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

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(54) **POWER OPTIMIZER**

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(**) Term: **15 Years**

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(51) **LOC (12) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/102**

(58) **Field of Classification Search**
USPC D13/102, 110, 123, 124
CPC H02S 40/32; H02S 40/34; H02M 3/00;
H02M 3/285; H02M 7/44; H02J 3/381;
H02J 3/383; H02J 3/385; Y02E 10/58
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D506,438 S * 6/2005 Vinciarelli D13/110
7,763,807 B2 * 7/2010 Richter H02G 3/14
174/138 F
D642,515 S * 8/2011 Crawford D13/102
D644,603 S * 9/2011 Liu D13/102
D667,784 S * 9/2012 Choi D13/102
D669,847 S * 10/2012 Jadraque Aznarez D13/102
D669,852 S * 10/2012 Eppinger D13/110
D675,982 S * 2/2013 Kuhn D13/110

D806,028 S * 12/2017 Amasaki D13/110
10,069,457 B2 * 9/2018 Cioffi H02S 40/32
D832,211 S * 10/2018 Ladd D13/110
2009/0084570 A1 * 4/2009 Gherardini H02S 40/34
174/51
2013/0002031 A1 * 1/2013 Mulkey H02J 3/385
307/82
2016/0226252 A1 * 8/2016 Kravtiz H02M 7/003
2017/0040938 A1 * 2/2017 Zhong H01L 31/0201
2017/0063299 A1 * 3/2017 Zhong H02G 3/14
2017/0331415 A1 * 11/2017 Koppi H02S 20/25
2017/0346441 A1 * 11/2017 Lester H02S 40/34

OTHER PUBLICATIONS

Enphase Microinverter; prior to Jan. 8, 2018; 1 pg.; https://www.google.com/search?q=power+optimizer+solar&hl=en&biw=1536&bih=813&source=Int&tbs=cdr%3A1%2Ccd_min%3A%2Ccd_max%3A1%2F8%2F2018&tbm=isch#imgrc=cxw9ZNUI9wdtdM:&spf=1557752311890.*

Innodura, Power optimizers Solaredgerior to Jan. 8, 2018; 1 pg.; https://www.google.com/search?q=power+optimizer+solar&hl=en&biw=1536&bih=813&source=Int&tbs=cdr%3A1%2Ccd_min%3A%2Ccd_max%3A1%2F8%2F2018&tbm=isch#imgrc=EtGqUVo8vP5fQM:&spf=1557752311919.*

* cited by examiner

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(57) **CLAIM**

The ornamental design for a power optimizer, as shown and described.

DESCRIPTION

FIG. 1 is a front view of a power optimizer according to the first embodiment, showing our new design;

FIG. 2 is a rear view thereof;

FIG. 3 is a left view thereof;

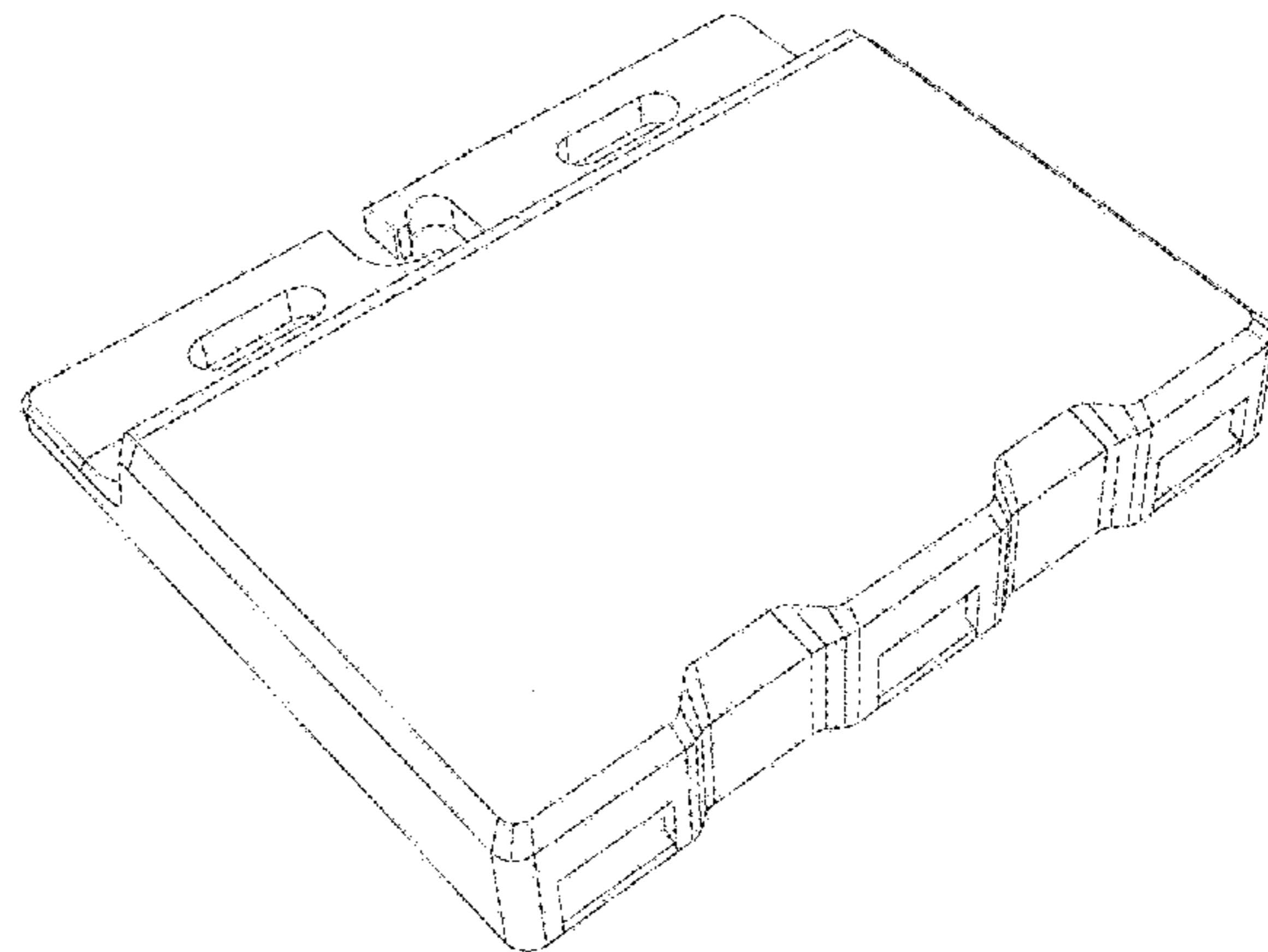
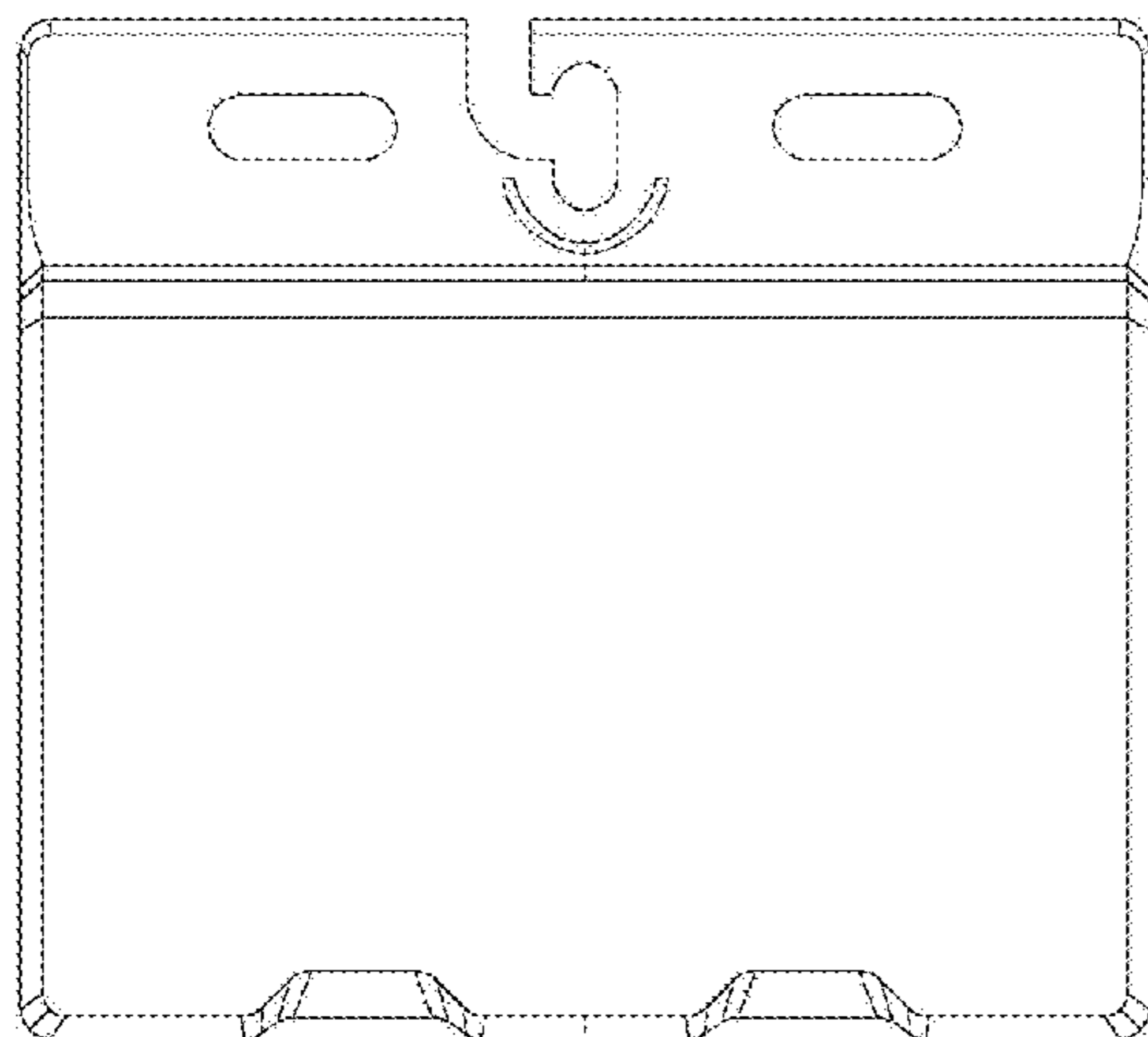
FIG. 4 is a right view thereof;

FIG. 5 is a top view thereof;

FIG. 6 is a bottom view thereof; and,

FIG. 7 is a first perspective view thereof.

1 Claim, 5 Drawing Sheets



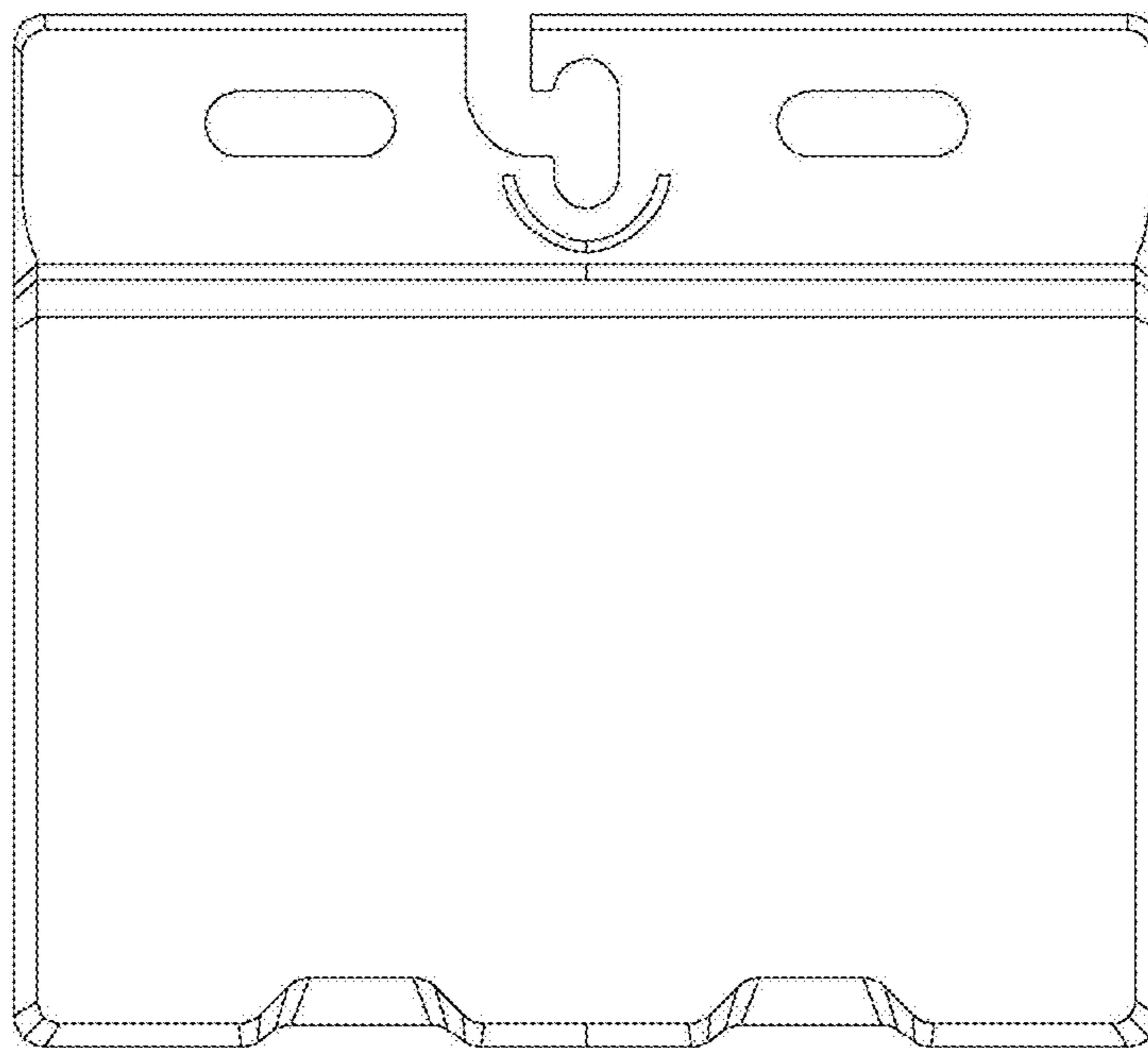


FIG. 1

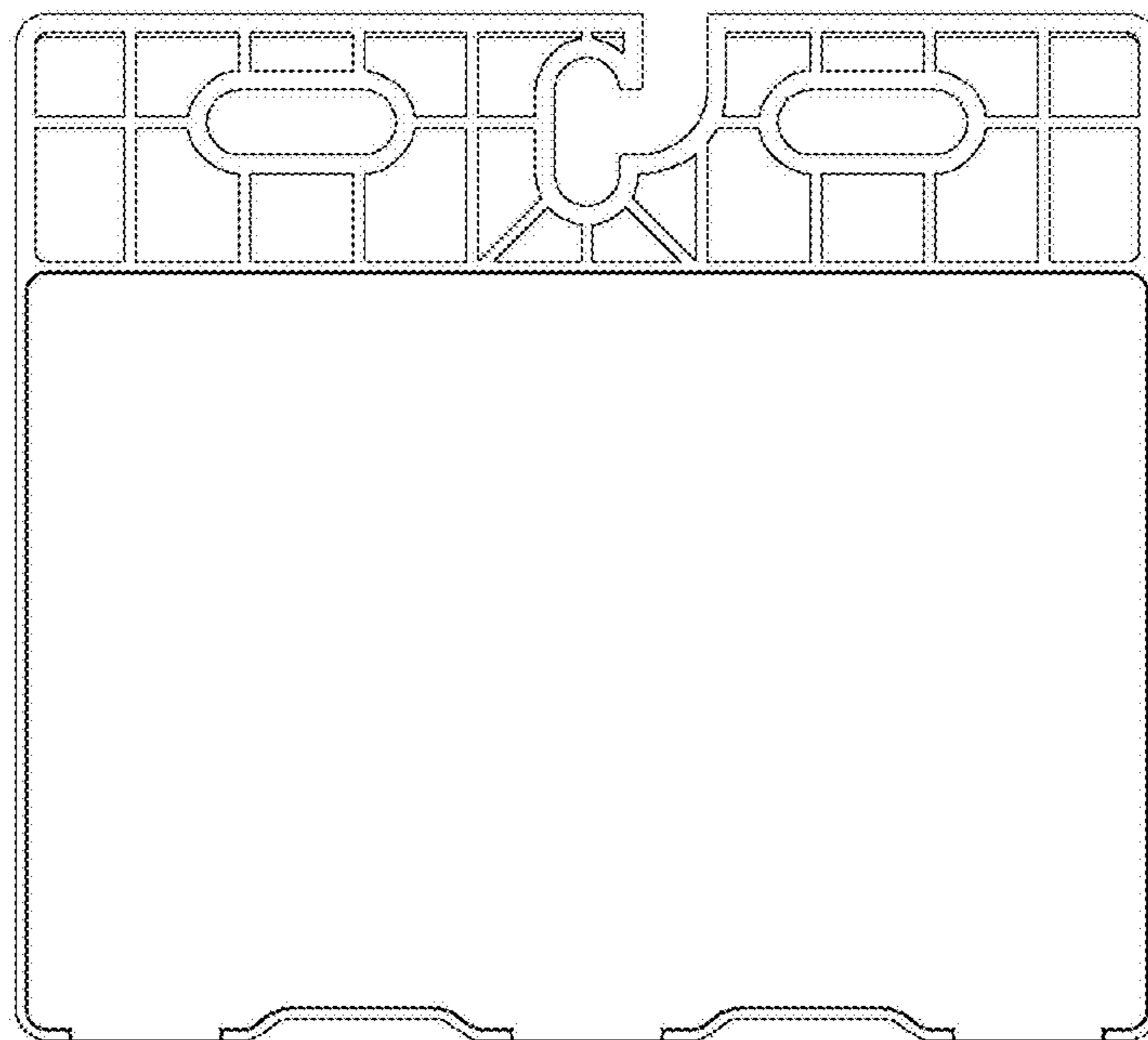


FIG. 2

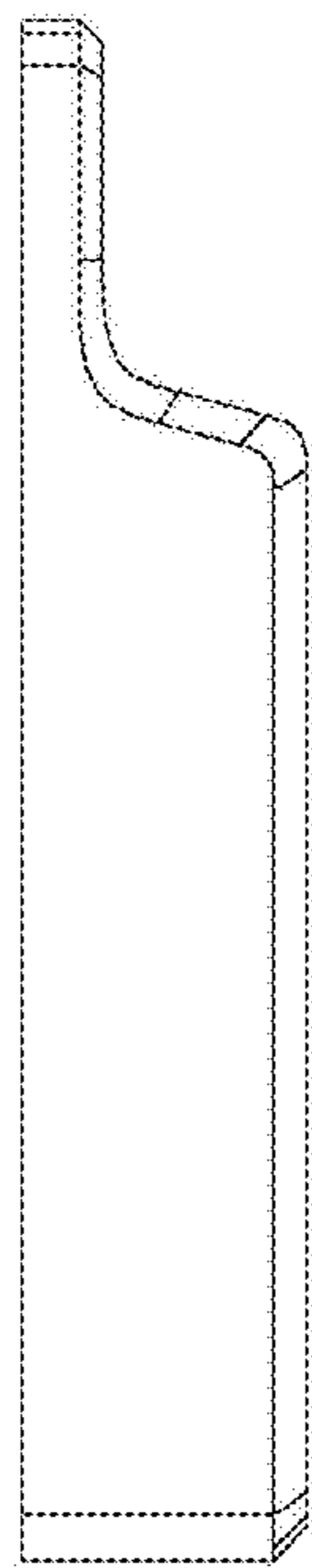


FIG. 3

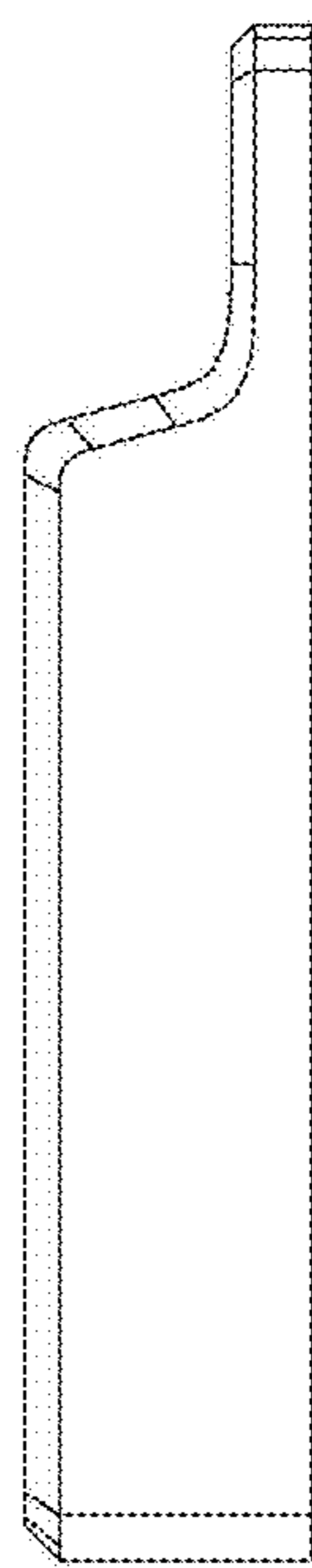


FIG. 4

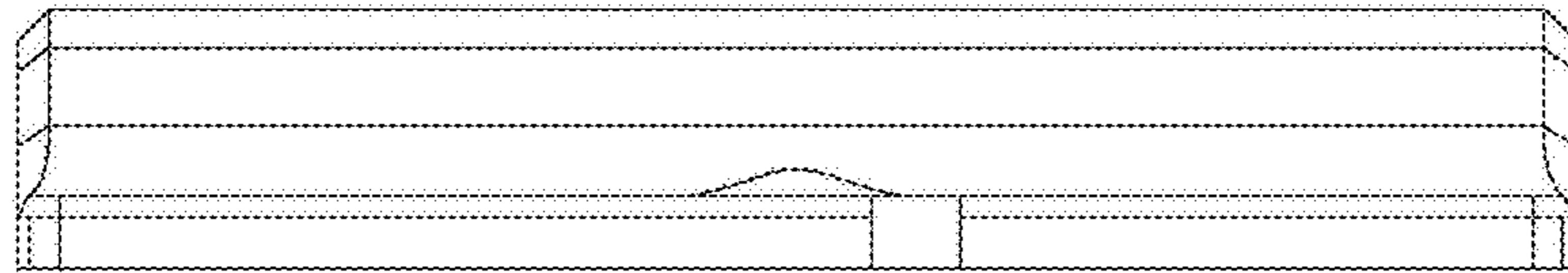


FIG. 5

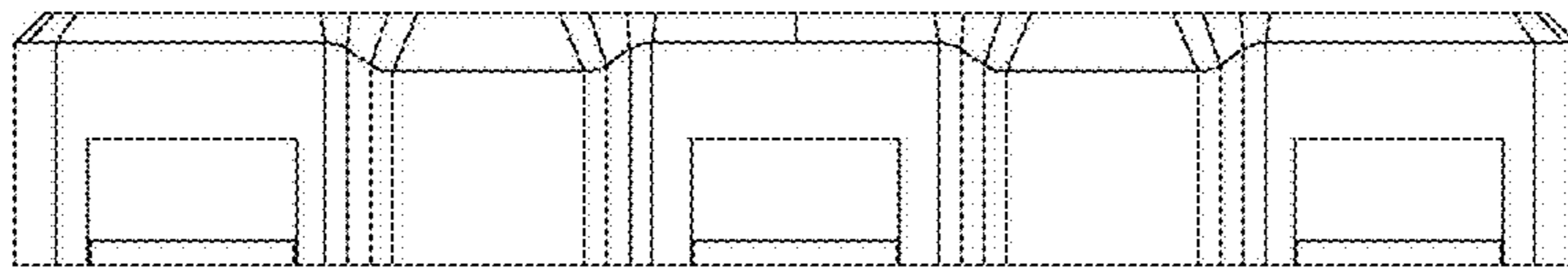


FIG. 6

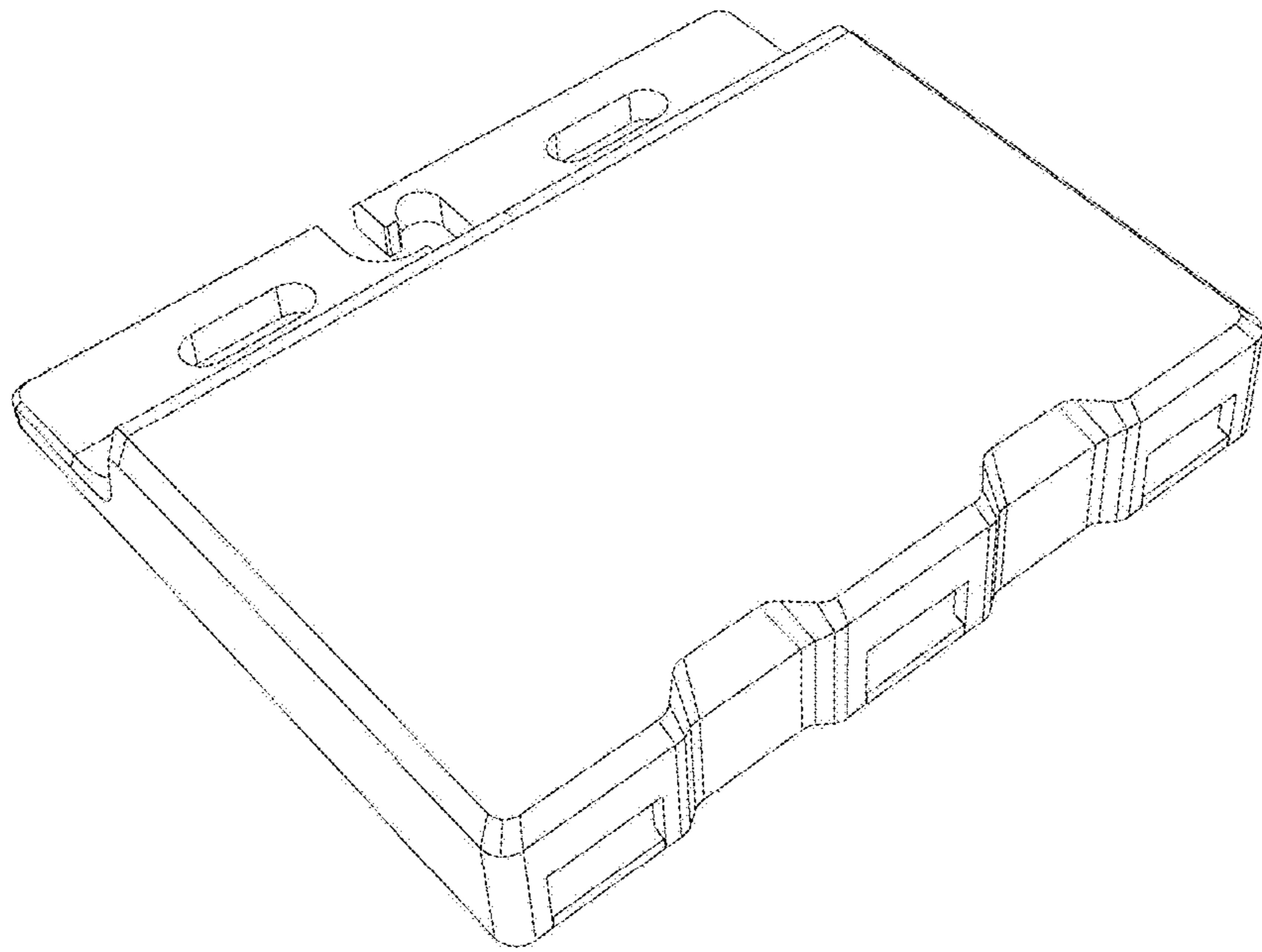


FIG. 7