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Weinberger et al.

[56]

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[54]	ISO ID-1 SIZE MEMORY CARD WITH SHUTTER ASSEMBLY				
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[58]	Field of S	earch			

369/291 _{1a}

References Cited U.S. PATENT DOCUMENTS

4,849,844	7/1989	Kato 360/133
5,107,099	4/1992	Smith
5,153,801	10/1992	Ikebe et al 360/133
5,262,917	11/1993	Kikuchi et al 360/133
5,274,612	12/1993	Sato et al
5,526,337	6/1996	Housey et al 360/133
5,537,389	7/1996	Kuwa et al 369/291
5,689,393	11/1997	Watanabe 360/133
5,764,623	6/1998	Akiyama et al 369/291

5,768,074	6/1998	Sumner et al	360/133
5,805,555	9/1998	Jones et al	369/77.2

FOREIGN PATENT DOCUMENTS

410112	4/1991	European Pat. Off
484 788	5/1992	European Pat. Off
60-079581	9/1985	Japan .
60-219687	4/1986	Japan .
61-016082	6/1986	Japan .
61-039990	7/1986	Japan .
62-054881	8/1987	Japan .
64-67781	3/1989	Japan .
3-122880	5/1991	Japan .
3-48780	10/1991	Japan .
4-16309	4/1992	Japan .
5-89298	4/1993	Japan .
90/13093	4/1990	ŴĨPO .
94/11877	11/1993	WIPO .

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[57] ABSTRACT

A memory card includes a base sheet formed with a circular opening to accommodate a circular memory disc, and a lateral opening to accommodate a movable window assembly; a circular memory disc rotatably mounted within the circular opening; and a movable window assembly within the lateral opening of the base sheet and covered by cover sheets. The movable window assembly includes a plastic film carried by a carrier member and movable either to a protective position wherein the plastic film covers a window opening in the cover sheets, or to an exposing position laterally of the window opening wherein the plastic film exposes the Read section of the circular memory disc to the Read head of the reader.

5 Claims, 4 Drawing Sheets

