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(12) **United States Design Patent** (10) **Patent No.:** **US D928,341 S**
Thimm et al. (45) **Date of Patent:** **** Aug. 17, 2021**

- (54) **HANDHELD ULTRAVIOLET STERILIZATION DEVICE**
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- (**) Term: **15 Years**
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- (52) **U.S. Cl.**
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- (58) **Field of Classification Search**
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D24/133; D26/37; D32/1
CPC ... A61L 2/025; A61L 2/07; A61L 2/10; A61L
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2202/10; A61L 2202/11; A61L 2202/14;
A61L 2202/23; A61L 2202/24; A61L
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See application file for complete search history.

- 9,649,398 B1 5/2017 York
 - 9,700,642 B2 7/2017 Neister
 - D841,180 S * 2/2019 Latchman-Bloom D24/217
 - D870,313 S * 12/2019 Ou Yang D24/217
 - D898,219 S * 10/2020 Xie D24/217
 - 2006/0188389 A1 8/2006 Levy
 - 2008/0295271 A1 12/2008 Perunicic
- (Continued)

FOREIGN PATENT DOCUMENTS

WO 2016196904 A1 12/2016

OTHER PUBLICATIONS

Coxworth, "Human-safe ultraviolet light used to kill airborne viruses"
New Atlas article, Feb. 9, 2018, <https://newatlas.com/far-uv-c-airborne-viruses/53349/>.

(Continued)

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(57) **CLAIM**

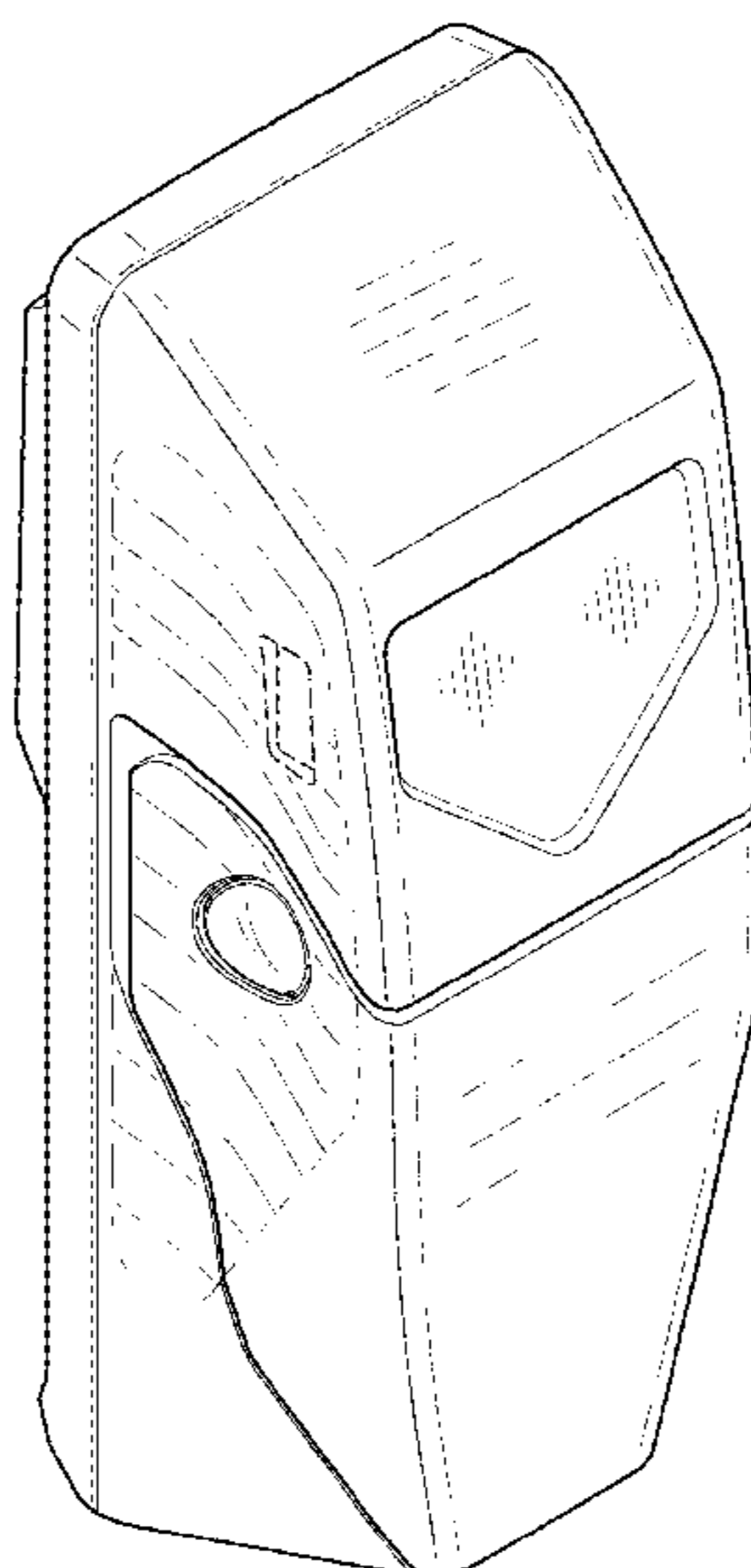
The ornamental design for a handheld ultraviolet sterilization device, as shown and described.

DESCRIPTION

FIG. 1 shows a first perspective view of the handheld ultraviolet sterilization device of the present application; FIG. 2 shows a second perspective view thereof; FIG. 3 shows a top view thereof; FIG. 4 shows a front view thereof; FIG. 5 shows a first side view thereof; FIG. 6 shows a second side view thereof; FIG. 7 shows a back view thereof; and, FIG. 8 shows a bottom view thereof. The broken lines depict a portion of the handheld ultraviolet sterilization device that forms no part of the claimed design.

1 Claim, 5 Drawing Sheets

- (56) **References Cited**
- U.S. PATENT DOCUMENTS
- 6,650,085 B2 11/2003 Lau et al.
- D485,364 S * 1/2004 Lee D24/217
- D627,497 S * 11/2010 Jiang D26/37
- 8,105,532 B2 1/2012 Harmon et al.
- 8,357,914 B1 1/2013 Caldwell
- 8,753,575 B2 6/2014 Neister
- 8,847,174 B2 9/2014 Domenig et al.
- 9,572,903 B2 2/2017 Dobrinsky et al.



(56)

References Cited

U.S. PATENT DOCUMENTS

2008/0310996 A1 12/2008 Kim et al.
2011/0256019 A1 10/2011 Gruen et al.
2012/0112100 A1* 5/2012 Lo A61L 2/10
250/492.1
2016/0106873 A1 4/2016 Dobrinsky et al.
2017/0080251 A1 3/2017 Yehezkel
2017/0157276 A1 6/2017 Dobrinsky et al.
2017/0216466 A1 8/2017 Dujowich et al.
2017/0225206 A1 8/2017 Deitchman et al.
2017/0245616 A1 8/2017 Lakios et al.
2019/0184044 A1* 6/2019 Yellen A61L 2/10
2019/0255201 A1 8/2019 Rosen et al.

OTHER PUBLICATIONS

Welch et al., "Far-UVA-light: A new tool to control the spread of airborne-mediated microbial diseases" Scientific Reports 8, Article No. 2752, Feb. 9, 2018, <https://www.nature.com/articles/s41598-018-21058-w>.

Lapook, "How ultraviolet light could be used to fight the flu" CBS news, Feb. 12, 2018, <https://www.cbsnews.com/news/how-ultraviolet-light-could-be-used-to-fight-the-flu/>.

International Search Report and Written Opinion dated Jun. 20, 2019 for corresponding PCT Application No. PCT/US2019/018517.
Nerandzic et al., "Evaluation of a hand-held far-ultraviolet radiation device for decontamination of Clostridium difficile and other healthcare-associated pathogens" U.S. National Library of Medicine, National Institutes of Health, BMC Infect. Dis. May 16, 2012.

* cited by examiner

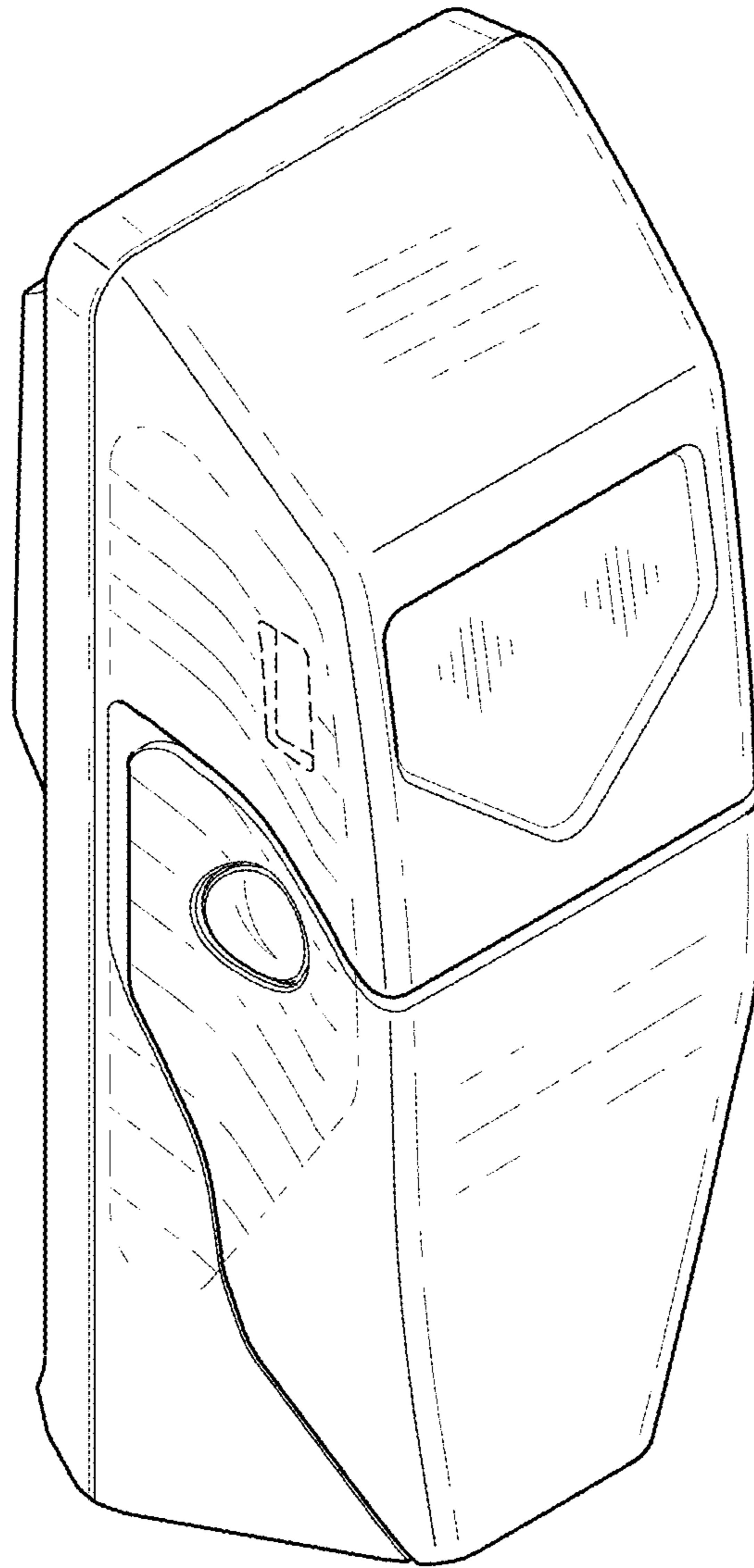


Fig-1

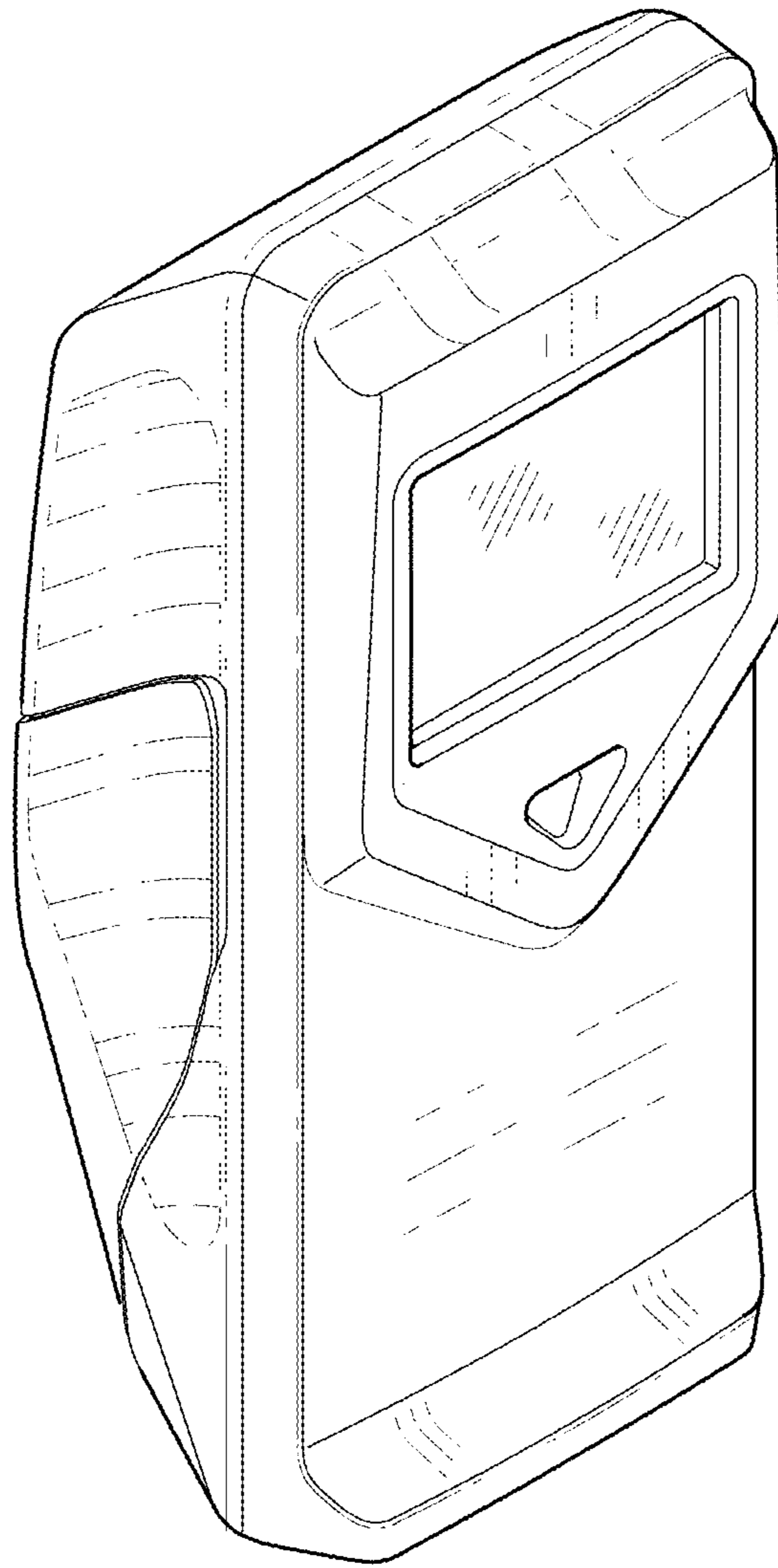


Fig-2

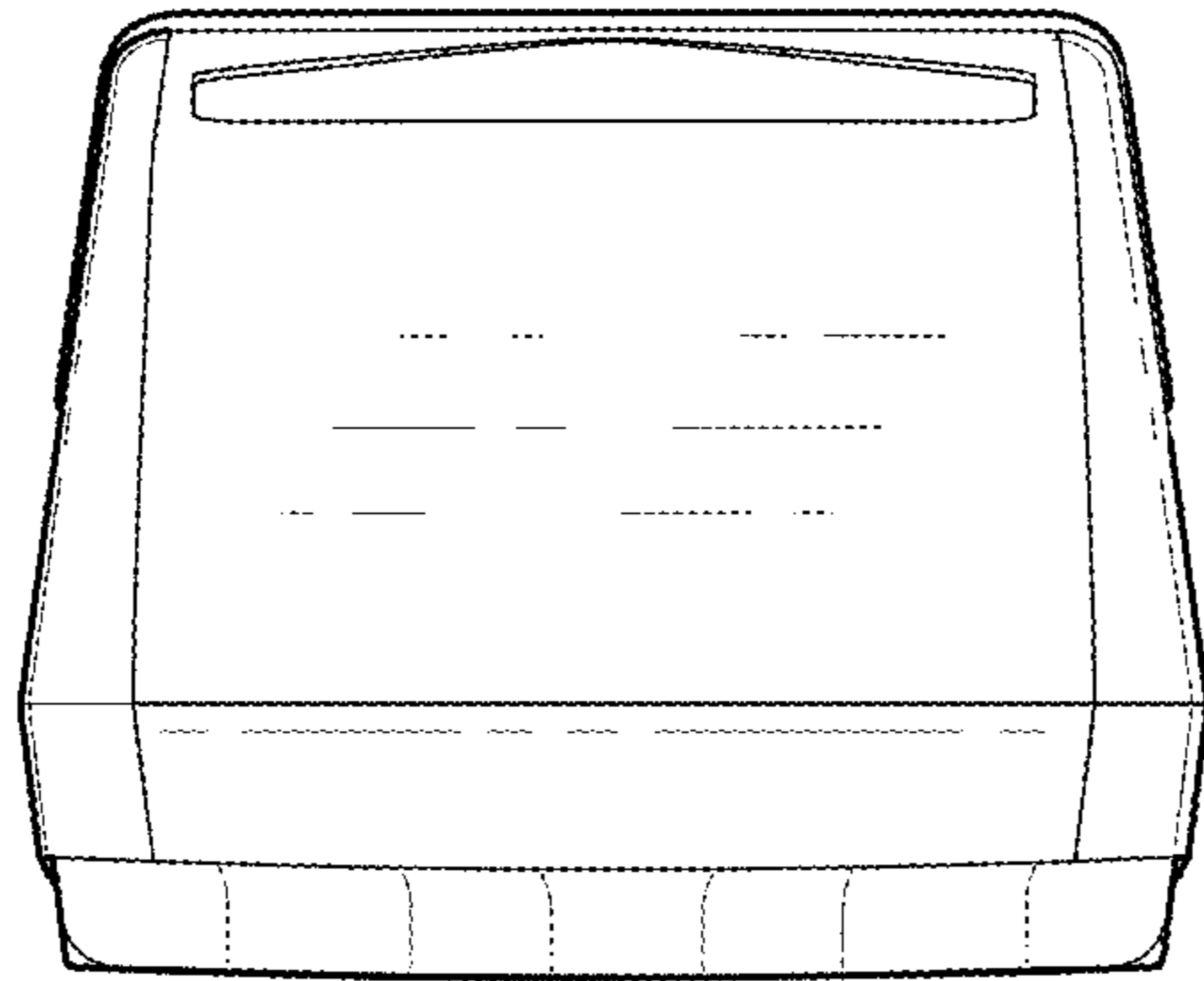


Fig-3

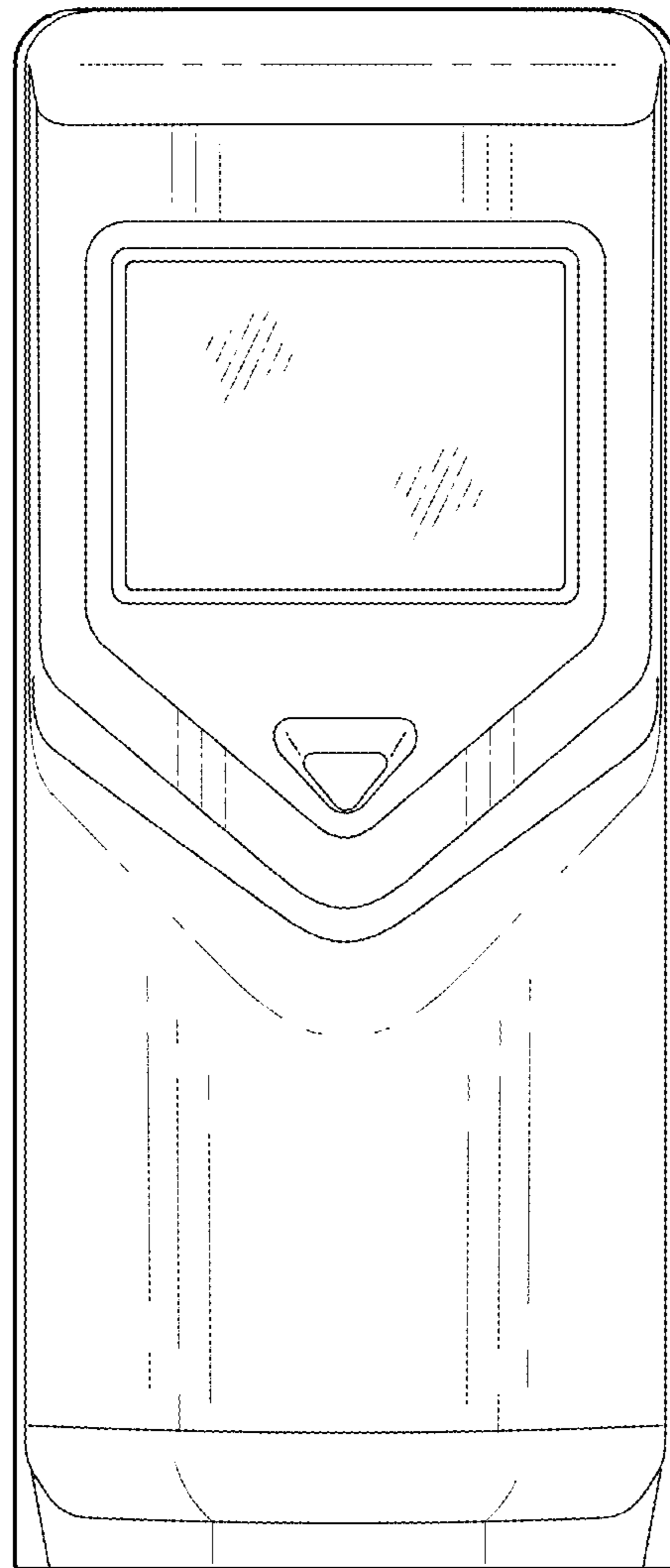


Fig-4

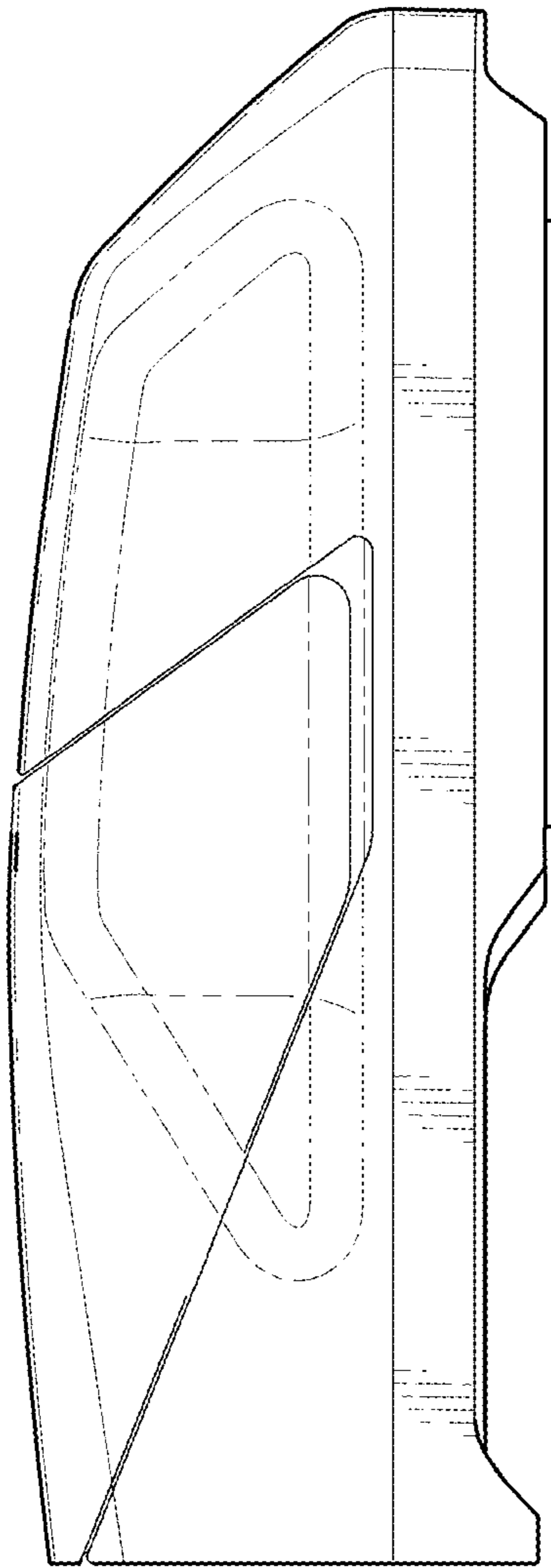


Fig-5

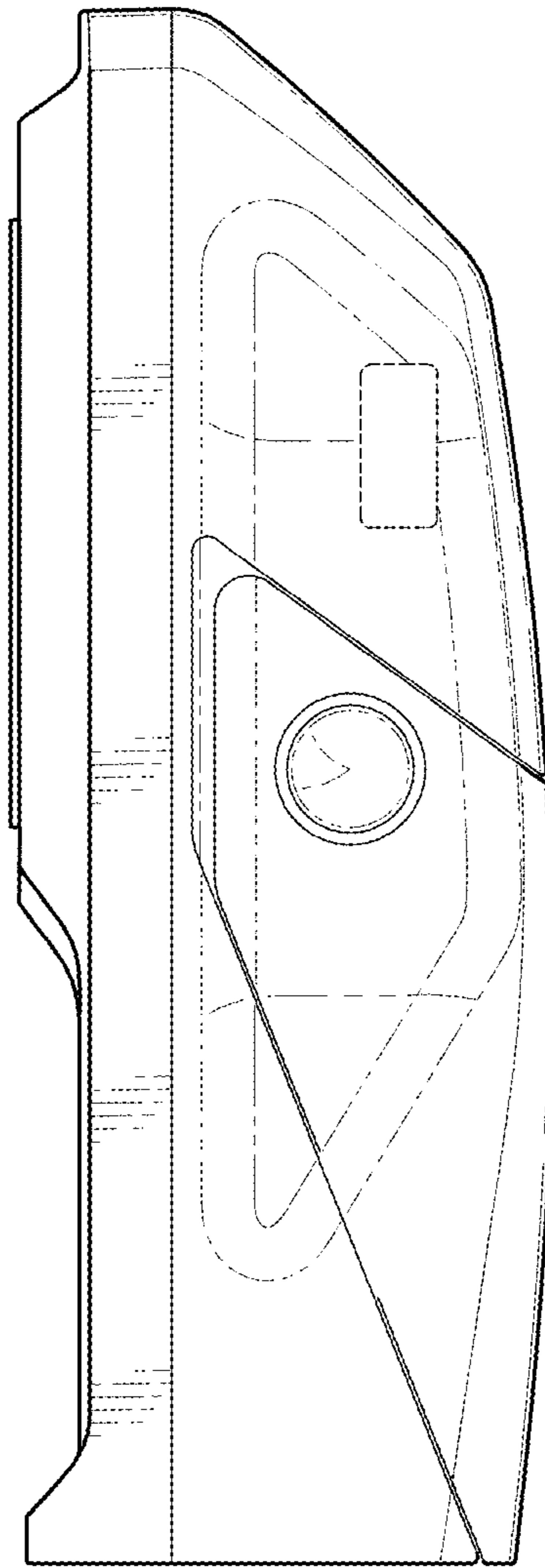


Fig-6

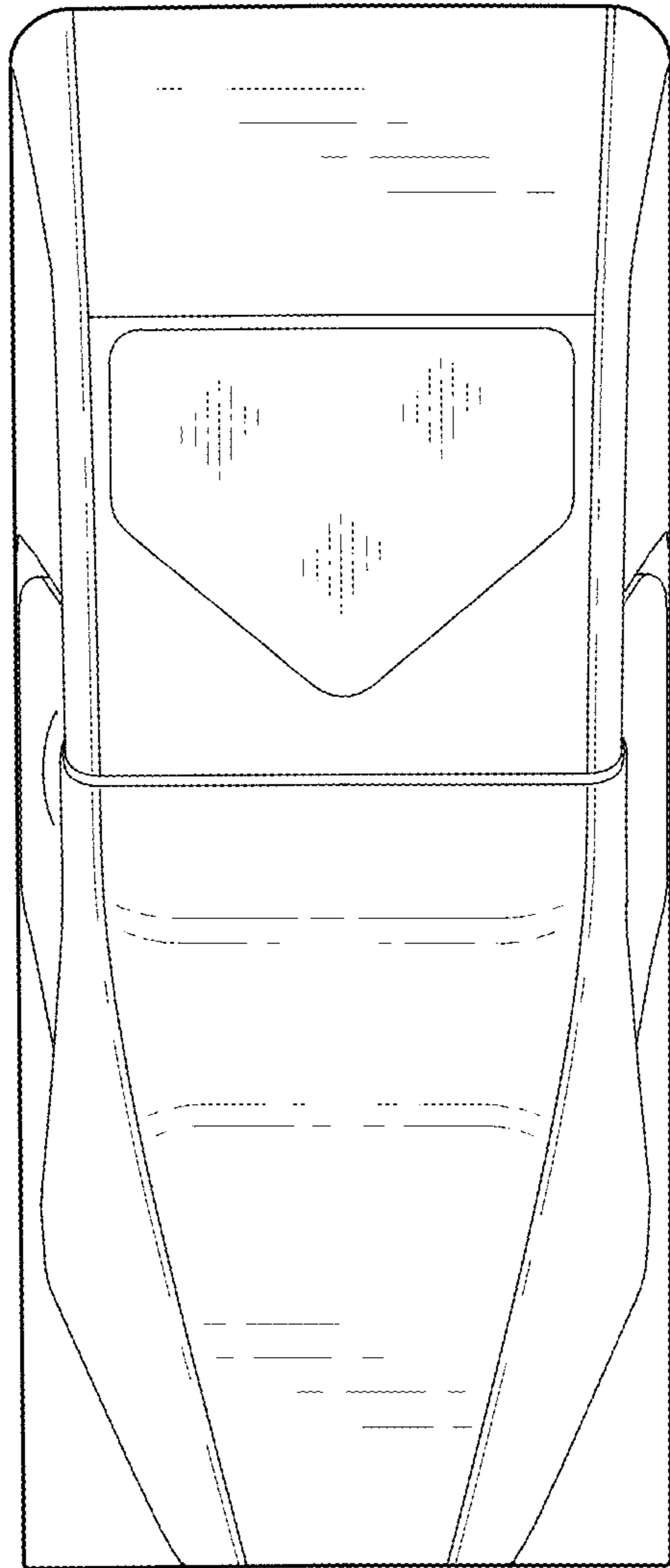


Fig-7

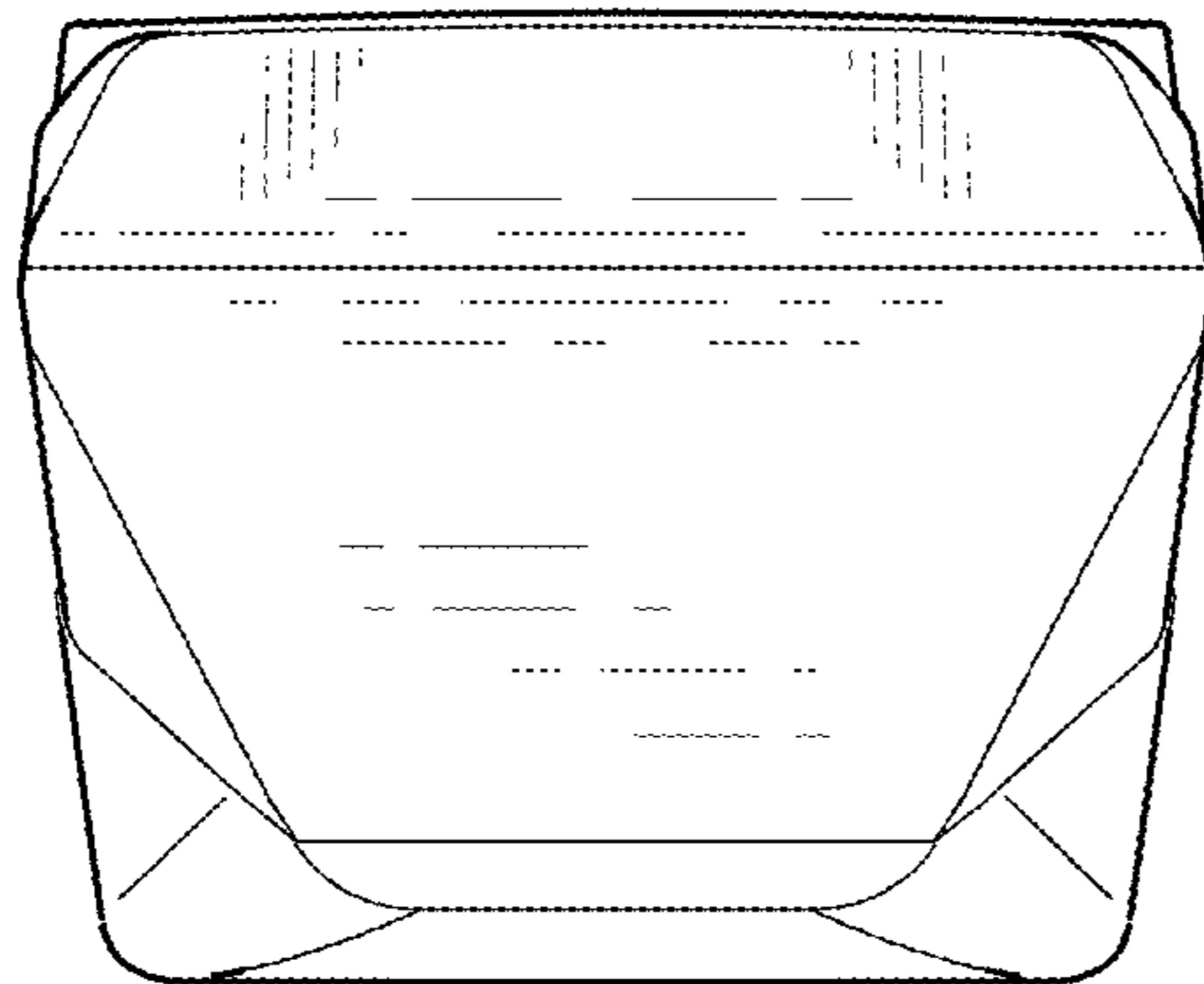


Fig-8