



US00D477311S

(12) **United States Design Patent**  
Noro

(10) **Patent No.:** **US D477,311 S**

(45) **Date of Patent:** **\*\* Jul. 15, 2003**

(54) **FOUR-PHASE POWER SUPPLY HELICAL ANTENNA**

(75) Inventor: **Junichi Noro, Akita (JP)**

(73) Assignee: **Mitsumi Electric Co., Ltd., Tokyo (JP)**

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

(21) Appl. No.: **29/152,397**

(22) Filed: **Dec. 21, 2001**

(30) **Foreign Application Priority Data**

Jun. 28, 2001 (JP) ..... 2001-018819

(51) **LOC (7) Cl.** ..... **14-03**

(52) **U.S. Cl.** ..... **D14/230**

(58) **Field of Search** ..... D14/230, 232,  
D14/233-238; 343/872, 895, 700 MS; 455/90,  
562, 128, 347

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(57) **CLAIM**

The ornamental design for a four-phase power supply helical antenna, as shown.

**DESCRIPTION**

FIG. 1 is a perspective view of the top, front and right side of a four-phase power supply helical antenna showing our new design;

FIG. 2 is a perspective view of the bottom, rear and left side thereof;

FIG. 3 is a front elevational view thereof;

FIG. 4 is a rear elevational view thereof;

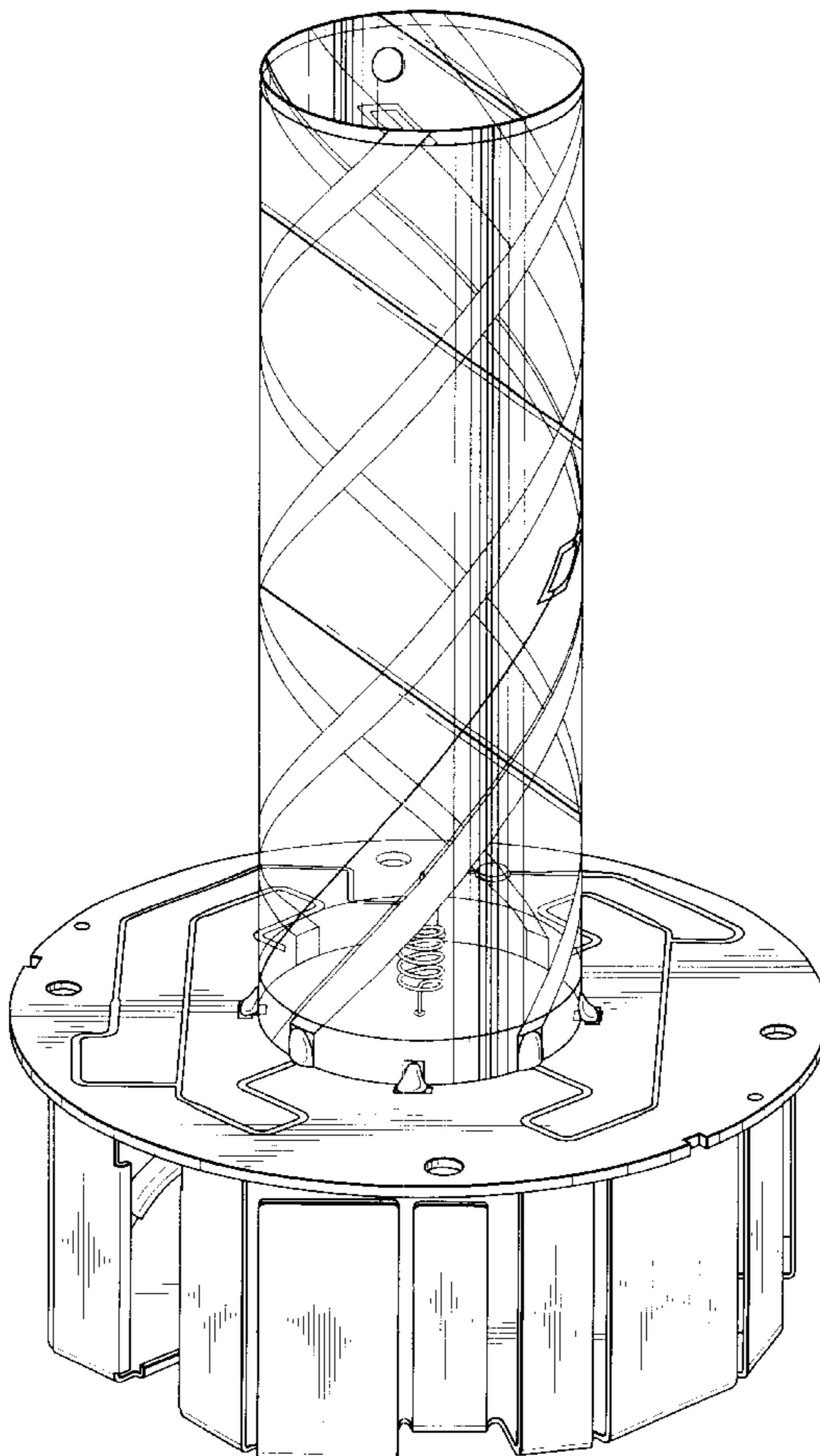
FIG. 5 is a left side elevational view thereof;

FIG. 6 is a right side elevational view thereof;

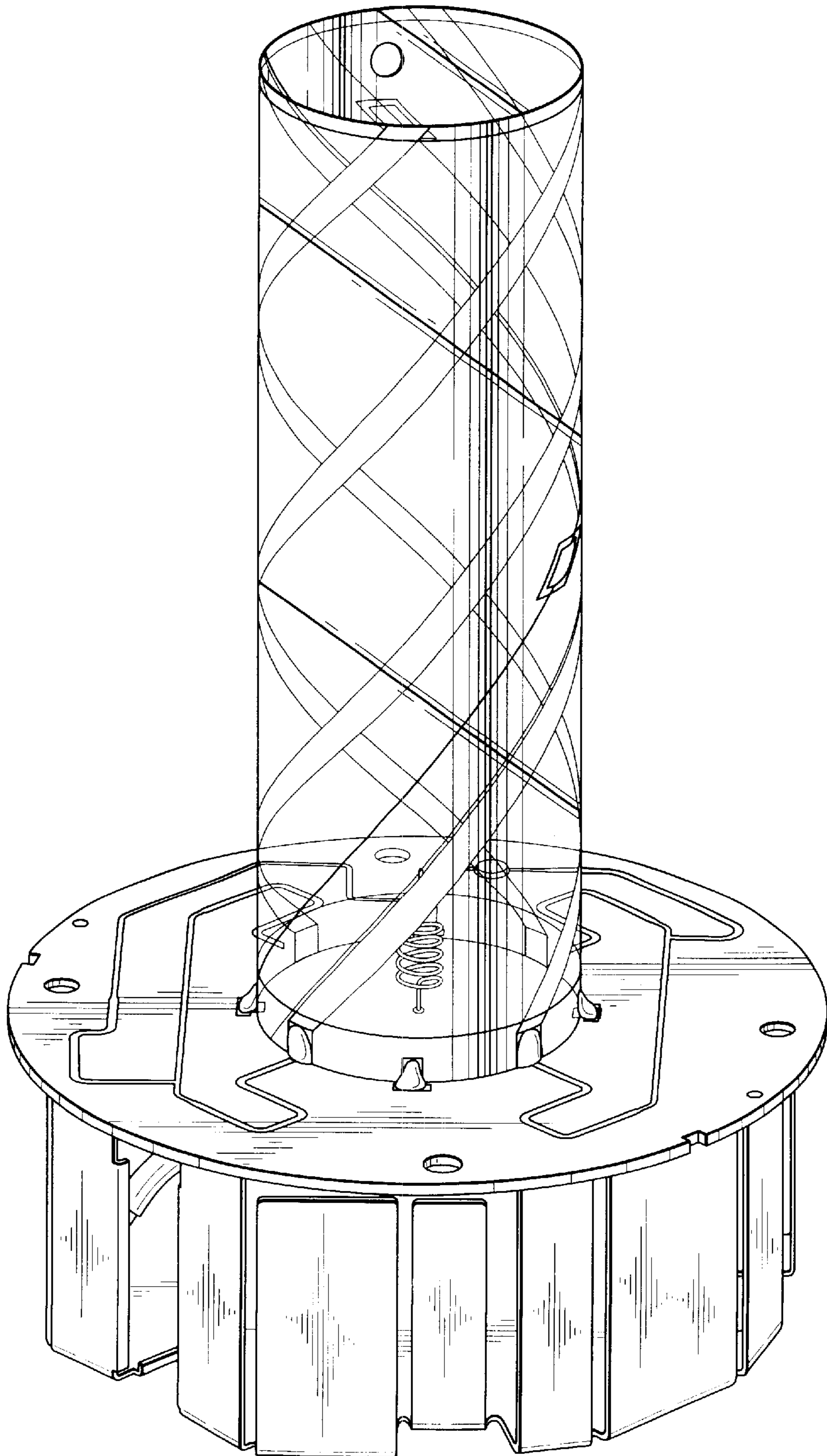
FIG. 7 is a top plan view thereof; and,

FIG. 8 is a bottom plan view thereof.

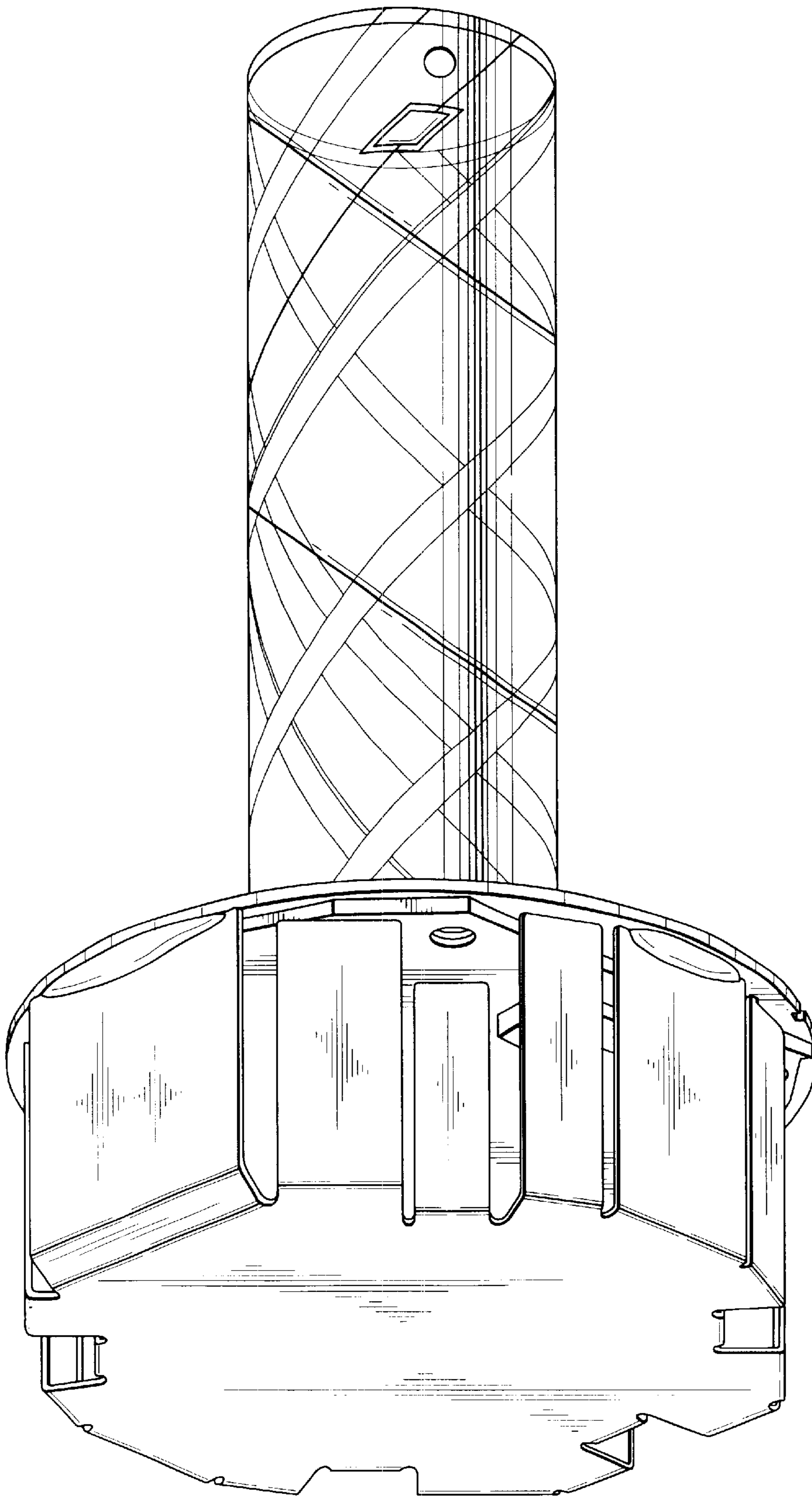
**1 Claim, 7 Drawing Sheets**



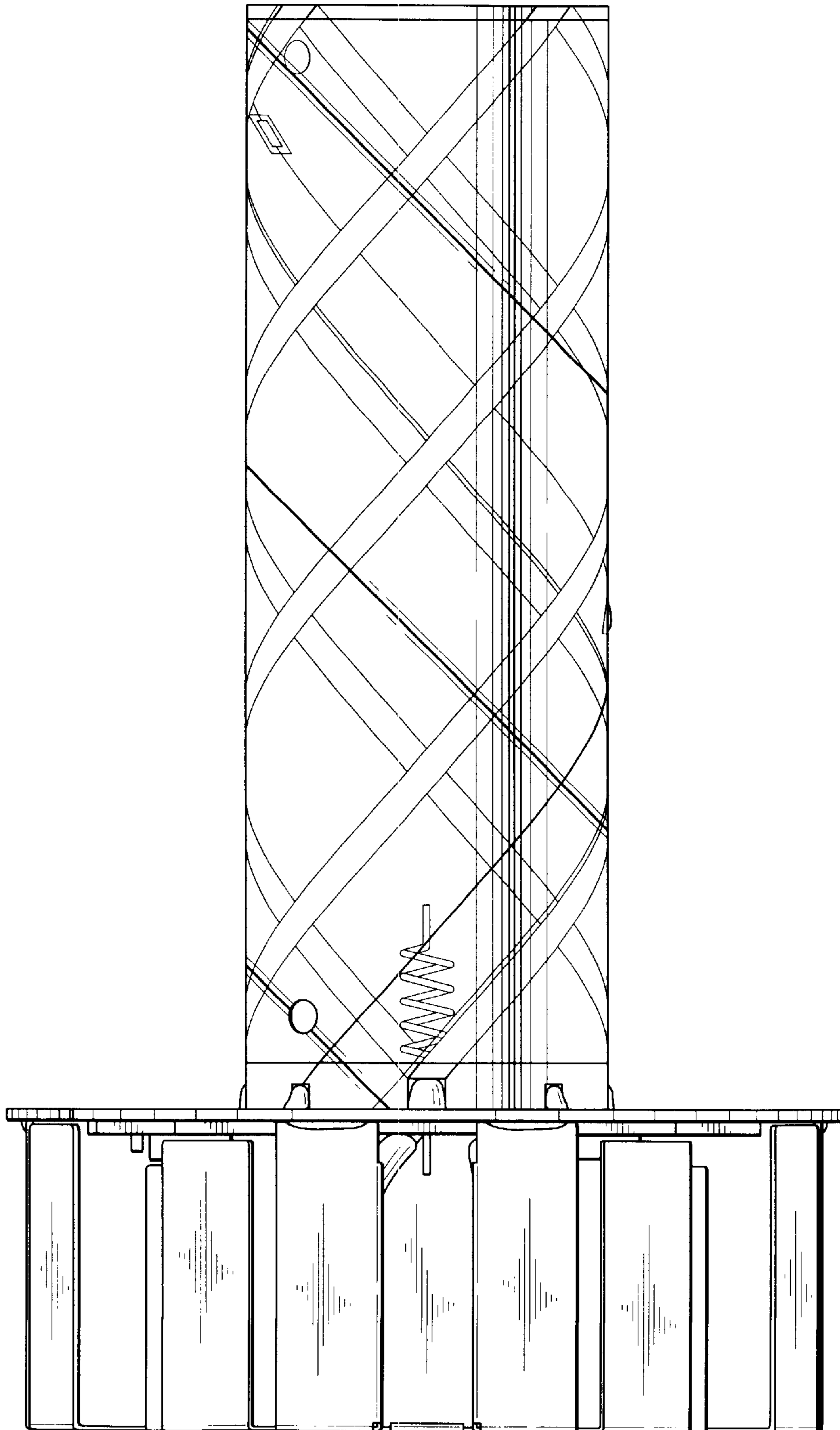
*FIG. 1*



*FIG. 2*

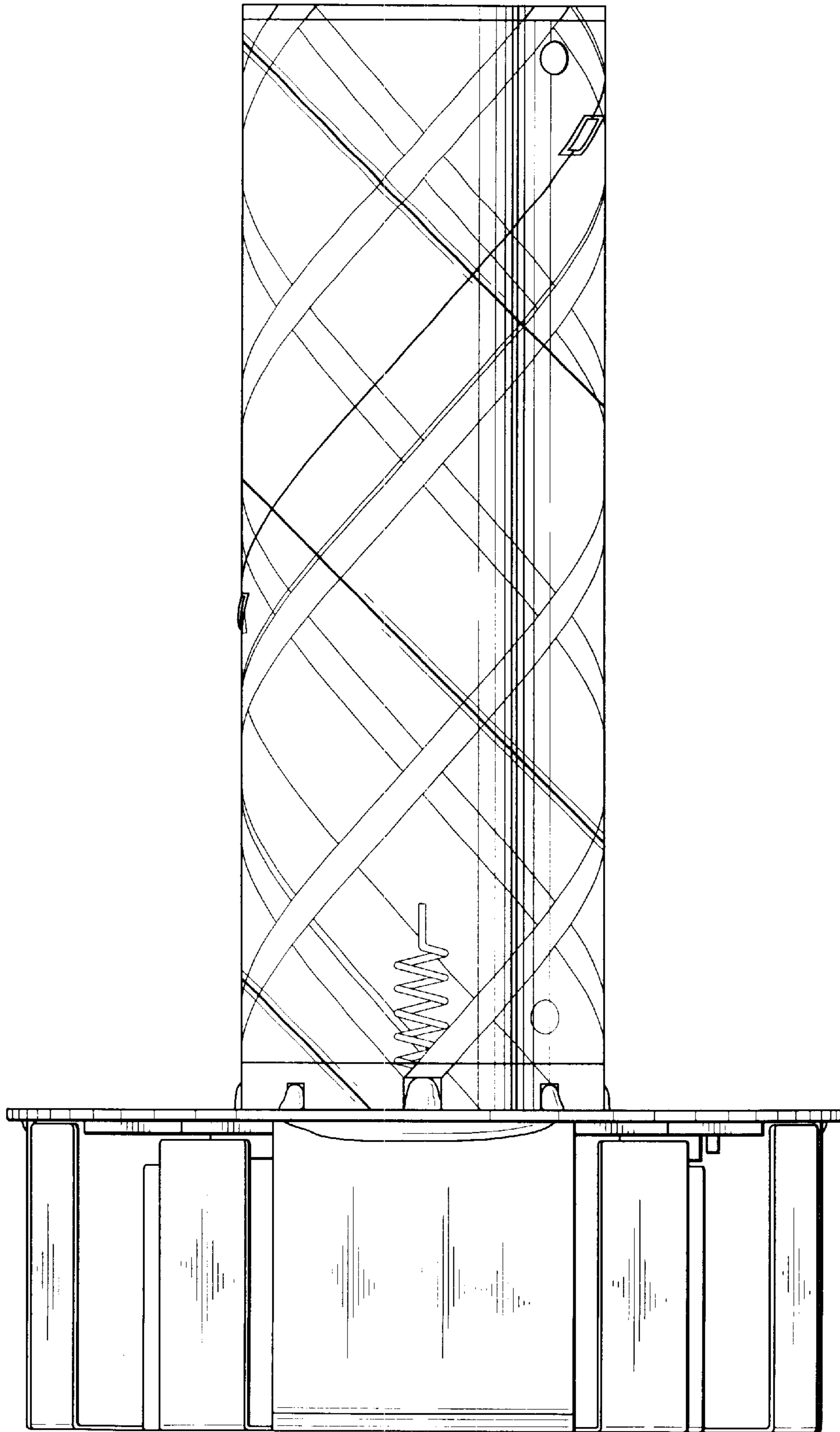


*FIG. 3*

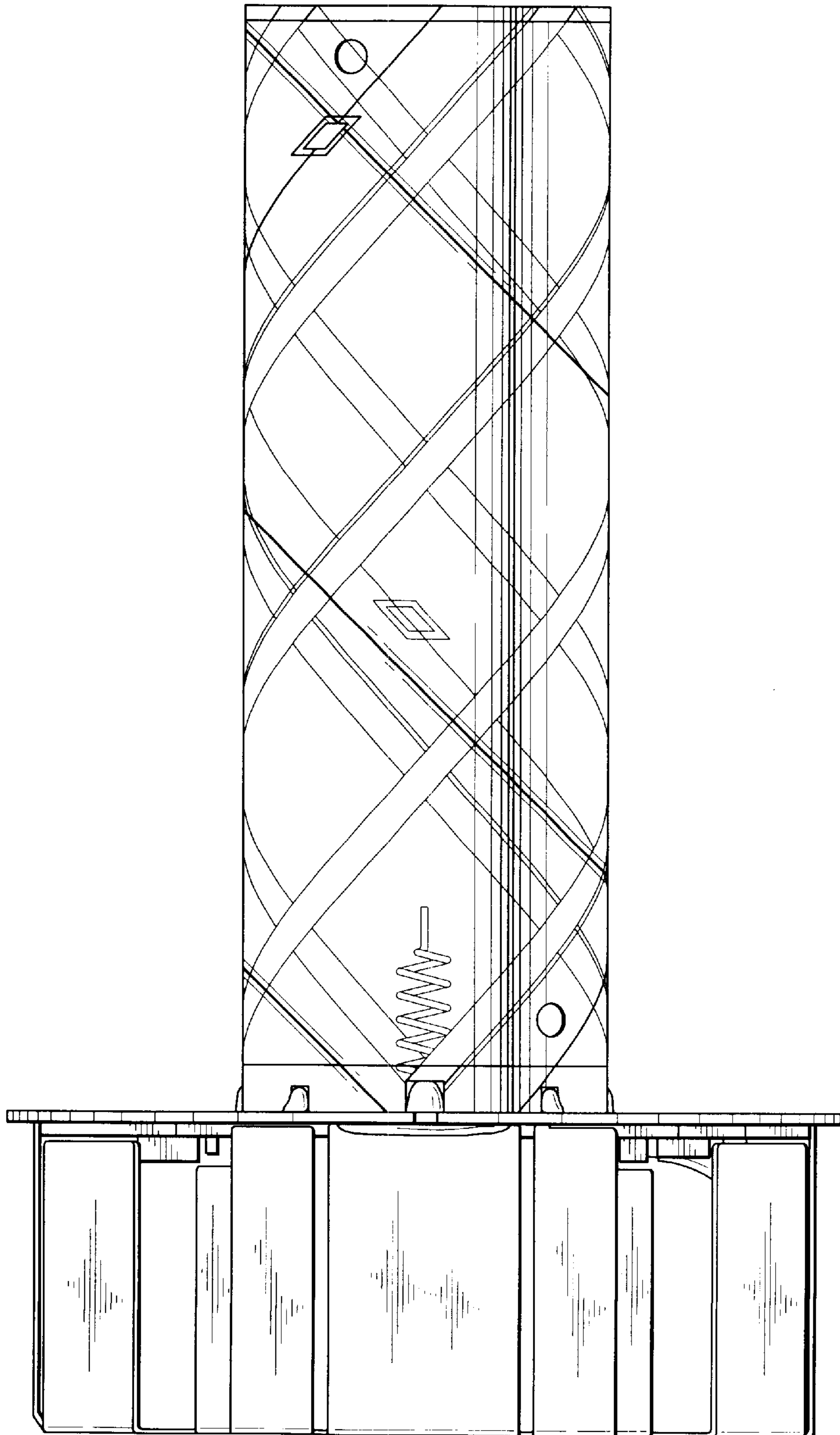




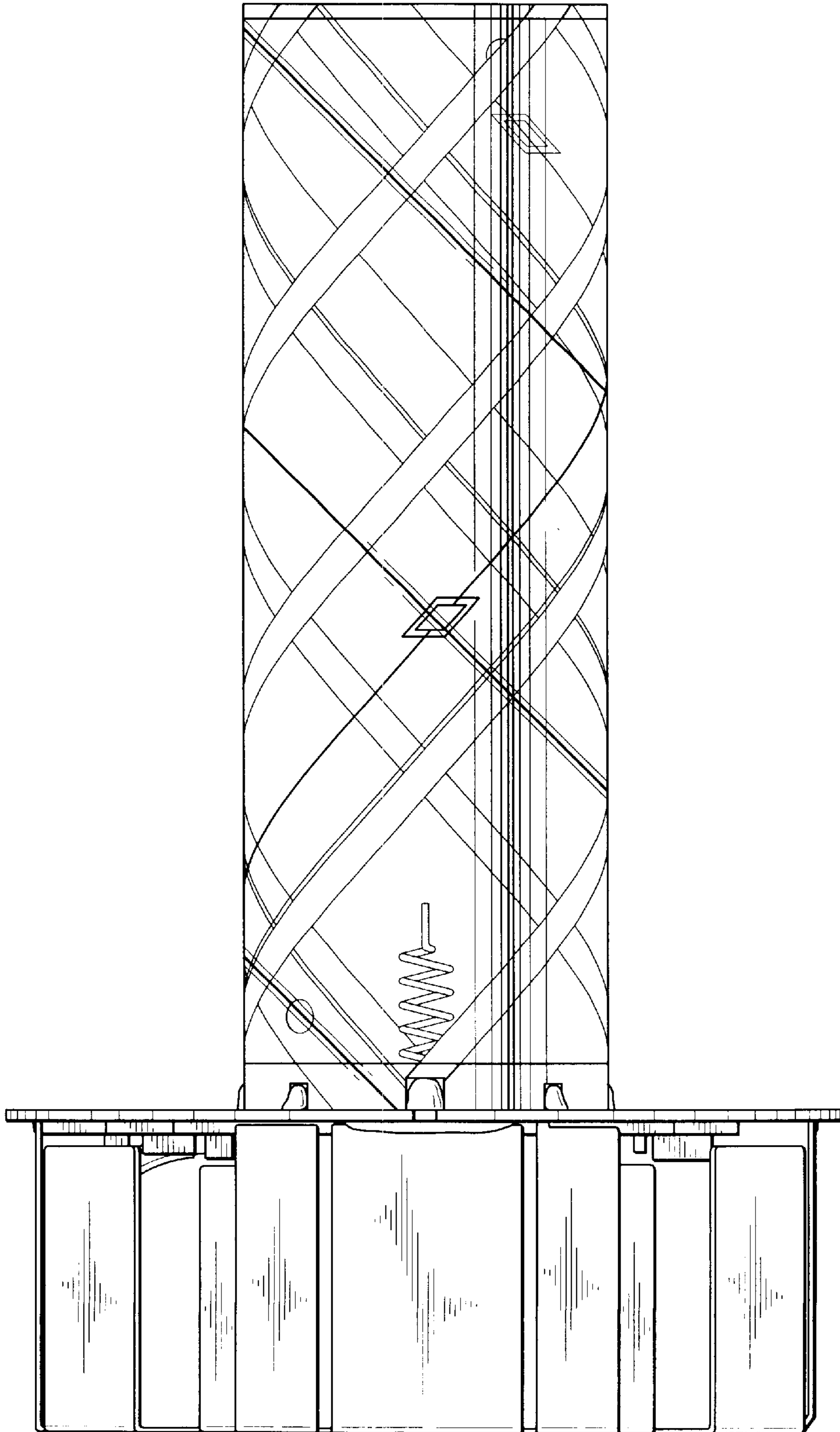
*FIG. 4*



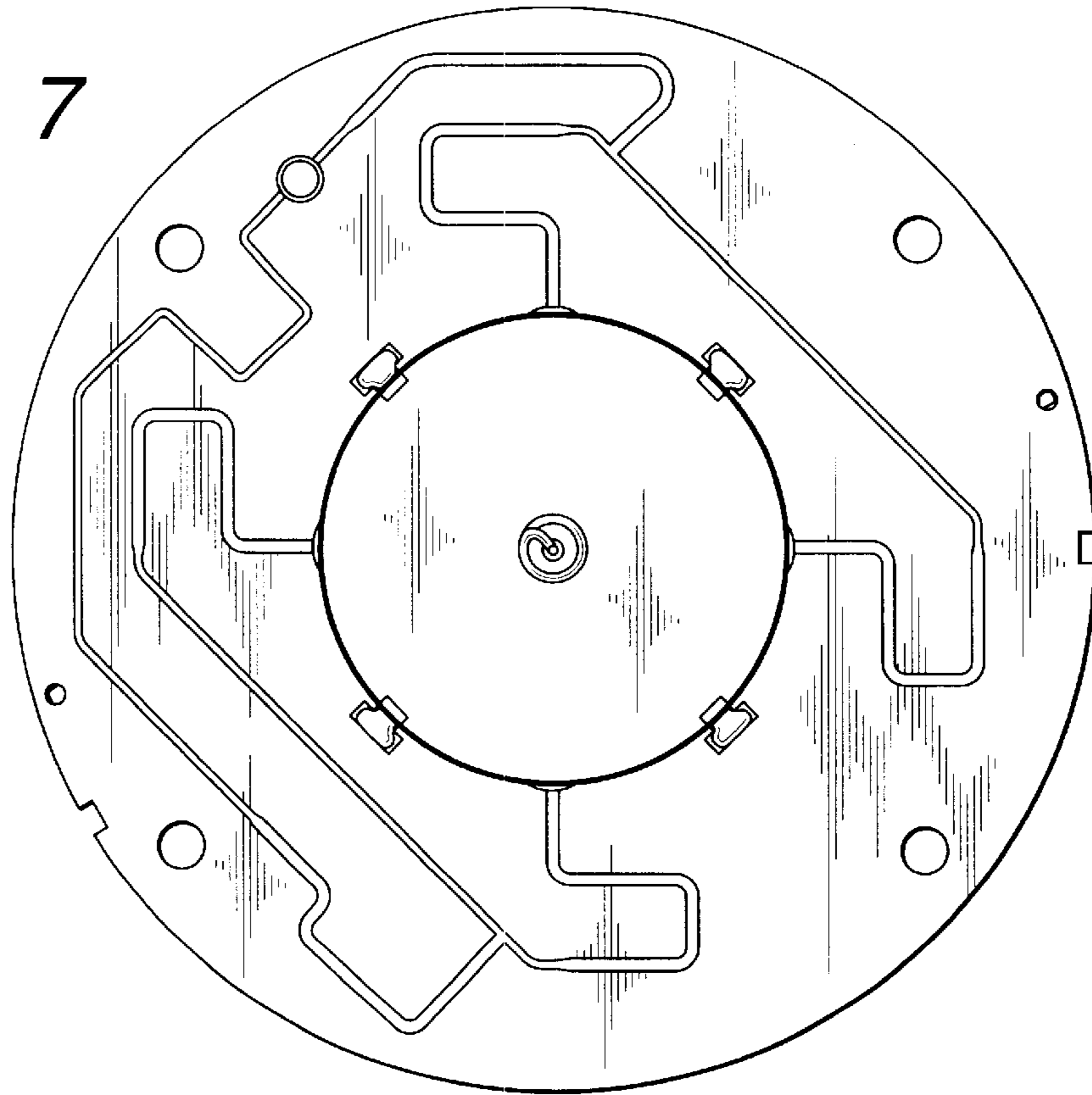
*FIG. 5*



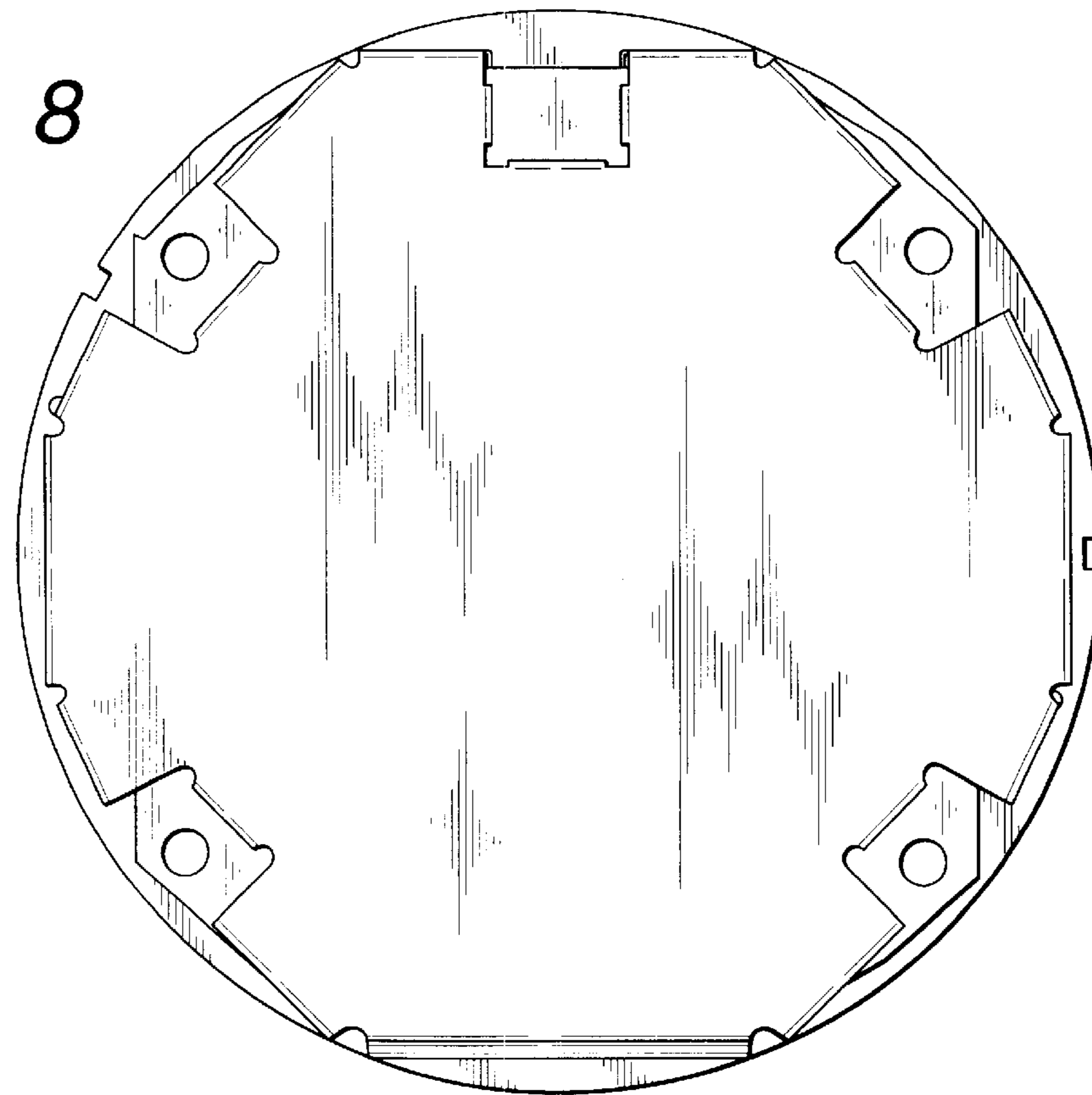
*FIG. 6*



**FIG. 7**



**FIG. 8**





UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : Des. 477,311 S  
DATED : July 15, 2003  
INVENTOR(S) : Junichi Noro

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Drawings,  
Delete Figures 1-6 insert Figures 1-6 hereto submitted.

Signed and Sealed this

Ninth Day of March, 2004

A handwritten signature in black ink that reads "Jon W. Dudas". The signature is written in a cursive style with a large, looped initial "J".

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JON W. DUDAS  
*Acting Director of the United States Patent and Trademark Office*