United States Patent [19]

Arfele et al.

 [11]
 Patent Number:
 Des. 403,335

 [45]
 Date of Patent:
 **Dec. 29, 1998

US00D403335S

[54] FOUR BLADE DRILL BIT

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- [73] Assignee: Dresser Industries, Inc., Houston, Tex.

[**] Term: 14 Years

[21] Appl. No.: **80,142**

Catalogue/Brochure page: "The Fast Track to the Bottom Line," p. 8. Strata Bit. Admitted prior art.

Catalogue/Brochure pages: "Standard PDC Bits; Standard Ringcutter PDC Bits; Gold Series Bits." Admitted prior art. Catalogue/Brochure page: "Hycalog Introduces the Hybrid– Fishtail." Hycalog. Admitted prior art.

Catalogue/Brochure page: "Longer Bit Life and Superior Downhole Performance." Hycalog. Admitted prior art. Catalogue/Brochure pages: 6 ³/₄ in. DS42H, et al. Hycalog. Admitted prior art.

Catalogue/Brochure pages: "Nortrak Navigation Drilling Systems," pp. 4–5. Nortrak. Admitted prior art. Catalogue/Brochure pages: "VIII. Diamond Drilling & Coring Bits," pp. 47–48. Eastman Christensen. Admitted prior art.

[22] Filed: Dec. 1, 1997

- [51] LOC (6) Cl. 15-09
- [52] U.S. Cl. D15/139
- [58] **Field of Search** D15/139; 175/379, 175/385, 393, 418, 420.1, 421, 430, 427,

431, 432; 299/29

[56] **References Cited**

U.S. PATENT DOCUMENTS

D. 340,248 10/1993 Brady D15/139 D. 351,174 10/1994 Brady D15/139 4,373,593 2/1983 Phaal et al. . 4/1991 Coolidge et al. 175/421 X 5,007,493 5/1992 Griffin . 5,111,895 11/1992 Jurewicz . 5,159,857 8/1995 Strange, Jr. . 5,443,565 8/1996 Mensa-Wilmot et al. 5,549,171 9/1996 Keith et al. 175/420.2 5,551,522 5,582,261 12/1996 Keith et al. 175/431 7/1997 Newton et al. . 5,651,421

Catalogue/Brochure pages: "Technical Data." Eastman Christensen. Admitted prior art. Catalogue/Brochure pages: Rock Digger 15, et al. Admitted prior art.

Catalogue/Brochure pages: "Diamond Products." Smith International, pp. 12–13. Admitted prior art.

Catalogue/Brochure page: "PD-7 Rotary and Motor Bit; PD-11 Rotary Bit; PD-11X2 Rotary Bit." Admitted prior art.

(List continued on next page.)

Primary Examiner—Antoine Duval Davis Attorney, Agent, or Firm—Browning Bushman

[57] CLAIM

The ornamental design for a four blade drill bit, as shown and described.

OTHER PUBLICATIONS

Catalogue/Brochure pages: "DP6 PDC Drill Bit." Admitted prior art.

Catalogue/Brochure pages: "Diamond Drill Bits." Cristal Profor. Tarbes, France. Admitted prior art.

Catalogue/Brochure pages: "A Strong Line of Natural Diamond and PDC Bits." Smith Diamond. Admitted prior art. Catalogue/Brochure pages: IADC S946, et al. Smith Diamond. Admitted prior art.

Catalogue/Brochure pages: "Cut Drilling Costs 40 Percent or More with a Strata Bit PDC Bit Tailored to the Formation." Strata Bit. Admitted prior art.

DESCRIPTION

FIG. 1 is a top plan view of a four blade drill bit showing our new design;

FIG. 2 is a front elevational view thereof;

- FIG. 3 is a right side elevational view thereof;
- FIG. 4 is a left side elevational view thereof;

FIG. 5 is a rear elevational view thereof;

FIG. 6 is a bottom plan view thereof; and,

FIG. 7 is a top, front, left side perspective view thereof.

1 Claim, 6 Drawing Sheets



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OTHER PUBLICATIONS

Catalogue/Brochure page: "Strata–Cut Drilling–Bits." Admitted prior art.

Catalogue/Brochure pages: "TD 2000 Series Drill Bits; TD Drill Bits; PD Steel Body Drill Bits." Diamont Boart Stratabit. Admitted prior art.

Catalogue/Brochure pages: "Diamond Compact Bits (R–Series)." Norton Christensen Drilling Products. Admitted prior art.

Catalogue/Brochure pages: "Bit Description" Admitted prior art. Catalogue/Brochure page: "Put the Best on the Bottom." BiTech. Admitted prior art. Catalogue/Brochure pages: 8 ¹/₂ in Hornet 4, et al. Reed Tool Company. Admitted prior art.

Catalogue/Brochure pages: "Diamond Compact Bits (R-Series)," pp. 11–12. Eastman Christensen. Admitted prior art.

Catalogue/Brochure page: "Smith Diamond's New S-95: The Right Direction in Soft Formations." Smith International. Admitted prior art.

Catalogue/Brochure pages: "Drilling Bits." Petroleum Diamond Products. Admitted prior art.

Catalogue/Brochure pages: "Diataq DS." Admitted prior art.

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FIG.1





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FIG. 5

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FIG.7