

- [54] METAL OXIDE FILMS
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- [73] Assignee: Triplex Safety Glass Company Limited, London, England
- [22] Filed: Jan. 26, 1972
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- [30] Foreign Application Priority Data  
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- [52] U.S. Cl. .... 204/192; 204/298; 428/432
- [51] Int. Cl.<sup>2</sup> ..... C23C 15/00
- [58] Field of Search ..... 204/192, 298; 428/432, 428/539

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[57] ABSTRACT

A substantially uniform, transparent, electrically conducting, metal oxide film (e.g. of indium/tin oxide) can be deposited on to a substrate such as glass of large lateral dimensions, e.g. a windscreen for an aircraft or a land vehicle, by low-pressure reactive sputtering from a cathode of the metal, using an atmosphere of oxygen and another gas or gases (preferably an inert gas) at reduced pressure, by providing access for the sputtering atmosphere to penetrate into the whole of the working space between the cathode and the substrate so as to maintain a substantial degree of uniformity in the oxygen concentration in the working space. Access for the atmosphere may be provided by means of passages extending through the cathode assembly, by dividing the cathode assembly into parallel strips separated by gaps, and the atmosphere may be supplied direct to the working space through such gaps. Relative movement is effected between the cathode assembly and the substrate, e.g. by reciprocating the parallel strips of the divided cathode in the direction perpendicular to their length.

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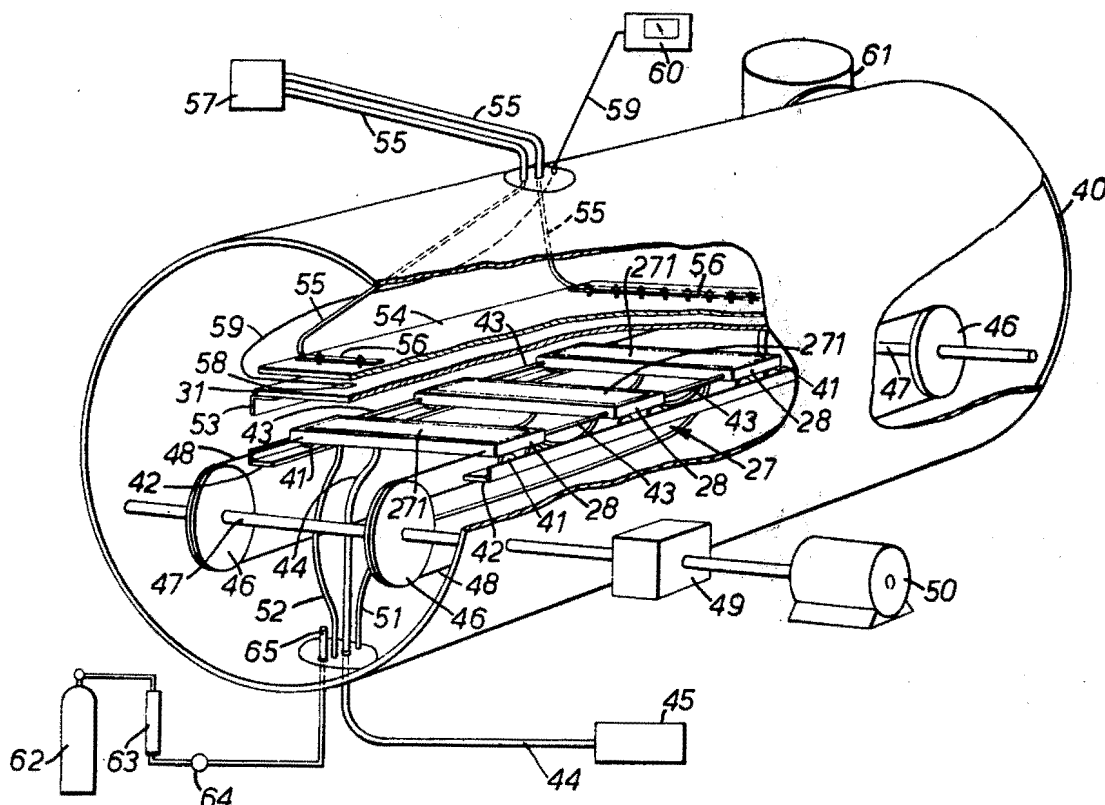
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48 Claims, 11 Drawing Figures



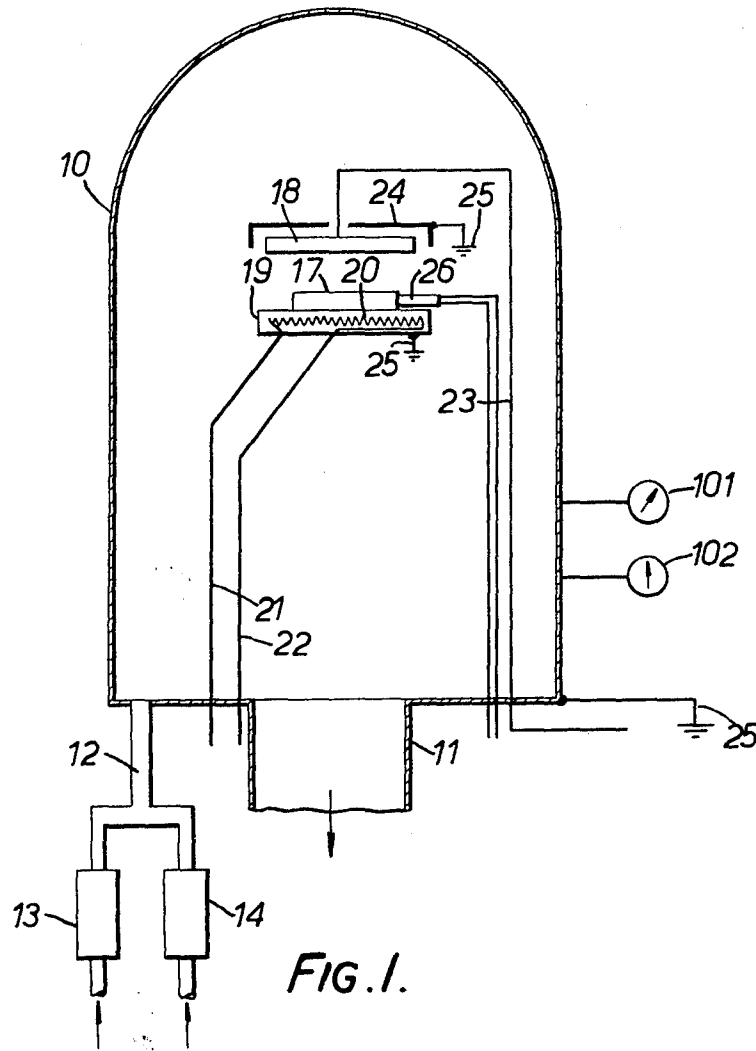


FIG. 1.

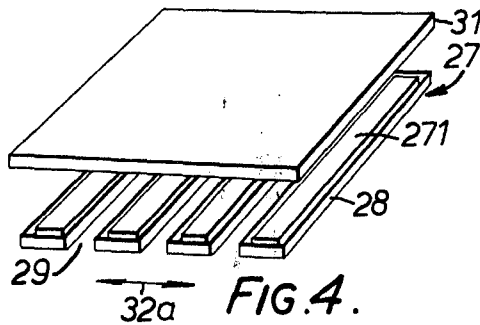


FIG. 4.

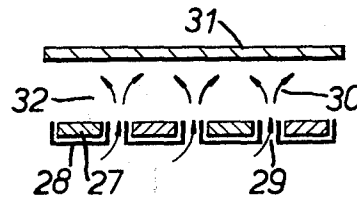


FIG. 5.

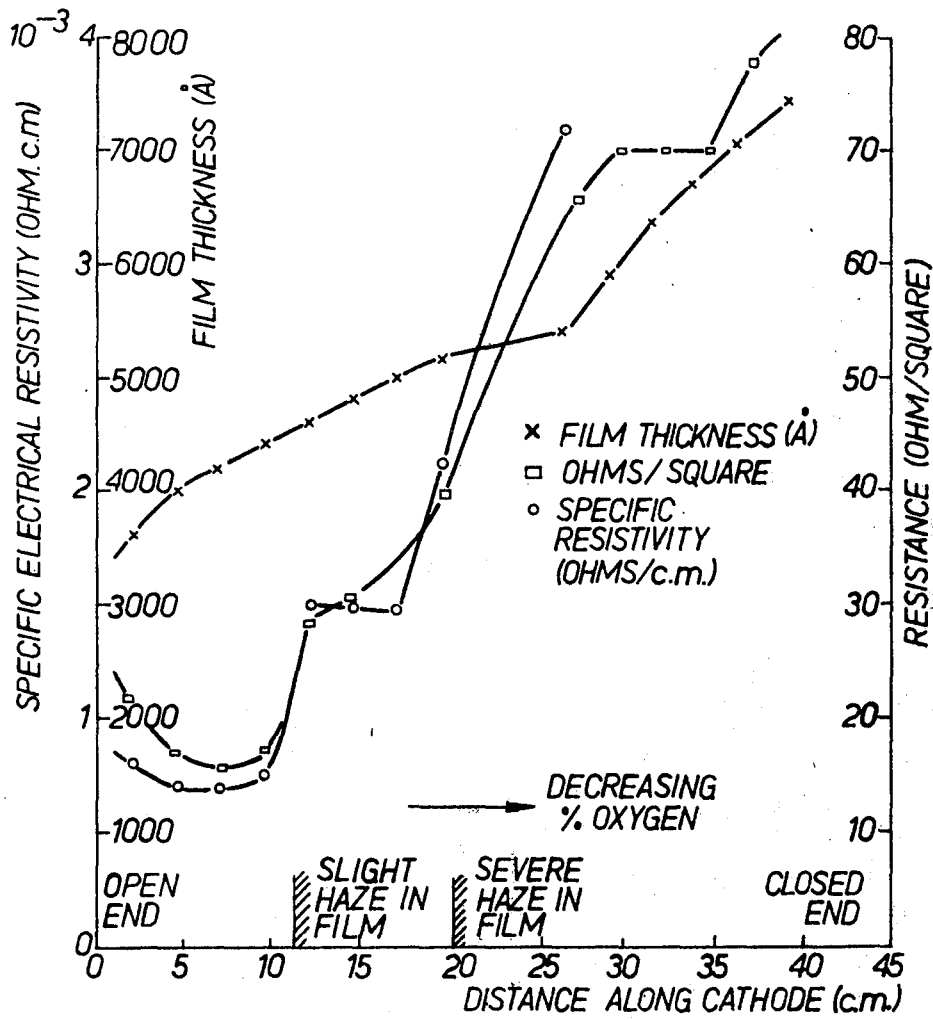


FIG. 2.

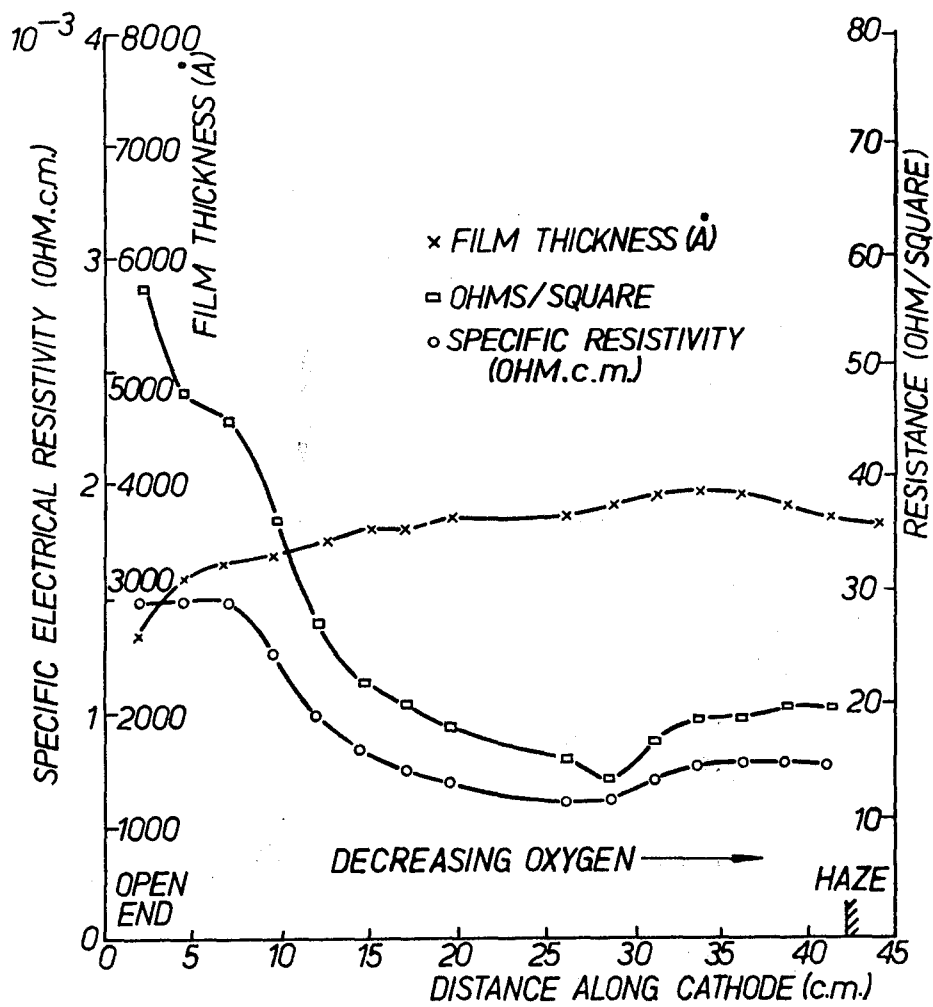


FIG. 3.

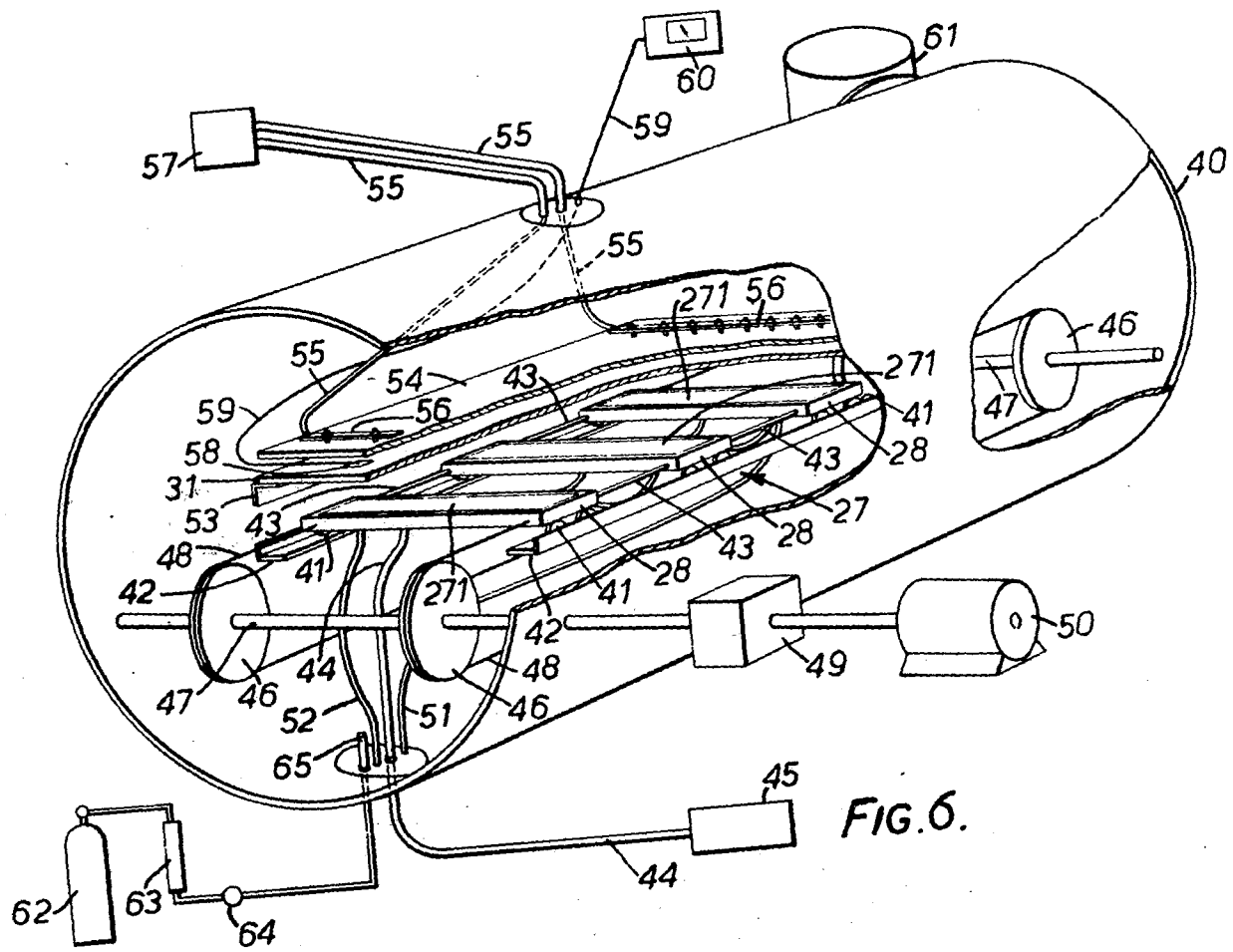


FIG. 6.

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