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United States Patent [19] Rinner

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[54] **HAND TOOL HAVING A VARIABLE TORQUE-LIMITING IN-LINE DRIVE**

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[52] **U.S. Cl.** **81/475; 81/DIG. 5**

[58] **Field of Search** **81/473-476, DIG. 5**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,733,622 2/1956 Evans 81/475
3,292,678 12/1966 Noga 81/475

4,063,474 12/1977 Kloppe 81/474
4,272,973 6/1981 Fu-Tsai 81/475 X
4,517,865 5/1985 Huang 81/475
4,653,359 3/1987 Liao 81/475
4,901,610 2/1990 Larson et al. 81/473

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[57] **ABSTRACT**

A hand tool of the type having a variable torque-limiting in-line drive with a handle having a cavity and a drive bit disposed in the cavity. Over-ride drive members are disposed in the cavity and a spring exerts a force on the drive members for transmitting only a maximum force to a bit in the tool. A variable control adjustment is on the tool and is used to apply a varying force to the spring and thus control the amount of maximum torque to be transmitted.

9 Claims, 4 Drawing Sheets

