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(12) **United States Design Patent**  
**Abe et al.**

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(45) **Date of Patent:** **\*\* May 4, 2010**

(54) **PLUG FOR THE END OF A TUBE**

(75) Inventors: **Yuji Abe**, Hyogo (JP); **Tomio Yoshino**,  
Hyogo (JP)

(73) Assignee: **Sumitomo Metal Industries, Ltd.**,  
Osaka (JP)

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

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(30) **Foreign Application Priority Data**

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(51) **LOC (9) Cl.** ..... **23-04**

(52) **U.S. Cl.** ..... **D23/386**

(58) **Field of Classification Search** ..... D23/386,  
D23/260, 266; 138/89.1, 89.3, 89.4; 15/104.03,  
15/104.05, 104.61; D22/108, 199, 117; 102/442,  
102/529; 42/95; 299/111, 113; D15/21;  
D24/130; 264/250; 428/543; 175/434  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,356,418 A \* 12/1967 Healey et al. .... 299/113  
4,069,535 A \* 1/1978 Cato ..... 166/153  
4,244,073 A \* 1/1981 Sagawa ..... D23/260  
4,389,461 A \* 6/1983 Scott ..... 428/543  
D360,007 S \* 7/1995 Farr ..... D22/117  
5,702,160 A \* 12/1997 Levankovskii et al. .... 299/111  
6,102,486 A \* 8/2000 Briese ..... 299/111  
D432,230 S \* 10/2000 Utas ..... D24/130  
D581,952 S \* 12/2008 Hall et al. .... D15/21  
D597,637 S \* 8/2009 Krohmer et al. .... D23/266  
D601,592 S \* 10/2009 Watson et al. .... D15/21

D604,809 S \* 11/2009 Mannella ..... D23/260  
2004/0065484 A1 \* 4/2004 McAlvain ..... 175/434

\* cited by examiner

*Primary Examiner*—T. Chase Nelson

*Assistant Examiner*—David G Muller

(74) *Attorney, Agent, or Firm*—Dennis R. Haszko

(57) **CLAIM**

The ornamental design for a plug for the end of a tube, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of the plug for the end of a tube showing the design;

FIG. 2 is a front view thereof;

FIG. 3 is a top plan view thereof;

FIG. 4 is a right side view thereof;

FIG. 5 is a left side view thereof;

FIG. 6 is an enlarged cross-sectional view along the line 6, 6 in FIG. 2; thereof;

FIG. 7 is an enlarged cross-sectional view along the line 7, 7 in FIG. 2 thereof;

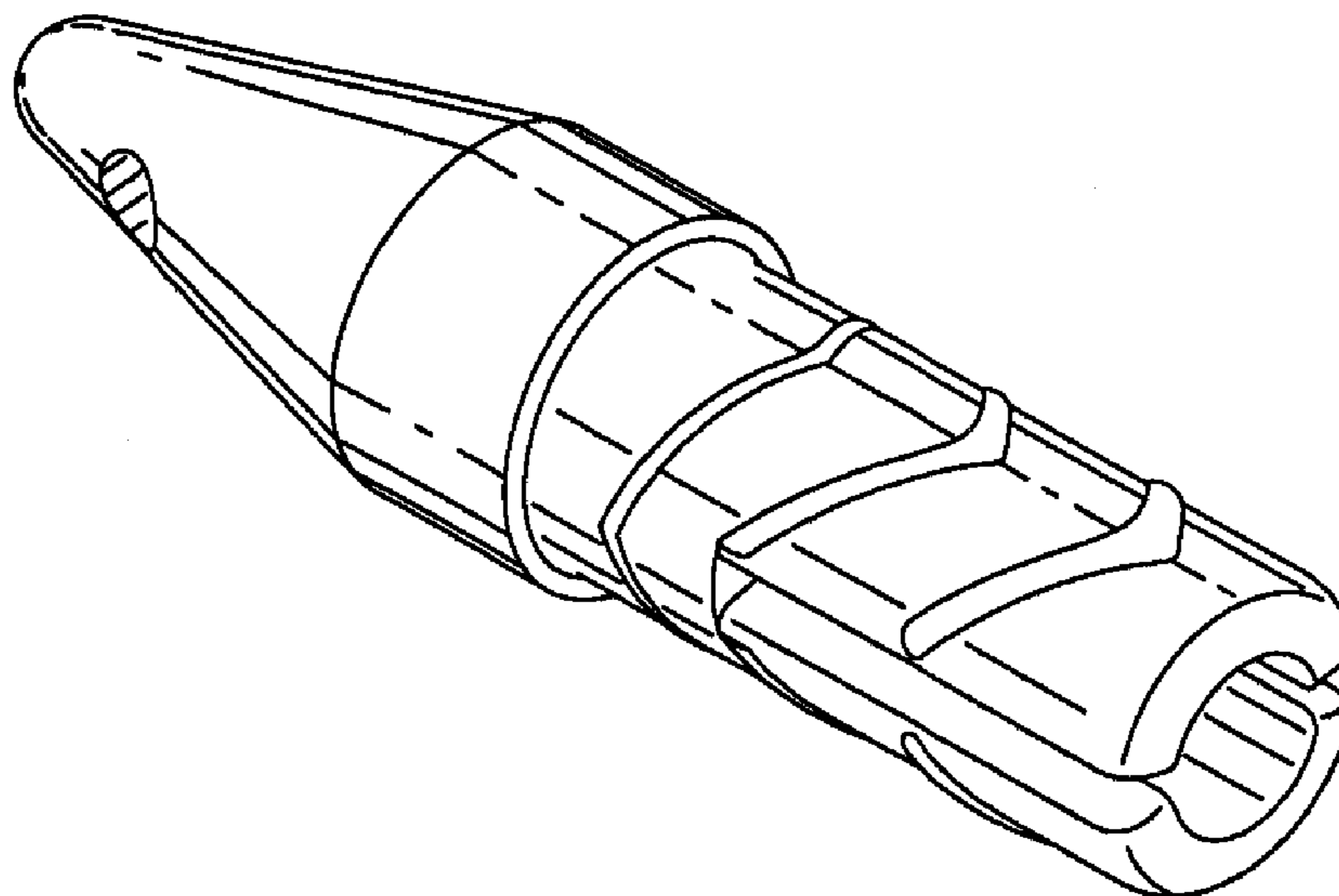
FIG. 8 is an enlarged cross-sectional view along the line 8-9, 8-9 in FIG. 3;

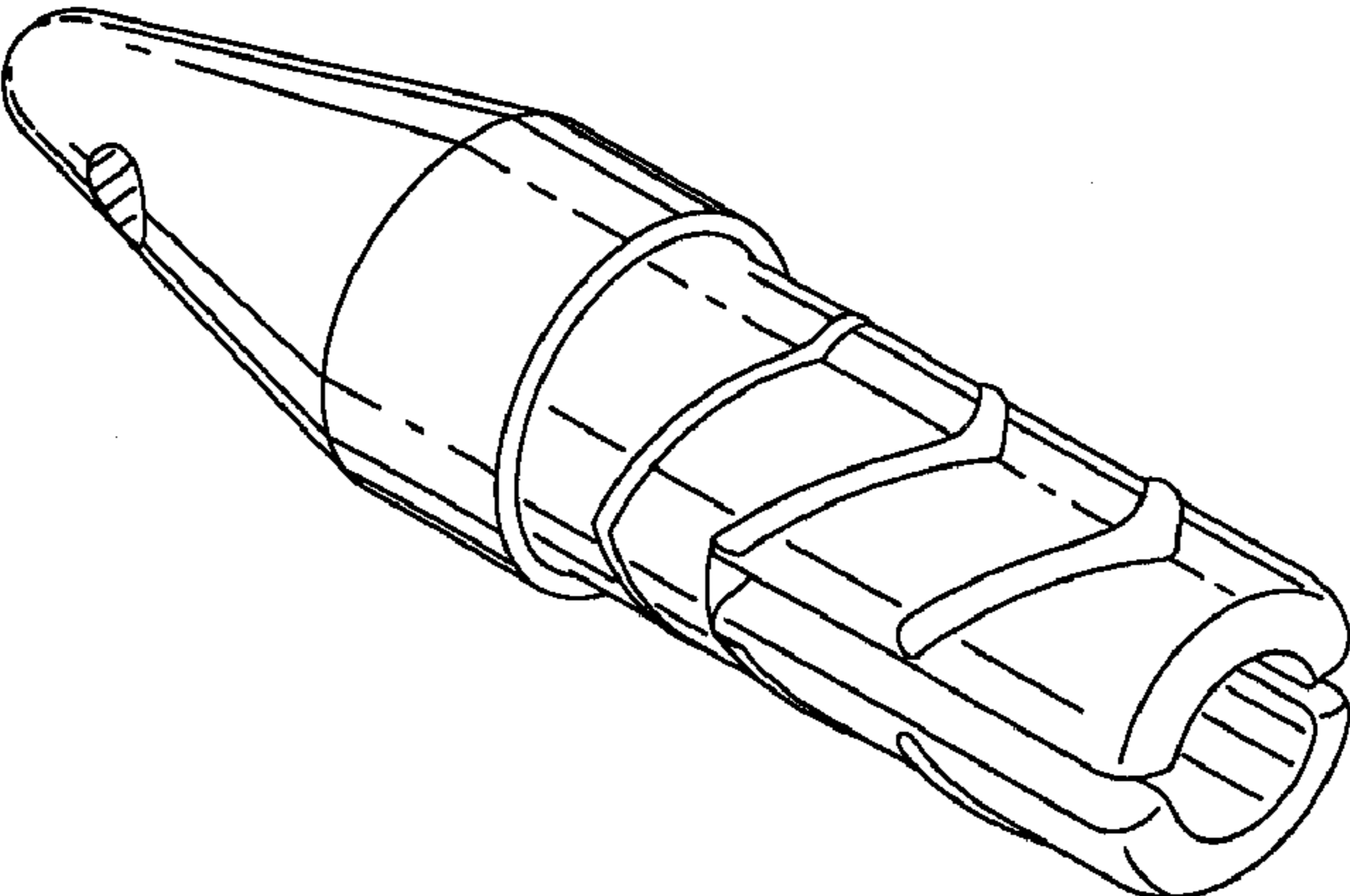
FIG. 9 a further cross-sectional view, along the line 8-9, 8-9 in FIG. 3, showing the plug located in an end of a tube; and,

FIG. 10 is a further perspective view, showing plugs each located in an end of a tube of a heat exchanger for a steam generator.

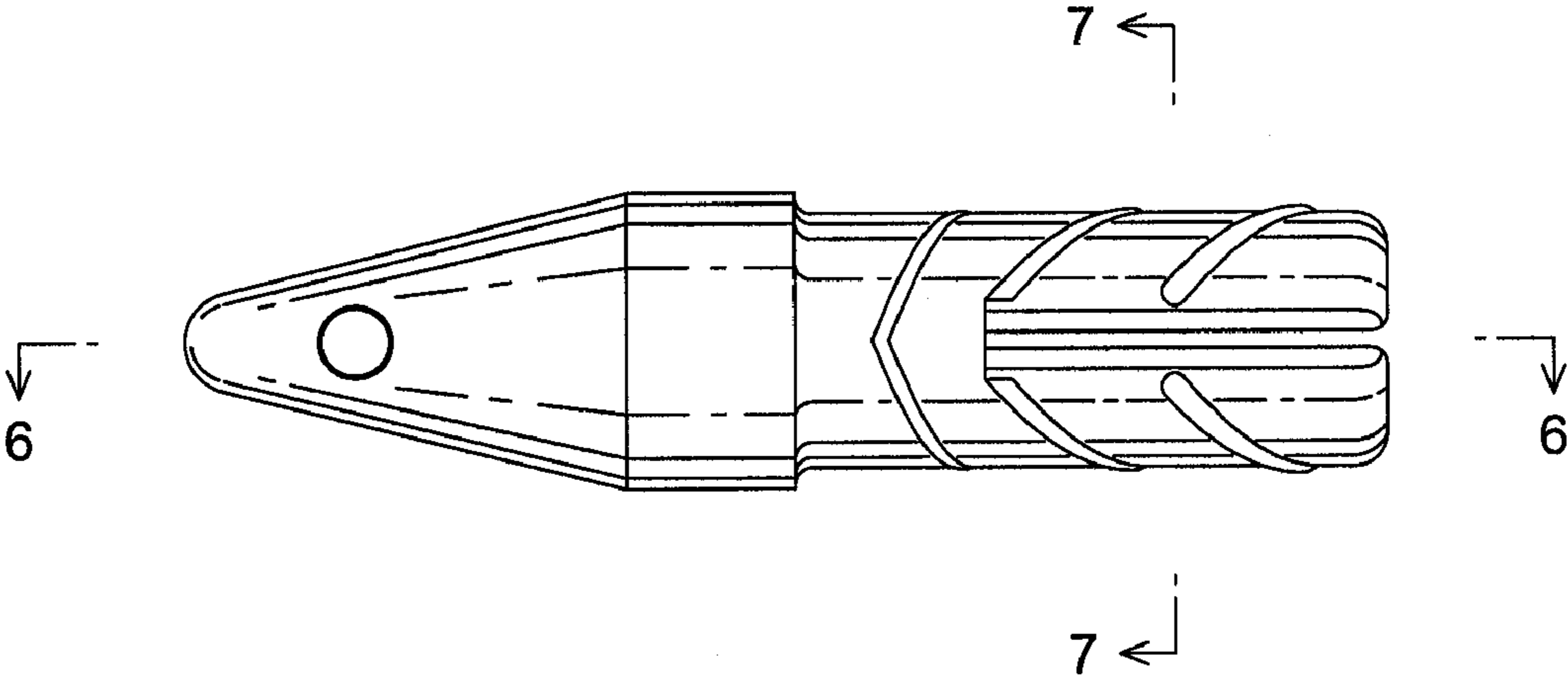
The broken lines showing parts of the drawings is included for the purpose of illustrating use and environment and forms no part of the claimed design.

**1 Claim, 5 Drawing Sheets**

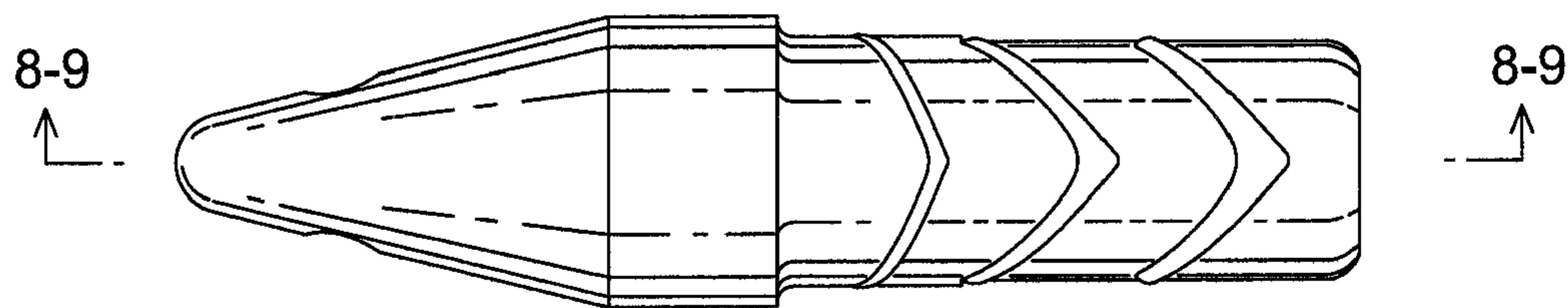




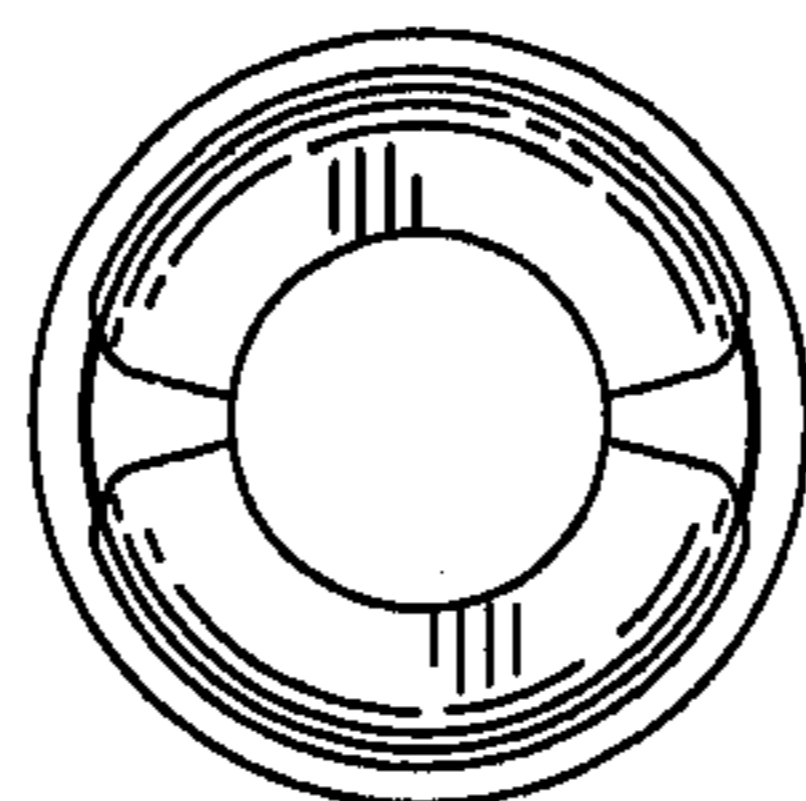
**FIG. 1**



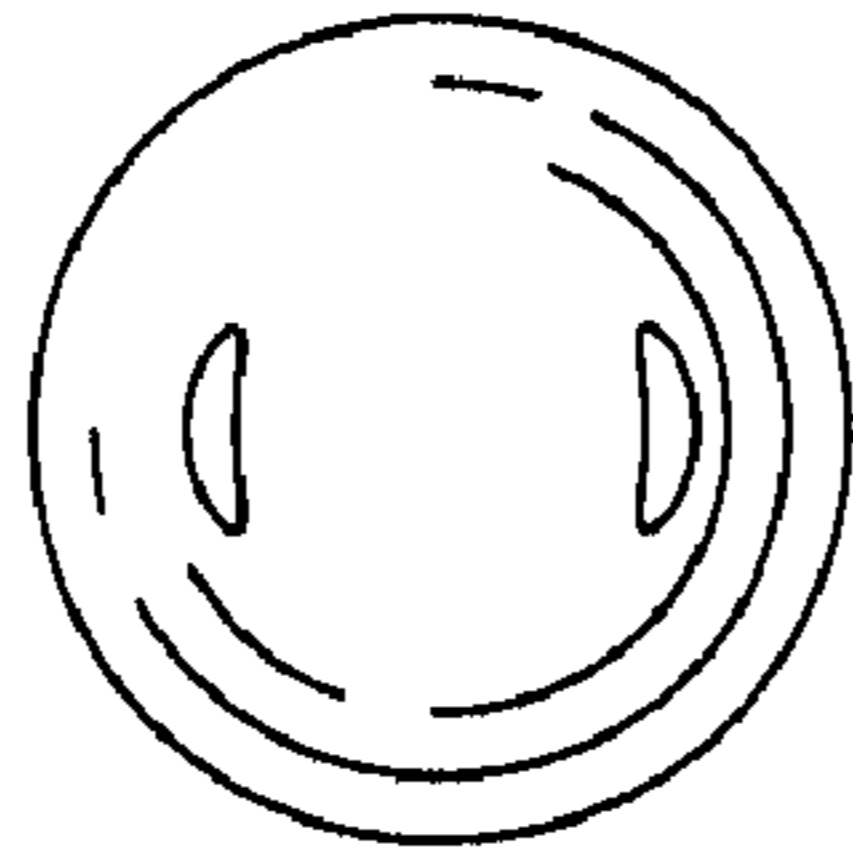
**FIG. 2**



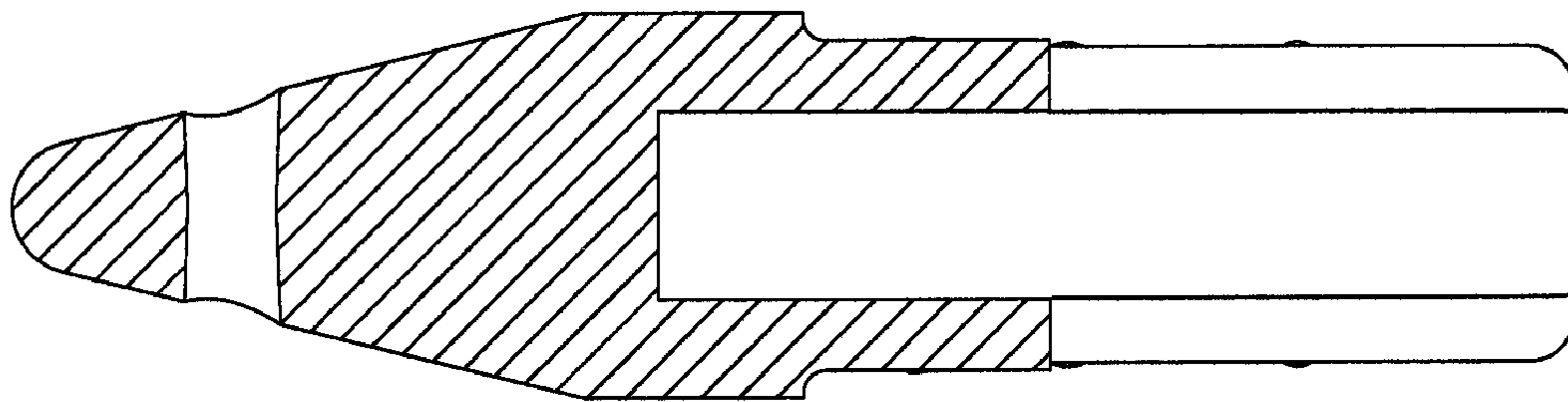
**FIG. 3**



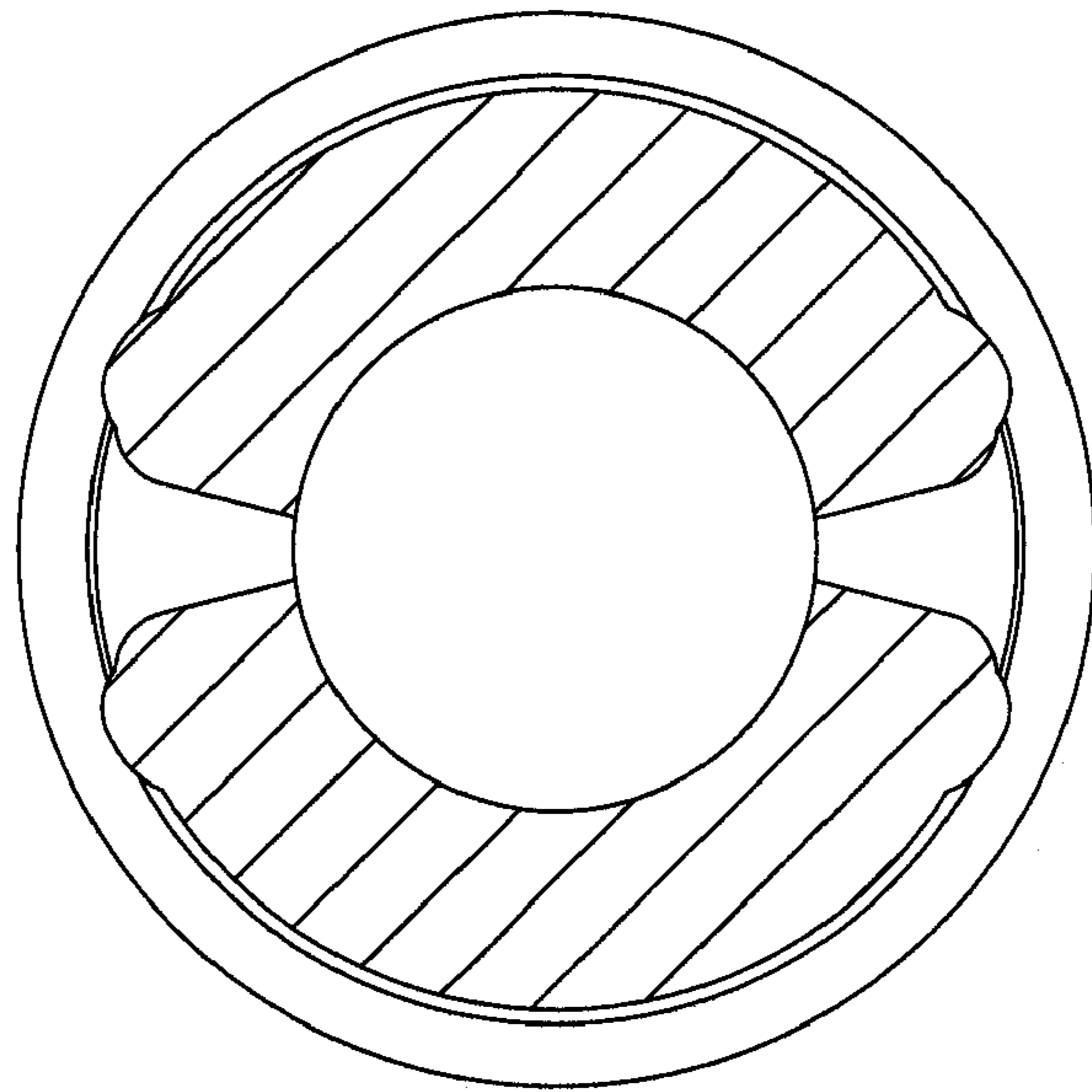
**FIG. 4**



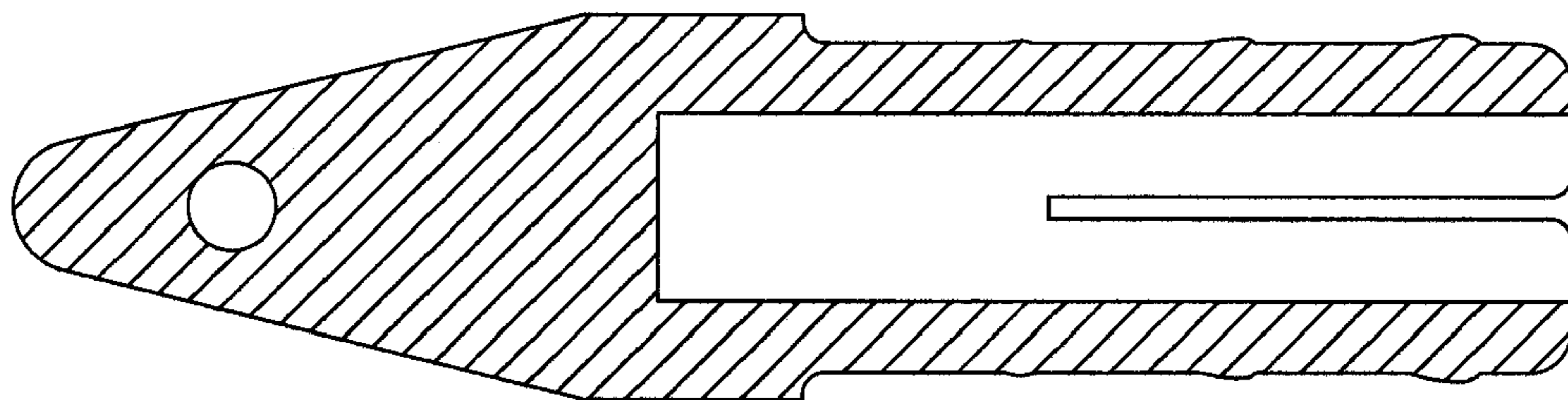
**FIG. 5**



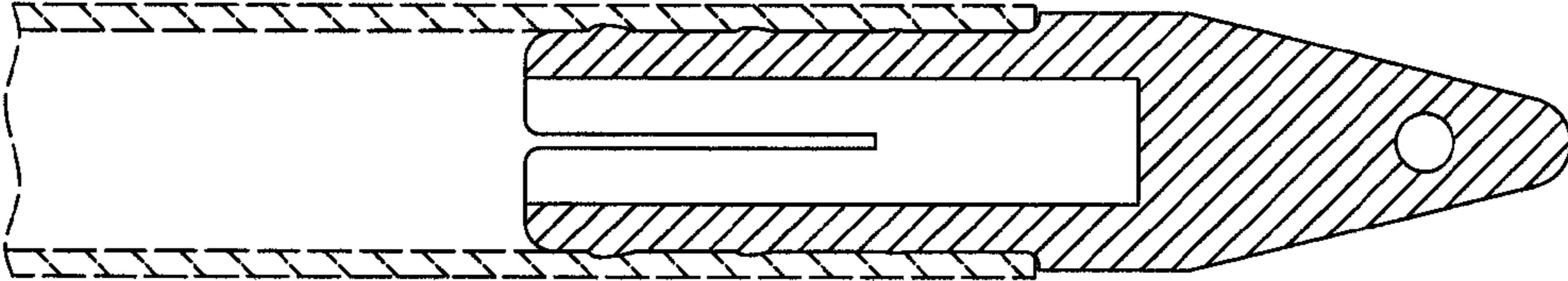
**FIG. 6**



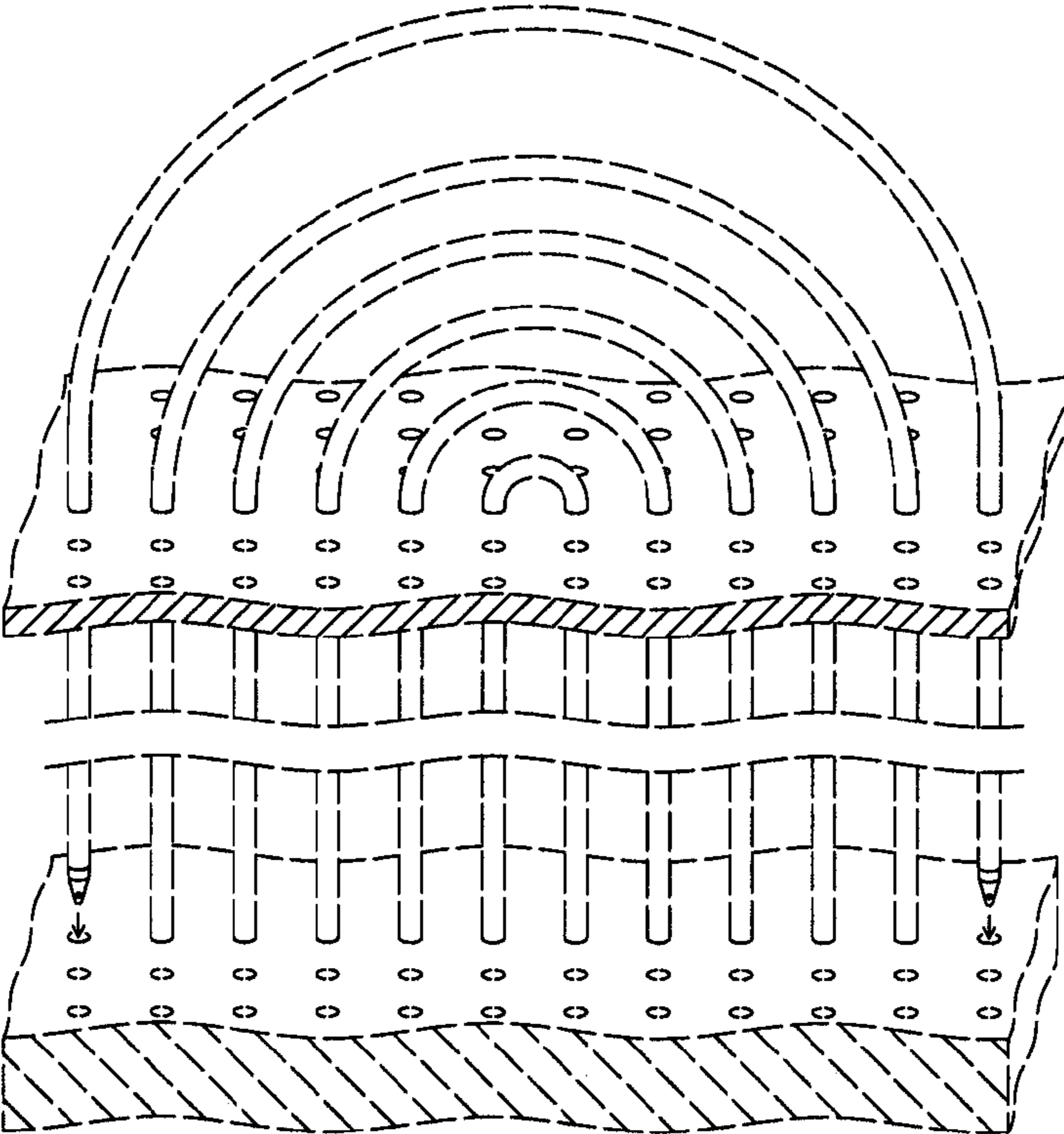
**FIG. 7**



**FIG. 8**



**FIG. 9**



**FIG. 10**