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(54) **DRIVE MACHINE FOR AN ELEVATOR AND AN ELEVATOR**

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(58) **Field of Classification Search**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

724,504 A * 4/1903 Rice B66D 1/26
187/252
9,604,821 B2 * 3/2017 Korvenranta B66B 11/0476
(Continued)

FOREIGN PATENT DOCUMENTS

DE 199 48 946 A1 4/2001
DE 202 17 287 U1 3/2003
(Continued)

OTHER PUBLICATIONS

English Machine Translation of EP 2147884.*

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(57) **ABSTRACT**

A drive machine for an elevator includes a motor module including at least a motor, a drive shaft, and a first transmission wheel, which are provided with a common rotational axis and connected coaxially to each other. The drive machine further includes a traction module including at least a traction wheel engageable with elevator hoisting ropes, and a second transmission wheel, which are provided with a common rotational axis and connected coaxially to each other. The motor module and the traction module are positioned side by side with their rotational axes parallel, such that the traction wheel and the drive shaft are side by side, and the first and second transmission wheels are side by side. The drive machine further includes an endless drive member passing around the first and second transmission wheels. An elevator comprising said drive machine is also disclosed.

20 Claims, 4 Drawing Sheets

