

- [54] **HYDROGEL-FORMING POLYMERIC MATERIALS**
- [75] Inventors: **Brian J. Tighe**, Birmingham; **Howard J. Gee**, Derbyshire, both of England
- [73] Assignee: **Kelvin Lenses Limited**, Manchester, England
- [21] Appl. No.: **309,688**
- [22] Filed: **Oct. 8, 1981**
- [51] Int. Cl.<sup>3</sup> ..... **C08F 220/20; C08F 226/10; C08L 31/02; G02C 7/04**
- [52] U.S. Cl. .... **523/108; 351/160 R; 351/160 H; 526/264**
- [58] Field of Search ..... **526/264; 351/160 R, 351/160 H; 523/106, 107, 108**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

3,767,731	10/1973	Seiderman	523/108
3,839,304	10/1974	Hovey	523/108
3,937,680	2/1976	de Carle	523/108
4,036,788	7/1977	Steckler	526/264
4,042,552	8/1977	Grucza	523/108
4,123,407	10/1978	Gordon	523/108
4,123,408	10/1978	Gordon	523/108

**FOREIGN PATENT DOCUMENTS**

2091417 1/1972 France .  
 1566249 4/1980 United Kingdom .

*Primary Examiner*—Harry Wong, Jr.  
*Attorney, Agent, or Firm*—Stevens, Davis, Miller & Mosher

[57] **ABSTRACT**

Polymeric materials suitable for bio-medical applications, particularly in making contact lenses, are formed by copolymerization and crosslinking of: (1) an amide of an unsaturated carboxylic acid such as acrylamide or methacrylamide; (2) an N-vinyl lactam, such as N-vinyl pyrrolidone; (3) an ester of an unsaturated carboxylic acid, such as a hydroxy-substituted ester of acrylic or methacrylic acid; (4) an unsaturated carboxylic acid, such as acrylic or methacrylic acid; and (5) a polymerizable hydrophobic vinyl monomer, such as styrene; crosslinking with a crosslinking agent either being carried out during copolymerization or subsequently. The resulting polymeric materials may be machined to produce a contact lens form and then hydrated to form a hydrogel which is suitable for use as an extended wear contact lens.

**11 Claims, No Drawings**