

[54] BALL END MILL

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[**] Term: 14 Years

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[58] Field of Search D15/138, 139, 140; 407/40, 42, 54; 408/239 A, 239 R, 187, 700, 713, 223, 224, 227, 229, 233, 199

[56]

References Cited

U.S. PATENT DOCUMENTS

| | | | | |
|-----------|---------|---------------------|---------|---|
| 4,252,480 | 2/1981 | Mizuno et al. | 408/223 | X |
| 4,265,574 | 5/1981 | Eckle | 407/54 | X |
| 4,527,930 | 7/1985 | Harroun | 407/42 | X |
| 4,564,321 | 1/1986 | Kondo et al. | 408/713 | X |
| 4,566,827 | 1/1986 | Neumueller | 407/42 | X |
| 4,585,375 | 4/1986 | Erkfritz | 407/113 | X |
| 4,588,331 | 5/1986 | Yoshinori | 407/42 | X |
| 4,618,296 | 10/1986 | Allaire et al. | 407/42 | |

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[57]

CLAIM

The ornamental design for a ball end mill, as shown.

DESCRIPTION

FIG. 1 is a front elevational view of a ball end mill showing our new design;
FIG. 2 is a right side elevational view;
FIG. 3 is a left side elevational view;
FIG. 4 is a rear elevational view;
FIG. 5 is a top plan view;
FIG. 6 is a bottom plan view; and,
FIG. 7 is a front and left side perspective view thereof.

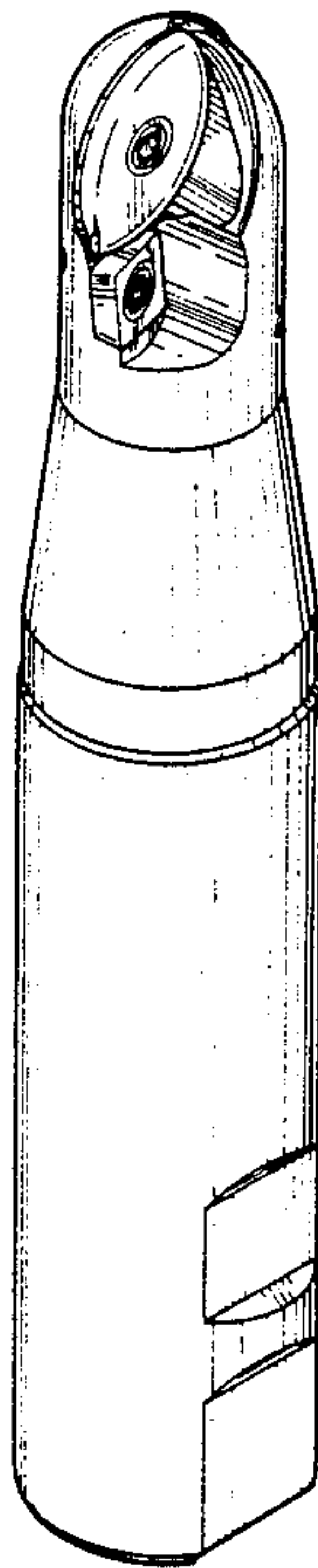


FIG. 1

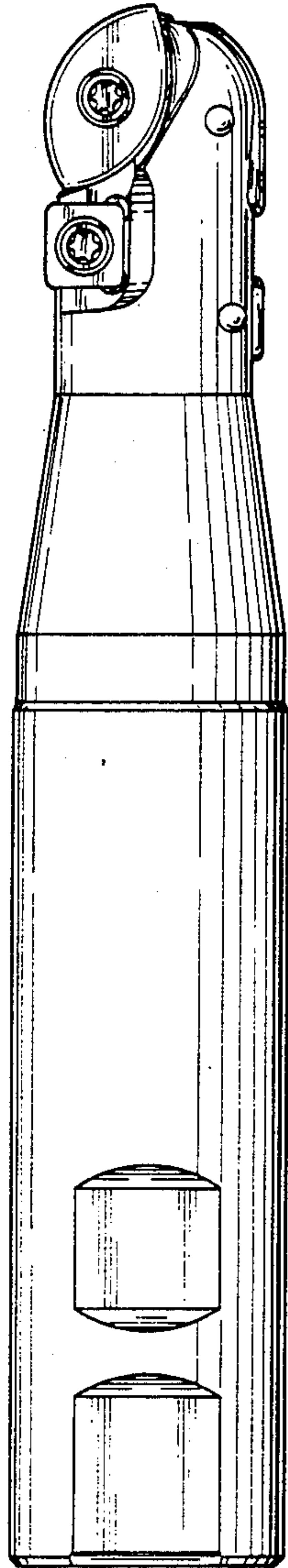


FIG. 2

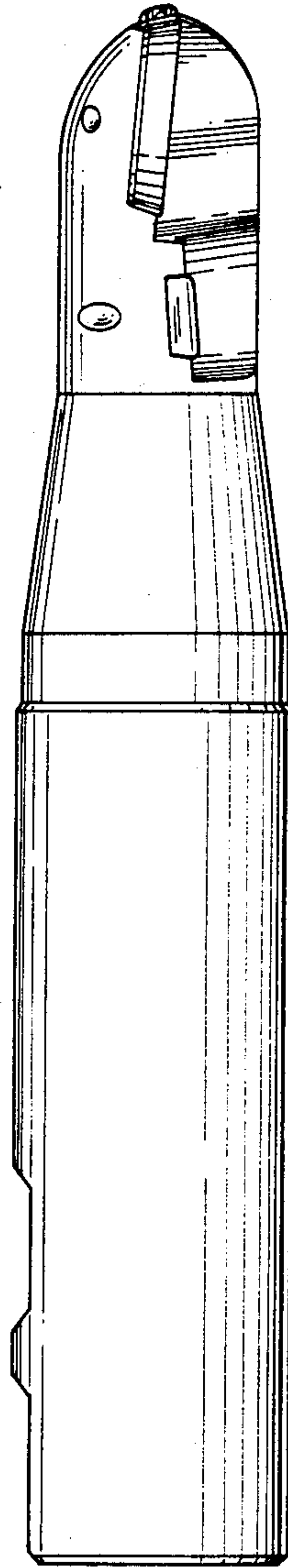


FIG. 5

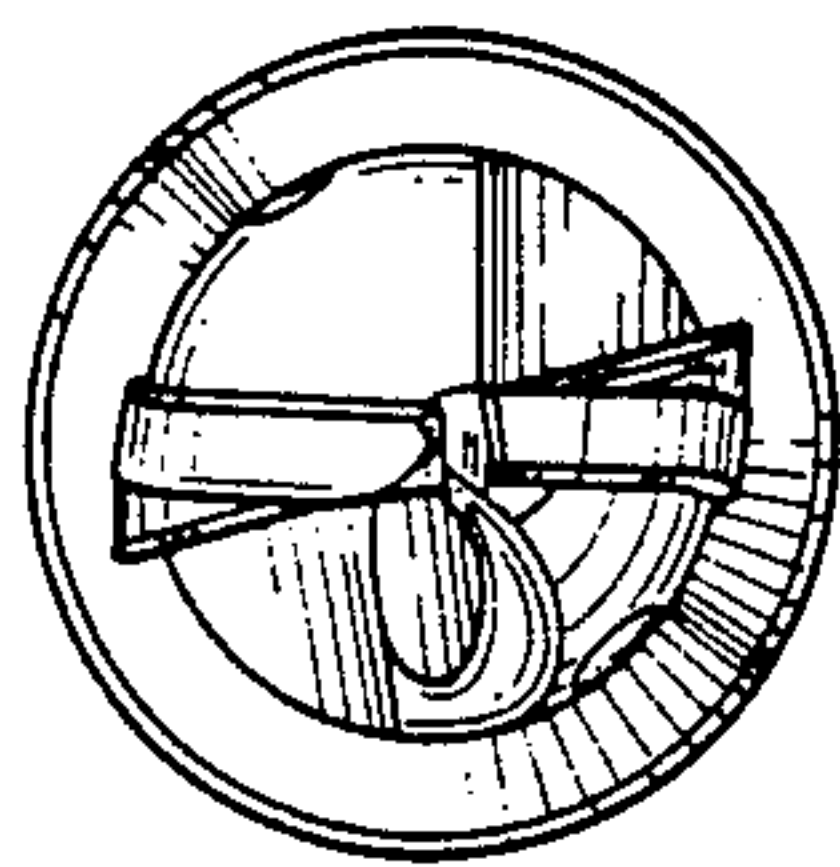


FIG. 6

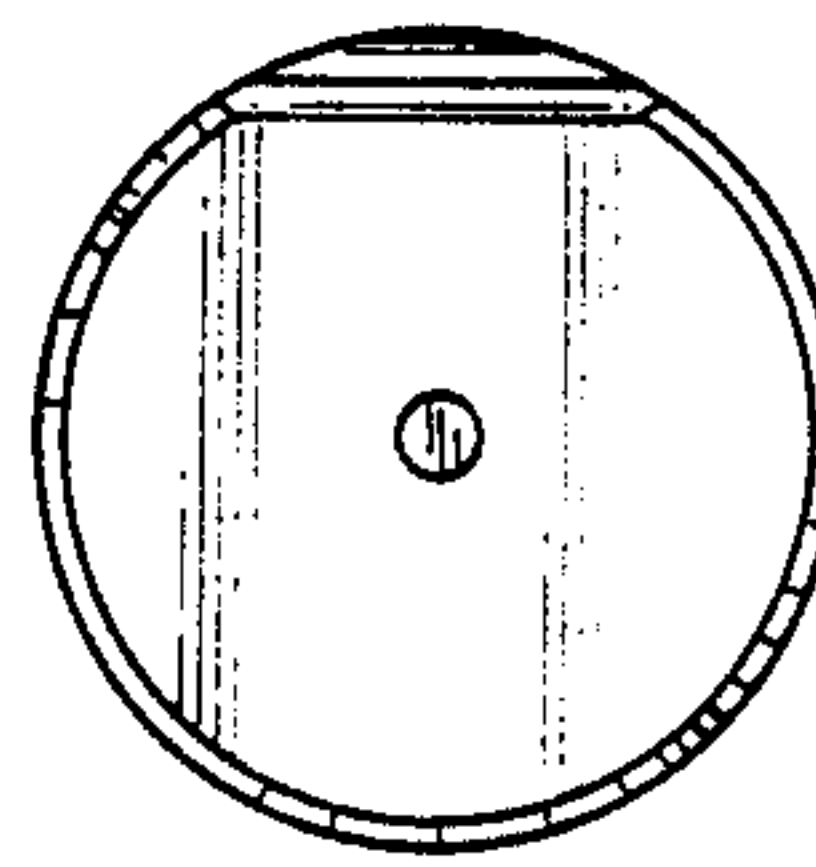


FIG. 3

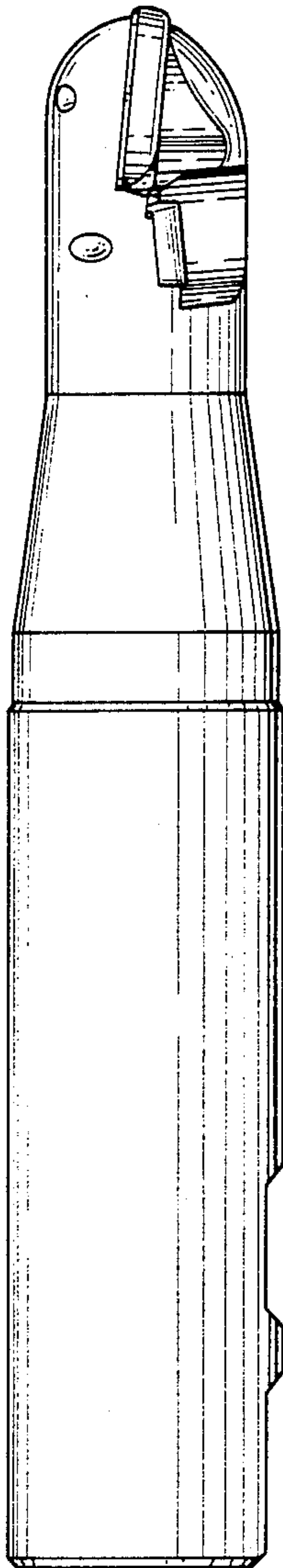


FIG. 4

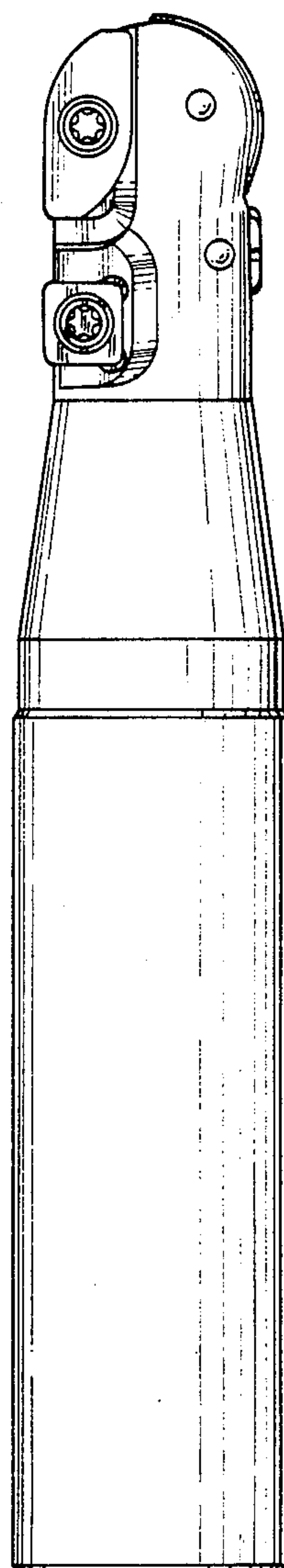


FIG. 7

