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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

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Bence Lehman

Commissioner of Patents and Trademarks

Marcilla Akella

Attest



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United States Patent [19]
Lin

[11] **Patent Number:** **5,581,040**
[45] **Date of Patent:** **Dec. 3, 1996**

[54] **MULTI-FUNCTIONAL HYDRAULIC GRIP**

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[57] **ABSTRACT**

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A hydraulic grip suitable for use in both tensile and compressive loading of a specimen comprises generally a main body and an outer housing to form a pair of annular chamber therebetween. Hydraulic fluid under pressure alternately introduced into the chambers forces the outer housing to move up or downward relative to longitudinal axis of the main body. A cooling circulation may be established between the grip and a compressor so that the testing can be performed in high temperature. This grip also facilitates a rapid replacement of different grip jaws.

[51] **Int. Cl.⁶** **G01N 3/04**

[52] **U.S. Cl.** **73/857; 73/833; 73/856**

[58] **Field of Search** **73/831, 832, 833, 73/855, 856, 857, 859, 860**

[56] **References Cited**

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4 Claims, 7 Drawing Sheets

