United States Patent [19]

Ishii

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[45] **Date of Patent: **Feb. 9, 1999**

[54] **HEAT RETAINING TUBE FOR USE IN A SEMICONDUCTOR WAFER HEAT PROCESSING APPARATUS**

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[73] Assignee: **Tokyo Electron Ltd.**, Tokyo-to, Japan

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

[21] Appl. No.: **74,285**

[22] Filed: **Jul. 24, 1997**

[30] **Foreign Application Priority Data**

Jan. 31, 1997 [JP] Japan 9-2656

[51] **LOC (6) Cl.** **13-03**

[52] **U.S. Cl.** **D13/182**

[58] **Field of Search** D13/182, 179; D15/144, 144.1, 199; 414/935–941, 217, 147; 437/247, 946

[56] **References Cited**

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Primary Examiner—Brian N. Vinson
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[57] **CLAIM**

I claim the ornamental design for a heat retaining tube for use in a semiconductor wafer heat processing apparatus, as shown and described.

DESCRIPTION

FIG. **1**: a perspective view of a heat retaining tube for use in a semiconductor wafer heat processing apparatus;

FIG. **2**: a top plan view thereof;

FIG. **3**: a front elevational view thereof;

FIG. **4**: a cross sectional view thereof taken along line IV—IV in FIG. **3**;

FIG. **5**: a cross sectional view thereof taken along line V—V in FIG. **3**;

FIG. **6**: a left side view thereof;

FIG. **7**: a right side view thereof;

FIG. **8**: a bottom plan view thereof; and,

FIG. **9**: a rear elevational view thereof.

1 Claim, 4 Drawing Sheets

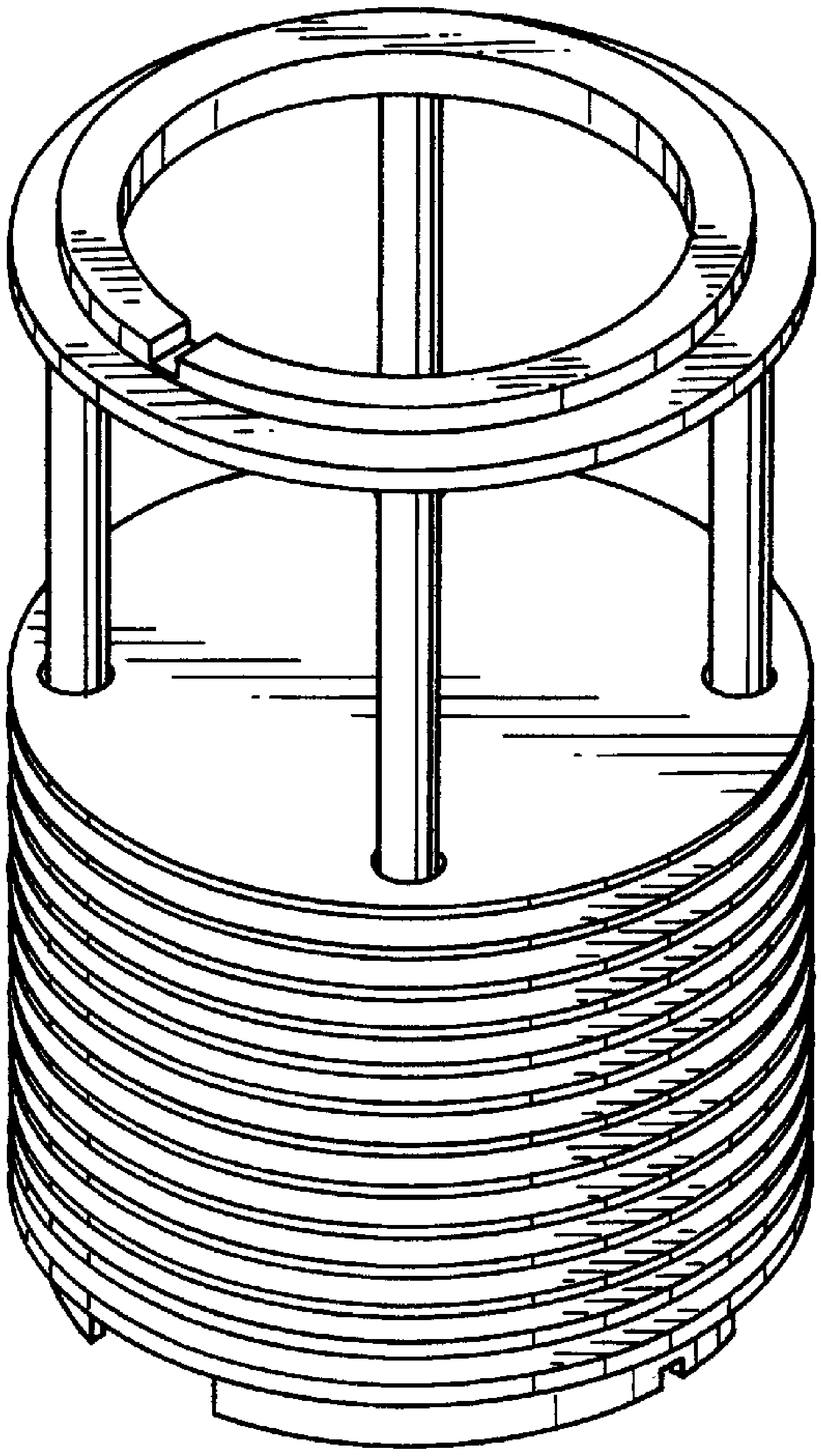

FIG. 1

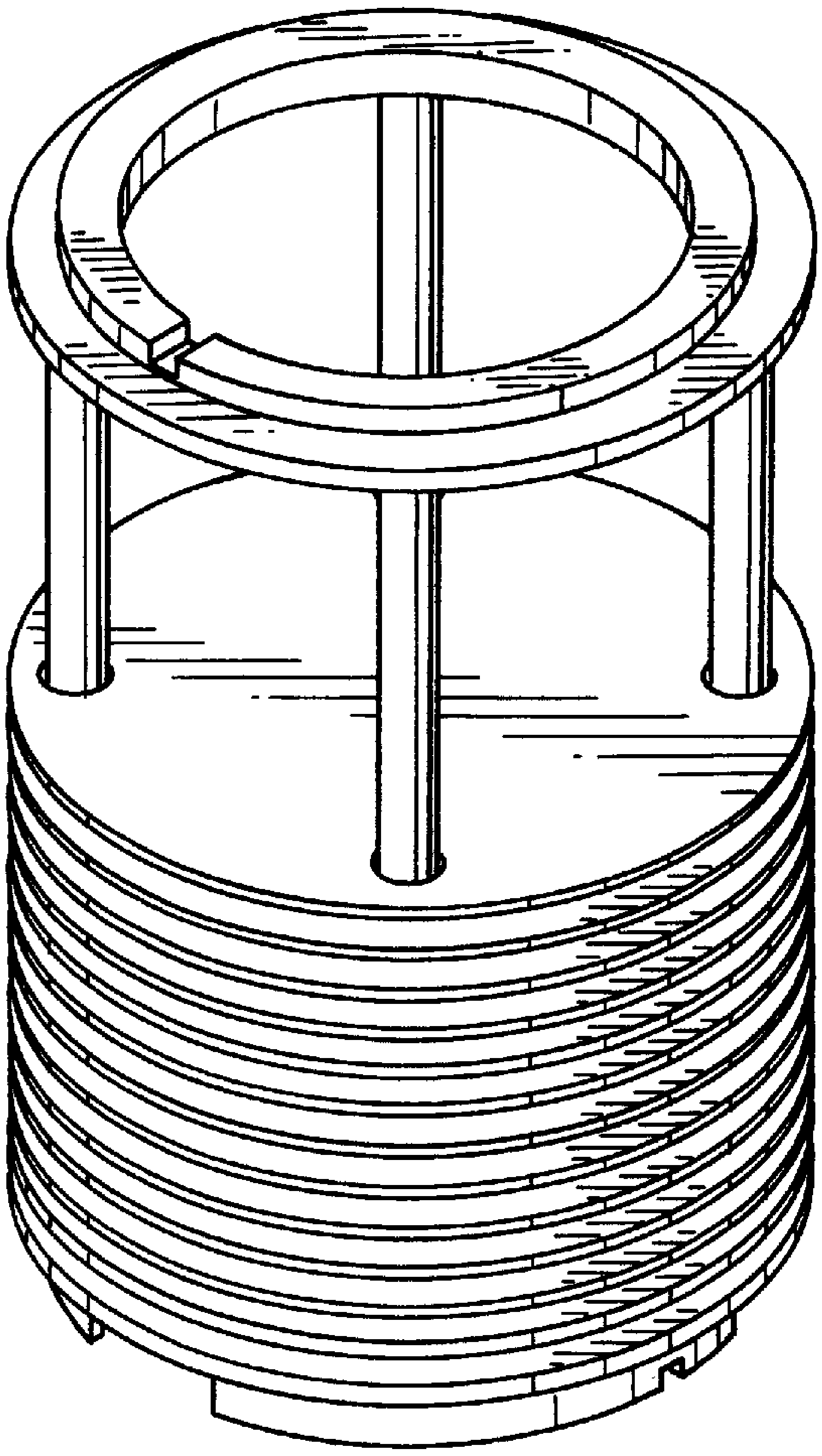

FIG. 2

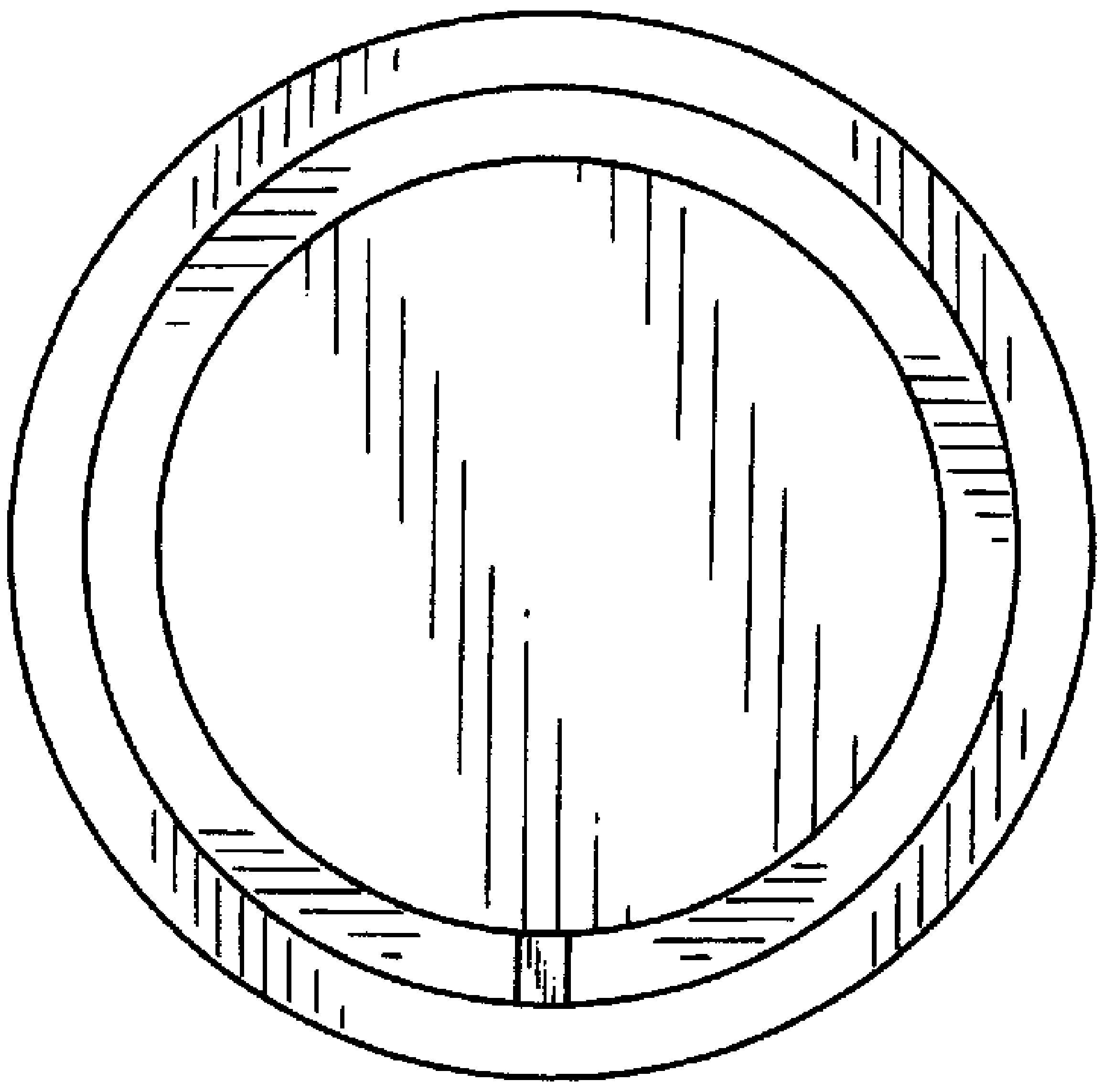

FIG. 4

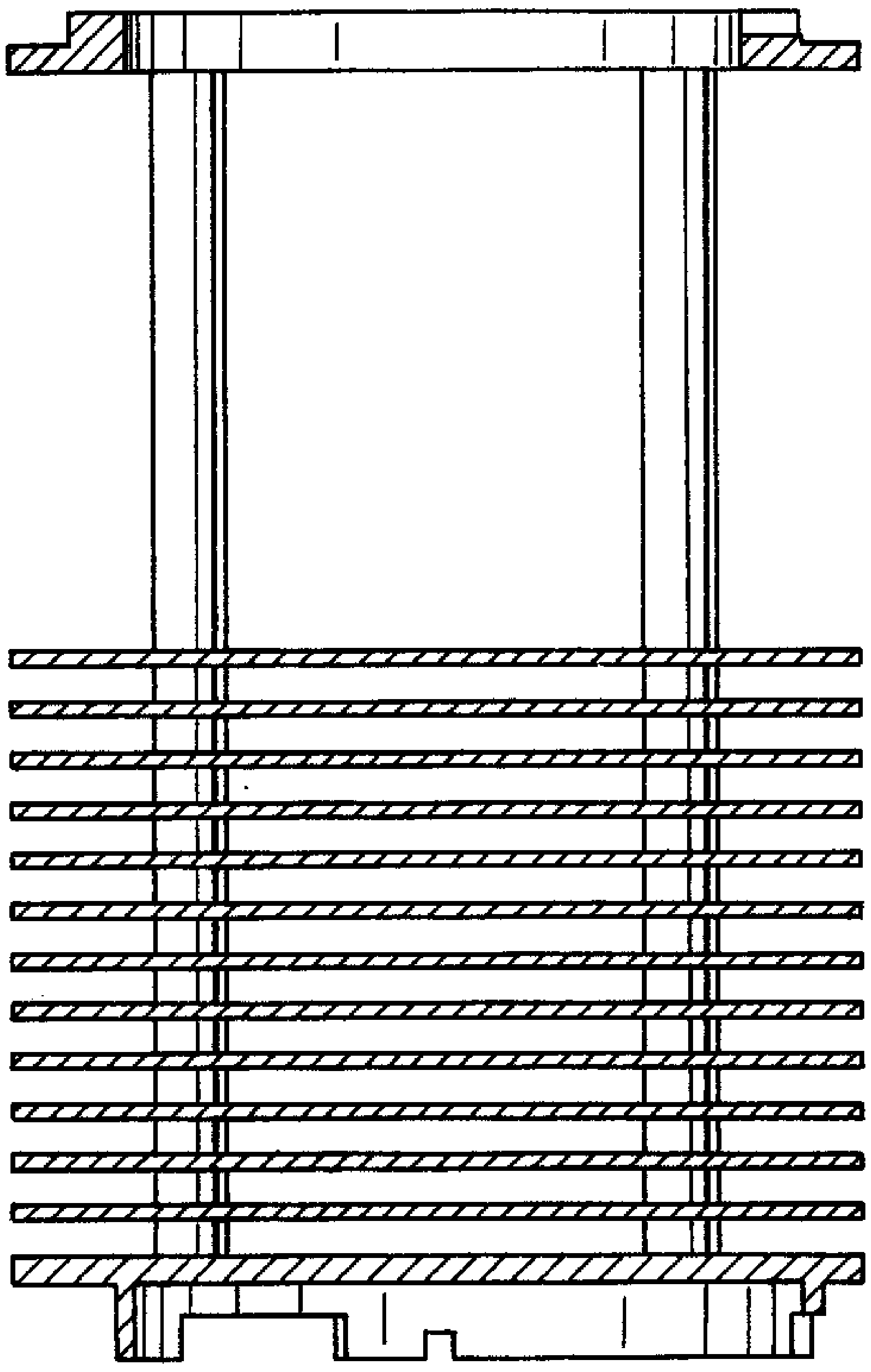

FIG. 3

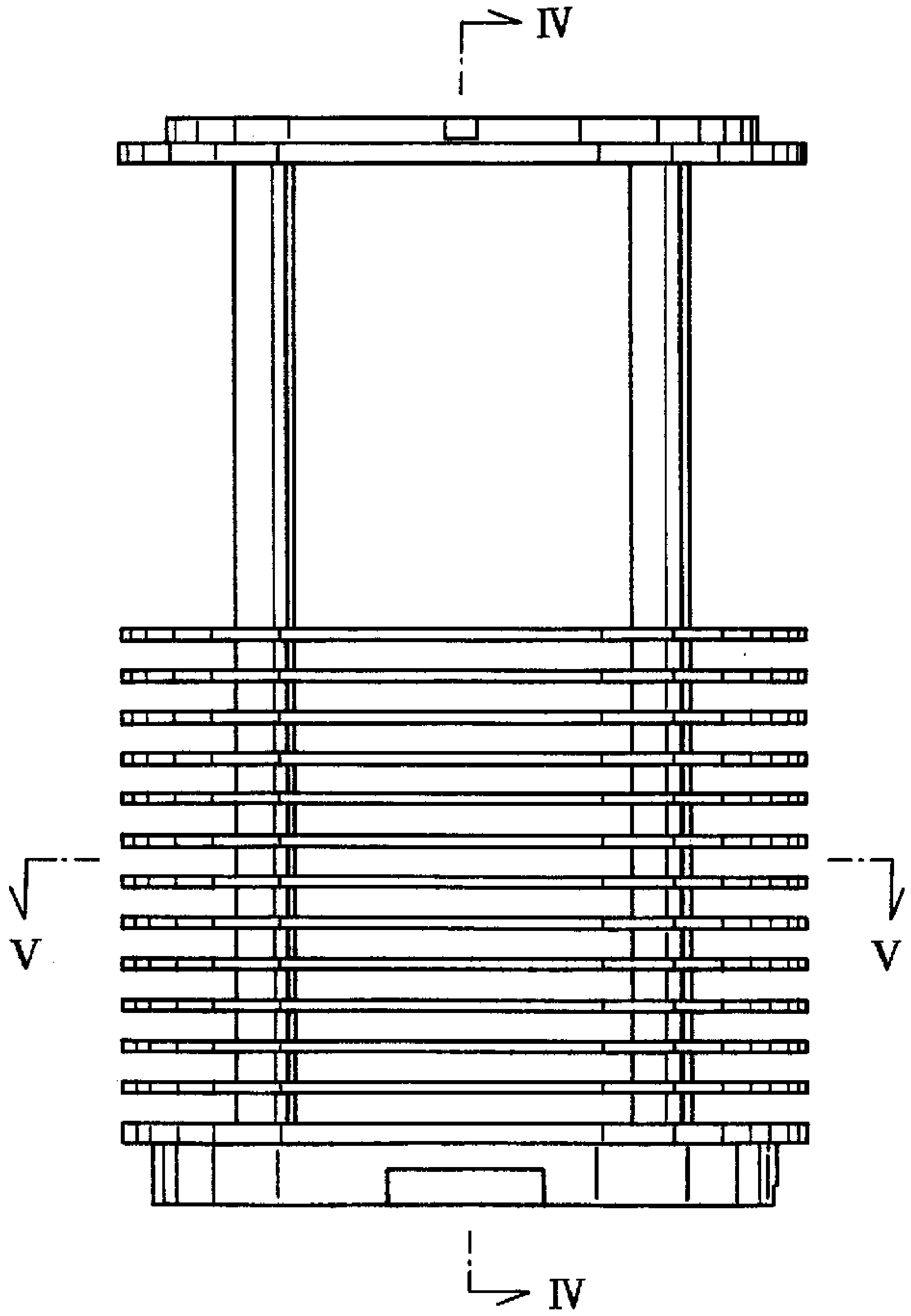

FIG. 5

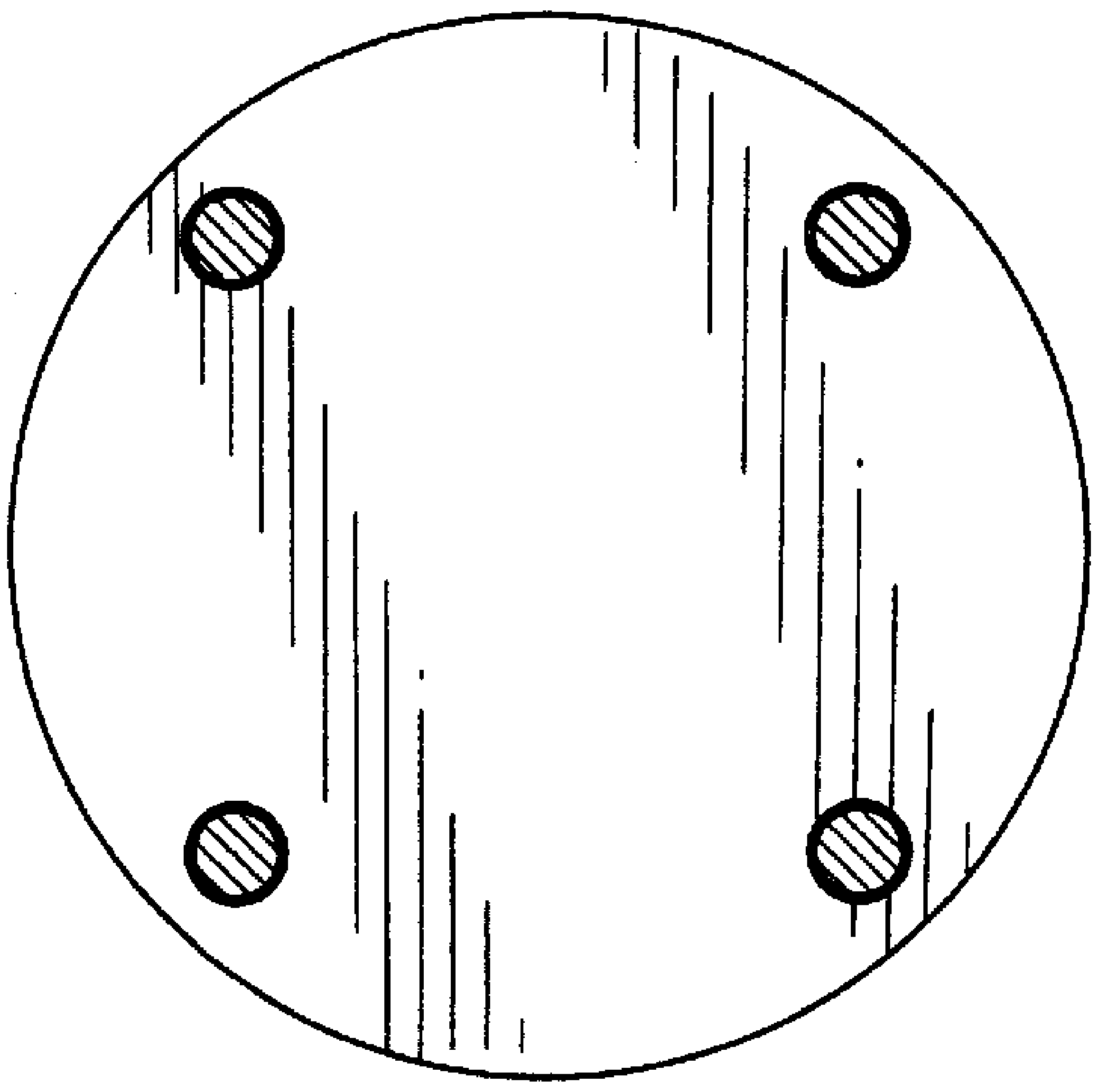

FIG. 7

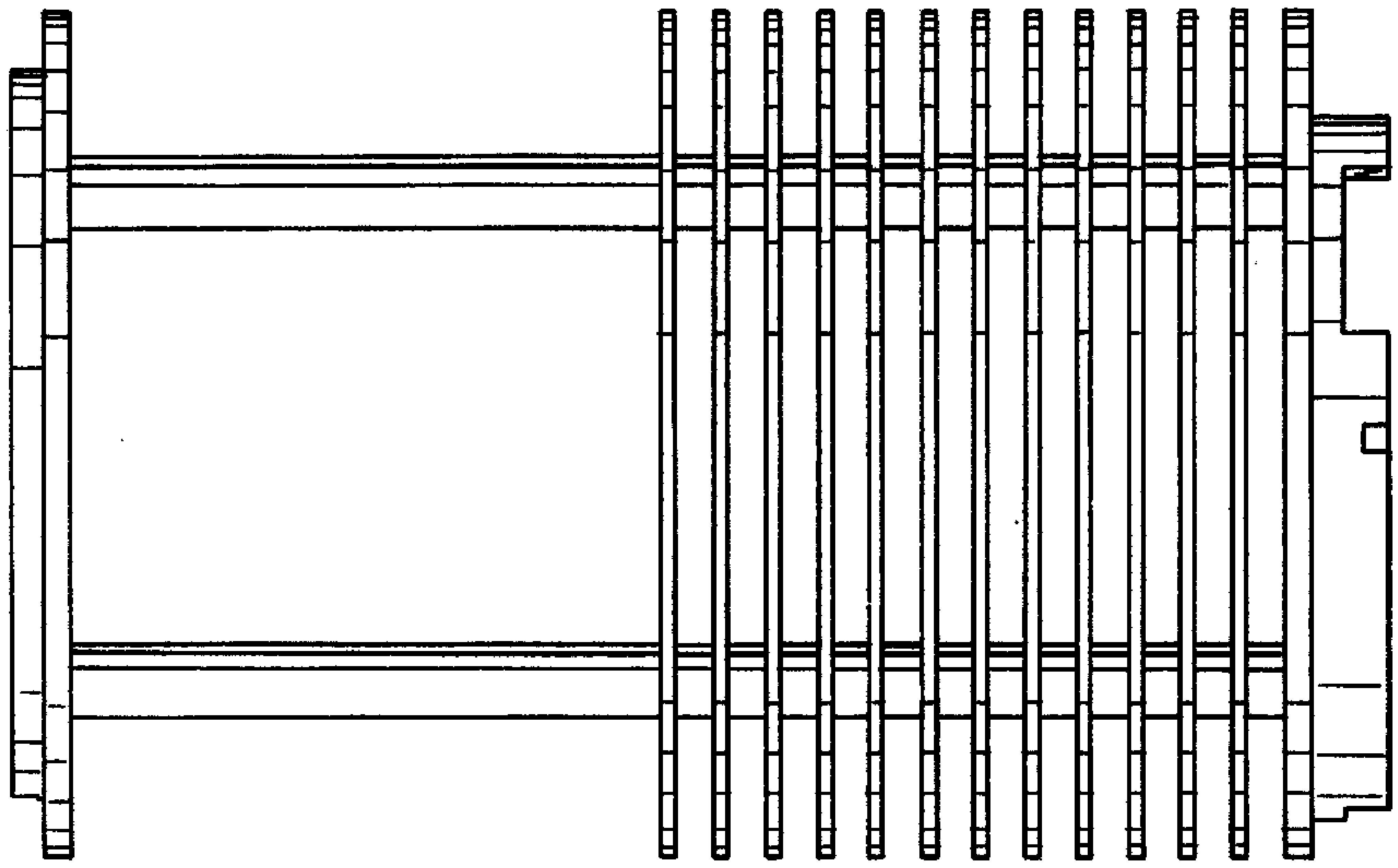

FIG. 6

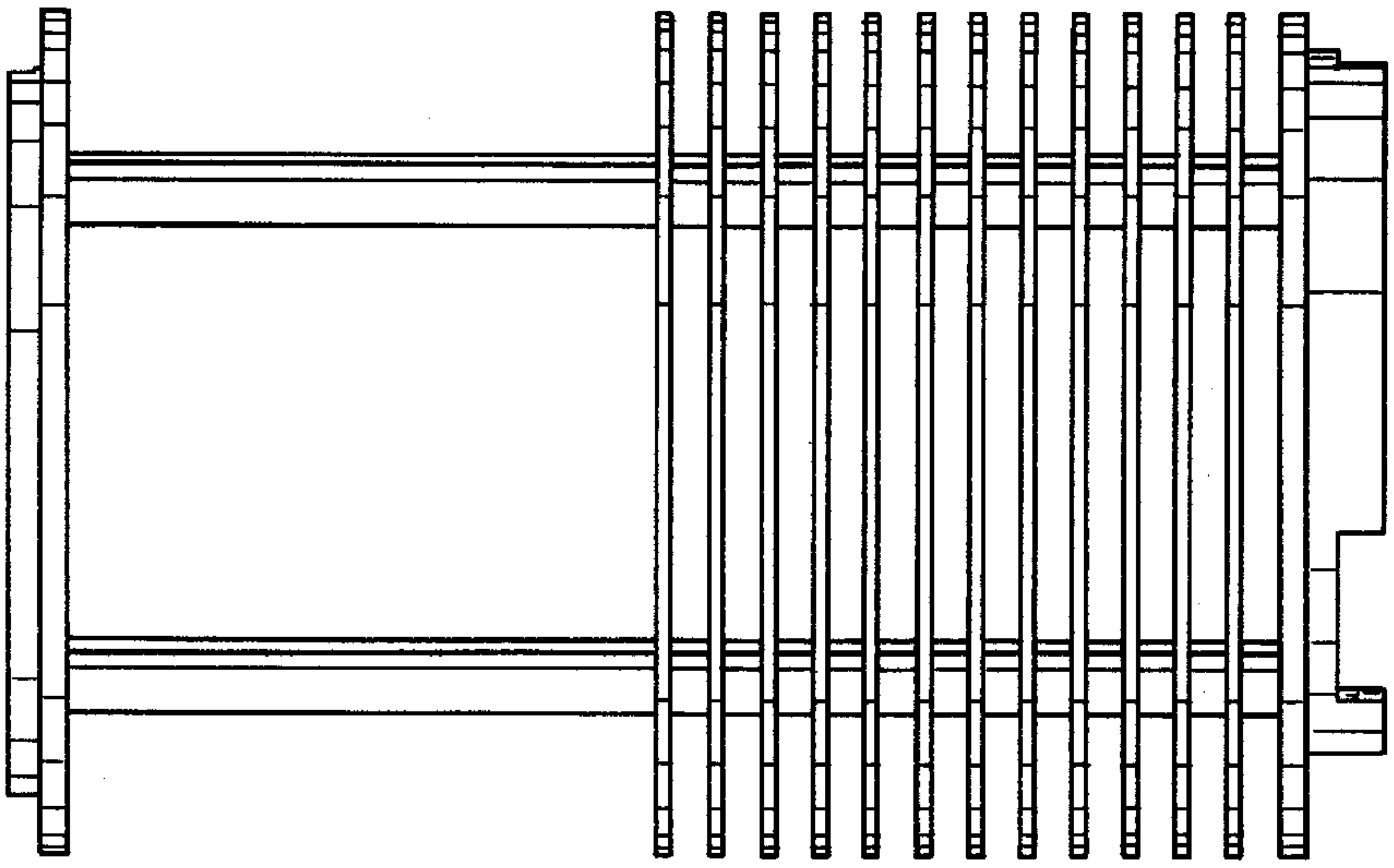

FIG. 9

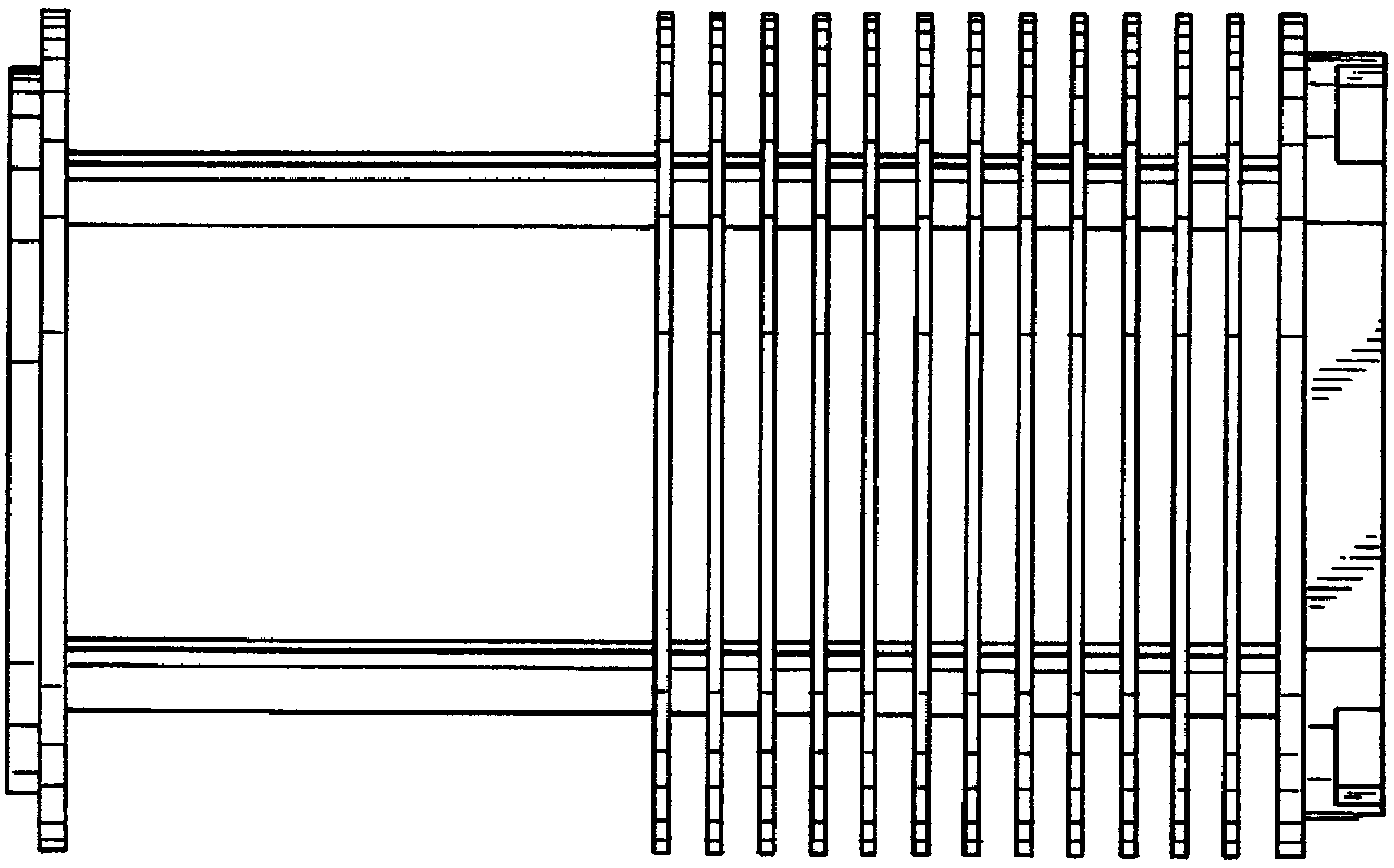

FIG. 8