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**Lee et al.**

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(54) **DOOR CLOSER PROVIDED WITH UNIT FOR ADDING DOOR-CLOSING FORCE**

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See application file for complete search history.

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(57) **ABSTRACT**

(30) **Foreign Application Priority Data**

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Disclosed is a door closer provided with a unit for adding door-closing force inside a housing. The disclosed door closer comprises a force-adding unit, which is included inside the housing, for adding the door-closing force. The force-adding unit comprises a cam which coaxially rotates with a link shaft inside the housing, and a cam pusher which is elastically compressed so as to come into close contact with the outer circumferential surface of the cam. The outer circumferential surface of the cam comprises an arc surface portion which is separated apart from a rotary axis of the cam at an equal distance, a concave surface portion which is separated apart from the rotary axis of the cam at a distance shorter than that to the arc surface portion, and one pair of protruding corner portions for connecting the arc surface portion and the concave surface portion. When the outer circumferential surface of the cam with which the cam pusher comes into close contact is converted from the arc surface portion to the concave surface portion due to the rotation of the cam, the rotational force of the link shaft is increased due to the elastic pressing force of the cam pusher.

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(52) **U.S. Cl.**

CPC ..... **E05F 3/102** (2013.01); **E05F 1/105** (2013.01); **E05F 3/104** (2013.01); **E05Y 2800/22** (2013.01); **Y10T 16/2769** (2015.01); **Y10T 16/293** (2015.01); **Y10T 16/299** (2015.01)

(58) **Field of Classification Search**

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**5 Claims, 3 Drawing Sheets**

