclosed in the complete specification as per the requirements of section 10(4) of the Patents Act, 1970 (as amended). "

The respondent has failed to notice that the pre-defined temperature was specified in claim 5. As regards fault condition, it appears that it would be unnecessary to specify the same because the system would indicate if there is fault condition of the battery pack. As discussed above, however, the predefined regenerative and charging current values and the predefined value of the state of charge of the battery pack do not appear to have been disclosed in the complete specification. This aspect may be reconsidered in course of remand.

13. For reasons stated above, the impugned order dated 09.11.2023 is set aside and the following directions are issued:

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(i) The matter is remanded for reconsideration by the respondent. In order to preclude the possibility of predetermination, an officer other than the officer who issued the impugned order shall undertake such re-consideration.

(ii) A request for amendment, if any, shall be considered in terms of Section 59 of the Patents Act, 1970.

(iii) After providing a reasonable opportunity to the appellant, including a personal hearing, a reasoned order shall be issued within four months from the date of receipt of a copy of this order.

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(iv) For the avoidance of doubt, it is made clear that no opinion is being expressed herein on the merits of the patent application.

(v)There shall be no order as to costs.

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Index : Yes / No

Internet: Yes / No

Neutral Citation: Yes / No

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To

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