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(12) **United States Design Patent** (10) **Patent No.:** **US D908,849 S**  
**Decaria et al.** (45) **Date of Patent:** **\*\* Jan. 26, 2021**

(54) **ELBOW PIPE FITTING**

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(51) **LOC (13) Cl.** ..... **23-01**

(52) **U.S. Cl.**  
USPC ..... **D23/263**

(58) **Field of Classification Search**  
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D24/129; D13/149, 155; D8/356,  
D8/382-383, 394, 396-397, 399;  
D32/25; D12/607  
CPC ..... F16L 43/001; F16L 19/04; F16L 19/005;  
F16L 19/0218; F16L 55/1152; F16L  
27/04; F16L 27/073; F16L 25/14; E21B  
17/042; B29C 70/345; B29C 70/462;  
H01R 4/58; F16N 21/06; F16B 39/24;  
F16B 39/26; F16B 37/02; F16B 31/02;  
D06F 58/10; A62C 3/00; H01M 6/26  
See application file for complete search history.

D132,939 S 6/1942 Corley  
D137,384 S 2/1944 Corley  
D179,768 S 2/1957 Giles  
2,988,385 A \* 6/1961 Foelester ..... F16L 43/001  
285/179  
3,441,292 A 4/1969 Gross  
3,844,586 A 10/1974 Olen  
D296,816 S \* 7/1988 Budzinski ..... D23/262  
D434,834 S 12/2000 Goto  
D462,112 S 8/2002 Koizu  
6,447,019 B1 \* 9/2002 Hosono ..... F16L 37/091  
285/148.19  
D482,103 S \* 11/2003 Snyder, Sr. .... D23/263  
D533,259 S 12/2006 Lewis  
D549,804 S 8/2007 Lewis  
D552,221 S 10/2007 Beutler  
D554,237 S 10/2007 Lewis  
D564,642 S 3/2008 Pipe  
D606,388 S \* 12/2009 Werschmidt ..... D8/382  
D617,428 S 6/2010 Bachmann  
D634,816 S 3/2011 Qian  
D634,820 S 3/2011 Leroyer  
D648,005 S 11/2011 Morishita  
D648,006 S 11/2011 Morishita  
D675,289 S 1/2013 Freudendahl  
D675,290 S 1/2013 Mitchell  
D675,291 S 1/2013 Mitchell  
D675,292 S 1/2013 Mitchell  
D675,293 S 1/2013 Mitchell  
D675,294 S 1/2013 Mitchell  
D676,941 S 2/2013 Kluss  
D705,402 S \* 5/2014 Yu ..... D23/262  
D706,126 S \* 6/2014 Orow ..... D8/397  
D712,015 S \* 8/2014 Yu ..... D23/263  
D727,472 S \* 4/2015 Bednarz ..... D23/263  
D739,509 S \* 9/2015 Bazemore ..... D23/263  
9,227,252 B2 \* 1/2016 Horiguchi ..... B23C 3/16  
2012/0074687 A1 3/2012 Mitchell

**FOREIGN PATENT DOCUMENTS**

CN ZL201030189447.0 11/2010  
MX 9159 12/1997  
MX 22550 4/2007  
MX 23308 8/2007  
MX 23309 8/2007  
MX 34093 8/2011  
MX 37761 2/2012  
WO DM/052171 8/2000

\* cited by examiner  
*Primary Examiner* — Amy C Wierenga

(56) **References Cited**  
**U.S. PATENT DOCUMENTS**  
682,250 A \* 9/1901 Glauber ..... F16L 19/0218  
285/148.28  
1,293,409 A \* 2/1919 Goodhue ..... F16L 43/001  
285/183  
D132,938 S 6/1942 Corley

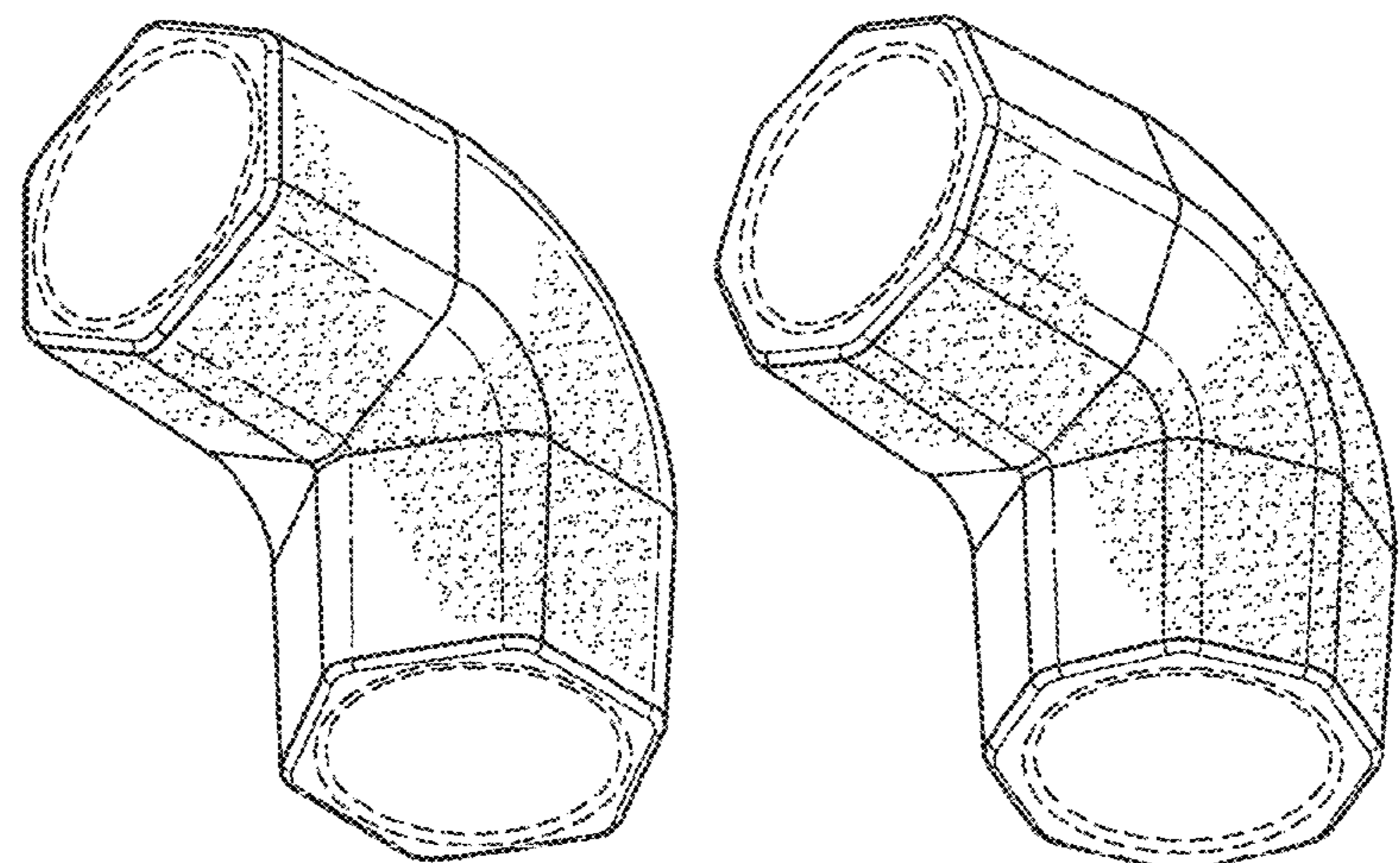




FIG. 40 is a bottom perspective view of a multi-faceted thermoplastic 90° elbow pipe fitting having a dodecagonal outer shell with sharp edges on the front and rear planes. The broken lines are for the purpose of illustrating portions of the article that form no part of the claim.

**1 Claim, 12 Drawing Sheets**

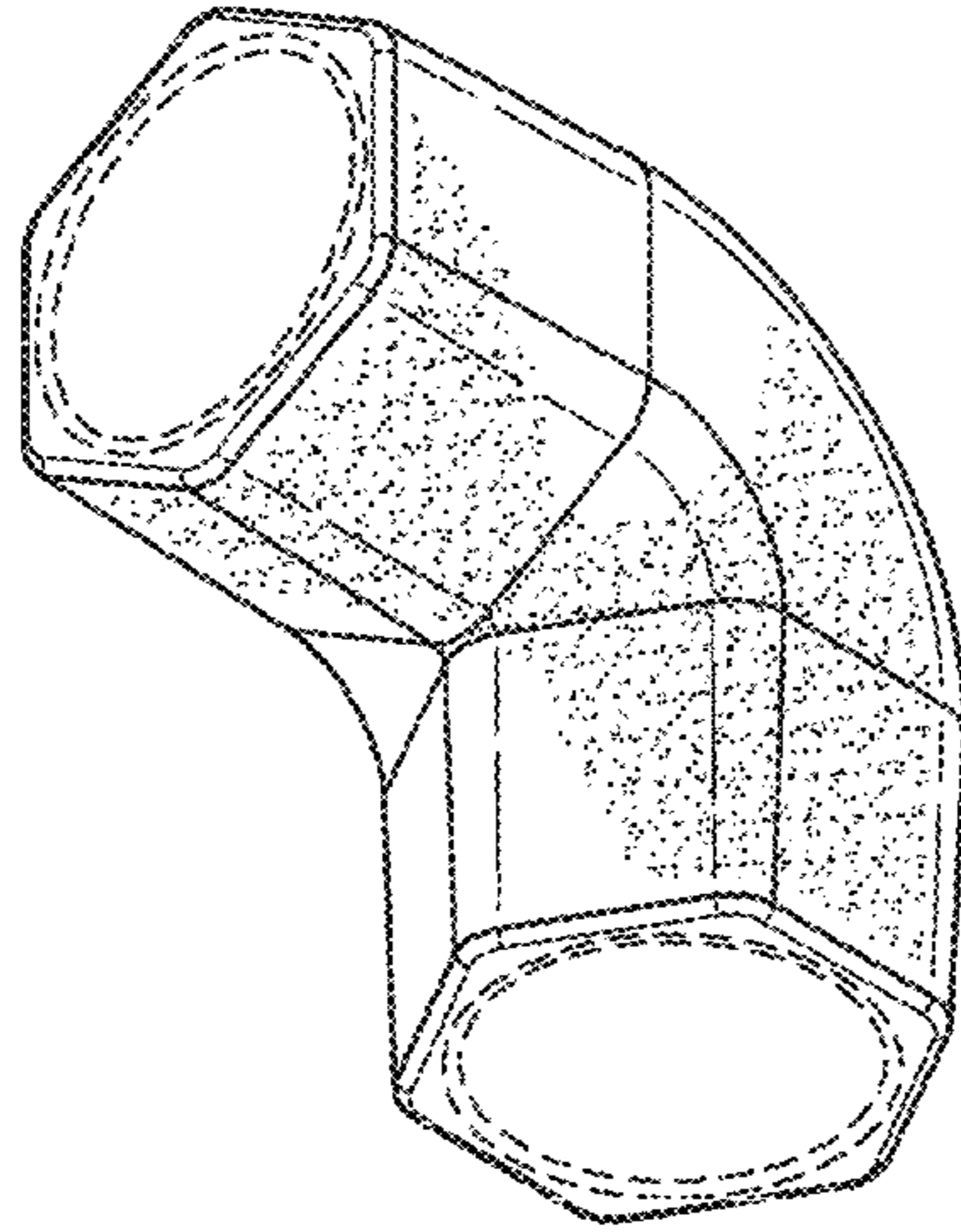


FIG. 1

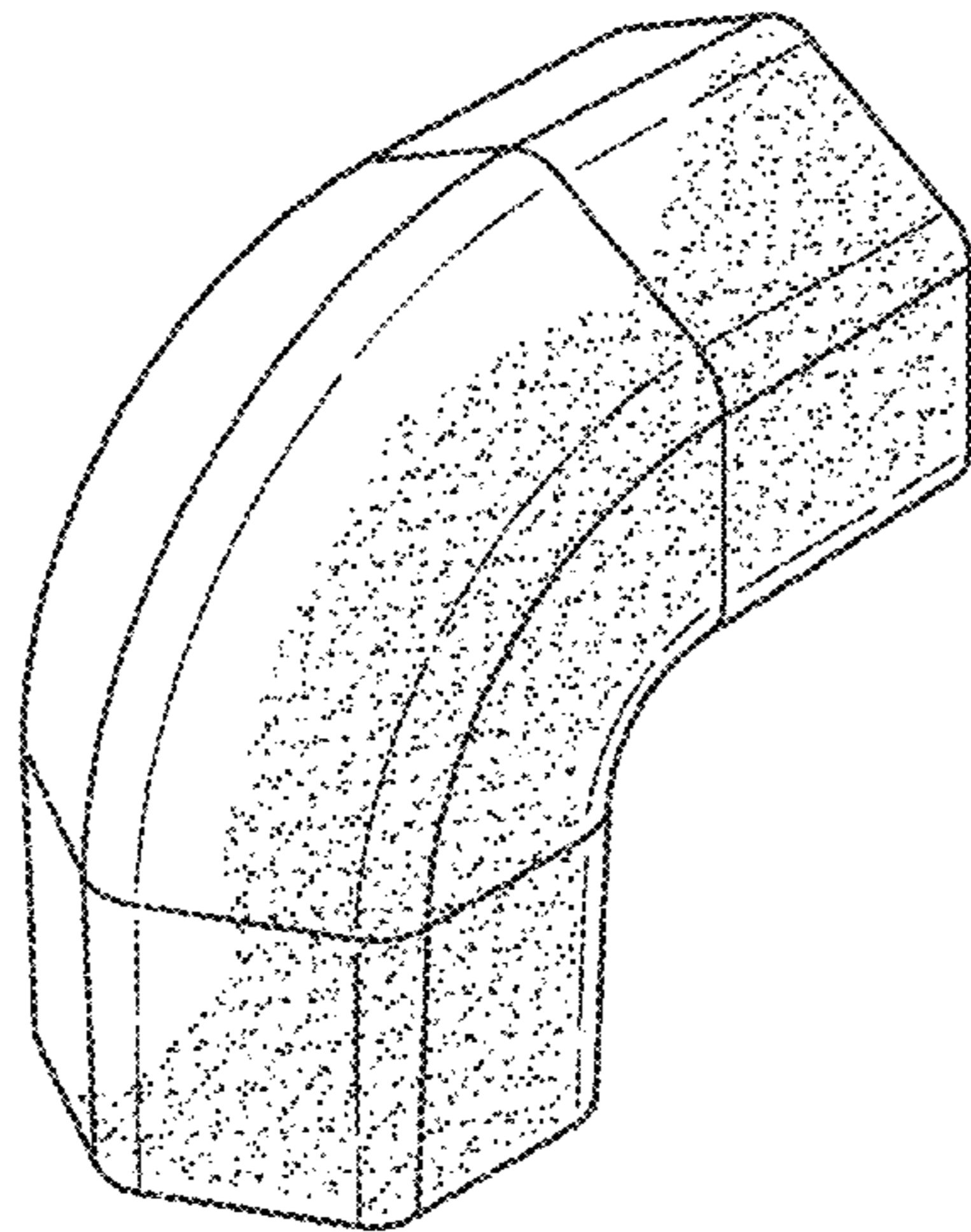


FIG. 2

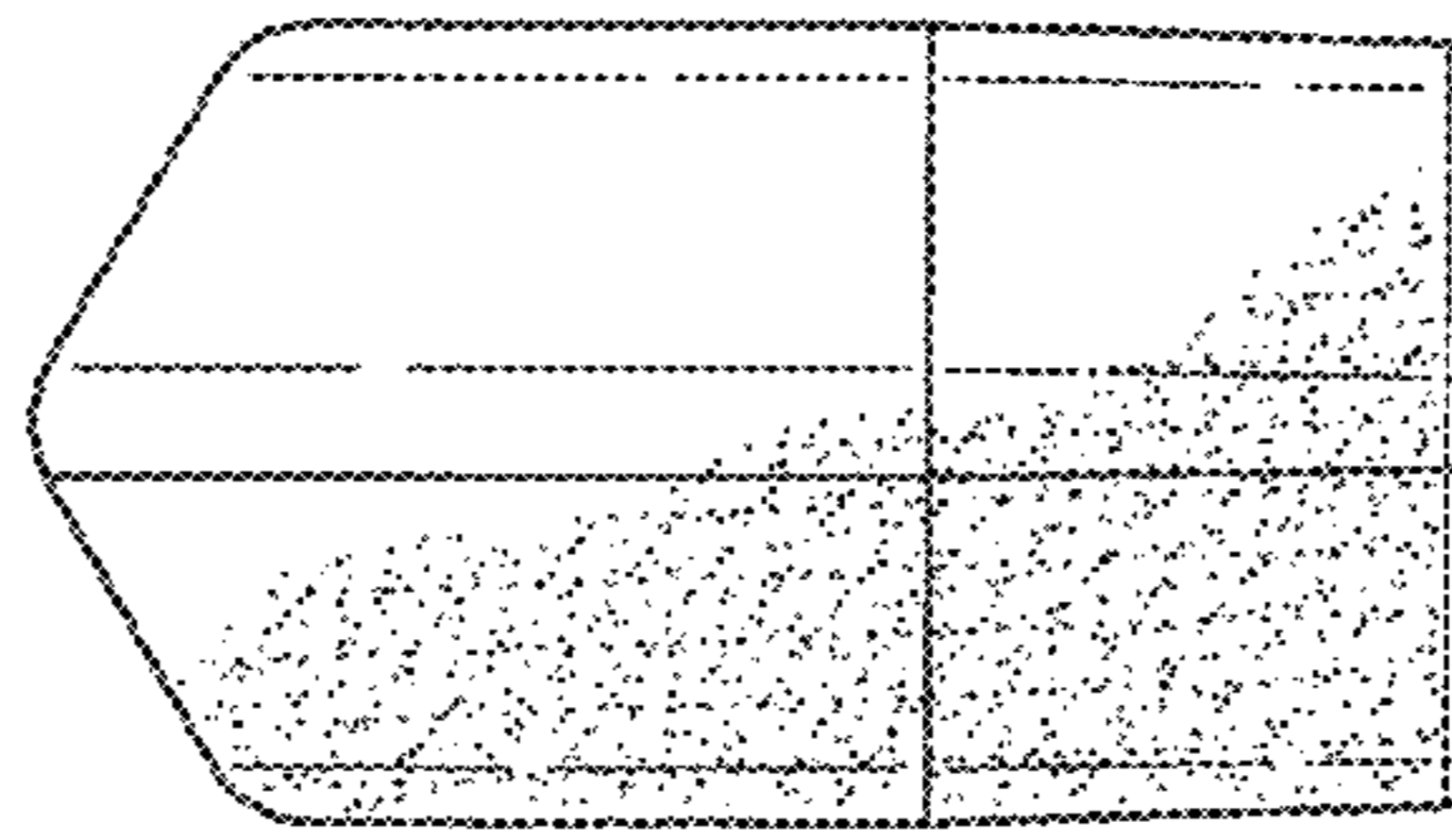


FIG. 3

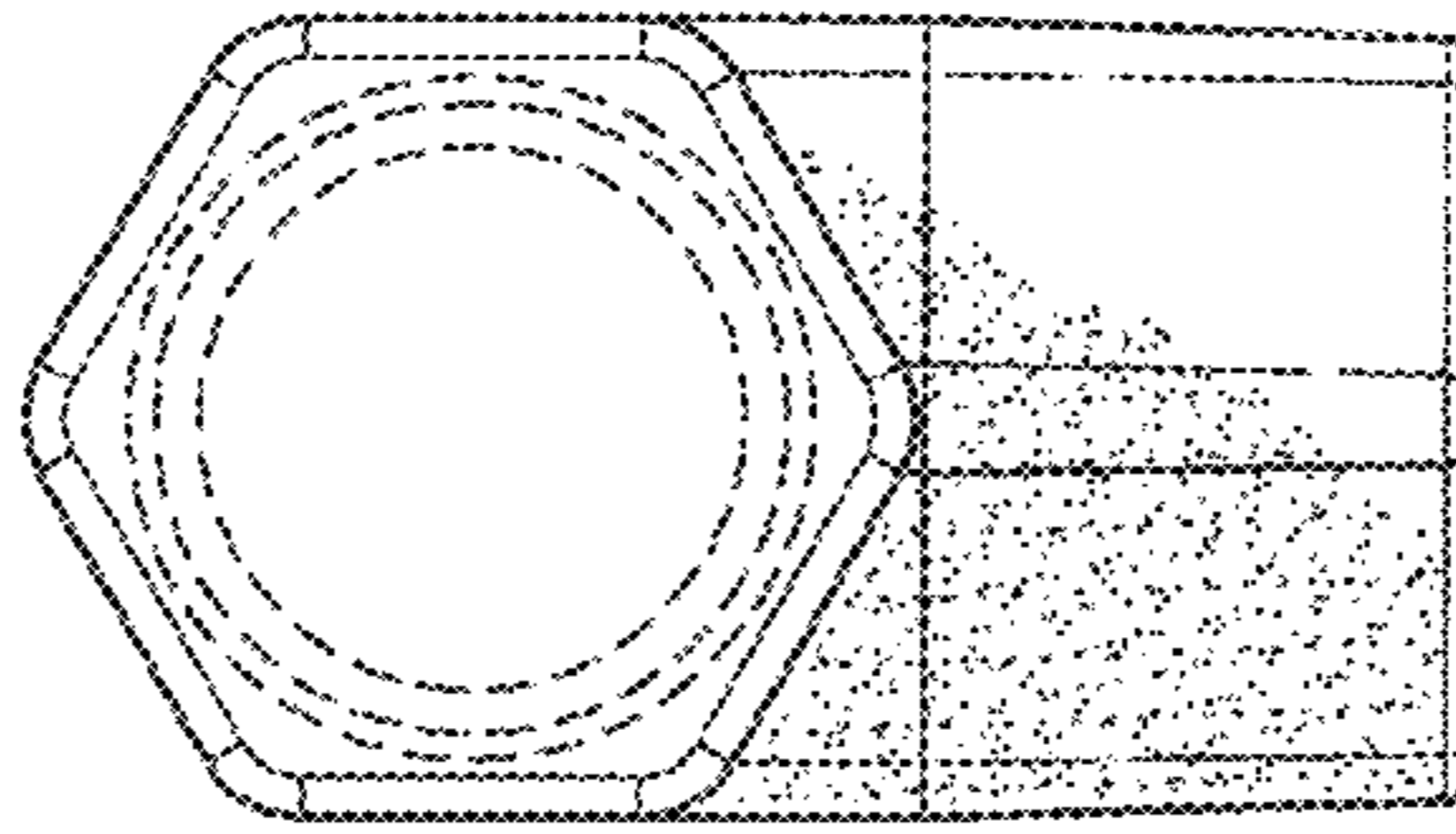


FIG. 4

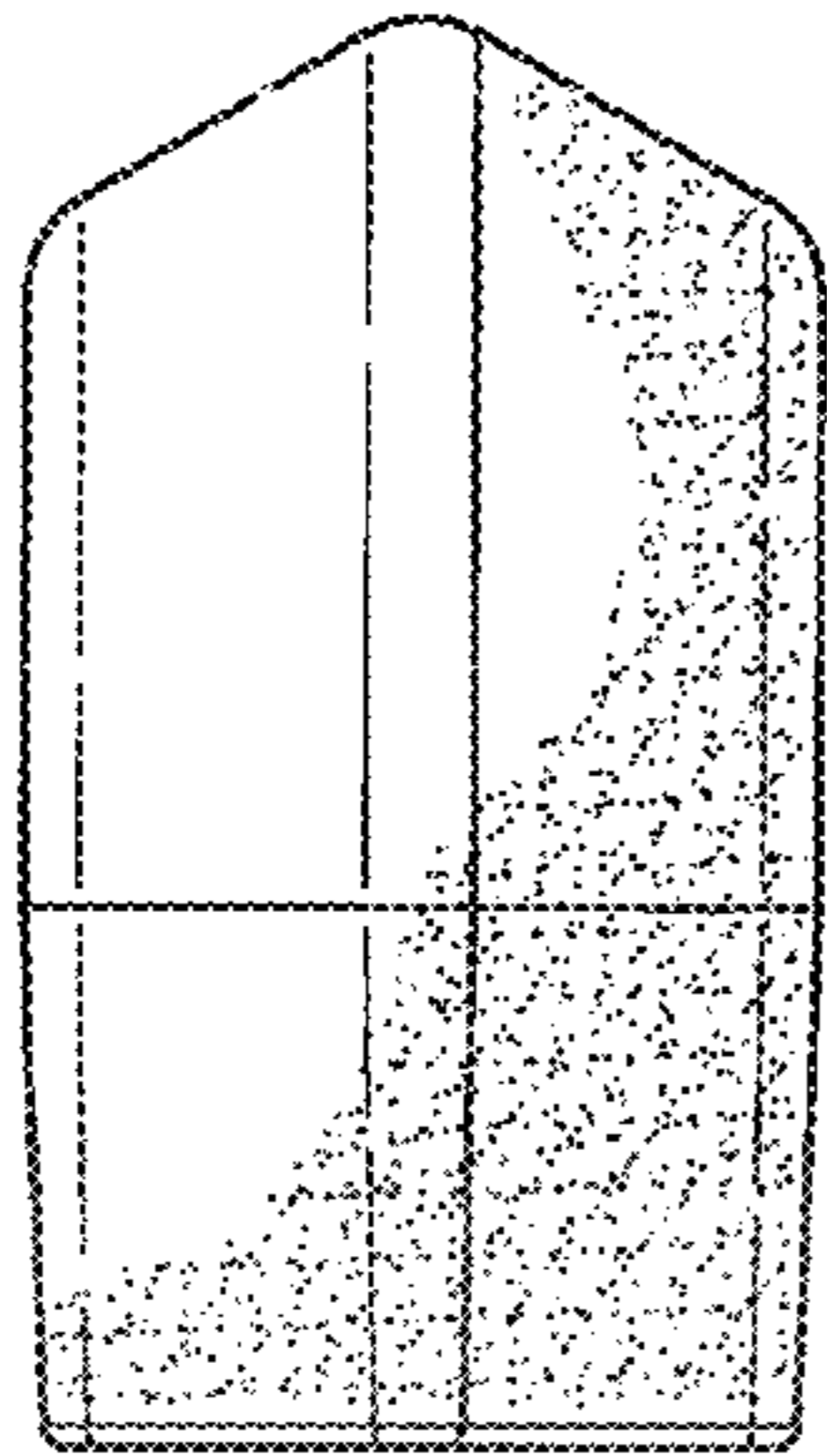


FIG. 5

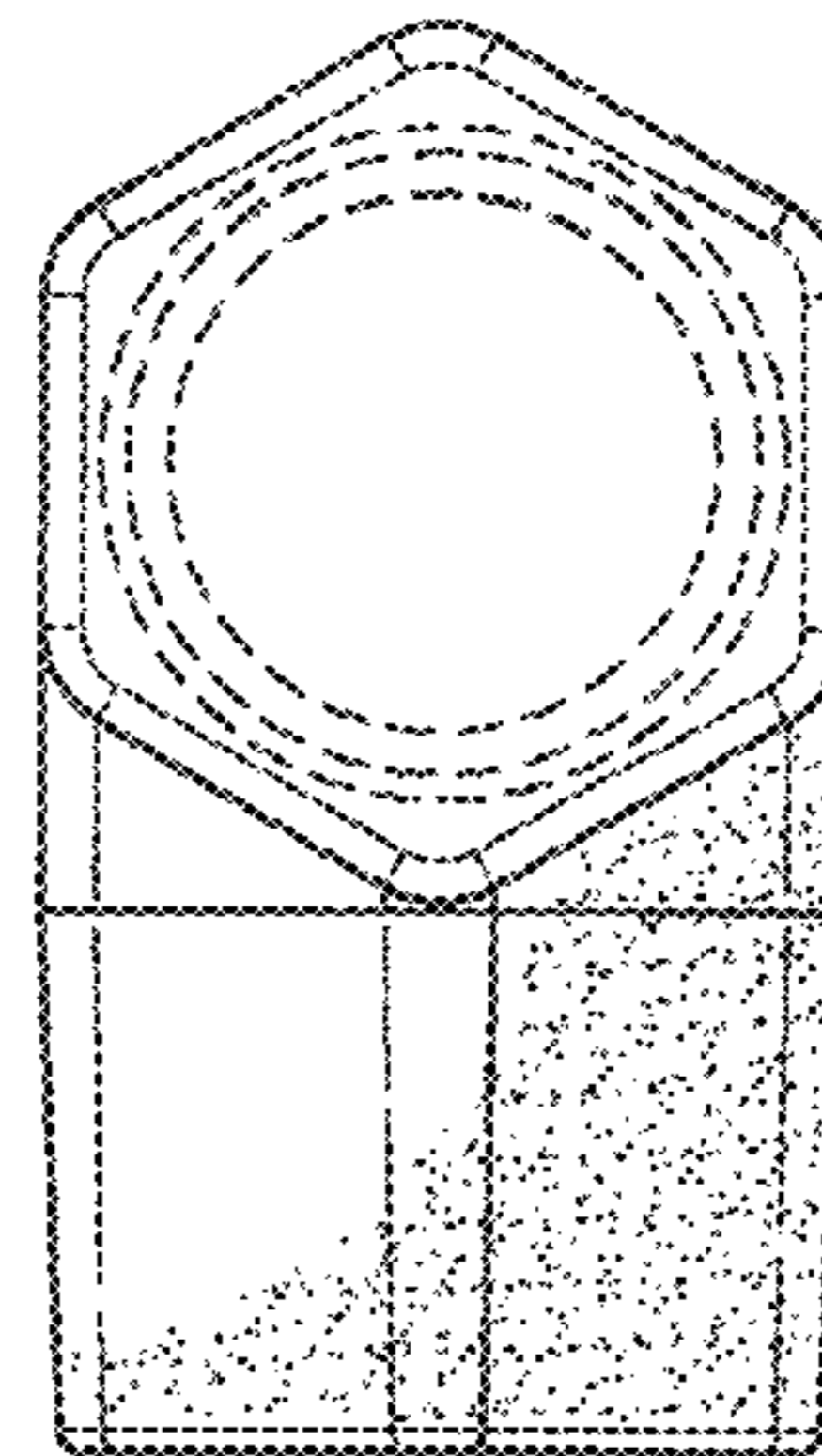


FIG. 6

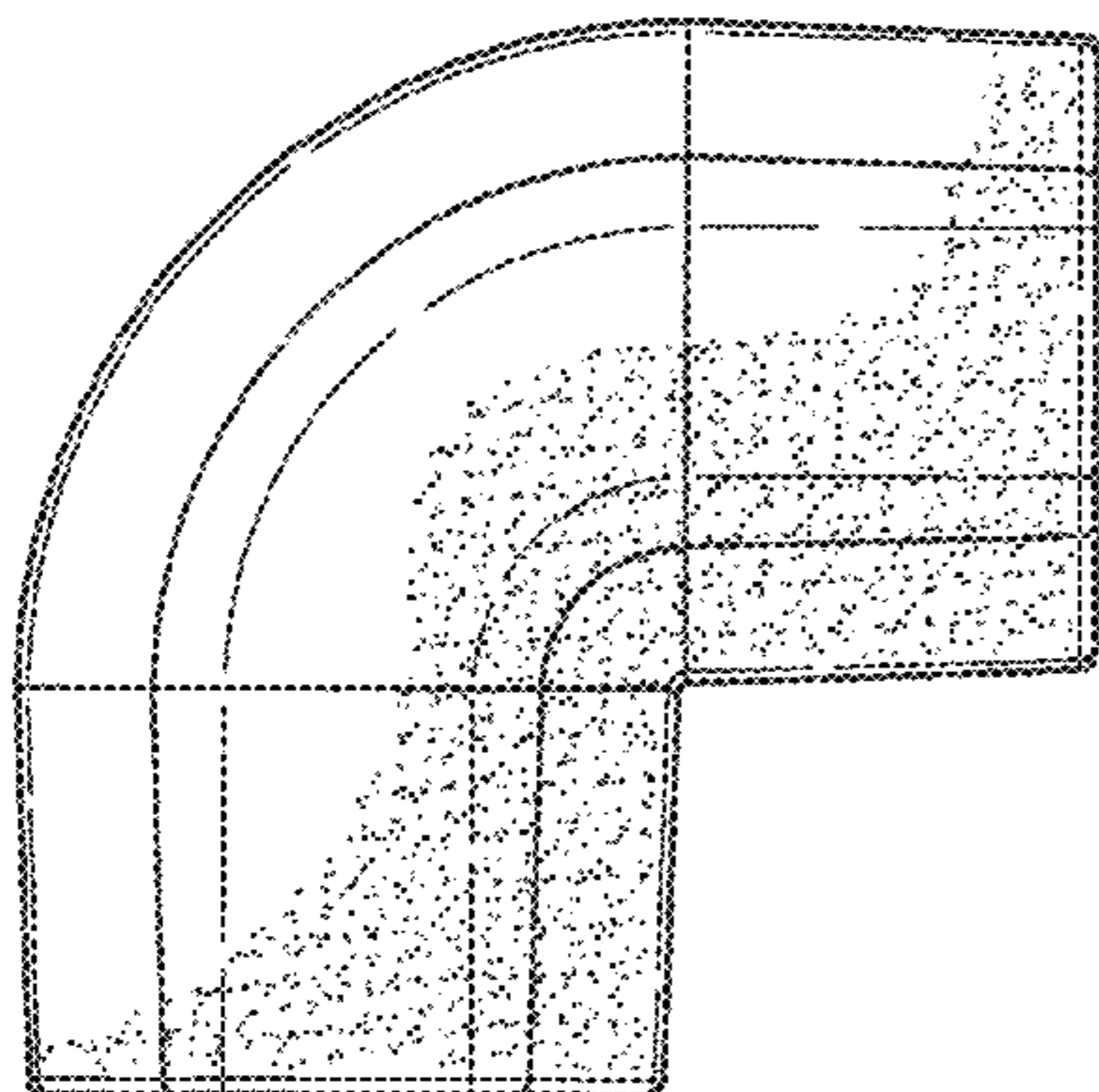


FIG. 7

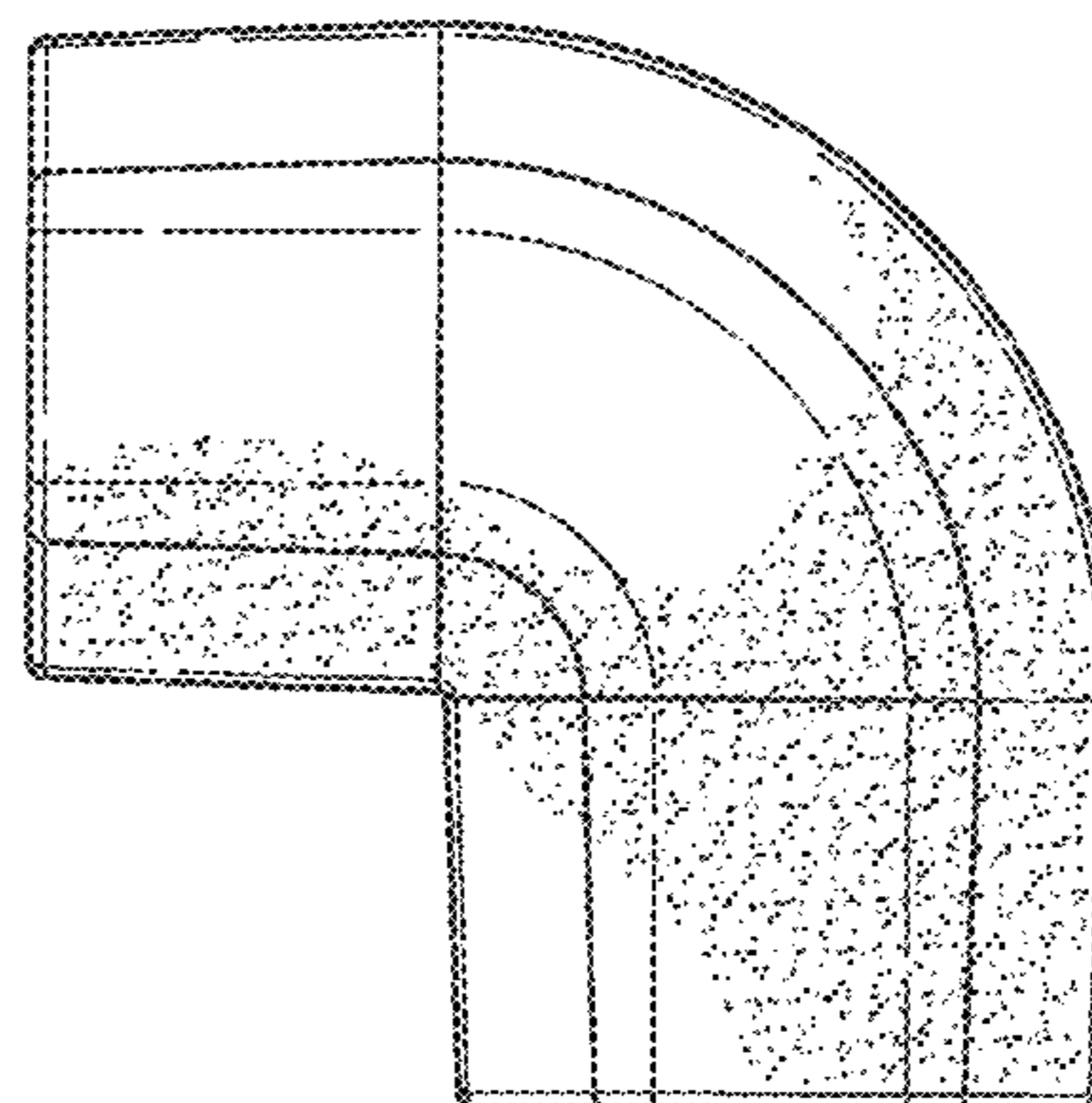


FIG. 8

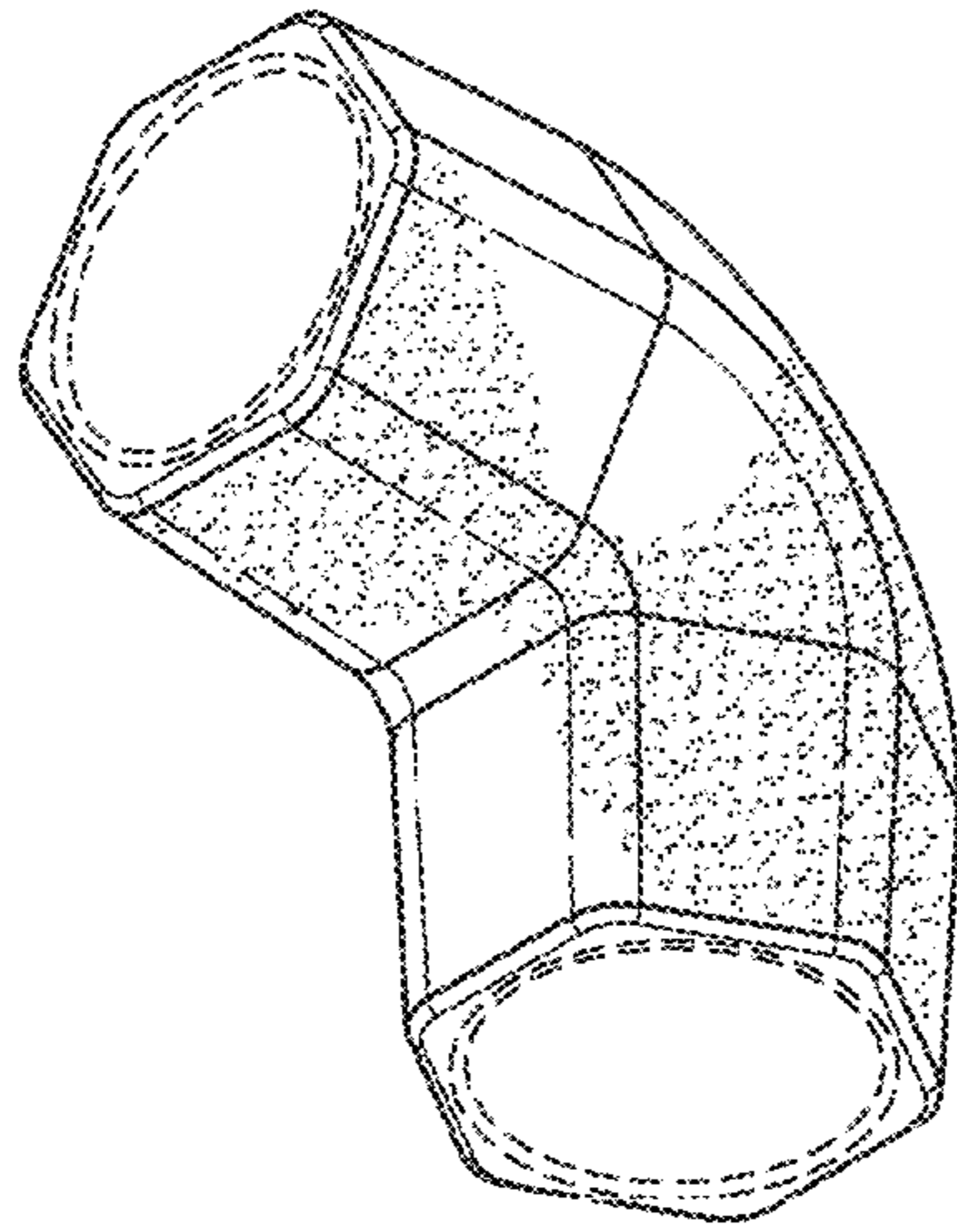


FIG. 9

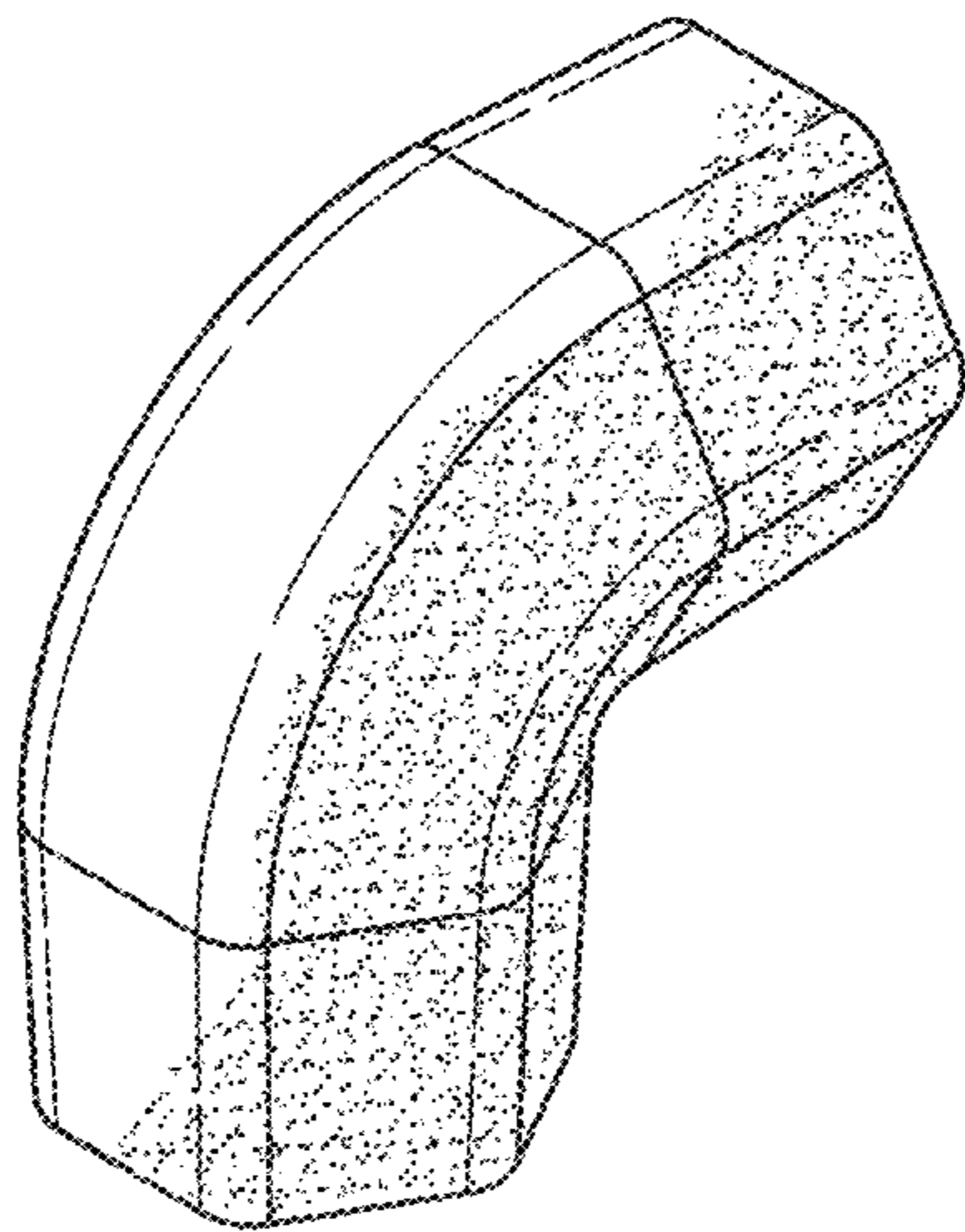


FIG. 10

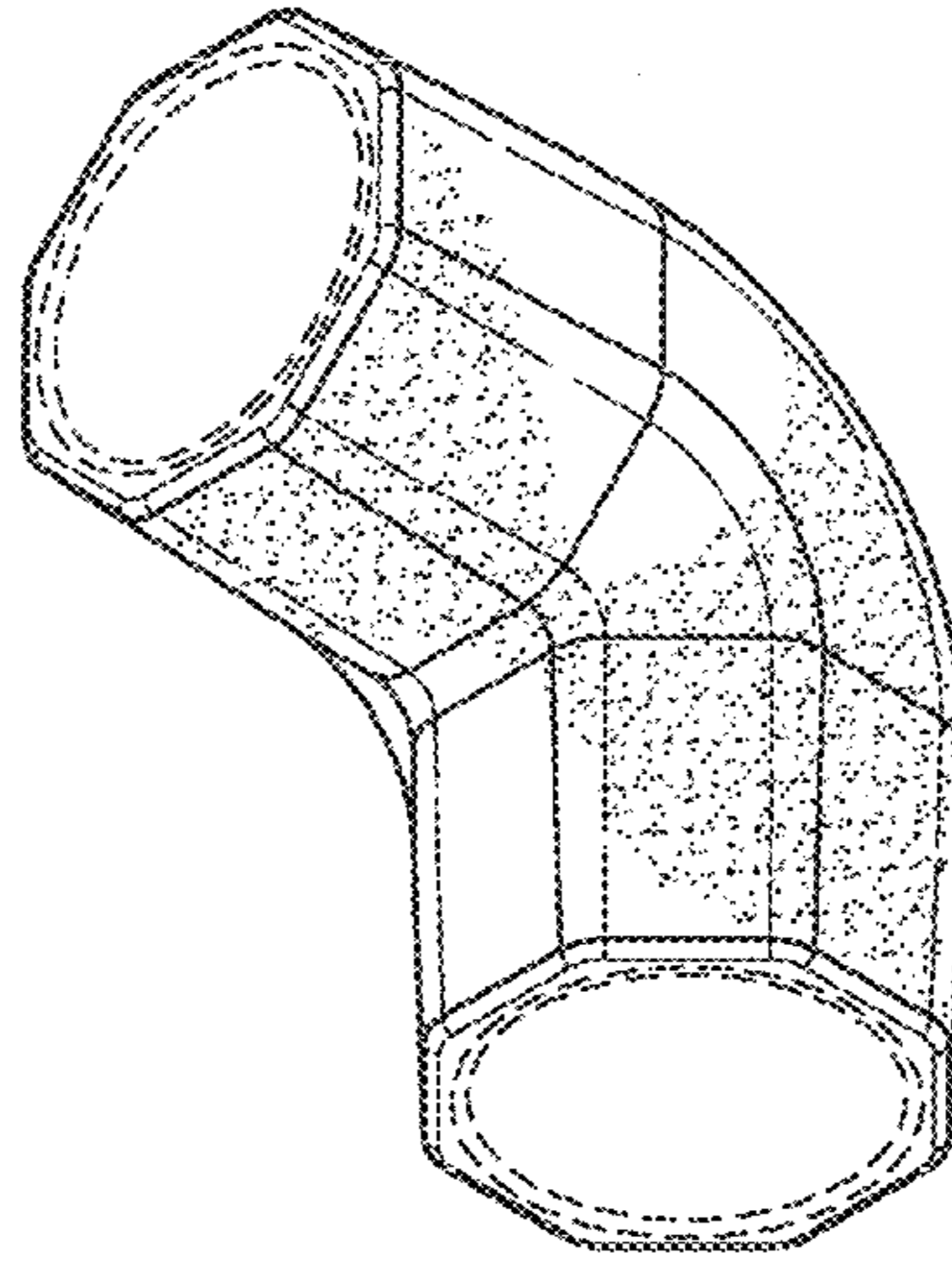


FIG. 11

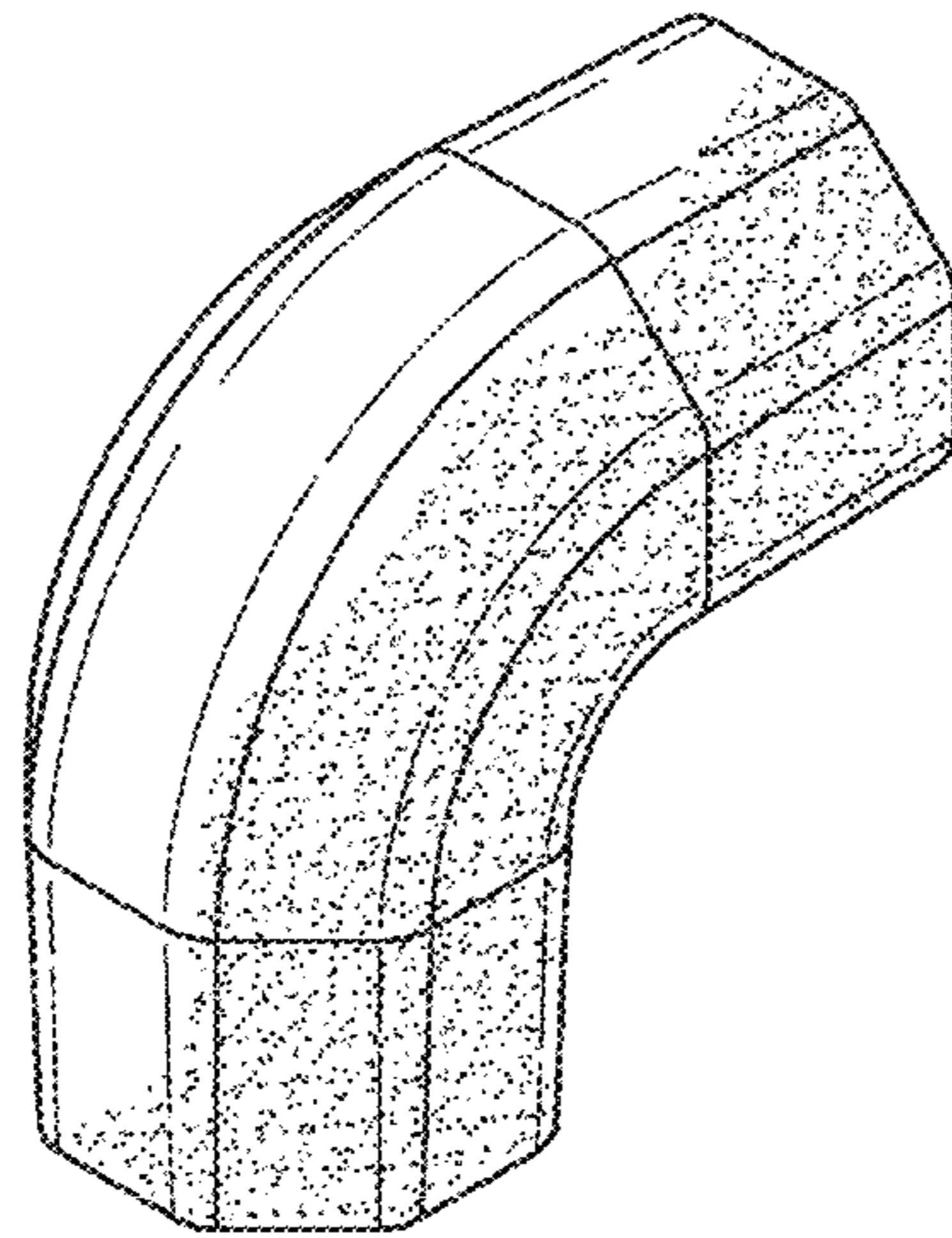


FIG. 12

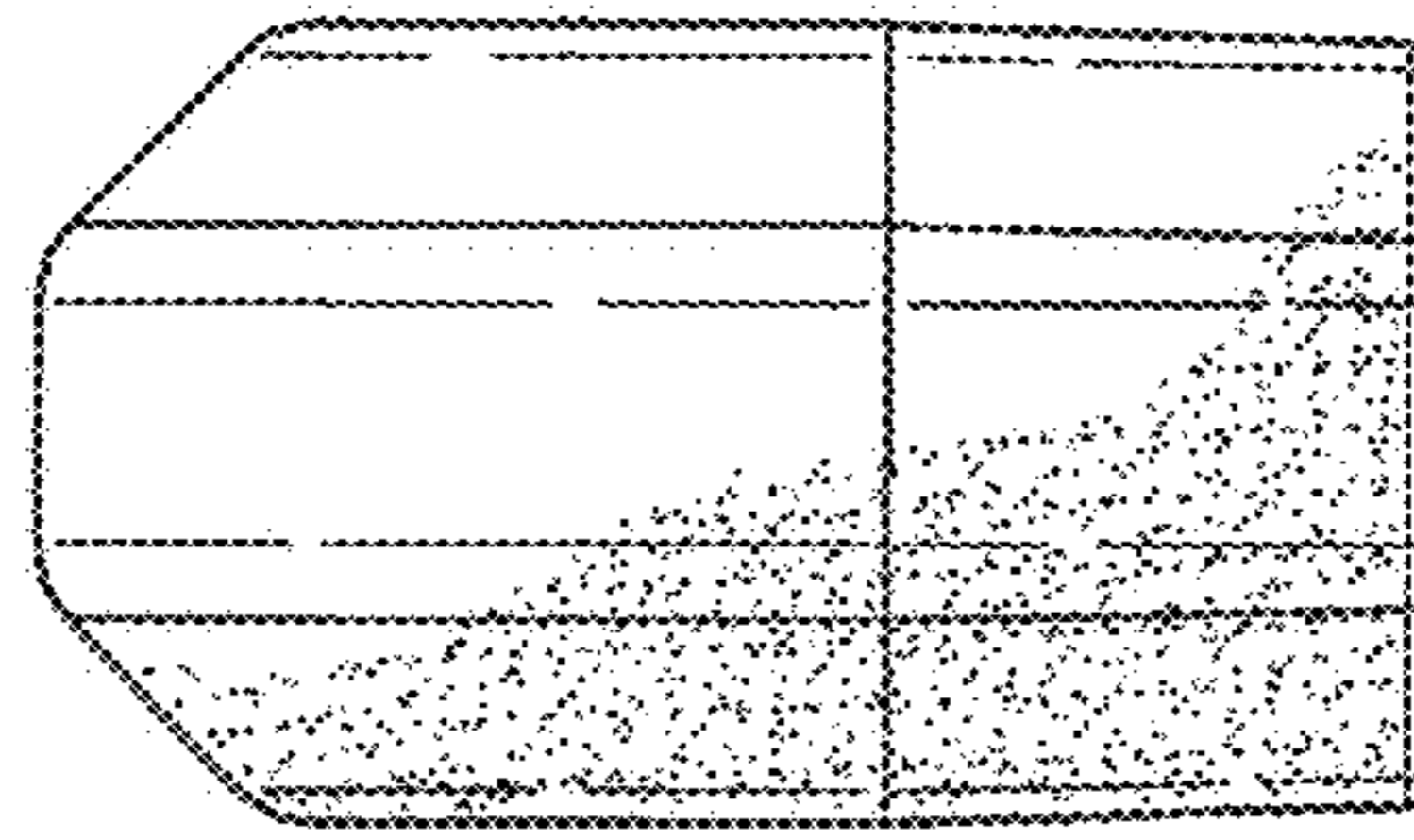


FIG. 13

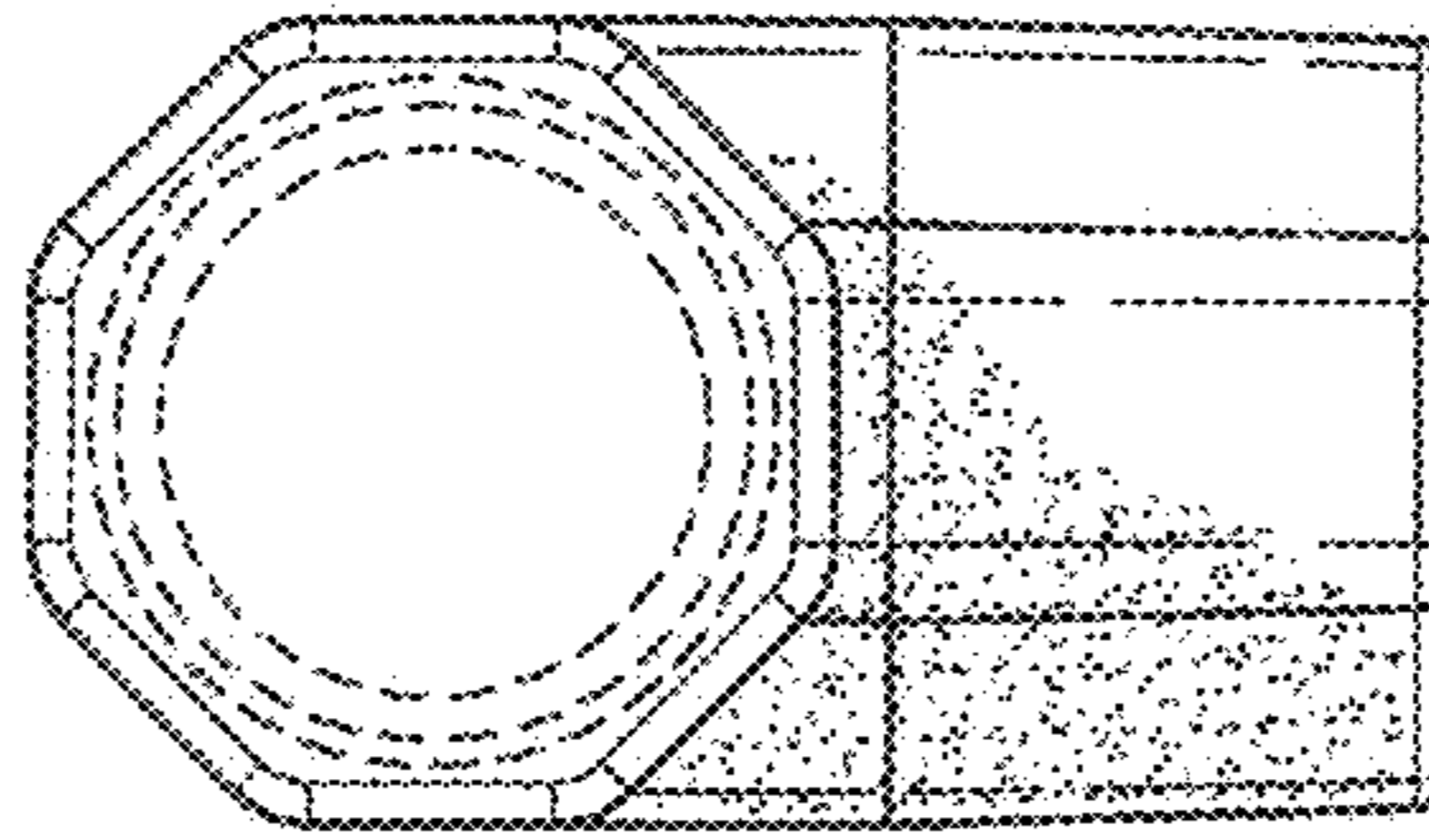


FIG. 14

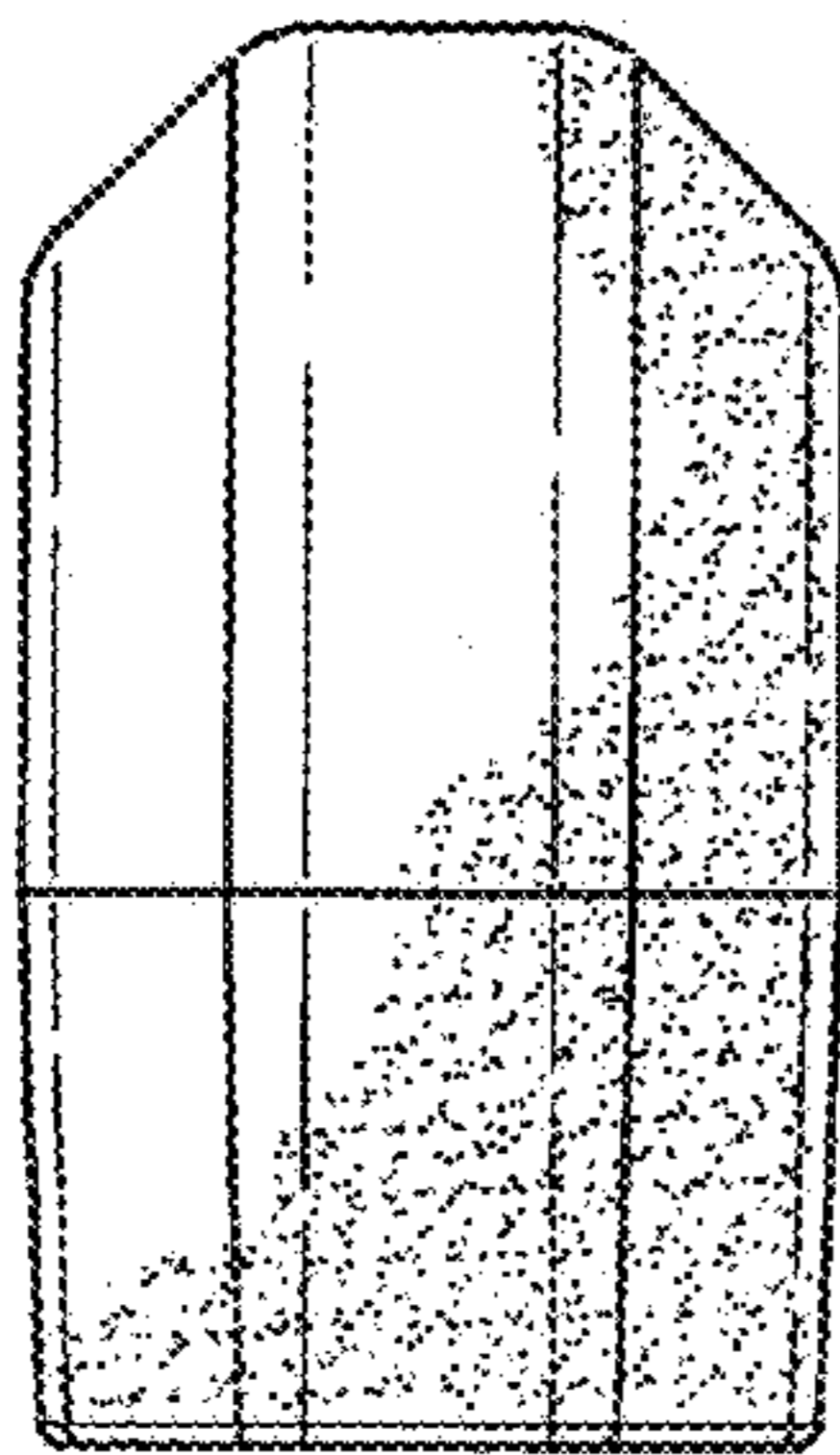


FIG. 15

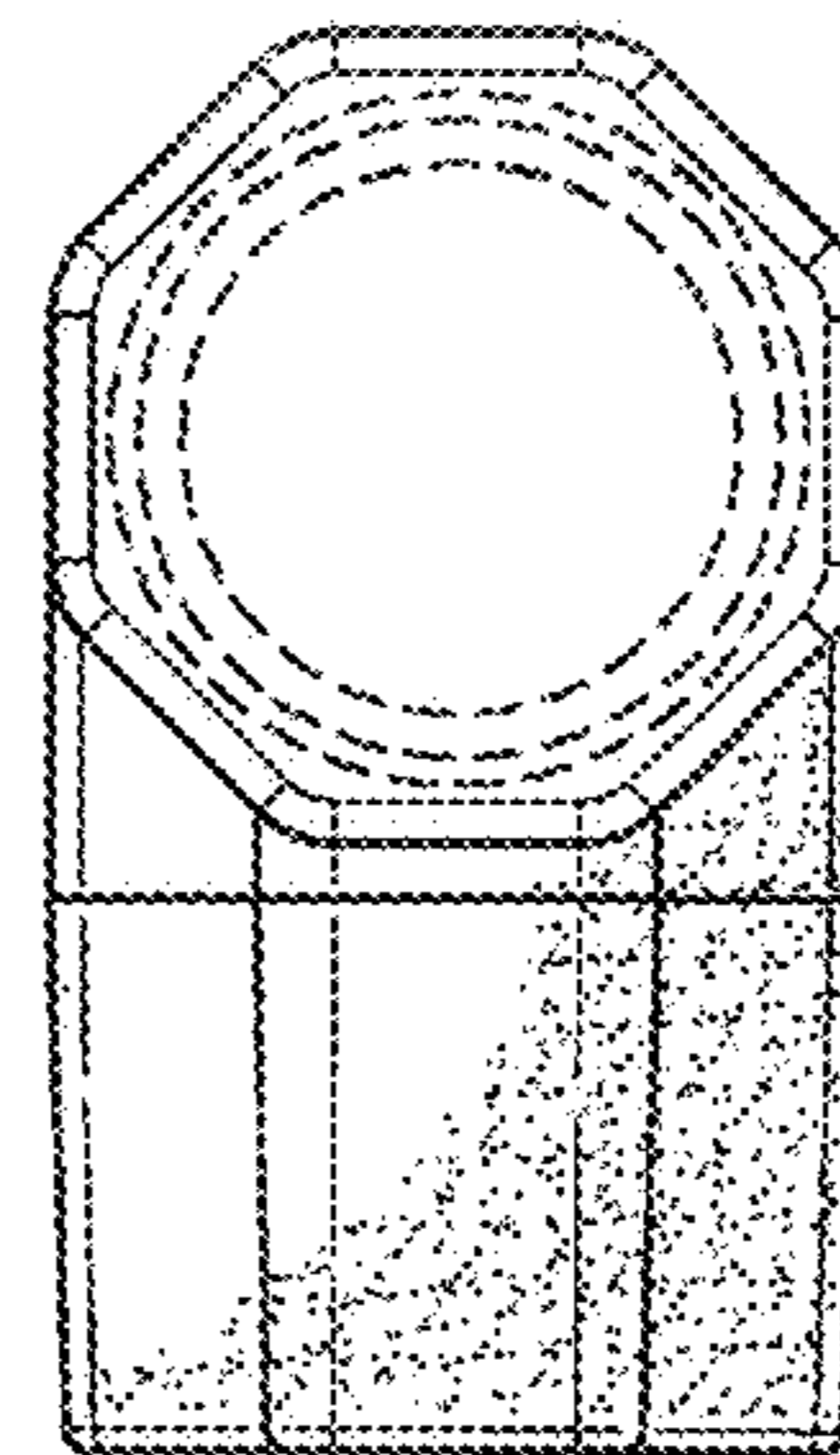


FIG. 16

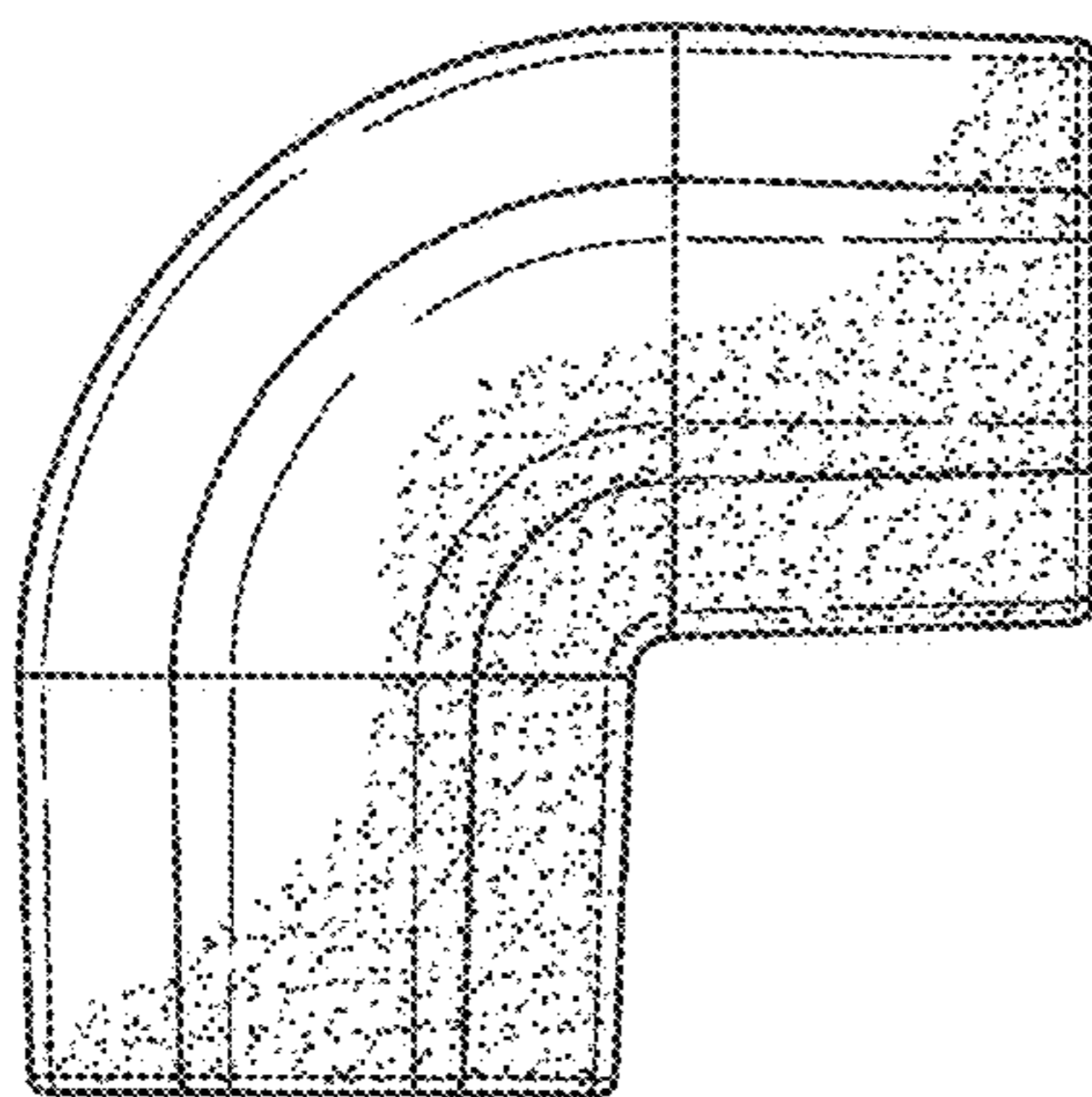


FIG. 17

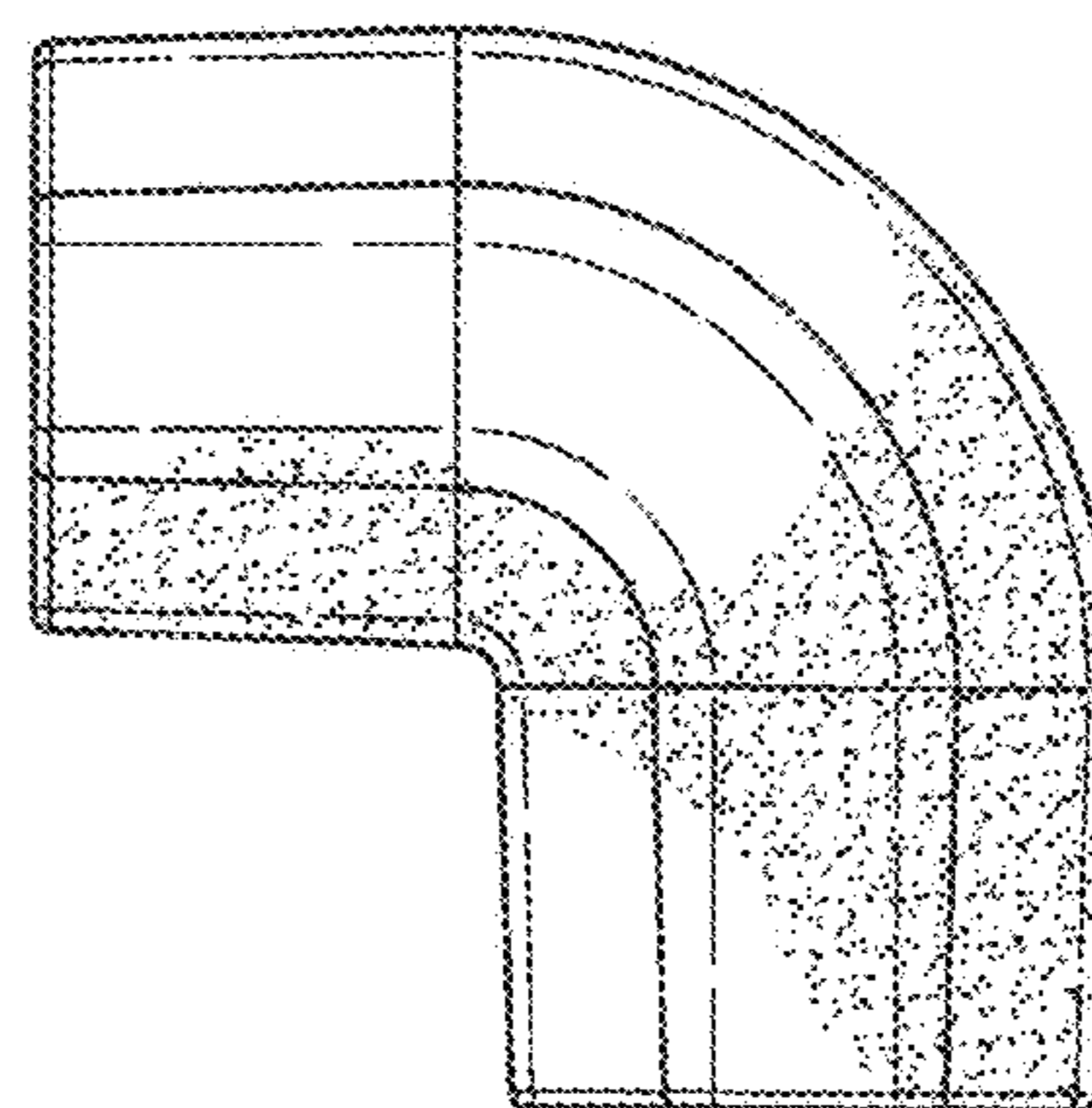


FIG. 18



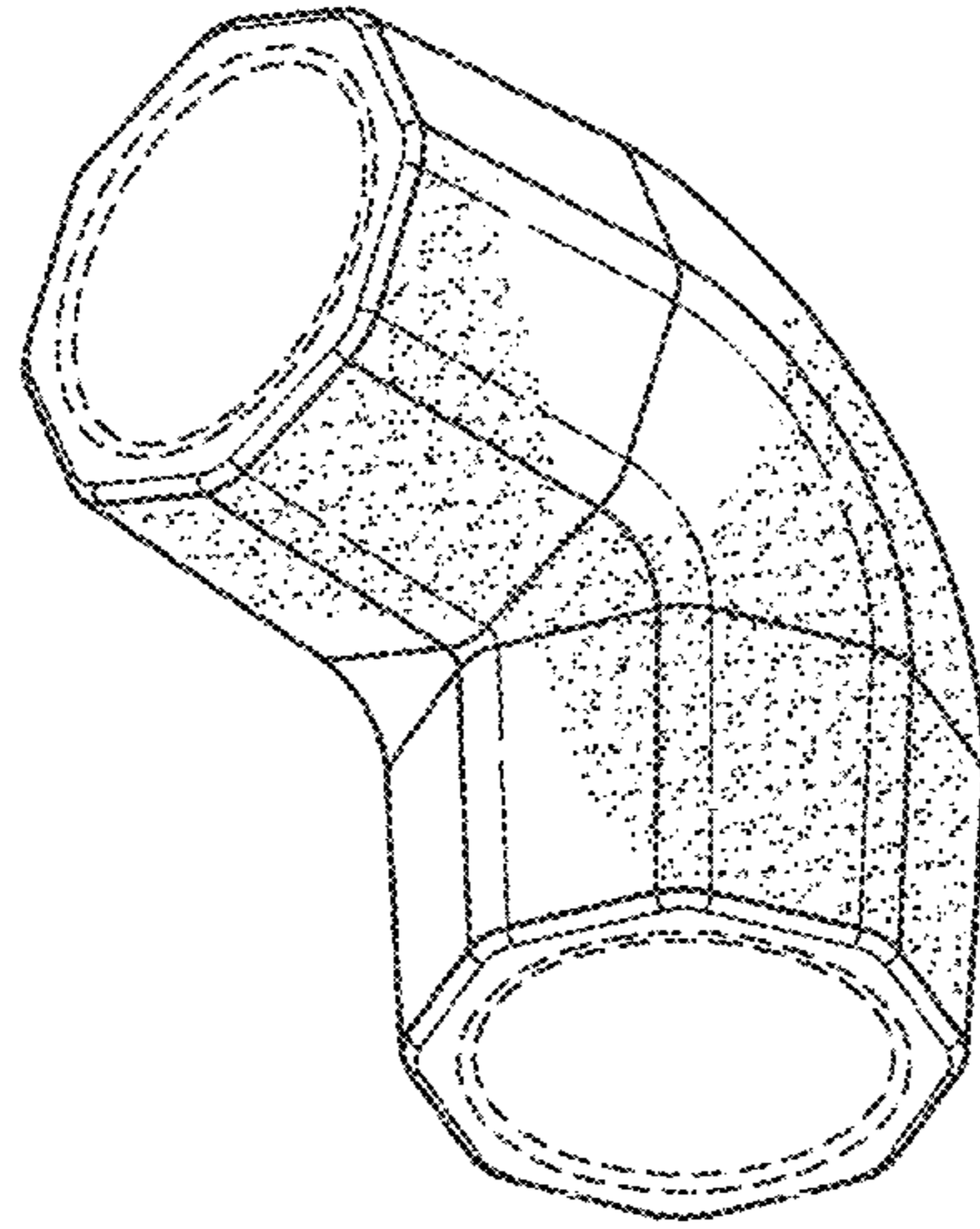


FIG. 19

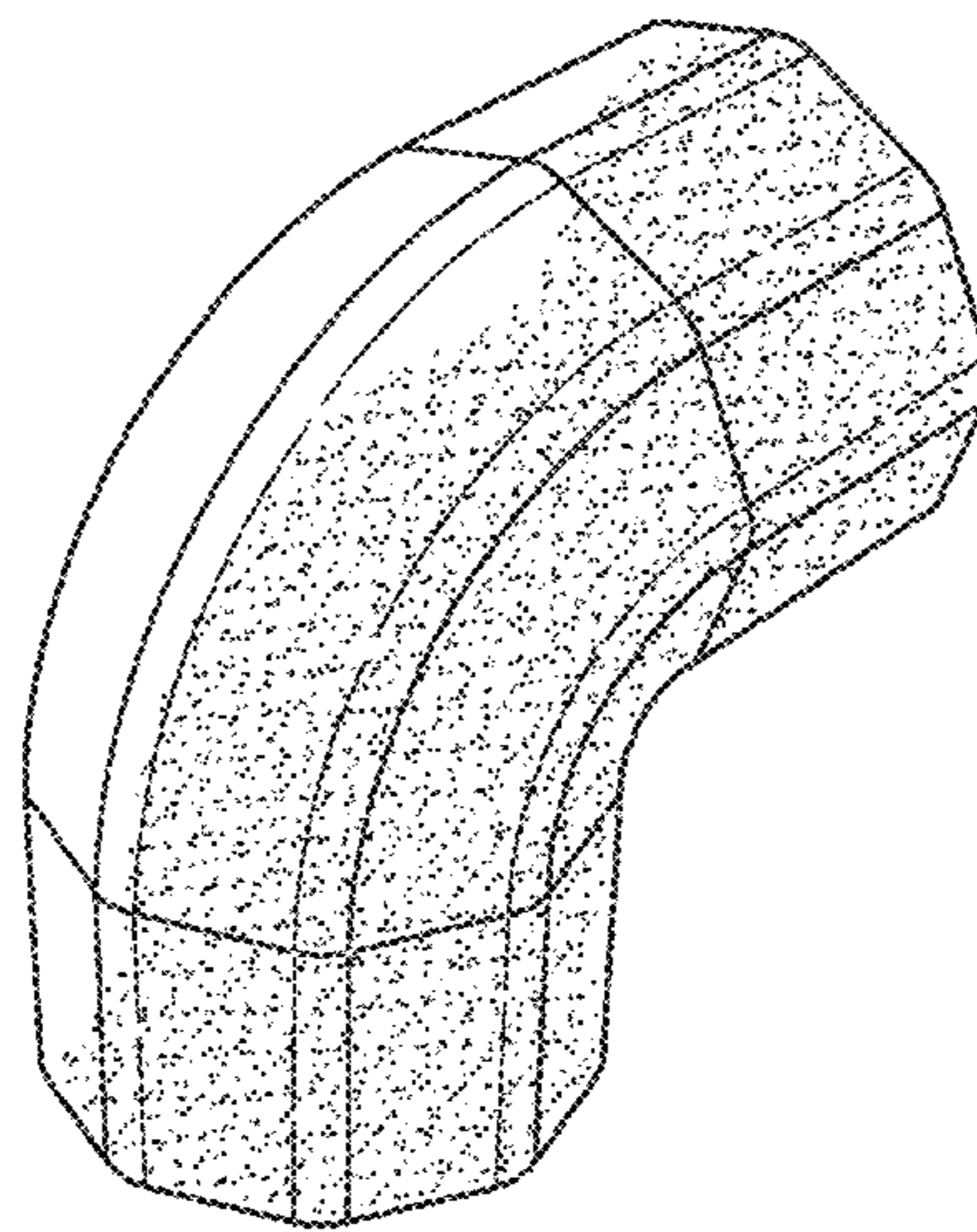


FIG. 20

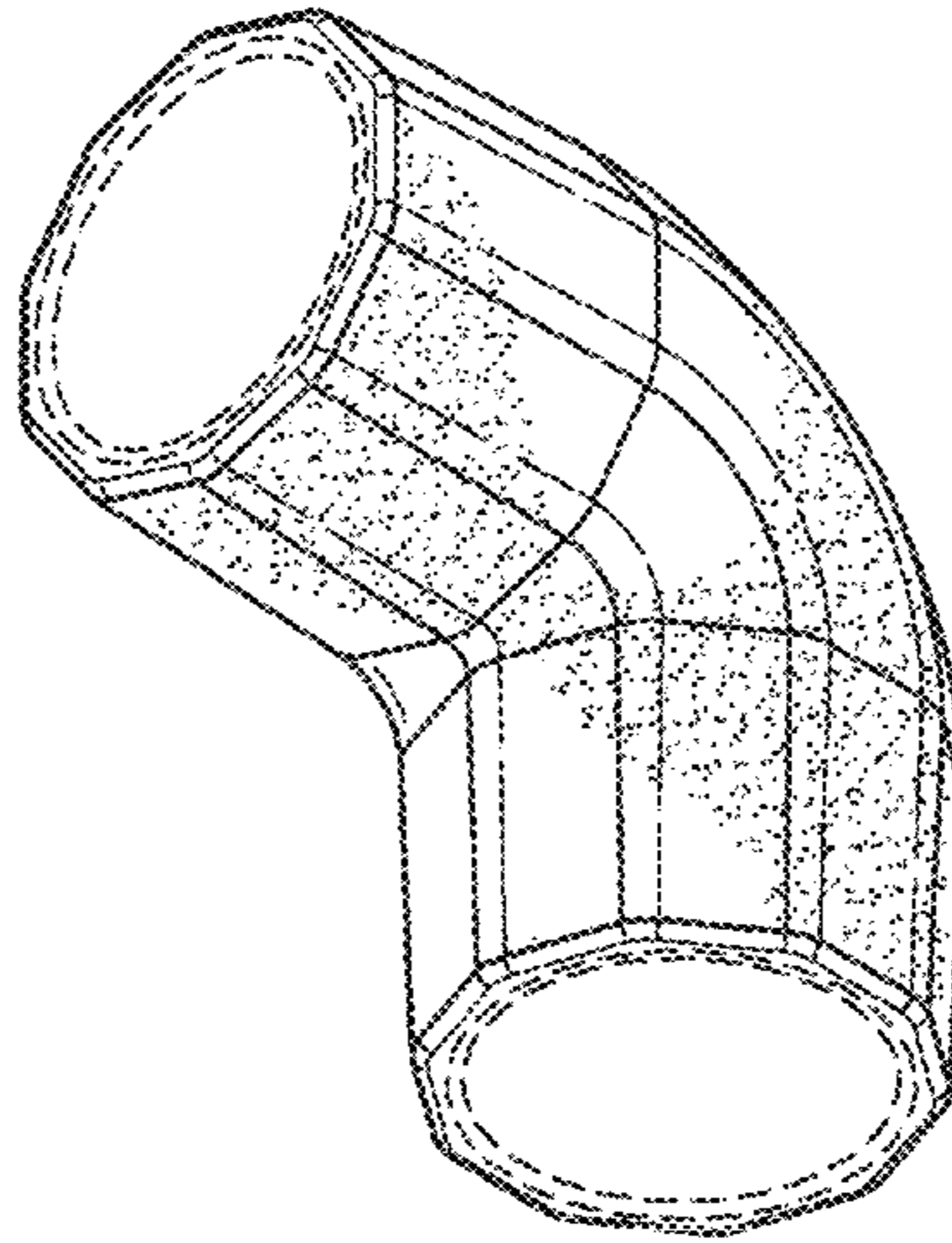


FIG. 21

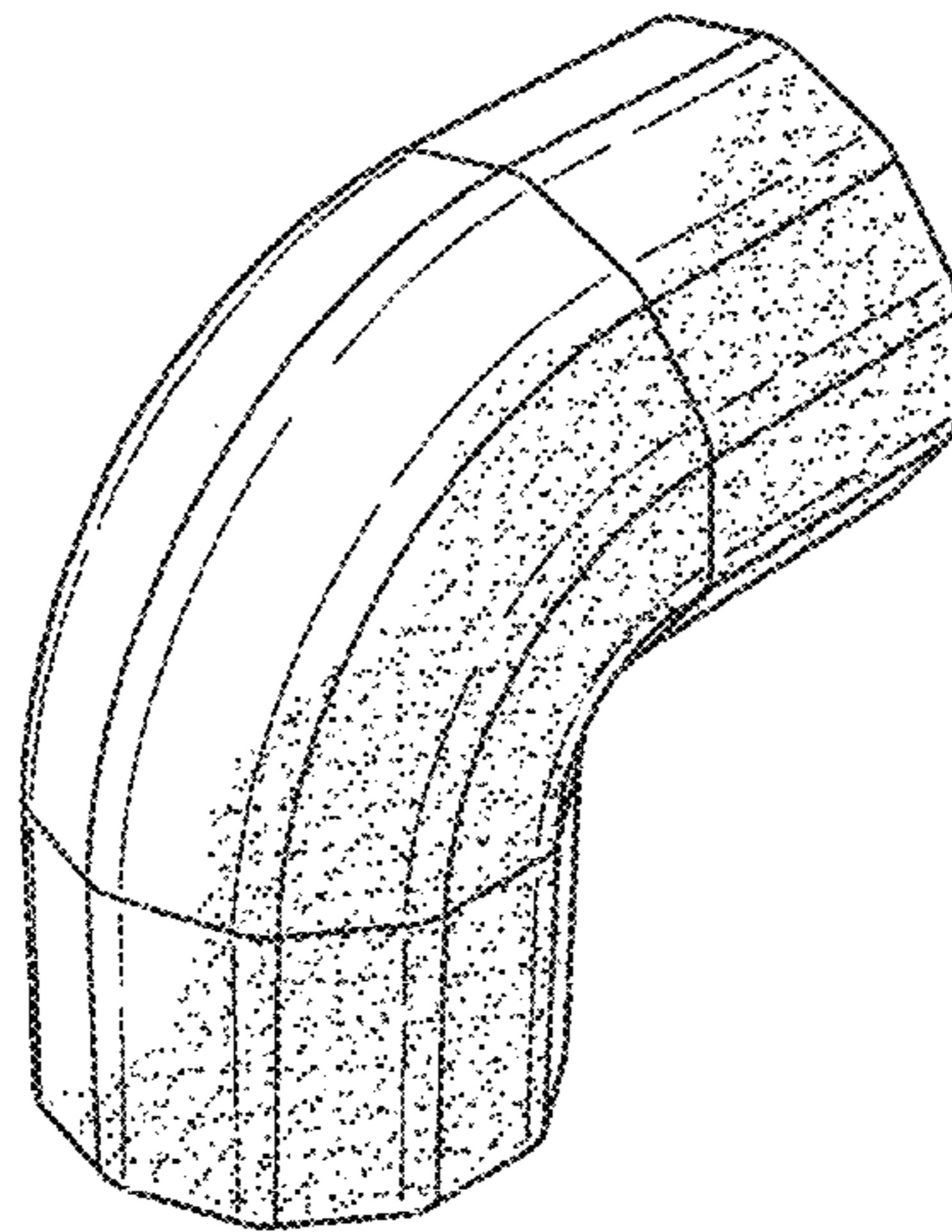


FIG. 22



FIG. 23

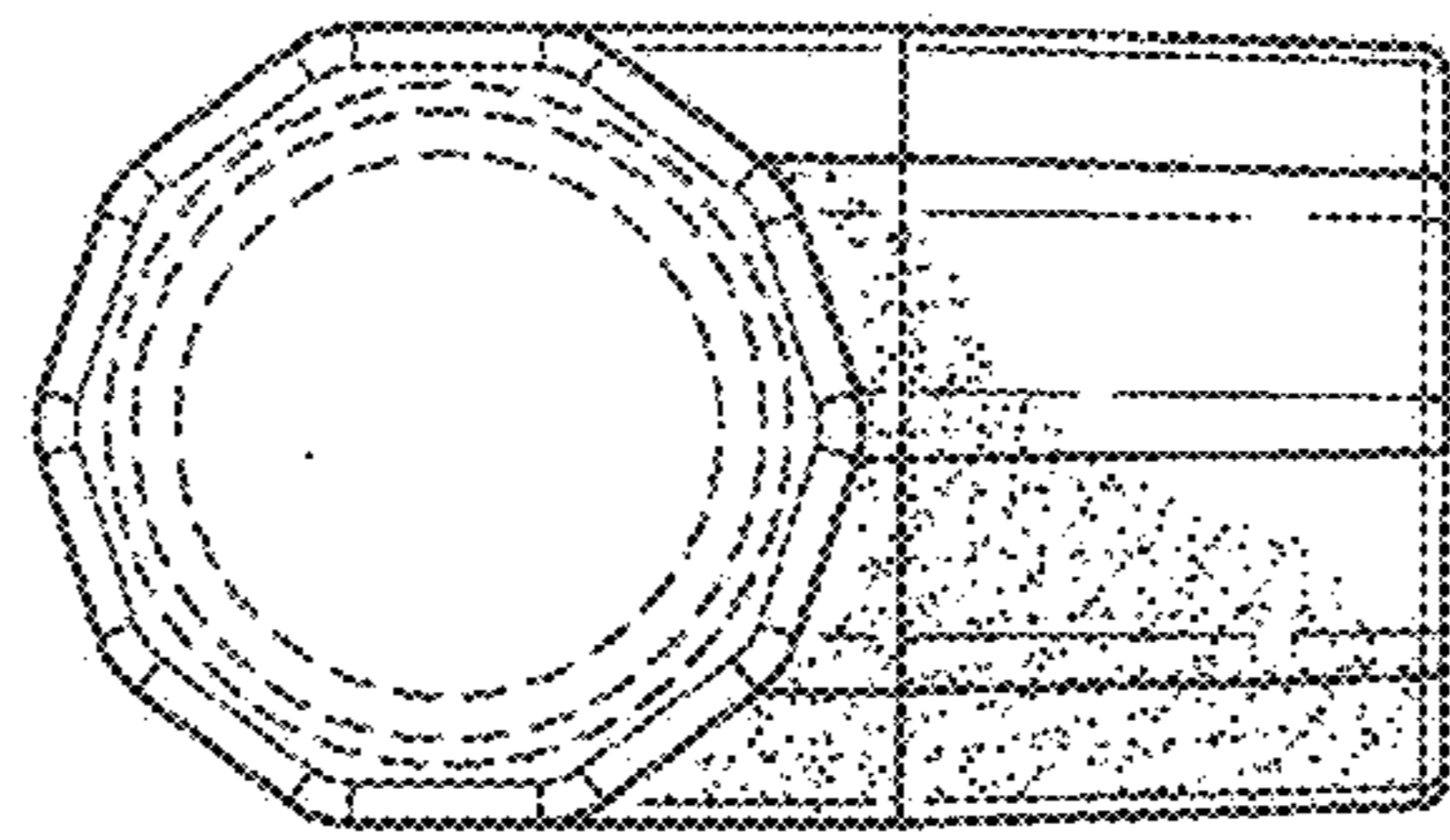


FIG. 24

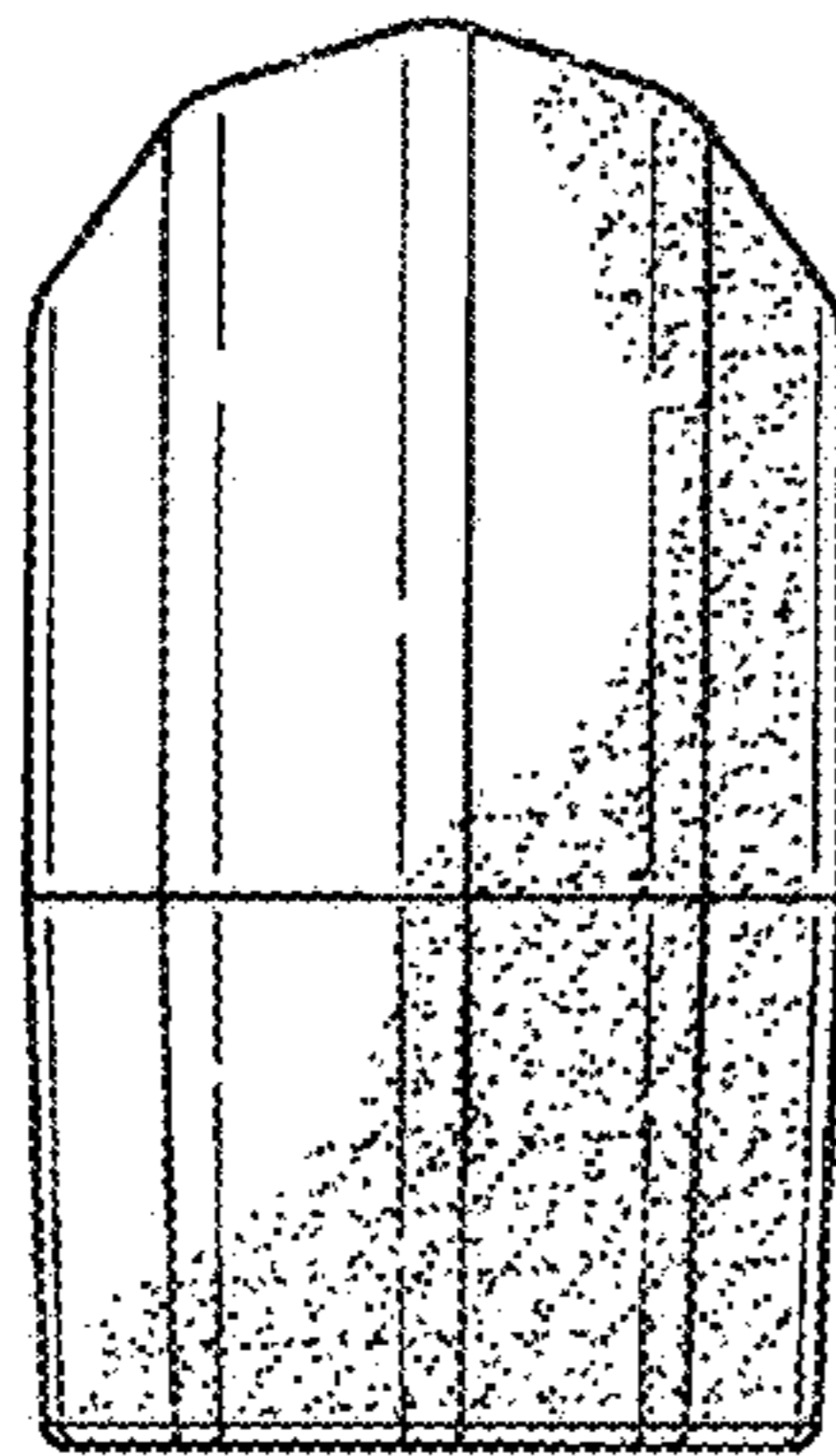


FIG. 25

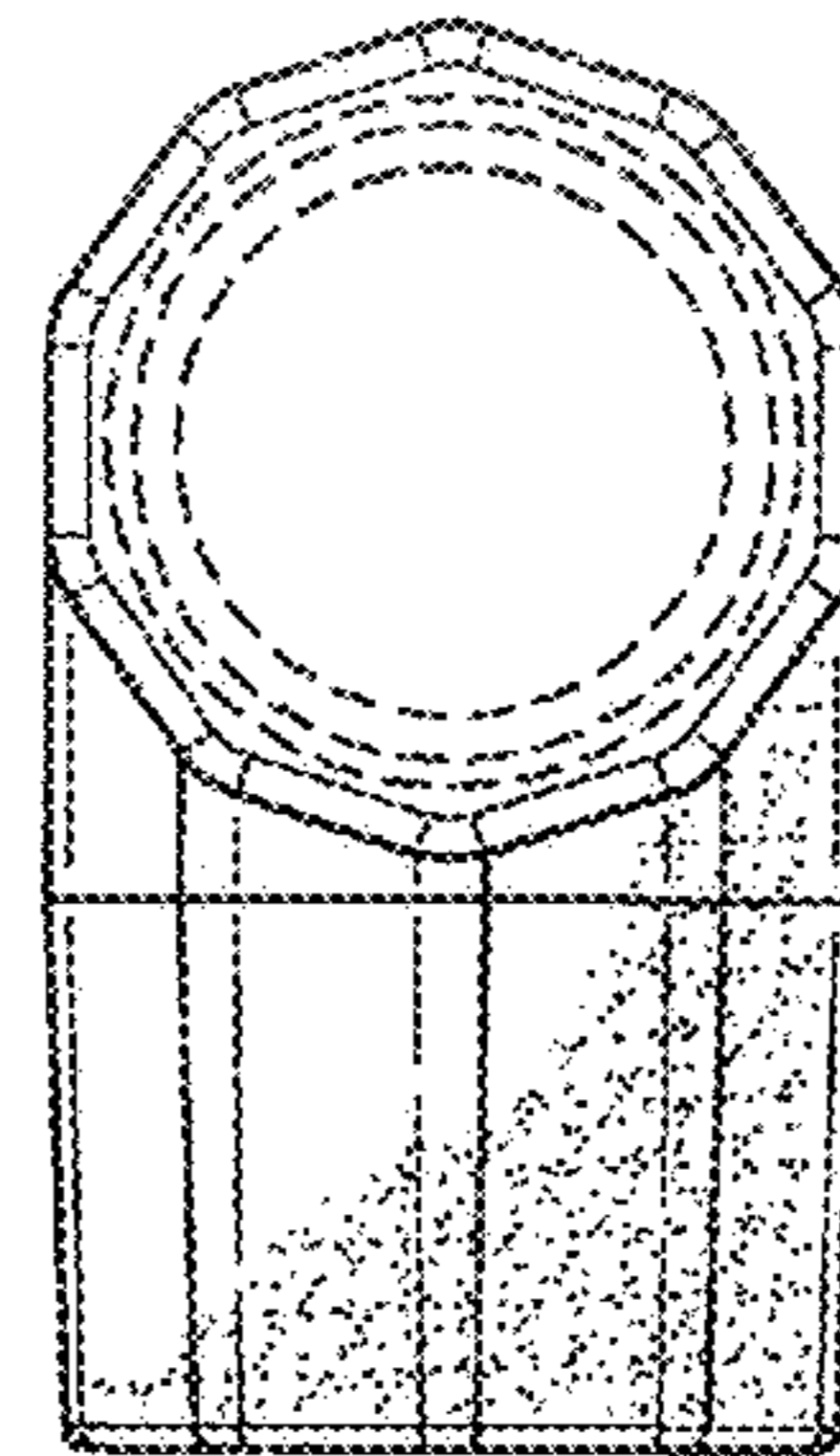


FIG. 26

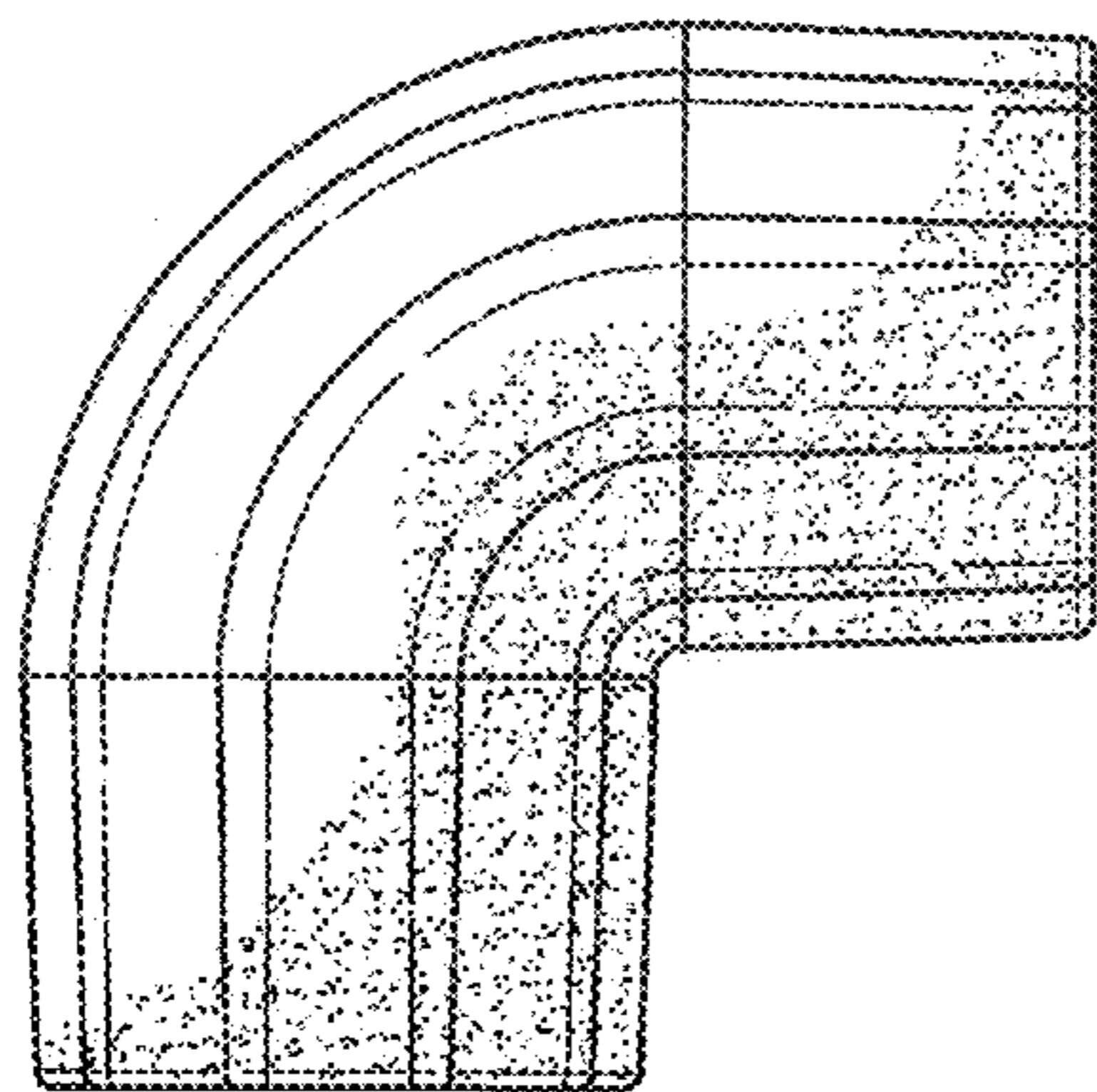


FIG. 27

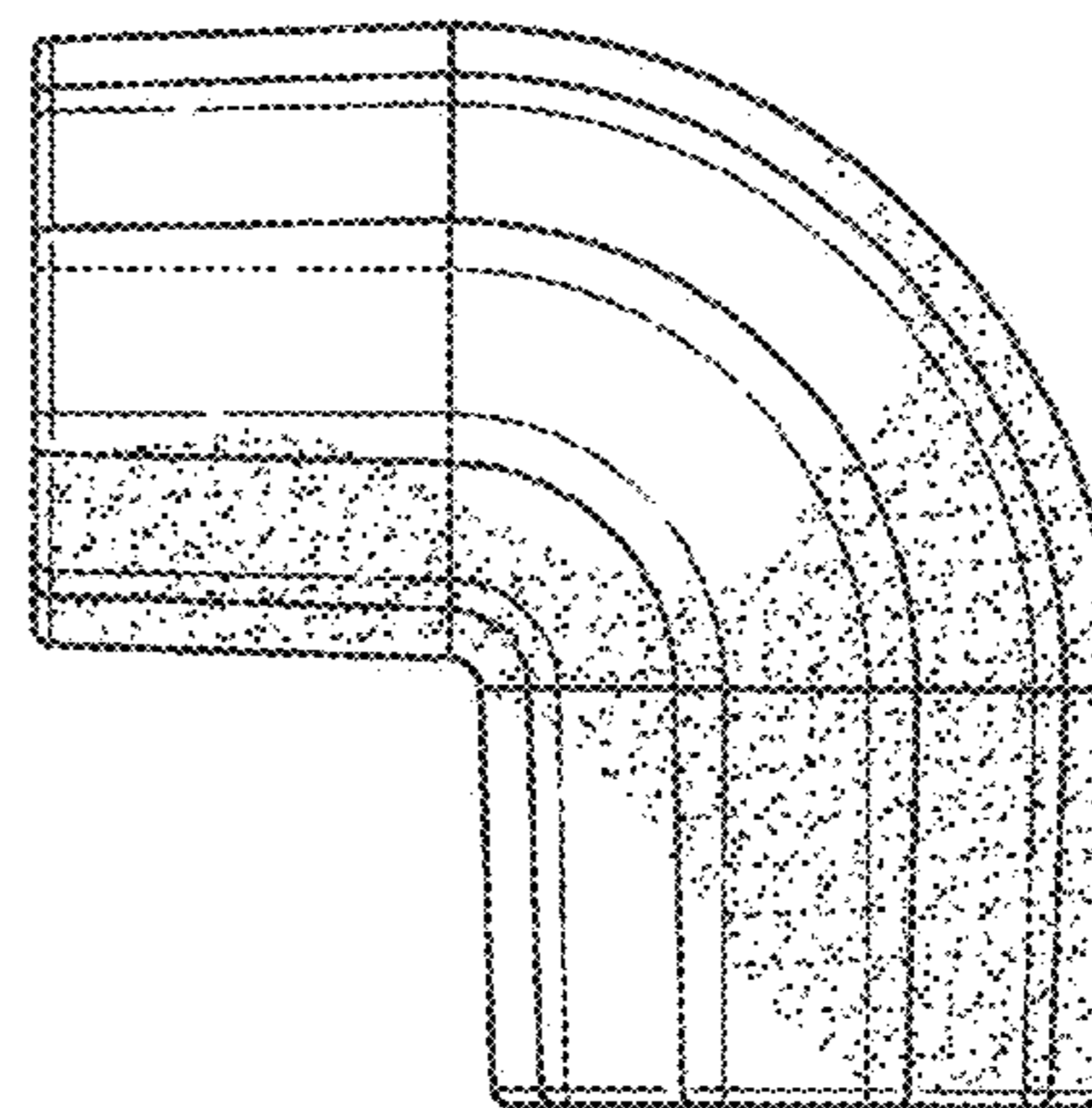


FIG. 28

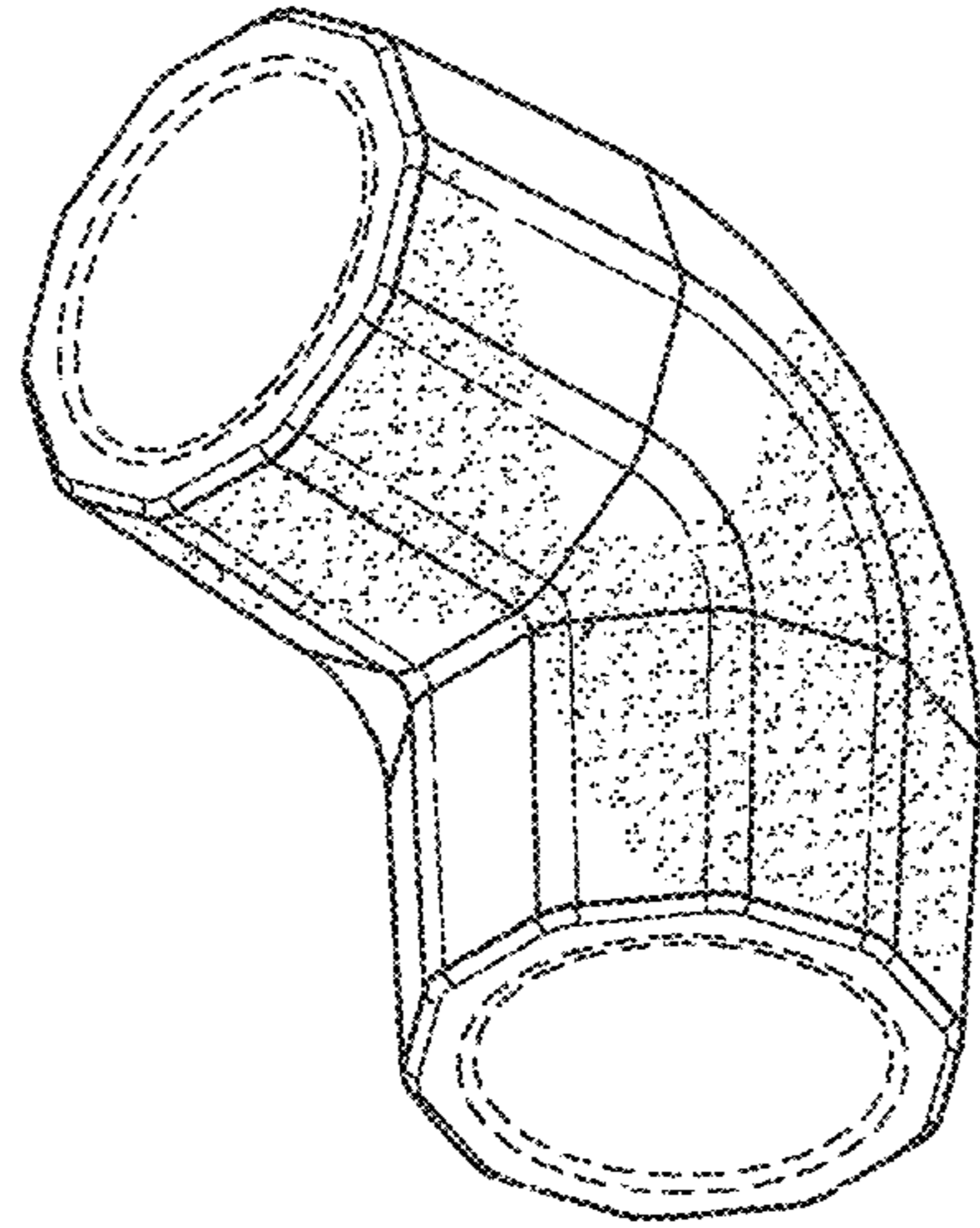


FIG. 29

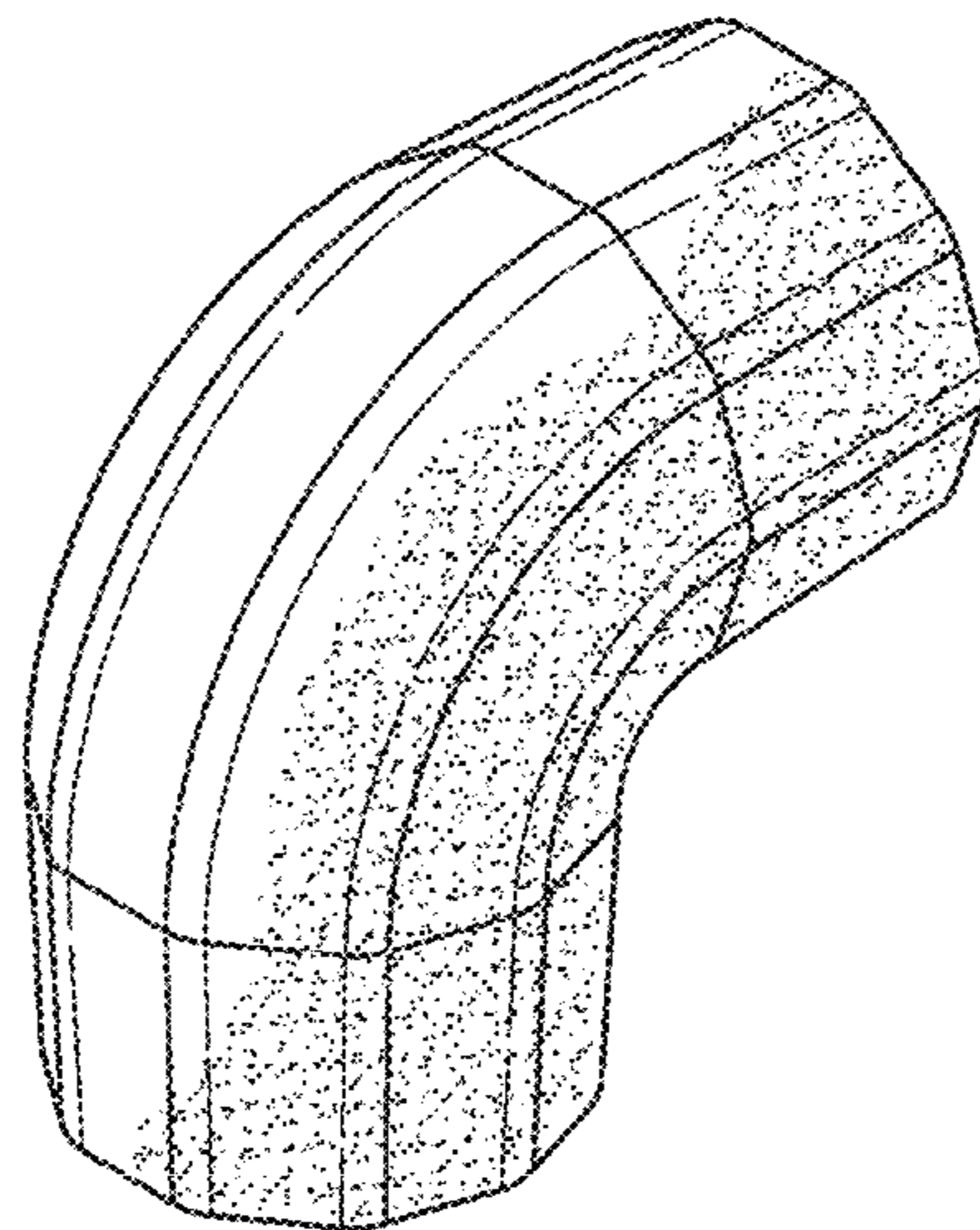


FIG. 30

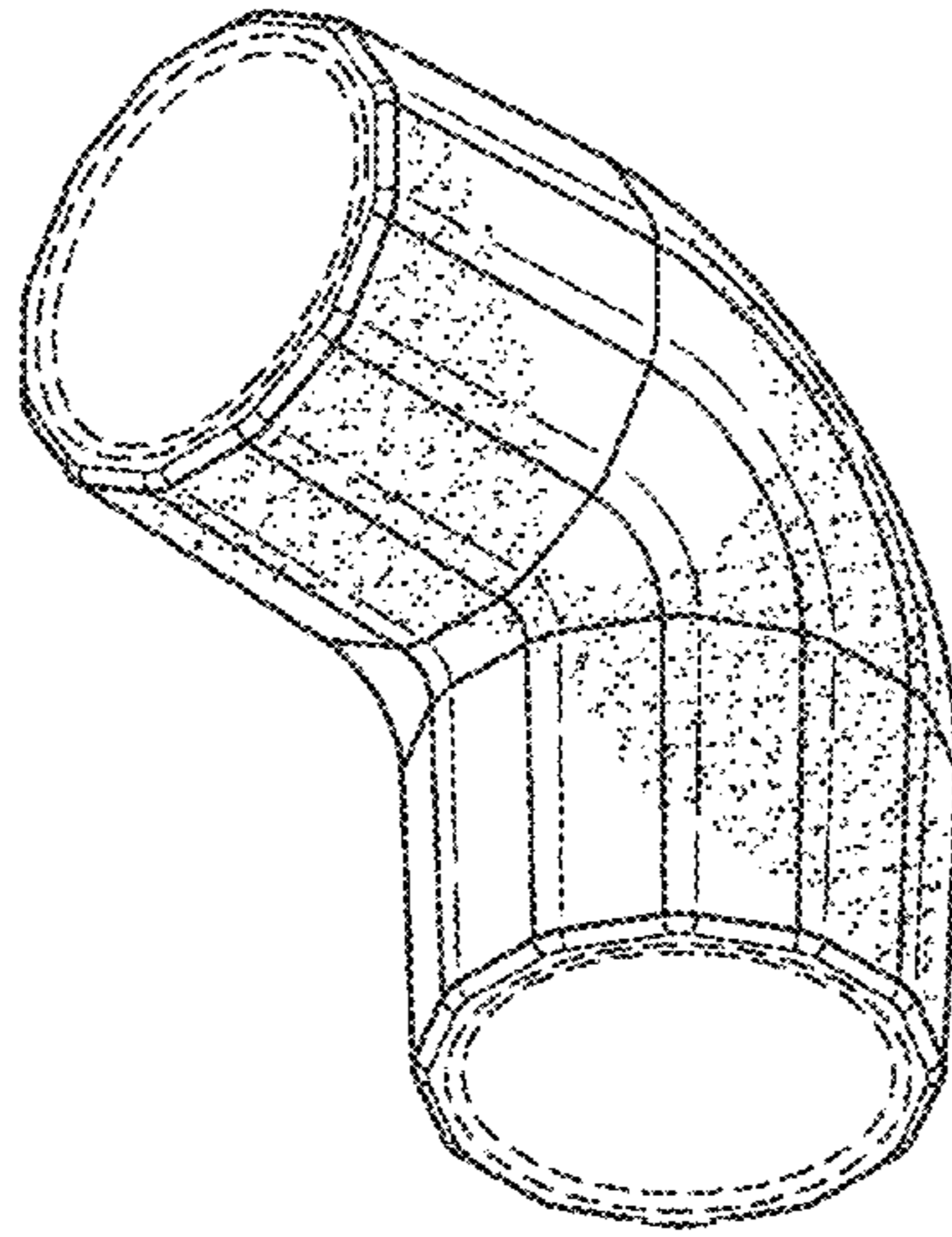


FIG. 31

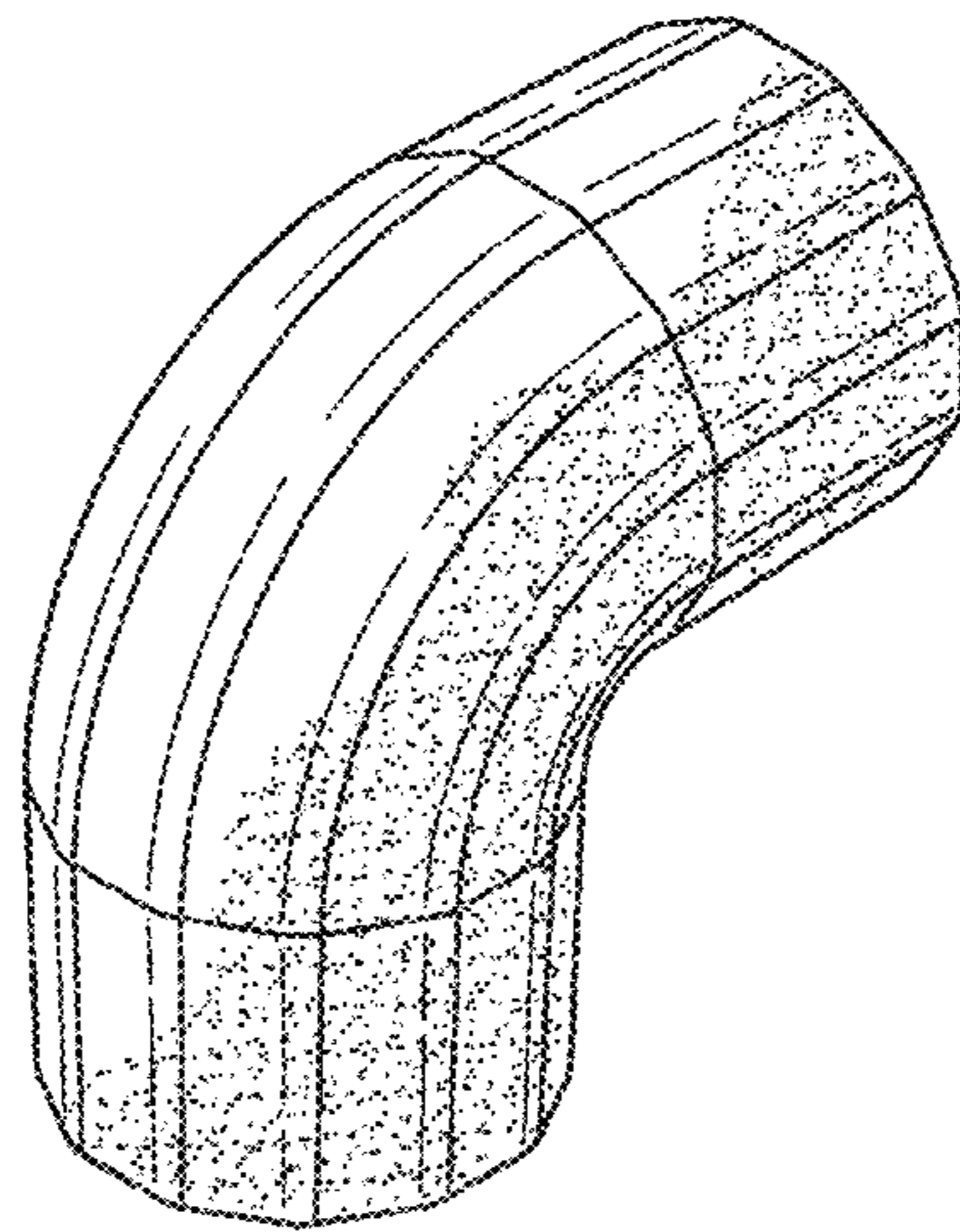


FIG. 32

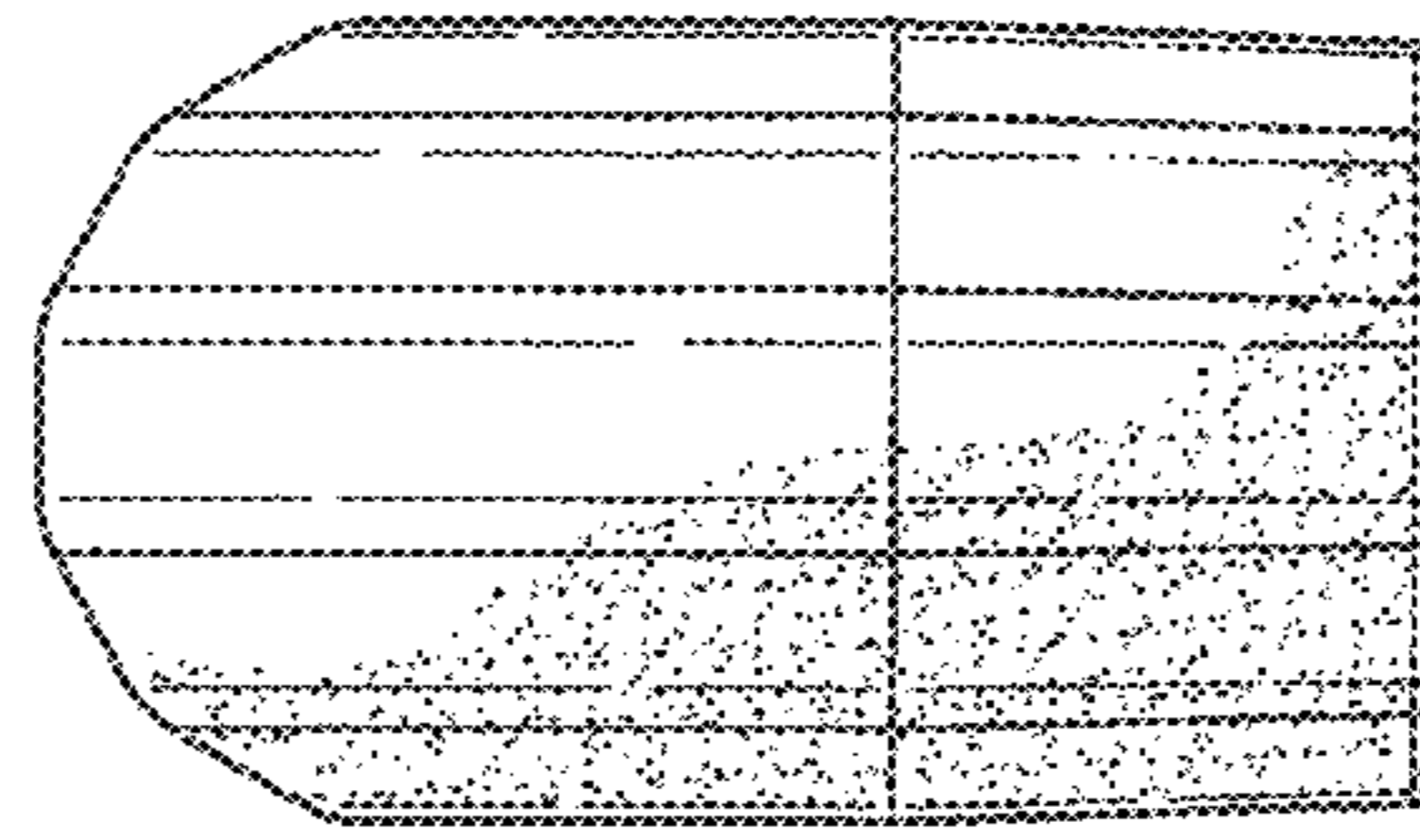


FIG. 33

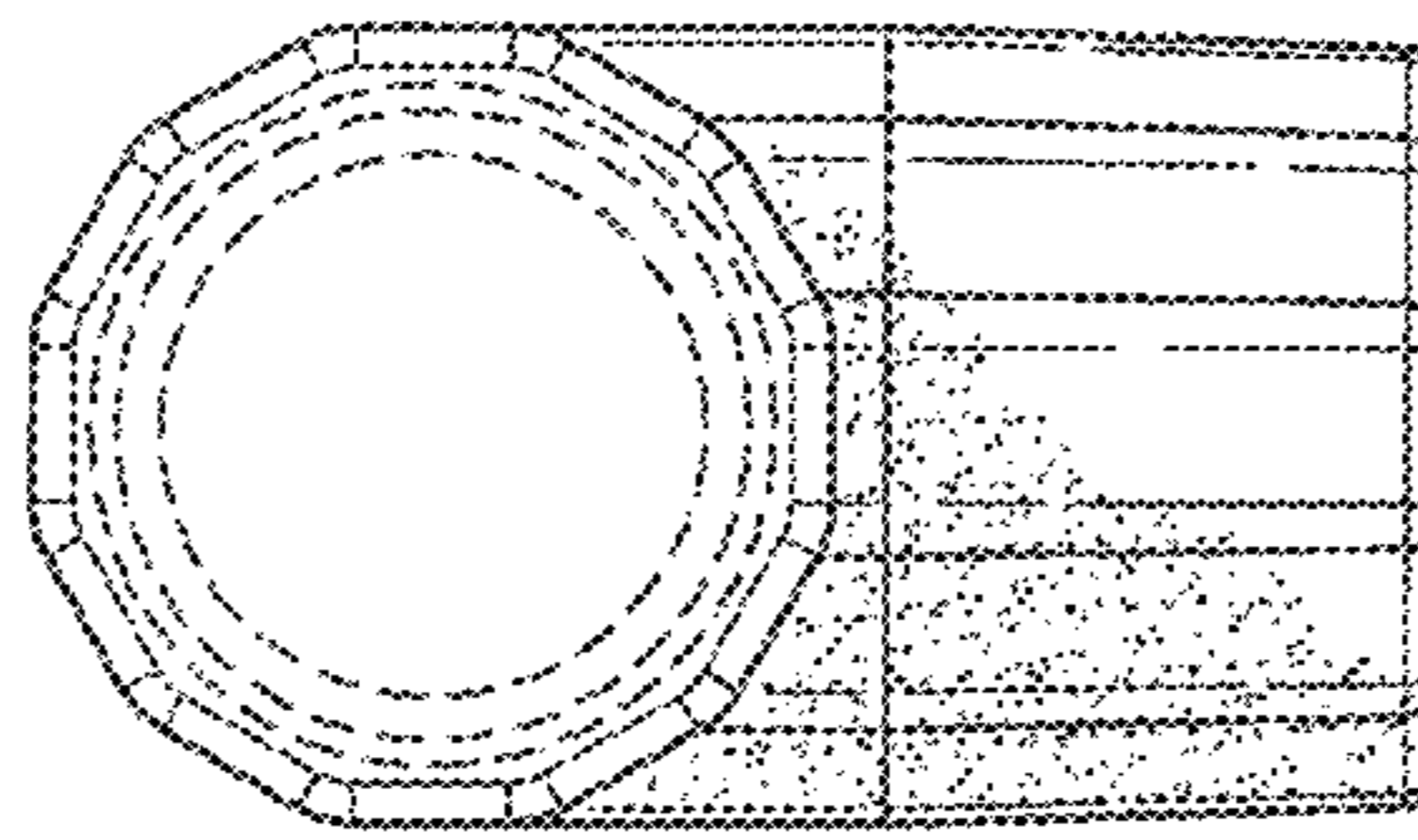


FIG. 34

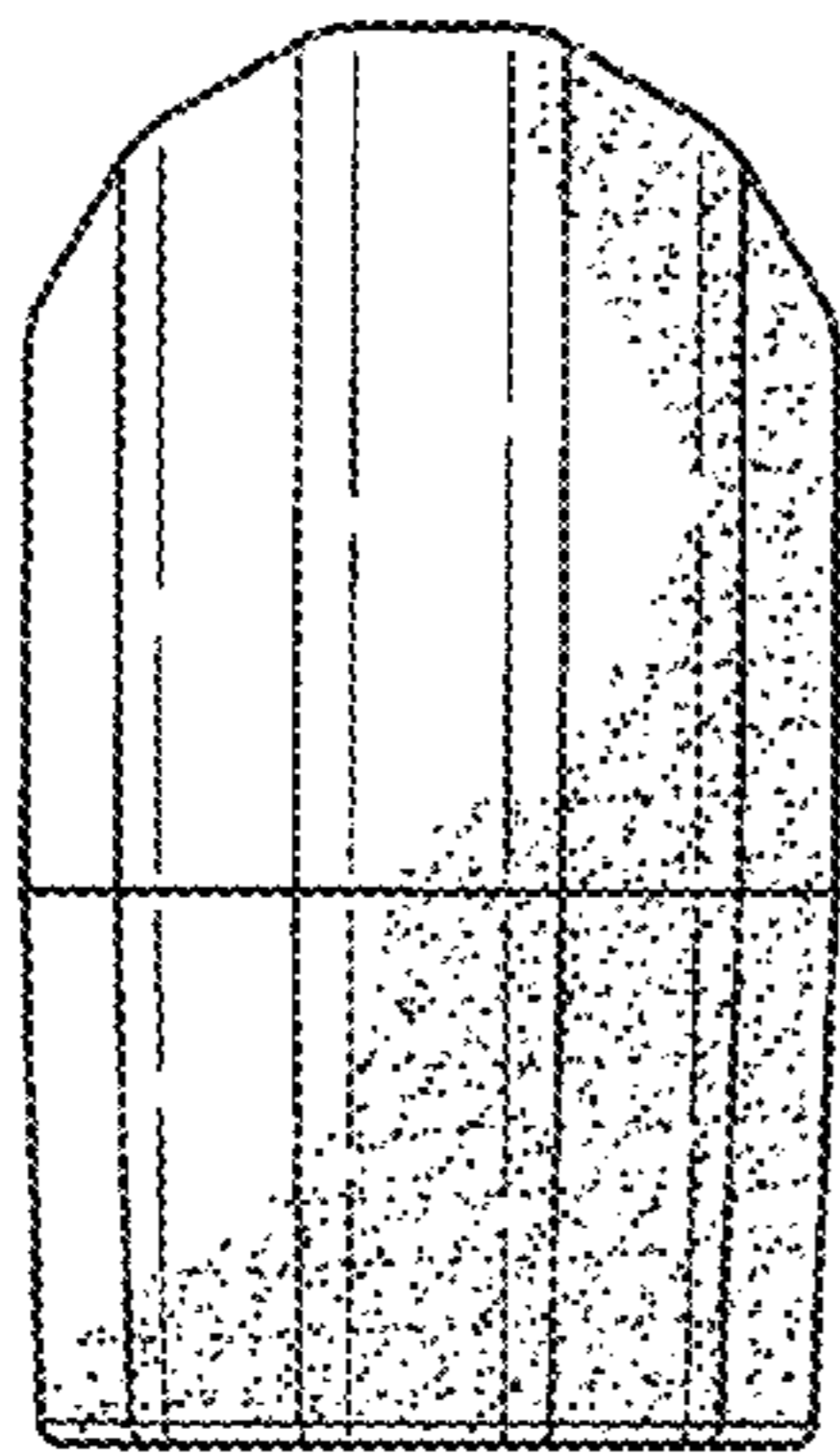


FIG. 35

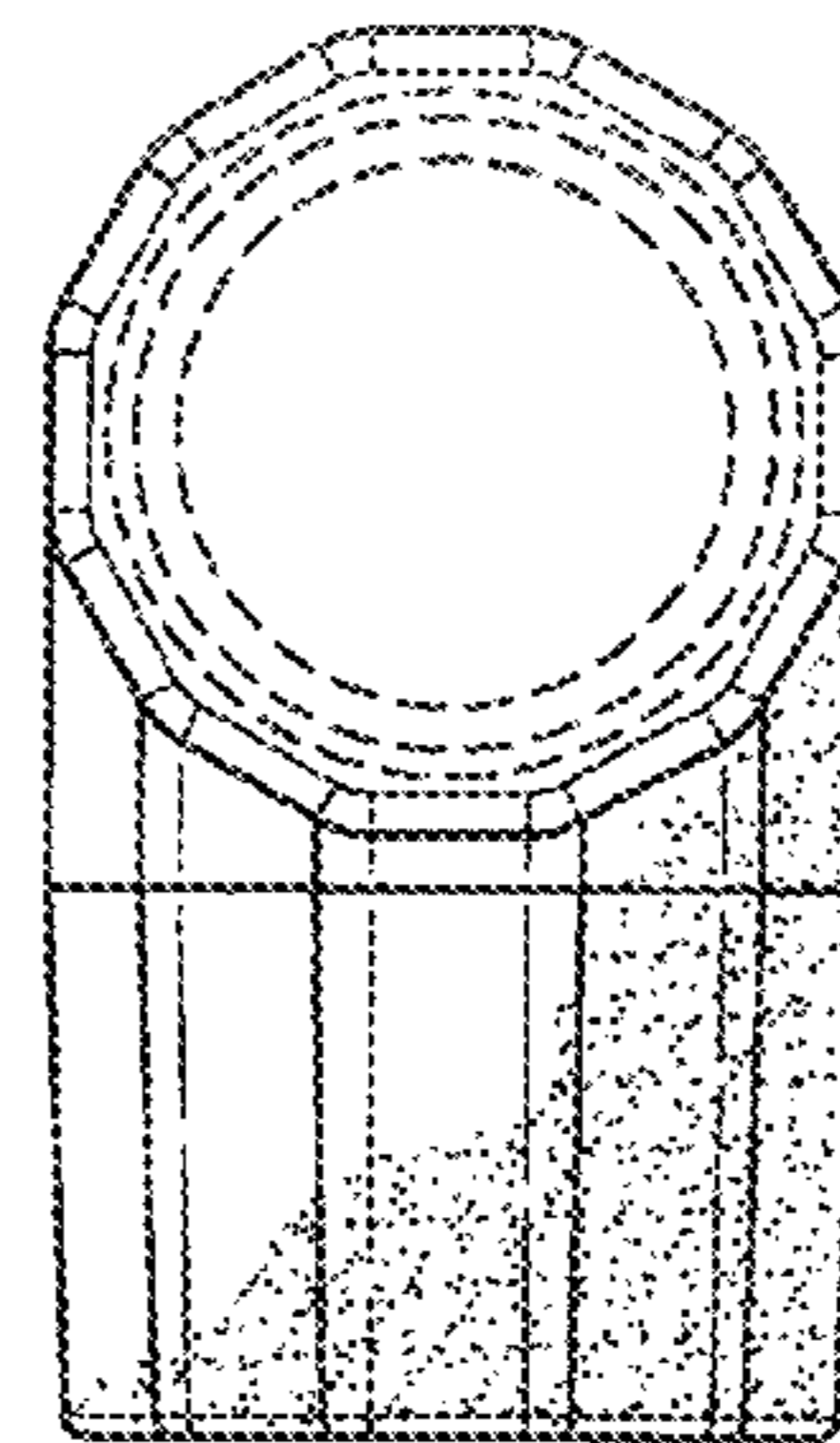


FIG. 36

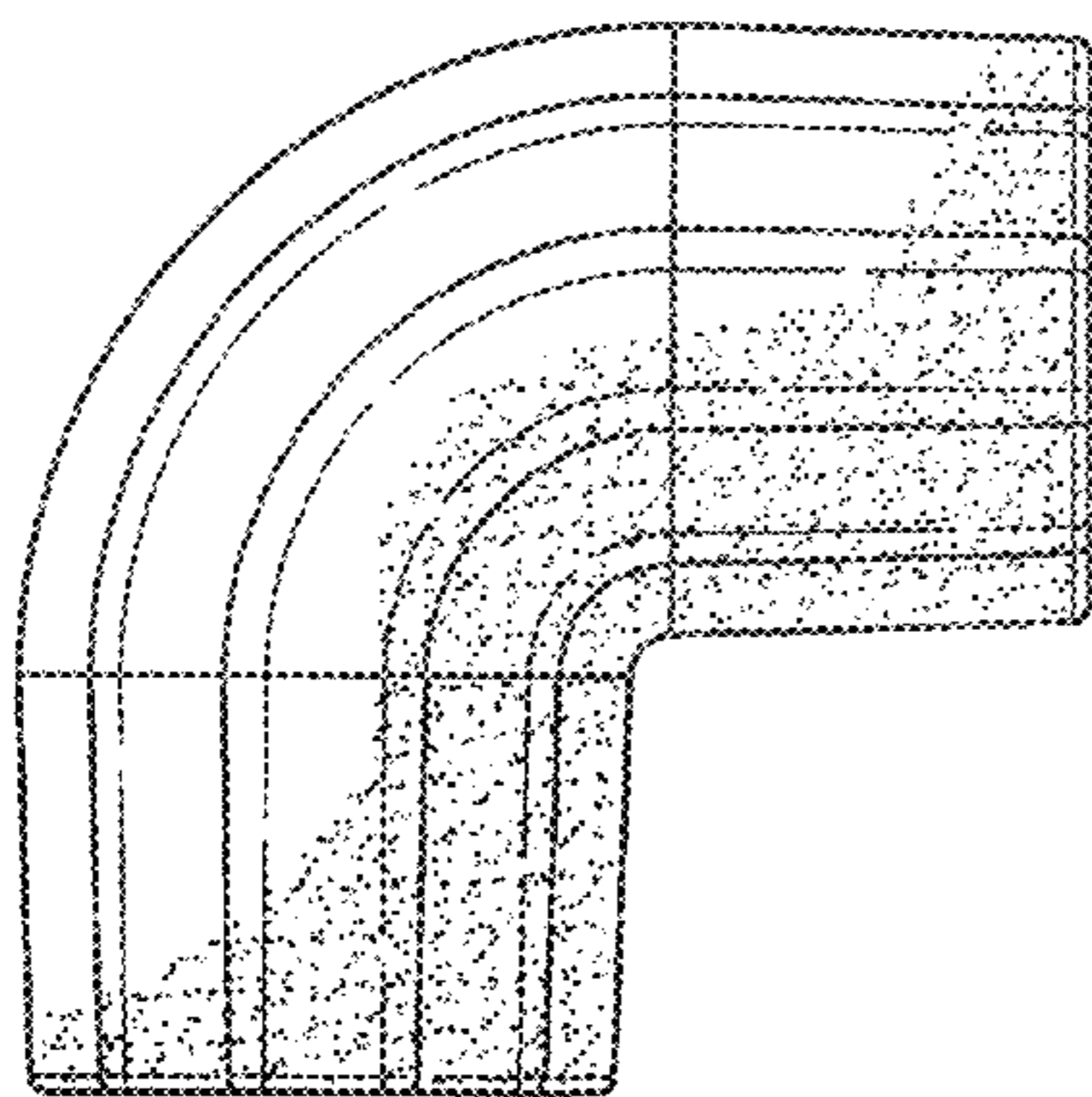


FIG. 37

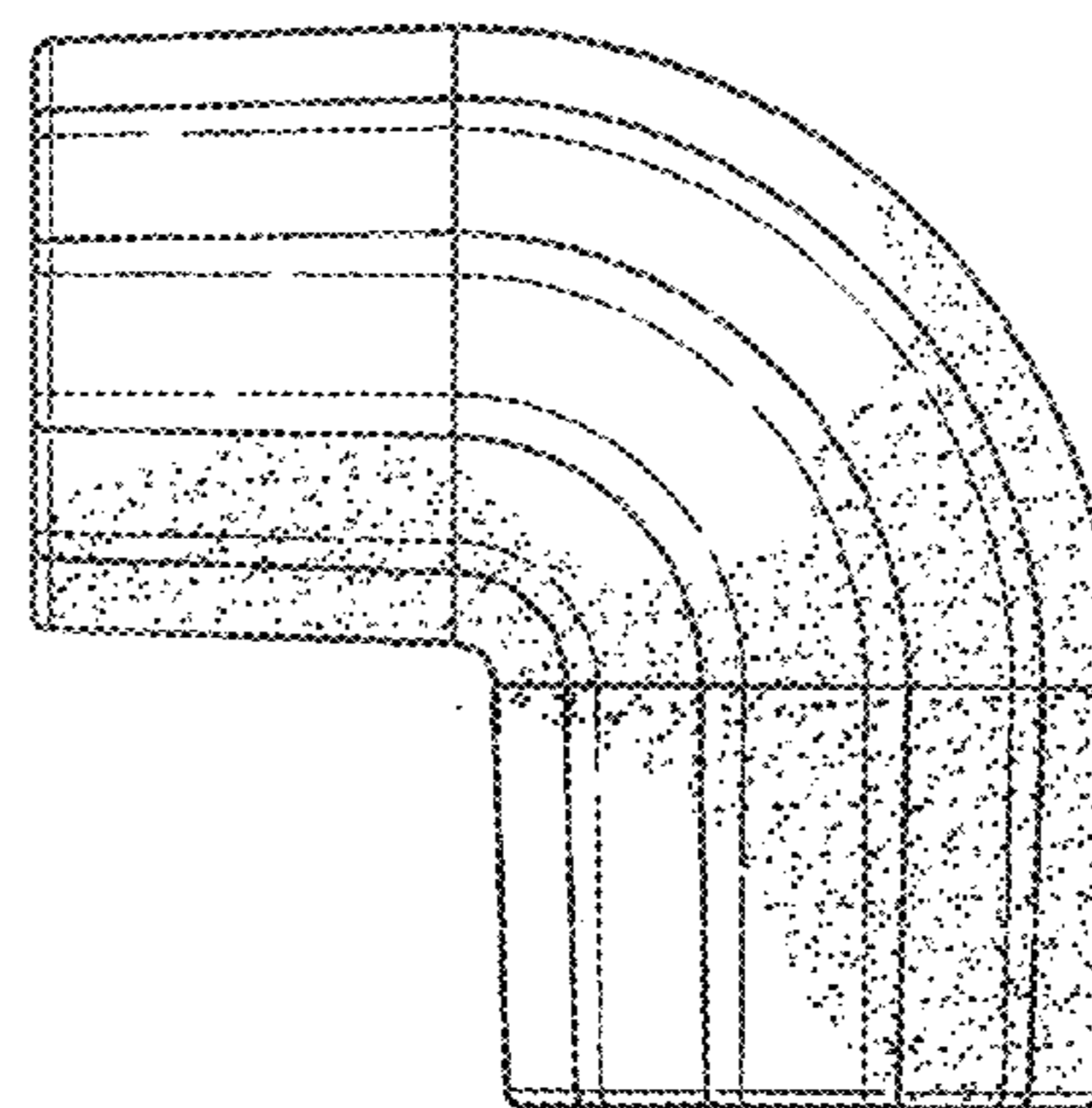


FIG. 38

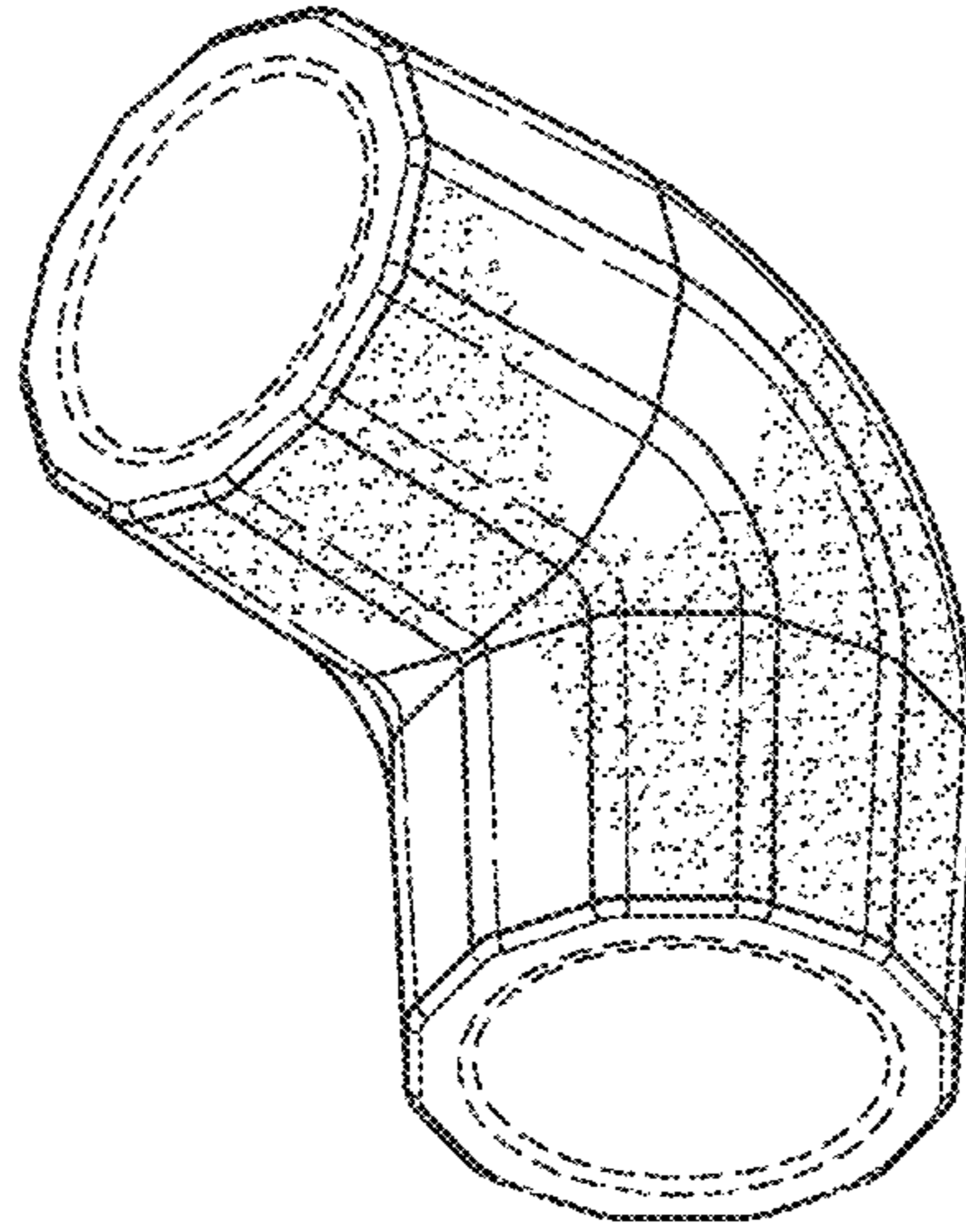


FIG. 39

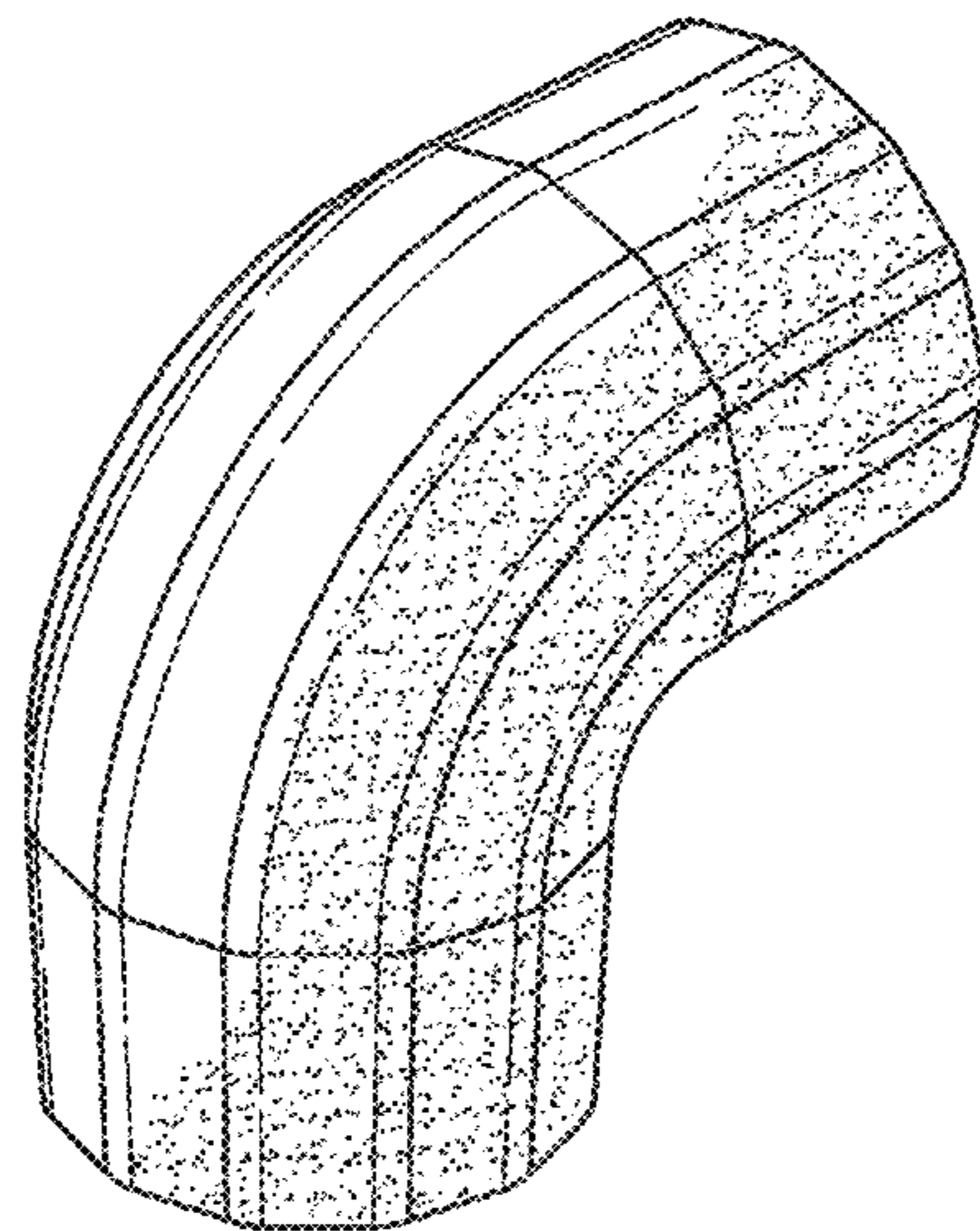


FIG. 40