



US00D344062S

United States Patent [19]

[11] Patent Number: **Des. 344,062**

Kashiwara et al.

[45] Date of Patent: **** Feb. 8, 1994**

[54] AUXILIARY ELEMENT FOR IGNITION PLUGS FOR INTERNAL COMBUSTION ENGINES FOR AUTOMOBILES

[76] Inventors: **Ryohei Kashiwara**, Raitsu Ootori
106, 456-1, Ootori-kitamachi 8-cho,
Sakai-shi Osaka-fu; **Hideaki Kashiwara**, 3-B-611, 151-30,
Mukojima Ninomarucho,
Fushimi-ku, Kyoto-shi; **Hidehiko Noguchi**, 7-14, Taiho 3-chome,
Kanancho, Minami-kawchi-gun,
Osaka-fu; **Takeaki Kashiwara**,
3-37-411, Nagayoshidedo 3-chome,
Hirano-ku, Osaka-shi, all of Japan

[**] Term: **14 Years**

[21] Appl. No.: **915,960**

[22] Filed: **Jul. 21, 1992**

[30] Foreign Application Priority Data

Jan. 21, 1992 [JP] Japan 4-1380
[52] U.S. Cl. **D13/127; D15/5**
[58] Field of Search 123/26, 169, 32, 32 K,
123/191; 313/139, 11.5, 141, 142, 93; D15/1-5;
D13/127

[56] References Cited

U.S. PATENT DOCUMENTS

D. 180,302 5/1957 Thomas D13/127
D. 238,678 2/1976 Hornsby D13/127
1,224,296 5/1917 Gibson .
1,243,205 10/1917 Norman .
1,298,368 3/1919 Metzinger .
1,360,294 11/1920 Hill 313/139
1,371,488 3/1921 Jacobson .
1,644,633 10/1927 Buckingham 123/169
1,659,037 2/1928 MacDonald .
1,943,674 1/1934 Woods-Humphrey 123/169
1,963,801 6/1934 O'Marra 123/169
2,071,572 2/1937 Rabazzana et al. 123/169
2,096,199 10/1937 Rabazzana 123/169
2,129,003 9/1938 Grant 123/169
2,208,030 7/1940 Holmes 123/169
2,208,667 7/1940 Devine 123/169

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

0167687 3/1986 European Pat. Off. .
625568 6/1975 France .
2479588 10/1981 France .
53-54774 10/1976 Japan .
53-87331 12/1976 Japan .
52-1243 1/1977 Japan .

(List continued on next page.)

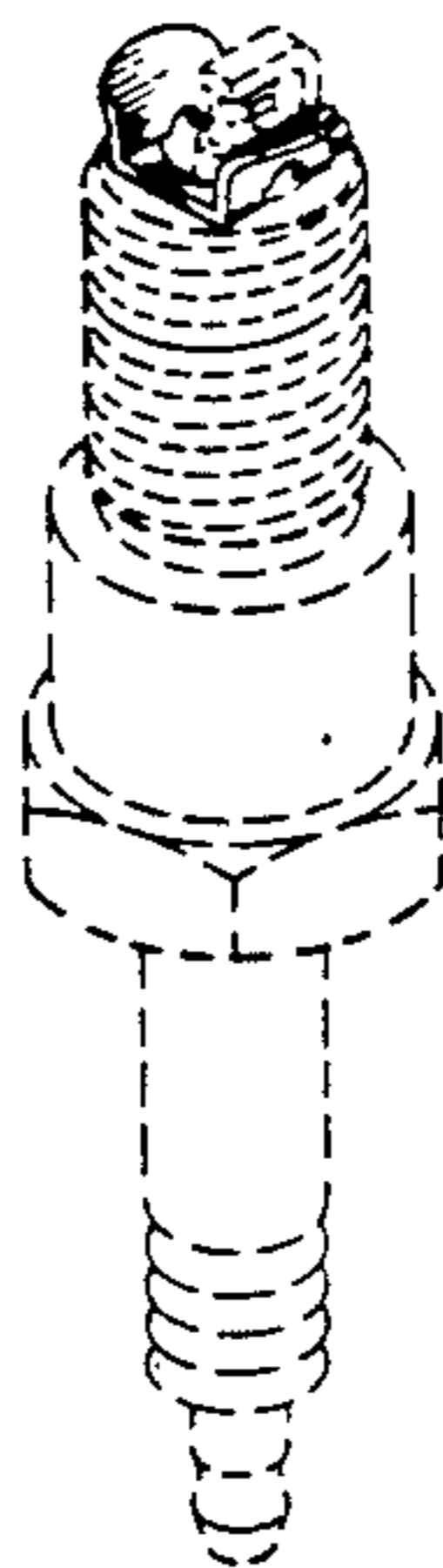
Primary Examiner—A. Hugo Word
Assistant Examiner—R. Seifert
Attorney, Agent, or Firm—Fisher, Christen & Sabol

[57] CLAIM

The ornamental design for an auxiliary element for ignition plugs for internal combustion engines for automobiles, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of the auxiliary element for ignition plugs for internal combustion engines for automobiles of the invention;
FIG. 2 is a left side plane view of the auxiliary element for ignition plugs for internal combustion engines for automobiles of the invention;
FIG. 3 is a top plane view of the auxiliary element for ignition plugs for internal combustion engines for automobiles of the invention;
FIG. 4 is a bottom plane view of the auxiliary element for ignition plugs for internal combustion engines for automobiles of the invention;
FIG. 5 is a rear plane view of the auxiliary element for ignition plugs for internal combustion engines for automobiles of the invention;
FIG. 6 is a front plane view of the auxiliary element for ignition plugs for internal combustion engines for automobiles of the invention;
FIG. 7 is a left side cross-sectional view of the auxiliary element of the invention along lines 7—7 of FIG. 4;
FIG. 8 is a front cross-sectional view of the auxiliary element of the invention along lines 8—8 of FIG. 4; and,
FIG. 9 is a perspective view of the auxiliary element of the invention, the broken line showing of an ignition plug is for illustrative purposes only.



U.S. PATENT DOCUMENTS

| | | | |
|-----------|---------|----------------|----------|
| 2,217,825 | 10/1940 | Twining et al. | 123/169 |
| 2,246,948 | 6/1941 | McCarty et al. | 123/169 |
| 2,305,208 | 12/1942 | Trammel et al. | 123/191 |
| 2,336,569 | 12/1943 | Rabazzana | 123/169 |
| 2,368,889 | 2/1945 | Setterblade | 123/169 |
| 2,372,867 | 4/1945 | Tognola | 123/169 |
| 2,391,459 | 12/1945 | Hensel | 123/169 |
| 2,616,407 | 11/1952 | Thomas | 123/169 |
| 2,944,178 | 7/1960 | Schaub | 313/141 |
| 3,229,139 | 1/1966 | Watson | 313/11.5 |
| 3,238,447 | 3/1966 | Bychinsky | 324/15 |
| 3,313,972 | 4/1967 | Beesch | 313/130 |
| 3,515,925 | 6/1970 | Rickhey | 313/139 |
| 3,710,772 | 1/1973 | Warner | 123/169 |
| 3,908,625 | 9/1975 | Romy | 123/32 |
| 3,921,020 | 11/1975 | Wax | 313/123 |
| 3,970,885 | 7/1976 | Kasima | 313/141 |
| 4,023,058 | 5/1977 | Lara et al. | 313/139 |
| 4,028,576 | 6/1977 | Wofsey | 313/143 |
| 4,109,633 | 8/1978 | Mitsudo et al. | 123/169 |

| | | | |
|-----------|---------|------------------|----------|
| 4,123,998 | 11/1978 | Heintzelman | 123/32 K |
| 4,164,912 | 8/1979 | Beyler | 123/26 |
| 4,336,477 | 6/1982 | Yamada | 313/142 |
| 4,401,915 | 8/1983 | Kashiwara et al. | 313/142 |
| 4,808,878 | 2/1989 | Kashiwara et al. | 313/141 |
| 4,851,732 | 7/1989 | Kashiwara et al. | 313/141 |
| 4,901,688 | 2/1990 | Kashiwara et al. | 123/169 |
| 4,983,877 | 1/1991 | Kashiwara et al. | 313/140 |
| 5,007,389 | 4/1991 | Kashiwara et al. | 123/169 |
| 5,090,373 | 2/1992 | Kashiwara et al. | 123/169 |

FOREIGN PATENT DOCUMENTS

| | | | |
|-----------|---------|----------------|---|
| 53-25743 | 3/1978 | Japan | . |
| 54-91644 | 7/1979 | Japan | . |
| 54-117948 | 9/1979 | Japan | . |
| 61-112726 | 5/1986 | Japan | . |
| 61-30394 | 7/1986 | Japan | . |
| 62-11471 | 3/1987 | Japan | . |
| 1-176690 | 7/1989 | Japan | . |
| 2-142080 | 5/1990 | Japan | . |
| 2-144873 | 6/1990 | Japan | . |
| 187501 | 10/1922 | United Kingdom | . |

FIG. 1

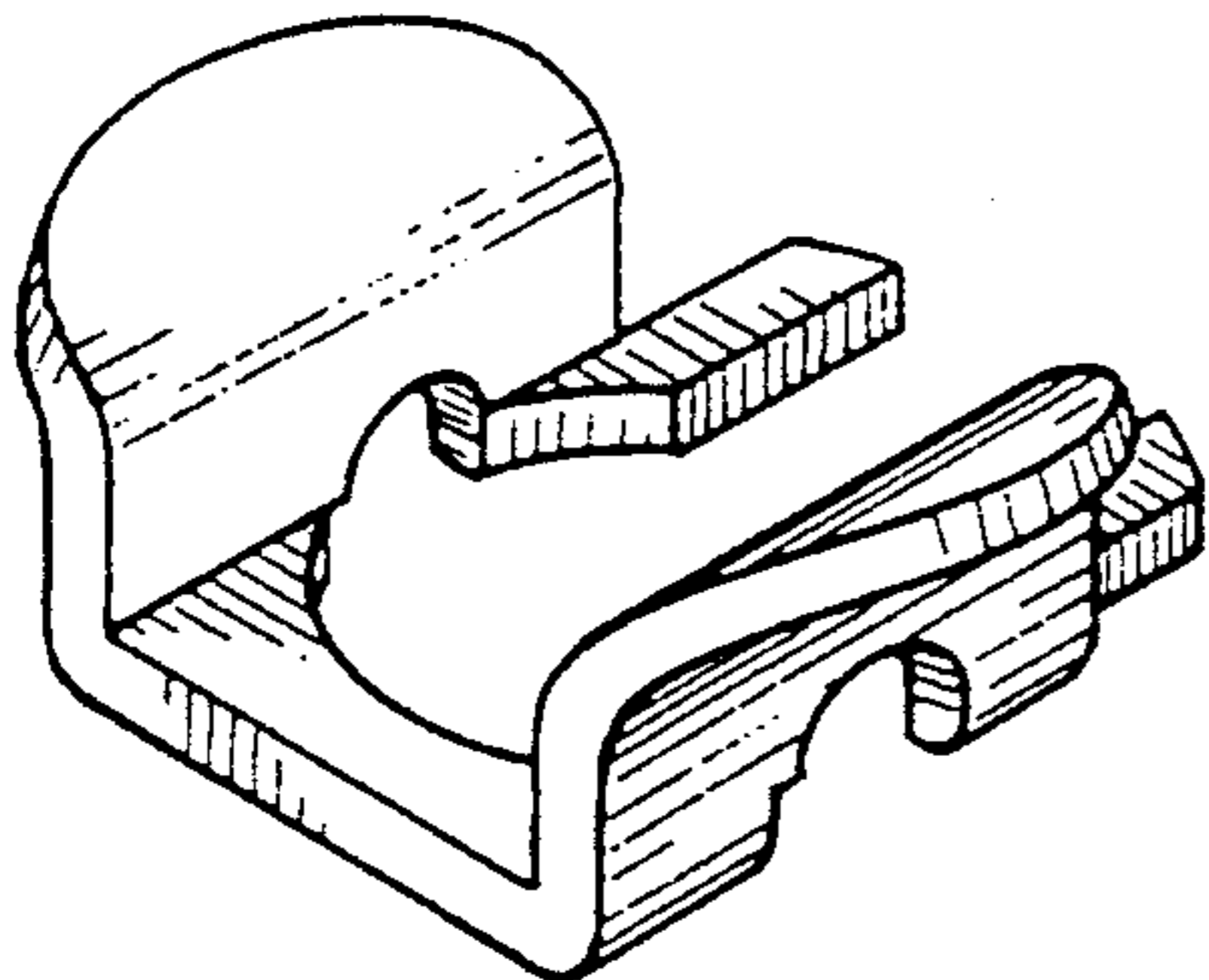


FIG. 2

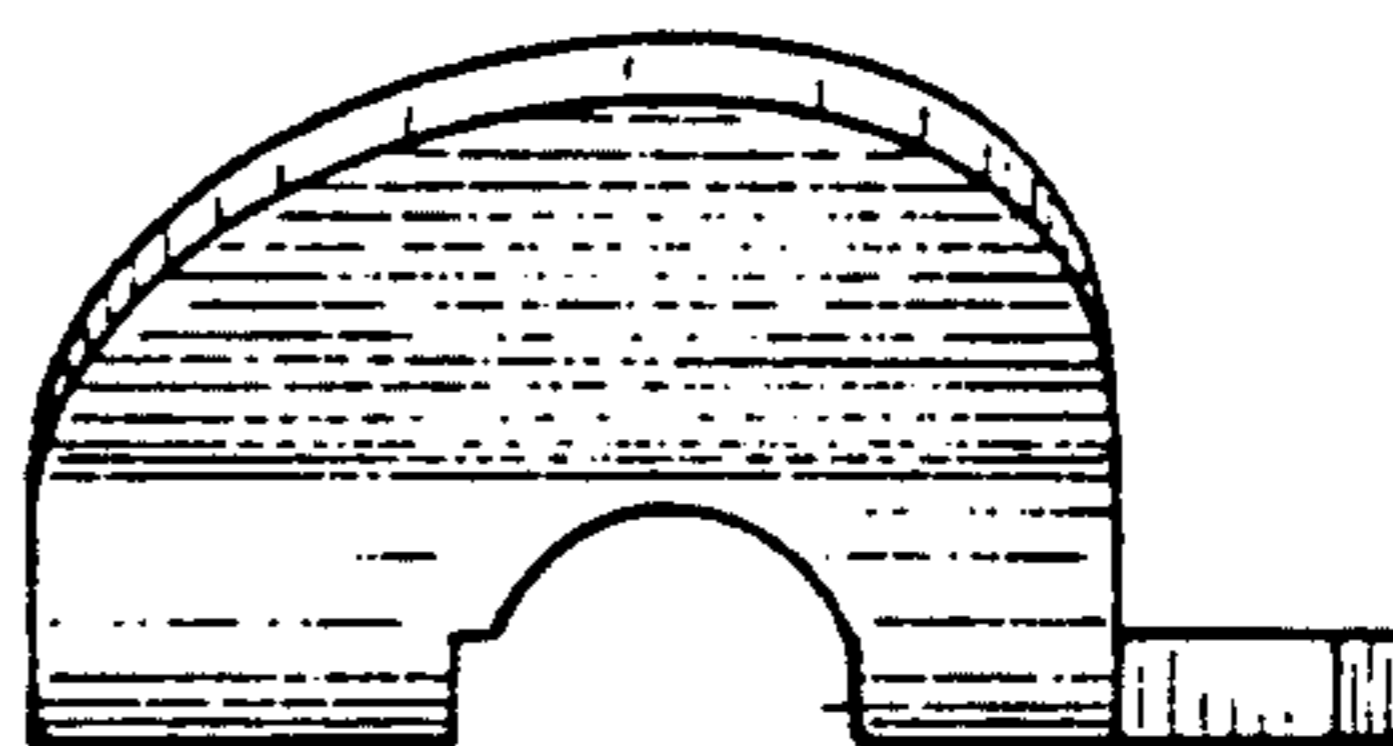


FIG. 3

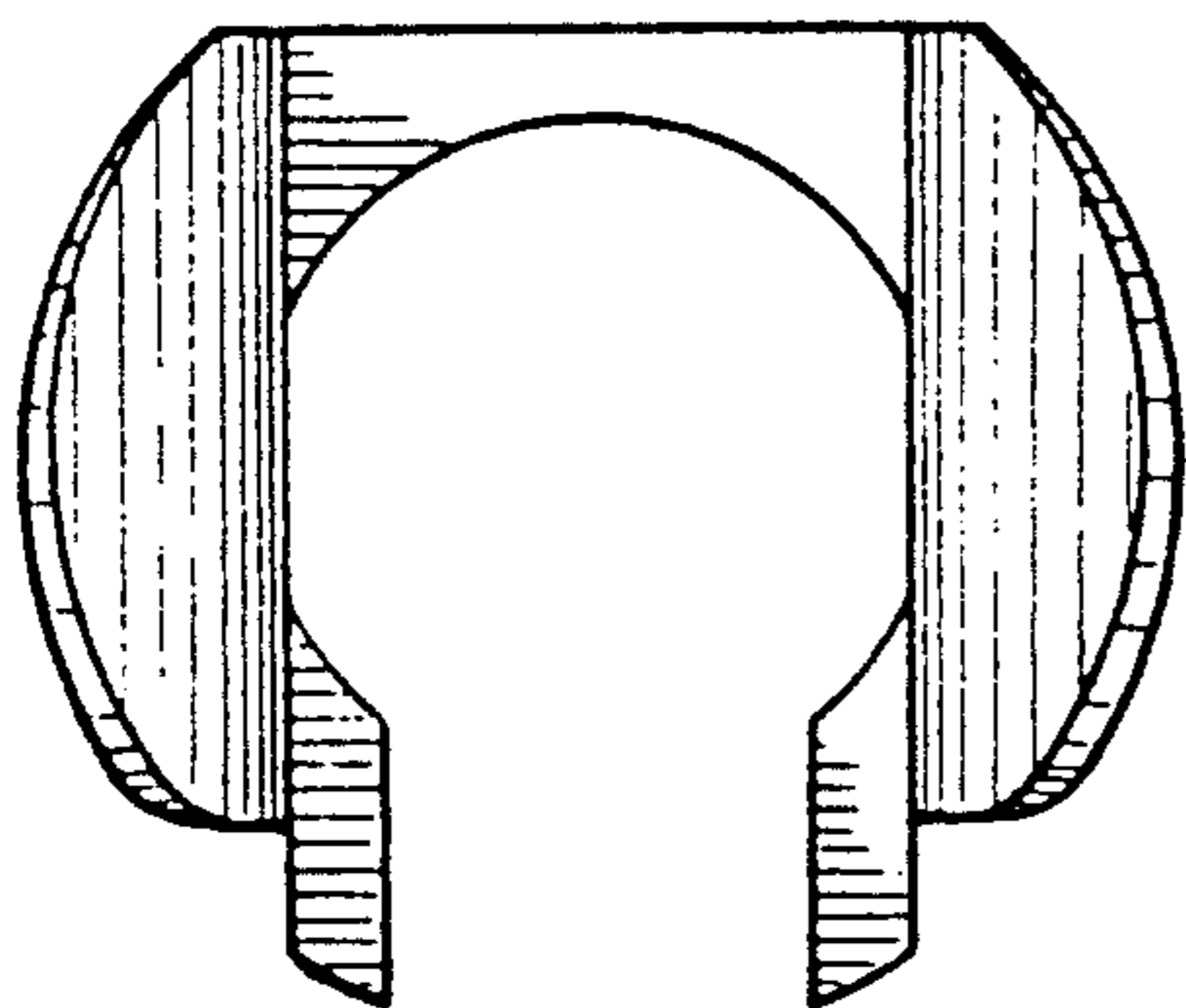


FIG. 4

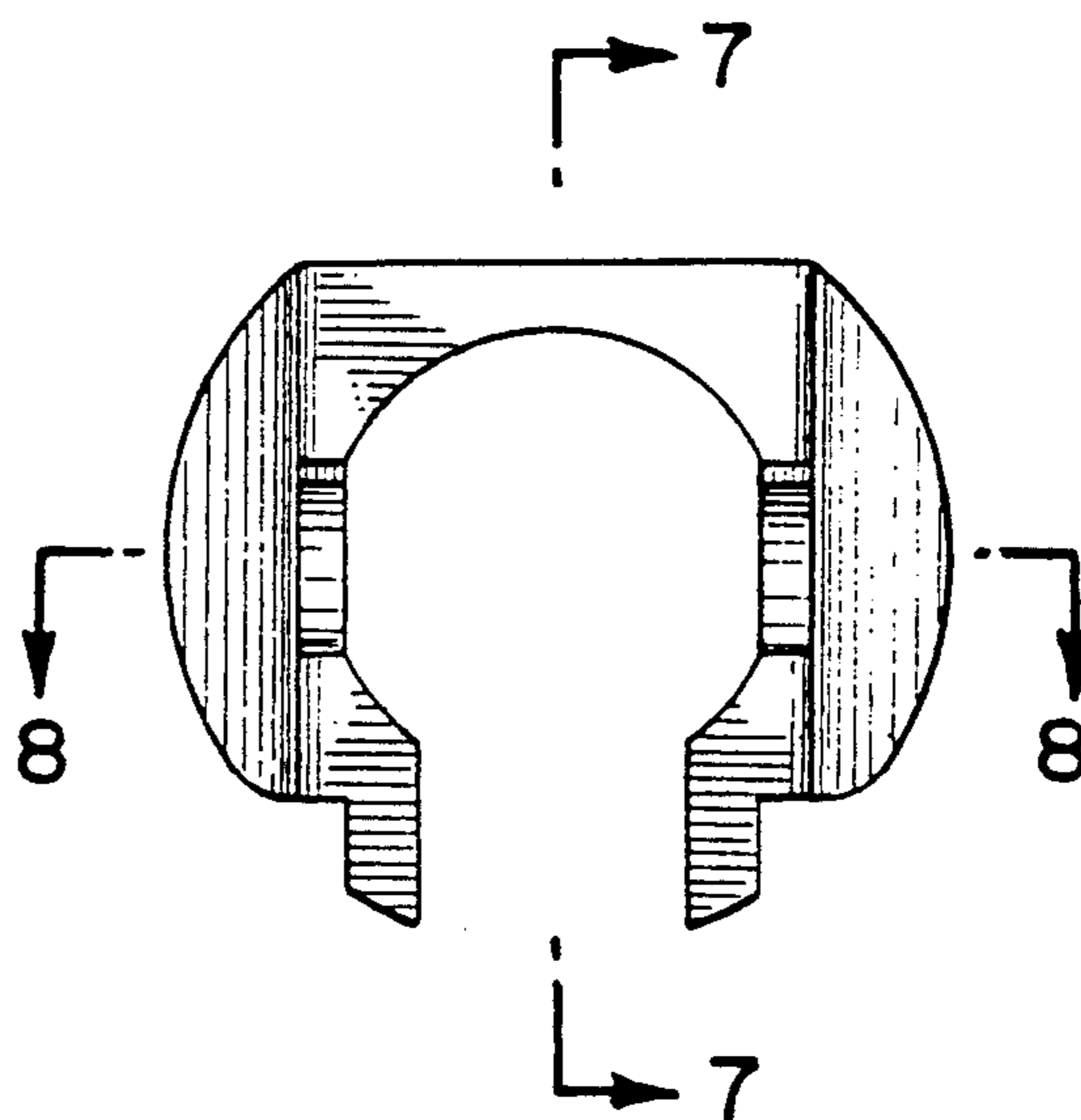


FIG. 5

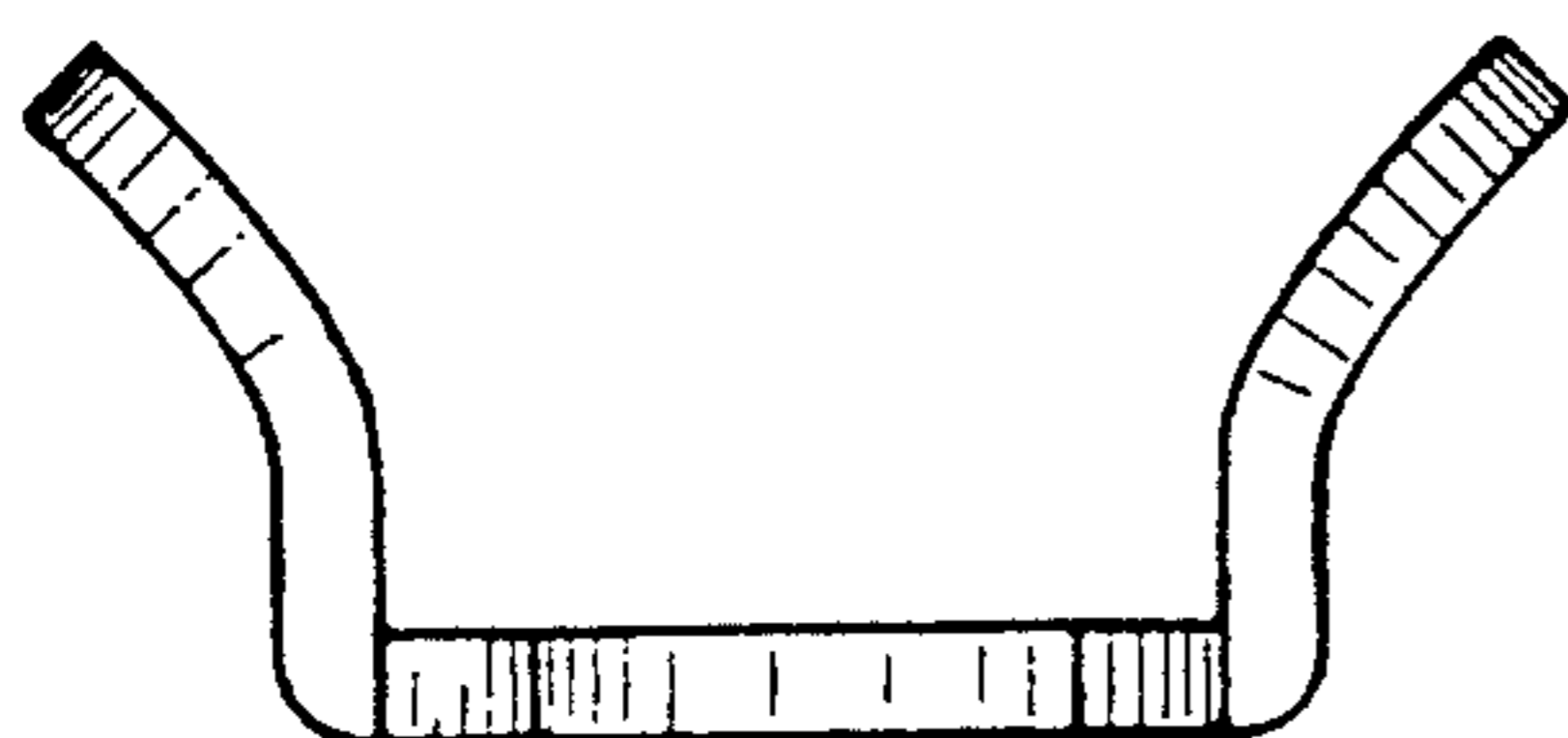


FIG. 6

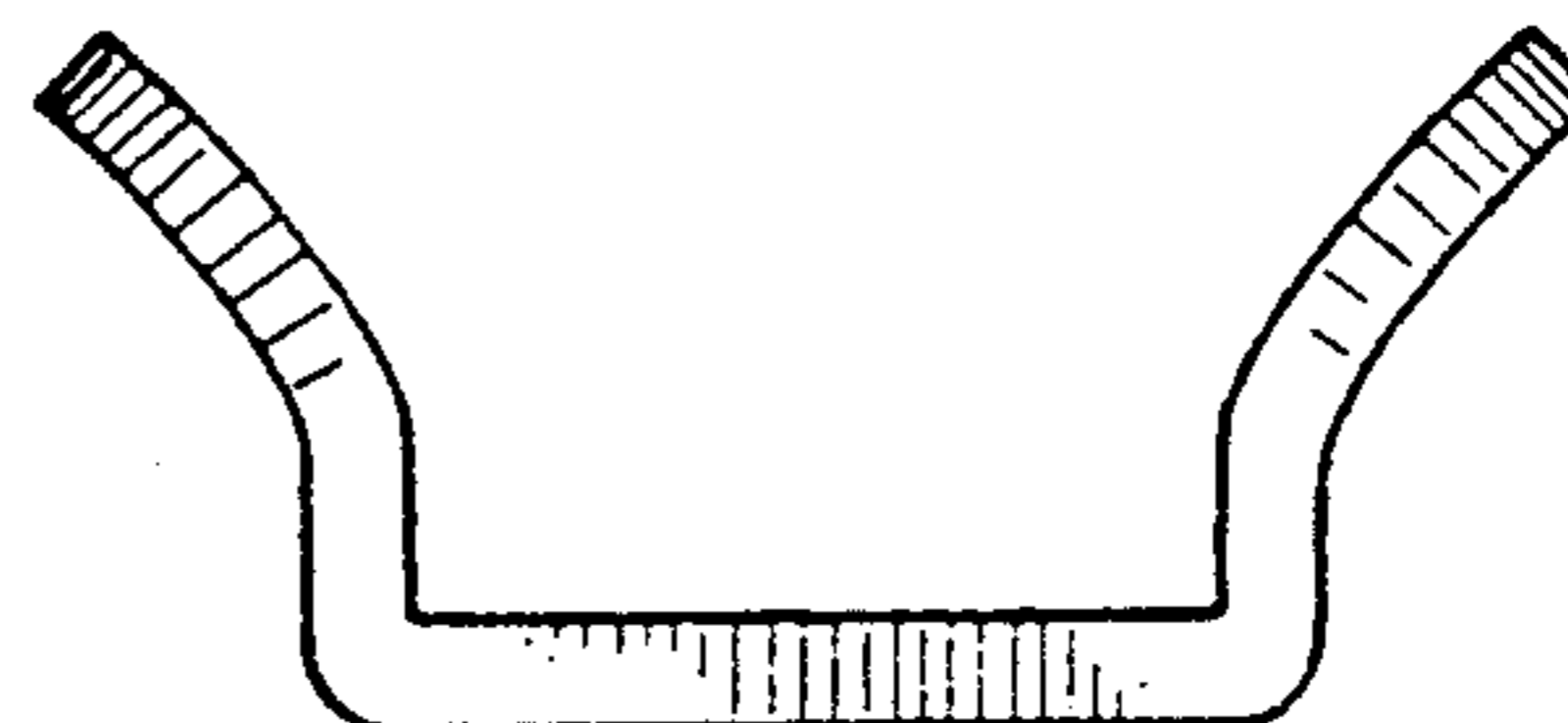


FIG. 7

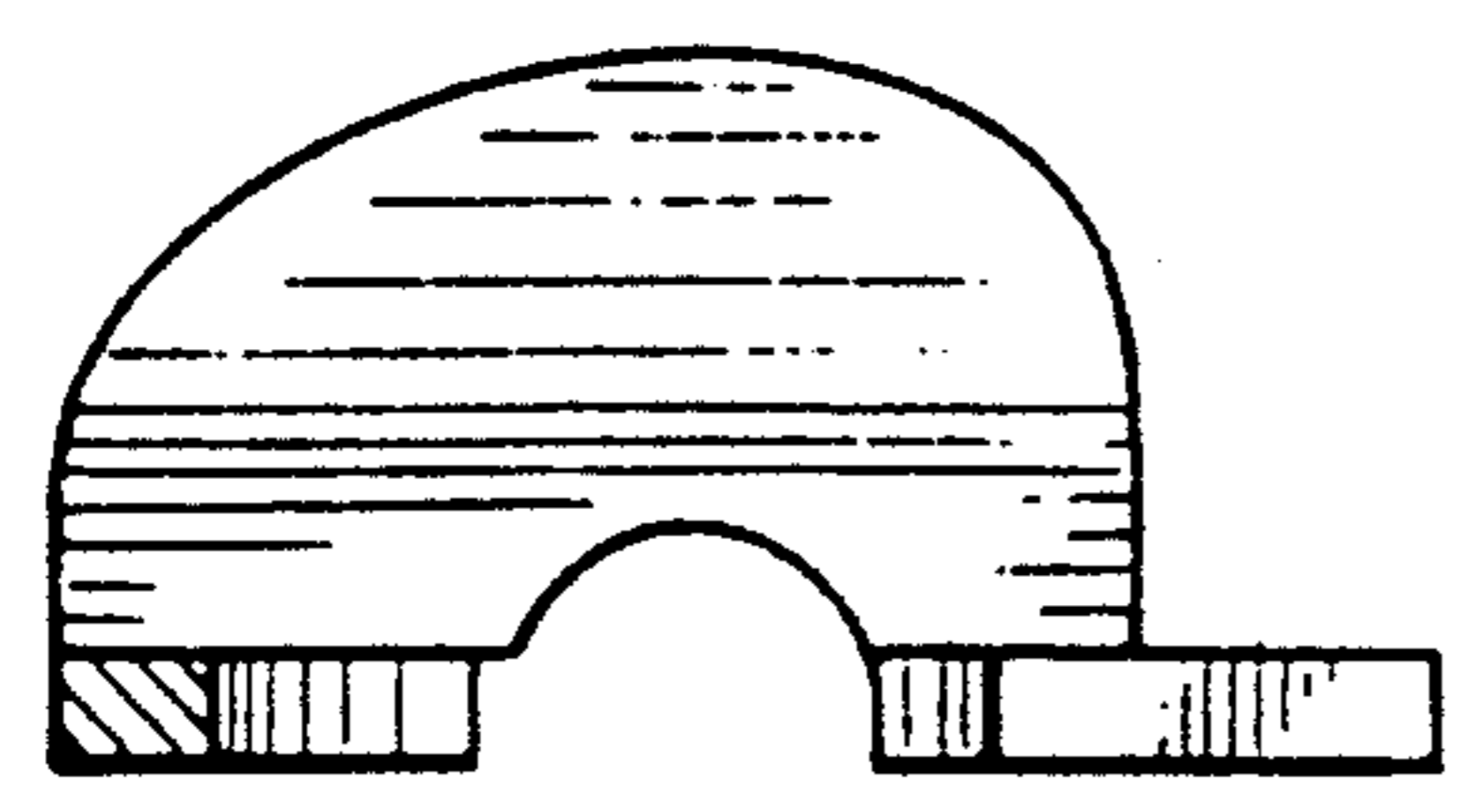


FIG. 8



FIG. 9

