



US00D603303S

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

(10) **Patent No.:** **US D603,303 S**  
(45) **Date of Patent:** **\*\* Nov. 3, 2009**

- (54) **SUSPENSION SPRING**
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- (73) Assignee: **Hendrickson USA, L.L.C.**, Itasca, IL (US)

4,793,597 A 12/1988 Smith  
 D306,476 S \* 3/1990 Millard ..... D22/123  
 4,944,402 A \* 7/1990 Wu ..... 206/581  
 5,114,178 A 5/1992 Baxter  
 5,150,918 A 9/1992 Heitzmann  
 5,237,933 A 8/1993 Bucksbee  
 5,327,674 A \* 7/1994 Powell ..... 43/71

(Continued)

- (\*\*) Term: **14 Years**
- (21) Appl. No.: **29/329,359**
- (22) Filed: **Dec. 12, 2008**

**OTHER PUBLICATIONS**

Hendrickson USA, L.L.C., Technical Procedure R/RS/RT Heavy Duty, Lit. No. 17730-149, Revision C, Jul. 2006.

(Continued)

**Related U.S. Application Data**

- (63) Continuation-in-part of application No. 12/045,069, filed on Mar. 10, 2008.

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- (51) **LOC (9) Cl.** ..... **12-16**
- (52) **U.S. Cl.** ..... **D12/160**
- (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

(57) **CLAIM**

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

See application file for complete search history.

**DESCRIPTION**

FIG. 1 is a perspective view showing the top, front, and right side of a suspension spring having the inventive design;  
 FIG. 2 is a top view of the suspension spring shown in FIG. 1;  
 FIG. 3 is a front elevational view of the suspension spring shown in FIG. 1 and the back elevational view is identical to the front elevational view;  
 FIG. 4 is a right side elevational view of the suspension spring shown in FIG. 1 and the left side elevational view is identical to the right side elevational view; and,  
 FIG. 5 is a bottom view of the suspension spring shown in FIG. 1.

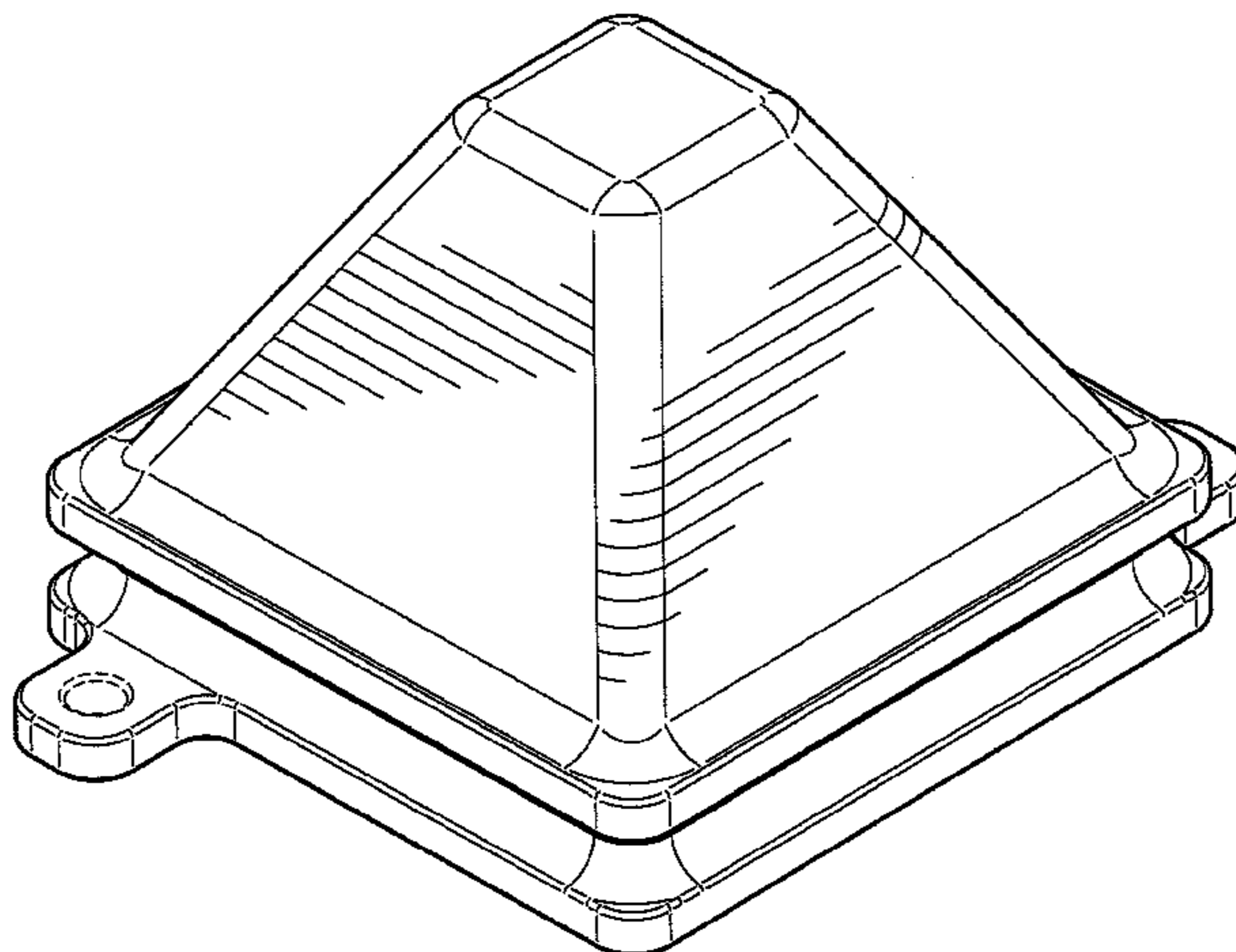
The broken lines showing on the flanges in FIGS. 1, 2 and 5 is included for the purpose of illustrating environment and forms no part of the claimed design.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

- 3,279,820 A 10/1966 Hickman
- 3,997,151 A 12/1976 Leingang
- 4,095,690 A \* 6/1978 Baldwin ..... 206/312
- 4,132,433 A 1/1979 Willetts
- 4,144,978 A 3/1979 Drake
- 4,162,799 A 7/1979 Willetts
- 4,182,338 A 1/1980 Stanulis
- 4,193,612 A 3/1980 Masser
- 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
- 4,753,456 A 6/1988 Booher

**1 Claim, 3 Drawing Sheets**



U.S. PATENT DOCUMENTS

D377,961 S \* 2/1997 Dickson et al. .... D22/122  
 5,676,356 A 10/1997 Ekonen et al.  
 D390,305 S \* 2/1998 Dickson et al. .... D22/122  
 5,810,337 A 9/1998 McLaughlin  
 5,868,384 A 2/1999 Anderson  
 5,957,441 A 9/1999 Tews  
 5,989,075 A \* 11/1999 Hsiao et al. .... 439/733.1  
 D423,342 S \* 4/2000 Popesco ..... D9/636  
 6,176,345 B1 \* 1/2001 Perkins et al. .... 181/173  
 6,276,674 B1 8/2001 Randell  
 6,328,294 B1 12/2001 Palinkas  
 6,478,321 B1 11/2002 Heitzmann  
 D471,888 S \* 3/2003 Solland ..... D14/204  
 6,572,087 B2 6/2003 Schleinitz et al.  
 6,585,286 B2 7/2003 Adema et al.  
 6,659,438 B2 12/2003 Michael et al.  
 6,817,301 B1 11/2004 Bullock  
 6,877,623 B2 4/2005 Salis  
 D519,104 S \* 4/2006 Richter ..... D14/207  
 7,185,903 B2 3/2007 Dove  
 7,229,088 B2 6/2007 Dudding et al.  
 7,234,723 B2 6/2007 Sellers  
 D551,315 S \* 9/2007 Zimmerman ..... D22/119  
 7,303,200 B2 12/2007 Ramsey  
 7,320,538 B2 \* 1/2008 Ko et al. .... 362/606  
 2004/0262877 A1 12/2004 Sellers  
 2007/0262547 A1 \* 11/2007 Warinner ..... 280/124.17  
 2008/0018070 A1 \* 1/2008 Gottschalk ..... 280/86.5  
 2008/0030006 A1 2/2008 Sellers  
 2008/0122146 A1 5/2008 Herntier et al.  
 2008/0134413 A1 \* 6/2008 Guo ..... 2/171.02  
 2008/0290572 A1 \* 11/2008 Desprez et al. .... 267/178  
 2009/0008846 A1 1/2009 Yamakawa et al.

OTHER PUBLICATIONS

U.S. Appl. No. 12/045,069, entitled "Elastomeric Spring Vehicle Suspension", filed Mar. 10, 2008.  
 Hendrickson, a Boler Company, Hendrickson Frame Hanger Selection Guide, May 1990.  
 Hendrickson, a Boler Company, Hendrickson RS Series, Single Axle Suspension, Sep. 1995.  
 Hendrickson, RS Series Rubber Load Cushion, Only Hendrickson makes choosing a heavy-duty suspension this easy, Jun. 1993.  
 Hendrickson, a Boler Company, HN Series Technical Sales Publication, Jun. 1997.  
 Hendrickson Suspension, RS Series rubber load cushion, Jul. 1991.  
 Hendrickson MFG., Tandem Division, Wide spread equalizing beams, sales bulletin, May 1981.  
 Hendrickson MFG. Co., Tandem Division, Hendrickson Tandem Suspensions for GMC Trucks, Aug. 1979.  
 Hendrickson, the Boler Company, RS Frame Hanger, Dec. 1997.  
 Hendrickson, a Boler Company, RS Series Rubber Load Cushion Suspensions, Mar. 1996.  
 Hendrickson, a Boler Company, RS Series Rubber Load Cushion Suspensions, Jul. 1996.  
 Hendrickson, a Boler Company, RS Series Rubber Load Cushion, Mar. 1998.  
 Hendrickson Suspension, HN Series Premium Rubber, Hendrickson introduces a completely new concept in Walking Beam Suspension, Jun. 1993.  
 Hendrickson Suspension, a Boler Company, Hendrickson HNT Series, Feb. 1992.  
 Hendrickson Suspension, Sales Engineering Update, Mar. 1993.  
 Hendrickson Truck Suspension Systems, a Boler Company, RS Series Rubber Load Cushion, Dec. 1996.  
 Hendrickson Truck Suspension Systems, a Boler Company, RS Series Rubber Load Cushion, Apr. 1998.  
 Hendrickson Truck Suspension Systems, a Boler Company, HN Series VariRate Spring System, May 1997.

Hendrickson Truck Suspension Systems, a Boler Company, HN Series VariRate Spring System, Nov. 1997.  
 Hendrickson Truck Suspension Systems, a Boler Company, HN Series VariRate Spring System, Sep. 1998.  
 Hendrickson Truck Suspension Systems, a Boler Company, HN Series VariRate Spring System, Jul. 1999.  
 Hendrickson, HN Series VariRate Spring System, Nov. 2000.  
 Hendrickson, HN Series VariRate Spring System, Nov. 2005.  
 Hendrickson Truck Suspension Systems, a Boler Company, HN 402, Feb. 1996.  
 Hendrickson Truck Suspension Systems, a Boler Company, R Series Solid Mount, Jul. 1999.  
 Hendrickson Truck Suspension Systems, a Boler Company, RS Series Rubber Load Cushion, Jun. 1999.  
 Hendrickson, Haulmaax Heavy Duty Suspension, Oct. 2001.  
 Hendrickson, Haulmaax Heavy Duty Suspension, Dec. 2003.  
 Hendrickson, Haulmaax Heavy Duty Suspension, Mar. 2005.  
 Hendrickson, Haulmaax Heavy Duty Suspension, Jan. 2007.  
 Hendrickson, Haulmaax Heavy Duty Suspension, Mar. 2008.  
 Hendrickson, Assembly Instructions Haulmaax, Subject: Kit Nos. 64178-003 & 004, Feb. 2003.  
 Hendrickson, Assembly Instructions Haulmaax, Subject: Tie-bar Bolster Spring Kit Nos. 64179-037, Jun. 2006.  
 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 Saddle Assembly, Subject: Service Kit No. 57974-048, Dec. 2008.  
 Hendrickson, Technical Bulletin HN 402/462/522, Subject: Auxiliary Spring Shim Design, Oct. 2000.  
 Hendrickson, Technical Bulletin HN 402/462/522, Subject: Auxiliary Spring Shim Design, Dec. 2000.  
 Hendrickson, Technical Bulletin HN 402/462/522, Subject: Auxiliary Spring Shim Design, Jun. 2006.  
 Hendrickson, Technical Bulletin Haulmaax Series, Subject: Mandatory Shock Applications, Nov. 2004.  
 Hendrickson, Technical Bulletin R, RS, RT/RTE 46K Capacity, Subject: 46K Heavy—Duty Beam Option, Dec. 2004.  
 Hendrickson, Technical Bulletin Haulmaax, Subject: 54" Equalizing Beam Assembly, Oct. 2005.  
 Hendrickson, Technical Bulletin Haulmaax 460, Subject: Bolster Spring Assembly with Tie-bar, Jun. 2006.  
 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: Model Designation and Discontinuation, Aug. 1999.  
 Hendrickson Truck Suspension Systems, a Boler Company, Sales engineering update, Subject: Equalizer Beam, Aug. 1999.  
 Hendrickson, Parts List RS Series, Nov. 2004.  
 Hendrickson, Parts List Haulmaax, May 2002.  
 Hendrickson, Parts List Haulmaax, Jul. 2003.  
 Hendrickson, Parts List Haulmaax, Jul. 2006.  
 Hendrickson, Parts List Haulmaax, Dec. 2007.  
 Hendrickson, Parts List RS 400/460/480/520 Jan. 1998.  
 Hendrickson, Parts List HN 402/462, Sep. 1997.  
 Hendrickson, Parts List HN Series, Dec. 2004.  
 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, Technical Procedure HN/HNT-400/460 Truck & Trailer Suspension in Production Nov. 1988-Sep. 1996, Apr. 1998.  
 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, Technical Procedure Haulmaax, Subject: Service Instructions, May 2002.

Hendrickson, Technical Procedure Haulmaax, Subject: Service Instructions, Jun. 2007.

Hendrickson, Technical Procedure Haulmaax, Subject: Pre-delivery Inspection and Preventive Maintenance, Apr. 2006.

Hendrickson, Technical Procedure Haulmaax, Subject: Service Instructions, Dec. 2007.

Hendrickson, Technical Procedure R/RS/RT Heavy Duty, Subject: 650K/850K/1000K Pound Capacity Beam End Connection Tightening Torque Procedure, Jul. 2006.

Hendrickson, RS Series Rubber Load Cushion, Feb. 2000.

MOR/Ryde, The MOR/ryde Steer and Drive Axle Suspension Systems, Mar. 7, 2008.

MOR/Ryde, Company Profile, downloaded from the World Wide Web at <http://www.morrydede.com/php/about/profile/php> on Feb. 28, 2008.

MOR/Ryde, T/A Modular Rubber Suspension System, Service Manual, Mar. 5, 2003.

MOR/Ryde, Tandem Axle Rubber Suspension Sytem, Service Manual, Suspension Codes: T01-01 and L01-01, Mar. 5, 2003.

MOR/Ryde, RL Rubber Leaf Suspension System, Owner's Manual, Mar. 12, 2003.

MOR/Ryde, Commercial Trailer Suspension, Jun. 1973.

MOR/Ryde, School Bus Suspension, Aug. 1973.

MOR/Ryde, A rubber spring . . . heart of the Mor/ryde system, Aug. 1973.

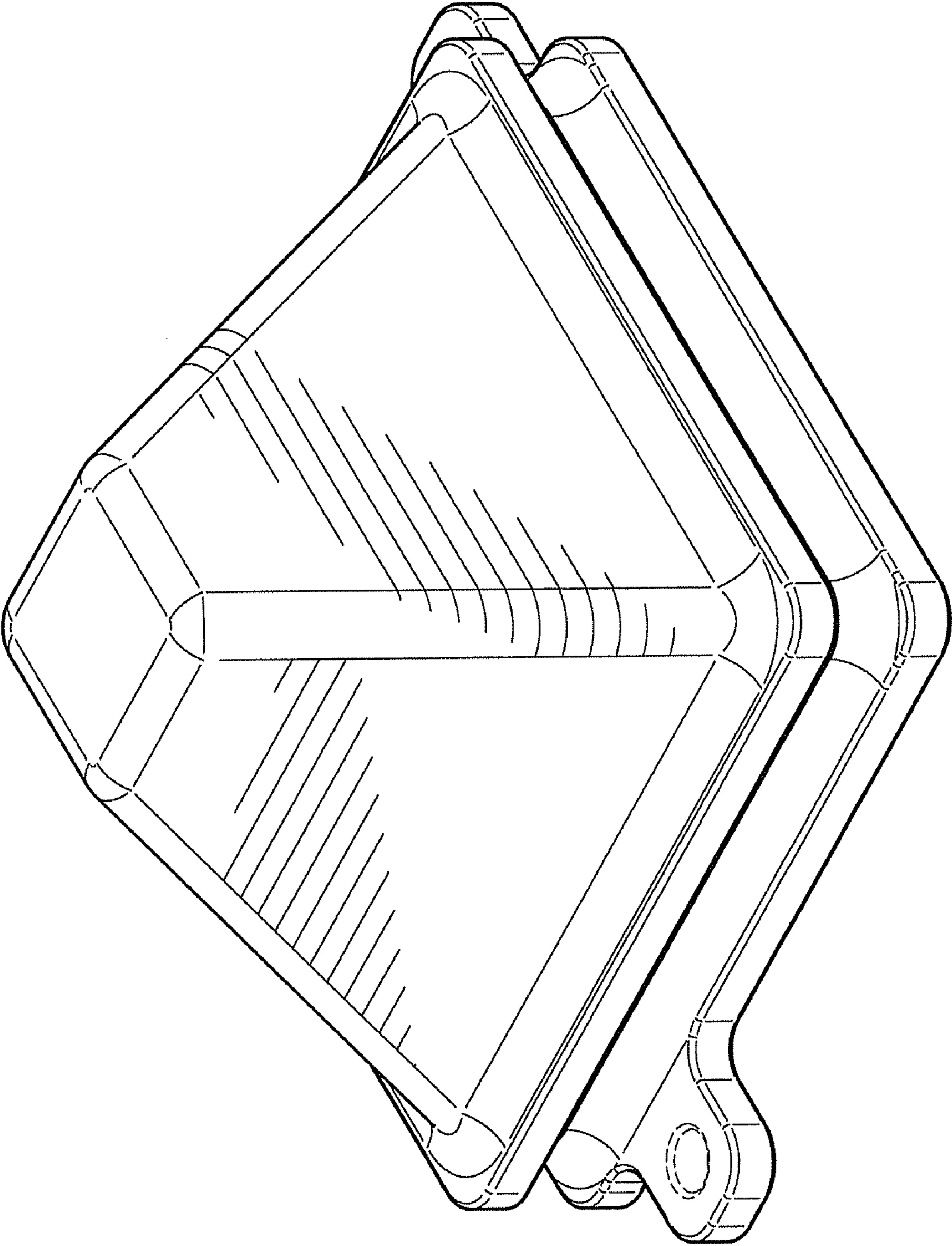
Jorn, Technology in Rubber—Metal, Sep. 29, 2008.

Hendrickson, Parts List RS Series, Apr. 2008.

Hendrickson, Technical Procedure, R/RS Heavy Duty, Subject: 85K/100K/120K lbs Capacity Tightening Torgue for Torque Rod and Saddle Assembly Fasteners, Oct. 2008.

U.S. Appl. No. 12/334,195, entitled "Modular Suspension System and Components Thereof", filed Dec. 12, 2008.

\* cited by examiner



**FIG. 1**

FIG. 3

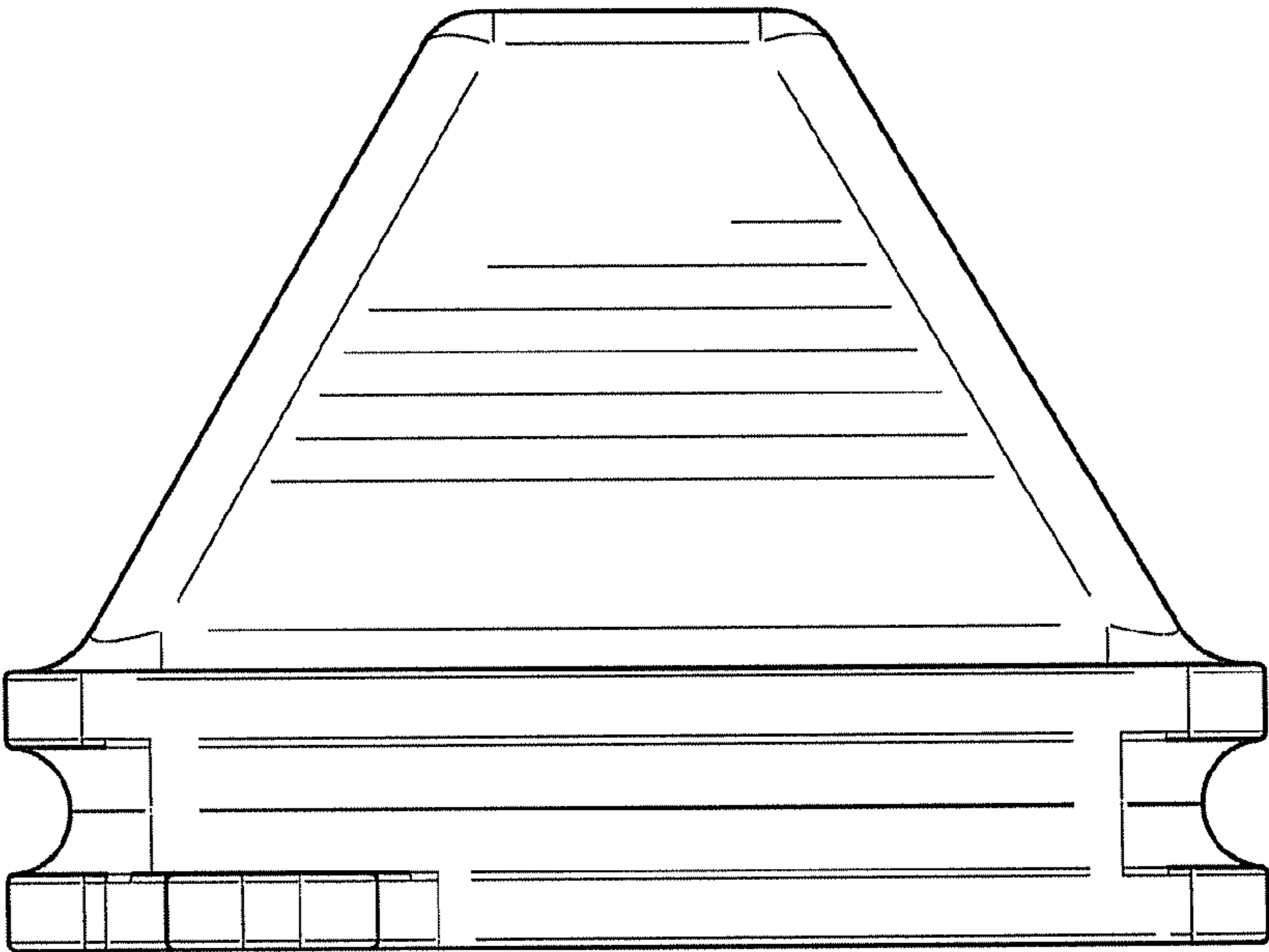
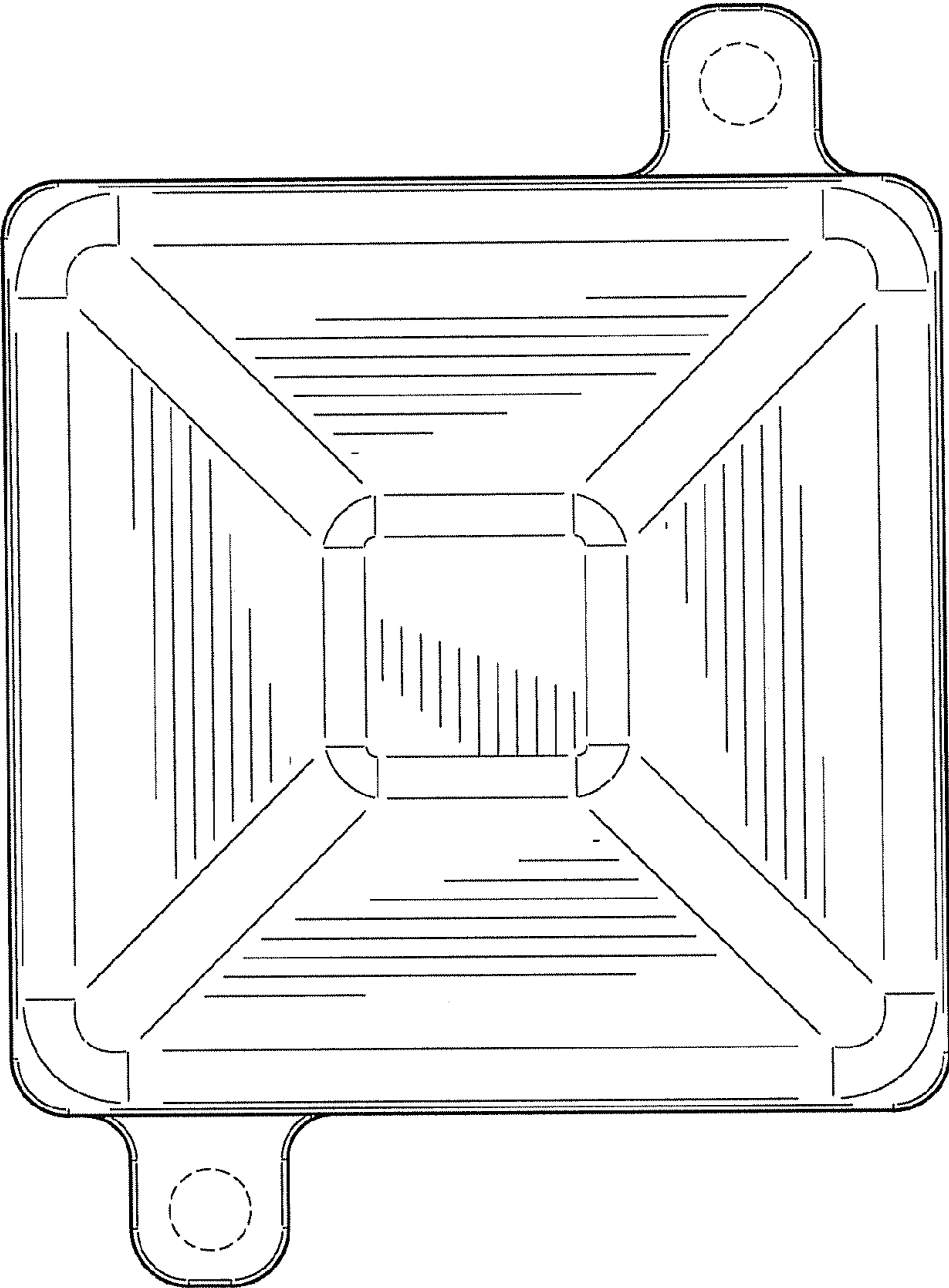


FIG. 2



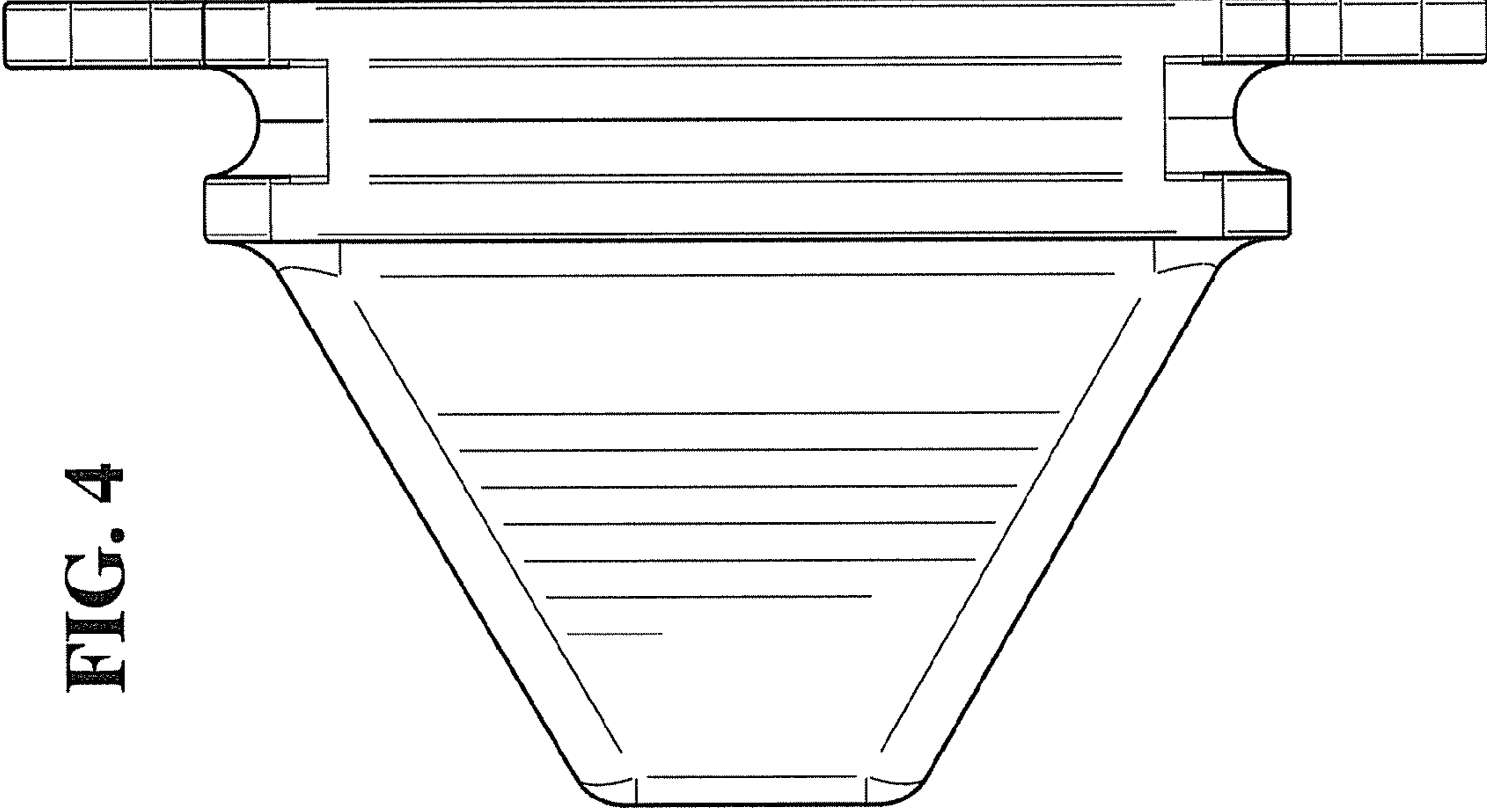
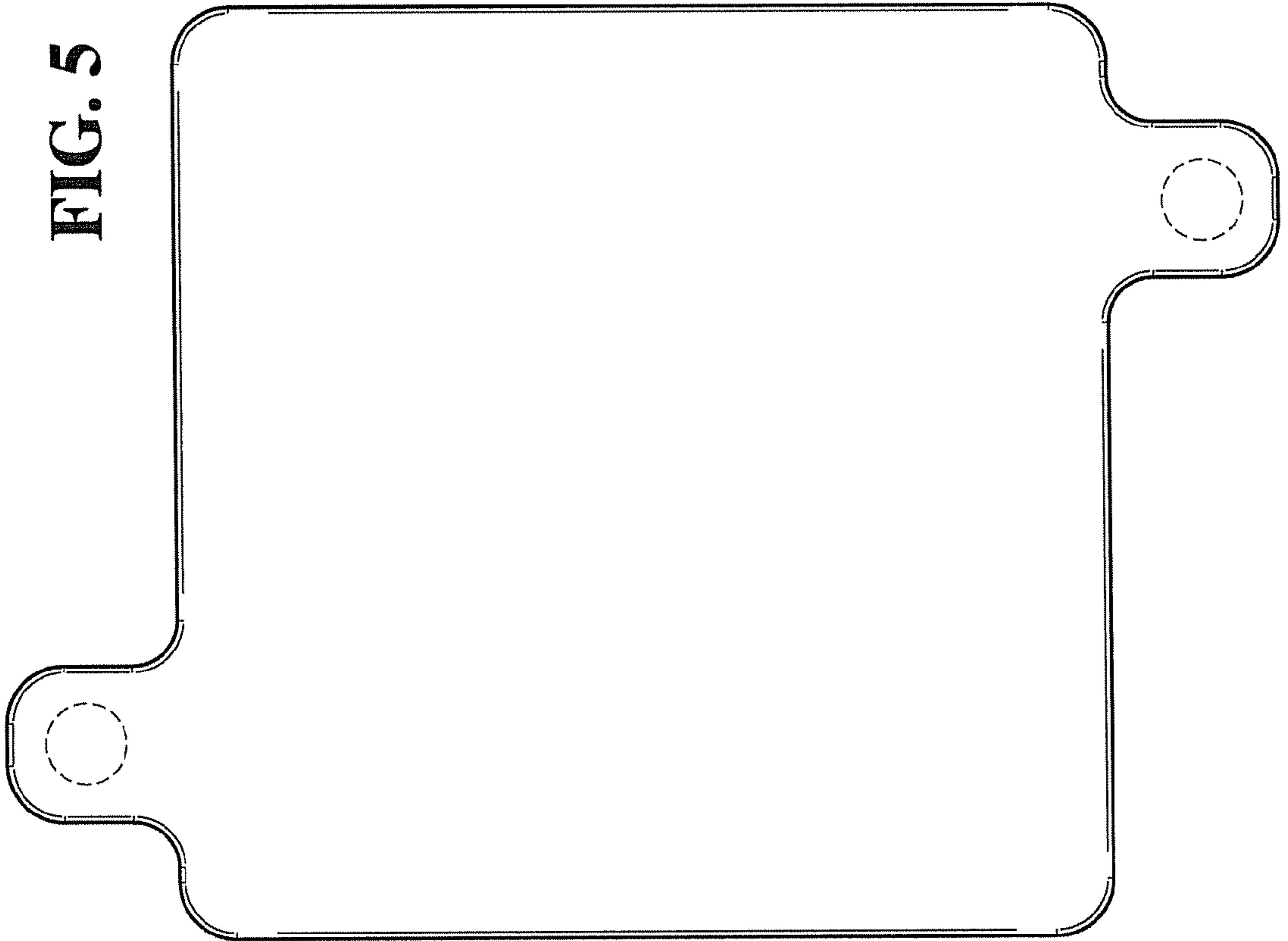


FIG. 5

FIG. 4