



US009409280B2

(12) **United States Patent**
Sung

(10) **Patent No.:** **US 9,409,280 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **BRAZED DIAMOND TOOLS AND METHODS FOR MAKING THE SAME**

USPC 51/297; 125/12, 13.01, 15, 22; 451/443, 451/444, 527, 529, 541, 548

See application file for complete search history.

(76) Inventor: **Chien-Min Sung**, Tansui (TW)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 393 days.

(56) **References Cited**

U.S. PATENT DOCUMENTS

187,593 A	2/1877	Brown et al.
238,946 A	3/1881	McKittrick
296,756 A	4/1884	Kirkpatrick
1,854,071 A	4/1932	Schacht
1,988,065 A	1/1935	Wooddell
2,027,087 A	1/1936	Buckner

(Continued)

FOREIGN PATENT DOCUMENTS

CN	1351922	6/2002
CN	1494984	5/2004

(Continued)

OTHER PUBLICATIONS

Colmonoy Technical Data Sheet; No. DSP-A; 1993.

(Continued)

(21) Appl. No.: **13/416,201**

(22) Filed: **Mar. 9, 2012**

(65) **Prior Publication Data**

US 2012/0260582 A1 Oct. 18, 2012

Related U.S. Application Data

(63) Continuation-in-part of application No. 13/407,634, filed on Feb. 28, 2012, now Pat. No. 9,238,207, which is a continuation-in-part of application No. 13/153,176, filed on Jun. 3, 2011, which is a continuation-in-part of application No. 12/463,897,

(Continued)

(51) **Int. Cl.**

B24D 18/00	(2006.01)
B28D 1/12	(2006.01)
B01J 3/06	(2006.01)
B24D 3/06	(2006.01)

(52) **U.S. Cl.**

CPC **B24D 18/0009** (2013.01); **B01J 3/062** (2013.01); **B24D 3/06** (2013.01); **B24D 18/0027** (2013.01); **B28D 1/121** (2013.01); **B28D 1/127** (2013.01); **B01J 2203/061** (2013.01); **B01J 2203/062** (2013.01); **B01J 2203/066** (2013.01); **B01J 2203/068** (2013.01); **B01J 2203/0645** (2013.01); **B01J 2203/0655** (2013.01)

(58) **Field of Classification Search**

CPC .. B24B 53/017; B24B 7/22; B24D 18/00009; B24D 18/0027; B24D 1/04; B24D 1/121; B24D 1/127

Primary Examiner — Timothy V Eley

(74) *Attorney, Agent, or Firm* — Thorpe North & Western, LLP

(57) **ABSTRACT**

Superabrasive tools and methods for the making thereof are disclosed and described. In one aspect, superabrasive particles are chemically bonded to a matrix support material according to a predetermined pattern by a braze alloy. The brazing alloy may be provided as a powder, thin sheet, or sheet of amorphous alloy. A template having a plurality of apertures arranged in a predetermined pattern may be used to place the superabrasive particles on a given substrate or matrix support material.

14 Claims, 8 Drawing Sheets

