



US00D490383S

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

(10) **Patent No.:** **US D490,383 S**

(45) **Date of Patent:** **\*\* May 25, 2004**

(54) **HEAT SINK WITH A THREE-DIMENSIONAL CURVED SURFACE**

(75) Inventors: **Li-Kuang Tan**, Taoyuan (TW);  
**Yu-Hung Huang**, Ilan (TW);  
**Kuo-Cheng Lin**, Taoyuan (TW);  
**Wen-Shi Huang**, Jungli (TW)

(73) Assignee: **Delta Electronics, Inc.** (TW)

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

(21) Appl. No.: **29/173,080**

(22) Filed: **Dec. 19, 2002**

(30) **Foreign Application Priority Data**

Nov. 15, 2002 (TW) ..... 91306630

(51) **LOC (7) Cl.** ..... **13-03**

(52) **U.S. Cl.** ..... **D13/179**

(58) **Field of Search** ..... D13/179; 174/16.3,  
174/52.4; 165/80.3, 104.14, 104.33, 121,  
122, 180, 185; 206/714, 715, 716, 713,  
727, 728; 439/485, 486, 487; 361/271,  
274.3, 697, 702, 704, 709, 710, 711; 257/706,  
707, 718, 719, 720-722, 727, 686

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,566,958 A \* 3/1971 Zelina ..... 165/803

4,715,438 A \* 12/1987 Gabuzda et al. .... 165/185  
5,943,209 A \* 8/1999 Liu ..... 361/695  
6,152,214 A \* 11/2000 Wagner ..... 165/121  
6,289,975 B2 \* 9/2001 Kuo ..... 165/80.3  
D455,407 S \* 4/2002 Hanzlik et al. .... D13/179  
6,401,808 B1 \* 6/2002 Hanzlik et al. .... 165/121  
6,487,077 B1 \* 11/2002 Lin ..... 361/697  
D466,871 S \* 12/2002 Lee ..... D13/179

\* cited by examiner

*Primary Examiner*—Ted Shooman

*Assistant Examiner*—Selina Sikder

(74) *Attorney, Agent, or Firm*—Martine & Penilla, LLP

(57) **CLAIM**

The ornamental design for a heat sink with a three-dimensional curved surface, as shown and described herein.

**DESCRIPTION**

FIG. 1 is a perspective view of a heat sink with a three-dimensional curved surface showing our new design;

FIG. 2 is a right side view thereof;

FIG. 3 is a top view thereof;

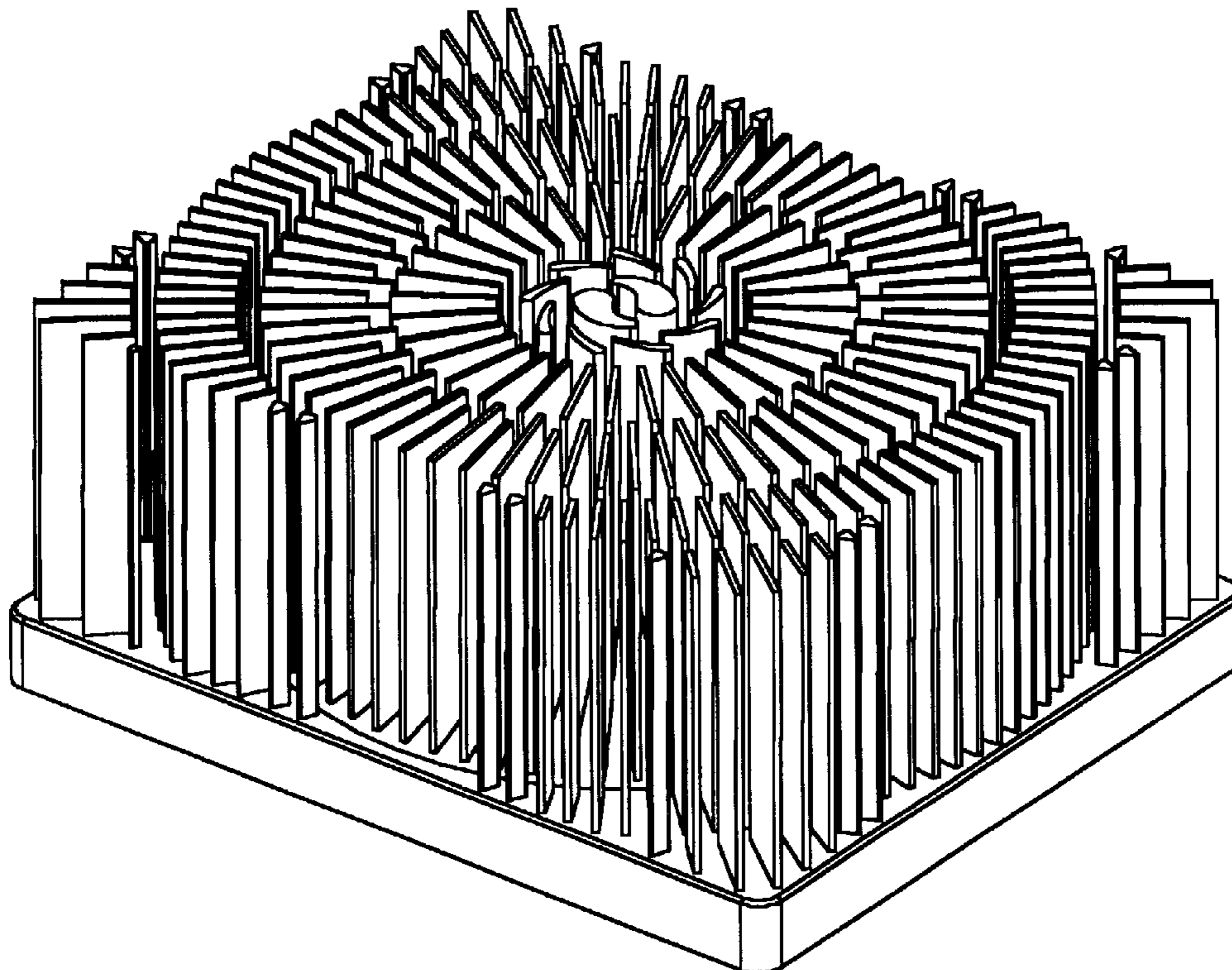
FIG. 4 is a front view thereof;

FIG. 5 is a bottom view thereof;

FIG. 6 is a left side view thereof; and,

FIG. 7 is a rear view thereof.

**1 Claim, 7 Drawing Sheets**



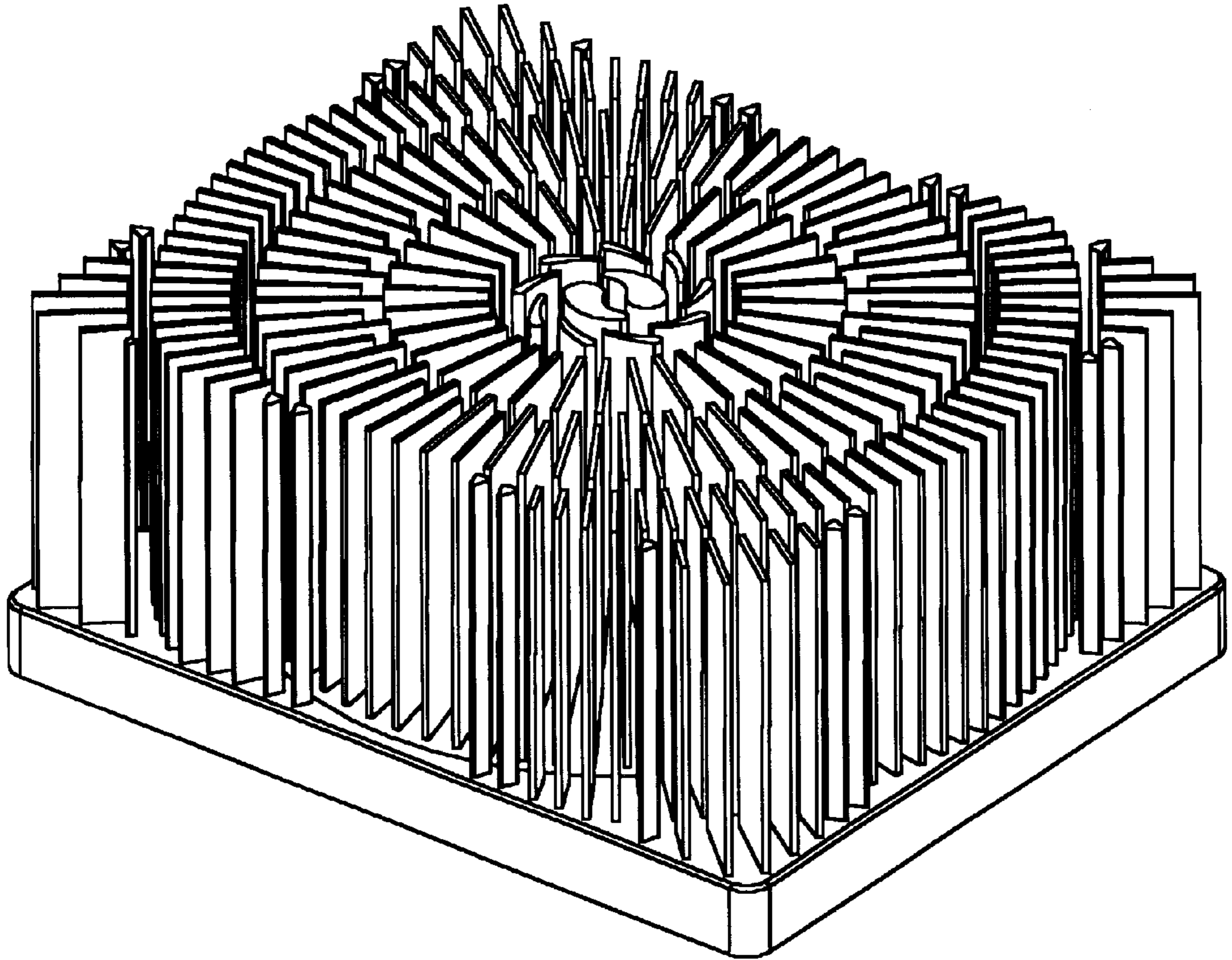


Fig. 1

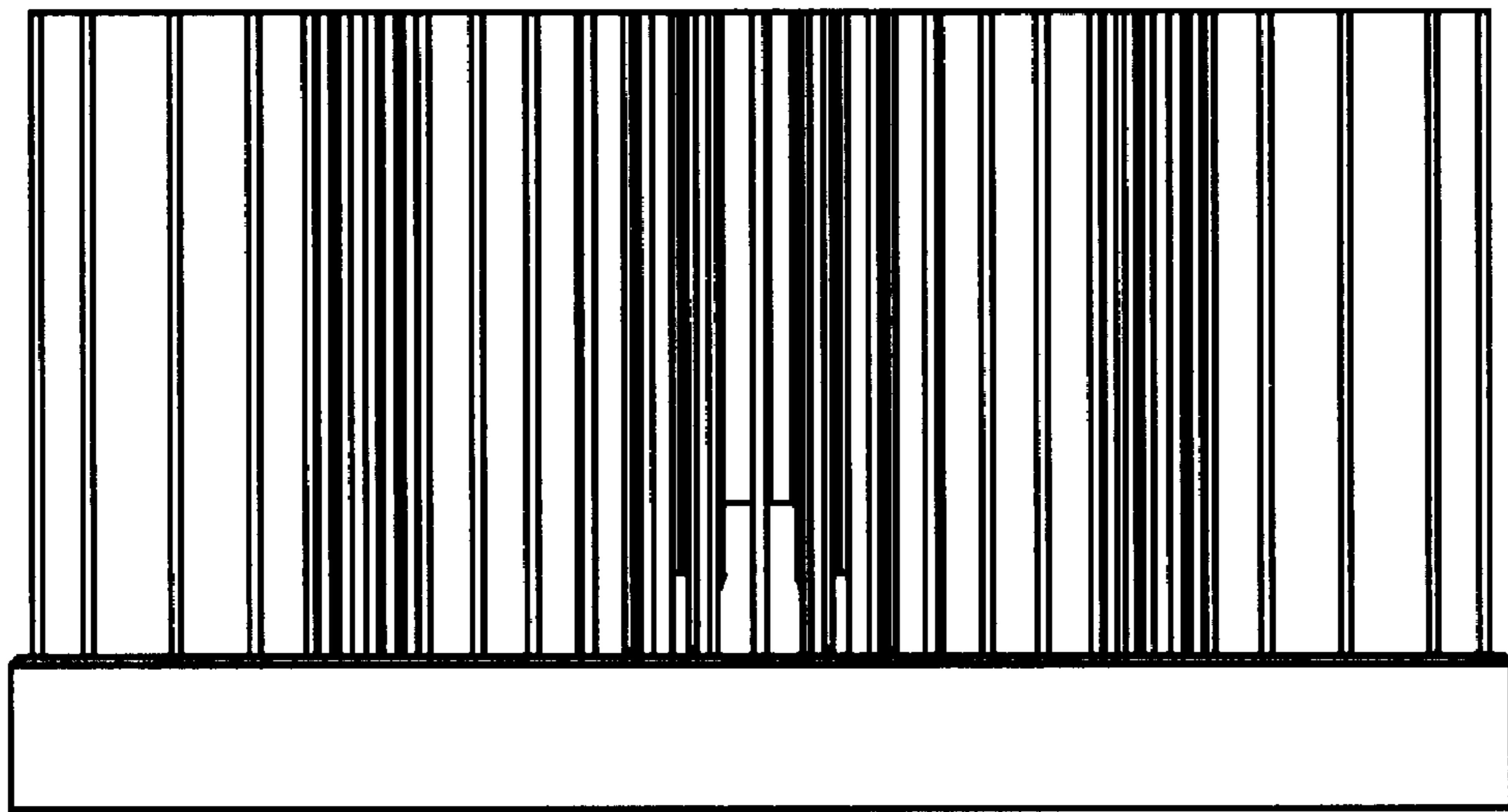


Fig. 2

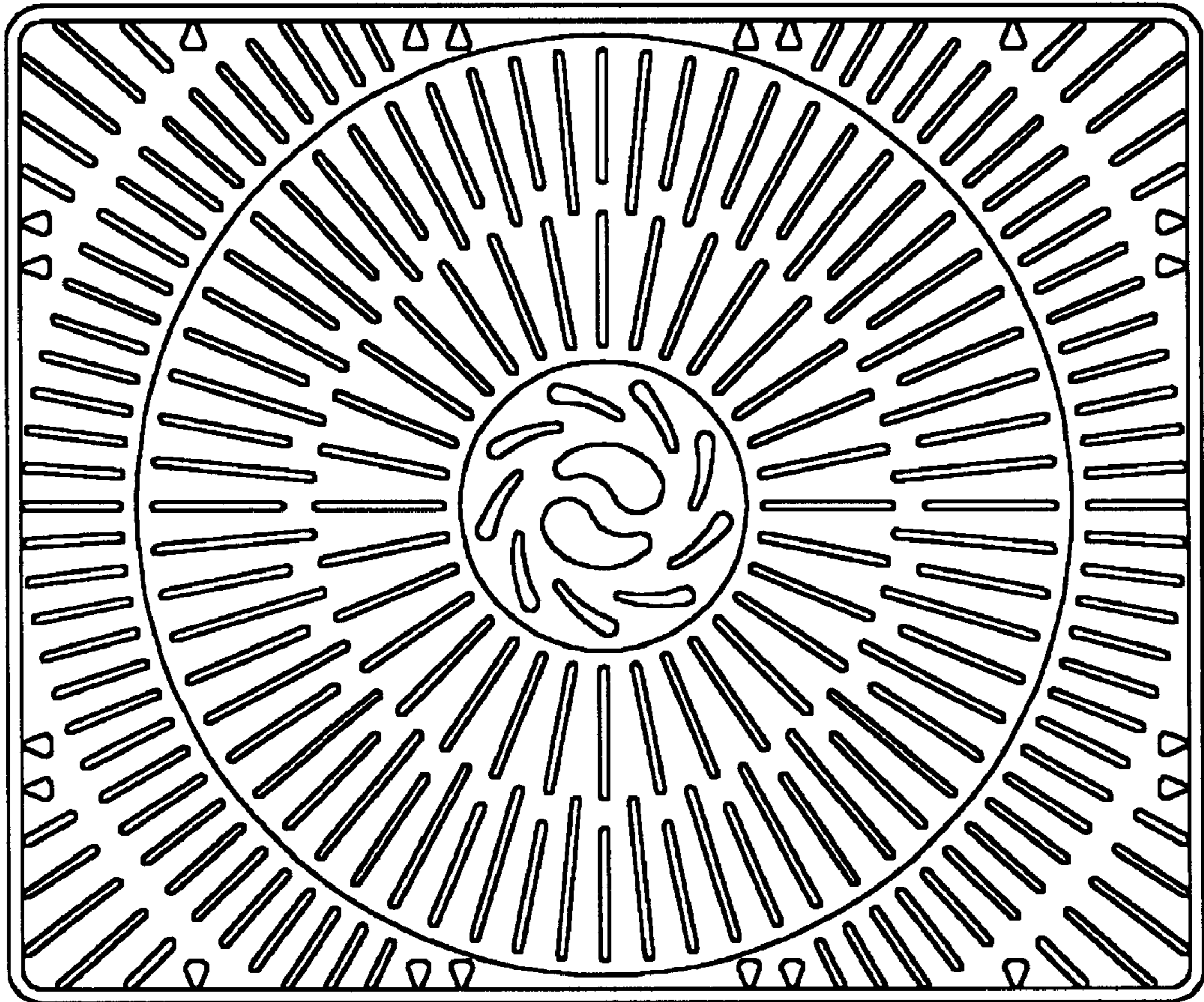


Fig. 3

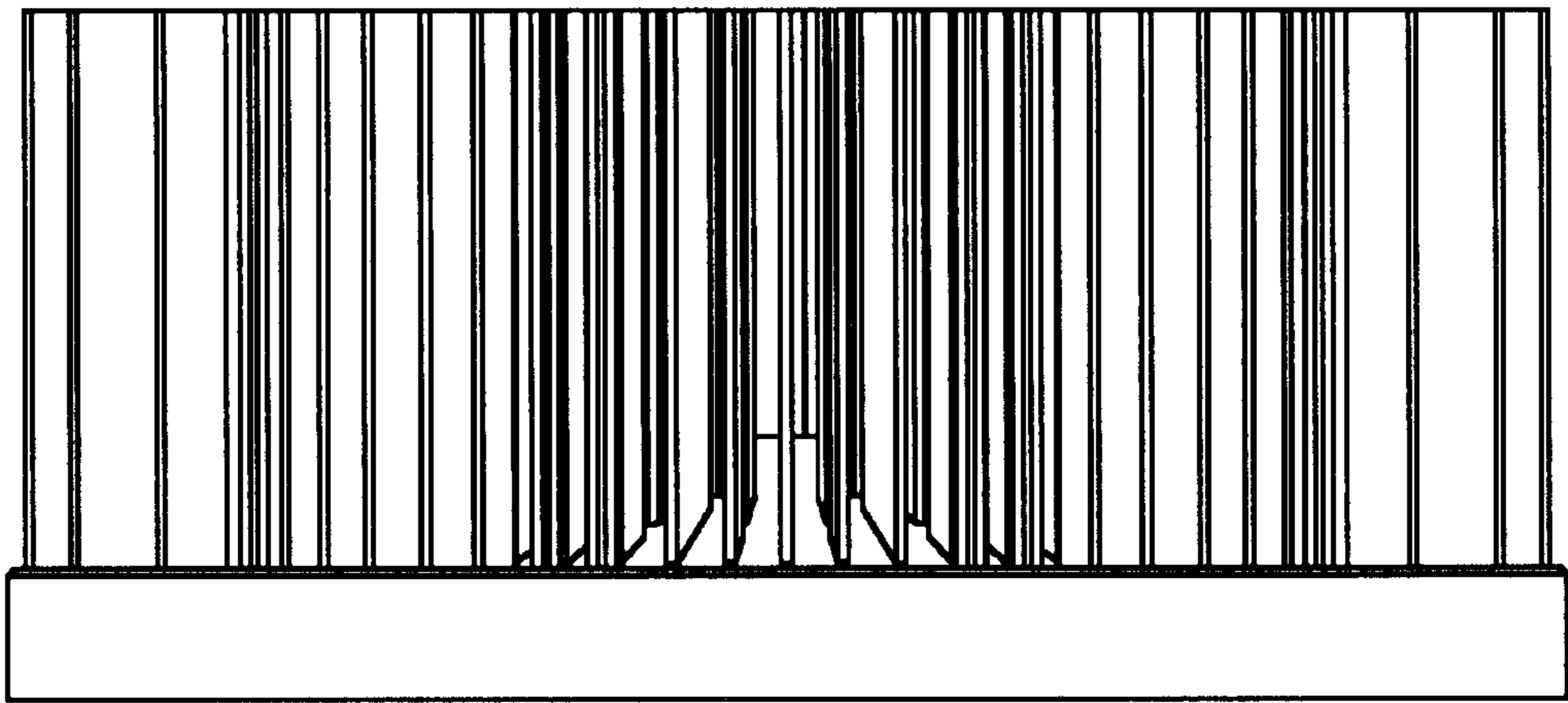


Fig. 4

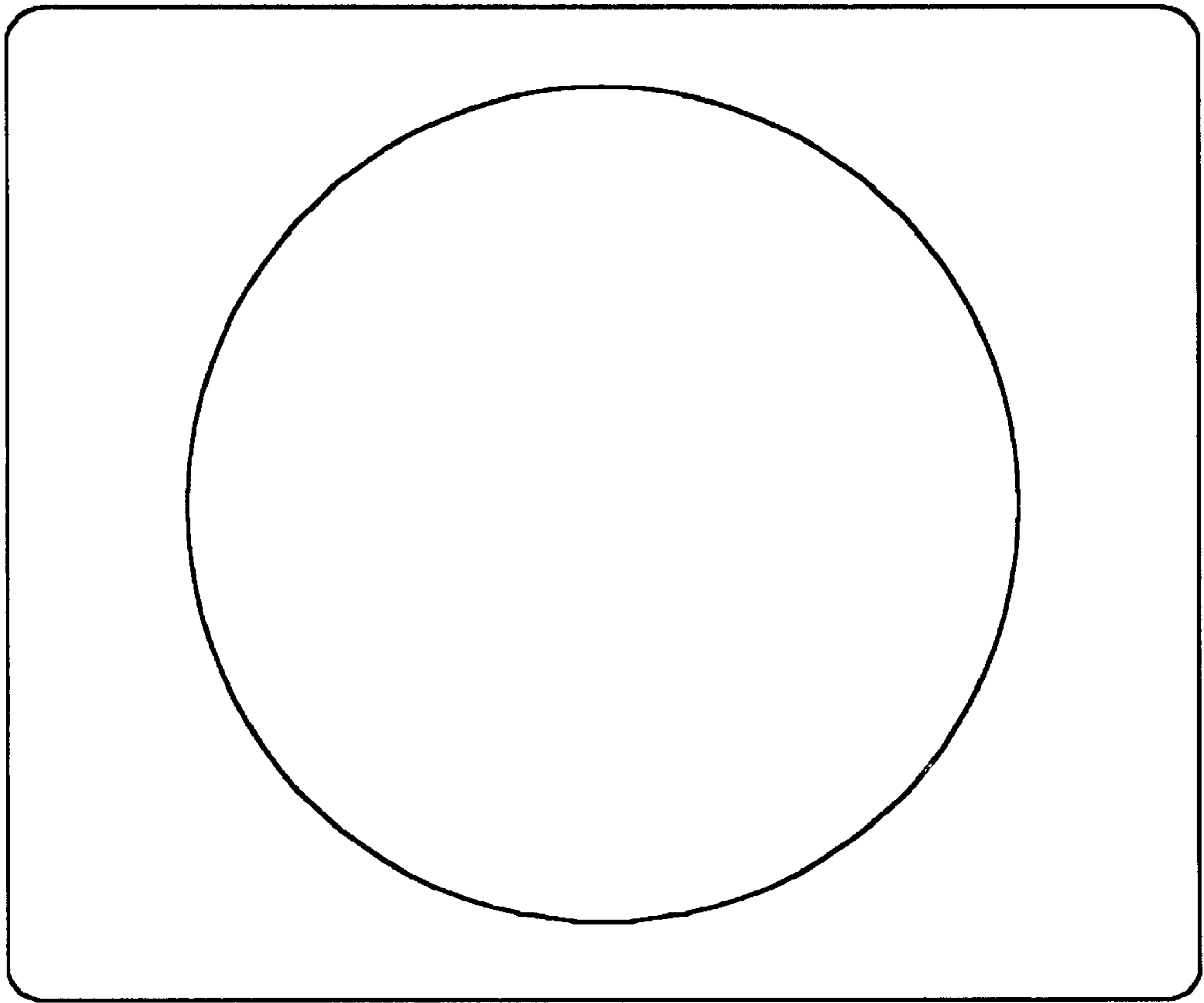


Fig. 5

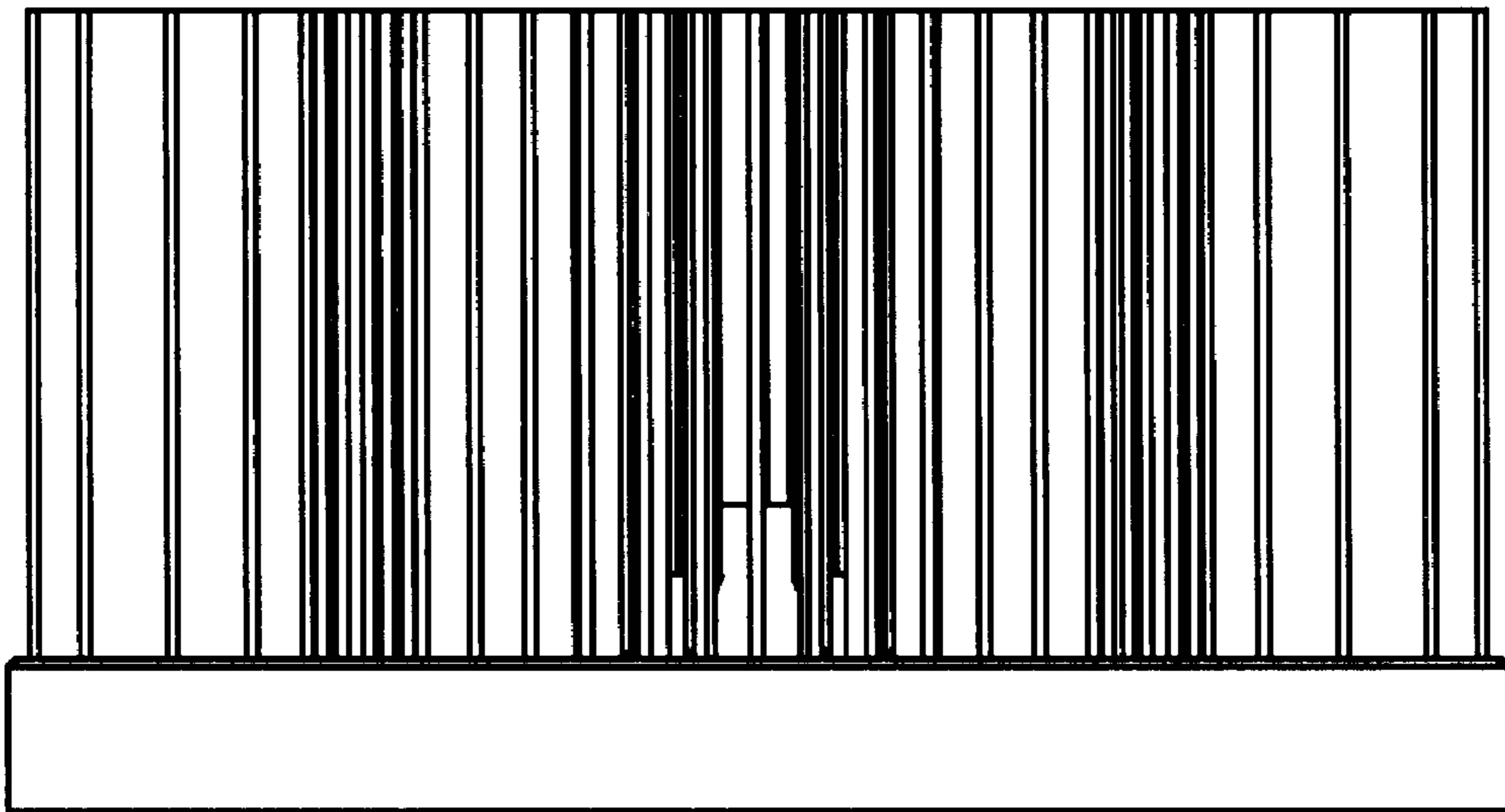


Fig. 6

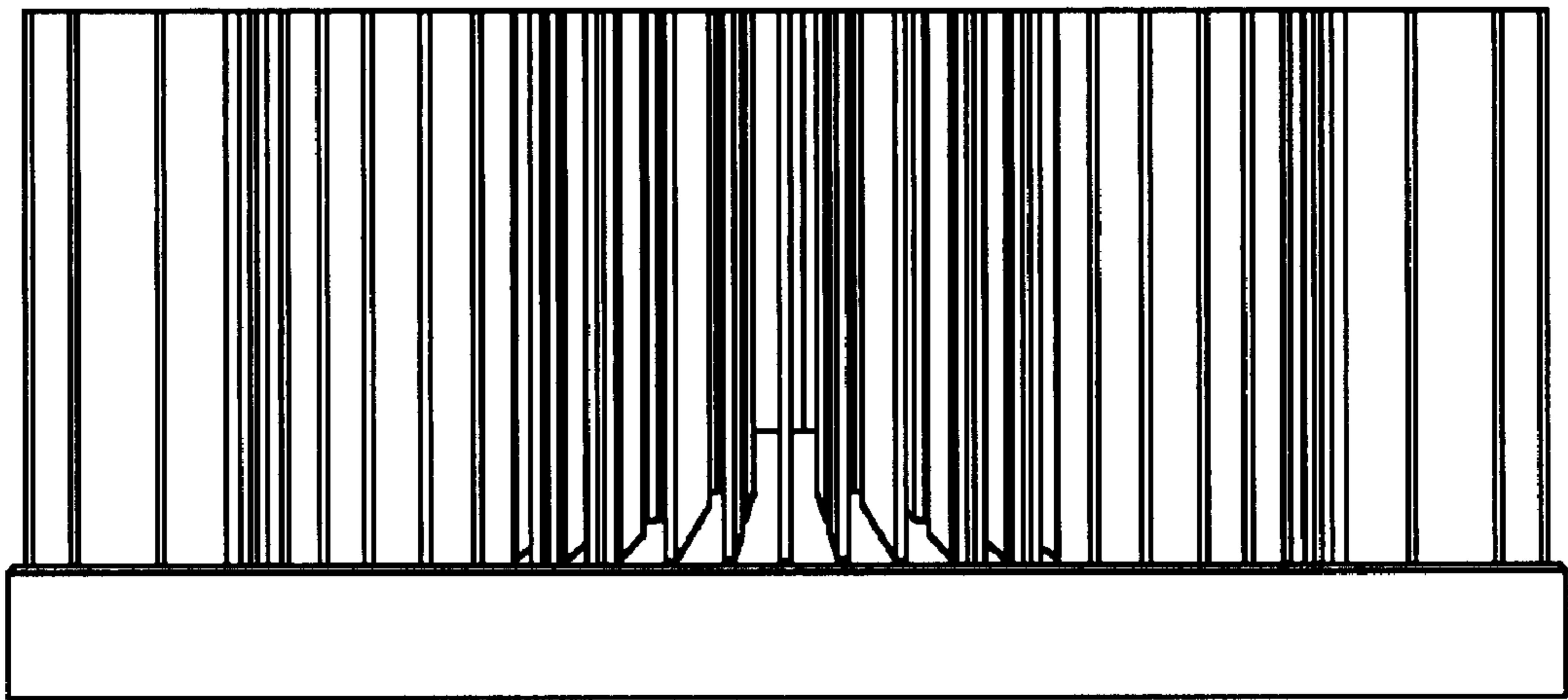


Fig. 7