



US00D881957S

(12) **United States Design Patent** (10) **Patent No.:** **US D881,957 S**
Wang (45) **Date of Patent:** **** *Apr. 21, 2020**

(54) **TWIST DRILL** 5,931,615 A * 8/1999 Wiker B23B 51/02
408/229
(71) Applicant: **Hongjia Wang**, Shanghai (CN) 6,213,692 B1 * 4/2001 Guehring B23B 51/02
408/144
(72) Inventor: **Hongjia Wang**, Shanghai (CN) 8,753,046 B2 7/2014 Schneider
8,882,412 B2 * 11/2014 Sampath B23B 51/02
408/144
(*) Notice: This patent is subject to a terminal dis- D734,791 S * 7/2015 O'Malley D15/139
claimer. D826,299 S * 8/2018 Bailleres D15/139
D840,449 S * 2/2019 Wang D15/139
(**) Term: **15 Years** 2002/0040813 A1 * 4/2002 Kleine B23B 51/02
175/394
(21) Appl. No.: **29/696,337** 2002/0053472 A1 * 5/2002 Kleine B23B 51/02
175/394
(22) Filed: **Jun. 27, 2019** 2014/0363244 A1 * 12/2014 Allen B23B 51/009
408/16

(Continued)

(51) **LOC (12) Cl.** **15-09**
(52) **U.S. Cl.**
USPC **D15/139**
(58) **Field of Classification Search**
USPC D8/20, 70, 86; D15/132, 138, 139, 140
CPC B23B 51/00; B23B 51/02; B23B 51/06;
B23B 51/009; B23B 2215/04; B23B
2226/27; B23B 2251/04; B23B 2251/14;
B23B 2251/18; B23C 3/02; B23C 5/10;
B23C 5/28
See application file for complete search history.

FOREIGN PATENT DOCUMENTS

CN 301757682 S 12/2011
CN 301921124 S 5/2012

Primary Examiner — Patricia A Palasik
(74) *Attorney, Agent, or Firm* — Wayne & Ken, LLC;
Tony Hom

(56) **References Cited**

U.S. PATENT DOCUMENTS

465,392 A * 12/1891 Shippee B23B 51/02
408/230
3,341,981 A * 9/1967 Baronyak B24B 3/247
451/415
4,400,119 A * 8/1983 Clement B23B 51/02
408/223
5,011,342 A * 4/1991 Hsu B23B 51/02
408/224
5,452,971 A * 9/1995 Nevills B23B 51/00
408/229
5,590,987 A * 1/1997 Bouzounie B23B 51/02
408/227
5,622,462 A * 4/1997 Gakhar B23B 51/02
408/230

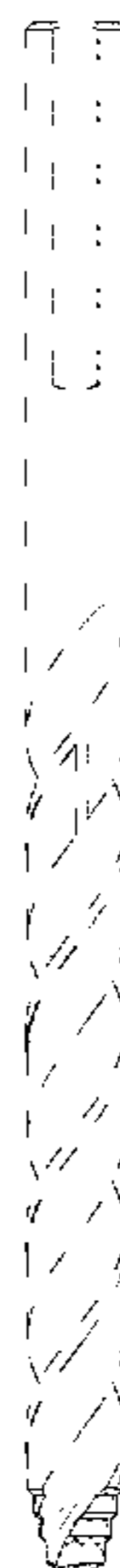
(57) **CLAIM**

The ornamental design for a twist drill, as shown and described.

DESCRIPTION

FIG. 1 is a front elevation view of a twist drill showing my new design;
FIG. 2 is a back elevation view thereof;
FIG. 3 is a left side view thereof;
FIG. 4 is a right side view thereof;
FIG. 5 is a top plan view thereof;
FIG. 6 is an enlarged bottom plan view thereof; and,
FIG. 7 is a perspective view thereof.
The broken lines in the drawings depict portions of the twist drill which form no part of the claimed design.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2016/0151841 A1* 6/2016 Tyczynski B23B 51/009
408/224
2017/0056981 A1* 3/2017 Higashiwaki B23B 35/00
2019/0151958 A1* 5/2019 Hammond, Jr. B23B 51/06
2019/0201985 A1* 7/2019 Tsukihara B23B 51/02
2019/0224759 A1* 7/2019 Krenzer B23B 47/34
2019/0232391 A1* 8/2019 Parendo B23B 51/02
2019/0232392 A1* 8/2019 Tsutsumi B23B 51/00
2019/0234150 A1* 8/2019 Miebach B23B 51/02

* cited by examiner



FIG. 1

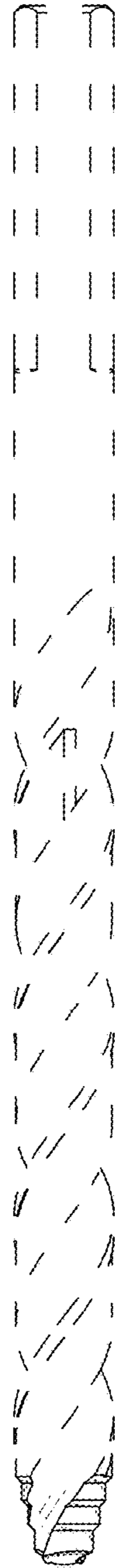


FIG. 2



FIG. 3



FIG. 4



FIG. 5

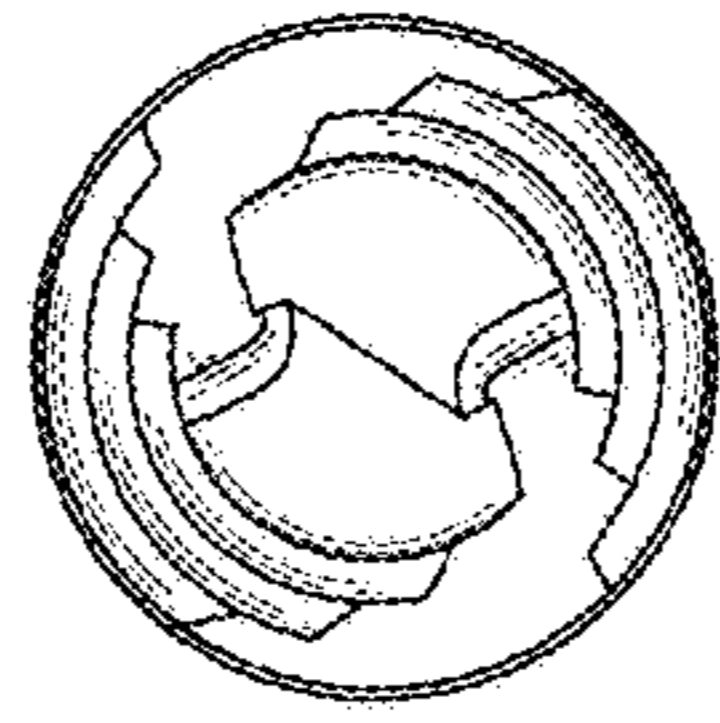


FIG. 6



FIG. 7