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

(10) **Patent No.:** **US D649,917 S**

(45) **Date of Patent:** **** *Dec. 6, 2011**

- (54) **SPRING HOUSING FOR A SUSPENSION**
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 - (**) Term: **14 Years**
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 - (51) **LOC (9) Cl.** **12-16**
 - (52) **U.S. Cl.** **D12/159**
 - (58) **Field of Classification Search** D12/400,
D12/340, 161, 159, 120, 118, 114; 280/11.225,
280/86.752; 188/315, 316, 298, 274, 281,
188/286, 297; 293/134; 267/195; 279/2.01,
279/2.17
- See application file for complete search history.

3,984,125 A	10/1976	Paton et al.
4,082,316 A	4/1978	Raidel
4,132,433 A	1/1979	Willets
4,144,978 A	3/1979	Drake
4,162,799 A	7/1979	Willets
4,278,271 A	7/1981	Raidel
4,358,096 A	11/1982	Paton et al.
4,371,189 A	2/1983	Raidel
4,420,171 A	12/1983	Raidel
4,486,029 A	12/1984	Raidel
4,504,080 A	3/1985	VanDenberg
4,705,294 A	11/1987	Raidel
4,753,456 A	6/1988	Booher
4,995,636 A	2/1991	Hall et al.
5,114,178 A	5/1992	Baxter
5,150,918 A	9/1992	Heitzmann
D344,254 S	2/1994	Zimmerman
5,413,320 A	5/1995	Herbst
5,810,337 A	9/1998	McLaughlin
5,887,881 A	3/1999	Hatch
6,206,407 B1	3/2001	Fuchs et al.
6,478,321 B1	11/2002	Heitzmann
D474,274 S	5/2003	Walters
6,585,286 B2	7/2003	Adema et al.
6,659,438 B2	12/2003	Michael et al.
D496,887 S	10/2004	Carlson
6,817,301 B1	11/2004	Bullock
6,951,260 B1	10/2005	Isley
D543,492 S	5/2007	Lyew
7,229,088 B2	6/2007	Dudding et al.
7,234,723 B2	6/2007	Sellers
7,303,200 B2	12/2007	Ramsey
D610,952 S	3/2010	Noble et al.
D615,005 S	5/2010	Noble et al.
D624,462 S	9/2010	Noble et al.
D624,464 S	9/2010	Noble et al.
D624,465 S	9/2010	Noble et al.
D633,011 S	2/2011	Noble et al.
7,926,836 B2	4/2011	Noble et al.
2003/0047907 A1	3/2003	Hicks et al.
2004/0262877 A1	12/2004	Sellers
2006/0071441 A1	4/2006	Mathis
2006/0208445 A1	9/2006	Gideon
2008/0018070 A1	1/2008	Gottschalk

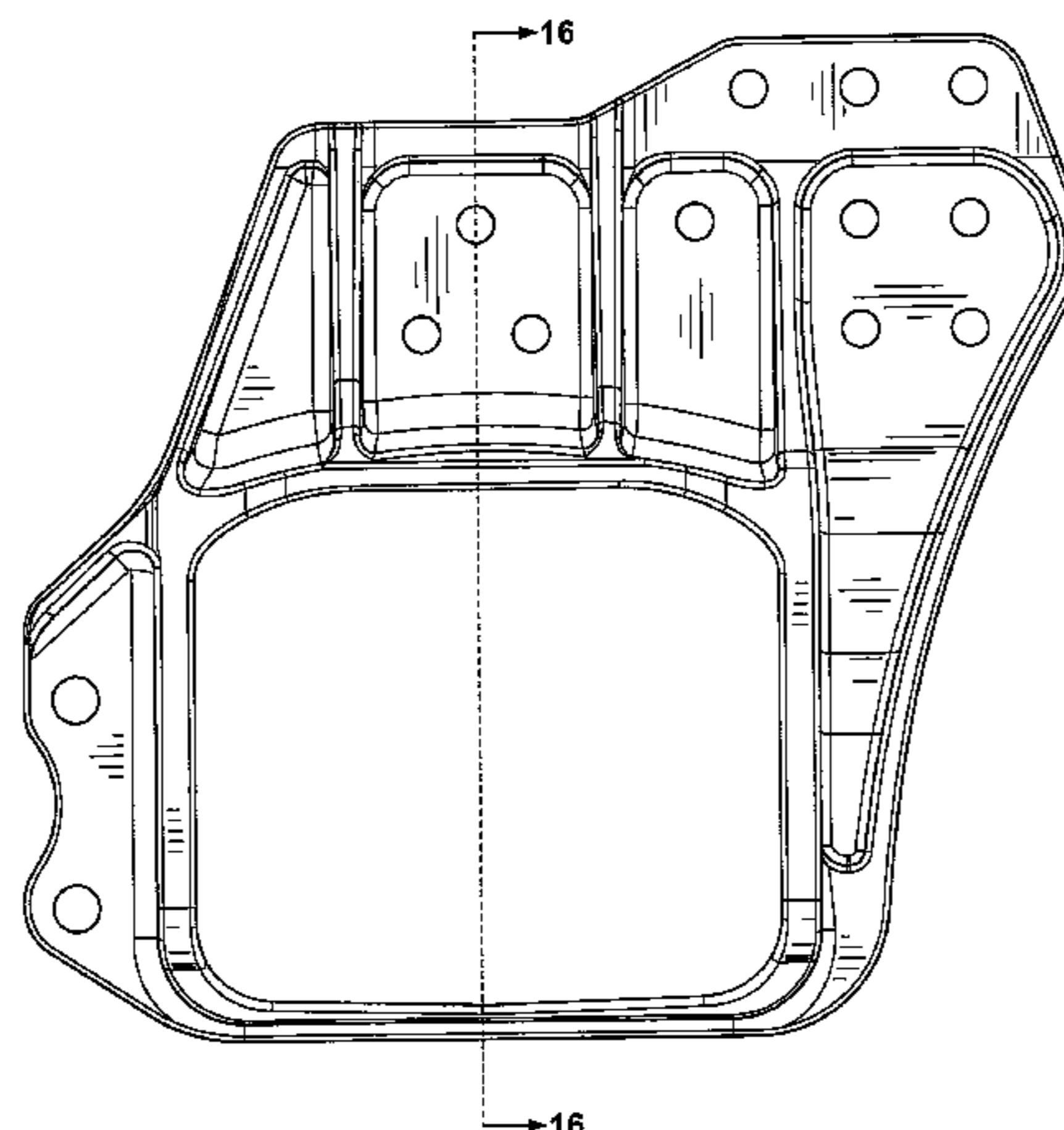
(56) **References Cited**

U.S. PATENT DOCUMENTS

1,576,376 A *	3/1926	Sudekum	267/170
1,640,179 A	8/1927	Buckwalter	
2,323,919 A *	7/1943	Knox	267/249
2,437,158 A *	3/1948	Heiney	267/30
2,689,136 A	9/1954	Hendrickson	
2,788,222 A	4/1957	Wilson et al.	
2,872,207 A	2/1959	Hirst	
2,940,771 A	4/1960	Hendrickson	
2,980,439 A	4/1961	Miller	
3,121,560 A	2/1964	Reed	
3,241,856 A	3/1966	Raidel	
3,279,820 A	10/1966	Hickman	
3,297,339 A	1/1967	Hendrickson	
3,539,170 A	11/1970	Hamel	
3,545,787 A	12/1970	Miller	
3,580,611 A	5/1971	McNitt	
3,618,971 A	11/1971	Wragg	
3,687,477 A	8/1972	Miller	
3,695,737 A	10/1972	Alexander et al.	
3,811,700 A	5/1974	Moore	
3,817,551 A	6/1974	Moore	
3,955,808 A	5/1976	Jorn et al.	
D240,239 S	6/1976	Calandrino	

FOREIGN PATENT DOCUMENTS

GB	2069424	8/1981
GB	2128942	9/1983
GB	2226867 A1	9/1983
GB	2252276	8/1992
WO	0242097 A2	5/2002
WO	200606067551	6/2006



OTHER PUBLICATIONS

U.S. Appl. No. 12/045,069, filed Mar. 10, 2008.
 U.S. Appl. No. 12/334,195, filed Dec. 12, 2008.
 U.S. Appl. No. 12/545,828, filed Aug. 22, 2009.
 U.S. Appl. No. 12/876,158, filed Sep. 5, 2010.
 U.S. Appl. No. 29/315,182, filed Jun. 22, 2009.
 U.S. Appl. No. 29/369,285, filed Sep. 5, 2010.
 Hendrickson, Haulmaxx Heavy-Duty Suspension, Jan. 2009.
 Hendrickson Mfg. Co., Tandem Division, Hendrickson Tandem Suspensions for GMC Trucks, Aug. 1979.
 Hendrickson Mfg., Tandem Division, Wide spread equalizing beams, sales bulletin, May 1981.
 Hendrickson Suspension, A Boler Company, Hendrickson HNT Series, Feb. 1992.
 Hendrickson Suspension, HN Series Premium Rubber, Hendrickson introduces a completely new concept in Walking Beam Suspension, Jun. 1993.
 Hendrickson Suspension, RS Series rubber load cushion, Jul. 1991.
 Hendrickson Technical Brochure for “Bus Air Ride Suspensions” H621 Oct. 1998.
 Hendrickson Technical Brochure for “Non-Steerable Suspension Systems” H621 Dec. 2003.
 Hendrickson Truck Suspension Systems, A Boler Company, Sales engineering update, Subject: HN-402/462 Auxiliary Spring Assembly, Aug. 1998.
 Hendrickson Truck Suspension Systems, A Boler Company, Sales engineering update, Subject: Equalizer Beam, Aug. 1999.
 Hendrickson Truck Suspension Systems, A Boler Company, HN Series VariRate Spring System, May 1997.
 Hendrickson Truck Suspension Systems, A Boler Company, Technical Publication RS-340 thru 520, Subject: Springing: Frame Hangers, Load Cushions and Saddle Assembly, Jul. 1993.
 Hendrickson Truck Suspension Systems, A Boler Company, Technical Publication HN Series Truck & Trailer Suspension No. 17730-198, Mar. 1993.
 Hendrickson Truck Suspension Systems, A Boler Company, Technical Publication HN 402 Series, Subject: Service Instructions, Aug. 1996.
 Hendrickson Truck Suspension Systems, A Boler Company, Technical Publication HN 402/462 Series, Subject: Service Instructions, Aug. 1998.
 Hendrickson USA, L.L.C., Technical Procedure R/RS/RT Heavy Duty, Lit. No. 17730-149, Revision C, Jul. 2006. (Also cited as Hendrickson, Technical Procedure R/RS/RT Heavy Duty, Subject: 650K/850K/1000K Pound Capacity Beam End Connection Tightening Torque Procedure, Jul. 2006.
 Hendrickson, A Boler Company, Hendrickson Frame Hanger Selection Guide, May 1990.
 Hendrickson, A Boler Company, Hendrickson RS Series, Single Axle Suspension, Sep. 1995.
 Hendrickson, A Boler Company, HN Series Technical Sales Publication, Jun. 1997.
 Hendrickson, Assembly Instructions Haulmaax, Subject: Outboard Frame Bracket for Paccar Vehicles Built after May 1, 2005 through Aug. 31, 2006, Oct. 2006.
 Hendrickson, Assembly Instructions Haulmaax, Subject: Tie-bar Bolster Spring Kit Nos. 64179-037, Jun. 2006.
 Hendrickson, HN FR Series Suspension 42-58 K Fire/Rescue Feb. 2009.
 Hendrickson, Parts List HN 402/462, Sep. 1997.
 Hendrickson, Parts List HN Series, Dec. 2004.
 Hendrickson, Parts List RS Series, Apr. 2008.
 Hendrickson, RS Series Rubber Load Cushion, Only Hendrickson makes choosing a heavy-duty suspension this easy, Jun. 1993.
 Hendrickson, Technical Bulletin HN 402/462/522, Subject: Auxiliary Spring Shim Design, Jun. 2006.
 Hendrickson, Technical Bulletin R, RS, RT/RTE 46K Capacity, Subject: 46K Heavy-Duty Beam Option, Dec. 2004.
 Hendrickson, Technical Procedure Haulmaax, Subject: Service Instructions, May 2002.
 Hendrickson, Technical Procedure Haulmaax, Subject: Service Instructions, Dec. 2007.

Hendrickson, Technical Procedure HN/HNT-400/460 Truck & Trailer Suspension in Production 11/88-9/96, Apr. 1998.
 Hendrickson, The Boler Company, RS Frame Hanger, Dec. 1997.
 Jorn, Technology in Rubber—Metal, Sep. 29, 2008.
 Hendrickson USA, L.L.C., Technical Procedure HUV 270t Heavy-duty Rubber Suspension, Subject: Service Instructions, Lit. No. 17730-269, Revision C, Feb. 2010.
 Hendrickson USA, L.L.C., HUV Heavy-duty Rubber Suspension, Dec. 2009.
 U.S. Appl. No. 13/178,773 filed Jul. 8, 2011.
 U.S. Appl. No. 29/396,893 filed Jul. 8, 2011.

* cited by examiner

Primary Examiner — Michael Pratt

(74) Attorney, Agent, or Firm — McDonnell Boehnen Hulbert & Berghoff LLP

(57) CLAIM

The ornamental design for a spring housing for a suspension, as shown and described.

DESCRIPTION

FIG. 1 is a front elevational view of a spring housing for a suspension having the inventive design;
 FIG. 2 is a rear elevational view of the spring housing for a suspension shown in FIG. 1;
 FIG. 3 is a right side elevational view of the spring housing for a suspension shown in FIG. 1;
 FIG. 4 is a left side elevational view of the spring housing for a suspension shown in FIG. 1;
 FIG. 5 is a top view of the spring housing for a suspension shown in FIG. 1;
 FIG. 6 is a bottom view of the spring housing for a suspension shown in FIG. 1;
 FIG. 7 is a front, top and left side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 8 is a front, top and right side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 9 is a front, bottom and left side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 10 is a front, bottom and right side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 11 is a front and top perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 12 is a rear, top and left side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 13 is a rear, top and right side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 14 is a rear, bottom and left side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 15 is a rear, bottom and right side perspective view of the spring housing for a suspension shown in FIG. 1;
 FIG. 16 is a sectional view of the spring housing for a suspension shown in FIG. 1, taken along line 16-16 in FIG. 1;
 FIG. 17 is a sectional view of the spring housing for a suspension shown in FIG. 1, taken along line 17-17 in FIG. 2;
 FIG. 18 is a sectional view of the spring housing for a suspension shown in FIG. 1, taken along line 18-18 in FIG. 2;
 FIG. 19 is a sectional view of the spring housing for a suspension shown in FIG. 1, taken along line 19-19 in FIG. 3;
 FIG. 20 is a sectional view of the spring housing for a suspension shown in FIG. 1, taken along line 20-20 in FIG. 4;
 FIG. 21 is a front elevational view of a second embodiment of a spring housing for a suspension having the inventive design;

FIG. 22 is a rear elevational view of the spring housing for a suspension shown in FIG. 21;

FIG. 23 is a right side elevational view of the spring housing for a suspension shown in FIG. 21;

FIG. 24 is a left side elevational view of the spring housing for a suspension shown in FIG. 21;

FIG. 25 is a top view of the spring housing for a suspension shown in FIG. 21;

FIG. 26 is a bottom view of the spring housing for a suspension shown in FIG. 21;

FIG. 27 is a front, top and left side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 28 is a front, top and right side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 29 is a front, bottom and left side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 30 is a front, bottom and right side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 31 is a front and top perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 32 is a rear, top and left side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 33 is a rear, top and right side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 34 is a rear, bottom and left side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 35 is a rear, bottom and right side perspective view of the spring housing for a suspension shown in FIG. 21;

FIG. 36 is a sectional view of the spring housing for a suspension shown in FIG. 21, taken along line 36-36 in FIG. 21;

FIG. 37 is a sectional view of the spring housing for a suspension shown in FIG. 21, taken along line 37-37 in FIG. 22;

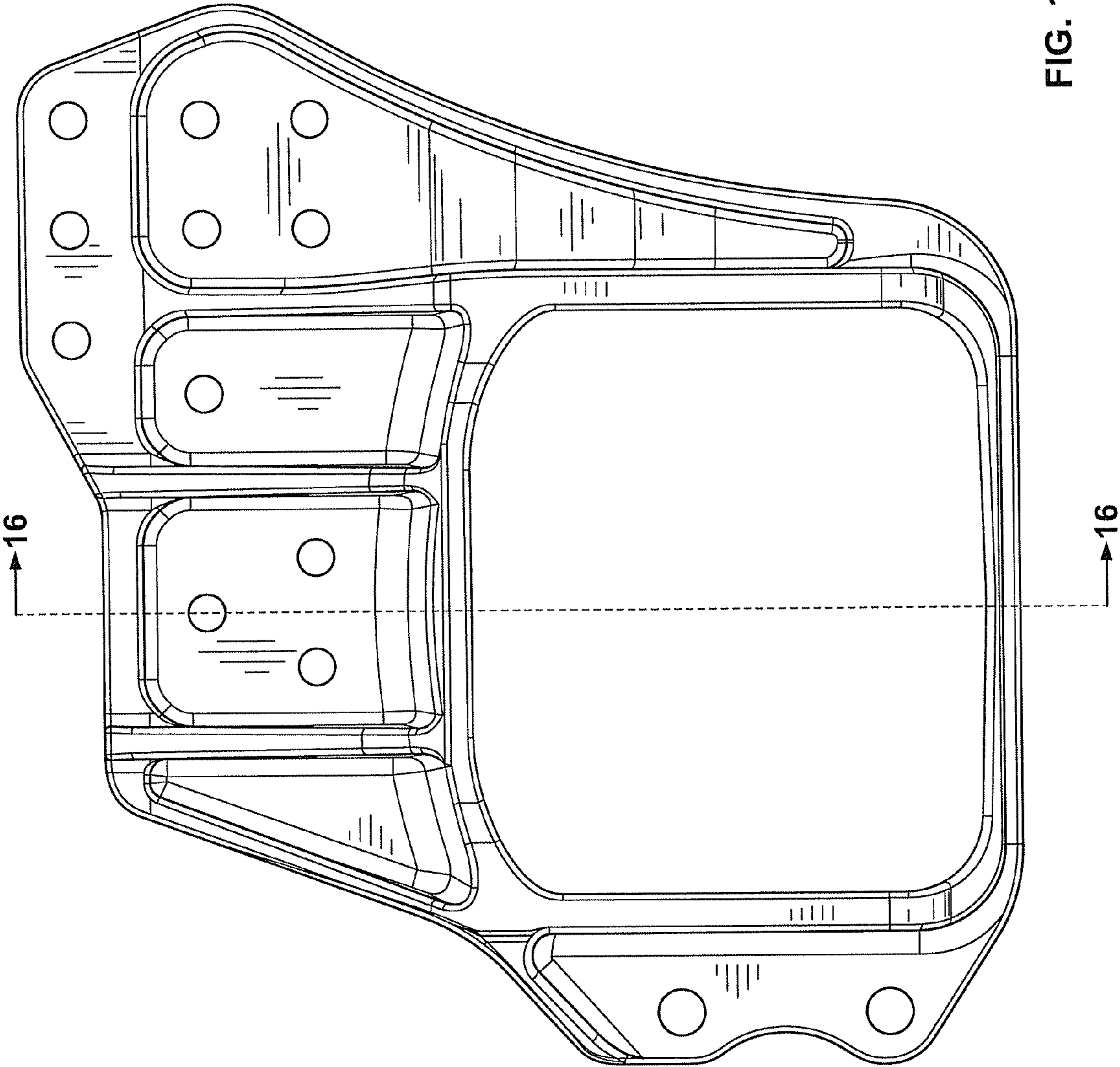
FIG. 38 is a sectional view of the spring housing for a suspension shown in FIG. 21, taken along line 38-38 in FIG. 22;

FIG. 39 is a sectional view of the spring housing for a suspension shown in FIG. 21, taken along line 39-39 in FIG. 23;

and,

FIG. 40 is a sectional view of the spring housing for a suspension shown in FIG. 21, taken along line 40-40 in FIG. 24.

1 Claim, 34 Drawing Sheets



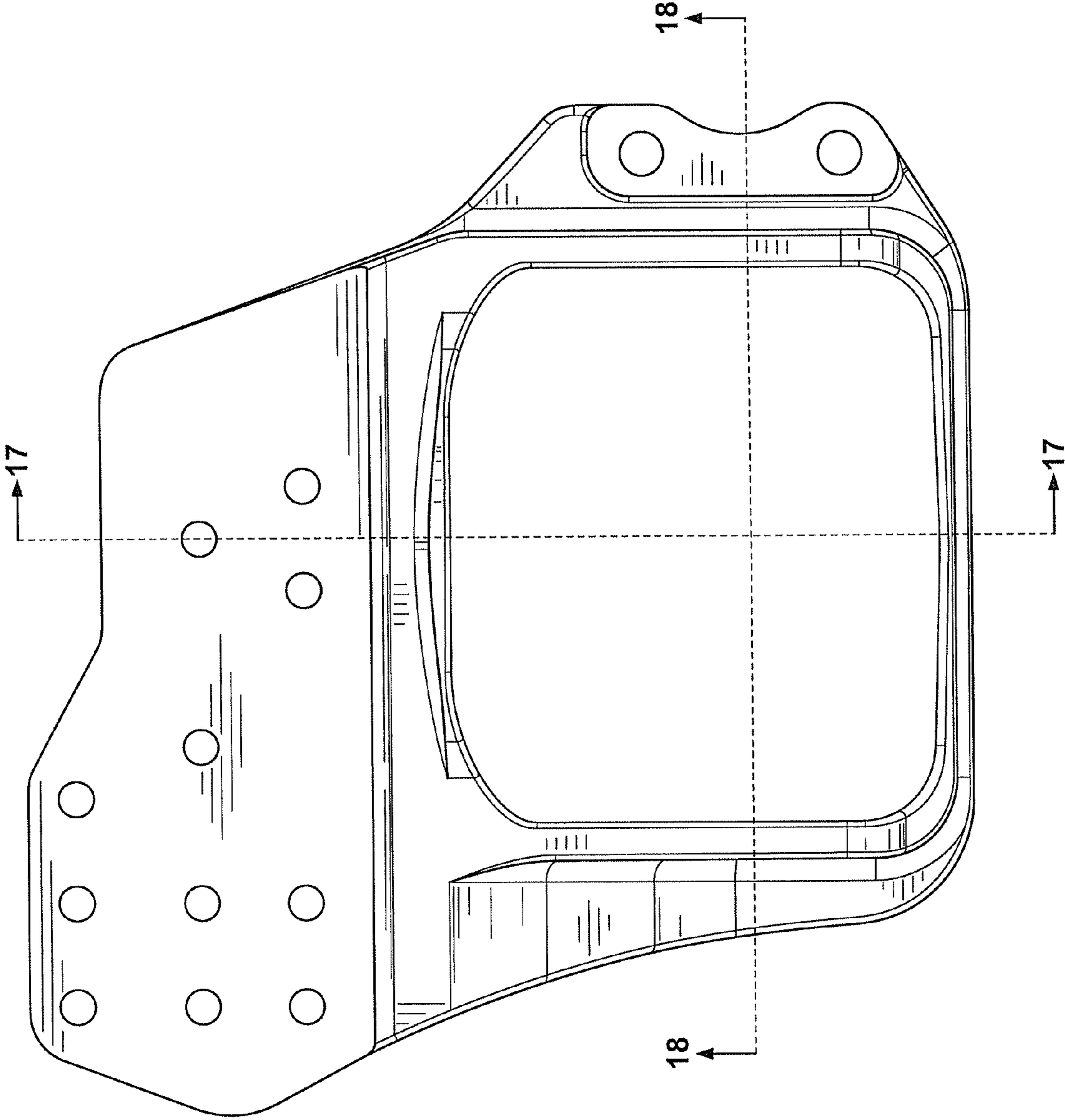


FIG. 2

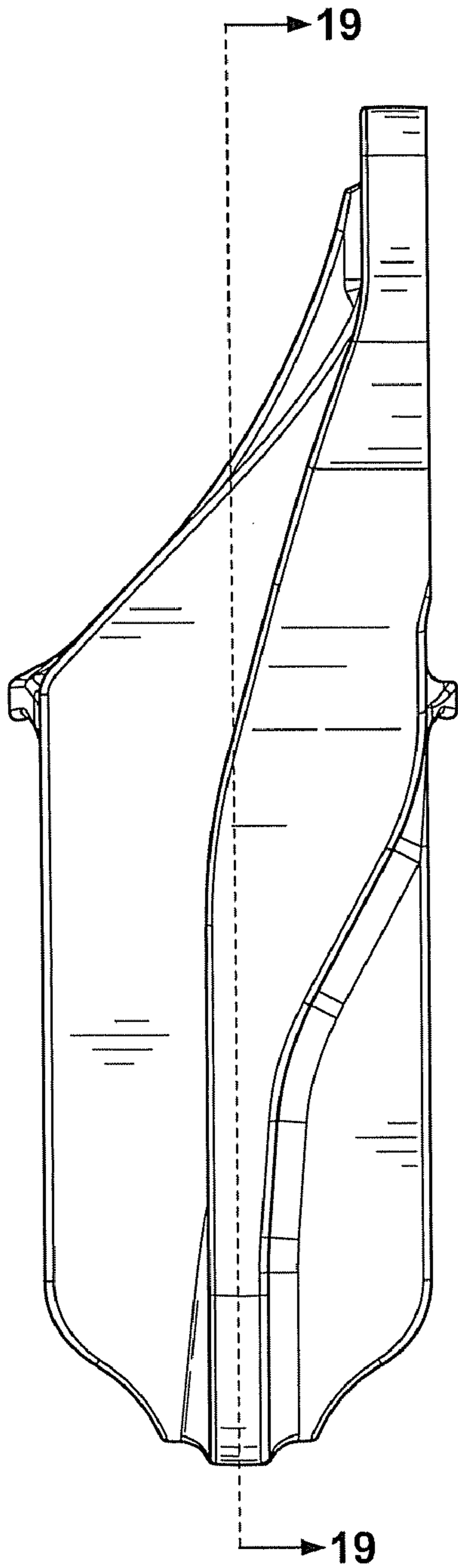


FIG. 3

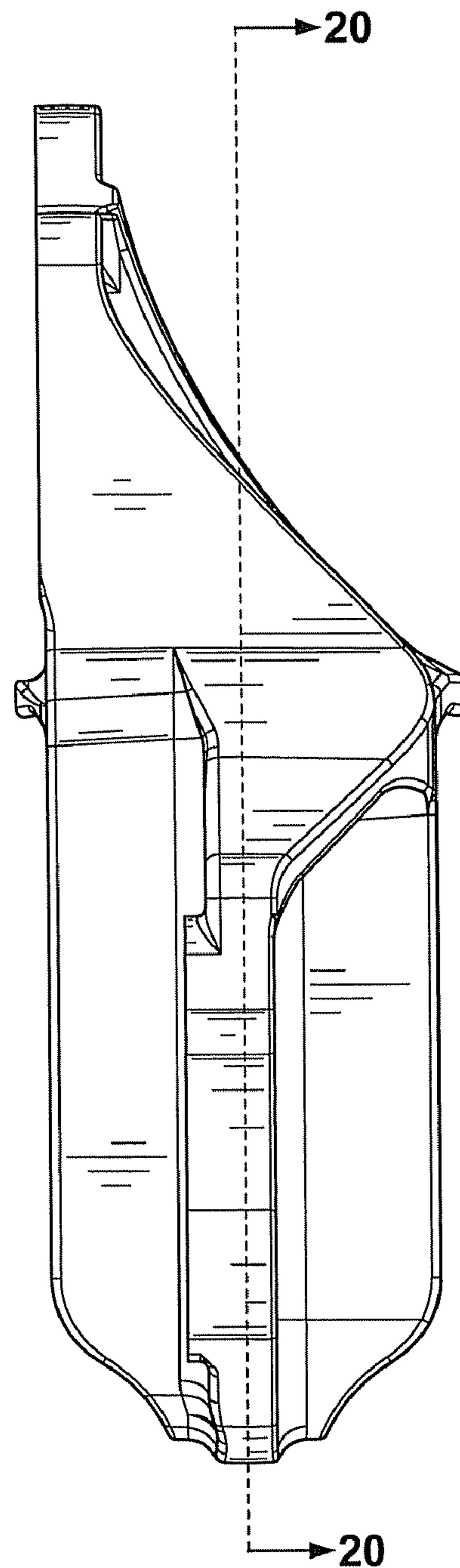


FIG. 4

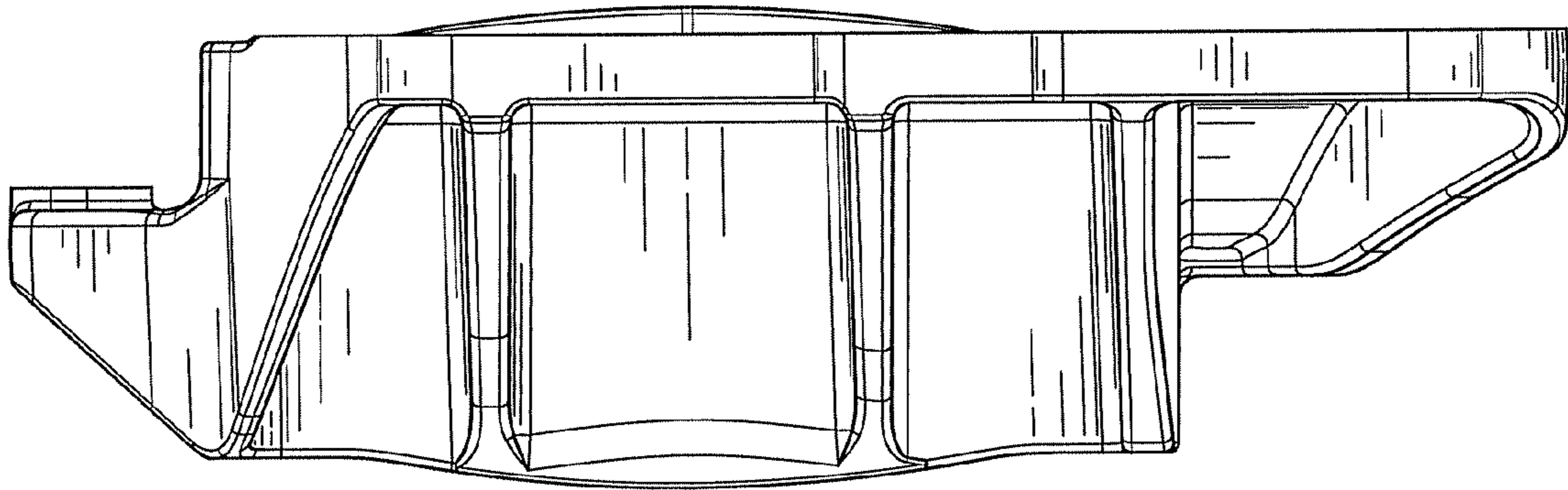


FIG. 5

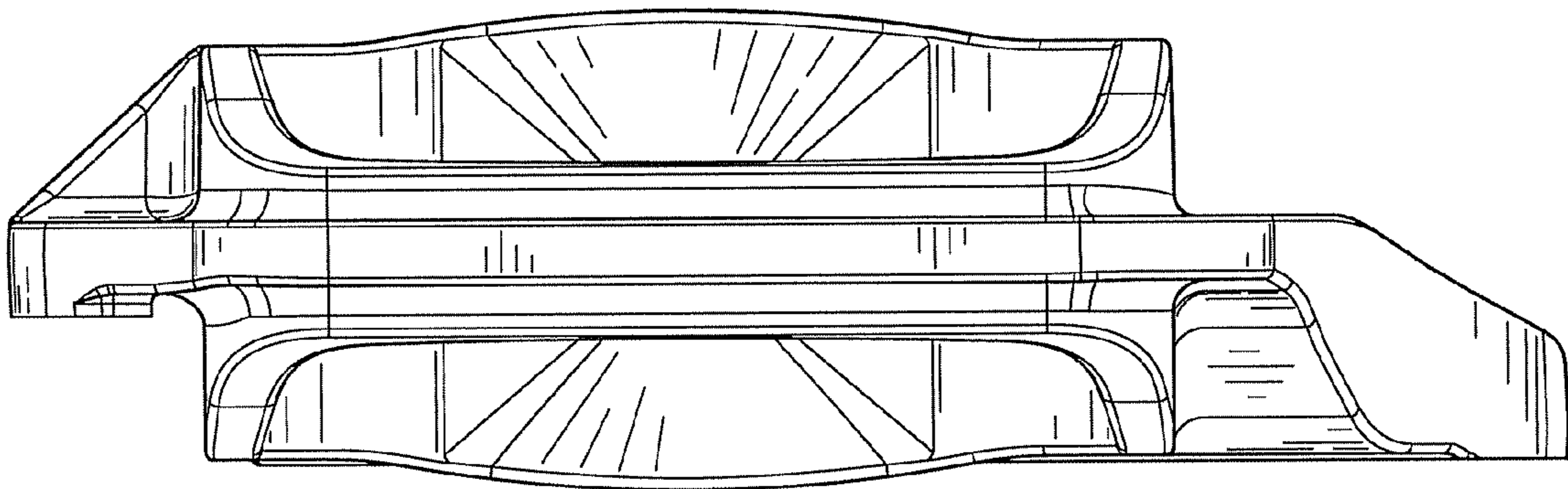


FIG. 6

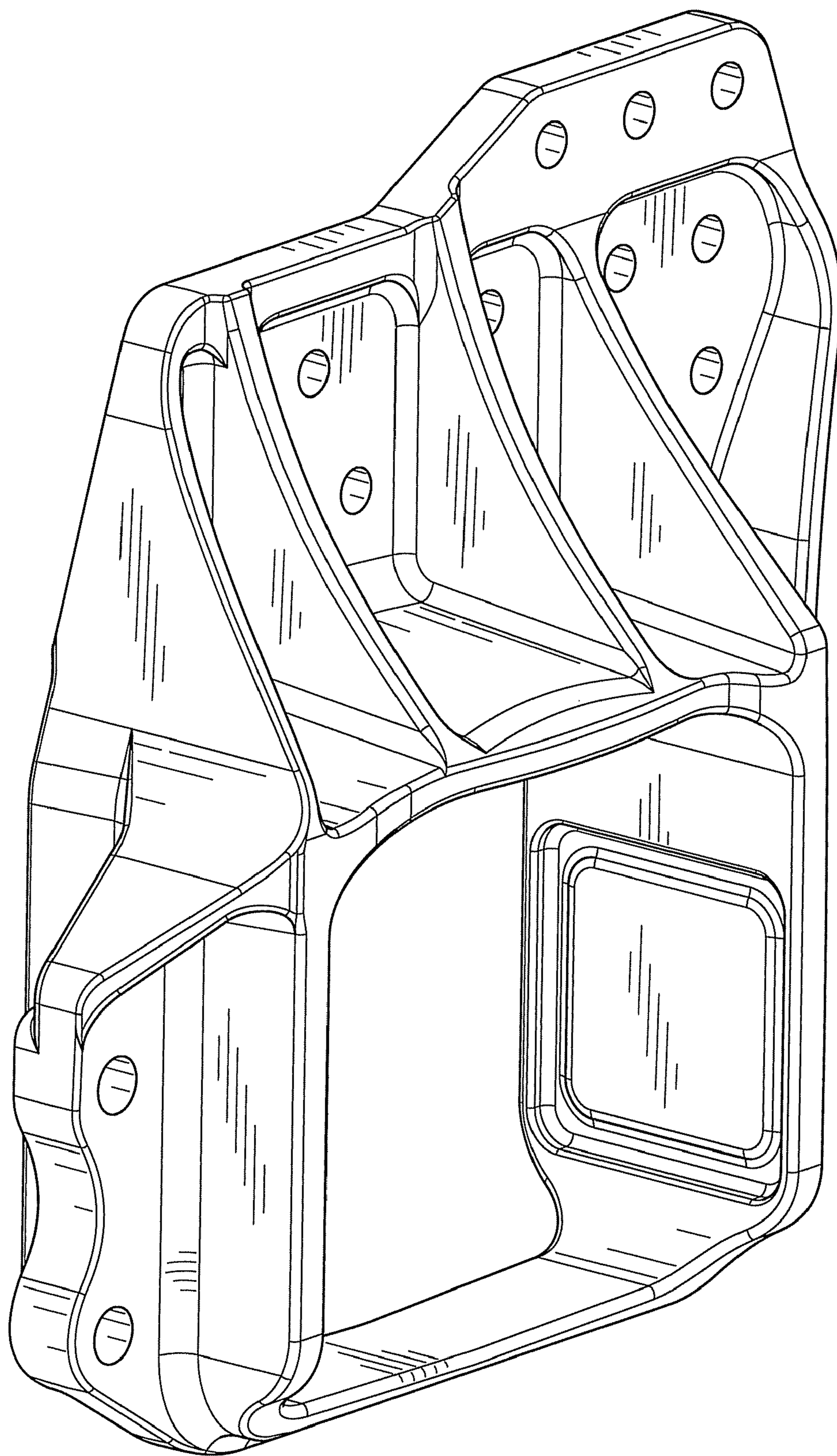


FIG. 7

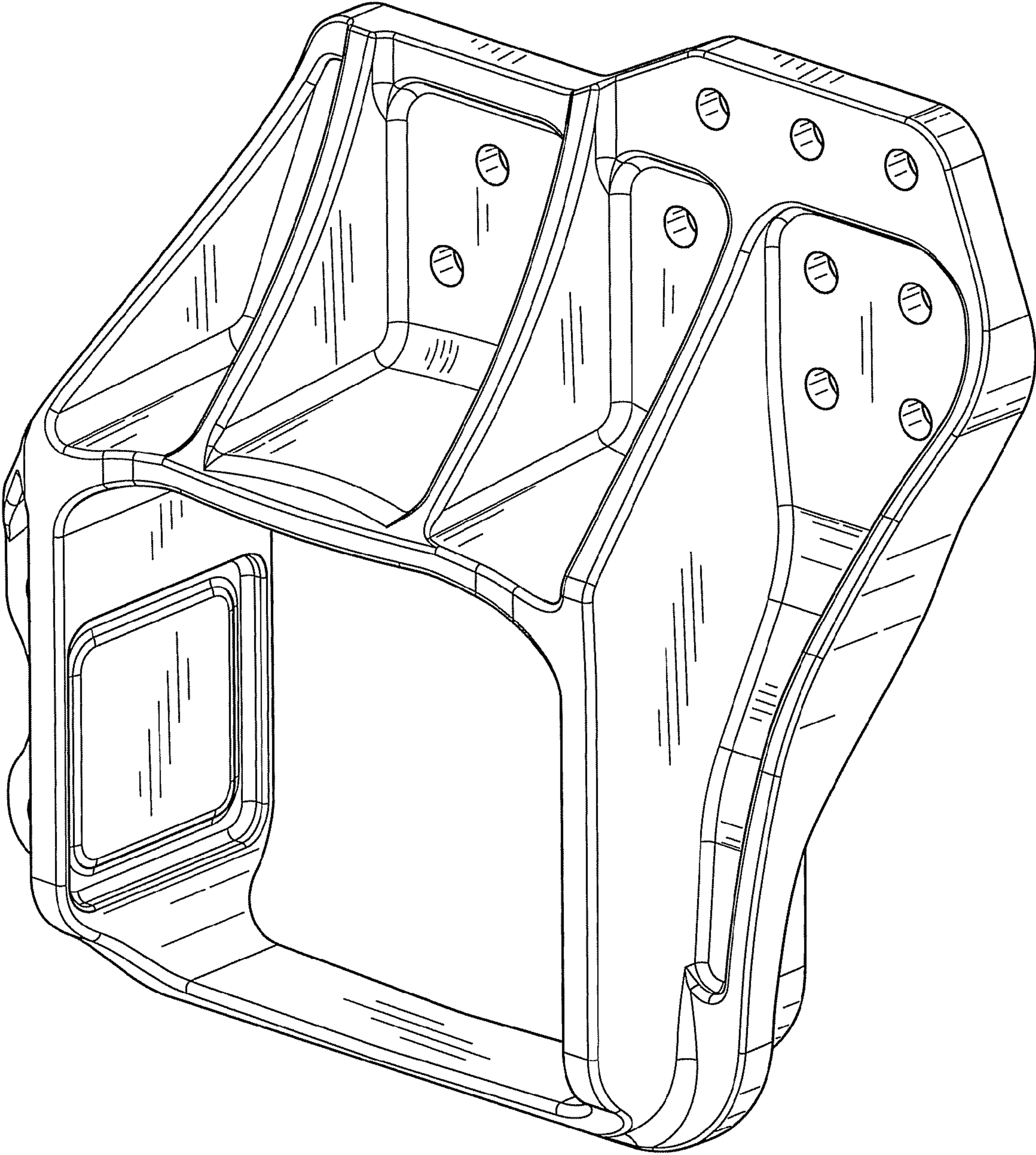


FIG. 8

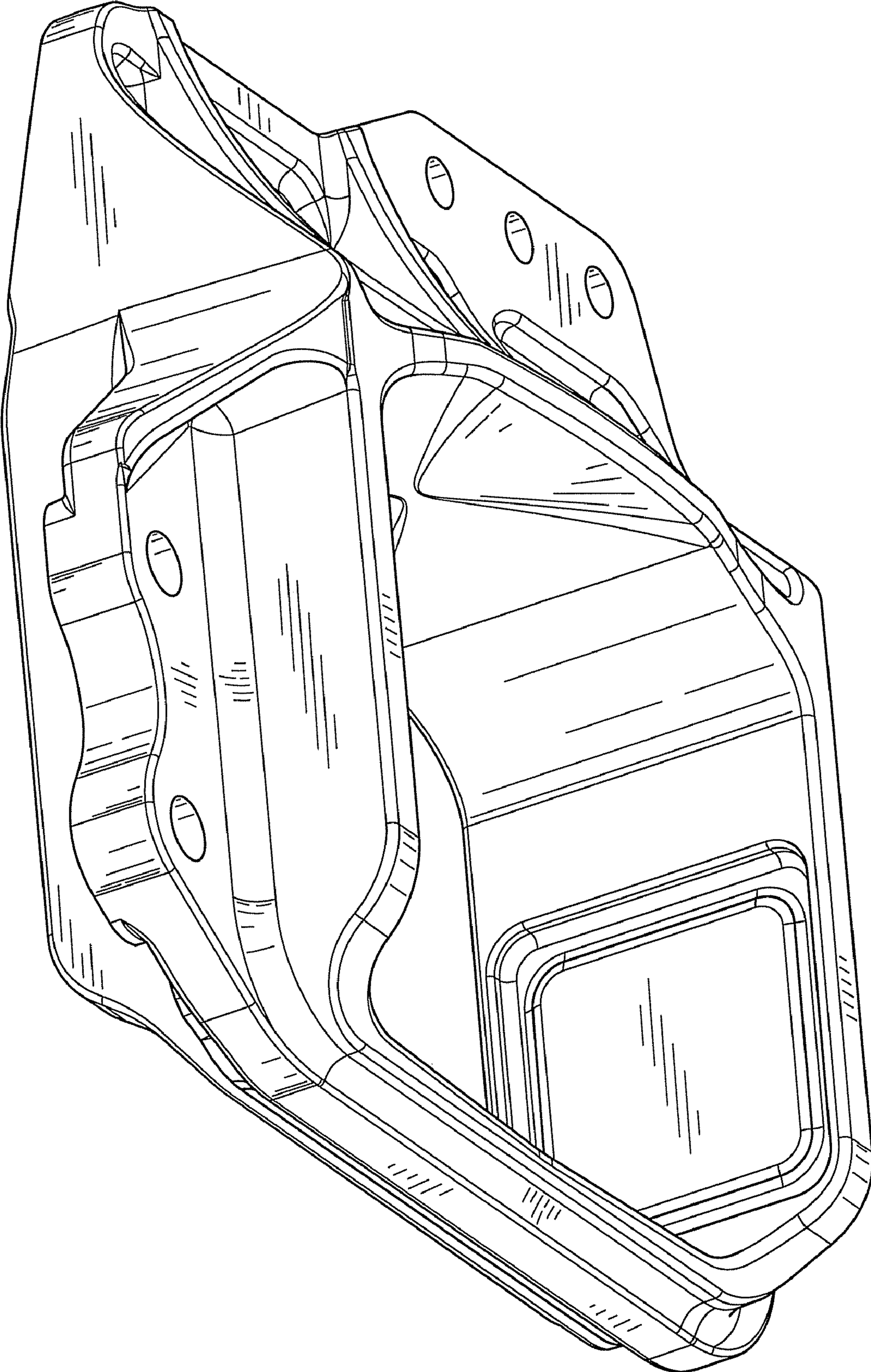


FIG. 9



FIG. 10

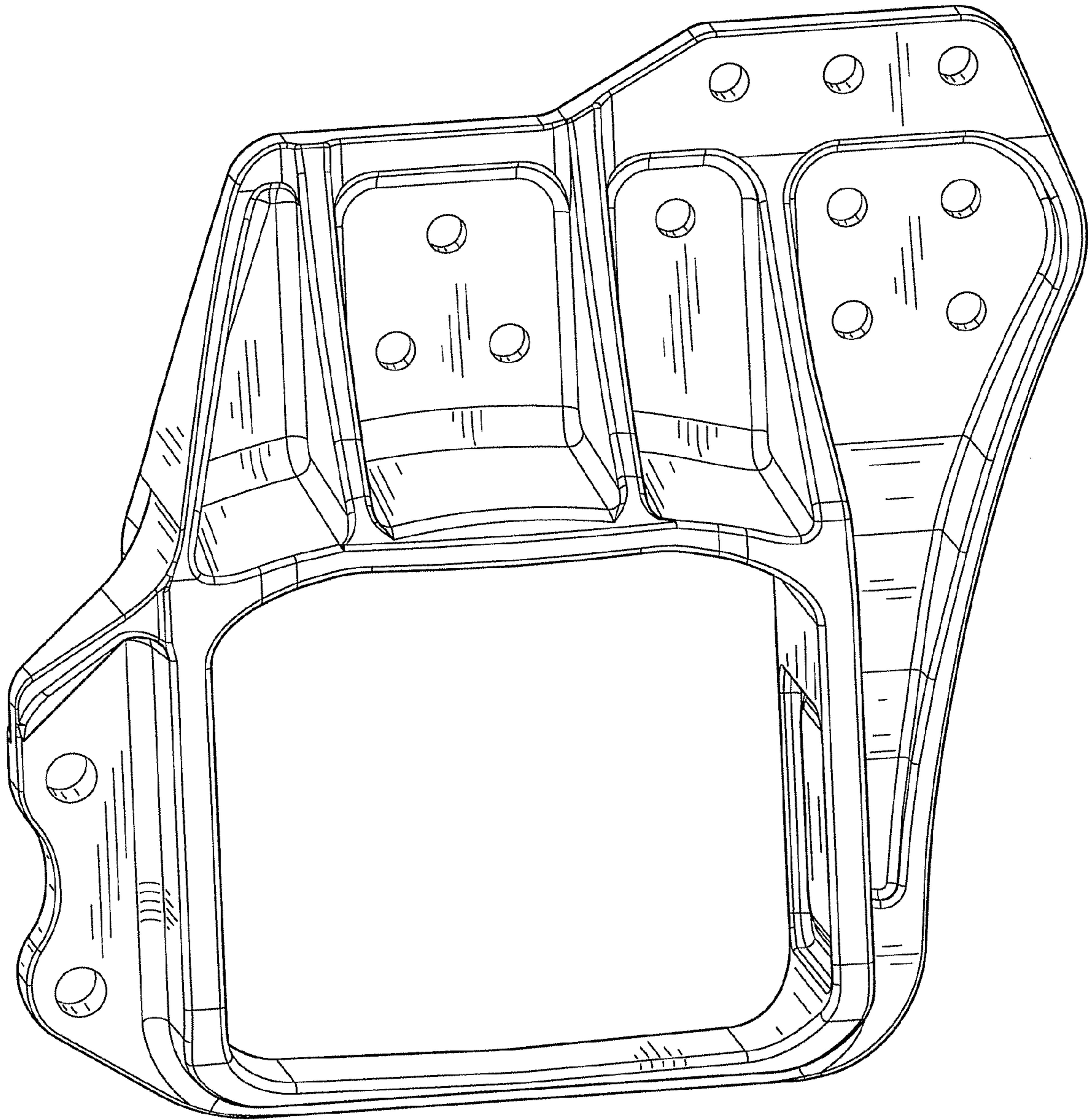


FIG. 11

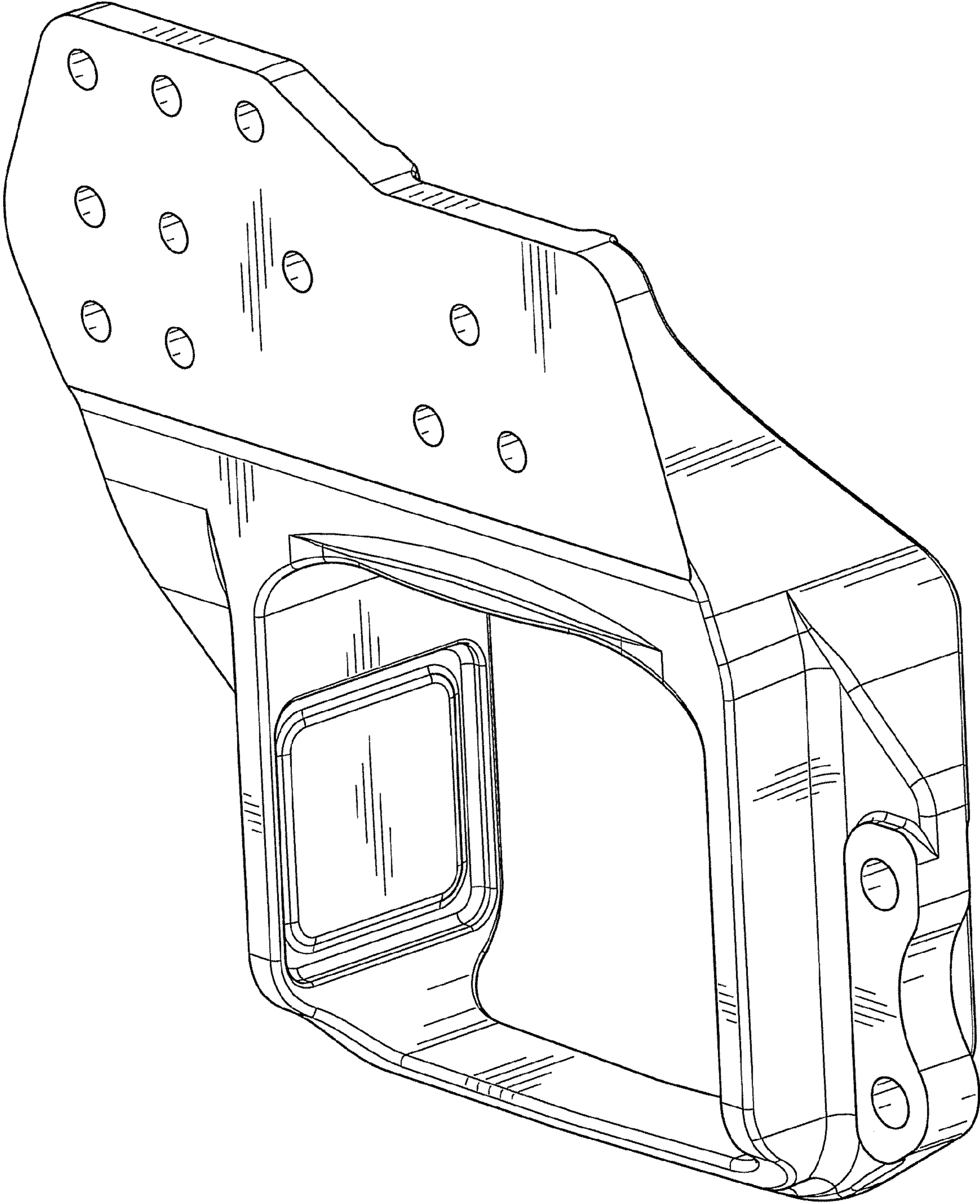


FIG. 12

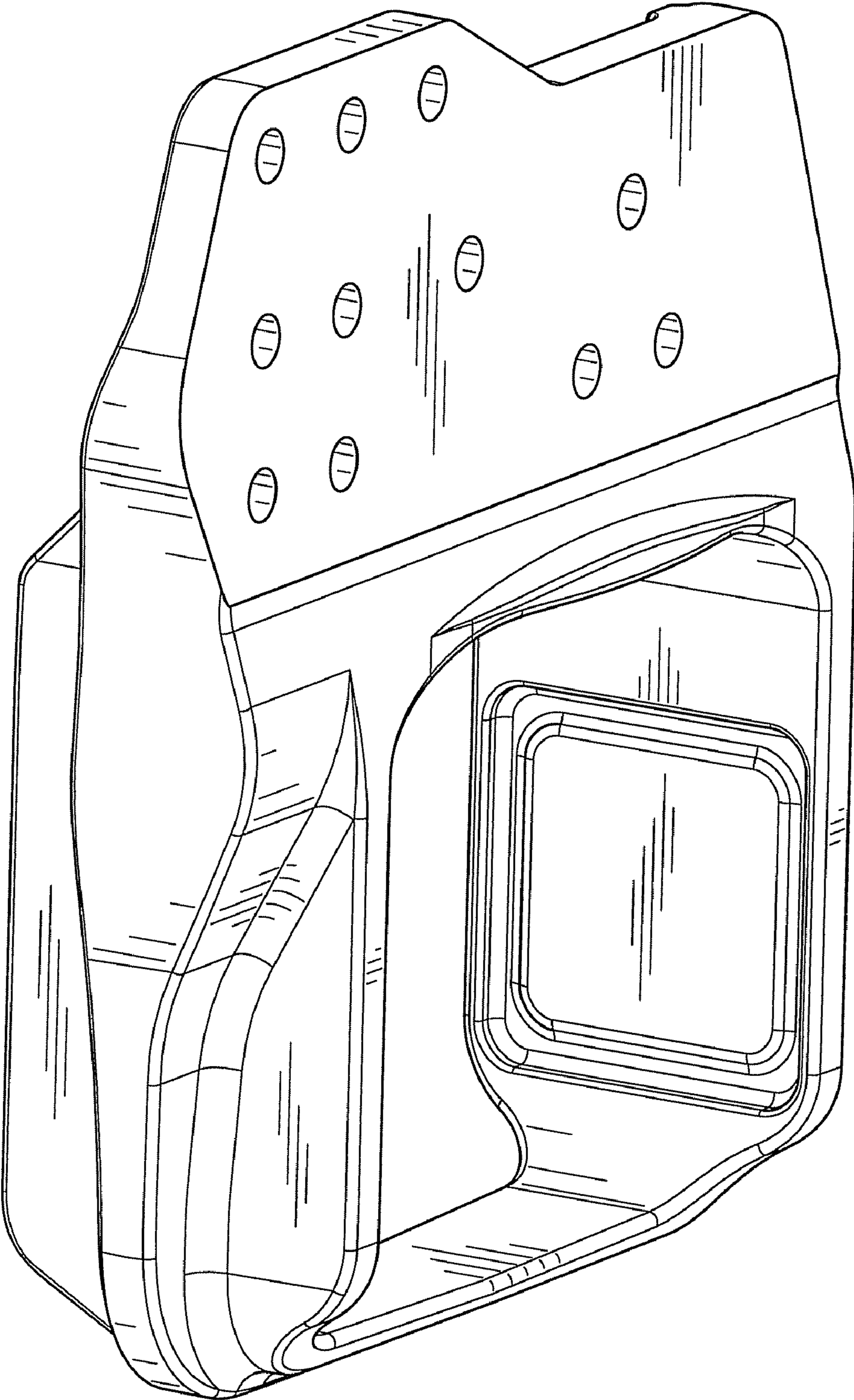


FIG. 13

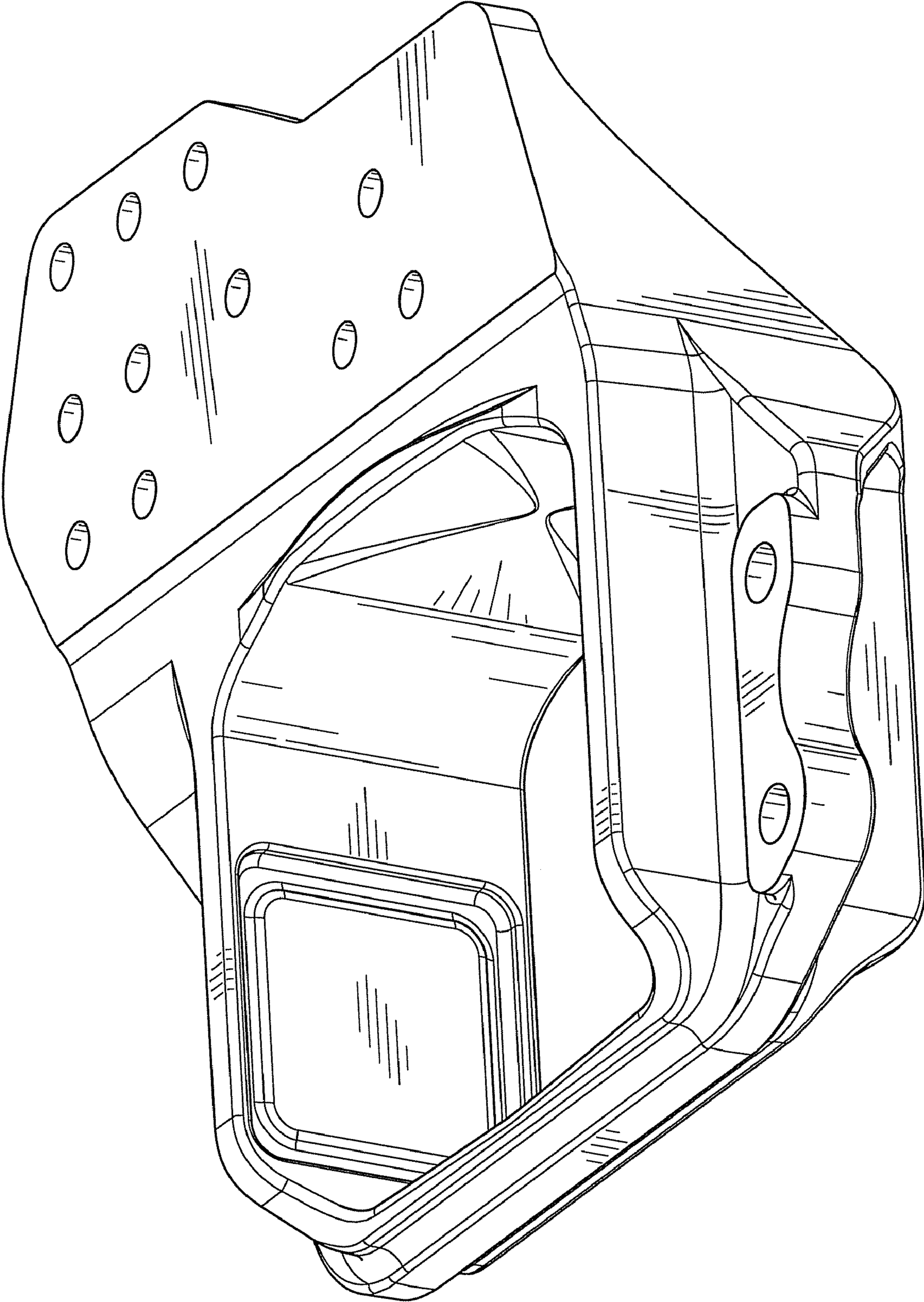


FIG. 14

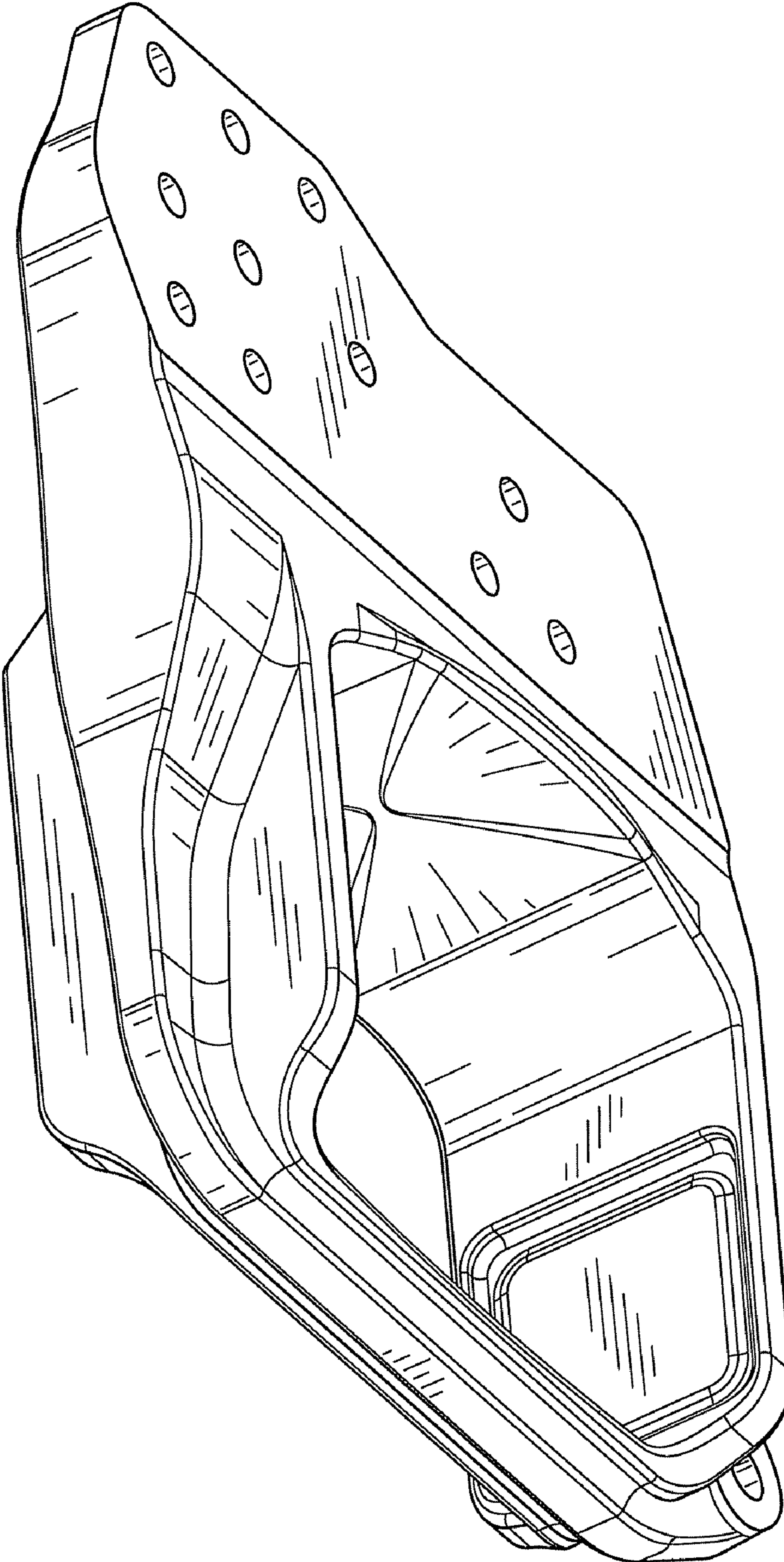


FIG. 15

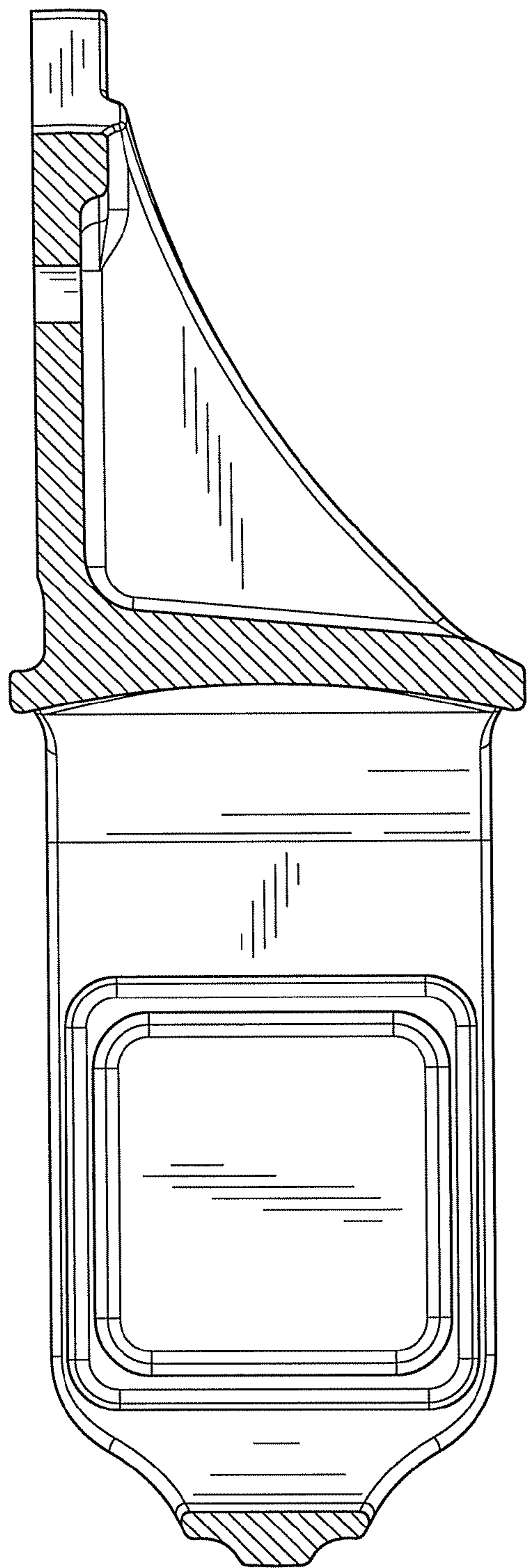


FIG. 16

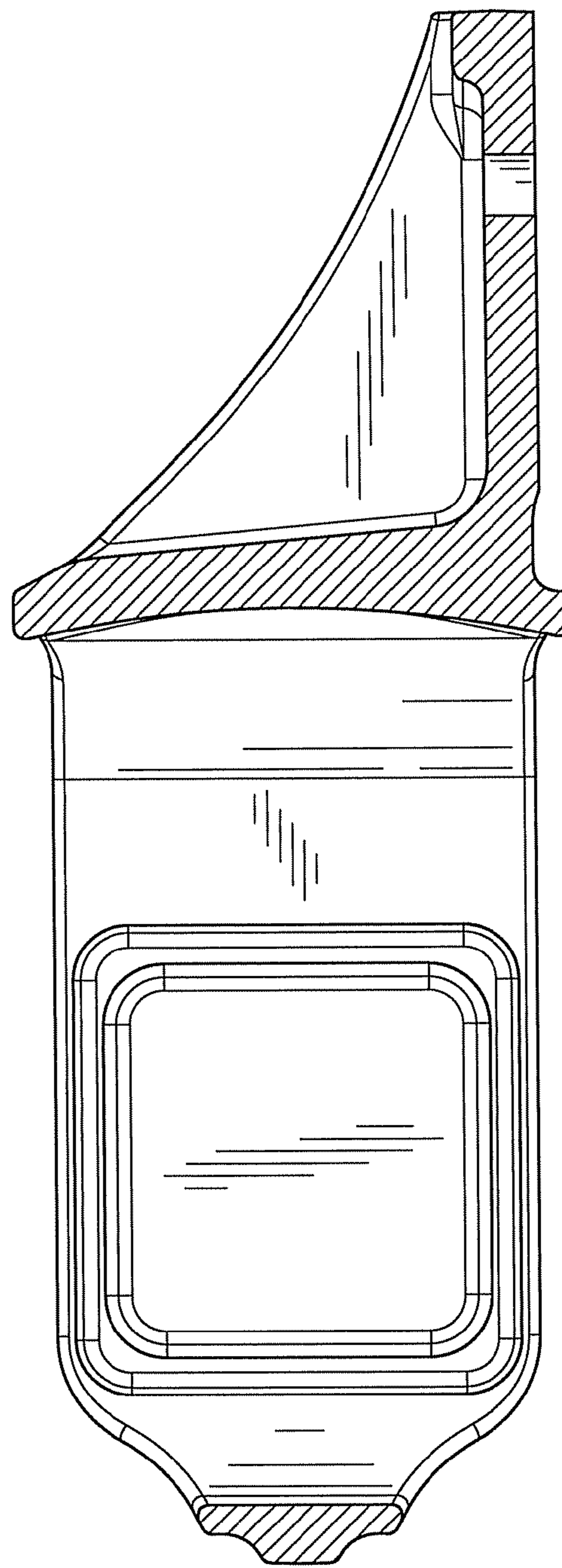


FIG. 17

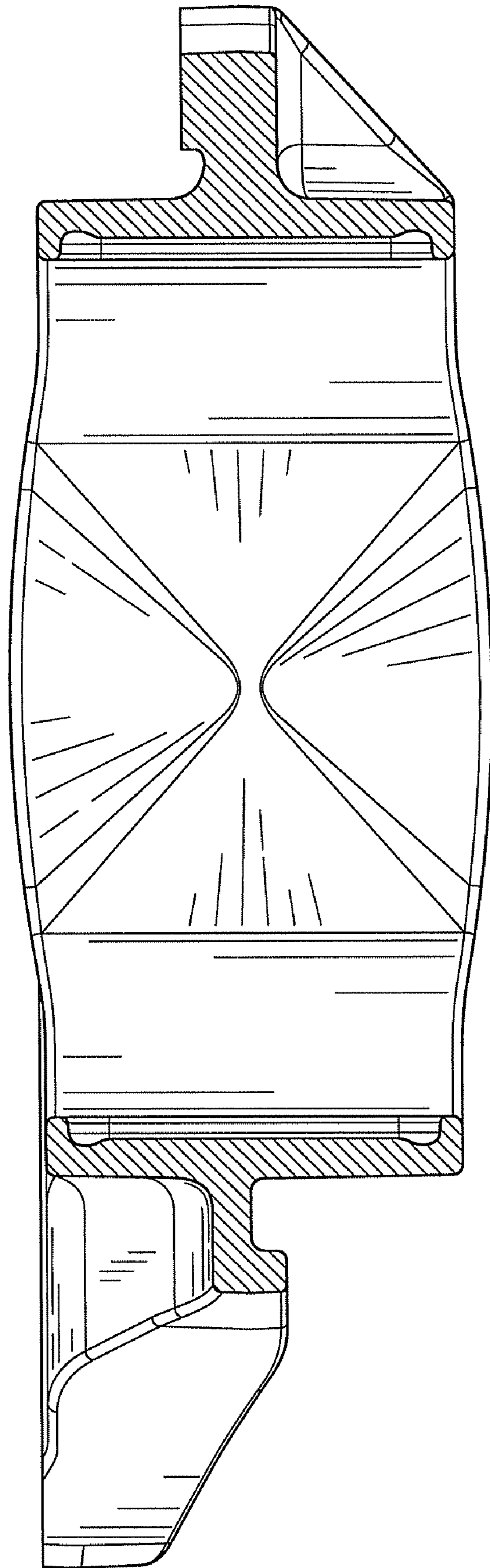


FIG. 18

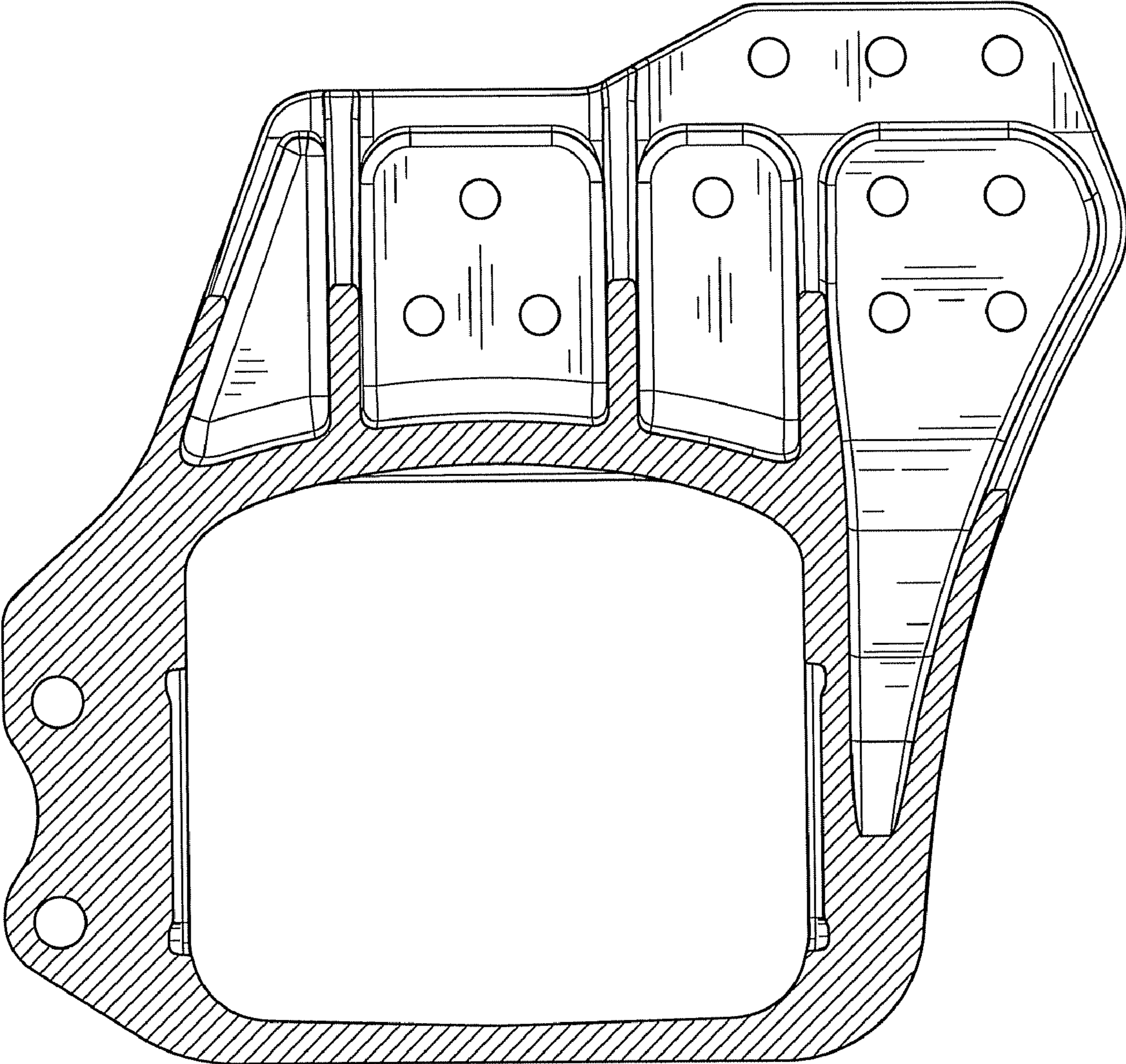


FIG. 19

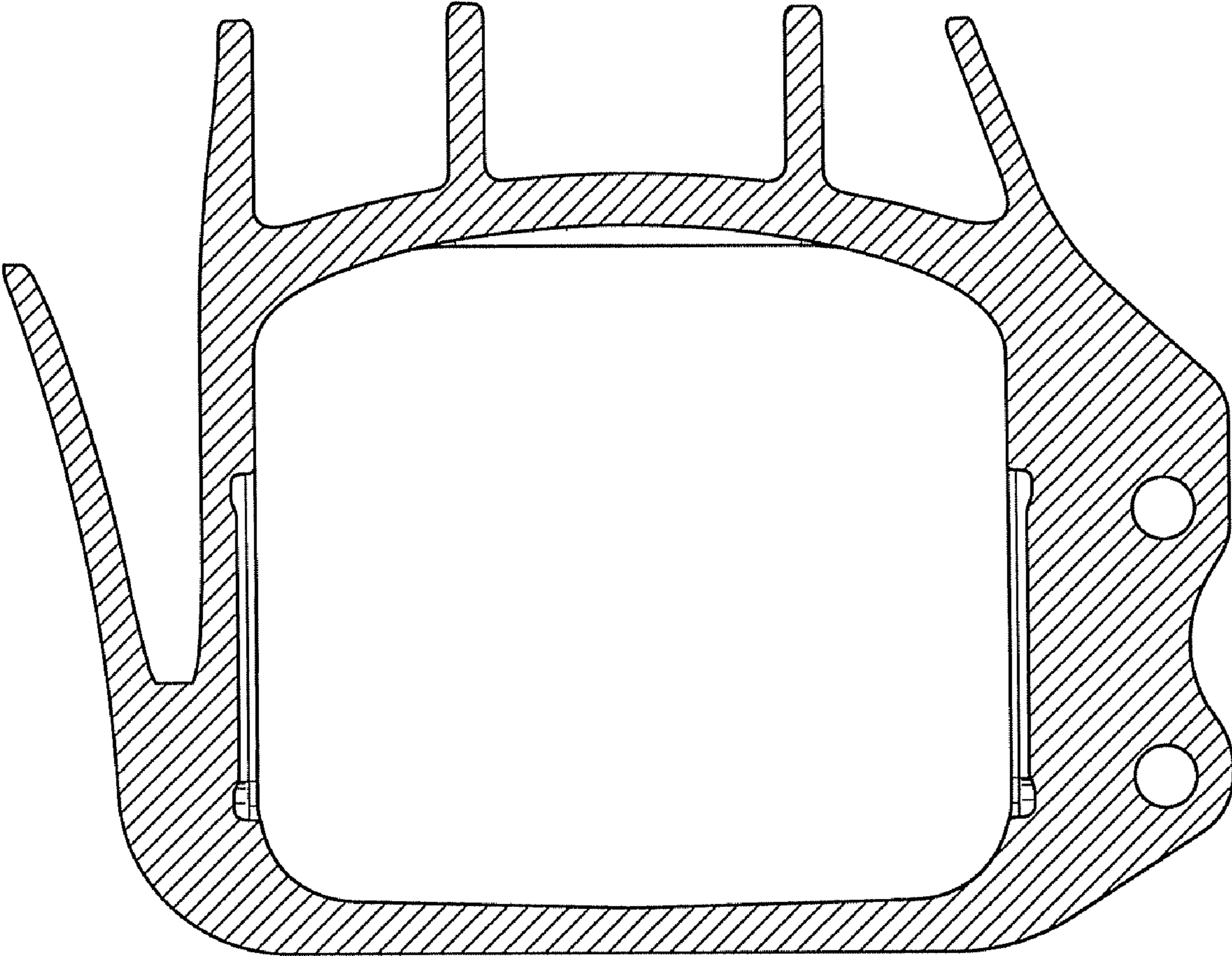


FIG. 20

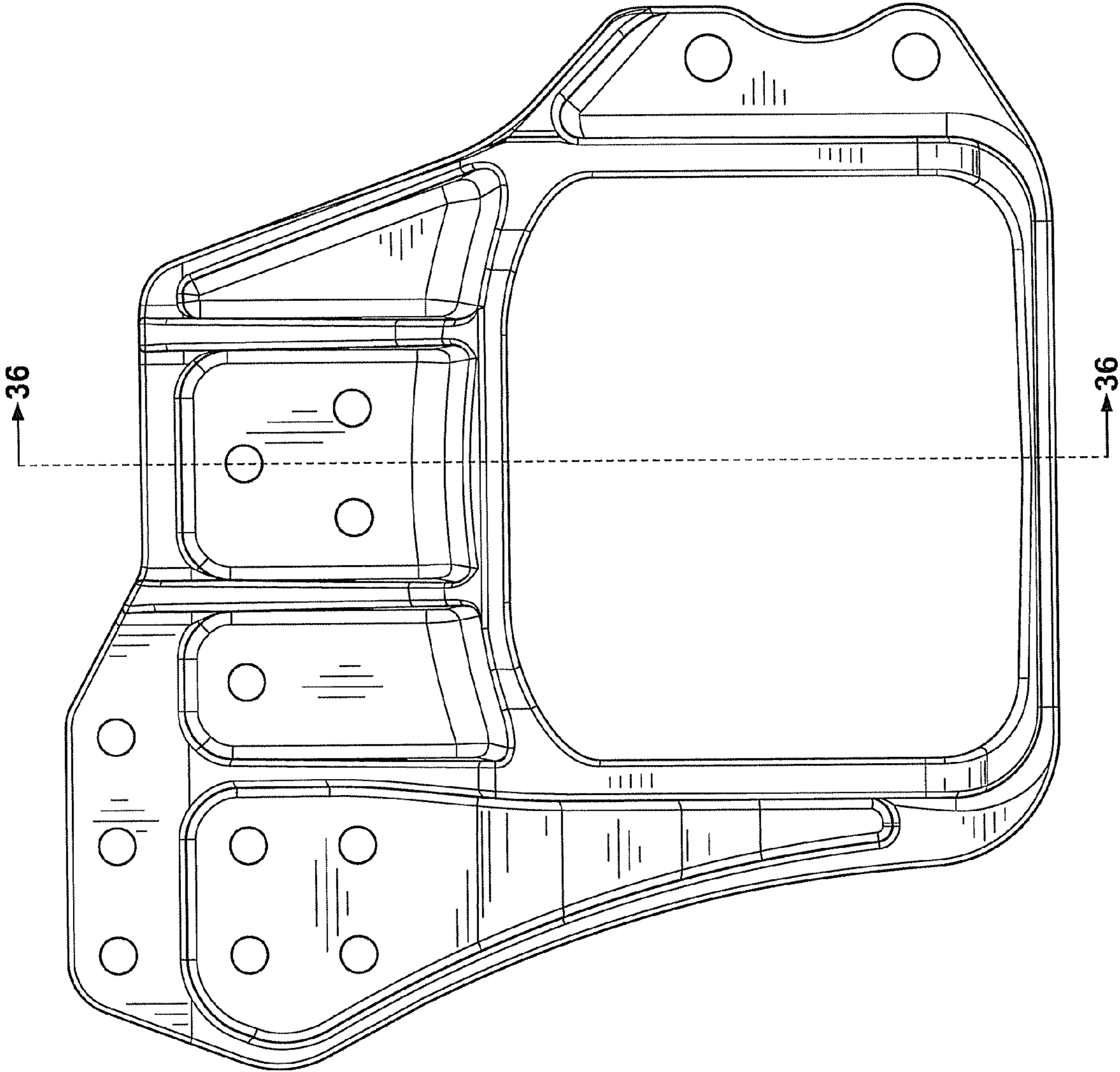


FIG. 21

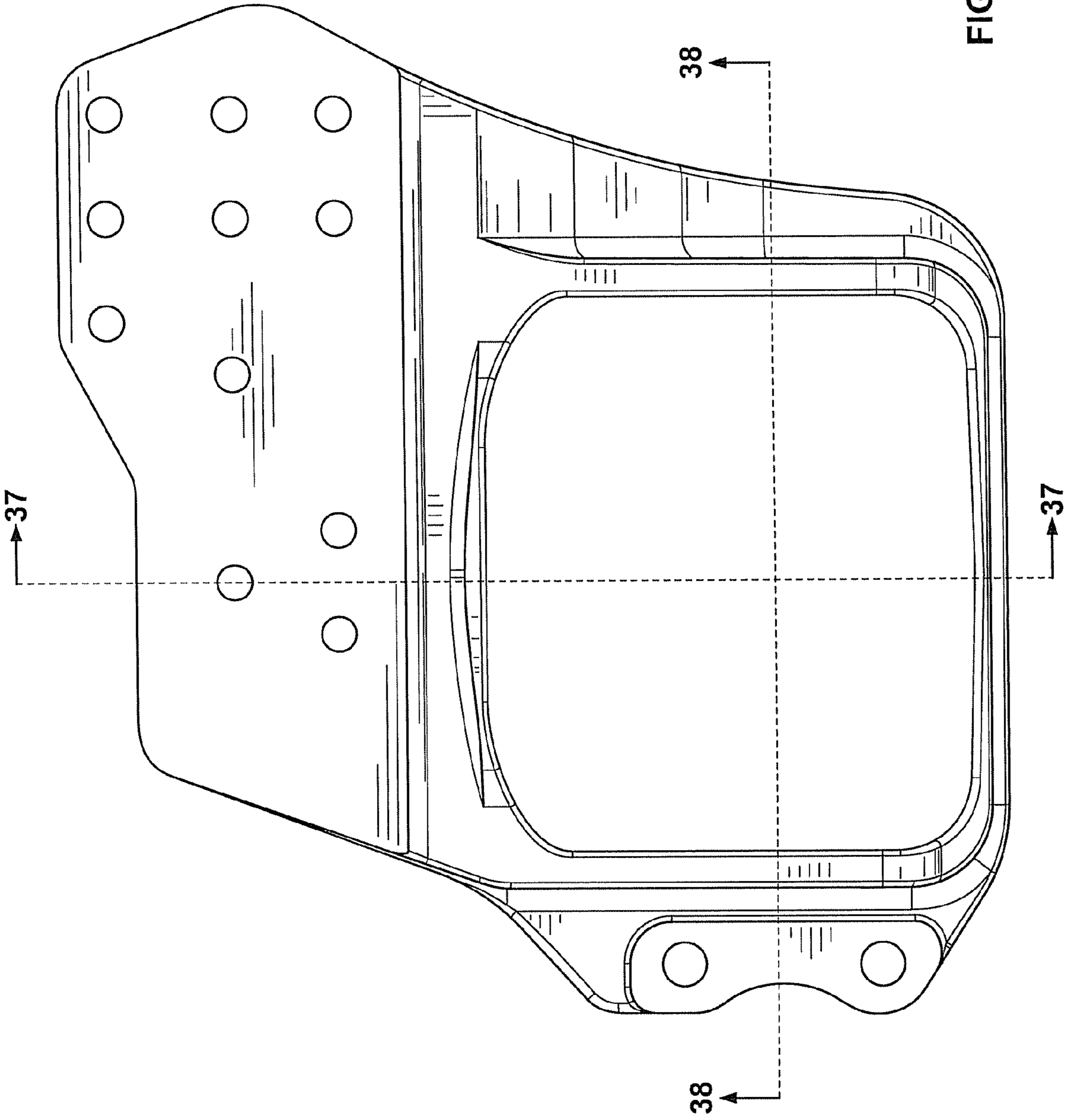


FIG. 22

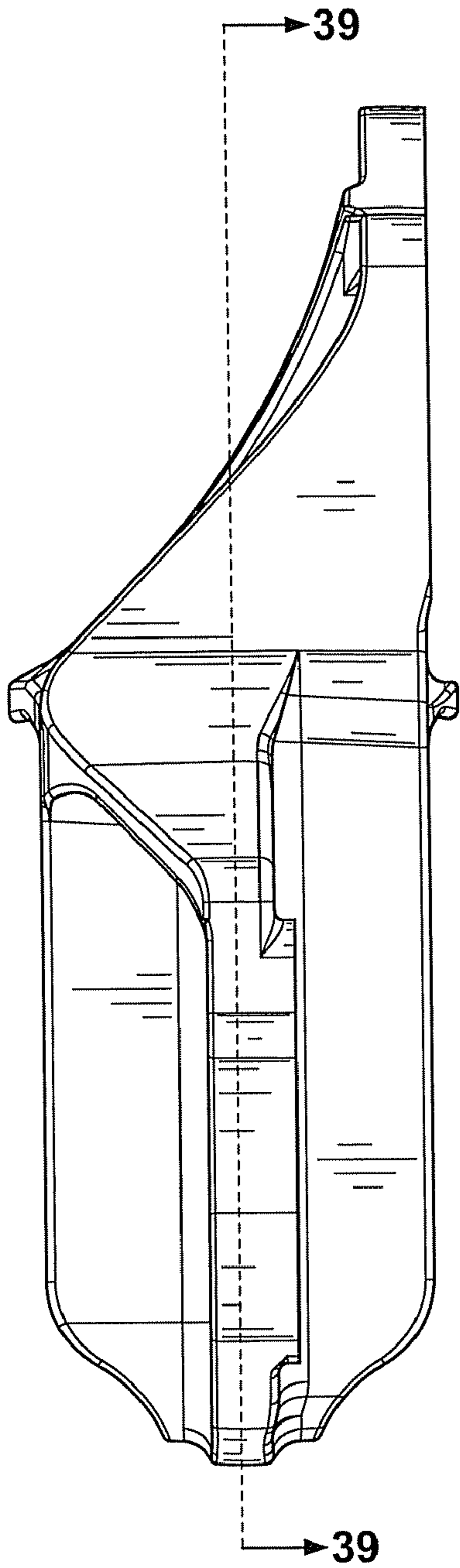


FIG. 23

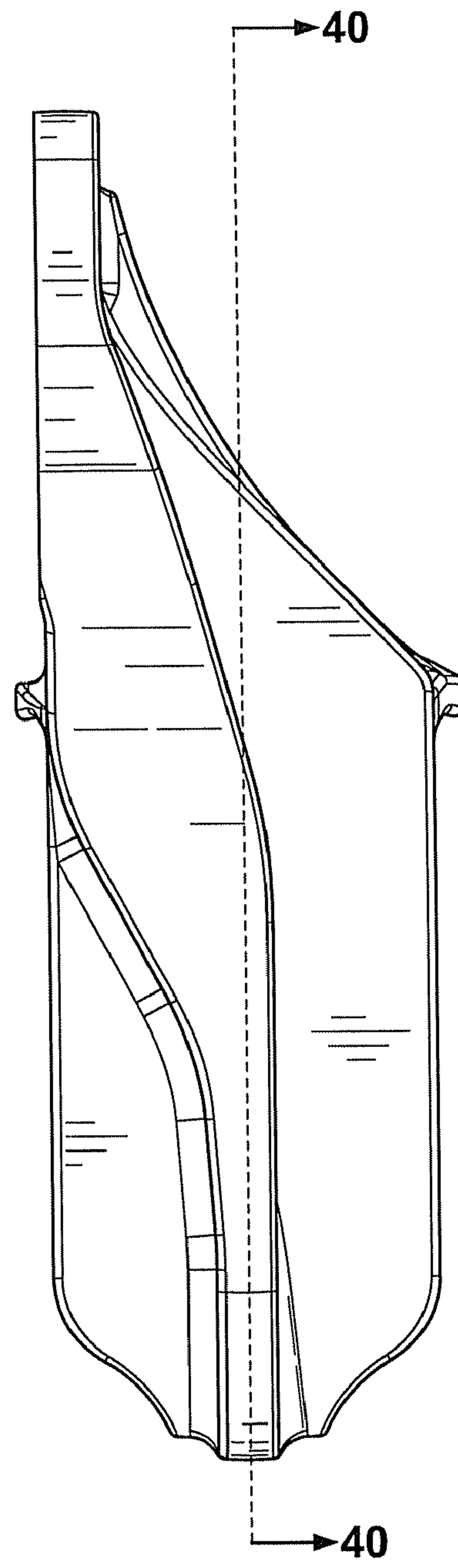


FIG. 24

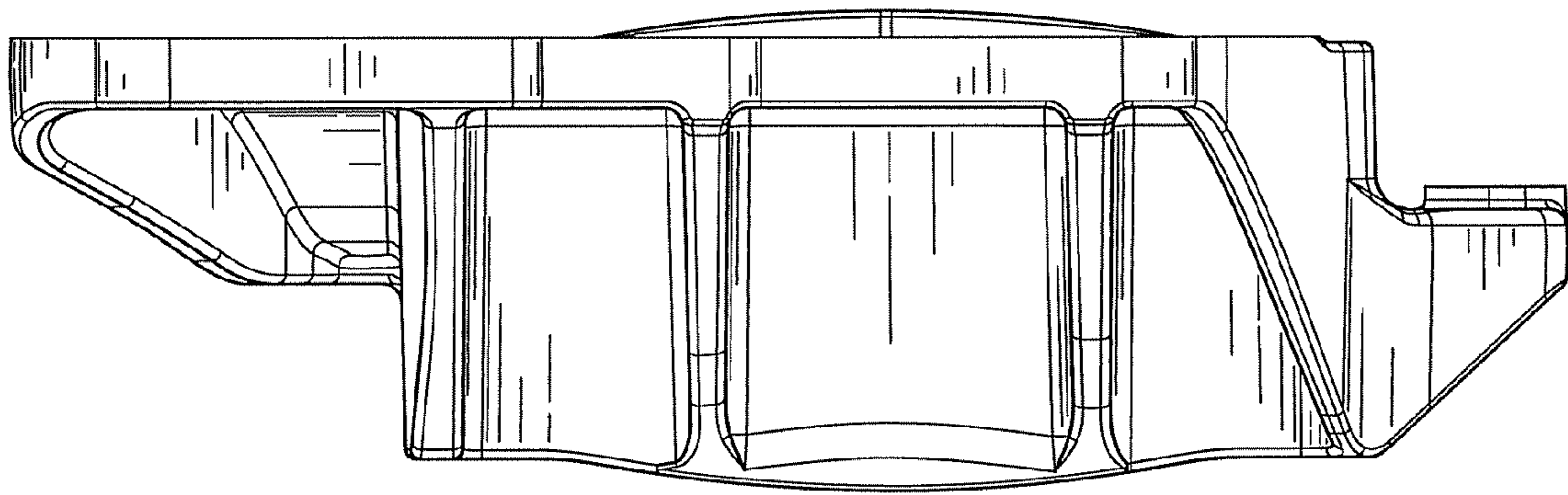


FIG. 25

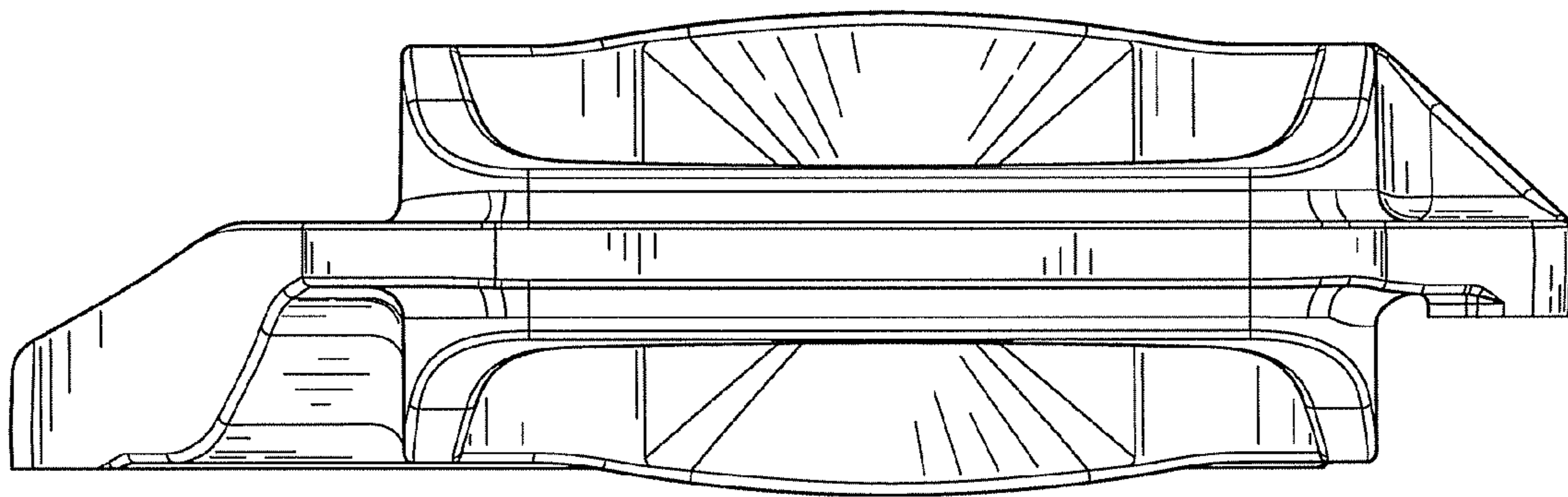


FIG. 26

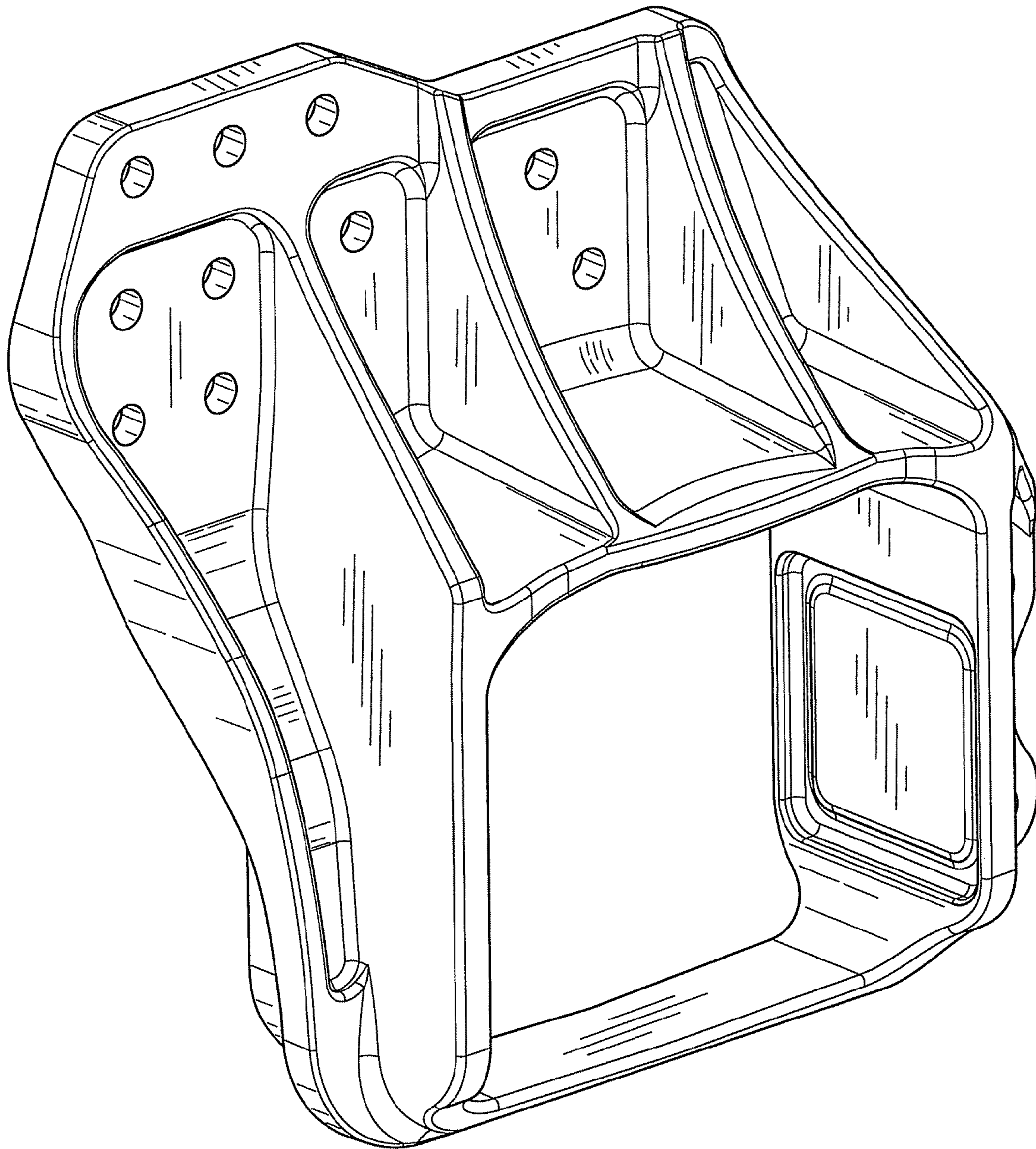


FIG. 27

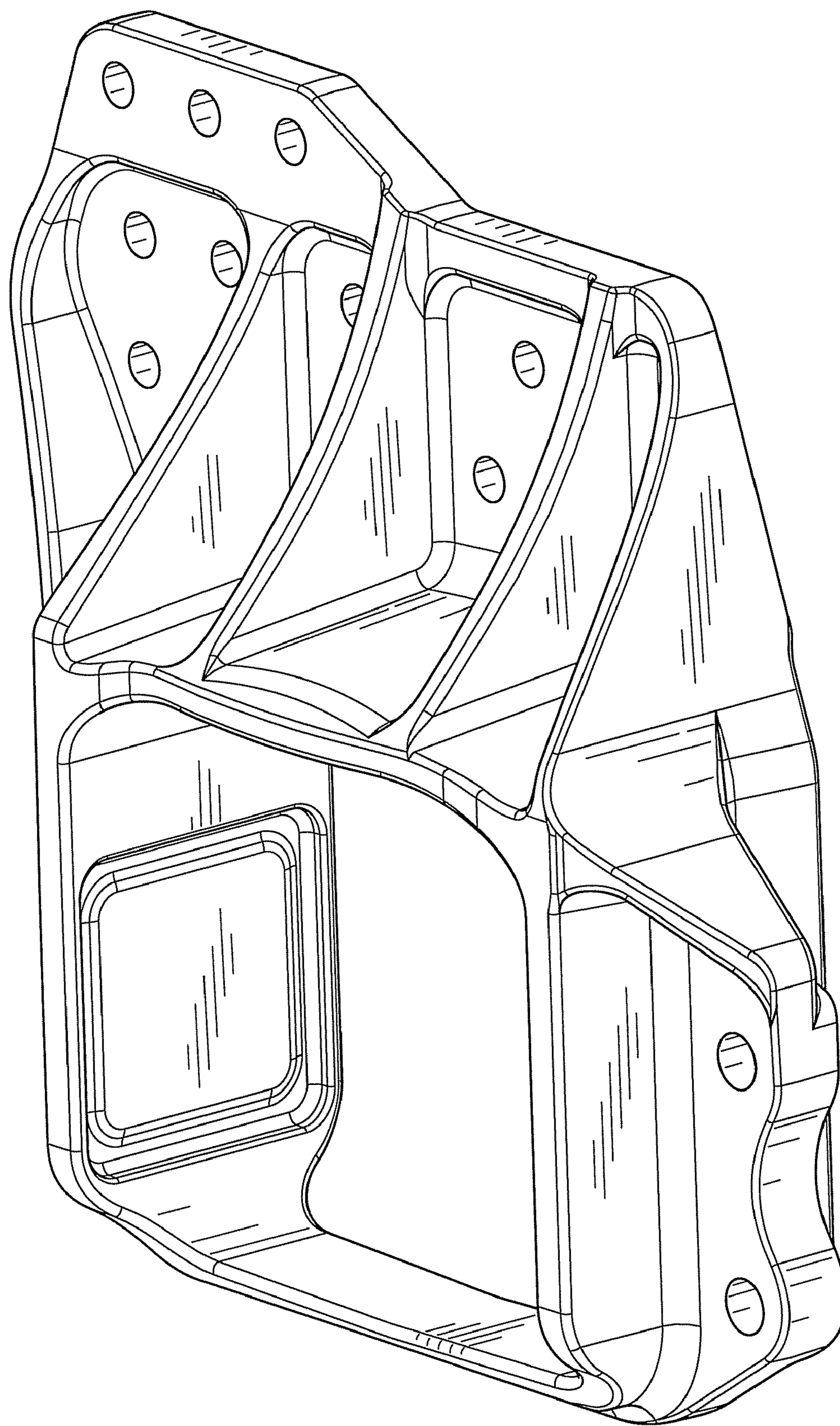


FIG. 28

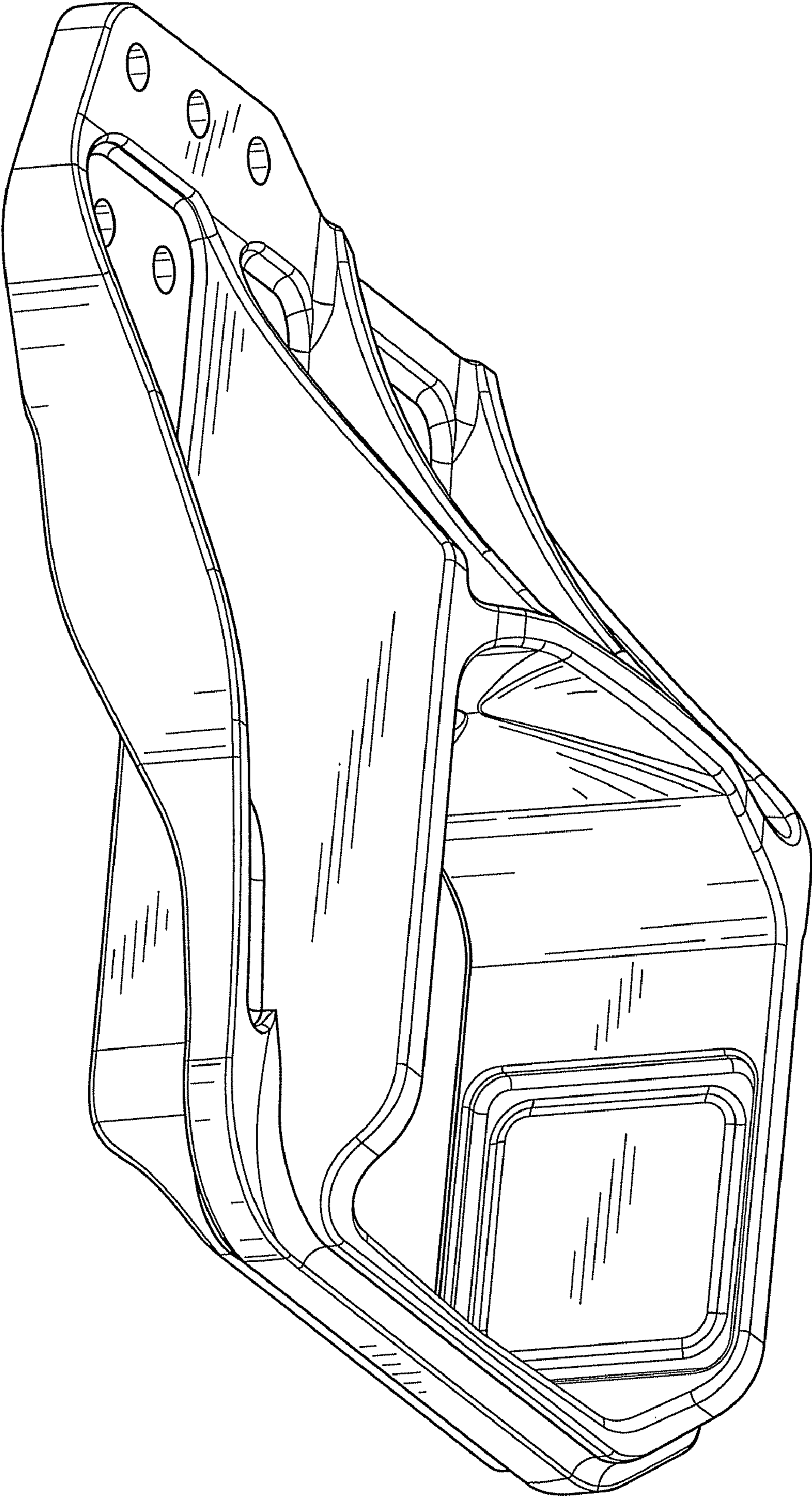


FIG. 29

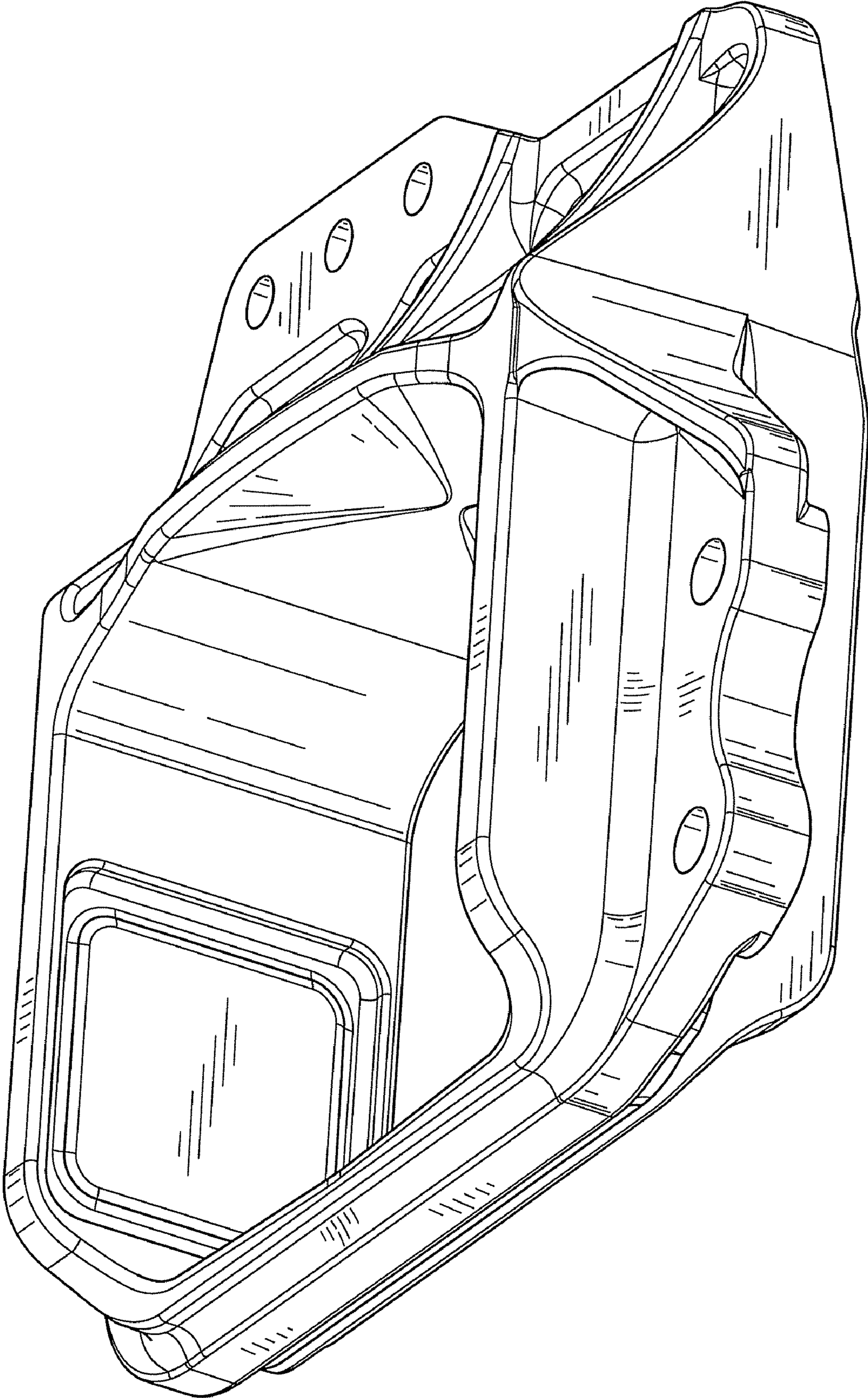


FIG. 30

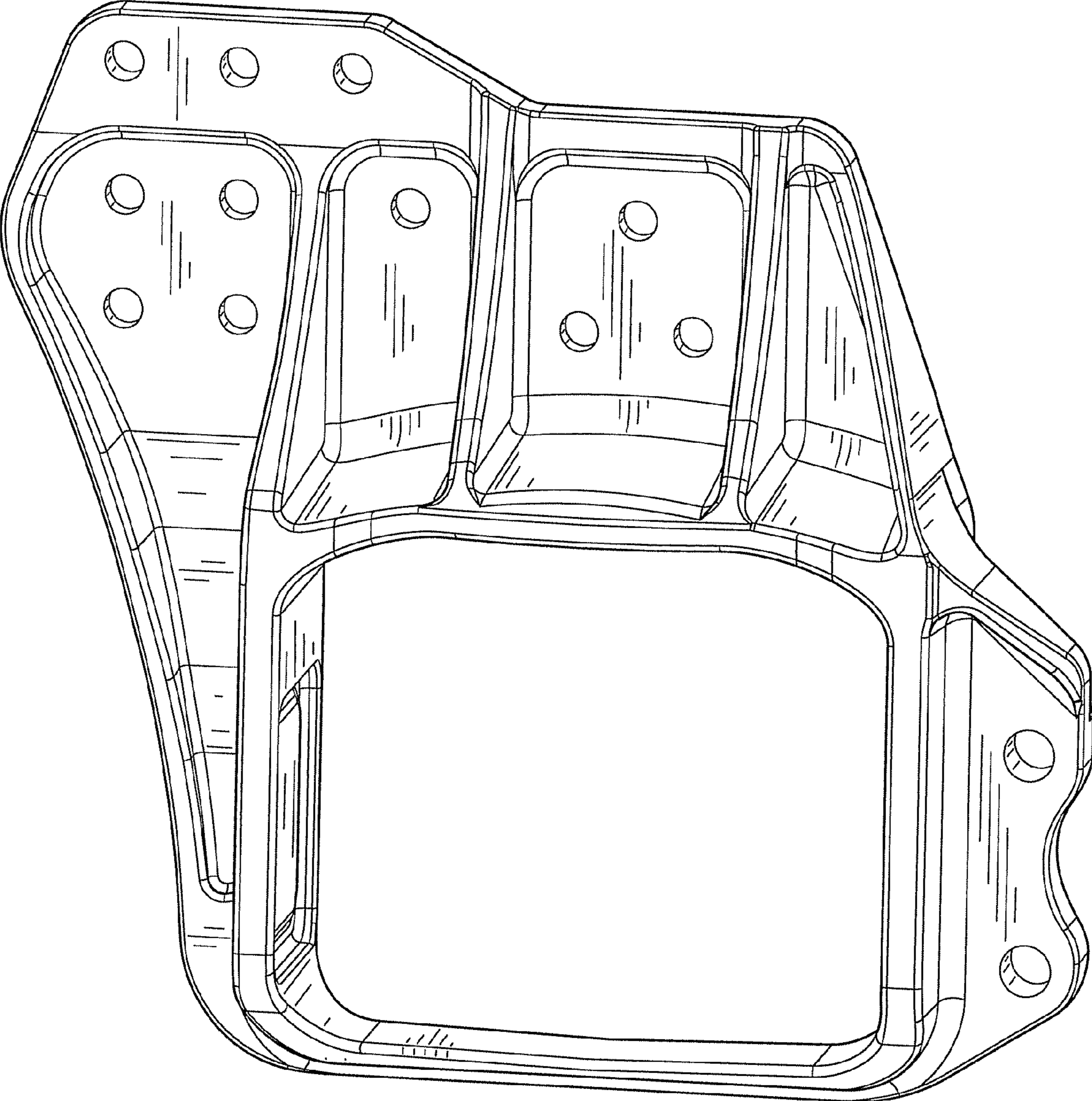


FIG. 31

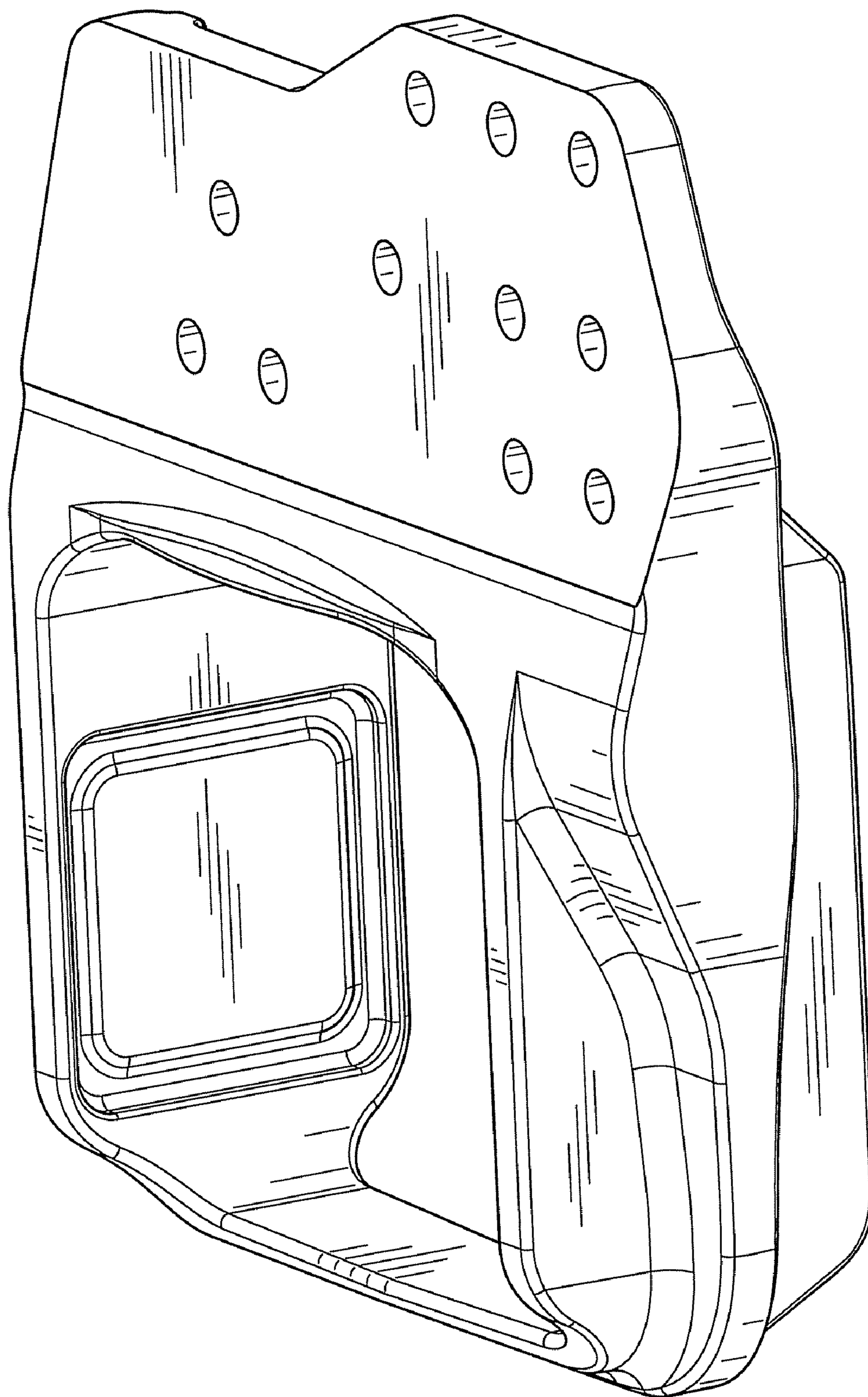


FIG. 32

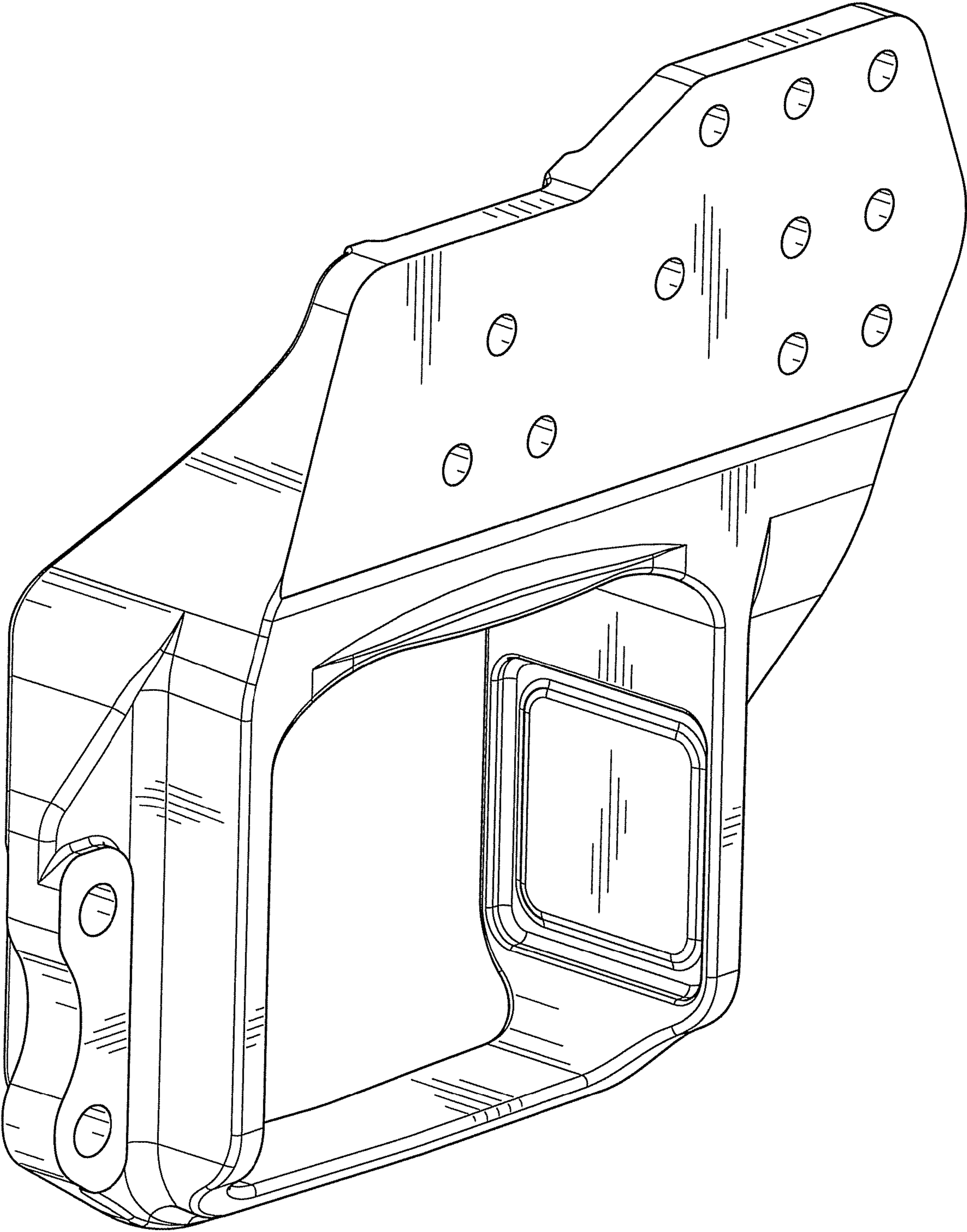


FIG. 33

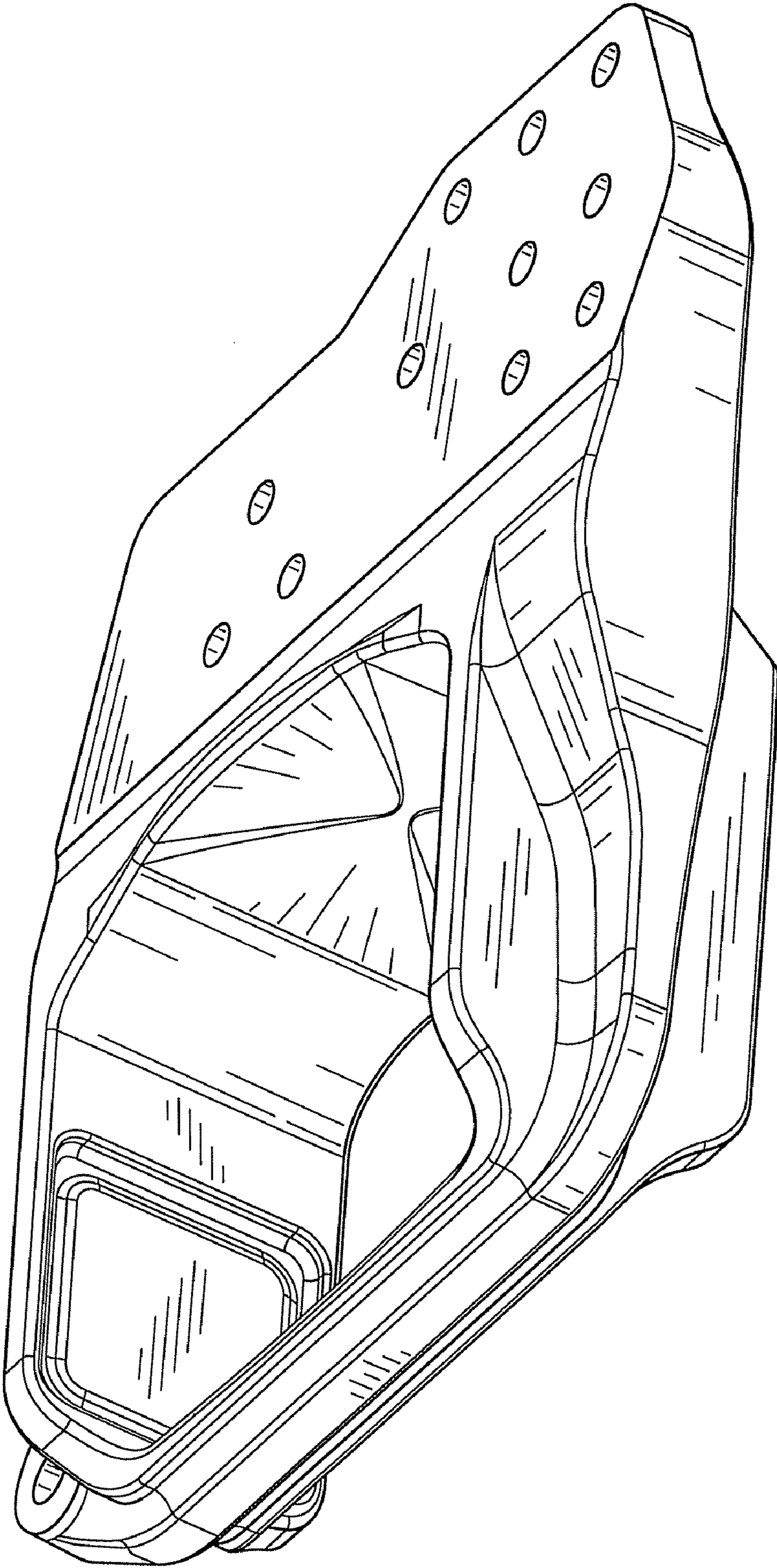


FIG. 34

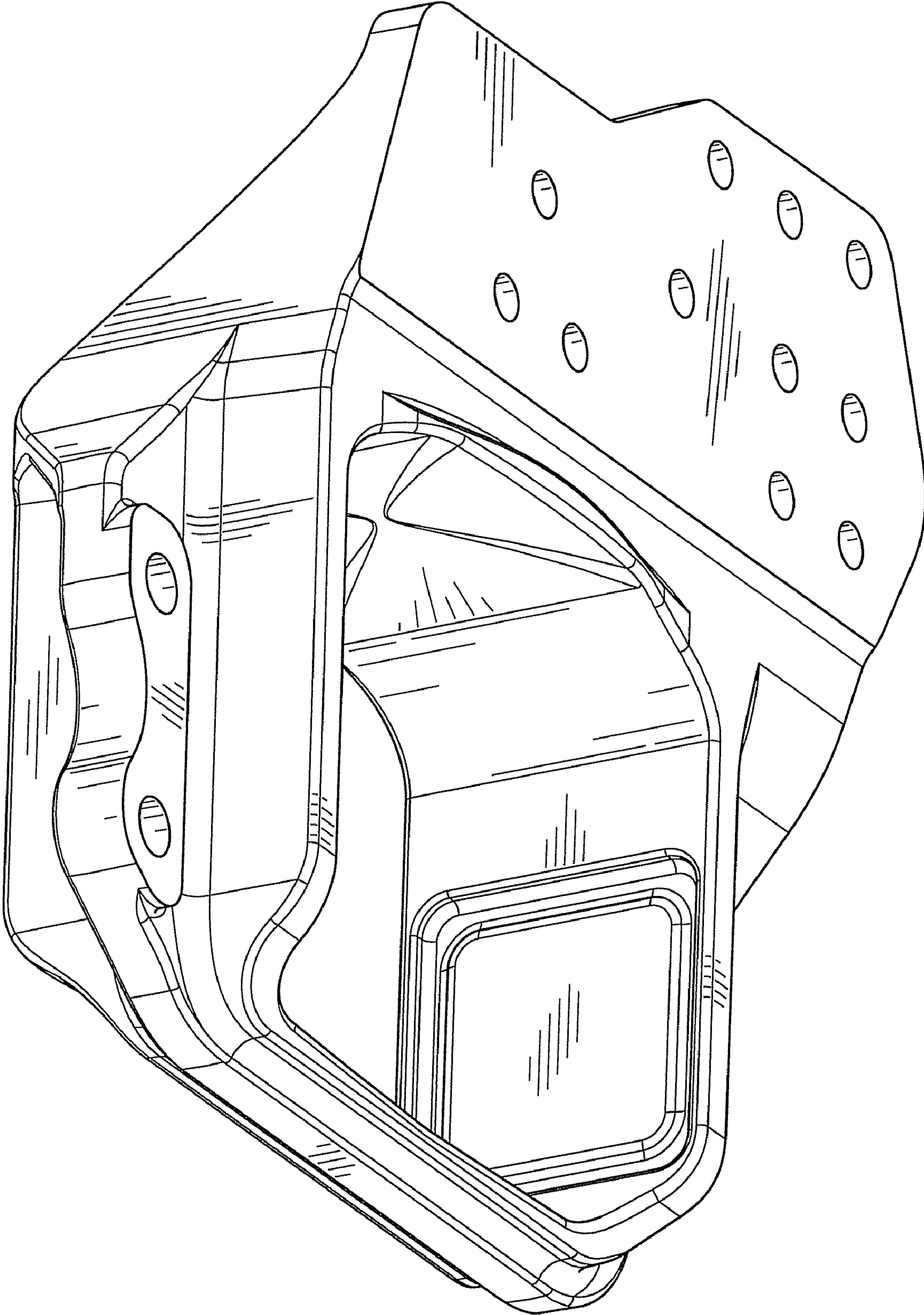


FIG. 35

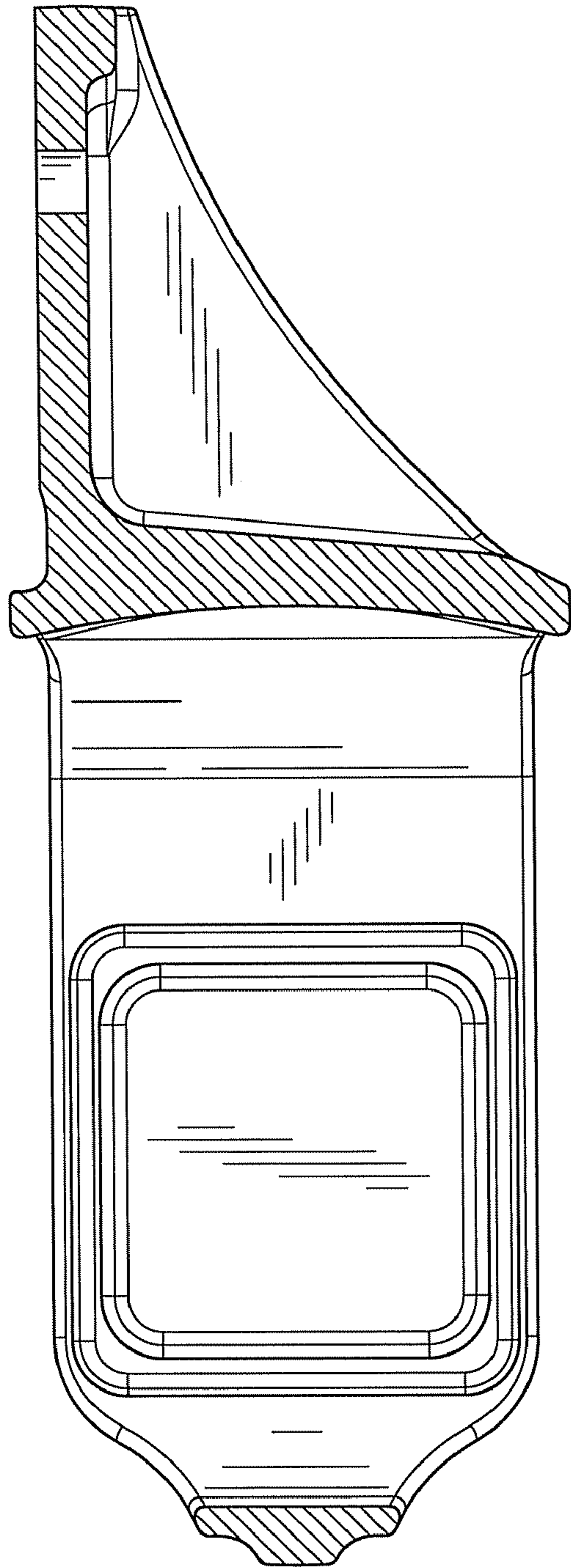


FIG. 36

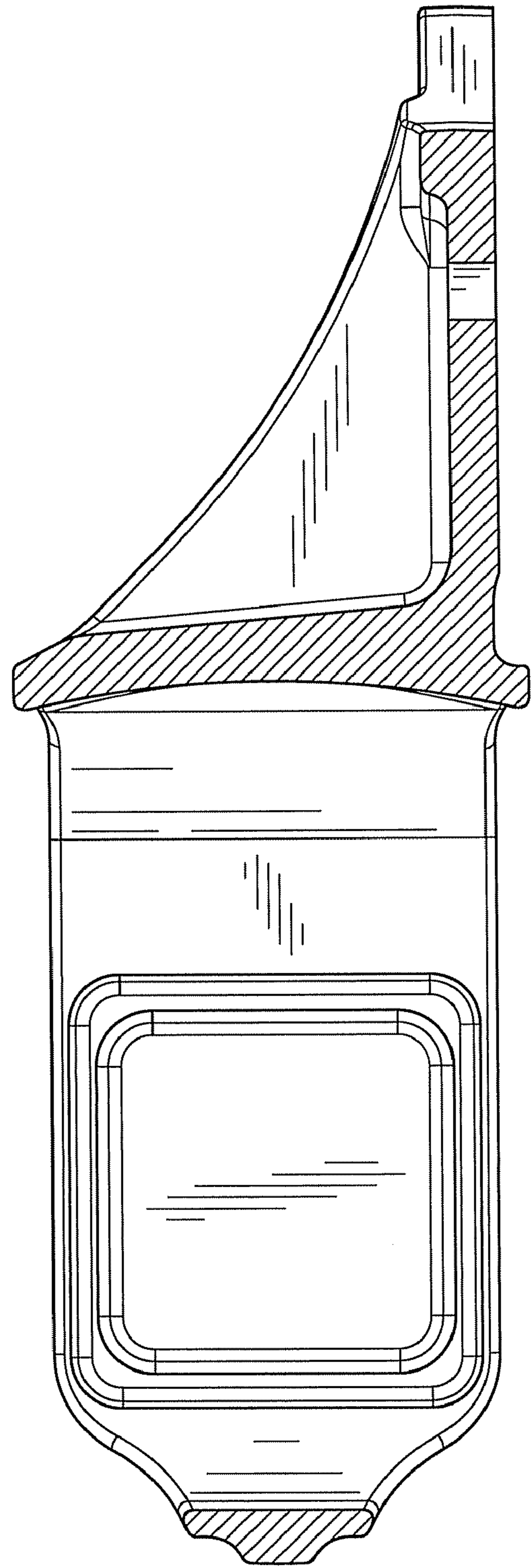


FIG. 37

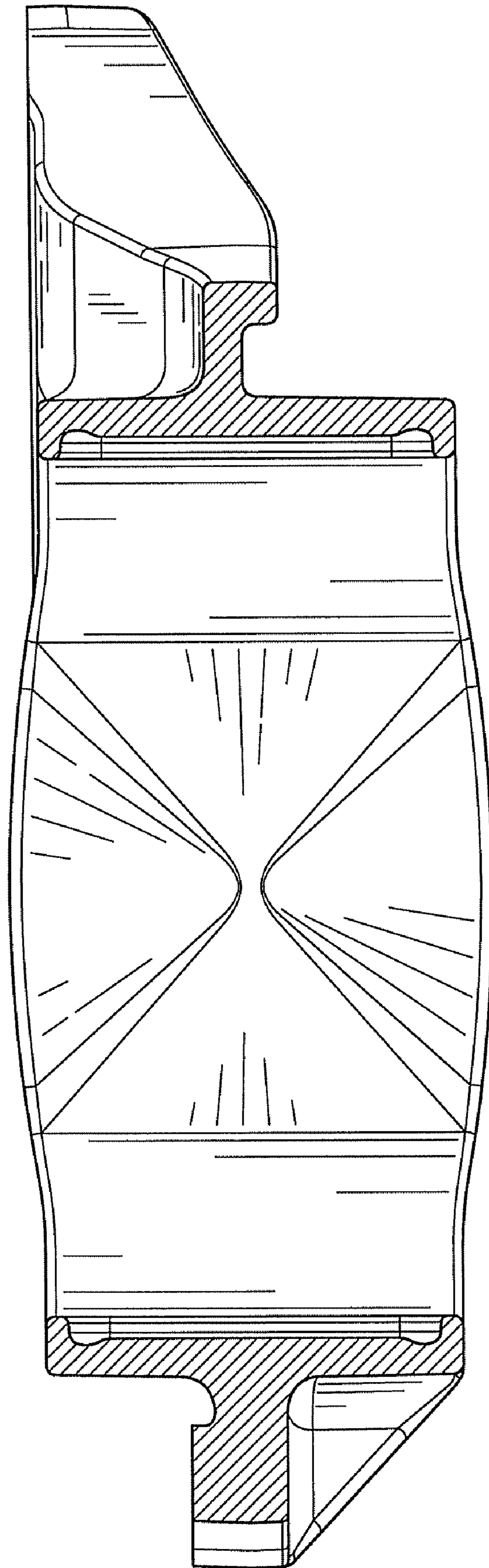


FIG. 38

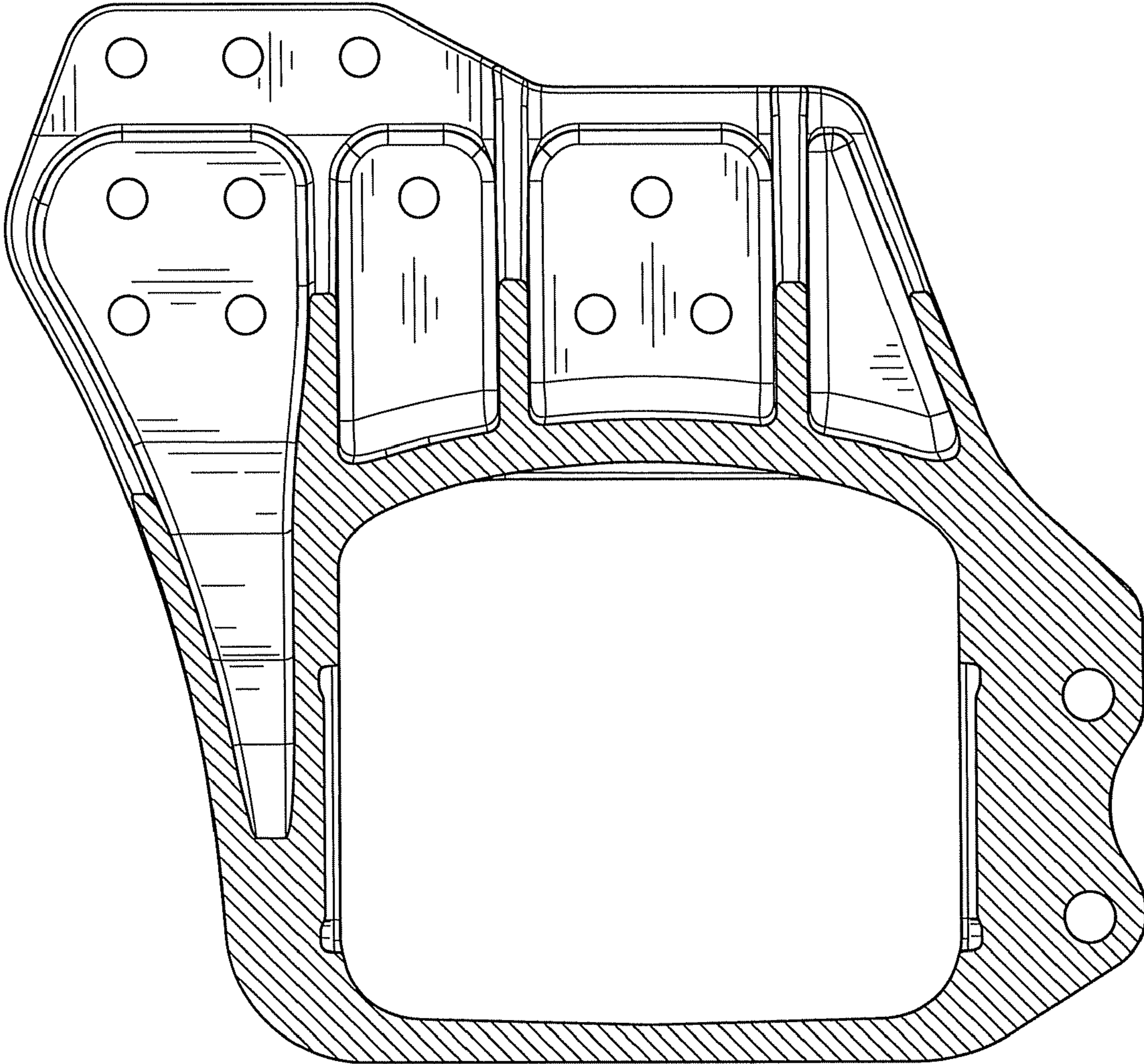


FIG. 39

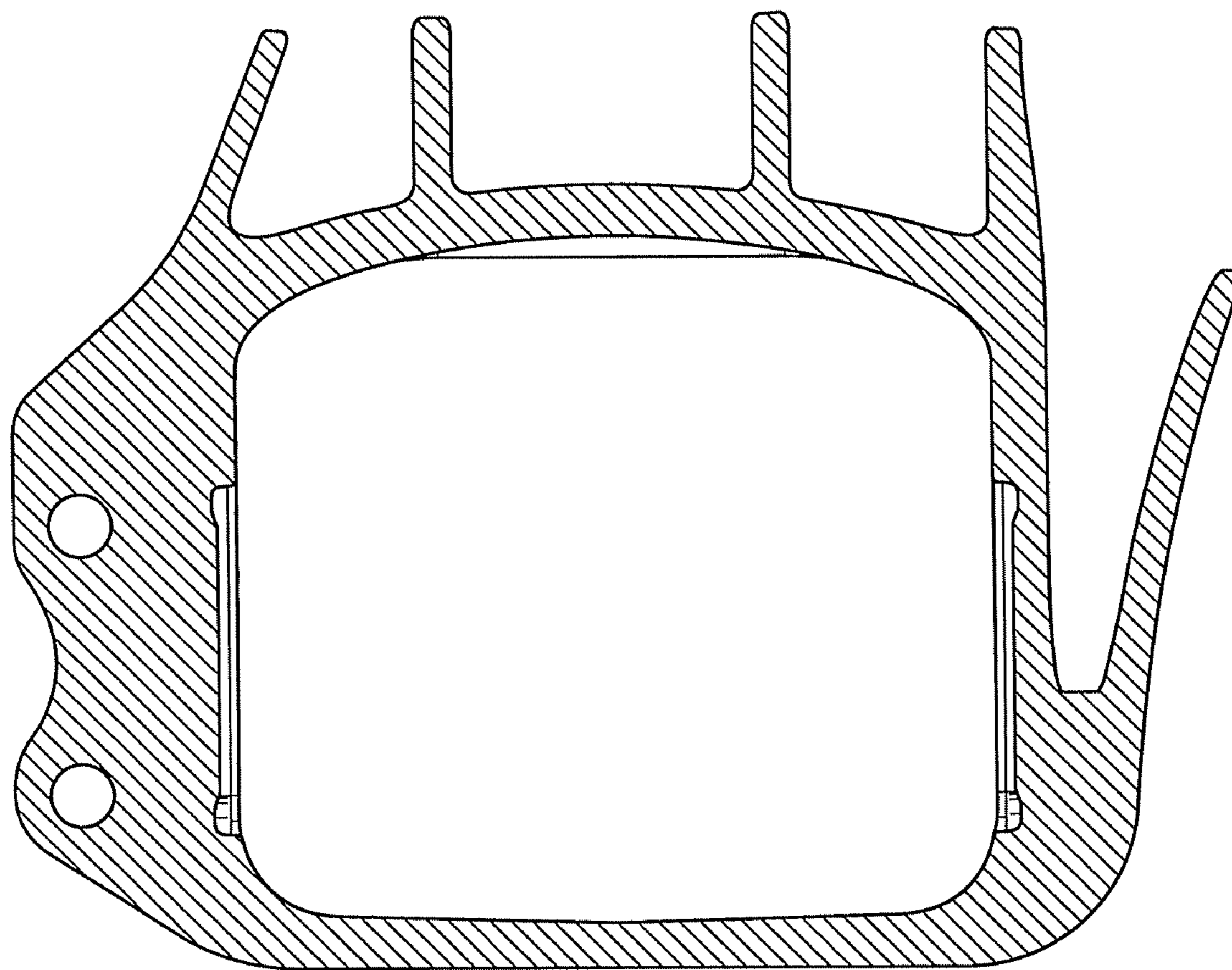


FIG. 40