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(12) **United States Design Patent**
Horner-Richardson et al.

(10) **Patent No.:** **US D492,709 S**
(45) **Date of Patent:** **** Jul. 6, 2004**

(54) **PLASMA ARC TORCH TIP WITH SWIRL HOLES**

D420,374 S * 2/2000 Zigliotto D15/144
D451,113 S * 11/2001 Shintani et al. D15/144

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* cited by examiner

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(57) **CLAIM**

(**) Term: **14 Years**

The ornamental appearance of a plasma arc torch tip with swirl holes, as shown and described.

(21) Appl. No.: **29/173,318**

DESCRIPTION

(22) Filed: **Dec. 26, 2002**

Related U.S. Application Data

(63) Continuation-in-part of application No. 29/166,921, filed on Sep. 4, 2002.

FIG. 1 is a perspective view of the plasma arc torch tip with swirl holes from the top;

FIG. 2 is a perspective view thereof from below, wherein the dashed lines indicate changes in surface contour;

FIG. 3 is a perspective view thereof from above and rotated from FIG. 1;

(51) **LOC (7) Cl.** **15-09**

(52) **U.S. Cl.** **D15/144**

(58) **Field of Search** D15/144-144.2;
219/121.44-121.5

FIG. 4 is a side elevation view thereof;

FIG. 5 is a side elevation view thereof, rotated 90° from FIG. 4;

FIG. 6 is a top plan view thereof, wherein the dashed lines indicate changes in surface contour; and,

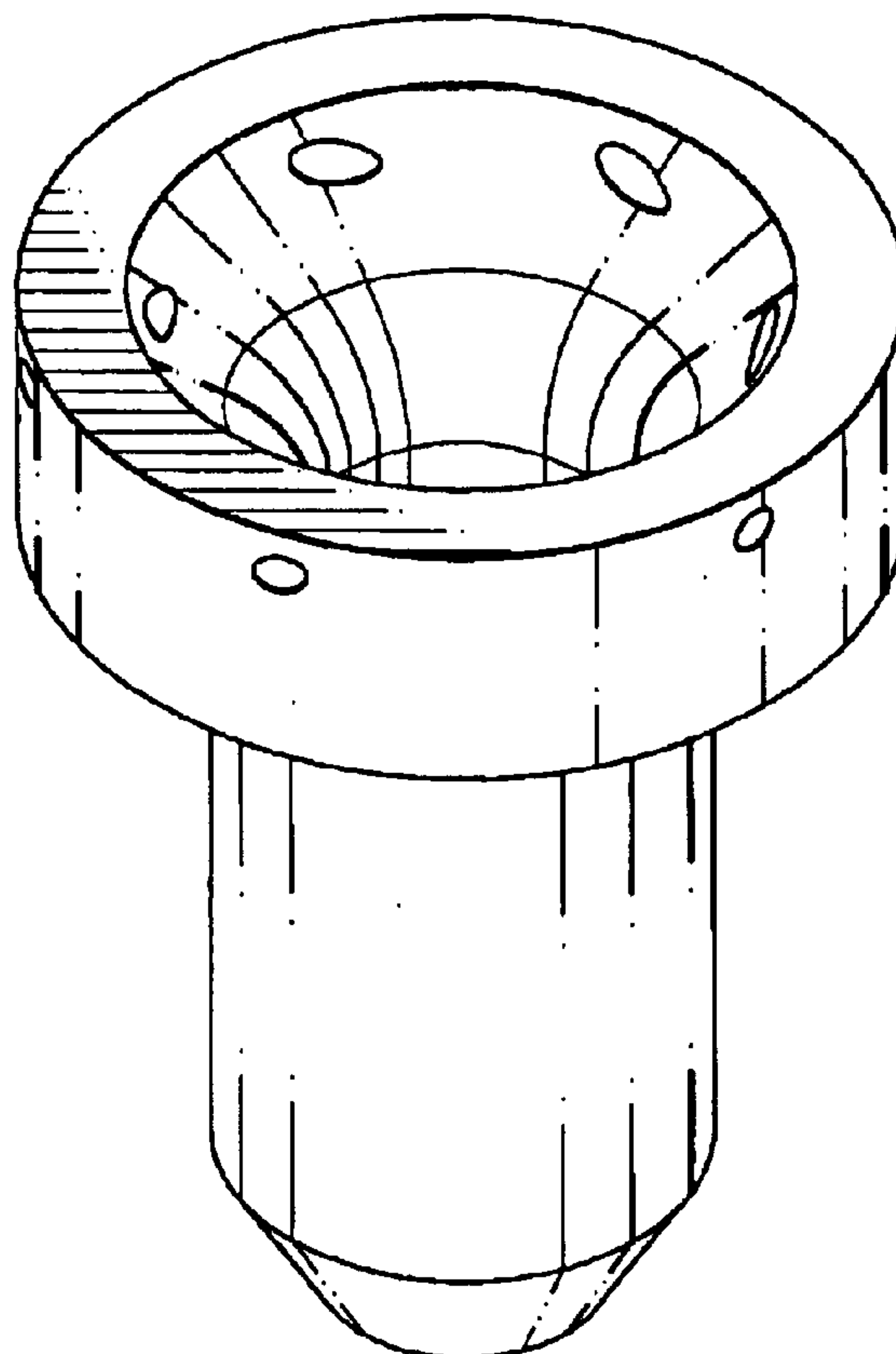
FIG. 7 is a bottom plan view thereof.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D414,788 S * 10/1999 Shintani et al. D15/144

1 Claim, 4 Drawing Sheets



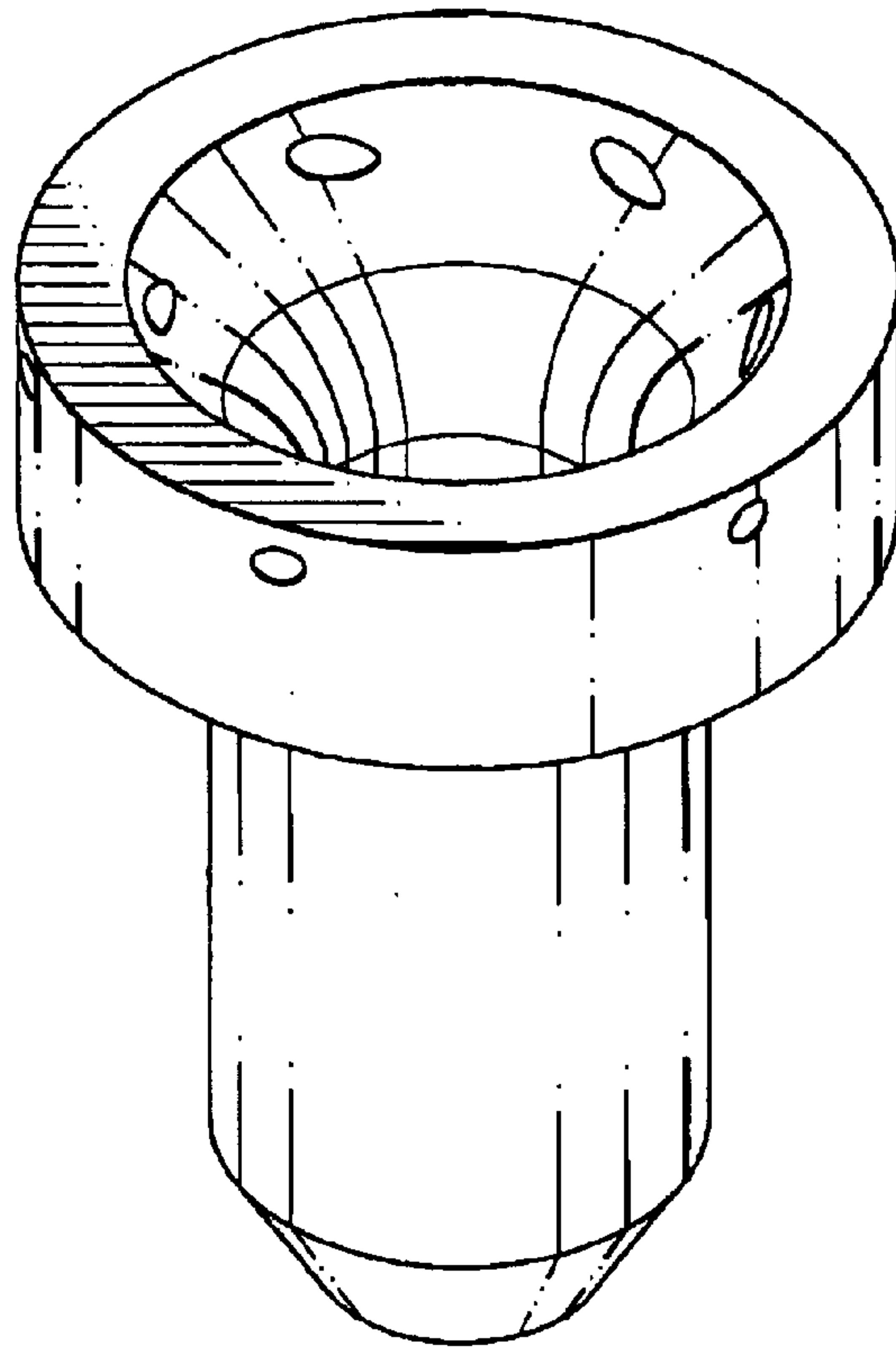


FIG. 1

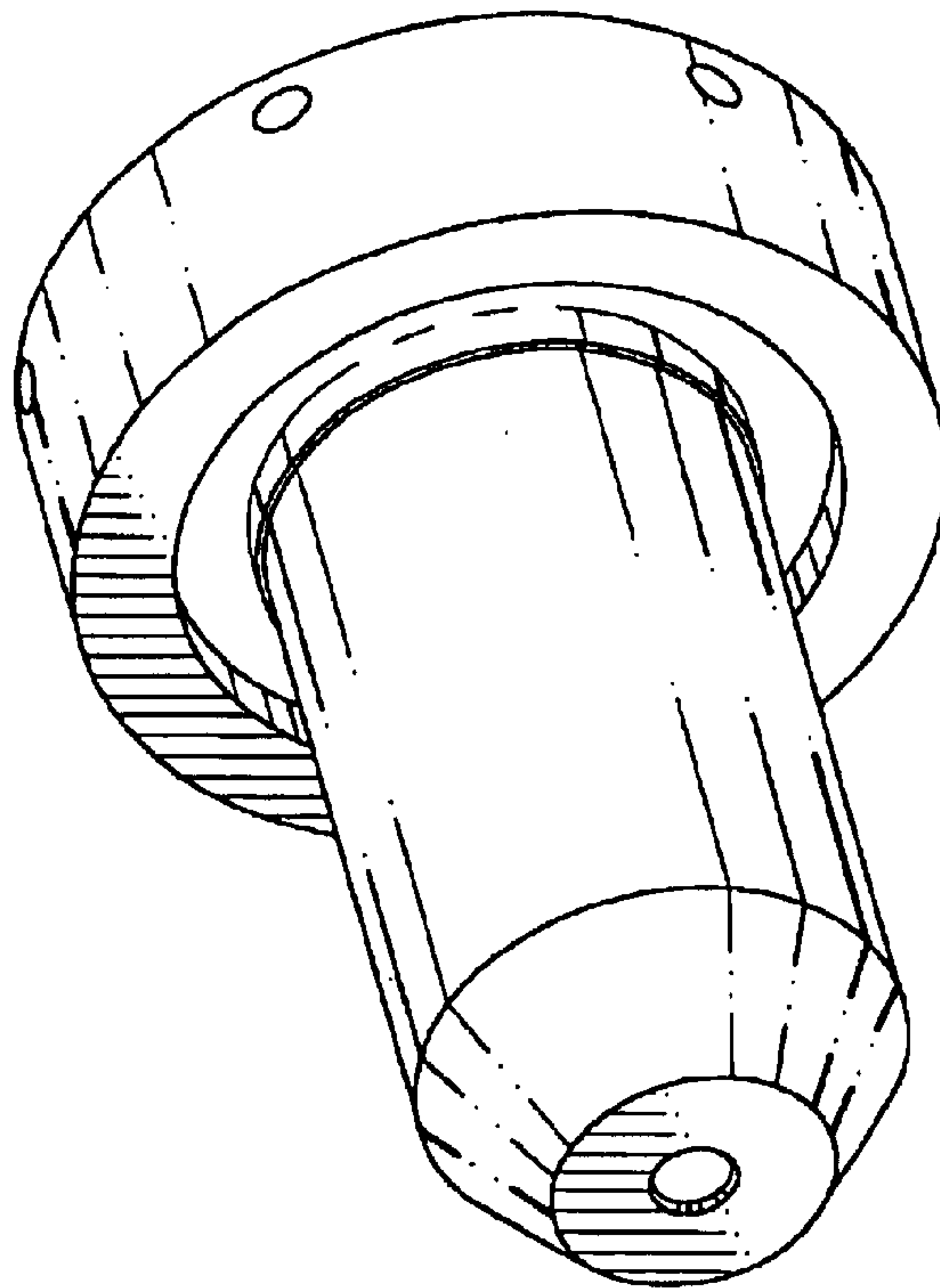


FIG. 2

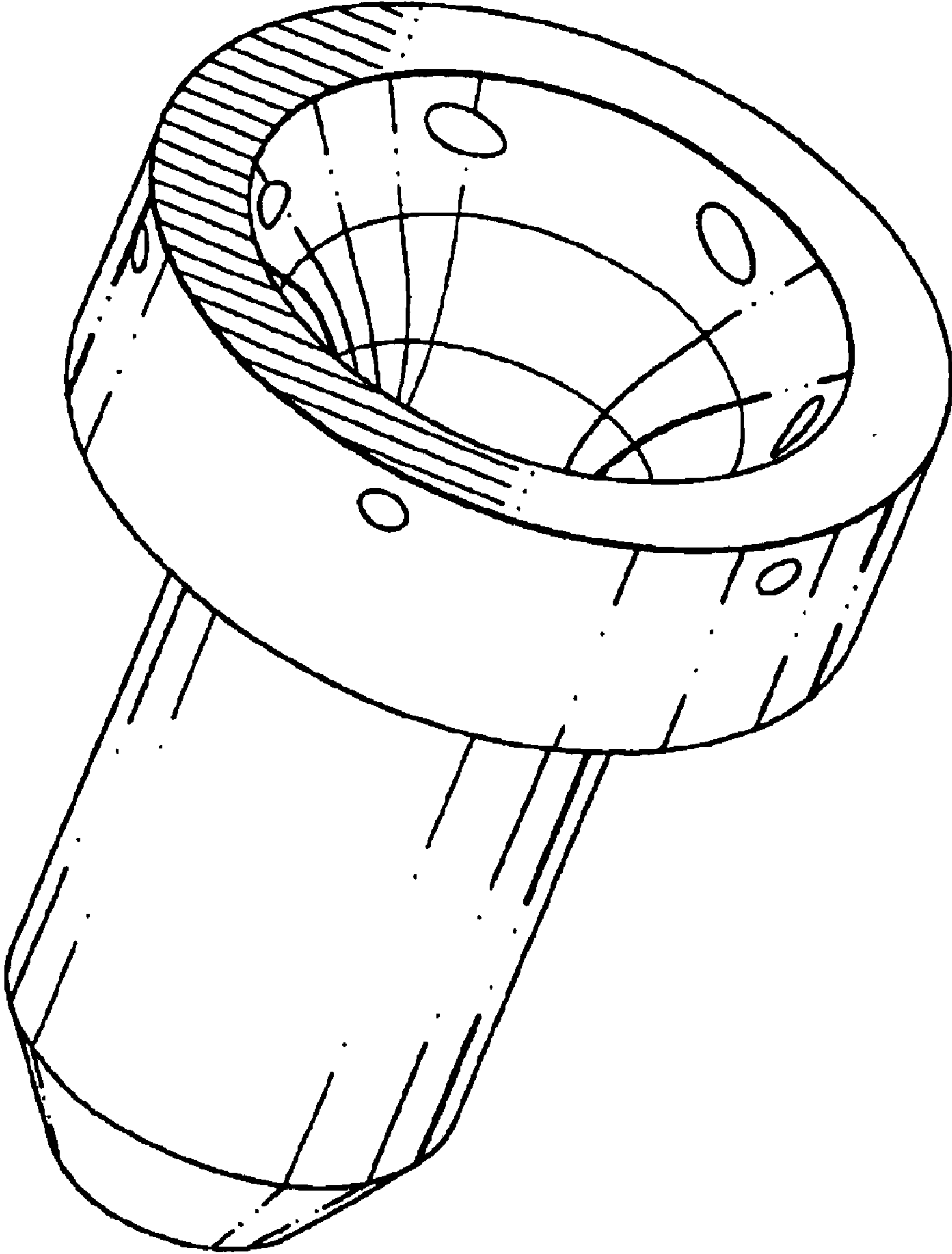


FIG. 3

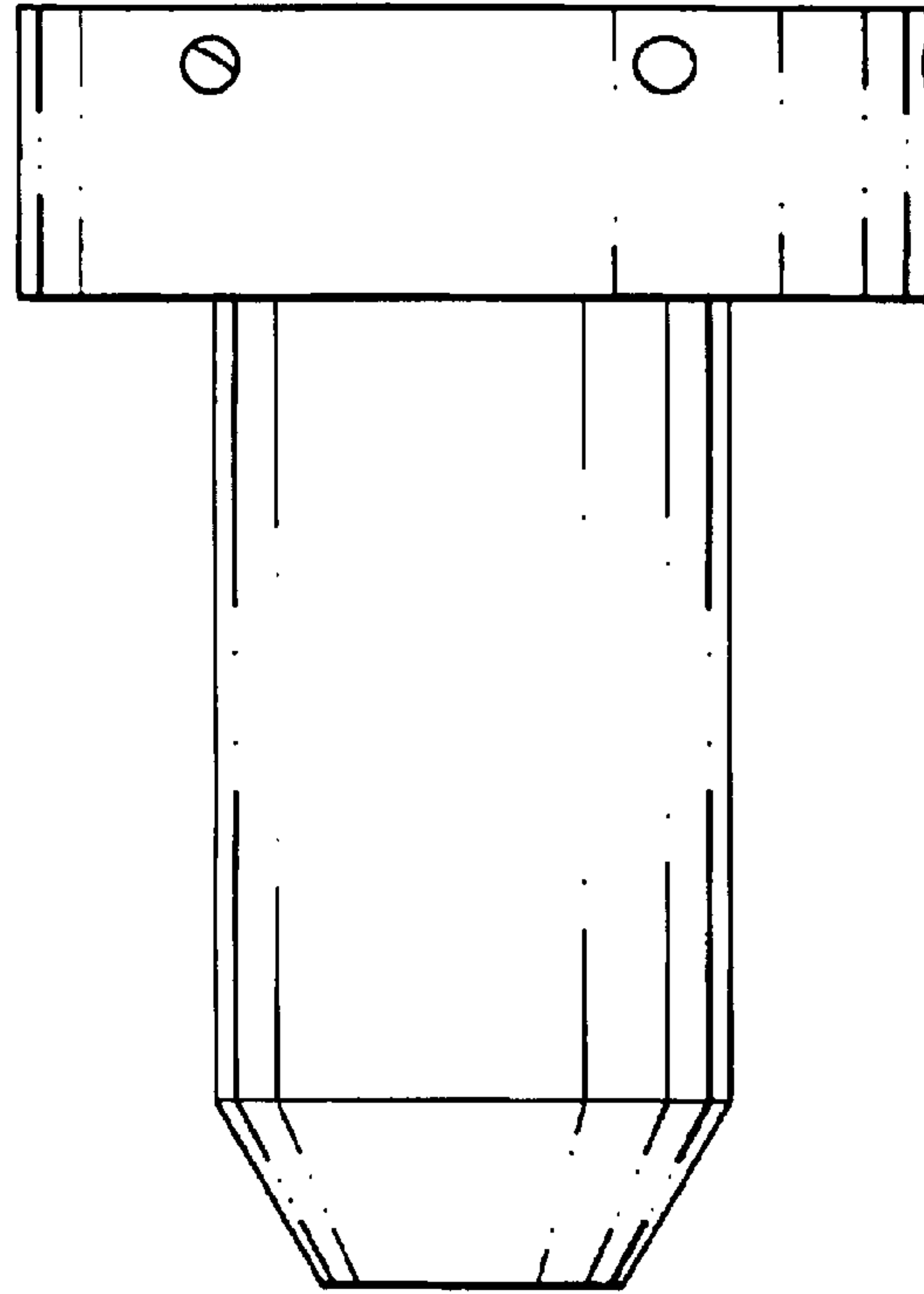


FIG. 4

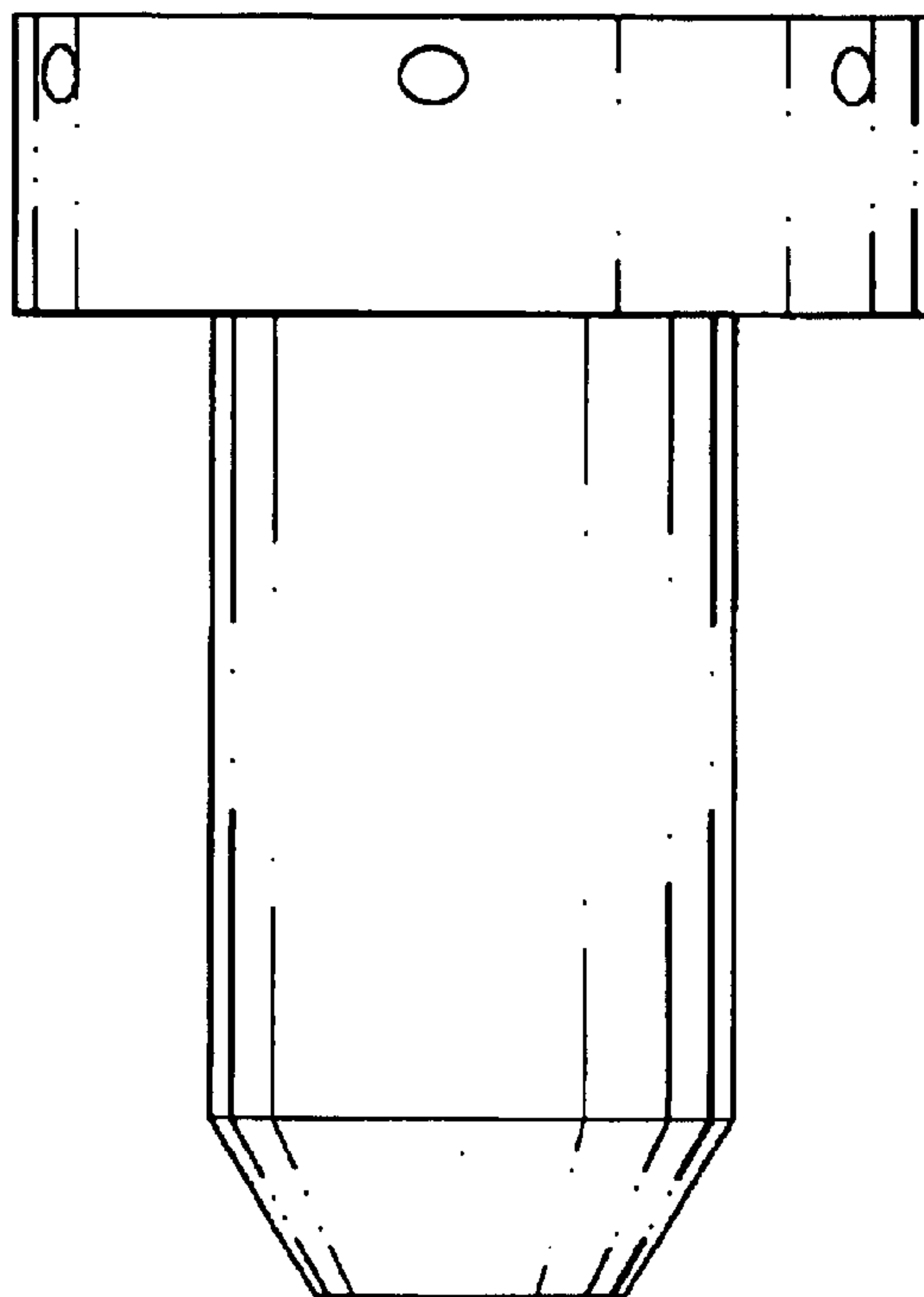


FIG. 5

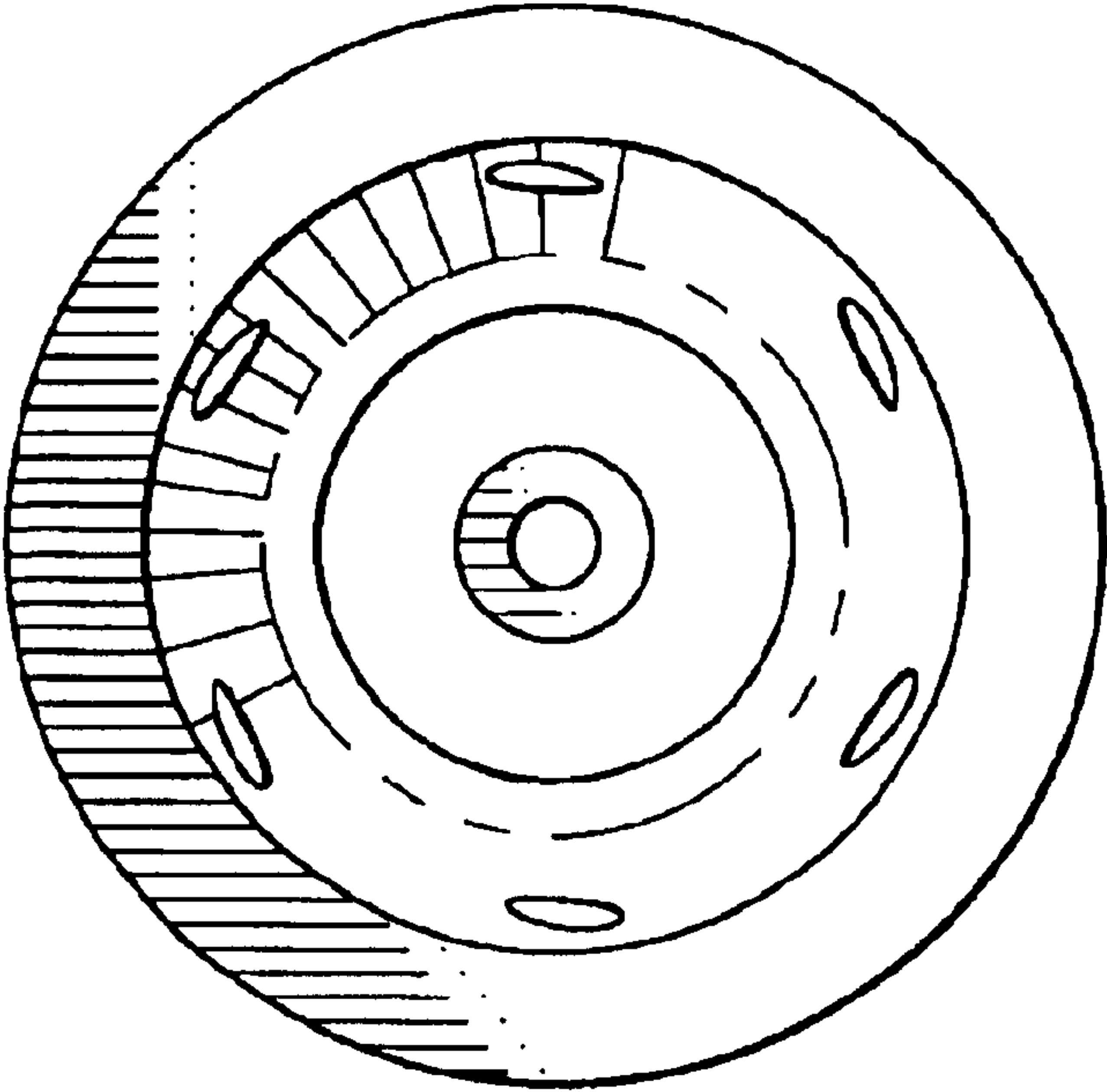


FIG. 6

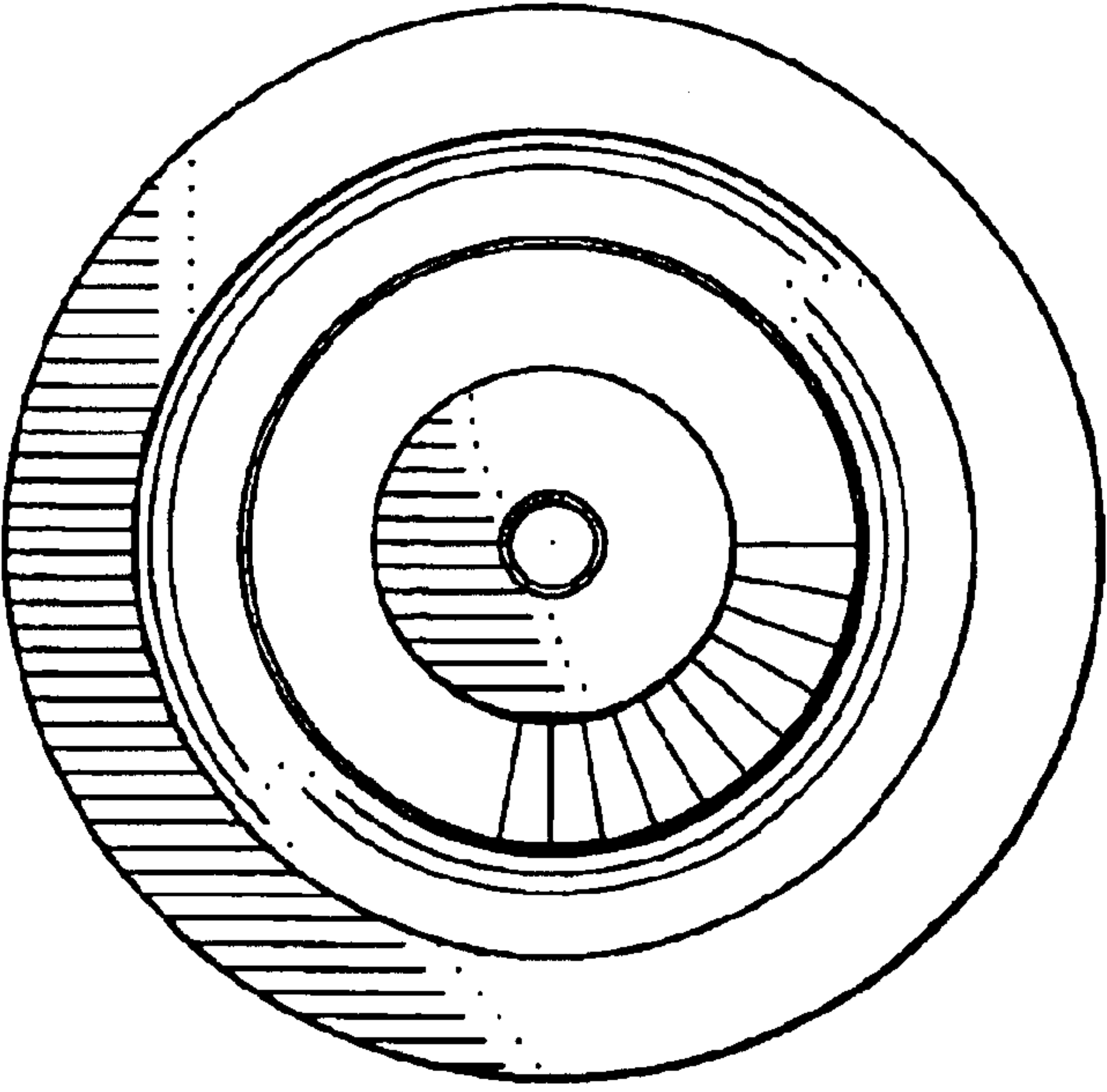


FIG. 7