United States Patent [19]

Edwards

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[54] **BILEVEL TELEMICROSCOPIC APPARATUS**

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[51] **Int. Cl.**[3] **G02B 23/00**

[52] **U.S. Cl.** **350/146;** 350/547; 351/158

[58] **Field of Search** 350/146, 145, 547, 548, 350/549, 515; 351/158, 41, 57, 58, 159, 165

[56] **References Cited**

U.S. PATENT DOCUMENTS

414,860	8/1946	Borghese	350/146
945,078	1/1910	Beebe .	
2,027,123	1/1936	Searles .	
2,217,475	10/1940	Goehring, Sr. .	
2,256,587	9/1941	Ames, Jr. et al. .	
2,280,354	4/1942	Rezos .	
2,389,428	11/1945	Glasser	350/547
2,422,661	6/1947	Ellis .	
2,545,673	3/1951	Pozarik .	
2,599,716	6/1952	May .	
2,675,740	4/1954	Barkley	351/165
2,759,395	8/1956	Wofford .	
2,978,955	4/1961	Frommer .	
3,273,456	9/1966	Feinbloom	350/146
3,456,327	7/1969	Keeler	350/146
3,522,983	8/1970	Daniels	350/146
3,592,525	1/1971	Schultz	350/146
3,741,634	6/1973	Stoltze	351/57
3,826,564	7/1974	Werling	351/165
4,074,368	2/1978	Levy, Jr. et al.	3/13
4,195,918	4/1980	Freche et al.	350/145

FOREIGN PATENT DOCUMENTS

701614	3/1931	France	350/146
484439	9/1953	Italy	351/158

OTHER PUBLICATIONS

Captioned photograph of Salvador Dali, Northern Virginia Sun Newspaper, Tuesday, Jul. 9, 1963.

"Honeybee Glasses", *Discover,* Dec. 1981, p. 72.

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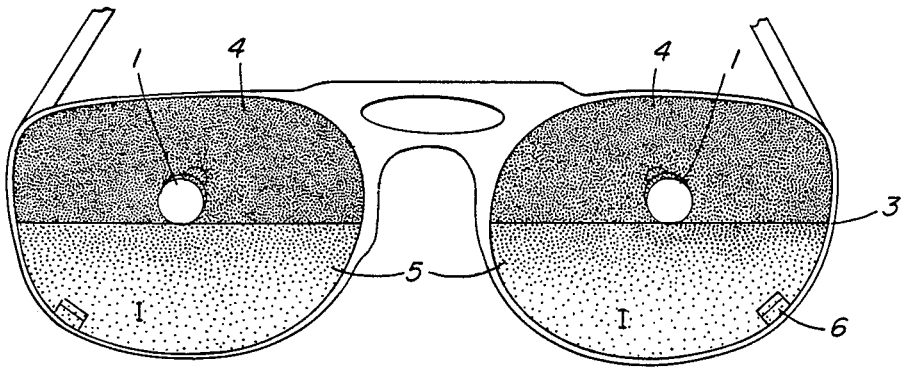
[57] **ABSTRACT**

Telemicroscopes mounted to spectacle lenses extend rearwardly from the lenses toward a patient's eyes. The telemicroscopes are miniaturized and provide an extended depth of field and a field of view ranging from 8 degrees to 20 degrees. The spectacle lenses are shaded to increase the field of view, and the image viewed through the telemicroscopes matches the perceived outer diameter of the telemicroscopes. With the very small scopes positioned at about the center viewing axis of the eye, bilevel viewing in which a magnified image and a nonmagnified image are simultaneously viewed is possible. Several telemicroscopes may be mounted in a cluster for panoramic viewing.

33 Claims, 20 Drawing Figures