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(12) **United States Design Patent** (10) **Patent No.:** **US D929,209 S**
Bowron (45) **Date of Patent:** **** Aug. 31, 2021**

(54) **STRUCTURAL MODULAR BUILDING CONNECTOR**

FOREIGN PATENT DOCUMENTS

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CA 2744074 A1 12/2011
CN 2381869 Y 6/2000
(Continued)

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OTHER PUBLICATIONS

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Office Action issued against corresponding Brazilian Patent Application No. BR112018002870-3 dated Aug. 5, 2020 in Portuguese (4 pages).

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

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(21) Appl. No.: **29/685,455**

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Related U.S. Application Data

(62) Division of application No. 29/568,900, filed on Jun. 22, 2016, now Pat. No. Des. 867,108.

(57) **CLAIM**

The ornamental design for a structural modular building connector, as shown and described.

Foreign Application Priority Data

Mar. 18, 2016 (CA) CA 167636

(51) **LOC (13) Cl.** **08-05**

(52) **U.S. Cl.**
USPC **D8/354**

(58) **Field of Classification Search**
USPC D8/48, 71, 315–322, 354–355, 378–381,
D8/400–499; D12/420, 223;
D25/119–125, 199

(Continued)

DESCRIPTION

FIG. 1 is a perspective view of a structural modular building connector;

FIG. 2 is a top view of the structural modular building connector of FIG. 1;

FIG. 3 is a bottom view of the structural modular building connector of FIG. 1;

FIG. 4 is a right side view of the structural modular building connector of FIG. 1;

FIG. 5 is a left side view of the structural modular building connector of FIG. 1;

FIG. 6 is a front view of the structural modular building connector of FIG. 1; and,

FIG. 7 is a back side view of the structural modular building connector of FIG. 1.

The broken lines in the drawings are for the purpose of illustrating portions of the structural modular building connector that form no part of the claimed design.

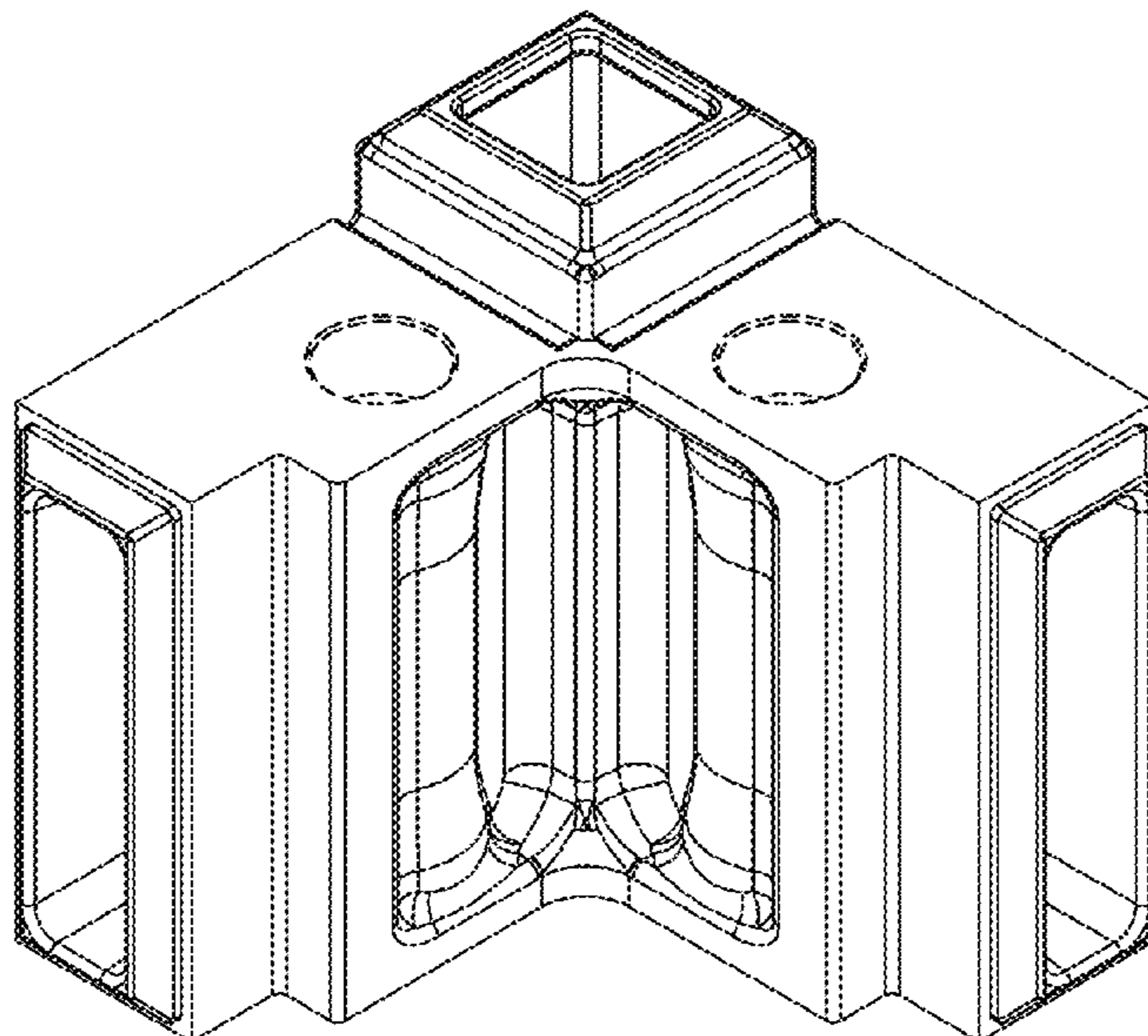
(56) **References Cited**

U.S. PATENT DOCUMENTS

946,423 A 1/1910 Connaty
2,037,736 A 4/1936 Payne et al.

(Continued)

1 Claim, 3 Drawing Sheets



(58) **Field of Classification Search**

CPC F16L 1/00; F16L 9/00; F16L 13/00; B25H
3/04; A61B 1/00; A61B 17/00; A61B
2217/00; A61B 2218/00; H02G 1/00;
H02G 2200/00; A47F 1/00; H02J 1/00

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,205,611	A	9/1965	Onanian	
3,416,270	A	12/1968	McHugh	
3,824,750	A	6/1974	Antoniou	
3,973,855	A	8/1976	Florence	
4,003,144	A	1/1977	Maddestra	
D248,447	S	7/1978	Homung	
D258,194	S	2/1981	Stanley	
4,726,701	A	2/1988	Thomas	
4,758,111	A	7/1988	Vitta	
5,127,759	A	7/1992	Orbom	
5,259,685	A	10/1993	Wolf	
D357,544	S	4/1995	Spransy	
5,414,918	A	5/1995	Pearson	
5,440,544	A	8/1995	Zinser, Jr.	
5,516,225	A	5/1996	Kvols	
5,590,974	A	1/1997	Yang	
5,605,410	A	2/1997	Pantev	
5,727,358	A	3/1998	Hayashi et al.	
5,816,011	A	10/1998	Kuramoto	
5,820,289	A	10/1998	Kern et al.	
5,904,437	A	5/1999	Allen	
5,921,049	A	7/1999	Sugiyama	
6,062,761	A	5/2000	Allen	
6,092,849	A	7/2000	Zambelli et al.	
6,247,869	B1	6/2001	Lichvar	
6,332,657	B1	12/2001	Fischer	
6,334,286	B1	1/2002	Zambelli et al.	
6,390,719	B1	5/2002	Chan	
6,974,276	B2	12/2005	Kirchner et al.	
7,503,623	B2	3/2009	Favaretto	
D622,865	S	8/2010	Bajrami	
7,882,388	B2	2/2011	Bramante	
7,883,288	B2	2/2011	Jorna	
7,941,985	B2	5/2011	Simmons	
8,176,703	B2	5/2012	Tremacchi	
9,121,433	B1	9/2015	Bacon	
D756,202	S	5/2016	Leduc	
9,334,642	B1	5/2016	Tanaka et al.	
D763,670	S *	8/2016	Monsees D8/382	
9,458,619	B2	10/2016	Bowron	
D783,390	S *	4/2017	Nelson D8/349	
D801,795	S *	11/2017	Huang D8/382	
9,845,595	B2 *	12/2017	Bowron E04B 1/3483	
10,036,156	B1	7/2018	Macdonald et al.	
10,450,737	B2	10/2019	Bowron	
D867,108	S *	11/2019	Bowron D8/354	
2002/0007614	A1	1/2002	Katayama et al.	
2005/0034390	A1	2/2005	Dubensky et al.	
2006/0112657	A1	6/2006	Abbott-Wilcox	
2009/0087255	A1	4/2009	Jorna	
2009/0307994	A1	12/2009	Cathcart et al.	
2011/0219708	A1	9/2011	Ohnishi et al.	
2011/0286121	A1	11/2011	Werner et al.	
2011/0308063	A1	12/2011	Feeleus	
2013/0045042	A1	2/2013	Ohlson	
2013/0306808	A1	11/2013	Huang	
2014/0286695	A1	9/2014	Jocham et al.	
2014/0294500	A1	10/2014	Schaff et al.	
2015/0184369	A1	7/2015	Carless	
2016/0002909	A1	1/2016	Bowron	
2017/0002559	A1	1/2017	Bowron et al.	
2017/0044753	A1	2/2017	Bowron	
2018/0135295	A1	5/2018	Bowron	
2018/0216336	A1	8/2018	Macdonald et al.	
2019/0078321	A1	3/2019	Bowron	
2019/0330838	A1	10/2019	Bowron	

FOREIGN PATENT DOCUMENTS

CN	101575876	A	11/2009
CN	101680227	A	3/2010
CN	101769008	A	7/2010
CN	202559534	U	11/2012
CN	202672346	U	1/2013
CN	203834666	U	9/2014
DE	249 688	A1	9/1987
DE	195 17 785	A1	11/1996
DE	697 04 916	T2	11/2001
EP	0761895	A1	3/1997
EP	1683923	A2	7/2006
EP	2759648	A1	7/2014
GB	2300432	A	11/1996
GB	2554967	A	4/2018
JP	S52-094009	U	7/1977
JP	S62-031604	U	2/1987
JP	S63-179306	U	11/1988
JP	H03-066303	U	6/1991
JP	H03-224926	A	10/1991
JP	H03233042	A	10/1991
JP	03267431	A	11/1991
JP	H04261733	A	9/1992
JP	H0642060	A	2/1994
JP	H07180221	A	7/1995
JP	H07180228	A	7/1995
JP	3014203	U	8/1995
JP	H07243239	A	9/1995
JP	H09194179	A	7/1997
JP	H09-278352	A	10/1997
JP	H10245929	A	9/1998
JP	10331267	A	12/1998
JP	H10331267	A	12/1998
JP	2003293458	A	10/2003
JP	2004270438	A	9/2004
JP	2005139623	A	6/2005
JP	2006063787	A	3/2006
JP	2009024419	A	2/2009
JP	2013167131	A	8/2013
JP	2013245501	A	12/2013
KR	100923637	B1	10/2009
KR	20110053101	A	5/2011
KR	10-1233559	B1	2/2013
KR	101676411	B1	11/2016
TW	294752	B	1/1997
WO	9836134	A1	8/1998
WO	03069083	A1	8/2003
WO	2004035952	A1	4/2004
WO	2006096997	A1	9/2006
WO	2006122372	A1	11/2006
WO	2007144913	A1	12/2007
WO	2010035816	A1	4/2010
WO	2012083391	A1	6/2012
WO	2012129601	A1	10/2012
WO	2014127472	A1	8/2014
WO	2015164975	A1	11/2015
WO	2016165022	A1	10/2016
WO	2017027965	A1	2/2017
WO	2018132921	A1	7/2018

OTHER PUBLICATIONS

Office Action issued against corresponding Chinese Patent Application No. 2016800526457 dated Jun. 9, 2020 in Chinese and English (8 pages).

Office Action issued against corresponding Japanese Patent Application No. 2018-526978 dated Aug. 21, 2020 in Japanese and English (14 pages).

International Search Report for International Application No. PCT/CA2018/050065 dated Apr. 16, 2018, 4 pages.

Written Opinion of the International Searching Authority for PCT/CA2018/050065 dated Apr. 16, 2018, 5 pages.

International Search Report for International Application No. PCT/CA2016/050434 dated Jun. 23, 2016.

Written Opinion of the International Searching Authority for International Application No. PCT/CA2014/050110 dated May 5, 2014.

(56)

References Cited

OTHER PUBLICATIONS

Extended European Search Report issued against International Application No. PCT/CA2016050954 dated Feb. 14, 2019.

Extended European Search Report issued against International Application No. PCT/CA2014050110 dated Jan. 20, 2017.

Office Action issued against corresponding Japanese Application 2017-508717 dated Feb. 26, 2019.

First Office Action and Search Report for corresponding Chinese Patent Application No. 201680027827.9 dated Apr. 15, 2019.

Written Opinion of the International Searching Authority for PCT/CA2016050434 dated Jun. 23, 2016.

Written Opinion of the International Searching Authority for PCT/CA2015050369 dated Jul. 14, 2015.

First Examination Report issued against corresponding Australian Patent Application No. 2016247454 dated May 20, 2020 in English (8 pages).

Second Examination Report issued against corresponding Australian Patent Application No. 2016247454 dated Jun. 23, 2020 in English (9 pages).

Chinese Office Action dated Jun. 19, 2018.

Office Action issued against corresponding Japanese Patent Application No. JP2015-558313 dated Mar. 6, 2018.

Extended European Search Report issued against corresponding International Application PCT/CA2015050369 dated Nov. 20, 2017.

Information on Search Strategy.

Office Action issued against corresponding Chinese Application No. 201480022662.7 dated Jul. 18, 2017.

Written Opinion issued by the Canadian Intellectual Property Office for International Application No. PCT/CA2016/050954 dated Oct. 14, 2016, 8 pages.

International Search Report for International Application No. PCT/CA2016/050954 dated Oct. 14, 2016, 5 pages.

Written Opinion issued by the Intellectual Property Office of Singapore for International Application No. PCT/CA2014/050110 dated May 2, 2016, 5 pages.

PCT International Search Report for International Application No. PCT/CA2014/050110 dated May 5, 2014, 4 pages.

English translation of Office Action issued against corresponding Japanese patent application 2018-218118, dated Dec. 17, 2019.

Substantive Examination Report issued by the Intellectual Property Corporation of Malaysia against corresponding Malaysian patent application PI 2016001907, dated Jan. 16, 2020.

Examination Report issued by Intellectual Property India against corresponding Indian patent application 201617036767, dated Feb. 21, 2020.

English translation of First Office Action issued against corresponding Japanese patent application 2017-508717, dated Dec. 24, 2019.

Form 2906 issued by EPO against corresponding EPO patent application 14 754 894.5, dated Nov. 25, 2019 (in English).

Office Action issued against corresponding Brazilian Patent Application No. BR112015020099 dated Jun. 2, 2020 in Portuguese (4 pages).

Office Action issued against corresponding Chinese Patent Application No. 201680052645.7 dated Feb. 2, 2021 with English translation (5 pages).

Office Action issued against corresponding Australian Patent Application No. 2016308775 dated Feb. 25, 2021 in English (2 pages).

IPOS Written Opinion issued against corresponding Singaporean Patent Application No. 11201906602S dated Sep. 4, 2020 in English (7 pages).

Office Action issued against corresponding Chinese Patent Application No. 201880013277.4 dated Oct. 27, 2020 in Chinese (13 pages).

Certificate of Grant issued for corresponding Australian Patent Application No. 2018204197 dated Nov. 12, 2020 in English (1 page).

Office Action issued against corresponding Indian Patent Application No. 8541/DELNP/2015 dated Nov. 18, 2020 with English translation (6 pages).

Certificate of Patent issued for corresponding Japanese Patent Application No. 2018-218118 with English translation (10 pages).

Notice of Allowance issued for corresponding Mexican Patent Application No. MX/a/2015/010800 dated Jul. 27, 2020 with English translation (2 pages).

Notice of Allowance issued for corresponding South Korean Patent Application No. 10-2015-7026049 dated Nov. 20, 2020 with English translation (7 pages).

Office Action issued against corresponding Chinese Patent Application No. 201810153991.5 dated Aug. 31, 2020 with English translation (6 pages).

Office Action issued against corresponding Canadian Patent Application No. 2,901,755 dated Oct. 30, 2020 in English (4 pages).

Substantive Examination Clear Report issued against corresponding Malaysian Patent Application No. PI 2015002061 dated Nov. 12, 2020 in English (1 page).

Written Opinion and Search Report issued against corresponding Singaporean Patent Application No. 10201610543Q dated Sep. 8, 2020 in English (10 pages).

Search Report issued against corresponding Brazilian Patent Application No. BR112016025375-2 dated Jul. 12, 2020 with English machine translation (11 pages).

Search Report issued against corresponding Chinese Patent Application No. 2019104842745 dated Oct. 27, 2020 with English translation (11 pages).

Communication under Rule 71(3) EPC issued for corresponding European Patent Application No. 15 785 510.7 dated Aug. 3, 2020 in English (6 pages).

Office Action issued against corresponding Indonesian Patent Application No. P00201607453 dated Apr. 30, 2020 with English machine translation (4 pages).

Office Action issued against corresponding Indonesian Patent Application No. P00201607453 dated Aug. 24, 2020 with English machine translation (4 pages).

Office Action issued against corresponding Japanese Patent Application No. 2017-508717 dated Nov. 24, 2020 with English machine translation (9 pages).

Office Action issued against corresponding Mexican Patent Application No. MX/a/2016/014274 dated Aug. 26, 2020 with English machine translation (6 pages).

Office Action issued against corresponding Indian Patent Application No. 201817005845 dated Sep. 14, 2020 with English translation (6 pages).

Certificate of Grant issued by IPOS for Singaporean Patent Application No. 11201801190R dated Oct. 14, 2020, in English (3 pages).

Office Action issued against corresponding Chinese Patent Application No. 201880013277.4 dated Oct. 27, 2020 with English translation (42 pages).

International Preliminary Report on Patentability issued for corresponding International Application No. PCT/CA2019/050960 dated Jan. 12, 2021 (4 pages).

Office Action issued against corresponding Indonesian Patent Application No. P00201904813 dated Sep. 14, 2020; English translation submitted herewith (4 pages).

Office Action issued against corresponding Japanese Patent Application No. 2018-505507 dated Nov. 17, 2020 with English translation (6 pages).

Office Action issued against corresponding JP Patent Application No. 2018-526978 dated Apr. 22, 2021 with English translation (6 pages).

Office Action issued against corresponding EP Patent Application No. 14 754 894.5 dated Apr. 16, 2021 in English (5 pages).

Extended European Search Report issued against corresponding EP Patent Application No. 21152108.3 dated May 1, 2021 in English (7 pages).

Office Action issued against corresponding South Korean Patent Application No. 10-2016-7033280 dated Apr. 26, 2021 in English and Korean (23 pages).

Certificate of Grant issued for corresponding Malaysian Patent Application No. 2016001907 dated Oct. 27, 2020 in English (5 pages).

(56)

References Cited

OTHER PUBLICATIONS

Office Action issued against corresponding CN Patent Application No. 201880013277.4 dated May 27, 2021 with English translation (26 pages).

Office Action issued against corresponding IN Patent Application No. 201917030094 dated May 19, 2021 with English translation (7 pages).

Office Action issued against corresponding MX Patent Application No. MX/a/2017/013296 dated May 17, 2021 with English translation (10 pages).

Office Action issued against corresponding JP Patent Application 2018-505507 dated Jun. 14, 2021 with English translation (6 pages).

Notice of Grant of Patent issued for corresponding Chinese Patent Application No. 201810153991.5 dated Mar. 30, 2021 with English translation (4 pages).

Office Action issued against corresponding South Korean Patent Application No. 10-2021-7005101 dated Apr. 28, 2021 with English translation (7 pages).

* cited by examiner

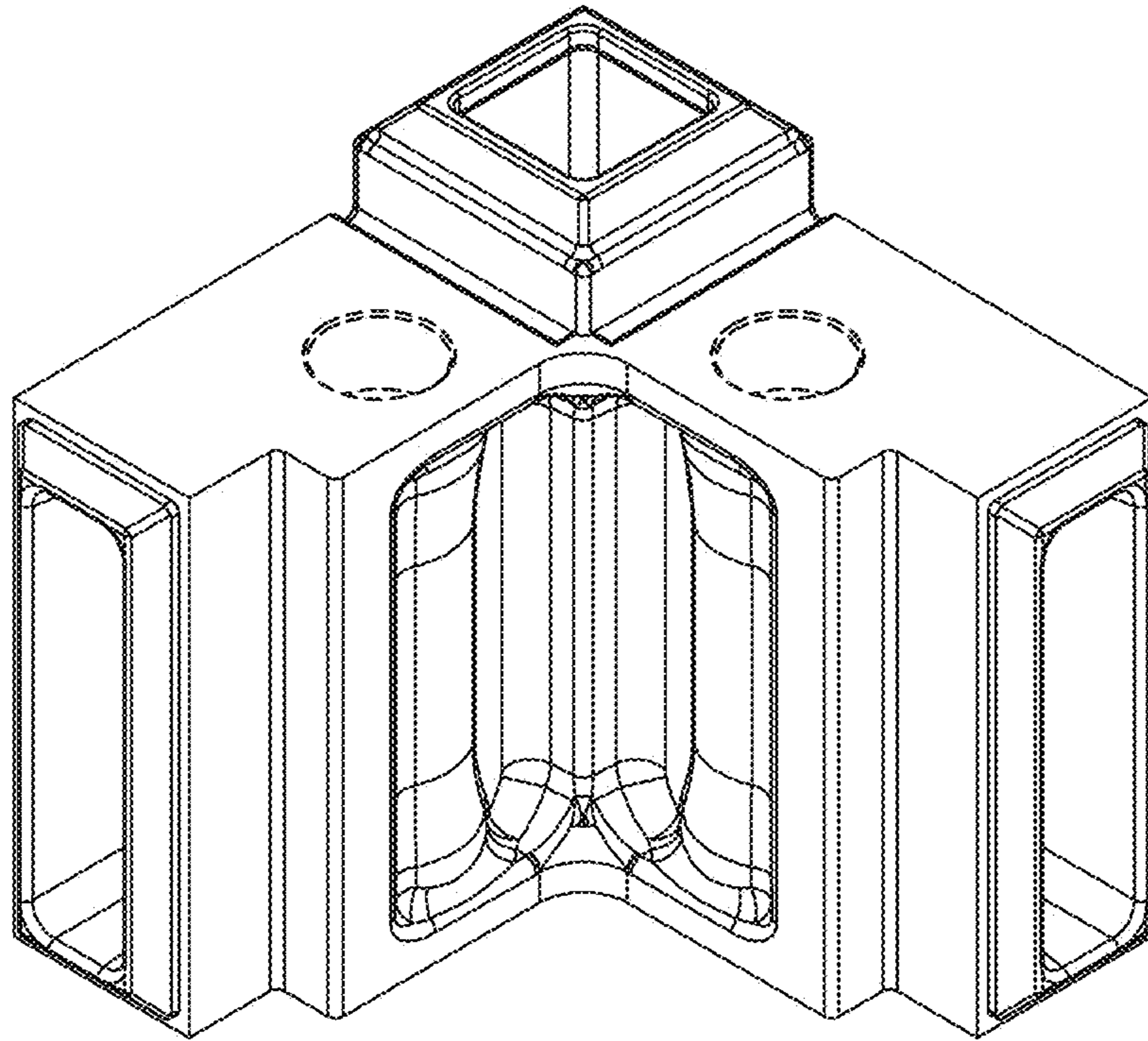


FIG. 1

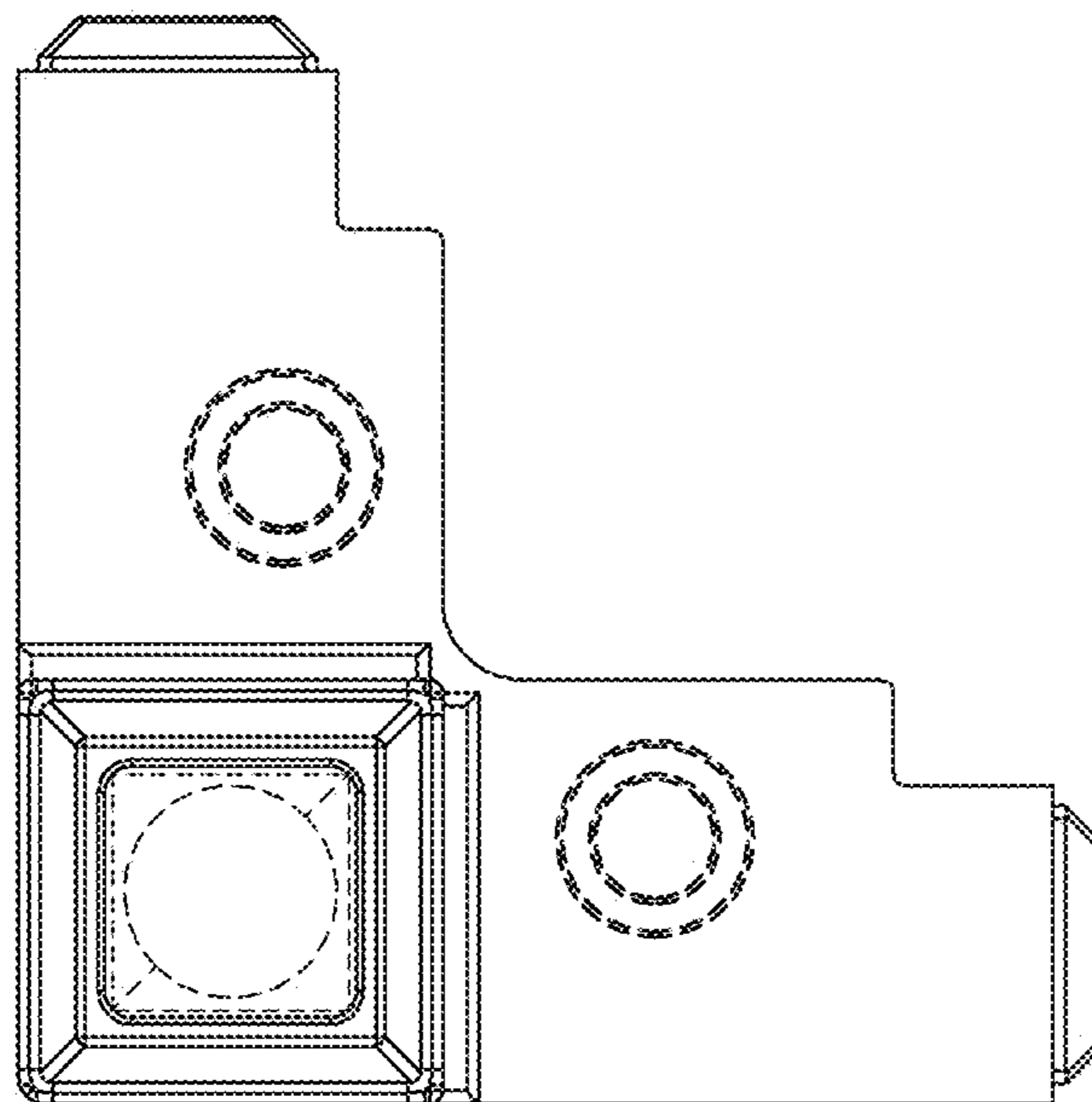


FIG. 2

FIG. 3

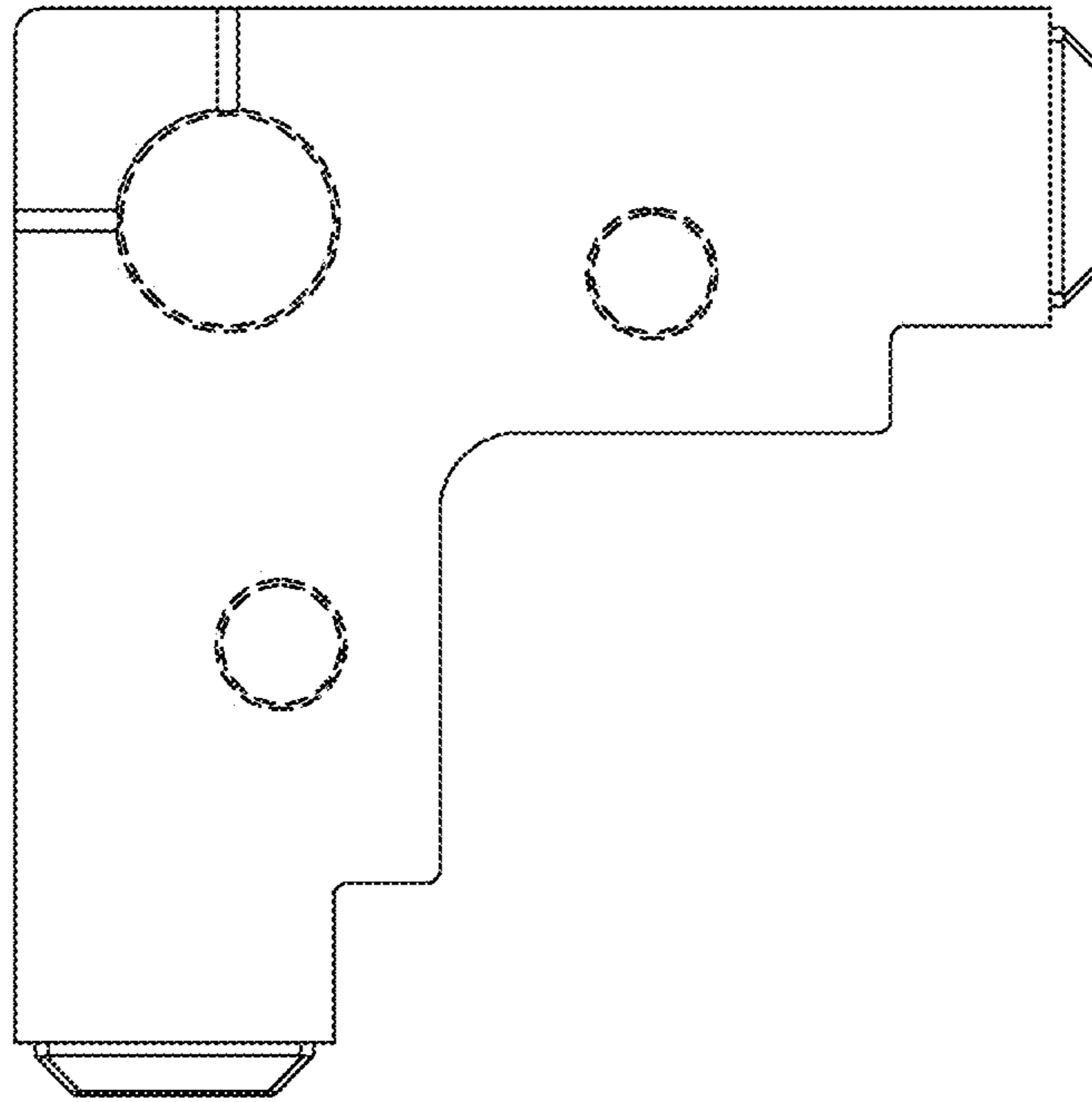


FIG. 4

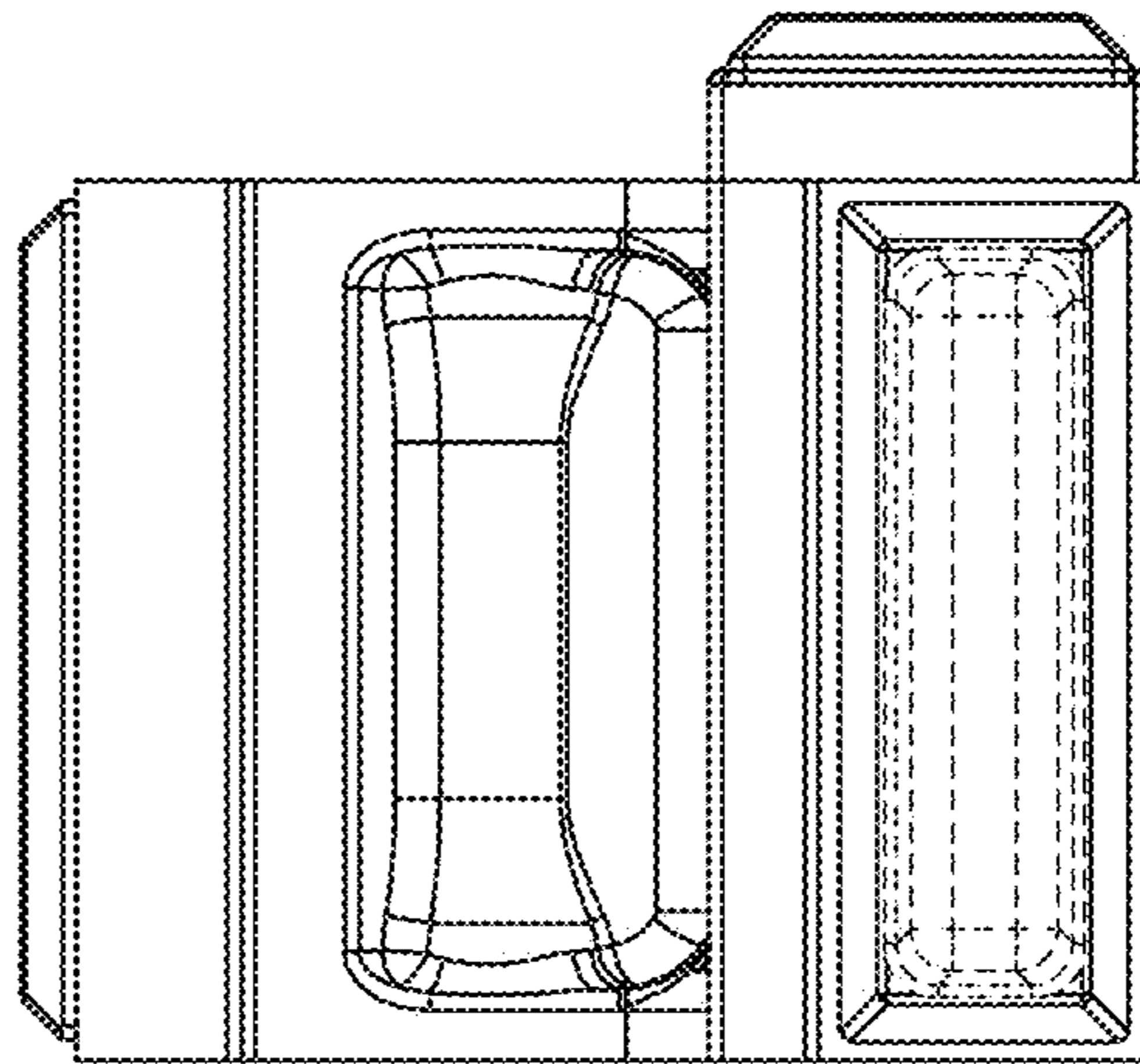
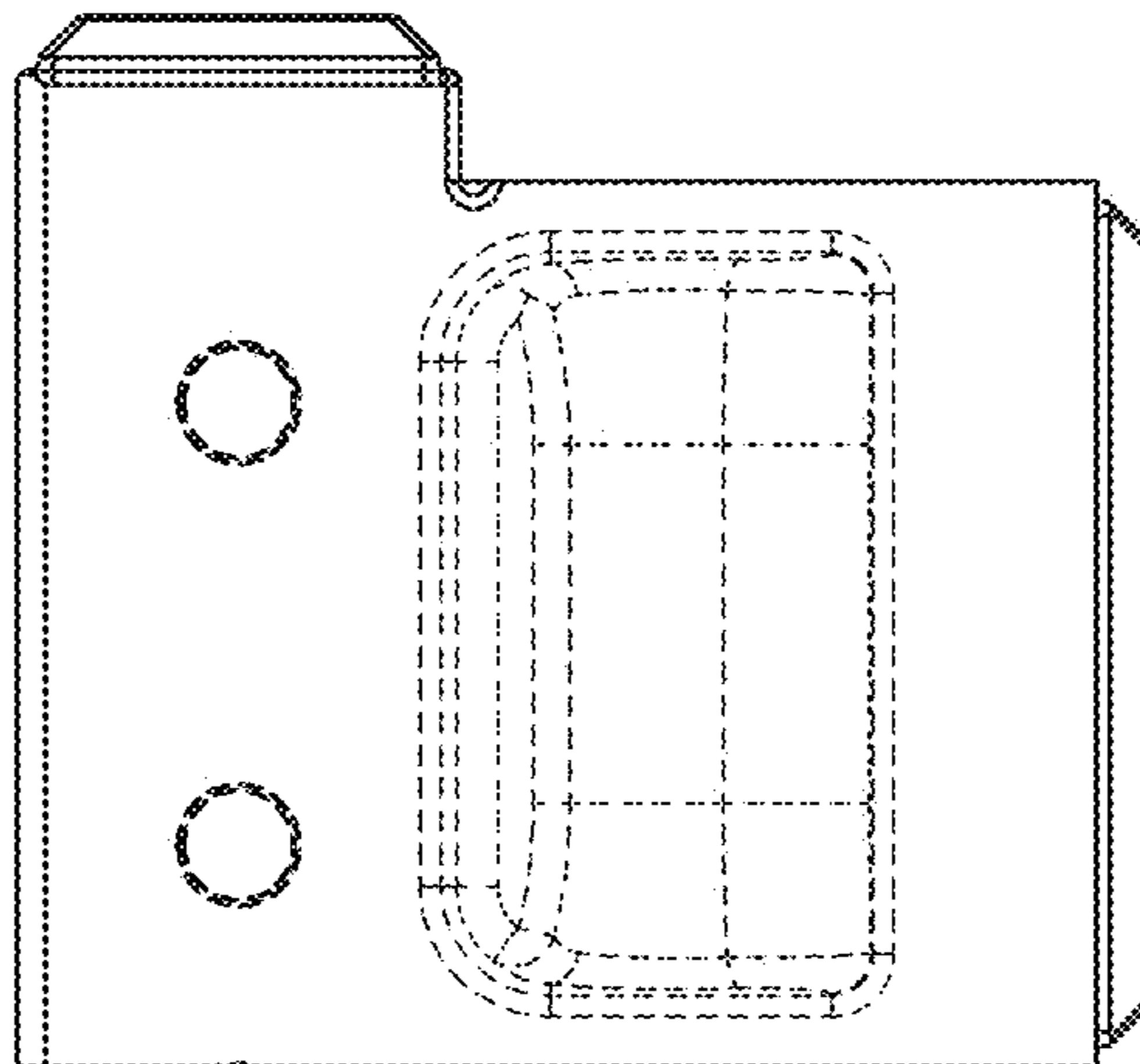


FIG. 5



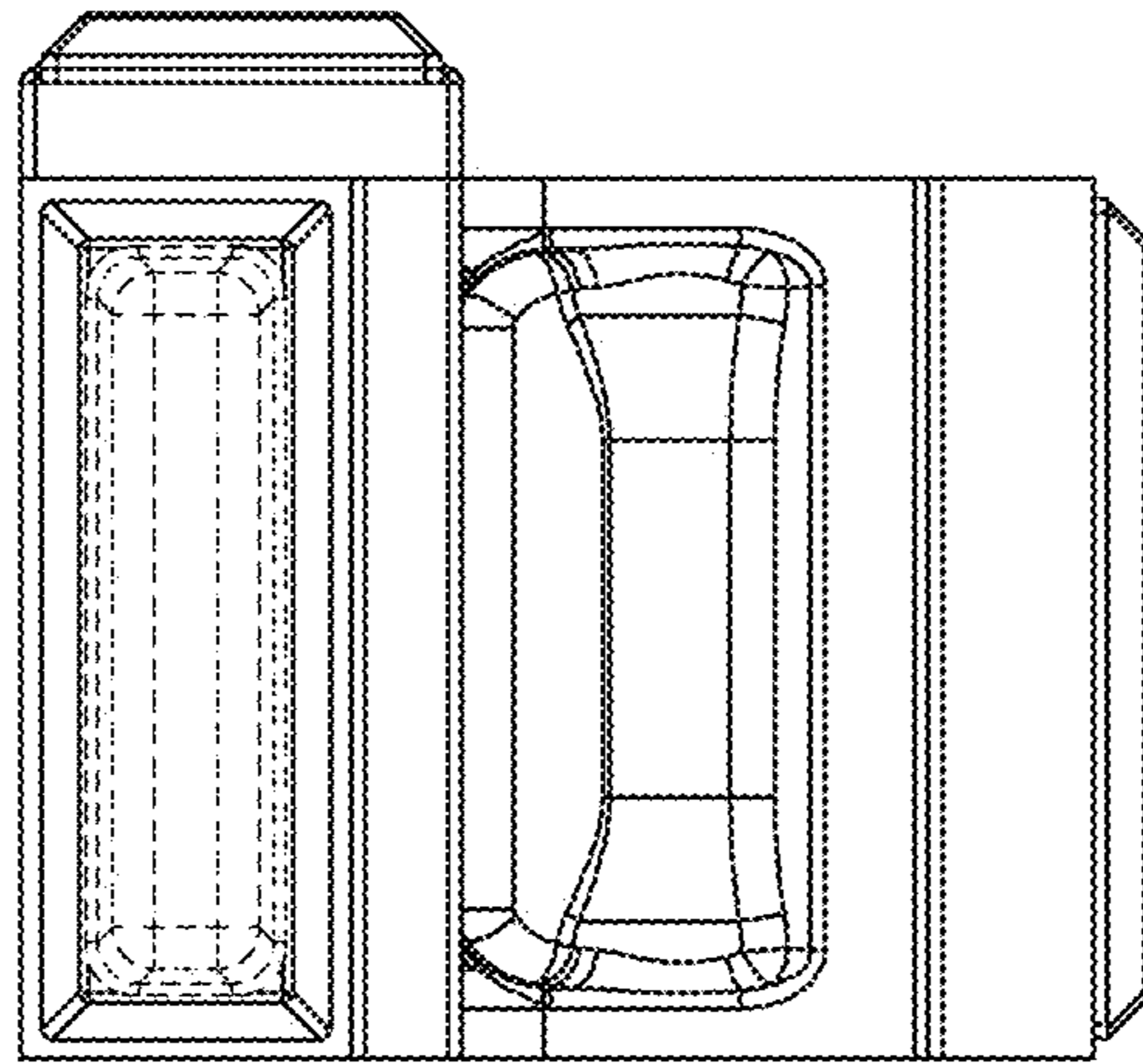


FIG. 6

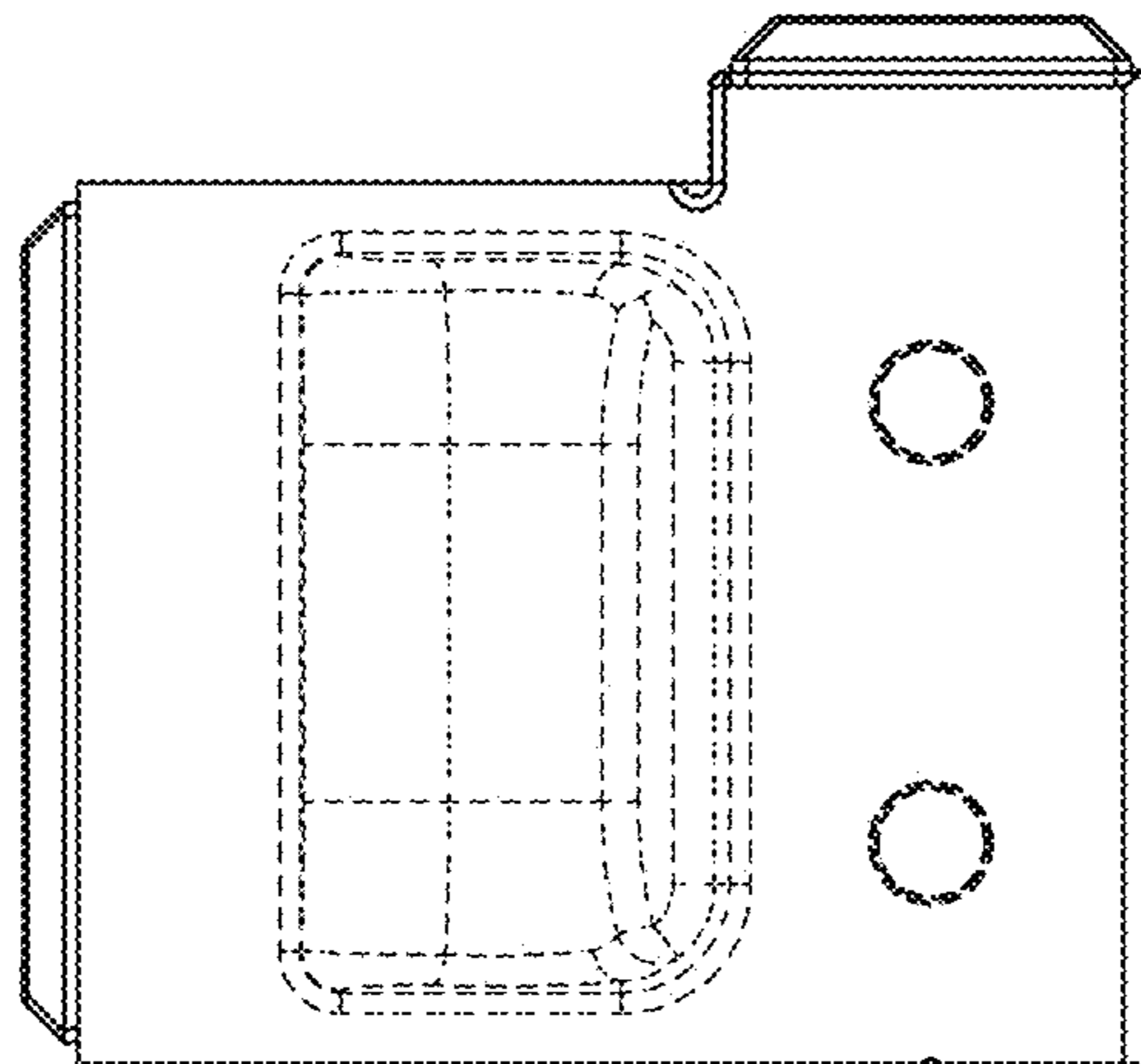


FIG. 7