



US00D588617S

(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**

(75) Inventors: **Thomas Burmester**, Bleckede (DE);  
**Hubert Kufner**, Luneburg (DE)

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

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

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

(22) Filed: **Apr. 14, 2008**

(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)

*Primary Examiner*—Sandra Snapp

*Assistant Examiner*—Patricia Palasik

(74) *Attorney, Agent, or Firm*—Wood, Herron & Evans, L.L.P.

(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.

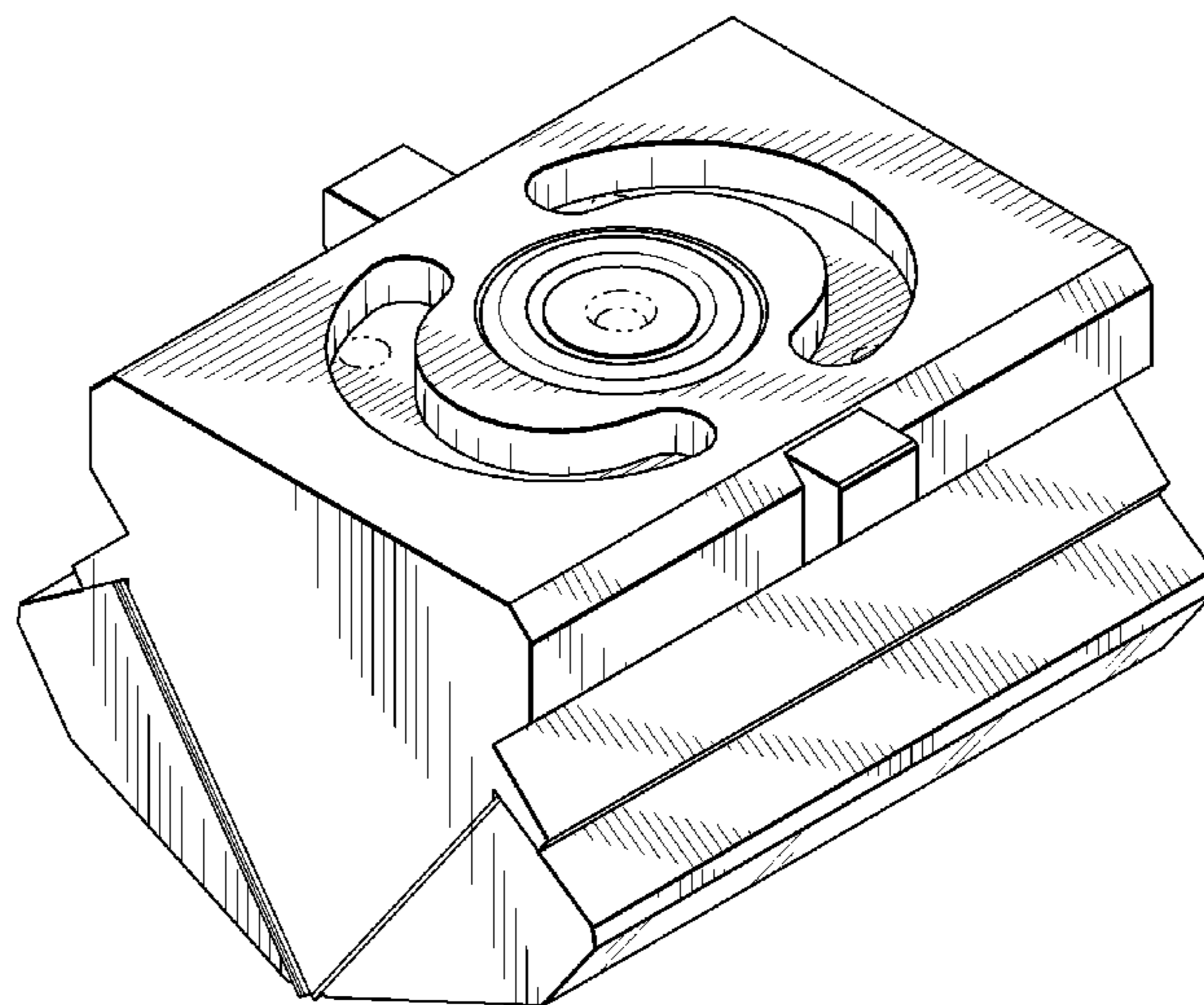
FIG. 5 is a right side view of the nozzle assembly.

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**



# US D588,617 S

Page 2

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

# US D588,617 S

Page 3

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

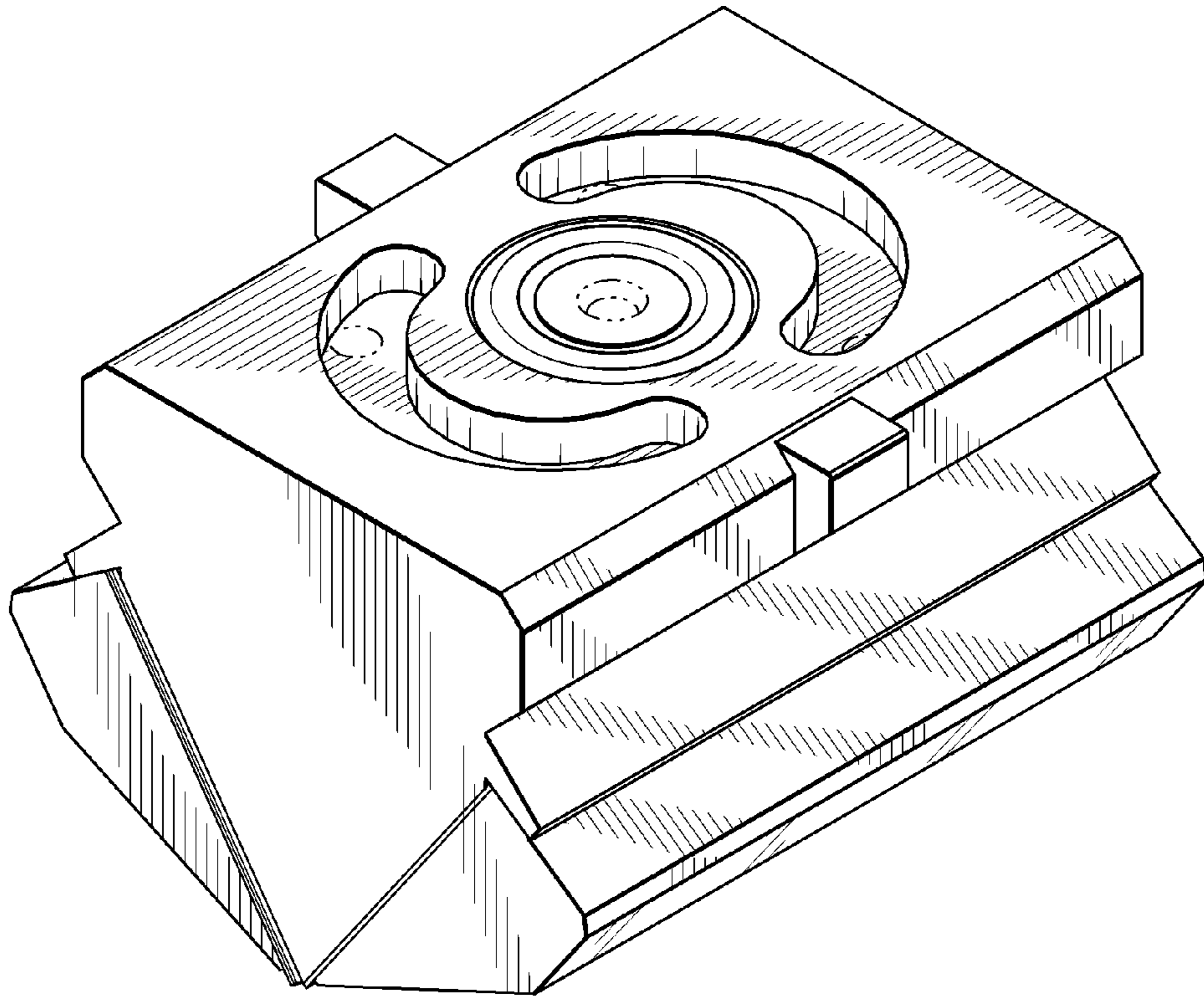


FIG. 1

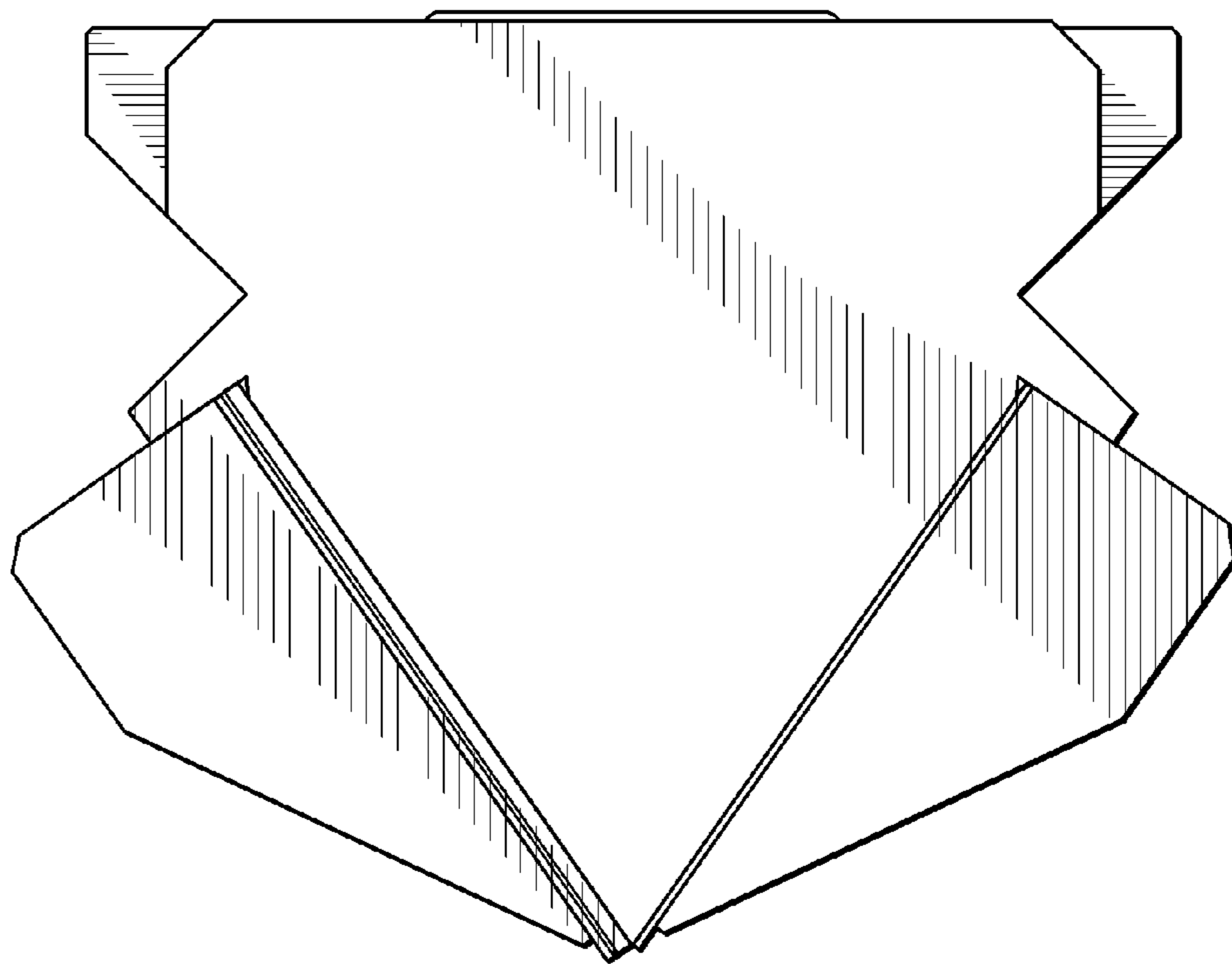


FIG. 2

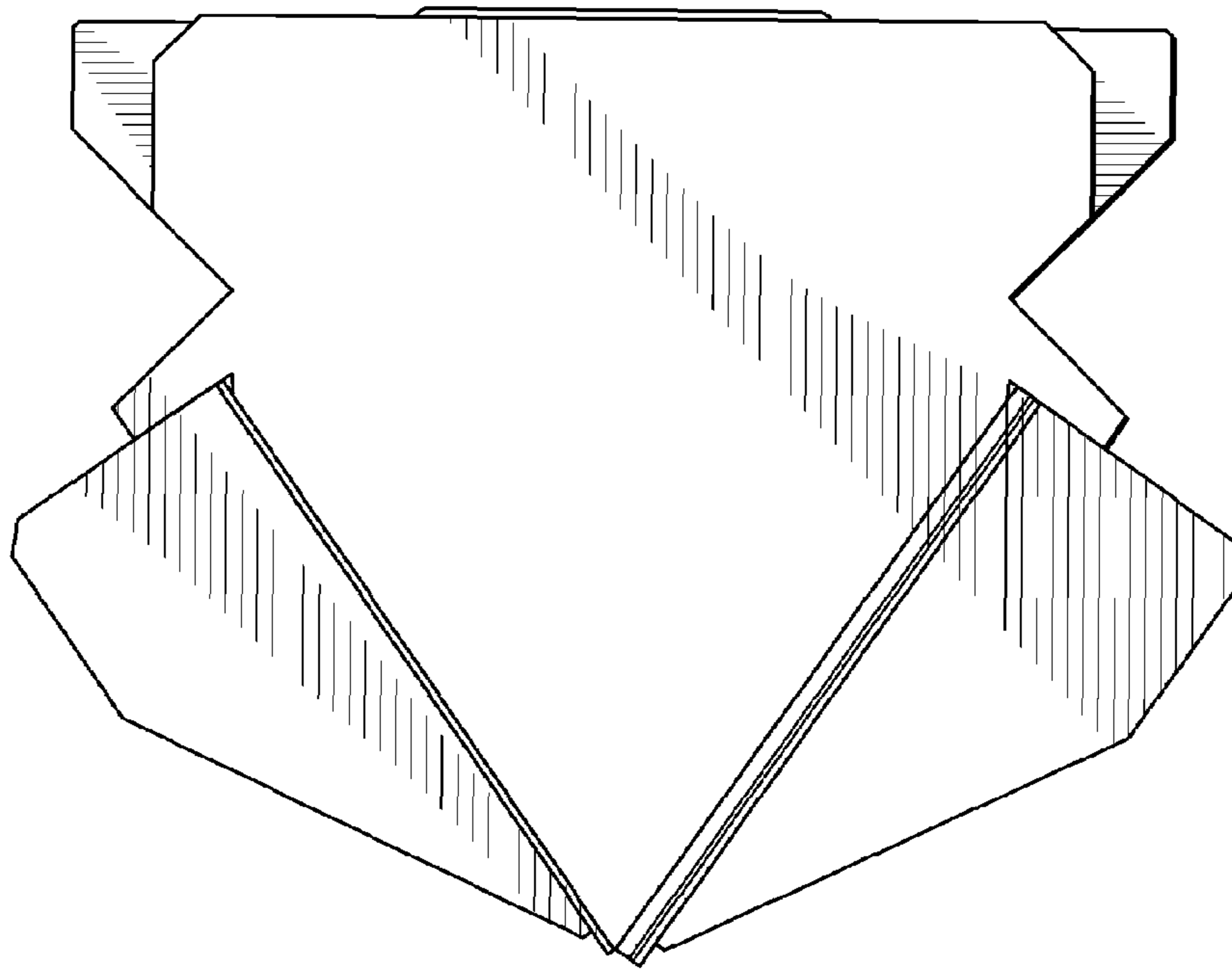


FIG. 3

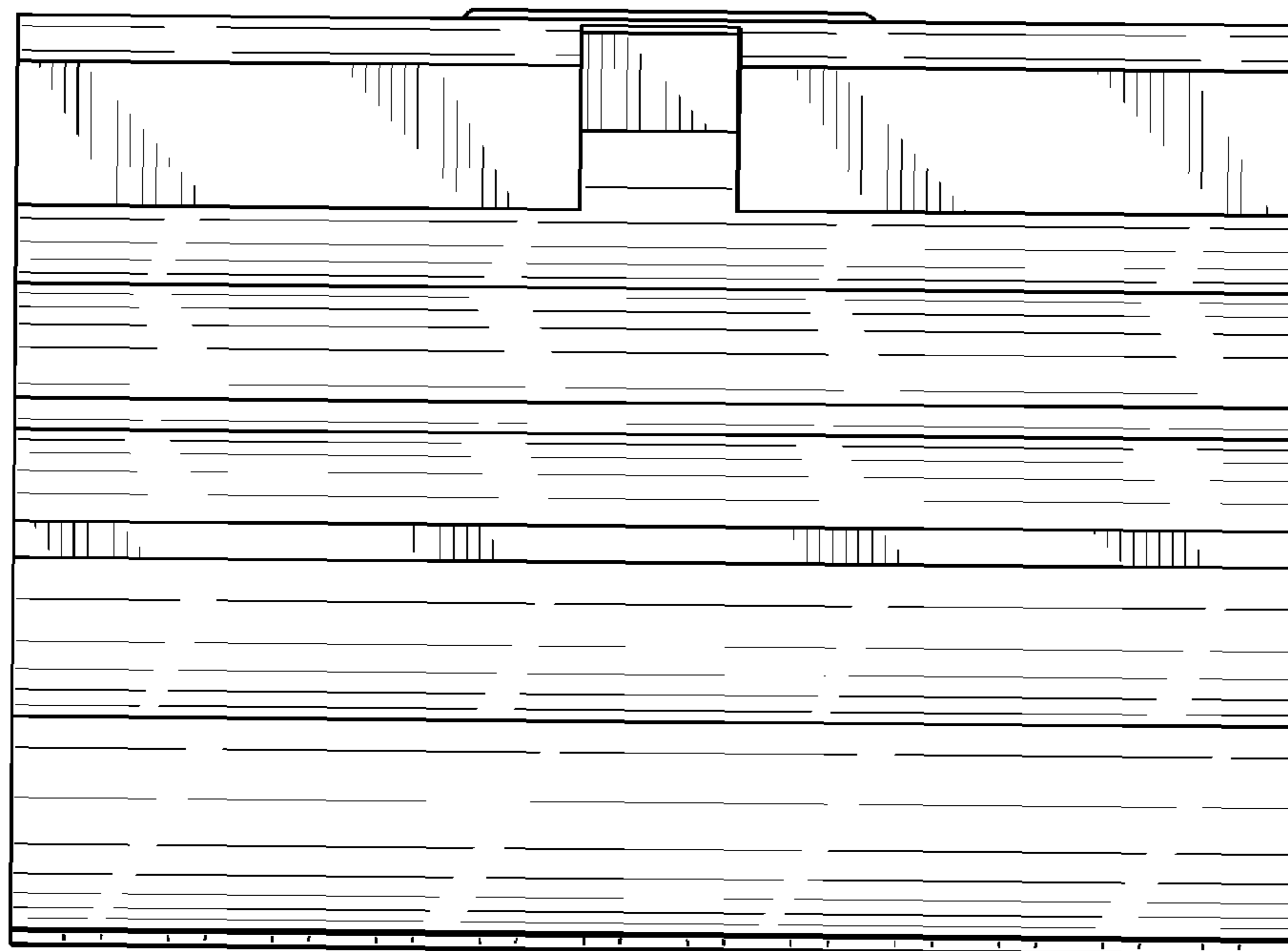


FIG. 4

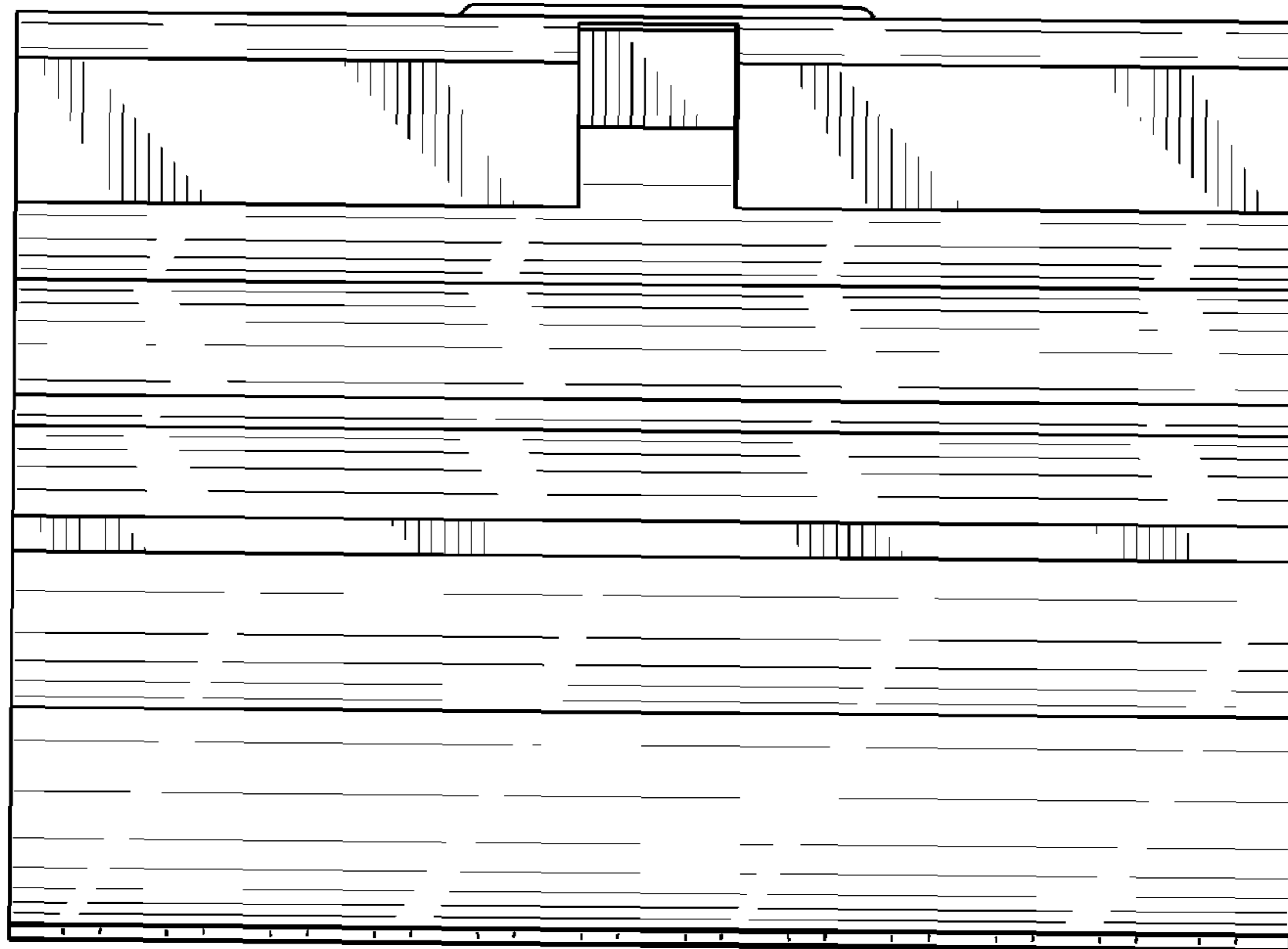


FIG. 5

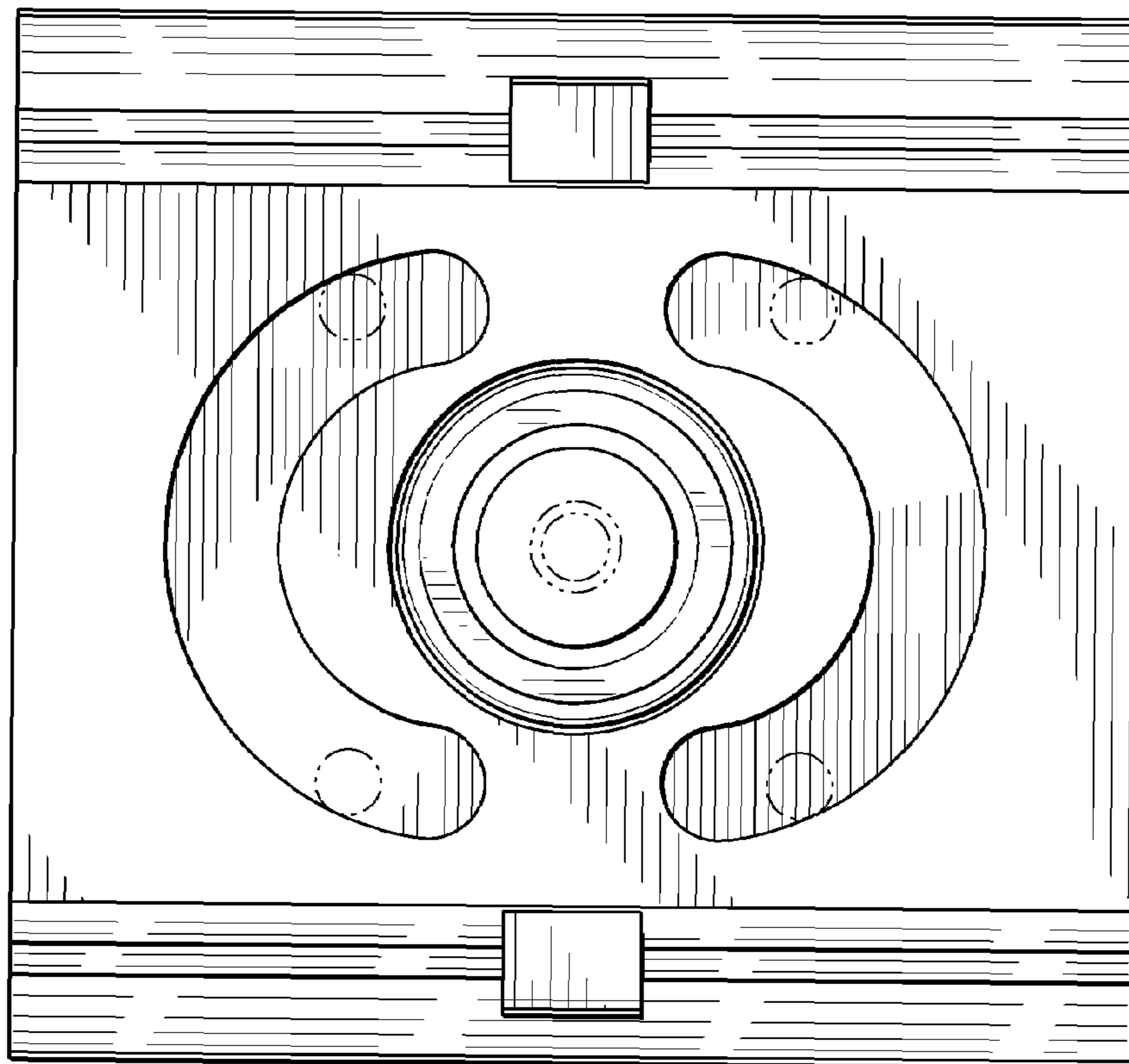


FIG. 6

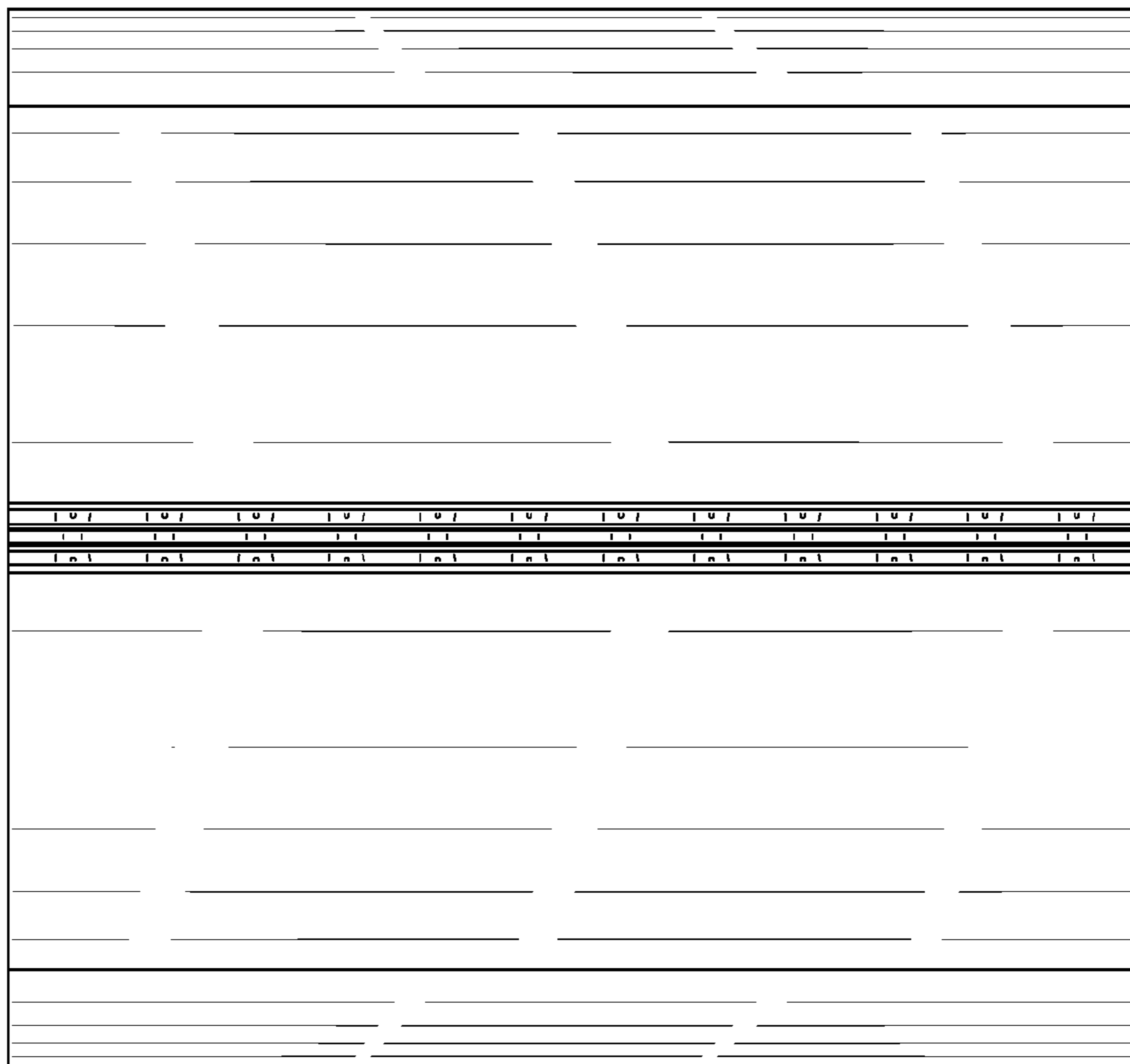


FIG. 7

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.

Page 1 of 2

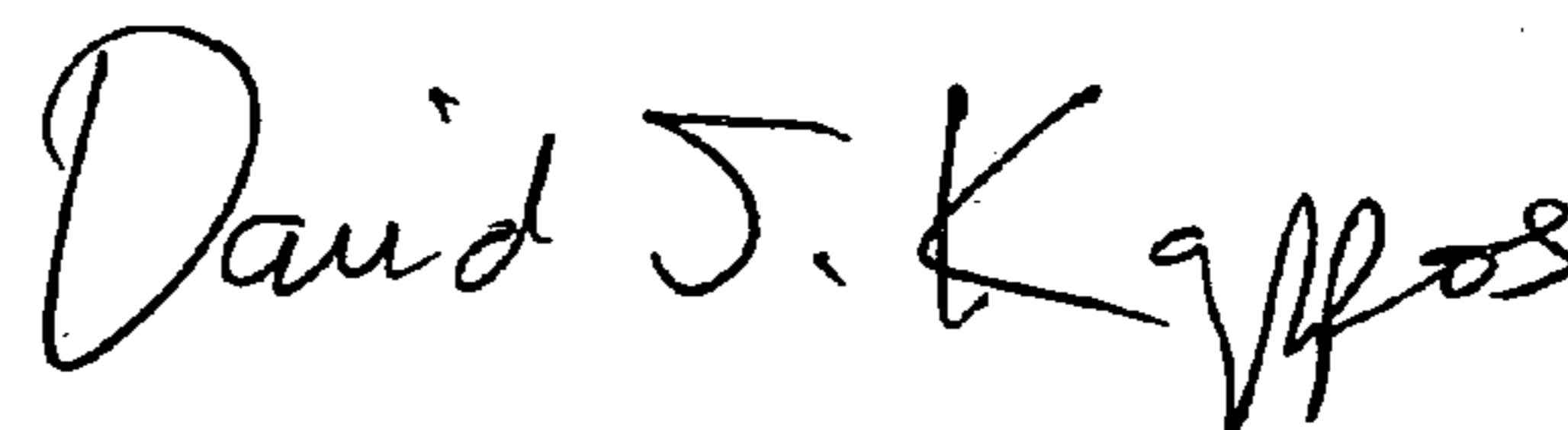
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**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 style with a large initial 'D' and 'K'.

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



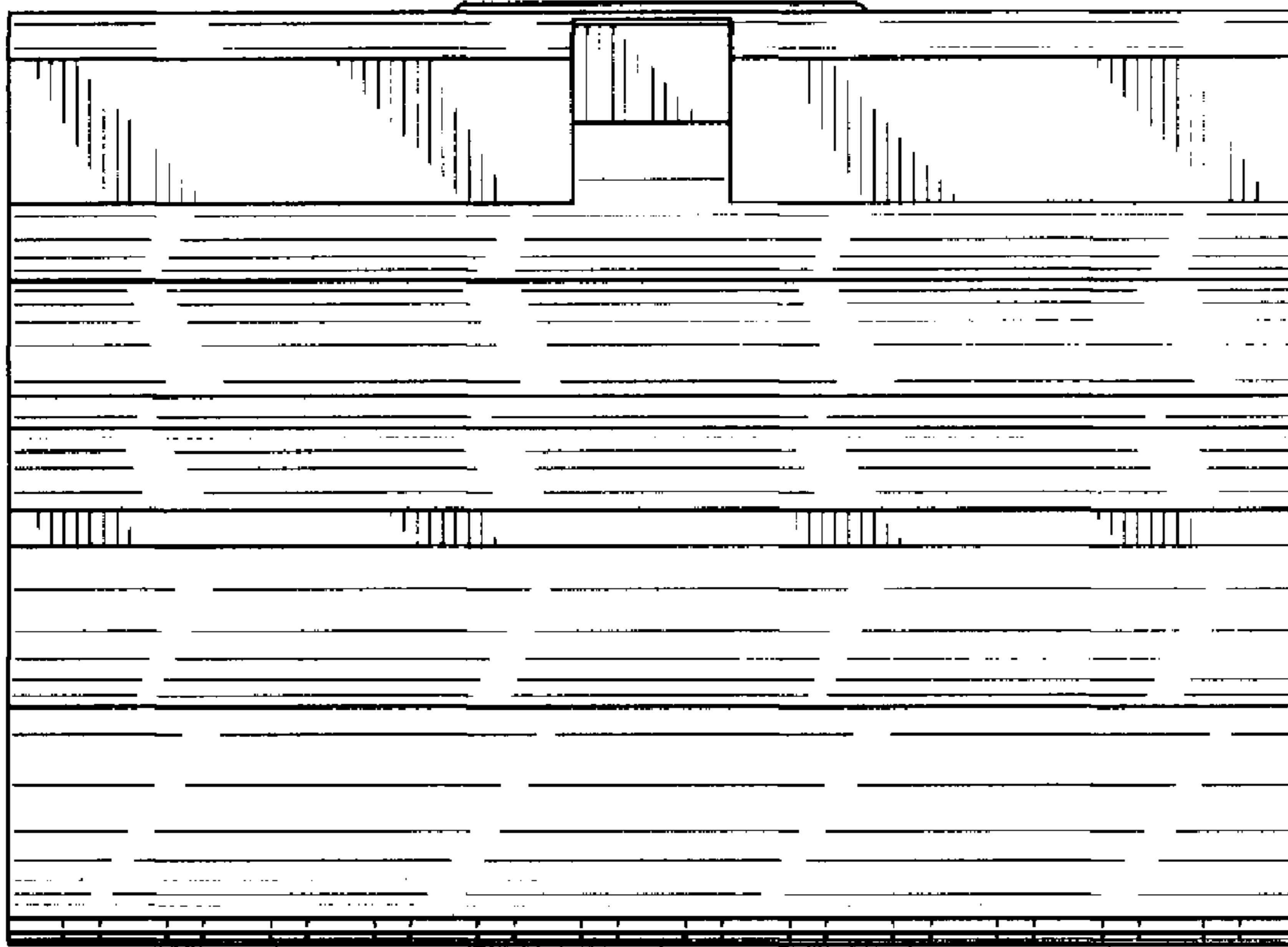


FIG. 5

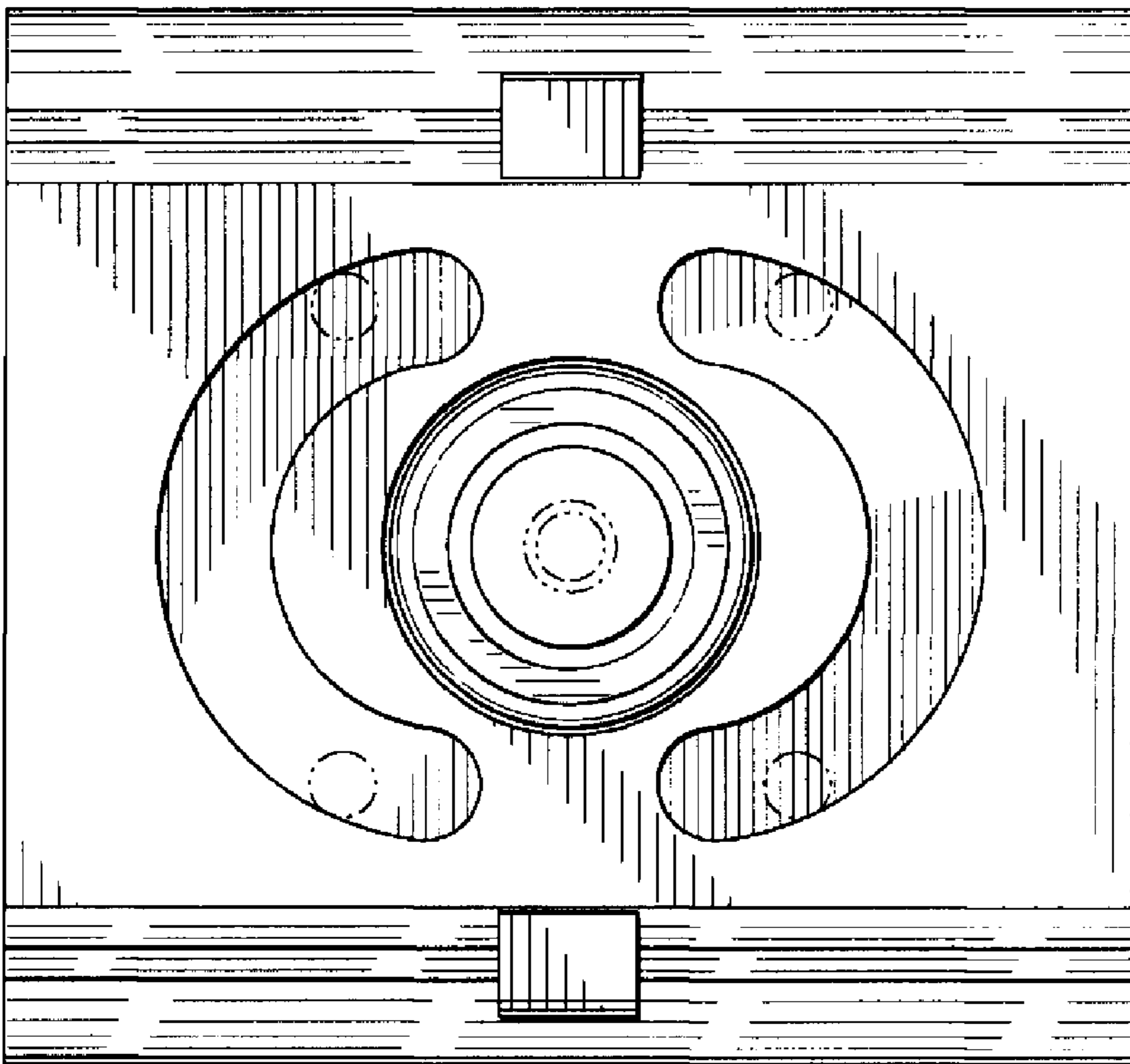


FIG. 6