

Title (en)
DETECTING AND PREVENTING A CLAMPING EVENT

Title (de)
DETEKTION UND VERMEIDUNG EINES EINKLEMMEREIGNISSES

Title (fr)
DÉTECTION ET PRÉVENTION D'UN ÉVÉNEMENT DE SERRAGE

Publication
EP 4320329 A1 20240214 (DE)

Application
EP 22708430 A 20220208

Priority
• DE 102021001774 A 20210406
• EP 2022052949 W 20220208

Abstract (en)
[origin: WO2022214229A1] The invention relates to a device (1) for detecting a clamping event of a motor-actuatable closing system of a vehicle (2), comprising a sensor electrode (3) and a reference sensor electrode (15) which at least partly surrounds the edge of a vehicle (2) opening (O) that can be closed by means of at least one closure element (4). A control unit (5) is provided which is designed to - apply an electric potential to the sensor electrode (3) for a charging process and a ground potential (GND) to the reference sensor electrode (15) for a discharging process, - detect a period of time until reaching a minimum threshold for the electric potential for the sensor electrode (3) and the reference sensor electrode (15), said minimum threshold being produced by the back flow of charges across the ground potential (GND), - ascertain the difference between the period of time detected for the sensor electrode (3) and the period of time detected for the reference sensor electrode (15), and - if the difference exceeds a specified threshold and if the period of time detected for the sensor electrode (3) deviates from a specified normal period of time or a normal period of time detected in a state which has been detected without an immediately imminent clamping event, an immediately imminent clamping event is inferred.

IPC 8 full level
E05F 15/44 (2015.01)

CPC (source: EP KR US)
E05F 15/44 (2015.01 - US); **E05F 15/443** (2015.01 - EP KR); **E05Y 2400/54** (2013.01 - US); **E05Y 2400/58** (2013.01 - EP KR); **E05Y 2900/50** (2013.01 - US); **E05Y 2900/55** (2013.01 - EP KR)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

Designated validation state (EPC)
KH MA MD TN

DOCDB simple family (publication)
DE 102021001774 A1 20221006; CN 117157447 A 20231201; EP 4320329 A1 20240214; JP 2024515497 A 20240410; KR 20230153472 A 20231106; US 2024110424 A1 20240404; WO 2022214229 A1 20221013

DOCDB simple family (application)
DE 102021001774 A 20210406; CN 202280026826 A 20220208; EP 2022052949 W 20220208; EP 22708430 A 20220208; JP 2023560300 A 20220208; KR 20237034183 A 20220208; US 202218285673 A 20220208