

US00D667103S

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

(10) **Patent No.:** **US D667,103 S**  
(45) **Date of Patent:** **\*\* Sep. 11, 2012**

(54) **CROSS-FLOW FAN**

(75) Inventors: **Yukishige Shiraichi**, Osaka (JP);  
**Masaki Ohtsuka**, Osaka (JP); **Masaya Takahashi**, Osaka (JP)

(73) Assignee: **Sharp Kabushiki Kaisha**, Osaka (JP)

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

(21) Appl. No.: **29/381,110**

(22) Filed: **Dec. 15, 2010**

(30) **Foreign Application Priority Data**

Oct. 1, 2010 (JP) ..... 2010-023575

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

(52) **U.S. Cl.** ..... **D23/413**

(58) **Field of Classification Search** ..... D6/309;  
D13/179; D23/370-386, 411-414; 165/80.3,  
165/120-122, 900; 310/12.13, 26, 52, 58,  
310/60 A, 60 R, 61-65, 112, 125, 156.35-156.37,  
310/157, 211, 261.1, 266, 268; 361/679.48,  
361/694-697; 392/365, 373, 382, 383; 415/60,  
415/66, 68, 175-178, 206, 208.1, 211.2,  
415/213.1, 214.1, 215.1; 416/179, 185, 186 R,  
416/187, 244 R, 246, 247 R

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,513,763 A \* 11/1924 Rowe ..... D23/414  
2,915,239 A \* 12/1959 Borkat ..... D23/383  
D227,012 S \* 5/1973 Ranz et al. .... D23/414

6,530,746 B2 \* 3/2003 Huang et al. .... 415/213.1  
D493,216 S \* 7/2004 Wu et al. .... D23/370  
7,108,482 B2 \* 9/2006 Chapman ..... 416/185  
D530,006 S \* 10/2006 Li et al. .... D23/414  
D533,935 S \* 12/2006 Chen ..... D23/411  
D561,323 S \* 2/2008 Shirahama ..... D23/370  
D645,007 S \* 9/2011 Alexander ..... D13/179  
2005/0163614 A1 \* 7/2005 Chapman ..... 415/206  
2008/0075598 A1 \* 3/2008 Chen et al. .... 416/179  
2008/0226447 A1 \* 9/2008 Burias ..... 415/206

**OTHER PUBLICATIONS**

U.S. Appl. No. 29/381,113, filed Dec. 15, 2010 (Pending).  
U.S. Appl. No. 29/381,119, filed Dec. 15, 2010 (Pending).  
U.S. Appl. No. 29/381,124, filed Dec. 15, 2010 (Pending).

\* cited by examiner

*Primary Examiner* — Garth Rademaker

(74) *Attorney, Agent, or Firm* — Nixon & Vanderhye, P.C.

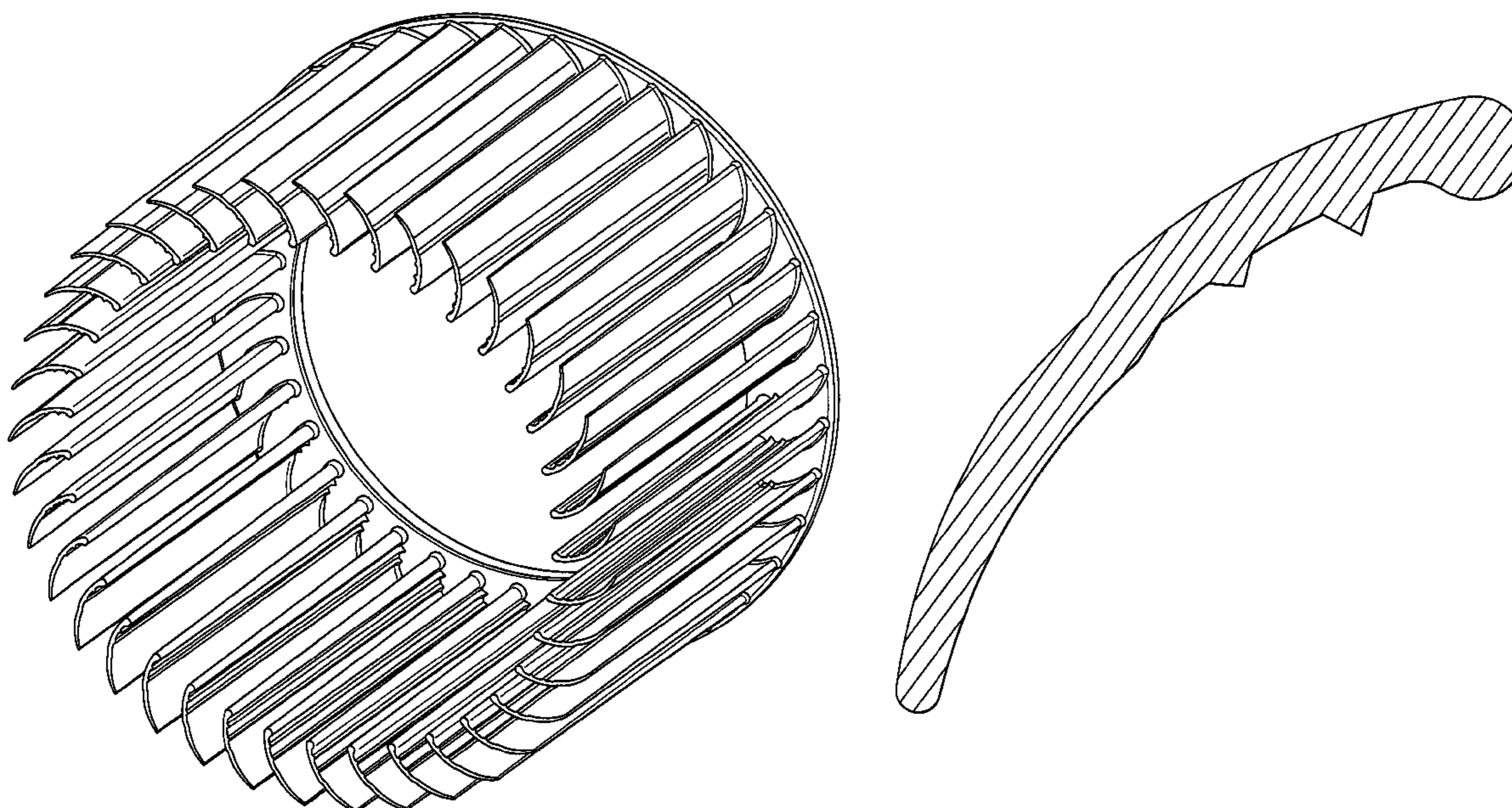
(57) **CLAIM**

The ornamental design for a cross-flow fan, as shown and described.

**DESCRIPTION**

FIG. 1 is a top, right perspective view of a cross-flow fan in accordance with our new design;  
FIG. 2 is a front elevation view thereof;  
FIG. 3 is a rear elevation view thereof;  
FIG. 4 is a top plan view thereof;  
FIG. 5 is a bottom plan view thereof;  
FIG. 6 is a right side elevation view thereof;  
FIG. 7 is a left side elevation view thereof; and,  
FIG. 8 is an enlarged cross-section view of a single fan blade thereof.

**1 Claim, 7 Drawing Sheets**



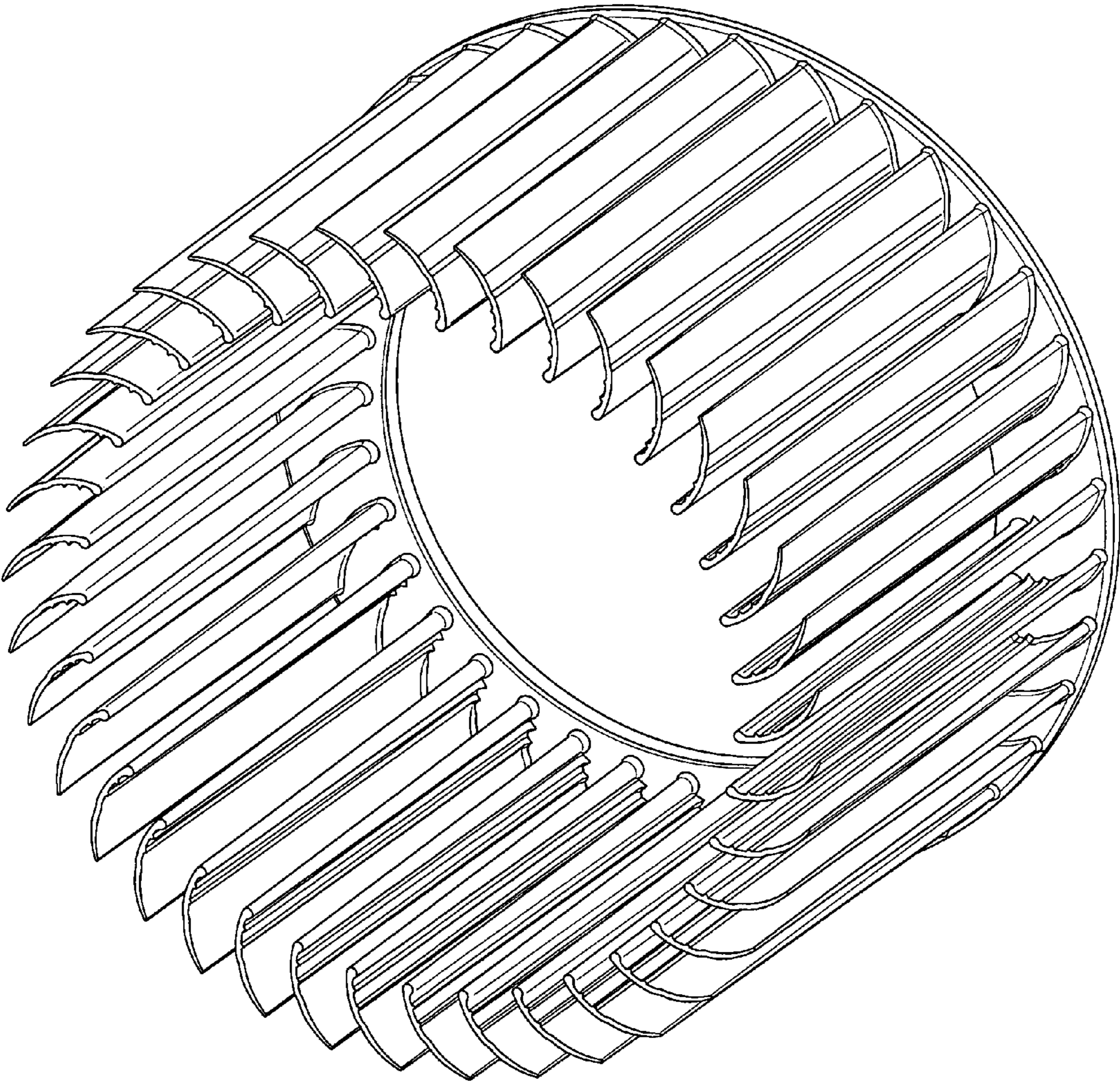


FIG. 1

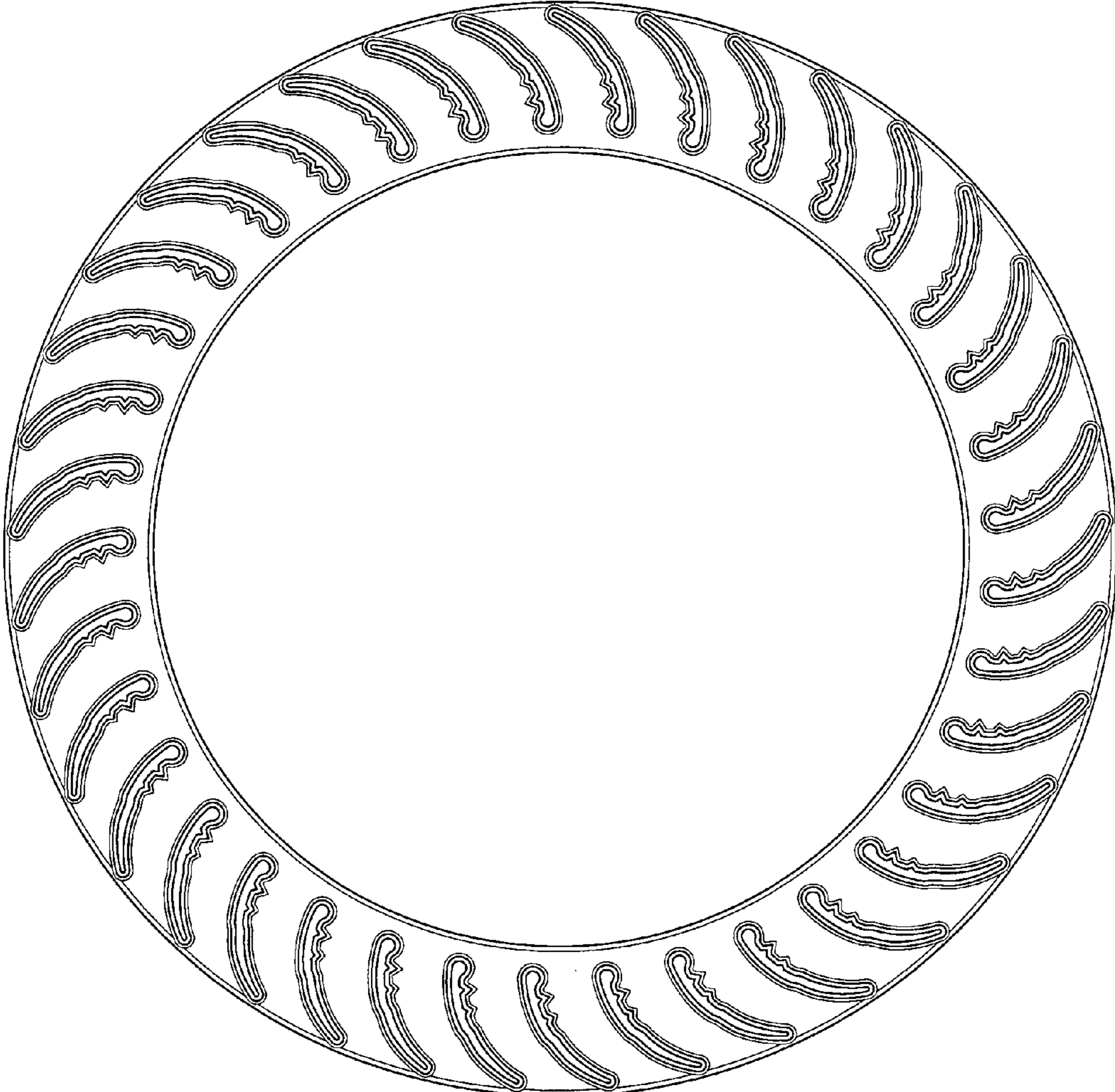


FIG. 2

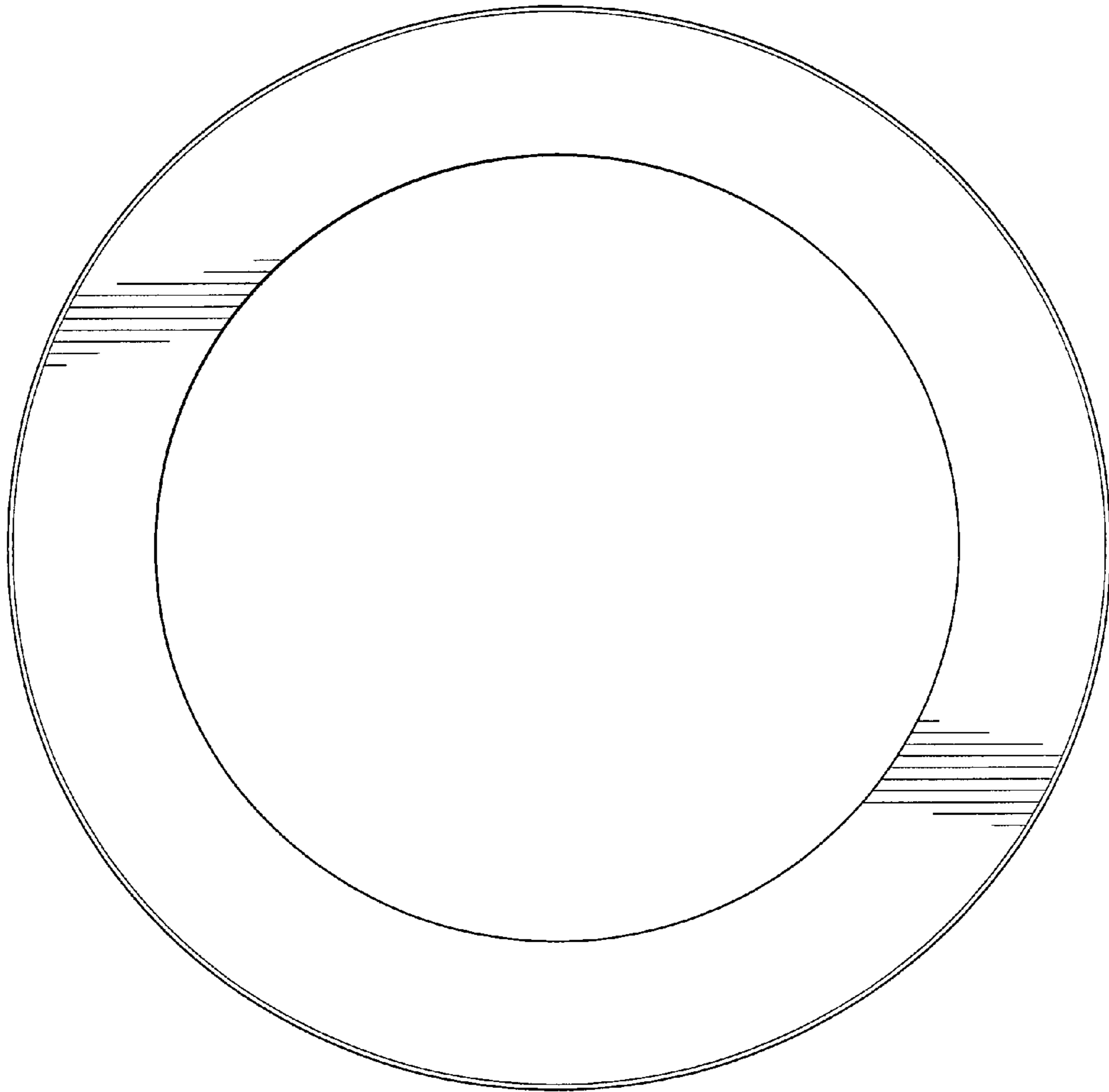


FIG. 3

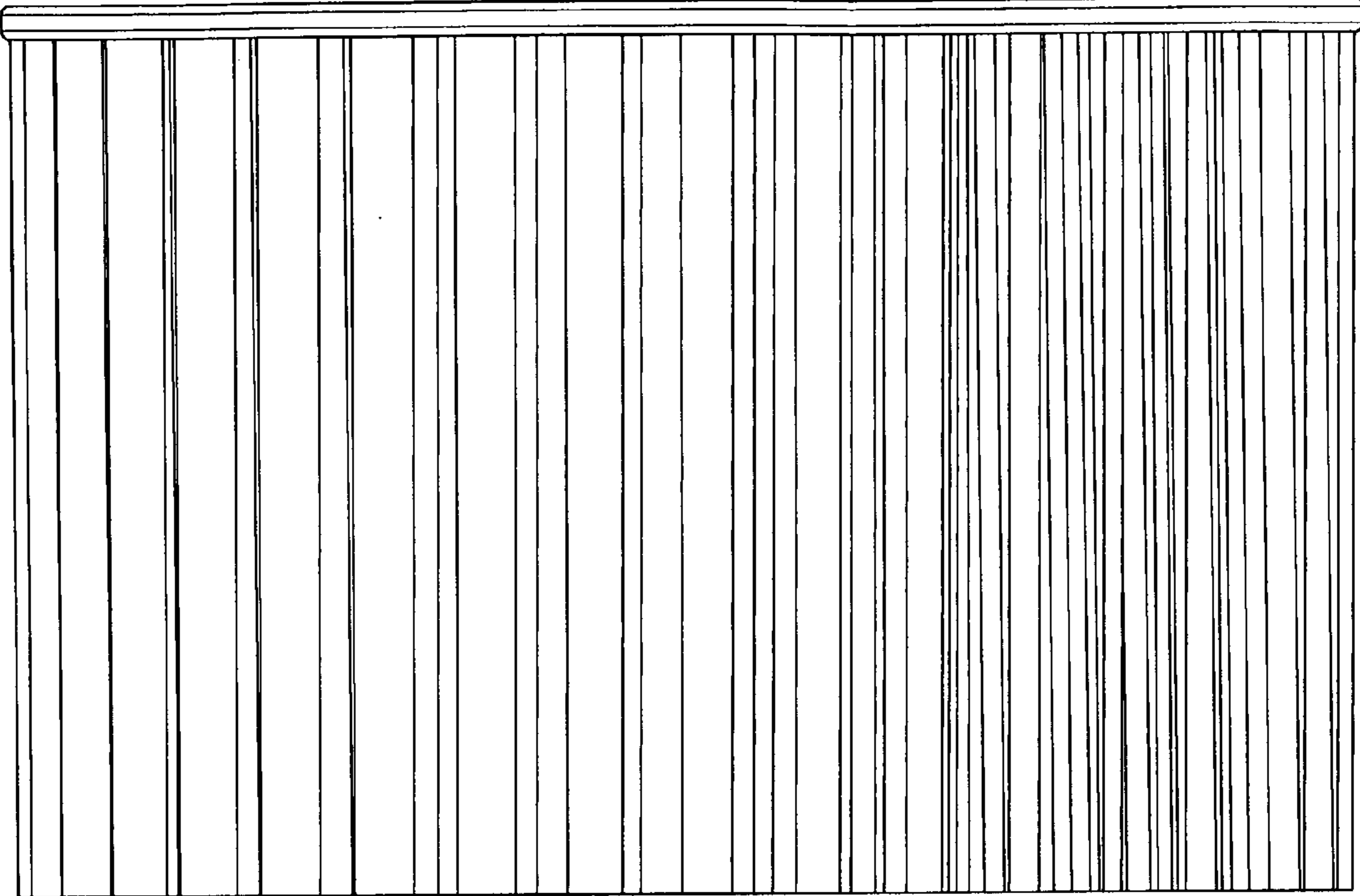


FIG. 4

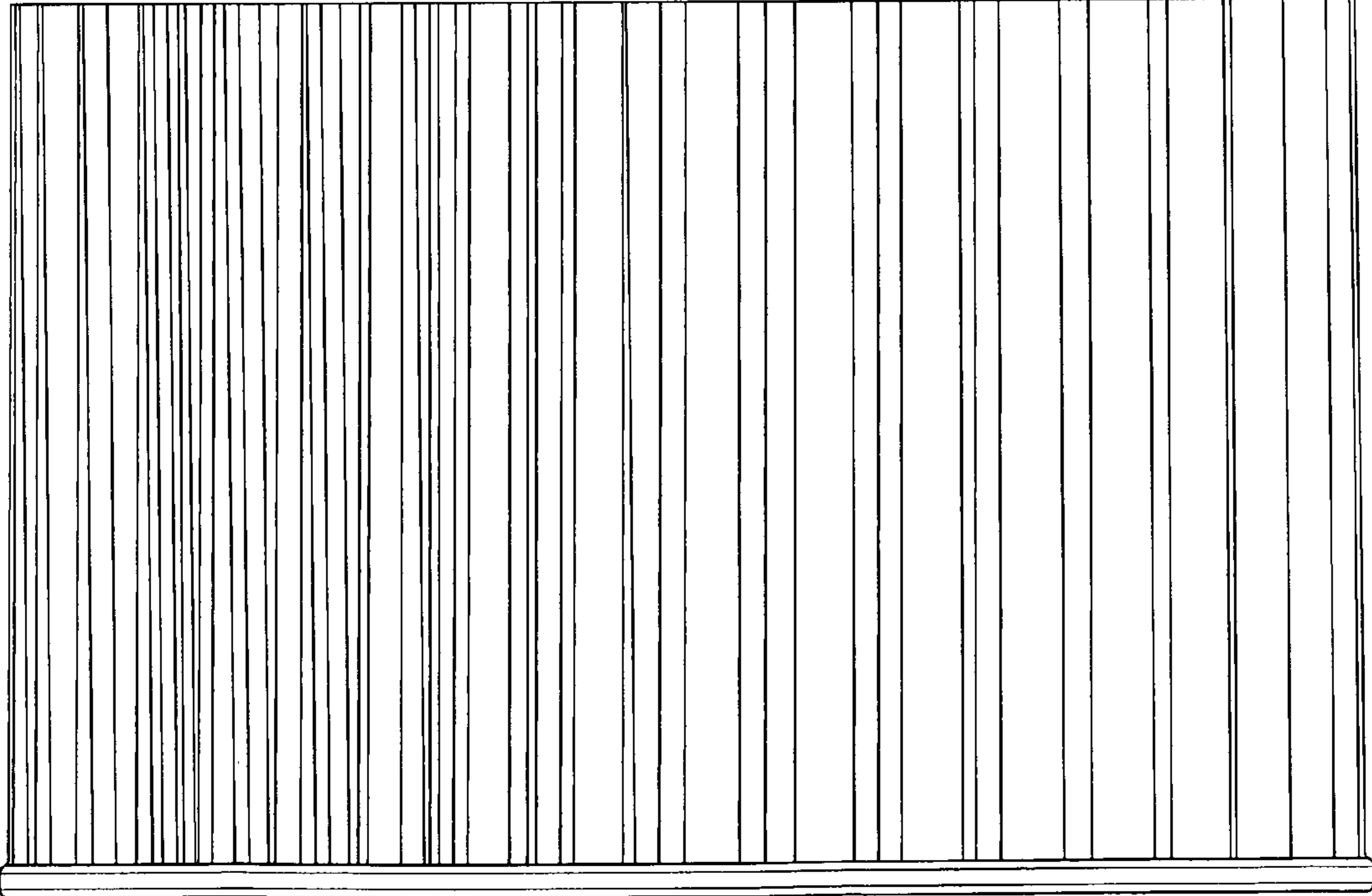


FIG. 5

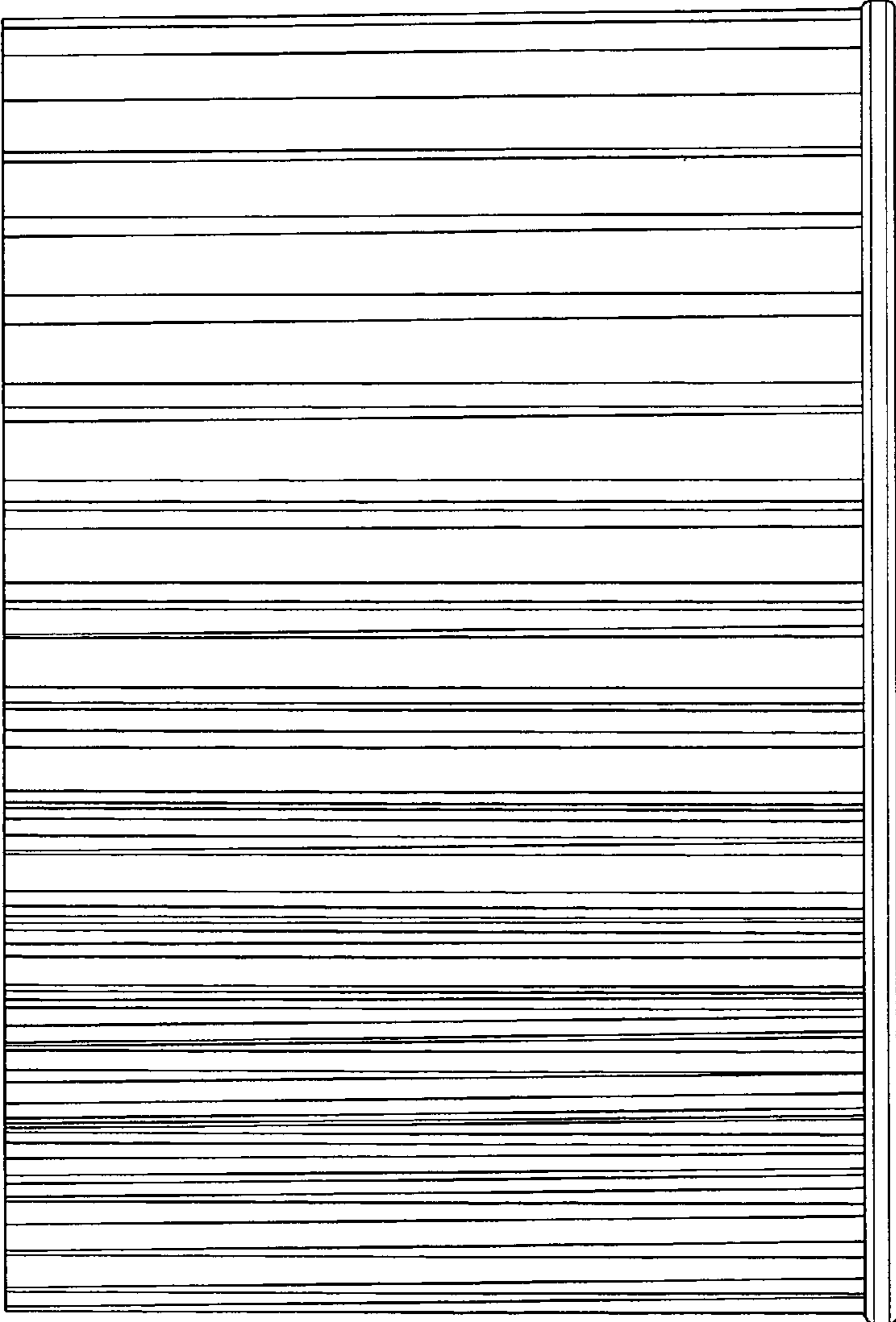


FIG. 6

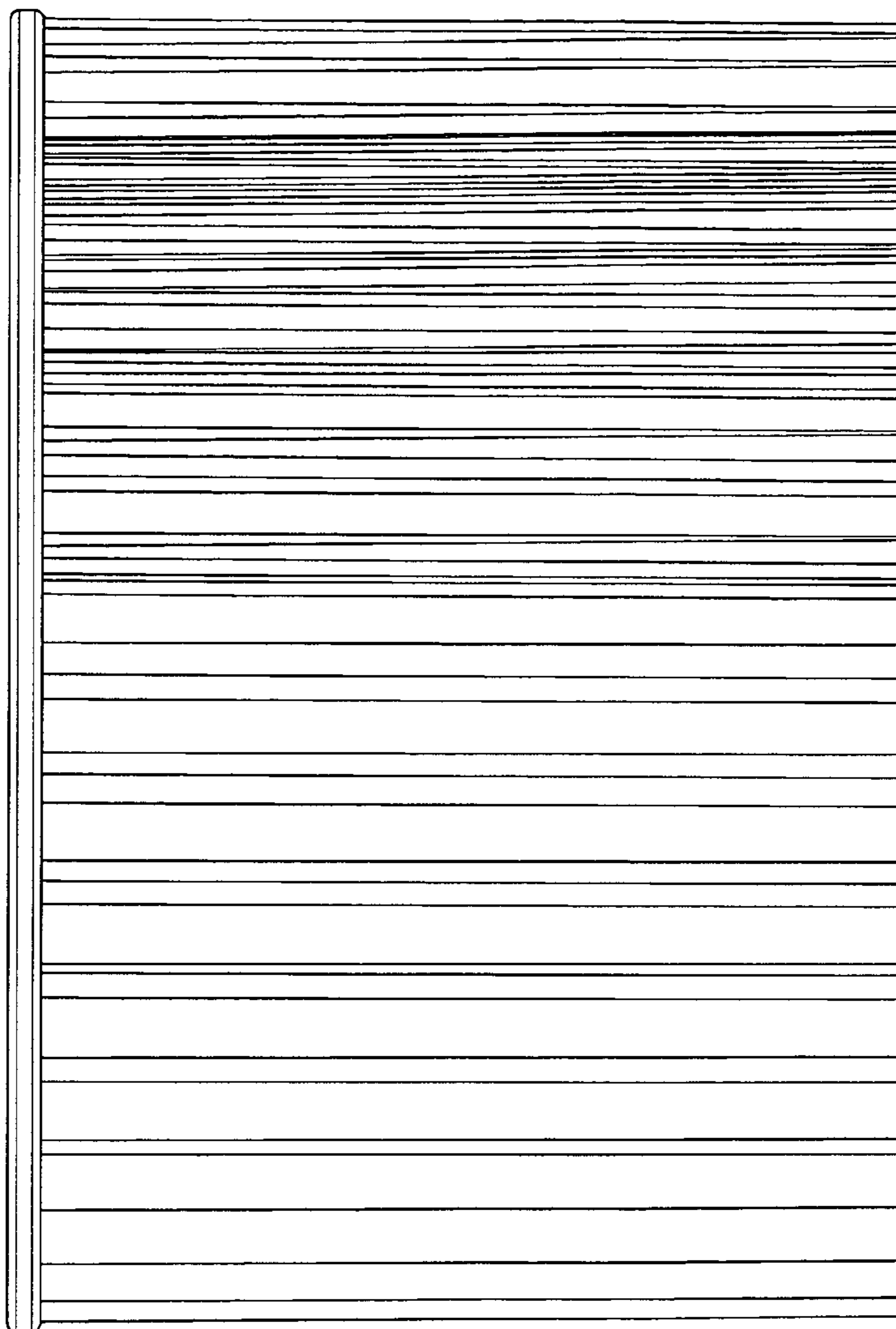


FIG. 7

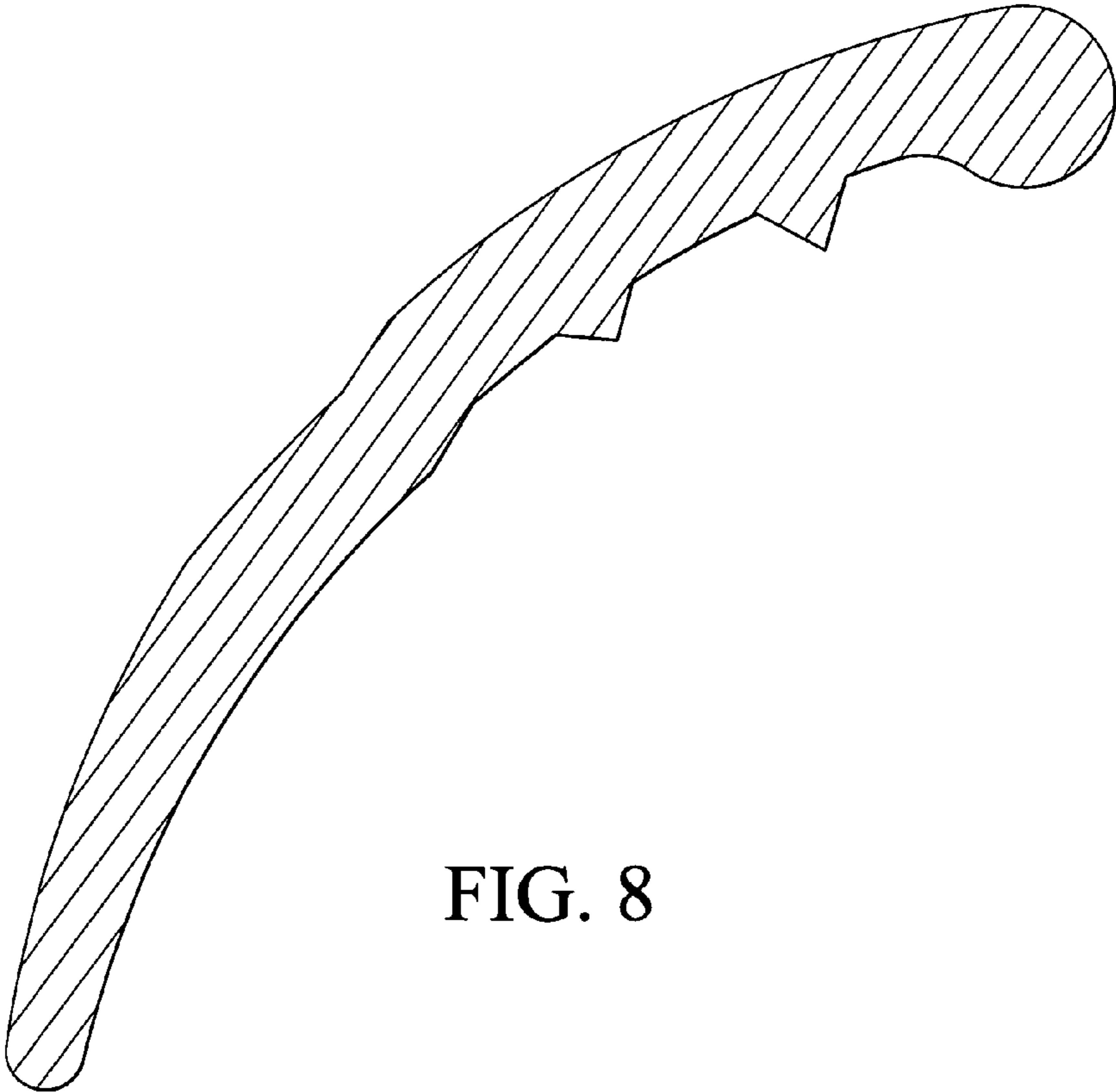


FIG. 8