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

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(54) **CROSS-FLOW FAN**

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

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(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**

1,143,365 A \* 6/1915 Davidson ..... 416/187  
1,700,017 A \* 1/1929 Bender ..... 416/187  
2,915,239 A \* 12/1959 Borkat ..... D23/383  
3,635,588 A \* 1/1972 Lester et al. .... 416/244 R  
D227,012 S \* 5/1973 Ranz ..... D23/414  
4,235,568 A \* 11/1980 Zenkner ..... 416/187

4,324,529 A \* 4/1982 Nickels ..... 416/187  
6,530,746 B2 \* 3/2003 Huang et al. .... 415/213.1  
D533,935 S \* 12/2006 Chen ..... D23/411  
D561,323 S \* 2/2008 Shirahama ..... D23/370  
D645,007 S \* 9/2011 Alexander ..... D13/179  
2008/0075598 A1 \* 3/2008 Chen et al. .... 416/179  
2012/0049687 A1 \* 3/2012 Osborne et al. .... 310/211

**OTHER PUBLICATIONS**

U.S. Appl. No. 29/381,110, 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

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(57) **CLAIM**

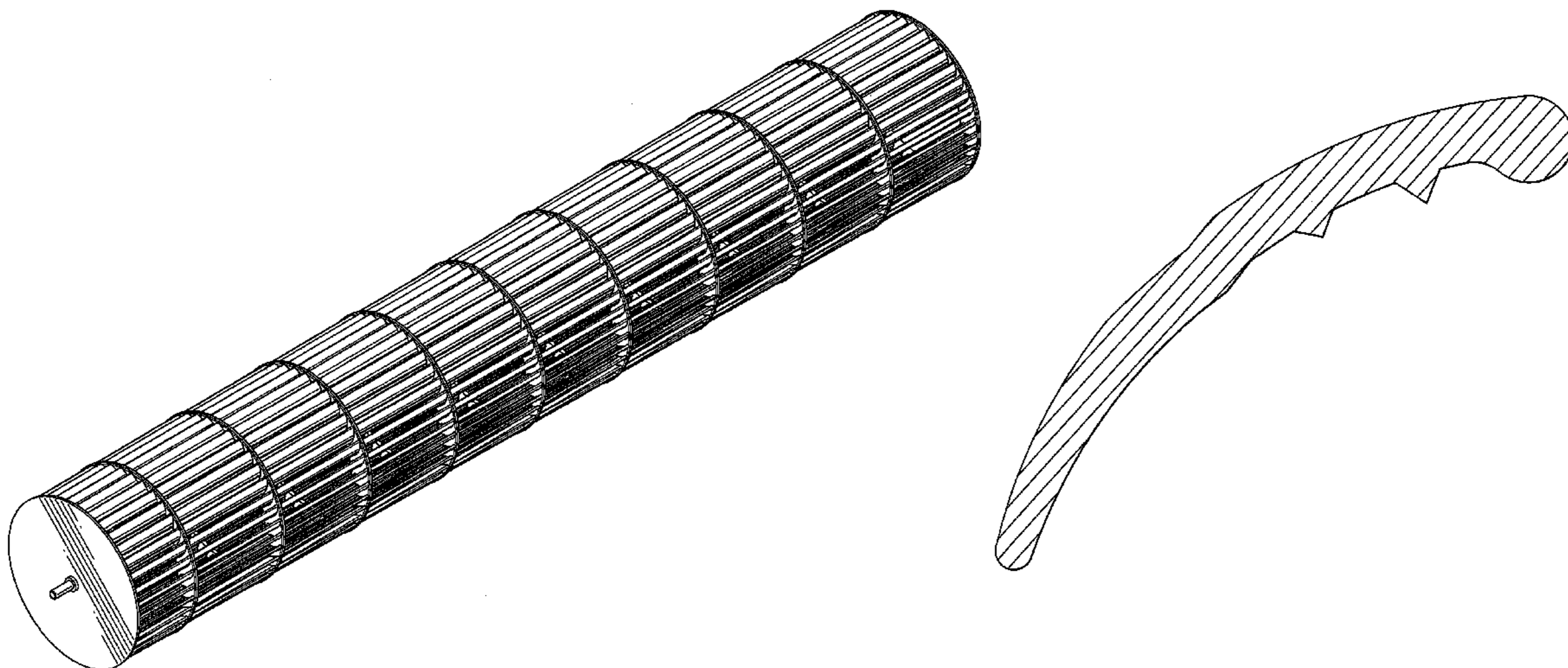
The ornamental design for a cross-flow fan, as shown and described.

**DESCRIPTION**

FIG. 1 is a bottom, left, rear 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; and FIG. 7 is a left side elevation view thereof; FIG. 8 is a cross-section view thereof, taken along line 8-8 of FIG. 2, shown at an enlarged scale; FIG. 9 is a cross-section view of a single fan blade thereof, shown at a further enlarged scale; and, FIG. 10 is a top, right, rear perspective view thereof.

The broken lines depict environmental subject matter only and form no part of the claimed design.

**1 Claim, 6 Drawing Sheets**





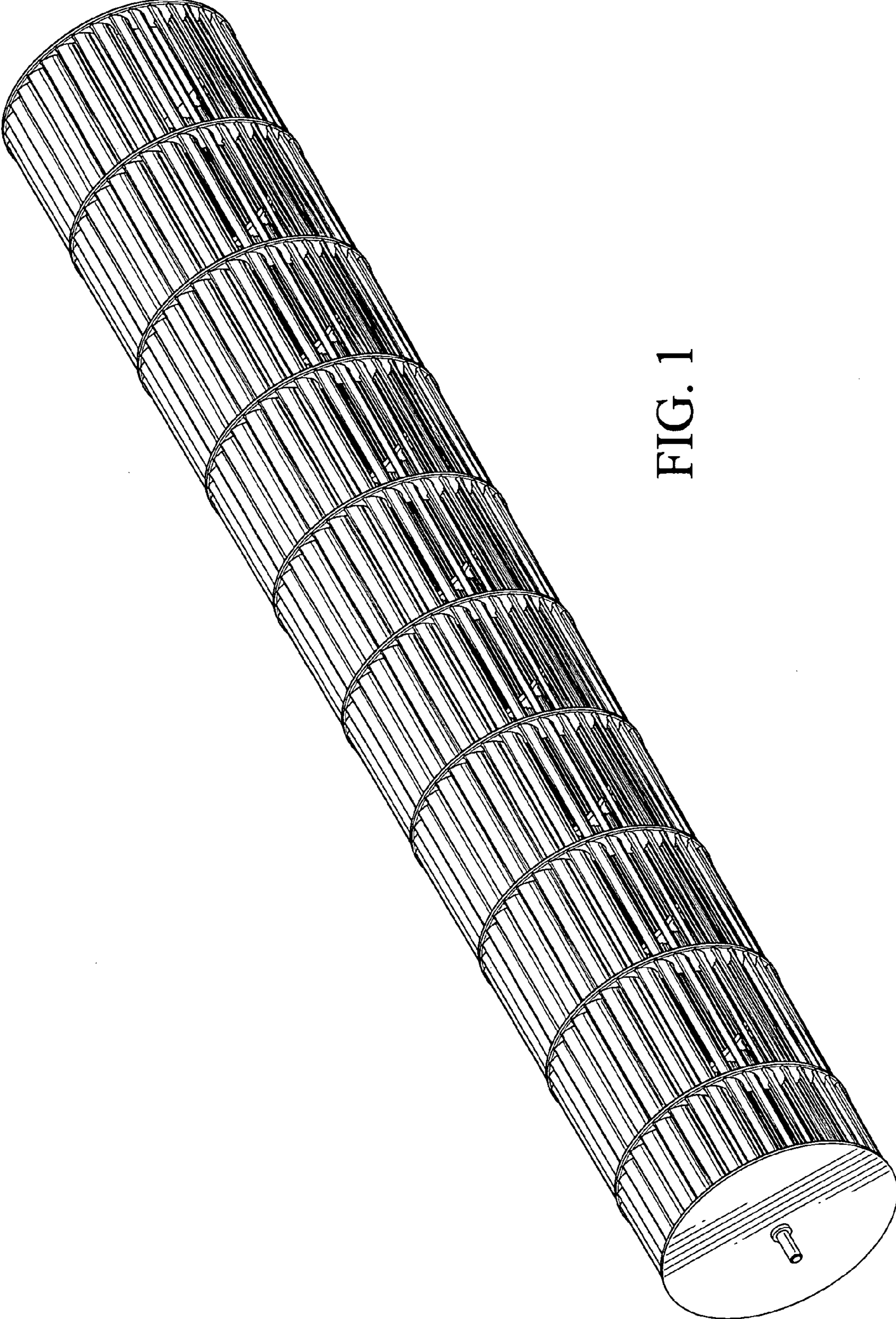


FIG. 1

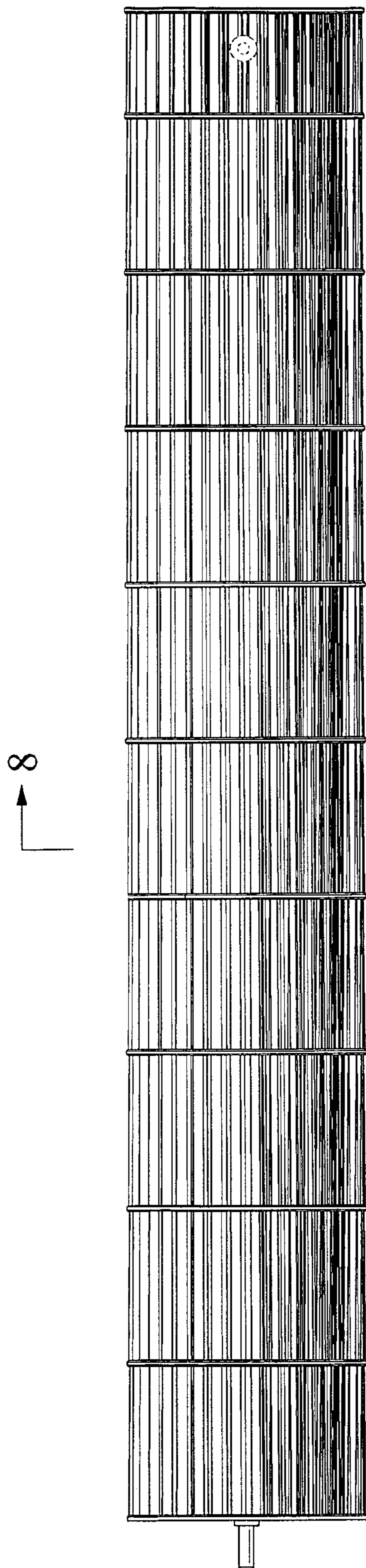


FIG. 2

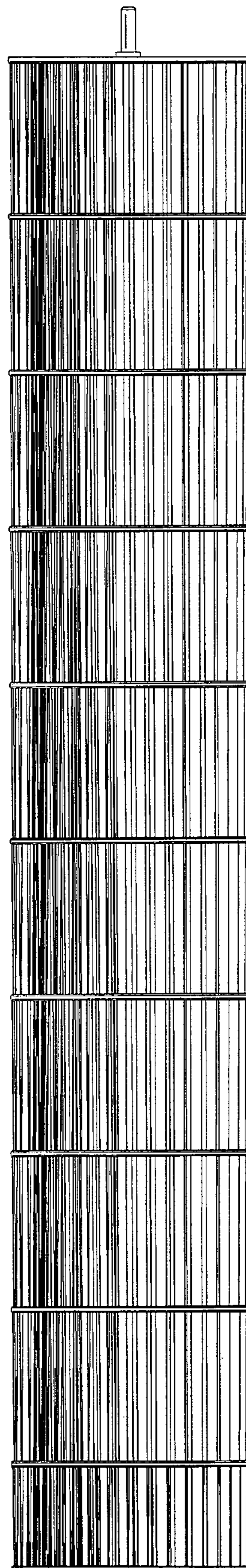


FIG. 3





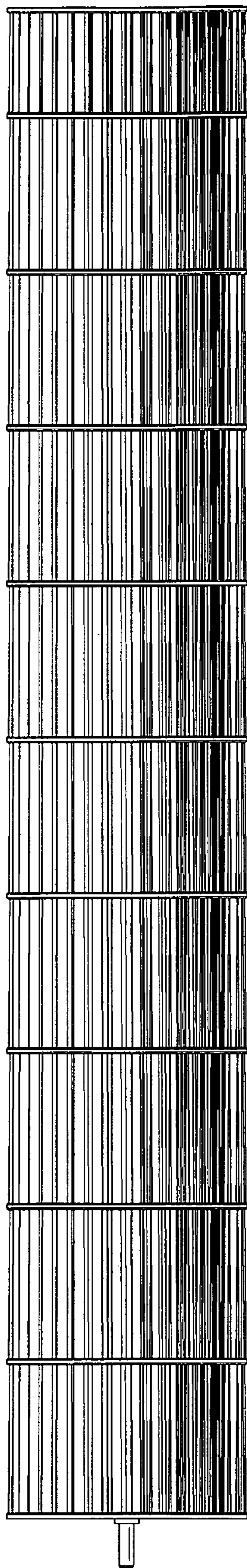


FIG. 4

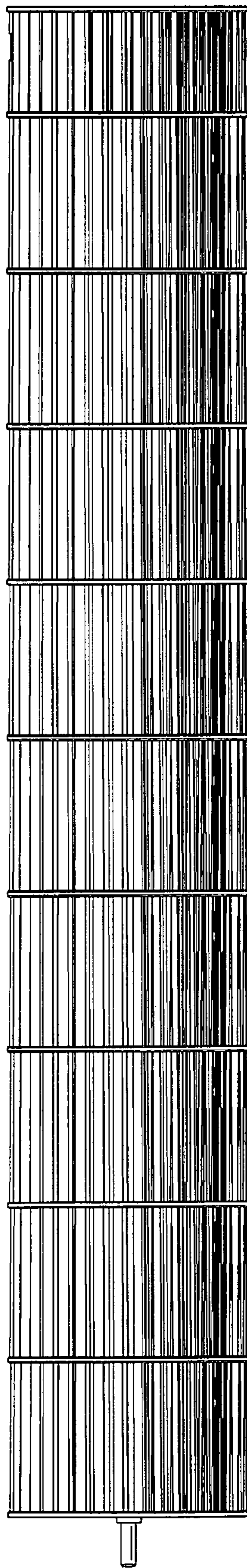


FIG. 5

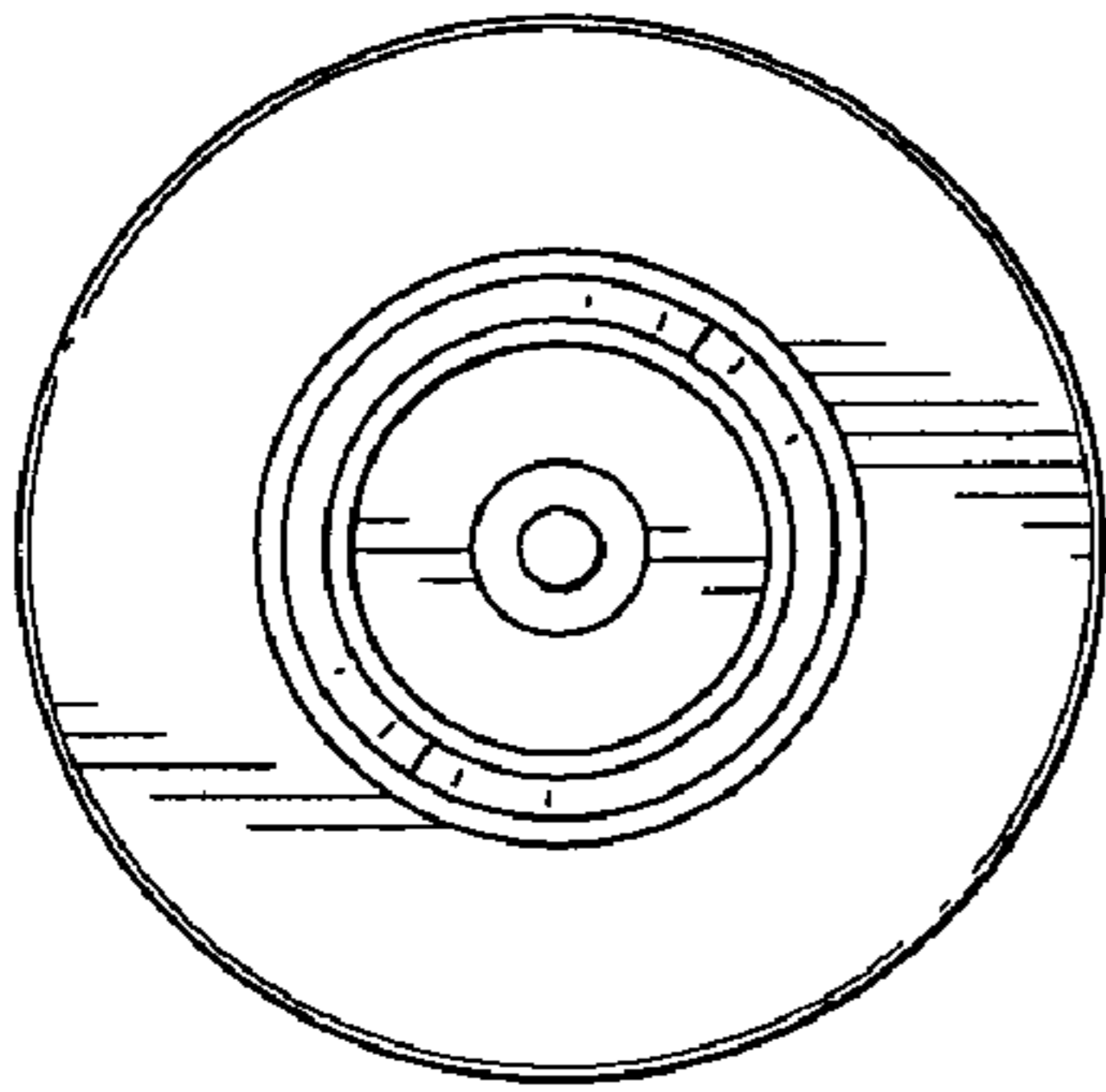


FIG. 6

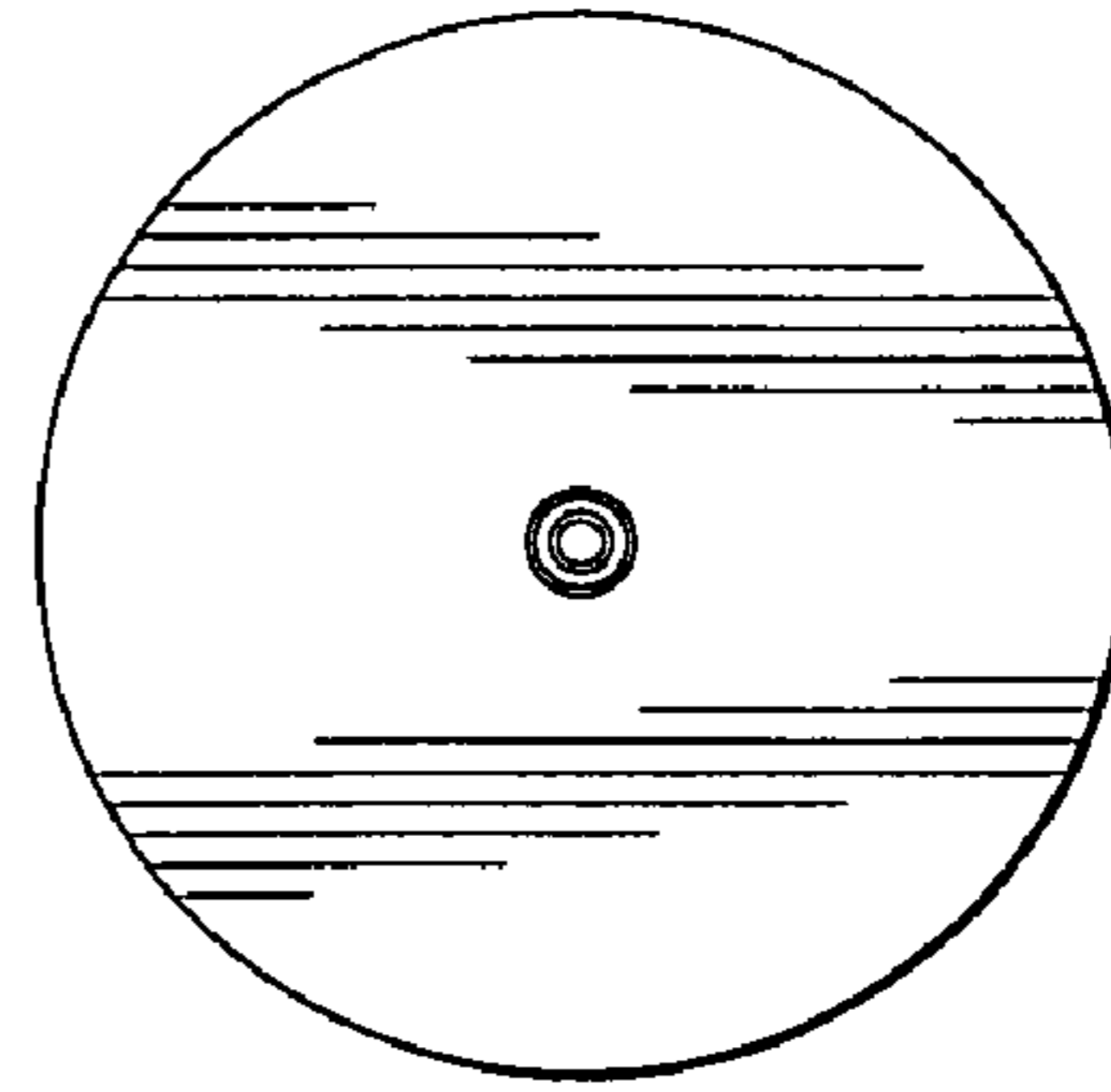


FIG. 7

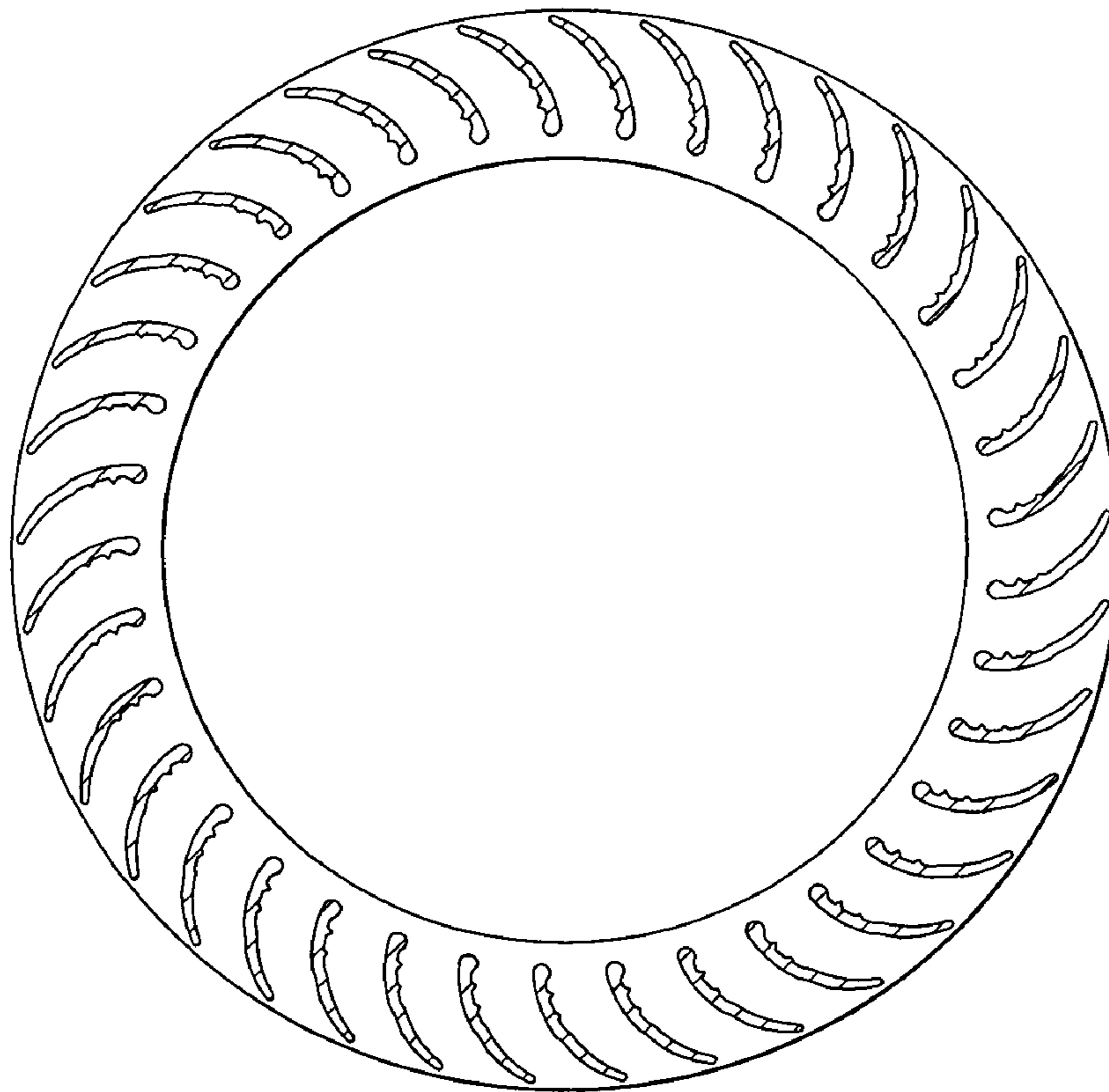


FIG. 8

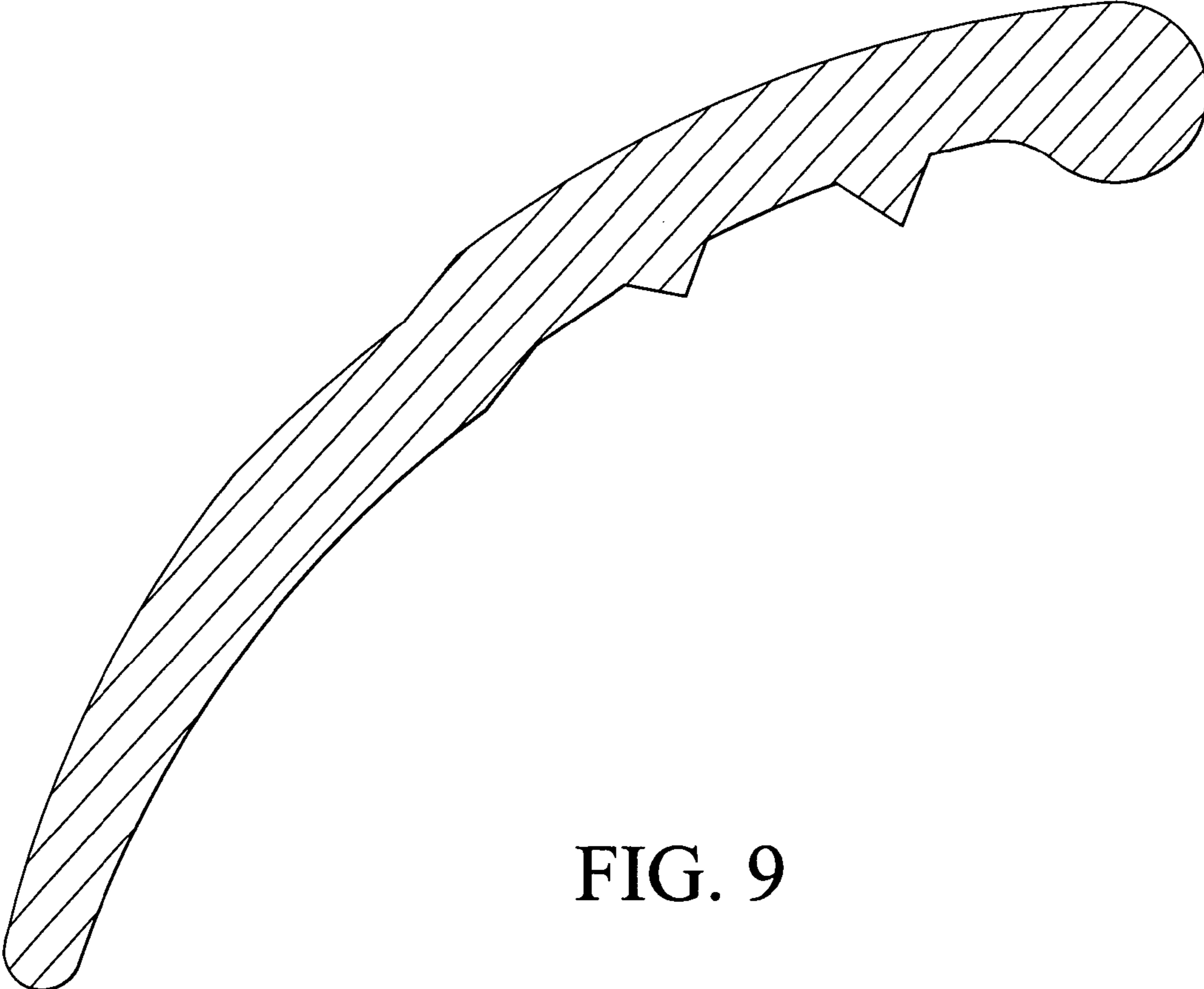


FIG. 9



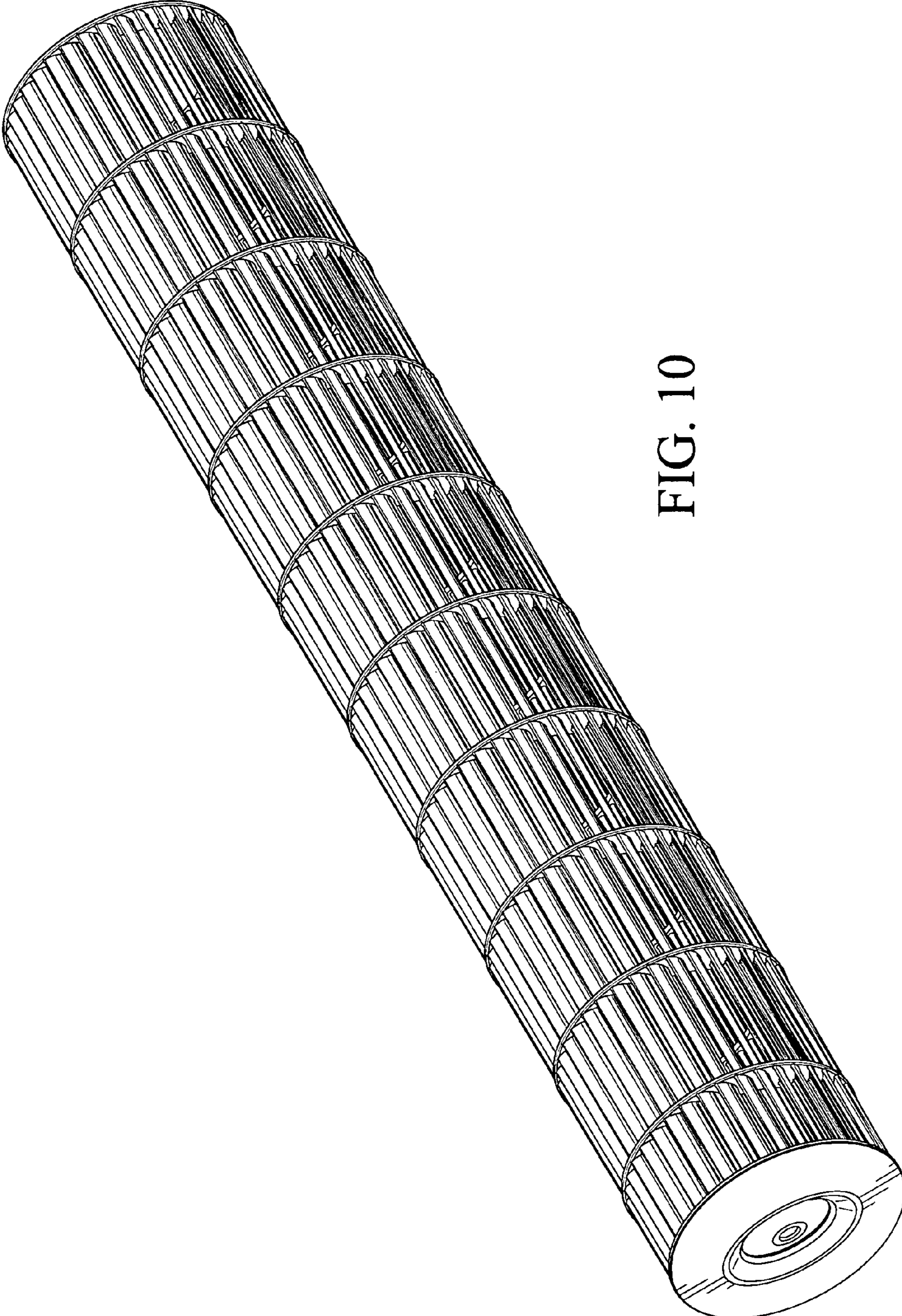


FIG. 10