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Bouamra et al.

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(54) **SAFETY DEVICE FOR A SLIDING PANEL DRIVEN BY AN ELECTRICAL MOTOR AND METHOD FOR IMPLEMENTING SUCH A DEVICE**

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(65) **Prior Publication Data**

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Related U.S. Application Data

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(30) **Foreign Application Priority Data**

Dec. 15, 1998 (EP) 98123825

(51) **Int. Cl.**
G05B 5/00 (2006.01)

(52) **U.S. Cl.** **318/445**; 318/443; 318/444; 318/449; 318/466; 318/469

(58) **Field of Classification Search** 318/445, 318/443, 444, 449, 466, 467, 468, 469, 280; 340/628

See application file for complete search history.

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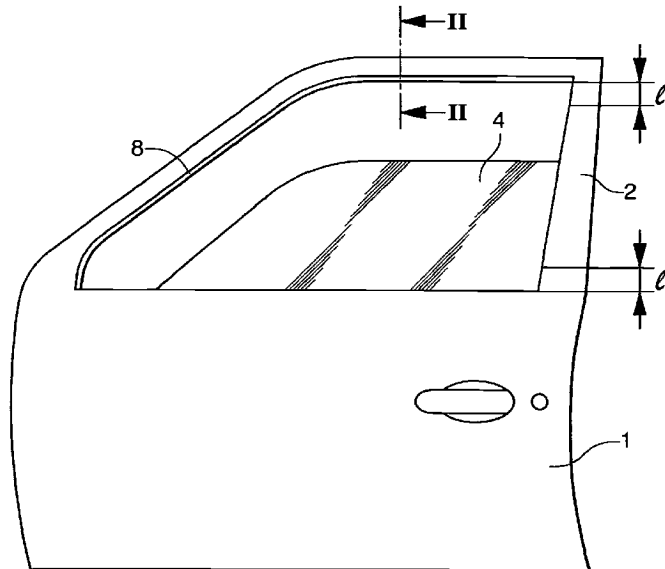
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(57) **ABSTRACT**

The invention concerns a sequential safety system associated with a moving closing panel driven so as to slide by an electric motor (6), this safety system including means (20) exploiting the signal originating from an optical fiber to stop and reverse the direction of movement of said moving panel in the event of a change in the signal, as well as additional safety means allowing the end-of-travel positions of the moving panel to be determined without ambiguity via the joint exploitation of the results derived from measuring the frequency of the pulses caused by the rotation of the electric motor (6) driving said moving panel, as well as data originating from the optical fiber.

40 Claims, 11 Drawing Sheets



UUSI, LLC
Exhibit 2028

WEBASTO ROOF
SYSTEMS, INC.
Petitioner
v.
UUSI, LLC
Patent Owner

Case:
IPR2014-00648
Patent: 8,217,612

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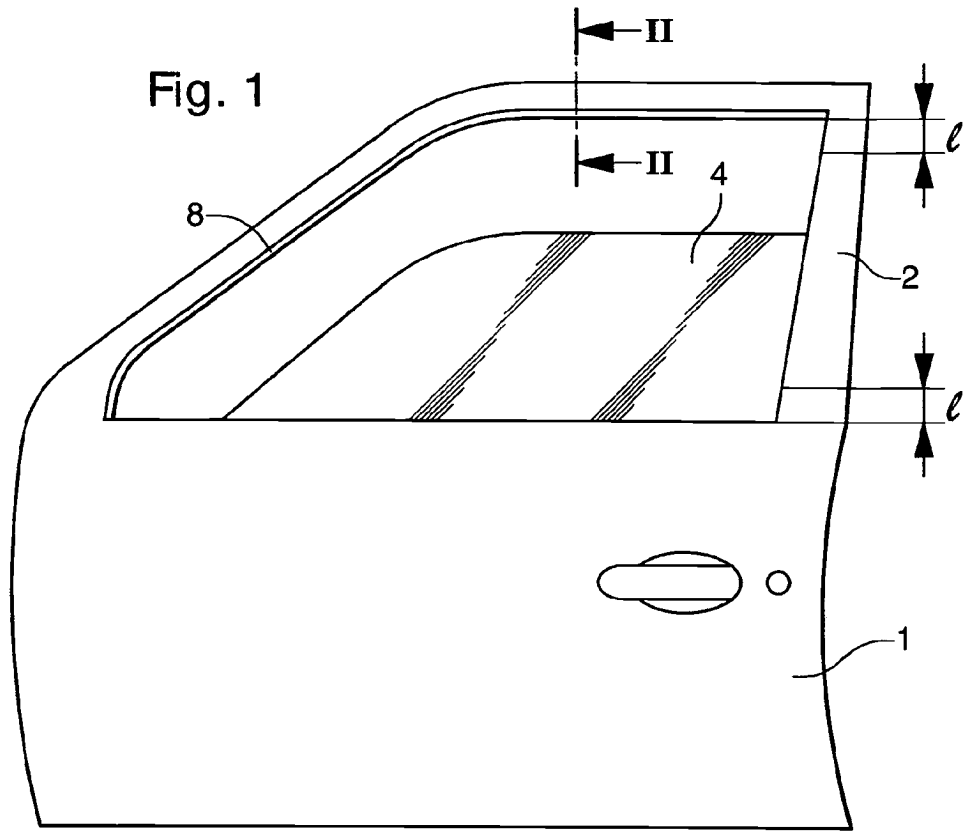


Fig. 2

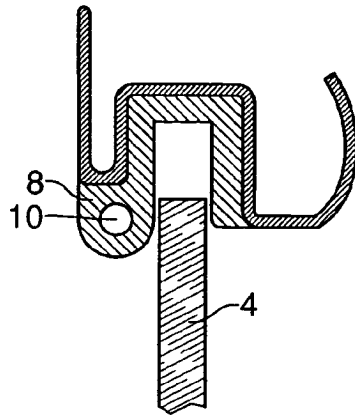
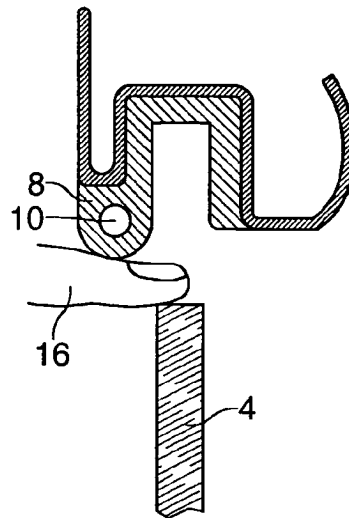


Fig. 3



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Fig. 4

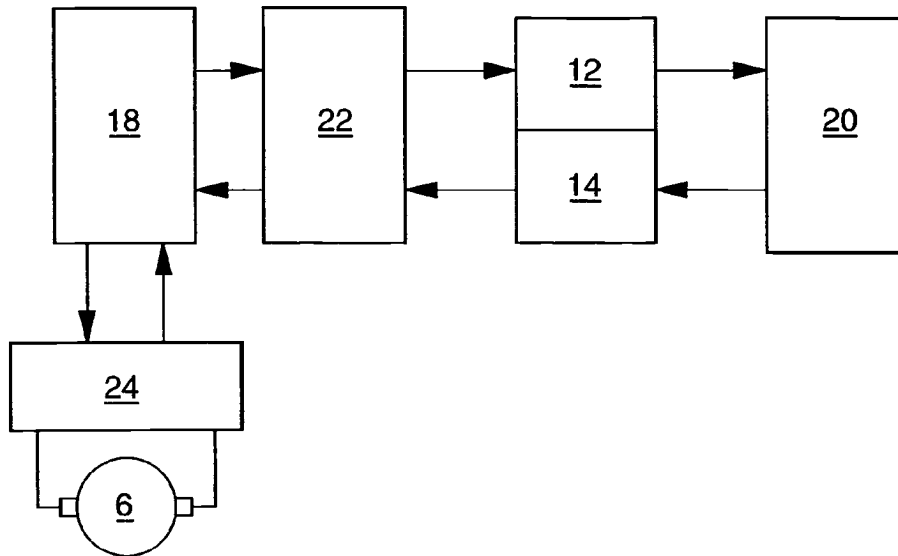


Fig. 5

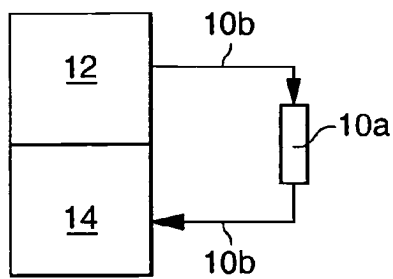
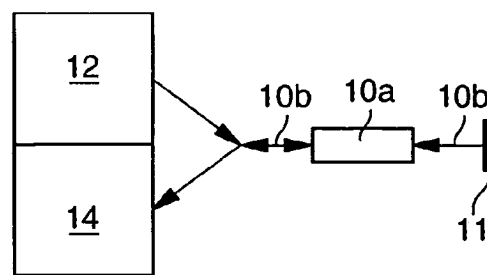


Fig. 6



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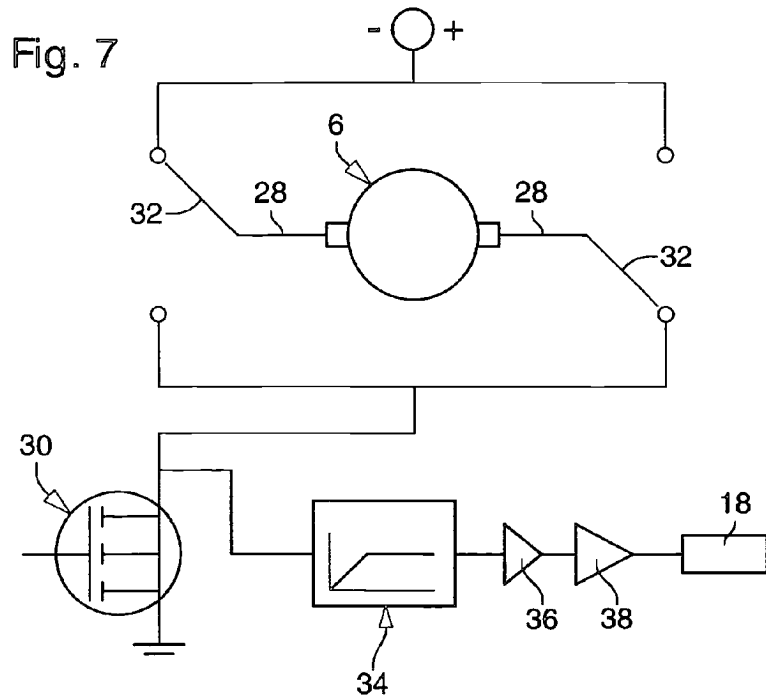
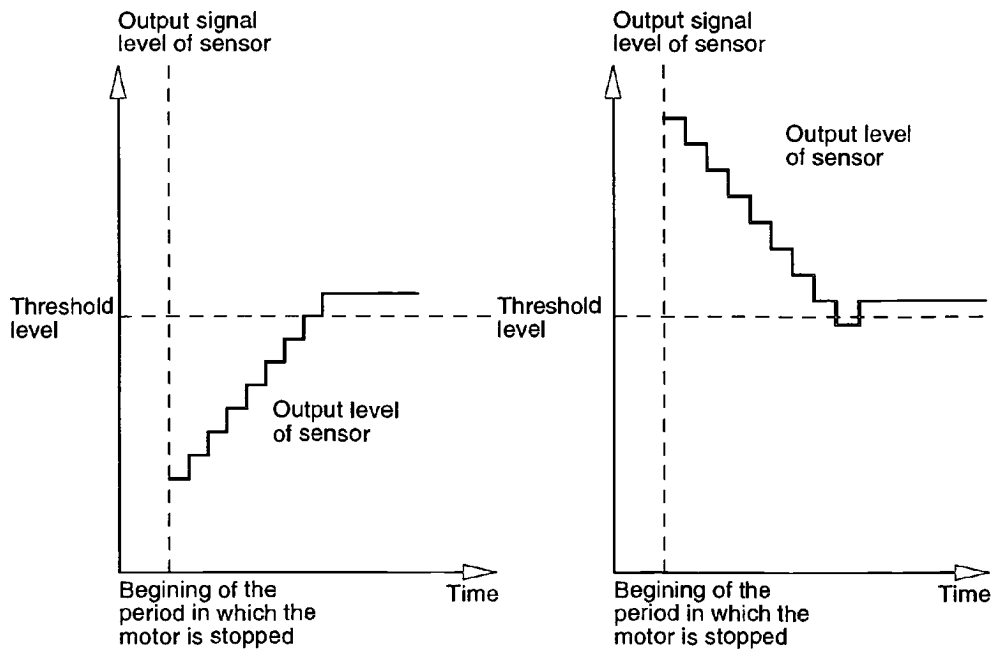


Fig. 8

Fig. 9



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