



US00D978929S

(12) **United States Design Patent** (10) **Patent No.:** **US D978,929 S**
Jiang (45) **Date of Patent:** **** Feb. 21, 2023**

(54) **3D PRINTING FILAMENT DRYER**
(71) Applicant: **ZHUHAI SUNLU INDUSTRIAL CO., LTD**, Zhuhai (CN)
(72) Inventor: **Kun Jiang**, Yongzhou (CN)
(73) Assignee: **ZHUHAI SUNLU INDUSTRIAL CO., LTD**, Zhuhai (CN)
(**) Term: **15 Years**
(21) Appl. No.: **29/737,831**

(22) Filed: **Jun. 12, 2020**

(30) **Foreign Application Priority Data**

May 19, 2020 (CN) 202030231627.4

(51) **LOC (14) Cl.** **15-09**

(52) **U.S. Cl.**
USPC **D15/122; D15/135**

(58) **Field of Classification Search**
USPC D15/122, 135, 138; D18/41, 46-56;
D14/300, 301, 302, 303, 307, 308, 314,
D14/316, 321, 445, 446, 334, 339, 365,
D14/378

CPC H04N 1/2158; H04N 1/10
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,102,671 A * 9/1963 Gershen B65C 11/00
225/48
D263,059 S * 2/1982 Croyle D19/69
D378,373 S * 3/1997 Morris D15/135
D708,667 S * 7/2014 Carrington D19/69
D736,838 S * 8/2015 Costabeber D15/122
D737,347 S * 8/2015 Anantha D15/122
D738,945 S * 9/2015 Culbertson D15/138
D747,374 S * 1/2016 Anantha D15/122
D783,693 S * 4/2017 Reches D15/122
D796,562 S * 9/2017 Lu D15/138

D810,156 S * 2/2018 Lin D15/135
D858,591 S * 9/2019 Koch D15/135
D900,176 S * 10/2020 Anantha D15/138
D900,177 S * 10/2020 Pappas D15/138
2002/0195364 A1 * 12/2002 Grcic B65H 57/12
242/171

(Continued)

FOREIGN PATENT DOCUMENTS

CN 302243255 * 12/2012
CN 156921-0001 * 11/2013

OTHER PUBLICATIONS

SUNLU Filament Dryer Box, Amazon.com, date published Dec. 29, 2019, date retrieved Oct. 4, 2022—29737831—<https://amzn.to/3yf7hTD> (Year: 2019).*

Primary Examiner — Nicole C Shiflet

Assistant Examiner — Danielle Nichole Bowly

(74) *Attorney, Agent, or Firm* — Bayramoglu Law Offices LLC

(57) **CLAIM**

The ornamental design for a 3D printing filament dryer, as shown and described.

DESCRIPTION

FIG. 1 is a front view of a 3D printing filament dryer showing my new design;

FIG. 2 is a left side view thereof;

FIG. 3 is a right side view thereof;

FIG. 4 is a top plan view thereof;

FIG. 5 is a bottom plan view thereof;

FIG. 6 is a front, left and top perspective view thereof;

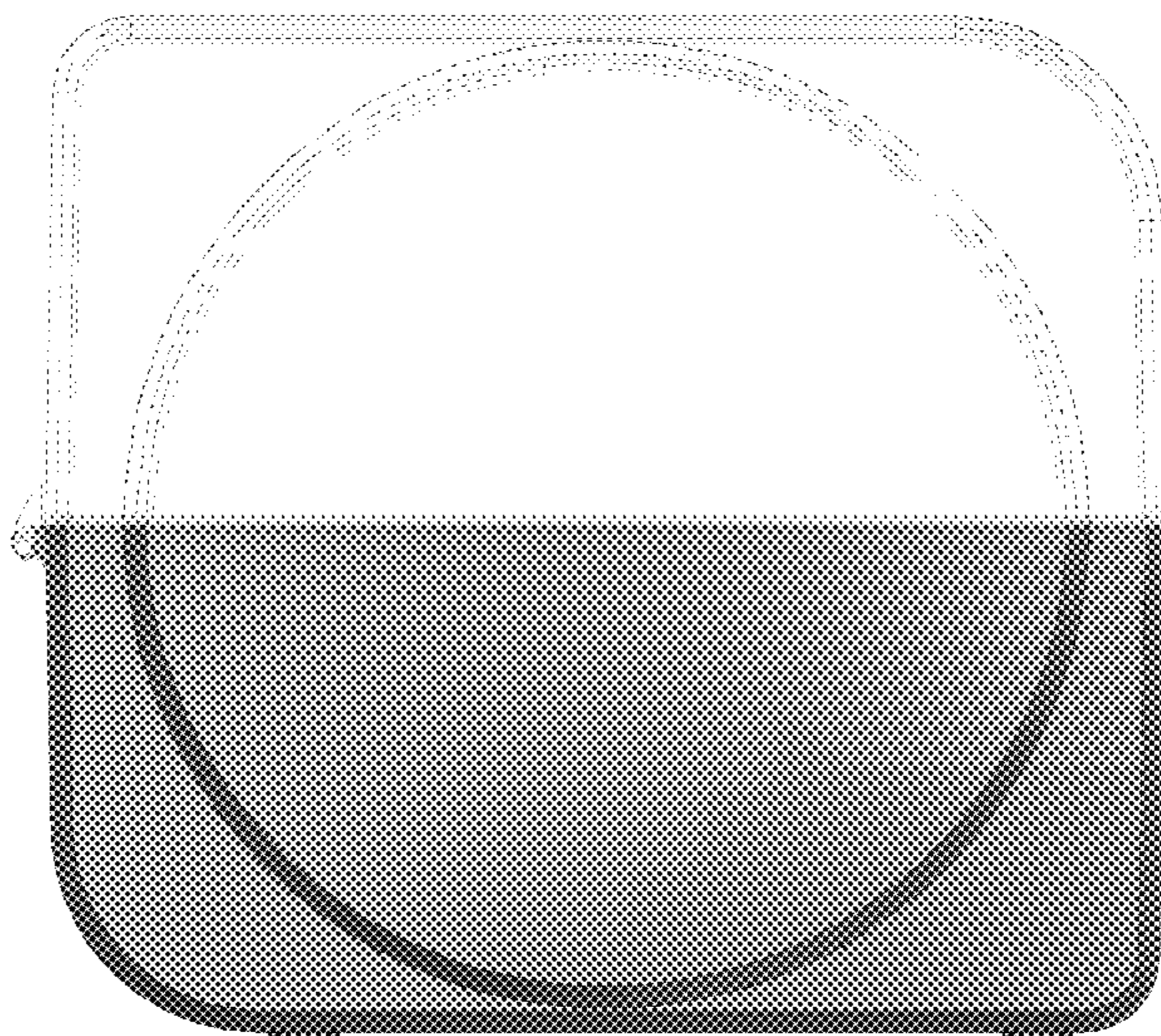
FIG. 7 is a rear, right and top perspective view thereof;

FIG. 8 is a front, left and bottom perspective view thereof;

and,

FIG. 9 is a rear, right and bottom perspective view thereof.

1 Claim, 9 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2007/0284270 A1* 12/2007 Huang G11B 33/0427
2011/0020044 A1* 1/2011 Yu B41J 3/4075
400/613
2018/0029307 A1* 2/2018 Share B33Y 40/00
2021/0206075 A1* 7/2021 Barribeau B29C 64/112

* cited by examiner

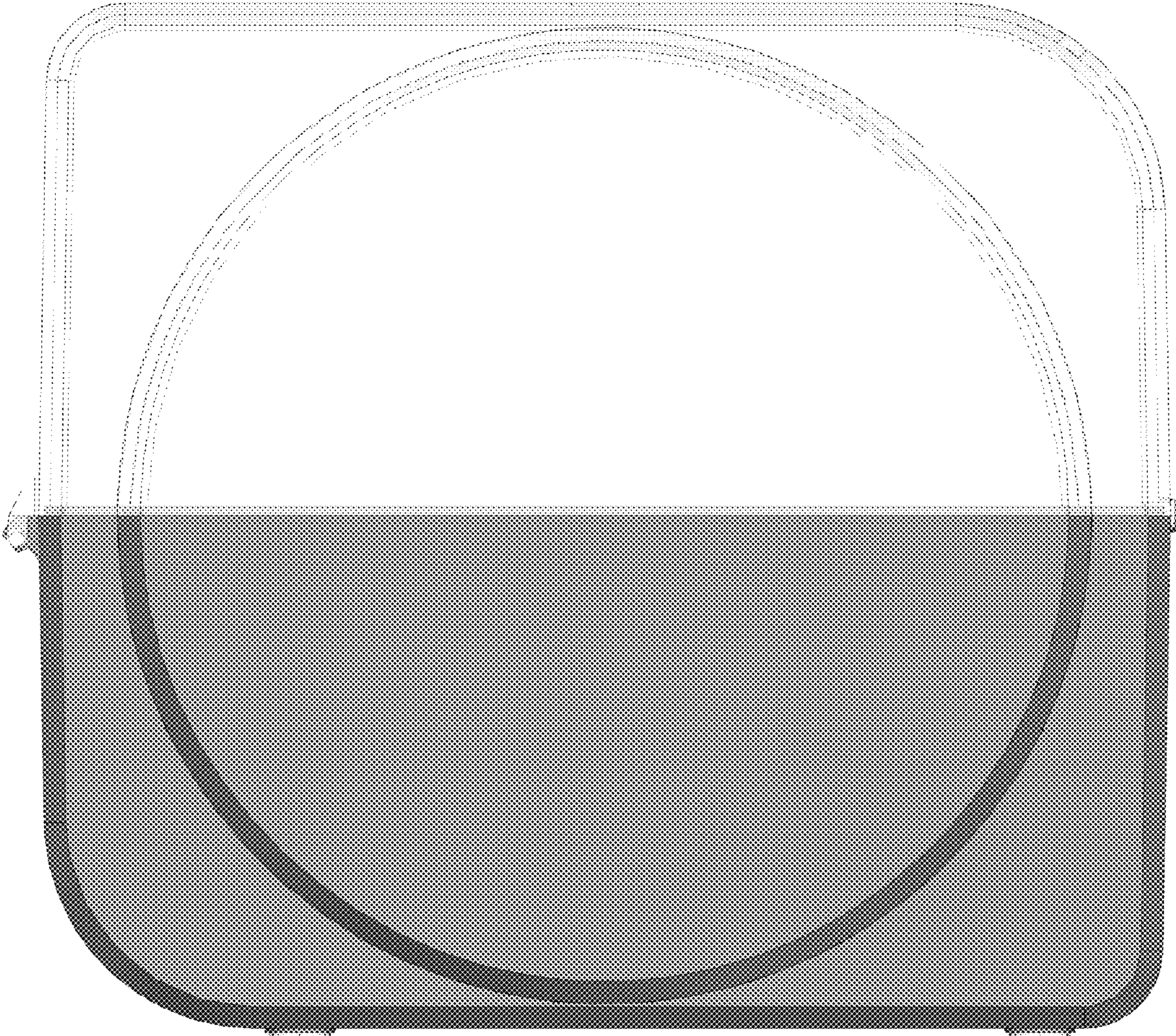


FIG. 1

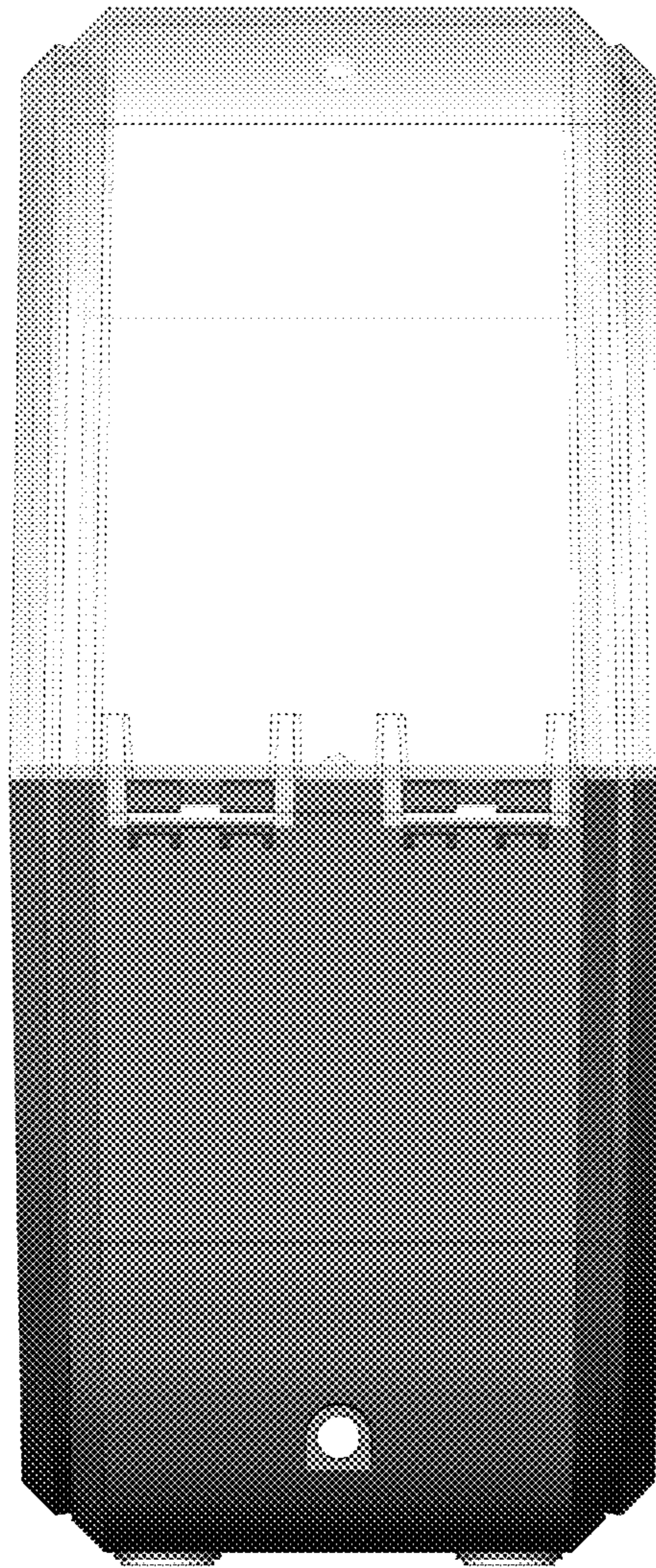


FIG. 2

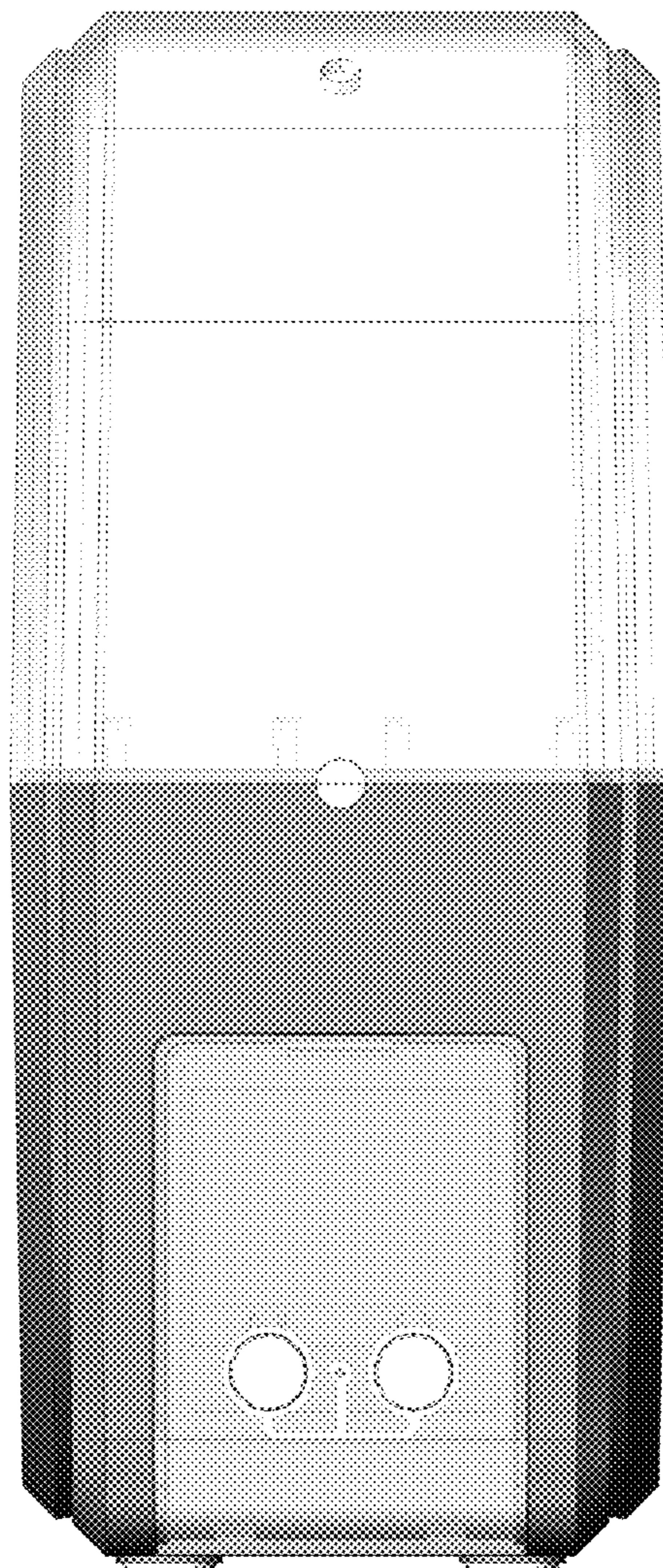


FIG. 3

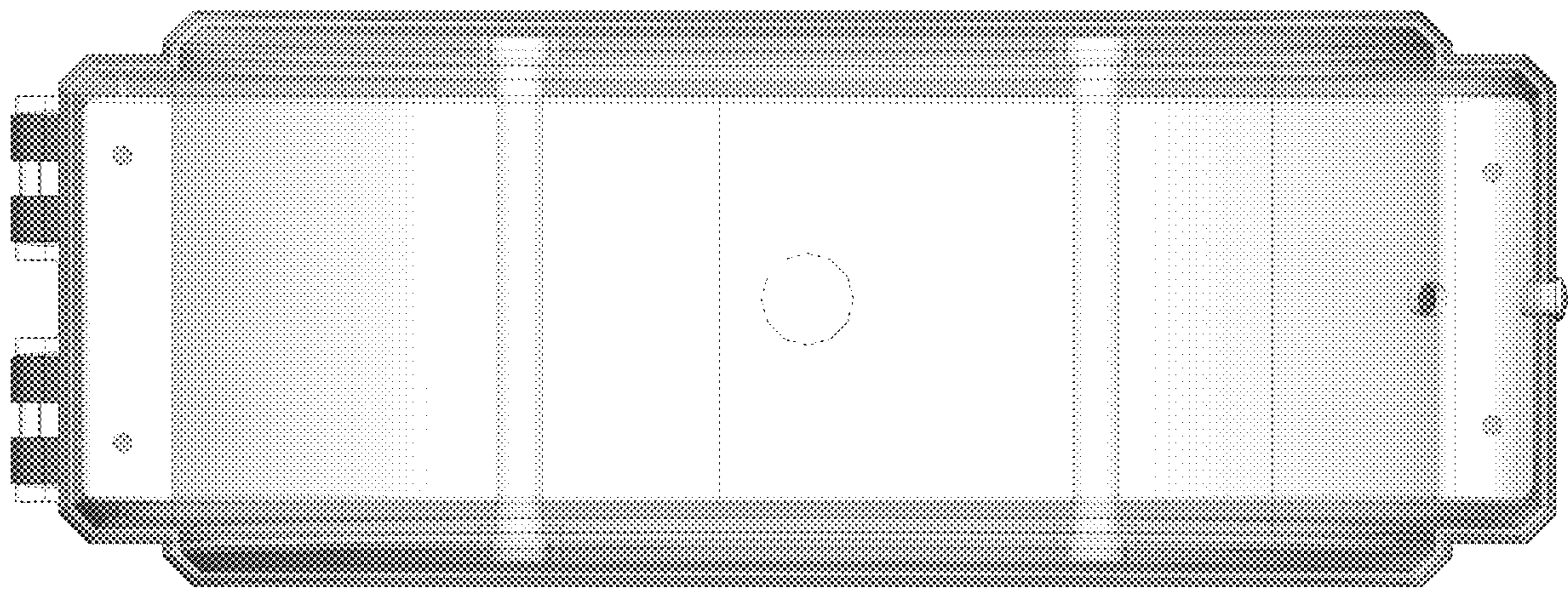


FIG. 4

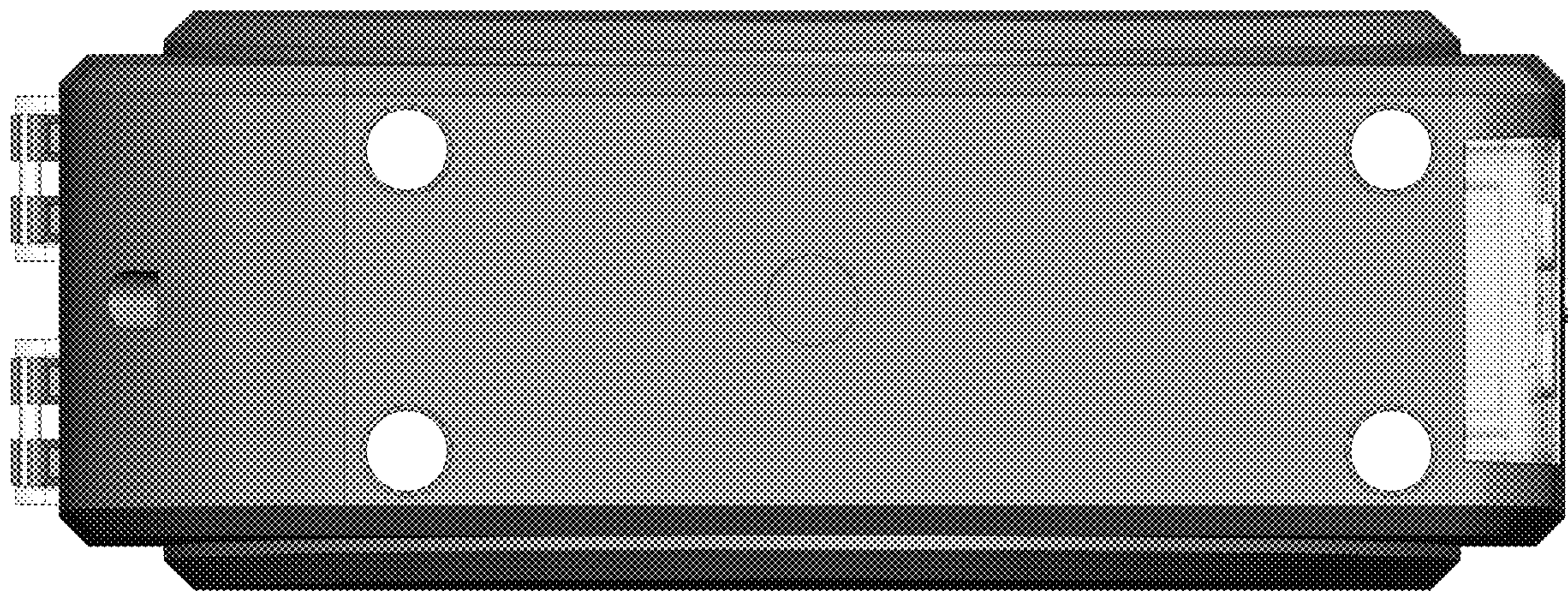


FIG. 5

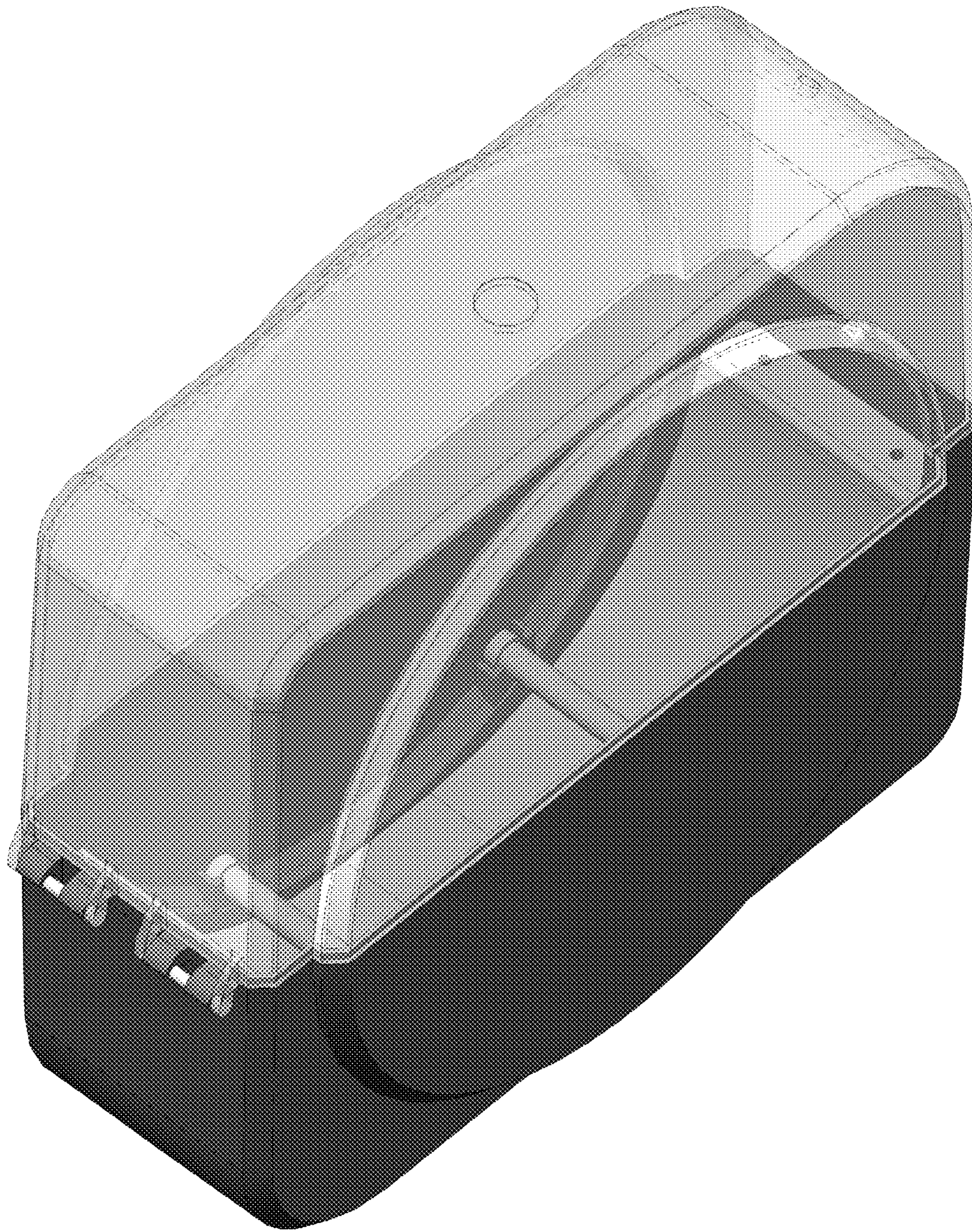


FIG. 6

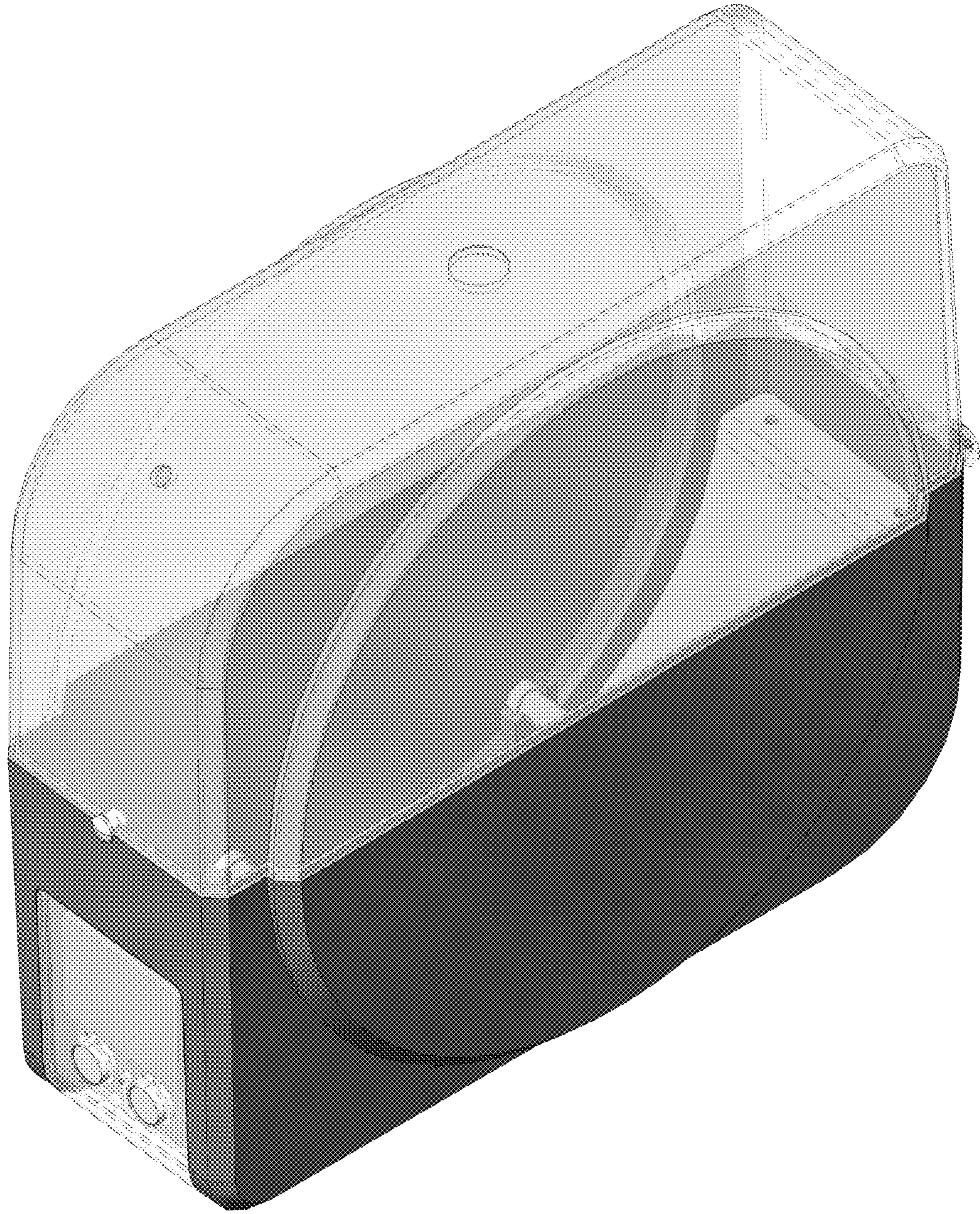


FIG. 7

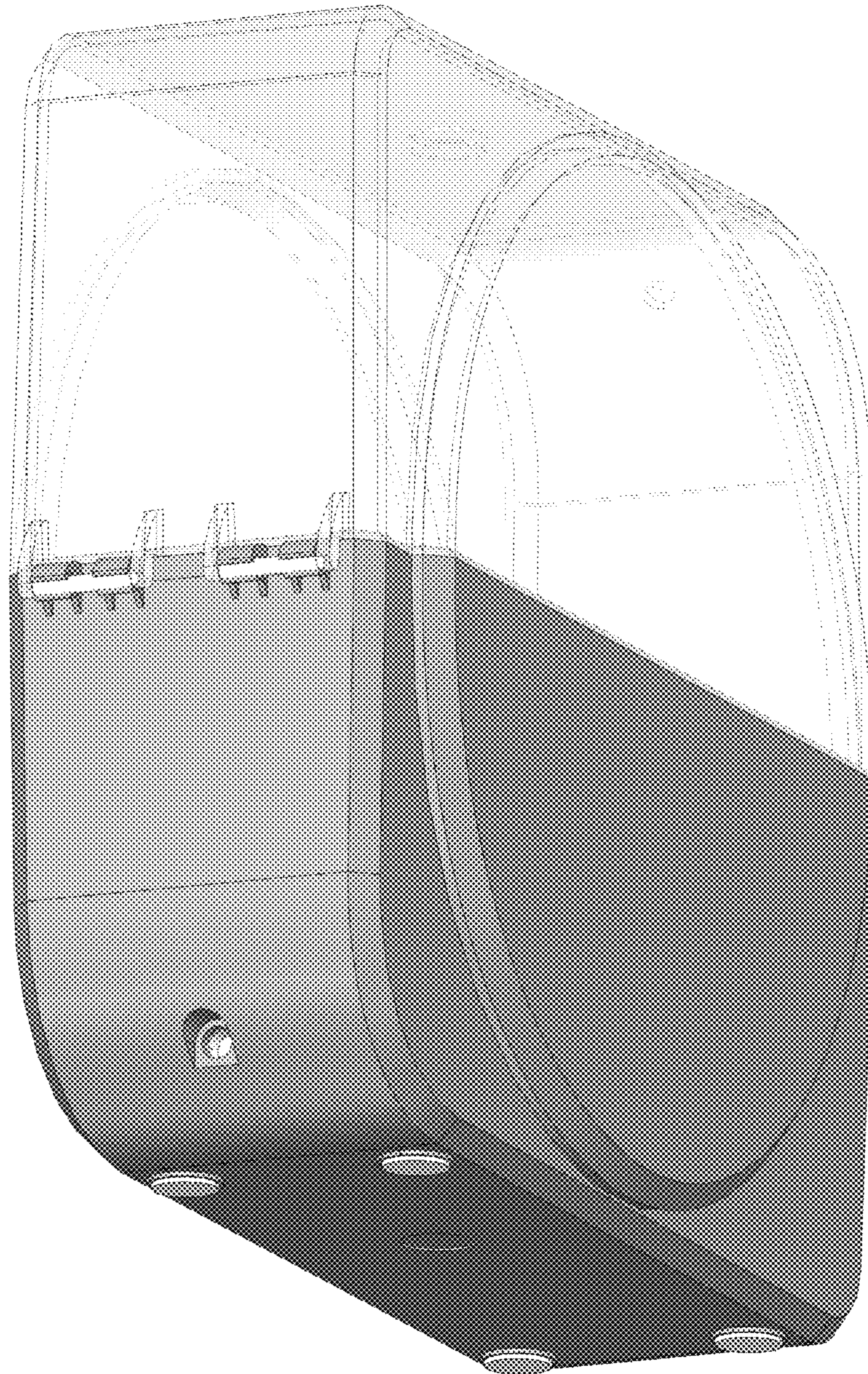


FIG. 8

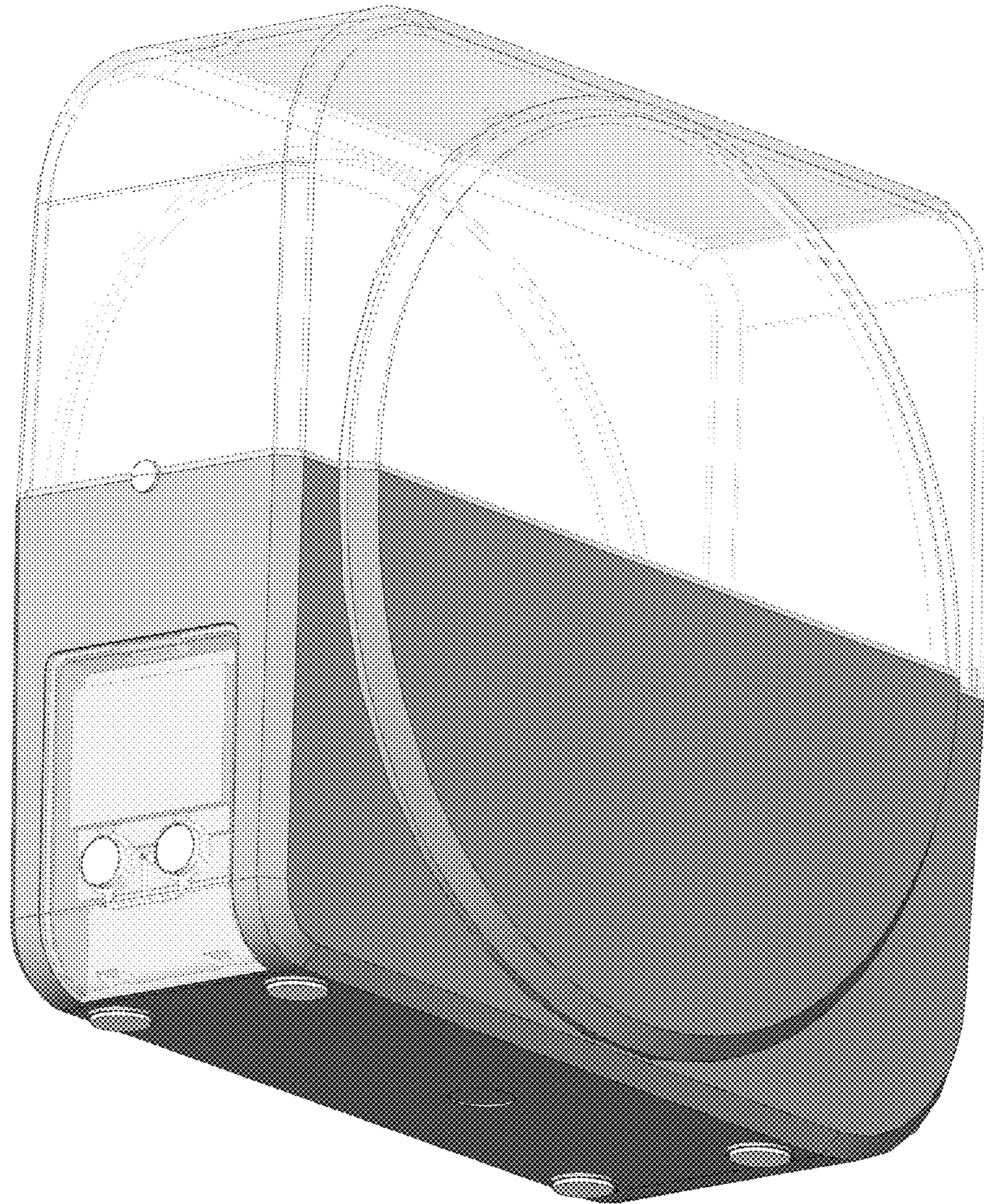


FIG. 9