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

(10) **Patent No.:** **US D588,617 S**  
(45) **Date of Patent:** **\*\* Mar. 17, 2009**

(54) **NOZZLE ASSEMBLY**

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**Hubert Kufner**, Luneburg (DE)

(73) Assignee: **Nordson Corporation**, Westlake, OH  
(US)

(\*\*) Term: **14 Years**

(21) Appl. No.: **29/306,666**

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(51) **LOC (9) Cl.** ..... **15-09**

(52) **U.S. Cl.** ..... **D15/144**

(58) **Field of Classification Search** ..... D15/144,

D15/144.1, 14.2; D23/229; 222/52, 54-55,

222/146.5, 239, 320, 325, 389, 566, 567;

239/1, 11, 29, 71, 135, 296, 423, 536, 539

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

2,031,387 A	2/1936	Schwarz
2,212,448 A	8/1940	Modigliani
2,297,726 A	10/1942	Stephanoff
2,628,386 A	2/1953	Tomberg
3,032,008 A	5/1962	Land et al.
3,038,202 A	6/1962	Harkenrider
3,176,345 A	4/1965	Powell
3,178,770 A	4/1965	Willis
3,181,738 A	5/1965	Hartvig-Johanson
3,192,562 A	7/1965	Powell
3,192,563 A	7/1965	Crompton
3,204,290 A	9/1965	Crompton
3,213,170 A	10/1965	Erdmenger et al.
3,253,301 A	5/1966	McGlaughlin
3,334,792 A	8/1967	Vries et al.
3,379,811 A	4/1968	Hartmann et al.
3,380,128 A	4/1968	Cremer et al.
3,488,806 A	1/1970	De Cecco et al.
3,492,692 A	2/1970	Soda et al.
3,501,805 A	3/1970	Douglas, Jr. et al.

3,613,170 A	10/1971	Soda et al.
3,650,866 A	3/1972	Prentice
3,704,198 A	11/1972	Prentice
3,730,662 A	5/1973	Nunning
3,755,527 A	8/1973	Keller et al.

(Continued)

**FOREIGN PATENT DOCUMENTS**

DE 3543469 A1 12/1985

(Continued)

**OTHER PUBLICATIONS**

Nordson Corporation, Today's Idea, Nordson Unveils Diaper Elastic System, Oct. 1988, 1 pg.

(Continued)

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(57) **CLAIM**

The ornamental design for a nozzle assembly, as shown and described.

**DESCRIPTION**

FIG. 1 is a front perspective view of the nozzle assembly.

FIG. 2 is a front view of the nozzle assembly.

FIG. 3 is a rear view of the nozzle assembly.

FIG. 4 is a left side view of the nozzle assembly.

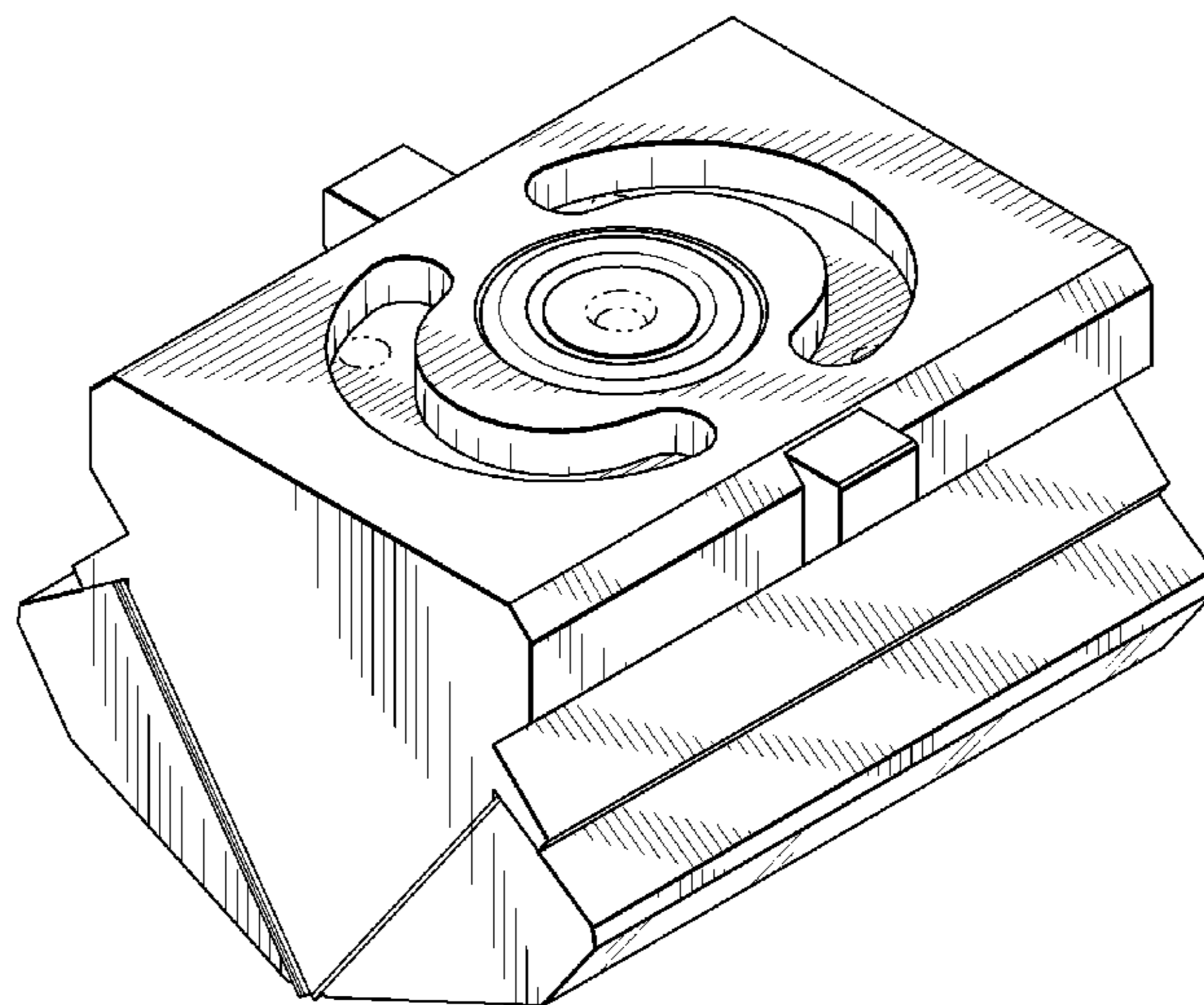
FIG. 5 is a right side view of the nozzle assembly.

FIG. 6 is a top view of the nozzle assembly; and,

FIG. 7 is a bottom view of the nozzle assembly.

Portions of the nozzle assembly shown in broken lines in the figures are for illustrative purposes only and form no part of the claimed design.

**1 Claim, 4 Drawing Sheets**



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U.S. PATENT DOCUMENTS						
			4,983,109	A	1/1991	Miller et al.
			5,013,232	A	5/1991	Way
3,801,400	A	4/1974	Vogt et al.			
3,803,951	A	4/1974	Bagley			
3,806,289	A	4/1974	Scharz			
3,807,917	A	4/1974	Shimoda et al.			
3,825,379	A	7/1974	Lohkamp et al.			
3,847,537	A	11/1974	Velie			
3,849,241	A	11/1974	Butin et al.			
3,852,013	A	12/1974	Upmeier			
3,861,850	A	1/1975	Wallis			
3,874,886	A	4/1975	Levecque et al.			
3,888,610	A	6/1975	Brackmann et al.			
3,920,362	A	11/1975	Bradt			
3,923,444	A	12/1975	Esper et al.			
3,942,723	A	3/1976	Langdon			
3,954,361	A	5/1976	Page			
3,970,417	A	7/1976	Page			
3,978,185	A	8/1976	Buntin et al.			
3,981,650	A	9/1976	Page			
4,007,625	A	2/1977	Houben et al.			
4,015,963	A	4/1977	Levecque et al.			
4,015,964	A	4/1977	Levecque et al.			
4,050,866	A	9/1977	Kilsdonk			
4,052,002	A	10/1977	Stouffer et al.			
4,052,183	A	10/1977	Levecque et al.			
4,100,324	A	7/1978	Anderson et al.			
4,145,173	A	3/1979	Pelzer et al.			
4,151,955	A	5/1979	Stouffer			
4,185,981	A	1/1980	Ohsato et al.			
4,189,455	A	2/1980	Raganato et al.			
4,277,436	A	7/1981	Shah et al.			
4,300,876	A	11/1981	Kane et al.			
4,340,563	A	7/1982	Appel et al.			
4,359,445	A	11/1982	Kane et al.			
4,380,570	A	4/1983	Schwarz			
4,414,276	A	11/1983	Kiriyama et al.			
4,457,685	A	7/1984	Huang et al.			
4,468,366	A	8/1984	Socha, Jr.			
4,526,733	A	7/1985	Lau			
4,548,632	A	10/1985	Tanaka et al.			
4,568,506	A	2/1986	Kiriyama et al.			
4,596,364	A	6/1986	Bauer			
4,645,444	A	2/1987	Lenk et al.			
4,652,225	A	3/1987	Dehennau et al.			
4,694,992	A	9/1987	Stouffer			
4,708,619	A	11/1987	Balk			
4,709,836	A	12/1987	Andersen			
4,711,683	A	12/1987	Merkatoris			
4,730,197	A	3/1988	Raman et al.			
4,746,283	A	5/1988	Hobson			
4,747,986	A	5/1988	Chao			
4,774,109	A	9/1988	Hadzimihalis et al.			
4,785,996	A	11/1988	Ziecker et al.			
4,812,276	A	3/1989	Chao			
4,818,463	A	4/1989	Buehning			
4,818,464	A	4/1989	Lau			
4,826,415	A	5/1989	Mende			
4,842,666	A	6/1989	Werenicz			
4,844,003	A	7/1989	Slautterback et al.			
4,874,451	A	10/1989	Boger et al.			
4,875,844	A	10/1989	Nakajima et al.			
4,889,476	A	12/1989	Buehning			
RE33,158	E	2/1990	Stouffer et al.			
RE33,159	E	2/1990	Bauer			
4,905,909	A	3/1990	Woods			
4,918,017	A	4/1990	Greenstreet et al.			
4,923,706	A	5/1990	Binley et al.			
4,949,668	A	8/1990	Heindel et al.			
4,955,547	A	9/1990	Woods			
4,960,619	A	10/1990	Slautterback et al.			
RE33,448	E	11/1990	Bauer			
RE33,481	E	12/1990	Ziecker et al.			
			5,017,116	A	5/1991	Carter et al.
			5,035,361	A	7/1991	Stouffer
			5,066,435	A	11/1991	Lorenz et al.
			5,067,885	A	11/1991	Stevenson et al.
			5,069,853	A	12/1991	Miller
			5,094,792	A	3/1992	Baran
			5,098,636	A	3/1992	Balk
			5,114,752	A	5/1992	Hall
			5,124,111	A	6/1992	Keller et al.
			5,129,585	A	7/1992	Bauer
			5,145,689	A	9/1992	Allen et al.
			5,147,197	A	9/1992	Hodan et al.
			5,160,746	A	11/1992	Dodge, II et al.
			5,165,940	A	11/1992	Windley
			5,169,071	A	12/1992	Boger et al.
			5,209,410	A	5/1993	Wichmann et al.
			5,234,650	A	8/1993	Hagen et al.
			5,242,644	A	9/1993	Thompson et al.
			5,260,003	A	11/1993	Nyssen et al.
			5,269,670	A	12/1993	Allen et al.
			5,275,676	A	1/1994	Rooyakkers et al.
			5,312,500	A	5/1994	Kurihara et al.
			5,342,647	A	8/1994	Heindel et al.
			5,354,378	A	10/1994	Hauser et al.
			5,393,219	A	2/1995	Hagen et al.
			5,397,227	A	3/1995	Hodan et al.
			5,407,619	A	4/1995	Maeda et al.
			5,409,733	A	4/1995	Boger et al.
			5,418,009	A	5/1995	Raterman et al.
			5,421,921	A	6/1995	Gill et al.
			5,421,941	A	6/1995	Allen et al.
			5,423,935	A	6/1995	Benecke et al.
			5,429,840	A	7/1995	Raterman et al.
			5,445,509	A	8/1995	Allen et al.
			5,458,291	A	10/1995	Brusko et al.
			5,458,721	A	10/1995	Raterman
			5,476,616	A	12/1995	Schwarz
			5,478,224	A	12/1995	McGuffey
			D367,865	S *	3/1996	Bajadali ..... D15/123
			5,503,784	A	4/1996	Balk
			5,512,793	A	4/1996	Takeuchi et al.
			5,524,828	A	6/1996	Raterman et al.
			5,533,675	A	7/1996	Benecke et al.
			5,540,804	A	7/1996	Raterman
			5,551,588	A	9/1996	Hills
			5,605,706	A	2/1997	Allen et al.
			5,618,347	A	4/1997	Clare et al.
			5,618,566	A	4/1997	Allen et al.
			5,620,139	A	4/1997	Ziecker
			5,620,664	A	4/1997	Palmer
			5,645,790	A	7/1997	Schwarz et al.
			5,667,750	A	9/1997	Nohr et al.
			5,679,379	A	10/1997	Fabbricante et al.
			5,902,540	A	5/1999	Kwok
			5,904,298	A	5/1999	Kwok et al.
			5,927,560	A	7/1999	Lewis et al.
			5,964,973	A	10/1999	Heath et al.
			5,992,688	A	11/1999	Lewis et al.
			D420,099	S	2/2000	Lewis et al.
			6,074,597	A	6/2000	Kwok et al.
			D429,263	S	8/2000	Auber et al.
			6,235,137	B1	5/2001	Van Eperen et al.
			6,264,113	B1 *	7/2001	Dingler ..... 239/8
			D456,427	S	4/2002	Gressett, Jr. et al.
			D457,538	S	5/2002	Gressett, Jr. et al.
			D460,092	S	7/2002	Gressett, Jr. et al.
			D461,483	S	8/2002	Gressett, Jr. et al.
			6,540,152	B2 *	4/2003	Holm et al. .... 239/1
			6,578,773	B2 *	6/2003	Holm et al. .... 239/1
			6,676,038	B2	1/2004	Gressett, Jr. et al.
			6,680,021	B1	1/2004	Kwok et al.



# US D588,617 S

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6,890,167	B1	5/2005	Kwok et al.	
6,938,795	B2	9/2005	Barton, Jr. et al.	
D519,536	S	4/2006	de Leeuw et al.	
D520,538	S	5/2006	de Leeuw et al.	
D521,035	S	5/2006	de Leeuw et al.	
D524,833	S	7/2006	Folk et al.	
D529,321	S	10/2006	Gould et al.	
D536,354	S	2/2007	Kufner et al.	
D550,261	S	9/2007	Bondeson et al.	
2005/0205689	A1 *	9/2005	Crane et al. ....	239/290
2008/0145530	A1	6/2008	Bondeson et al.	

## FOREIGN PATENT DOCUMENTS

DE	19715740	A1	4/1997
EP	0893517	A2	1/1999
EP	0979885	A2	2/2000
EP	1155745	A2	11/2001
EP	0835952	B1	2/2003
EP	0872580	B1	6/2005
GB	756907		9/1956
GB	1392667		4/1975

WO	9207122	A1	4/1992
WO	9315895	A1	8/1993
WO	9904950	A1	2/1999

## OTHER PUBLICATIONS

Nordson Corporation, Adhesive and Power Application Systems for the Nonwoven Industry, 1992, 7 pgs.

Edward K. McNalley et al., J&M Laboratories, Durafiber/Durastitch Adhesives Applications Methods Featuring Solid State Application Technology disclosed Sep. 8, 1997 at Inda-Tec 97 Meeting, Cambridge MA, pp. 26.1-26.8.

Rajiv S. Rao et al., Vibration and Stability in the Melt Blowing Process, Ind. Eng. Chem. Res., 1993, 32, 3100-3111.

Gregory F. Ward, Micro-Denier Nonwoven Process and Fabrics, on or about Oct. 17, 1997, pp. 1-9.

Scott R. Miller, Beyond Meltblowing: Process Refinement in Microfibre Hot Melt Adhesive Technology, Edana 1998 International Nonwovens Symposium, 11 pgs.

European Patent Office, European Search Report in EP Application No. 07122920, Aug. 27, 2008.

\* cited by examiner

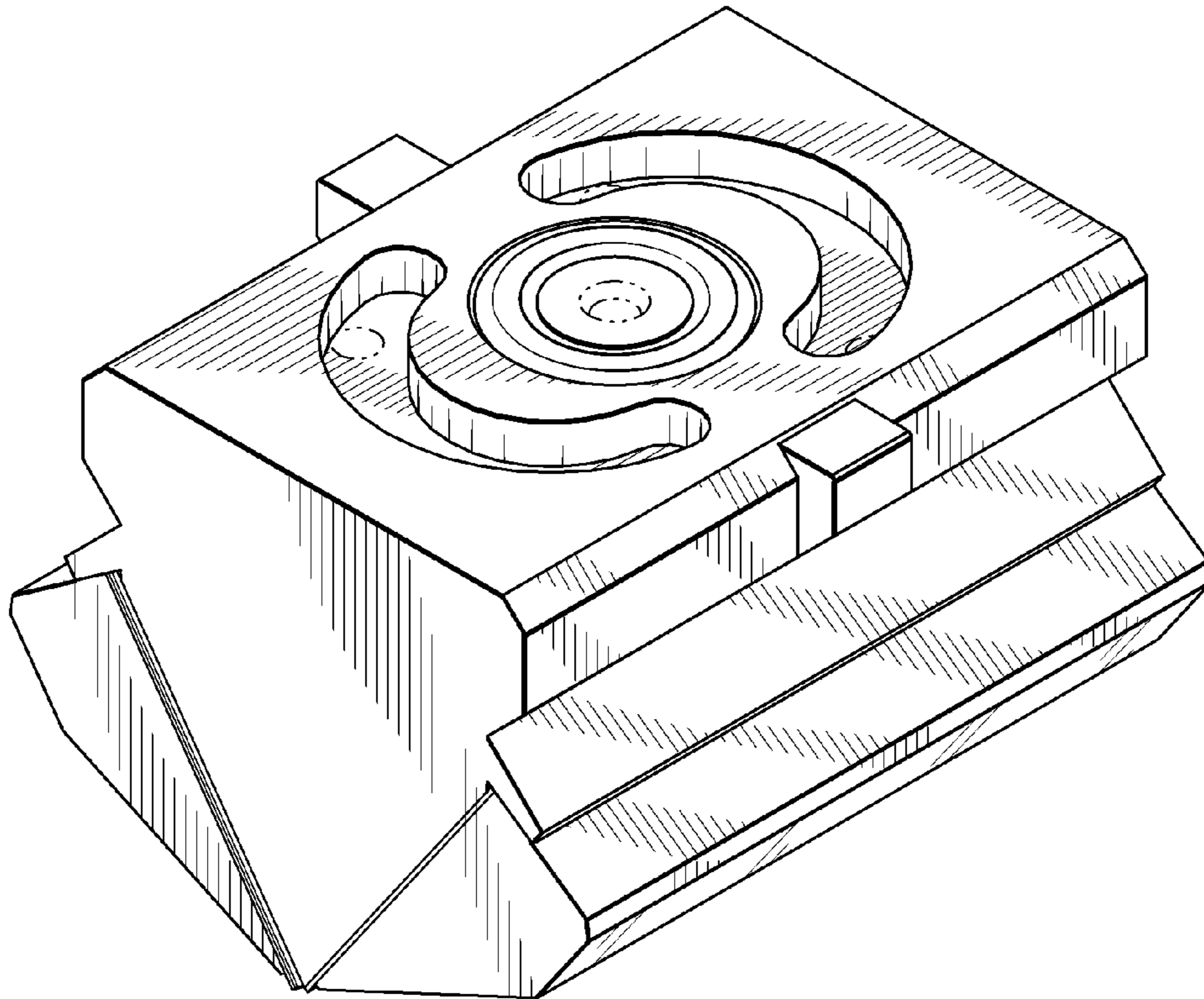


FIG. 1

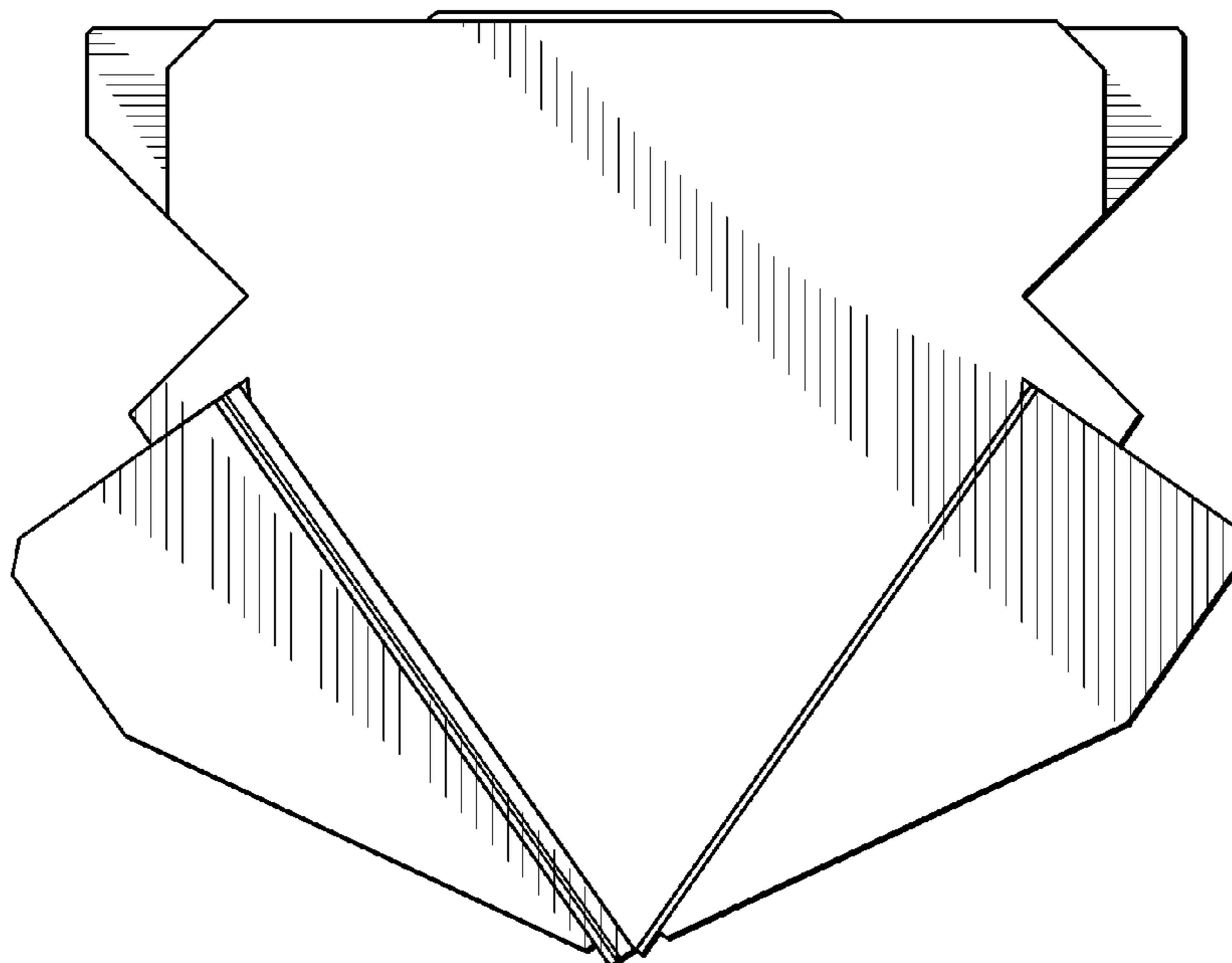


FIG. 2

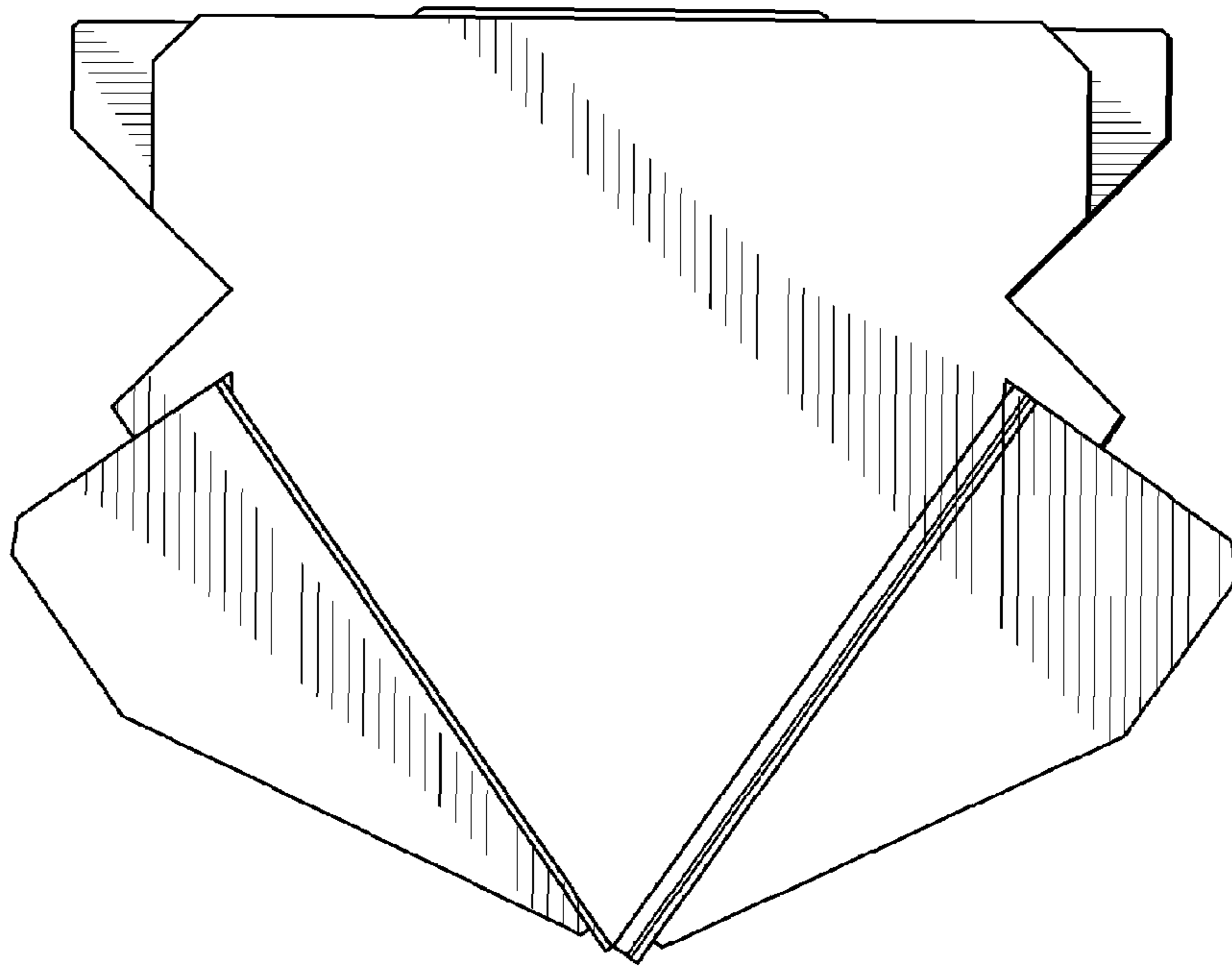


FIG. 3

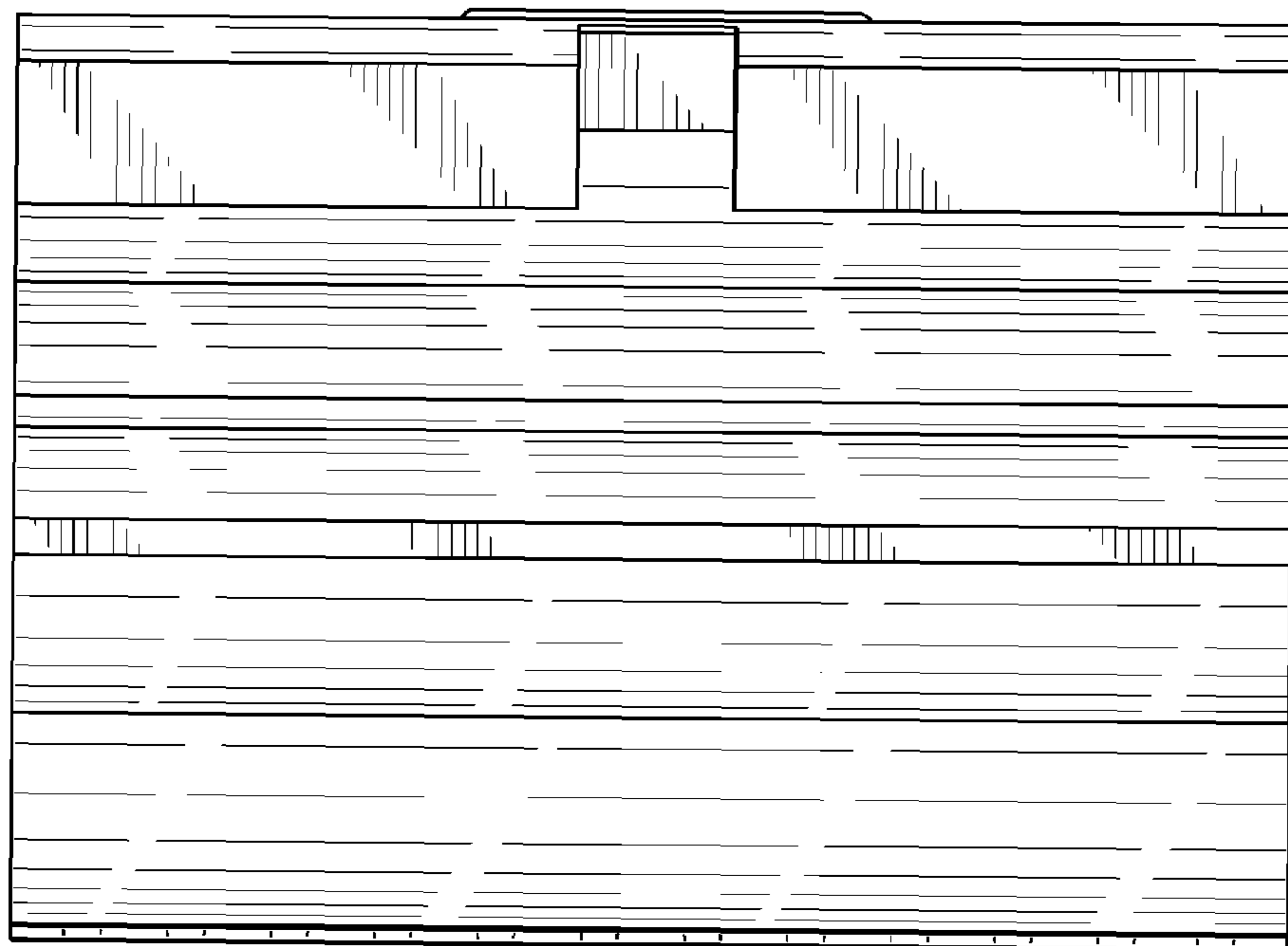


FIG. 4

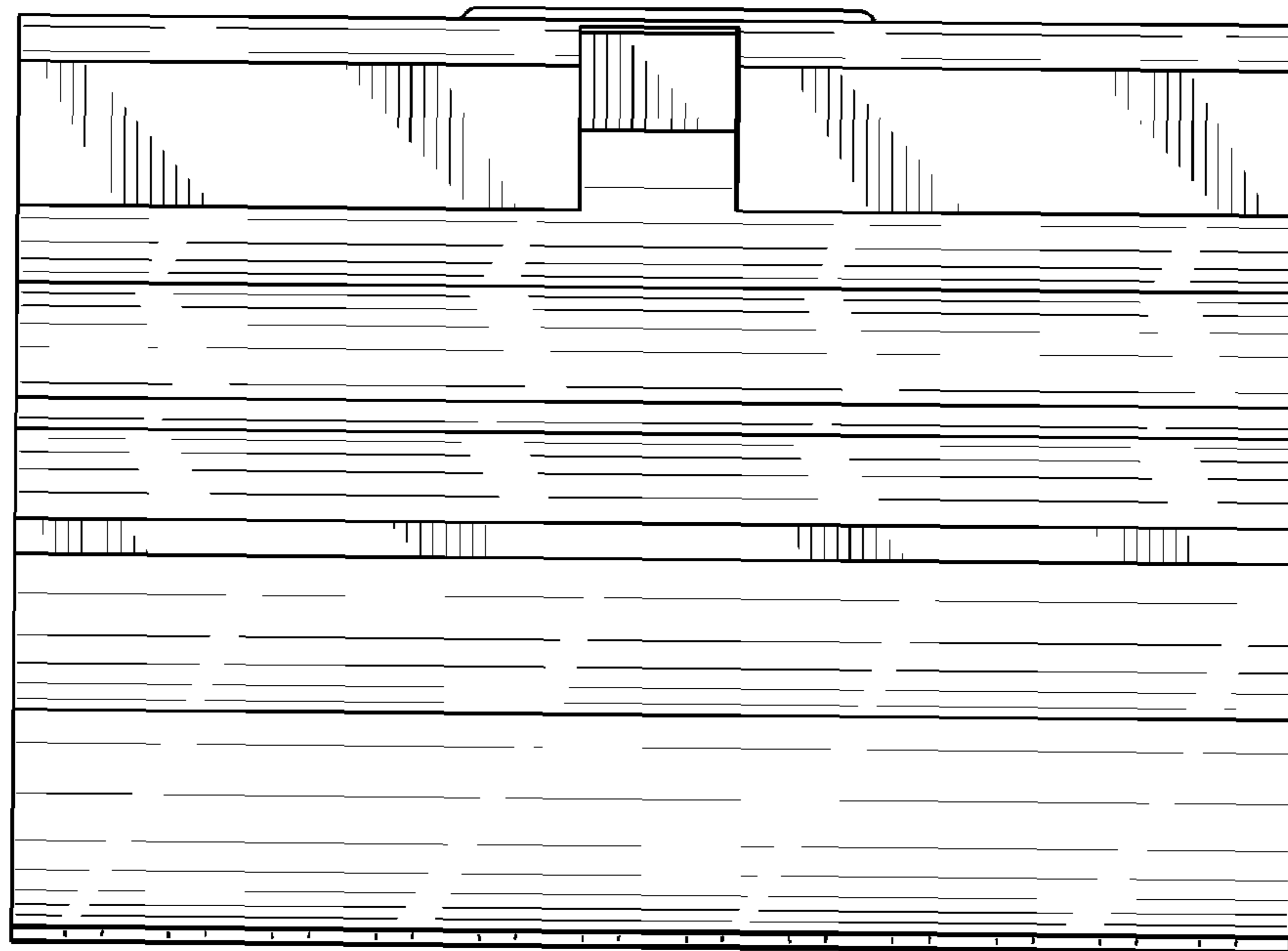


FIG. 5

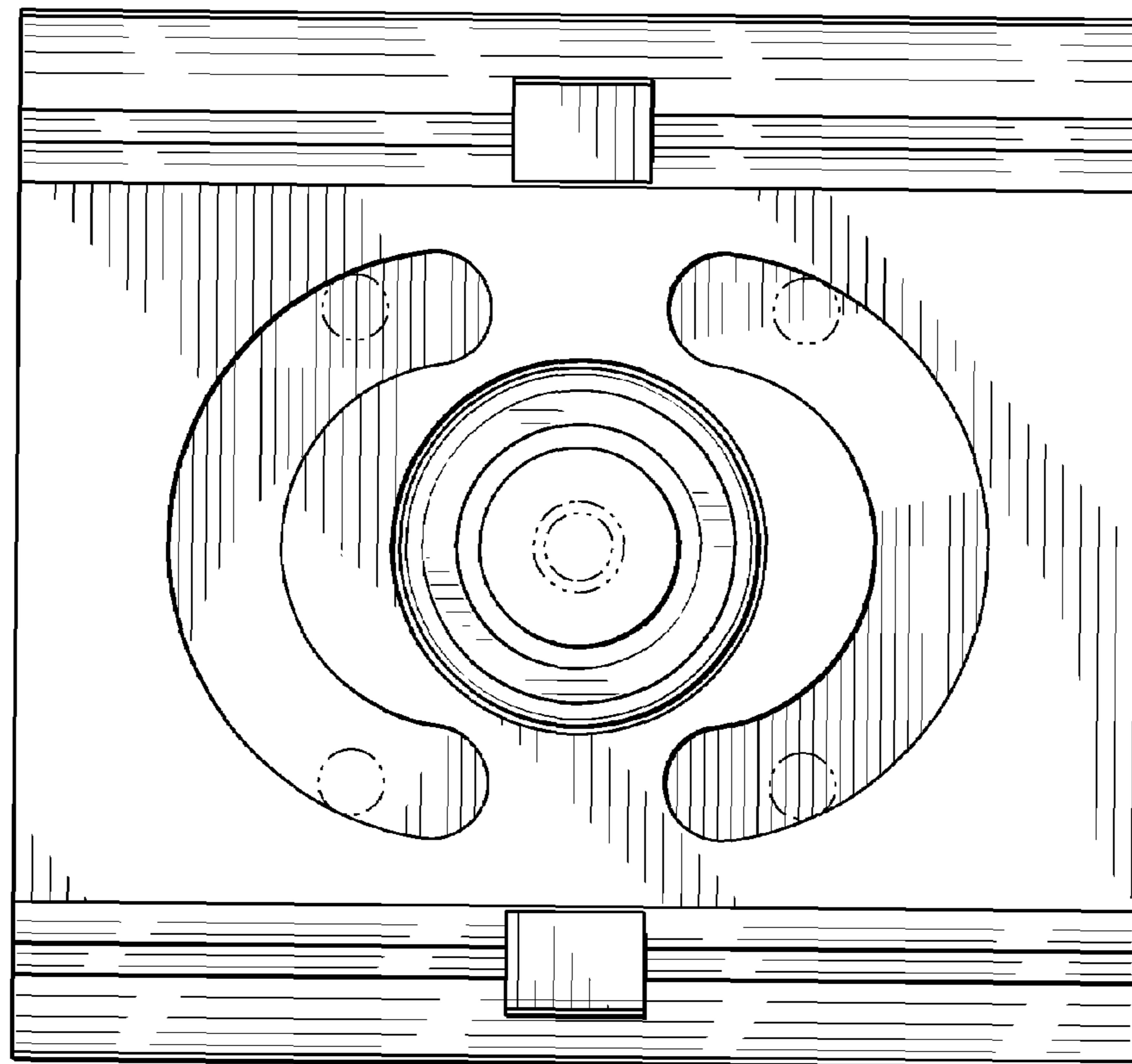


FIG. 6

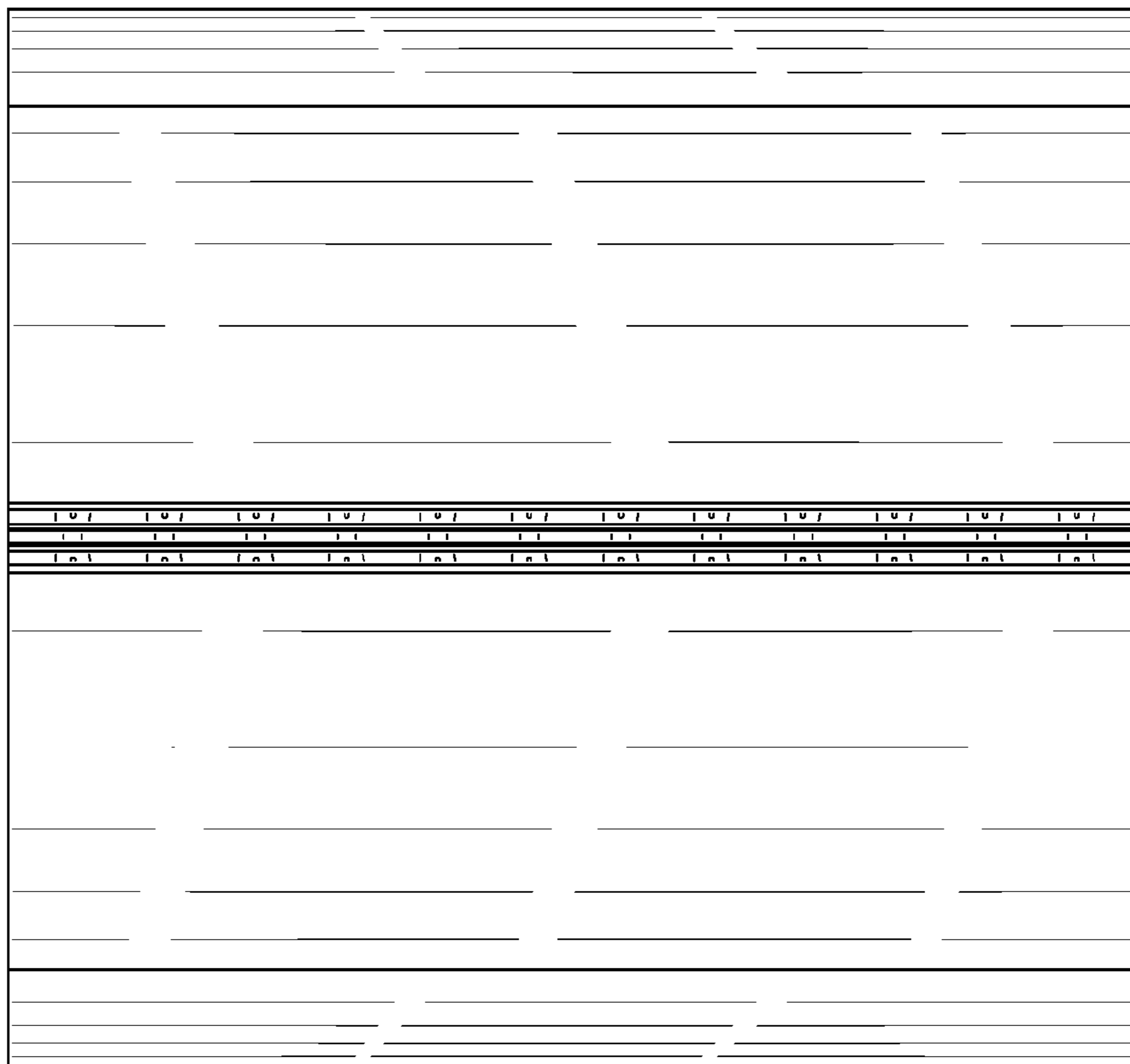


FIG. 7

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : Des. 588,617 S  
APPLICATION NO. : 29/306666  
DATED : March 17, 2009  
INVENTOR(S) : Thomas Burmester et al.

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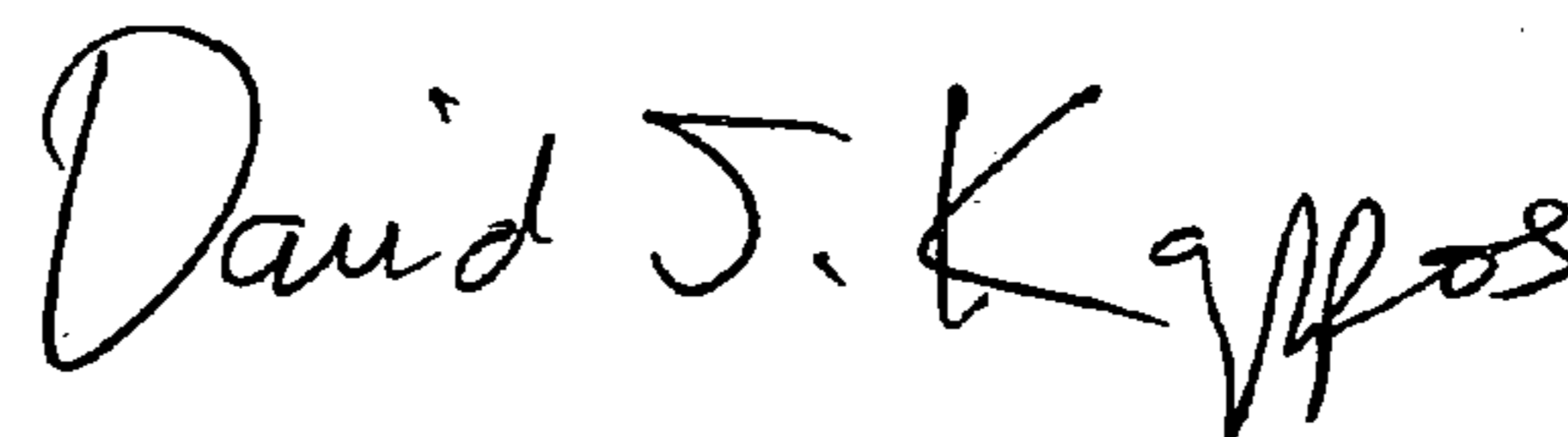
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**Drawings**

Substitute Fig. 5 as attached for Fig. 5 as shown in the above-identified patent.

Signed and Sealed this

Fifteenth Day of December, 2009

A handwritten signature in black ink that reads "David J. Kappos". The signature is written in a cursive, flowing style.

David J. Kappos  
*Director of the United States Patent and Trademark Office*



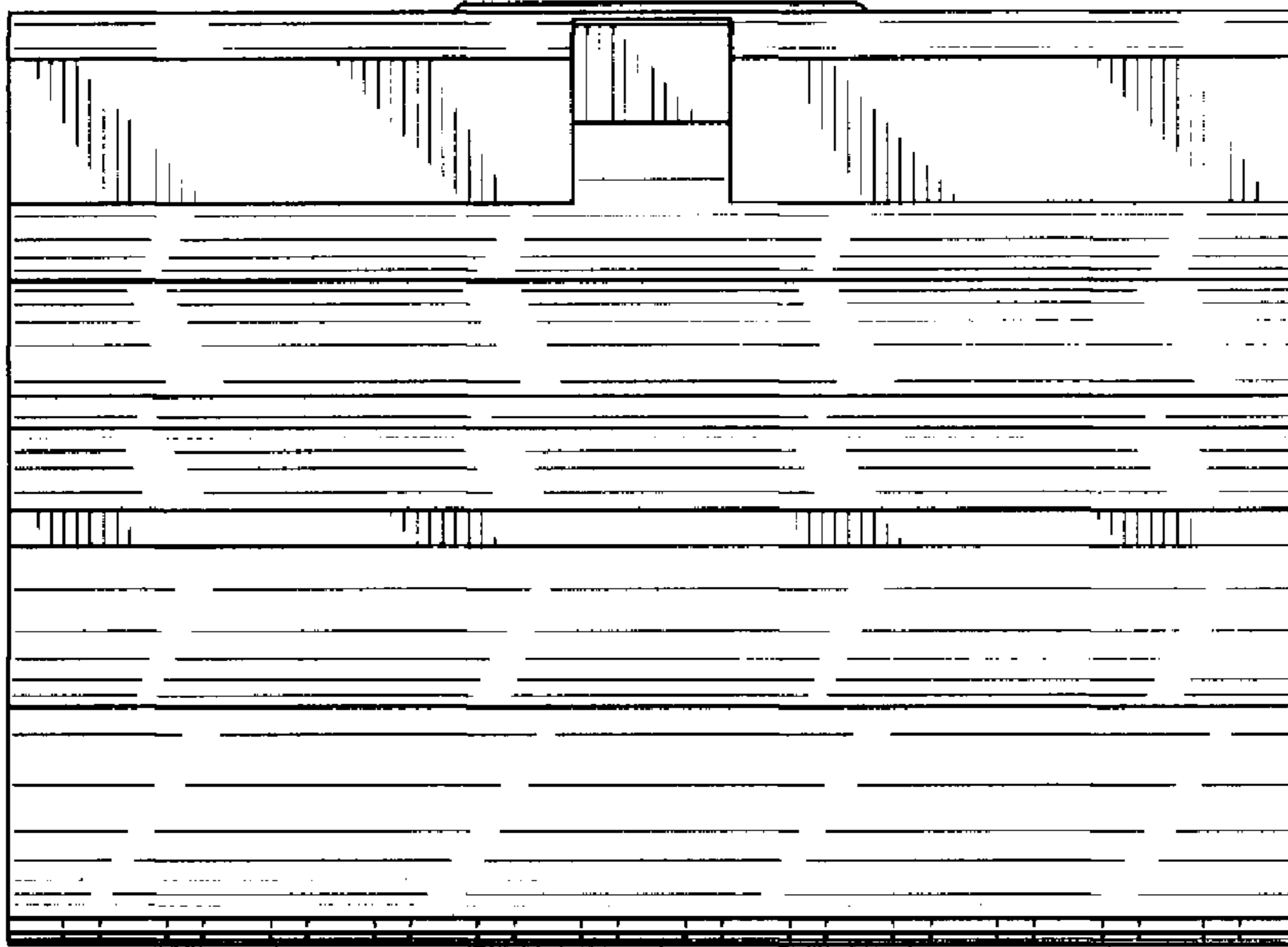


FIG. 5

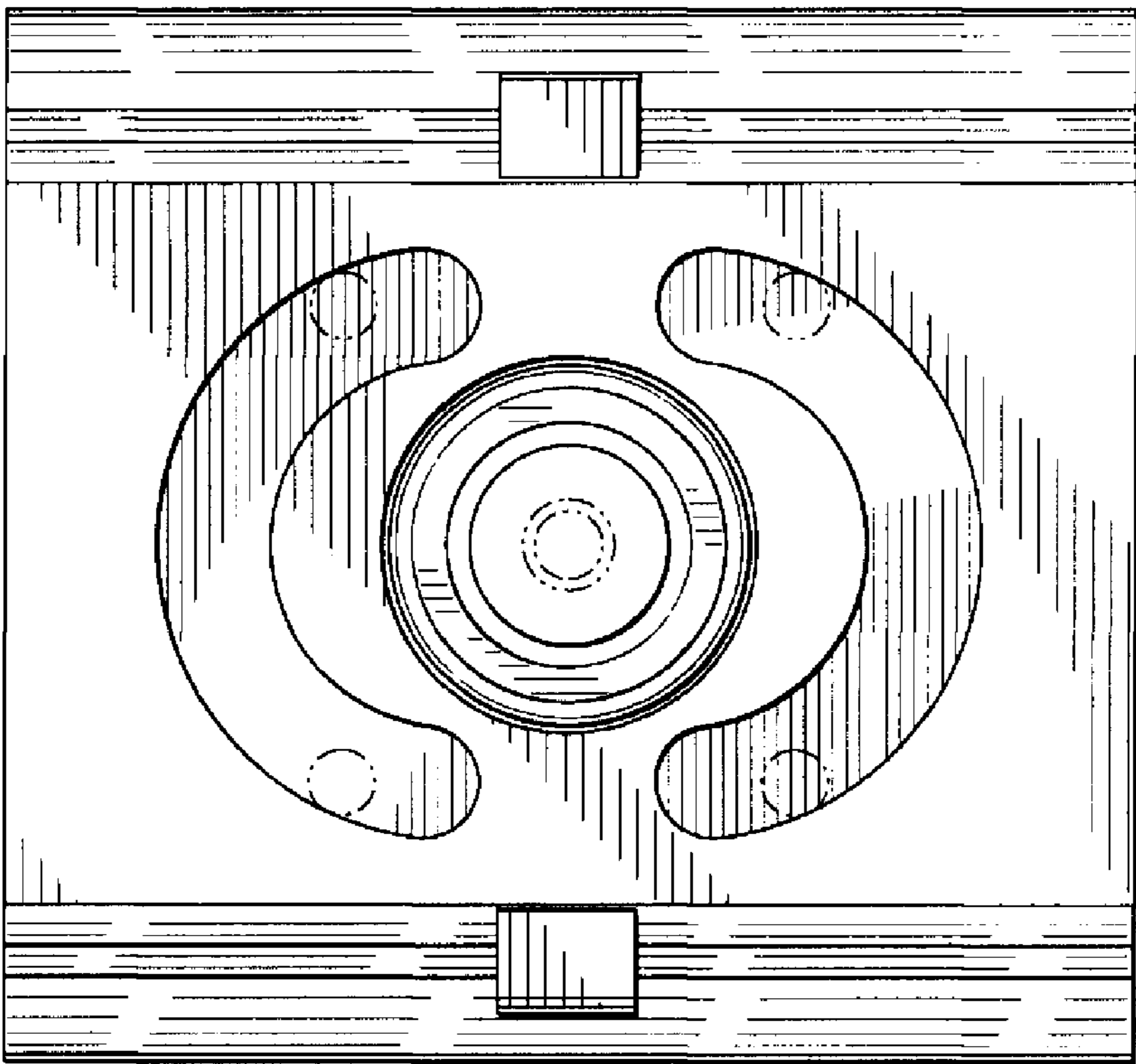


FIG. 6