



US009410859B2

(12) **United States Patent**  
**Hsieh**

(10) **Patent No.:** **US 9,410,859 B2**  
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **BIAXIAL TORQUE MEASURING DEVICE**

(71) Applicant: **KABO TOOL COMPANY**, Taichung (TW)

(72) Inventor: **Chih-Ching Hsieh**, Taichung (TW)

(73) Assignee: **KABO TOOL COMPANY**, Taichung (TW)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/842,820**

(22) Filed: **Sep. 1, 2015**

(65) **Prior Publication Data**

US 2016/0146684 A1 May 26, 2016

(30) **Foreign Application Priority Data**

Nov. 24, 2014 (TW) ..... 103140638 A

(51) **Int. Cl.**  
**B25B 21/00** (2006.01)  
**G01L 5/24** (2006.01)  
**G01L 25/00** (2006.01)  
**G01L 5/00** (2006.01)

(52) **U.S. Cl.**  
CPC . **G01L 5/24** (2013.01); **B25B 21/00** (2013.01);  
**G01L 25/00** (2013.01); **G01L 5/0042** (2013.01)

(58) **Field of Classification Search**

CPC ..... G01L 25/003; G01L 5/24; G01L 5/0042; G05D 17/02

USPC ..... 73/862.21-862.25  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,186,083 A \* 2/1993 Hsiao ..... B25B 13/06  
81/124.4  
6,796,190 B2 \* 9/2004 Curry ..... B25G 1/063  
73/862.21  
8,413,525 B1 \* 4/2013 Schultz ..... B25B 23/14  
73/862.21

\* cited by examiner

*Primary Examiner* — Max Noori

(74) *Attorney, Agent, or Firm* — CKC & Partners Co., Ltd.

(57) **ABSTRACT**

A biaxial torque measuring device includes a base and two torque sensing shafts. The torque sensing shafts are disposed on the base, wherein one of the torque sensing shafts is axially parallel to a surface of the base, the other torque sensing shaft has an angle relative to the surface of the base, the angle is greater than 0 degree and smaller than 180 degrees, and each of the torque sensing shafts has a sensing portion for sensing a torque value.

**11 Claims, 8 Drawing Sheets**

100B

