

United St**Krewalk, Sr.**[11] **3,932,148**[45] **Jan. 13, 1976**[54] **METHOD AND APPARATUS FOR MAKING
COMPLEX ASPHERIC OPTICAL SURFACES**[75] Inventor: **John J. Krewalk, Sr.**, West
Hartford, Conn.[73] Assignee: **Criterion Manufacturing Company,
Inc.**, West Hartford, Conn.[22] Filed: **Jan. 21, 1975**[21] Appl. No.: **542,725**[52] U.S. Cl. **51/284 R; 51/324**[51] Int. Cl.² **B24B 1/00; B24B 13/00**[58] Field of Search **51/284 R, 283 R, 324,
51/216 LP, 235**[56] **References Cited****UNITED STATES PATENTS**

3,837,124	9/1974	Johnson et al.	51/324
3,837,125	9/1974	Johnson	51/324

Primary Examiner—Donald G. Kelly[57] **ABSTRACT**

Complex aspheric optical surfaces may be made reliably and relatively rapidly by a method in which one surface of a relatively thick glass block is ground and polished to the desired aspheric surface, which may be tested in a system including master optics of the remaining components. This master die block may then be used to generate reverse die plates by drawing thin glass blanks against the configured surface thereof and polishing to an optical flat. These reverse die plates are then mounted on a base die block and deformable glass blanks are drawn against the configured surface thereof and the opposite surface polished to an optical flat. Upon removal, the glass blanks assume a curvature identical to the original aspheric surface of the master die block.

10 Claims, 11 Drawing Figures