

United States

Bricot et al.

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[54] OPTICAL PROJECTION DEVICE AND AN OPTICAL READER INCORPORATING THIS DEVICE

3,857,629 12/1974 Freiser ..... 350/160 LC

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OTHER PUBLICATIONS  
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[57] ABSTRACT

[30] Foreign Application Priority Data

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[52] U.S. Cl. .... 350/160 LC; 179/100.3 V; 350/150; 350/175 DR; 350/180; 358/128

[58] Field of Search ..... 350/150, 160 R, 160 LC, 350/175 DR, 175 GN, 180; 179/100.3 V; 358/128

This invention relates to a projection device of which the optical device having a focal length is variable under the effect of an electrical signal and comprises a hollow transparent lens into which a liquid nematic crystal is introduced. Under the effect of the electrical signal applied between two transparent electrodes respectively arranged on the two inner surfaces of the lens, the index of the liquid crystal for the direction of incidence of the projected beam is capable of varying as a result of the oscillation of the molecules of the liquid crystal, the position of the focussing point of the projected beam varying in consequence.

[56] References Cited

U.S. PATENT DOCUMENTS

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6 Claims, 4 Drawing Figures

