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(54) **JOIST AND RAFTER CONNECTOR**

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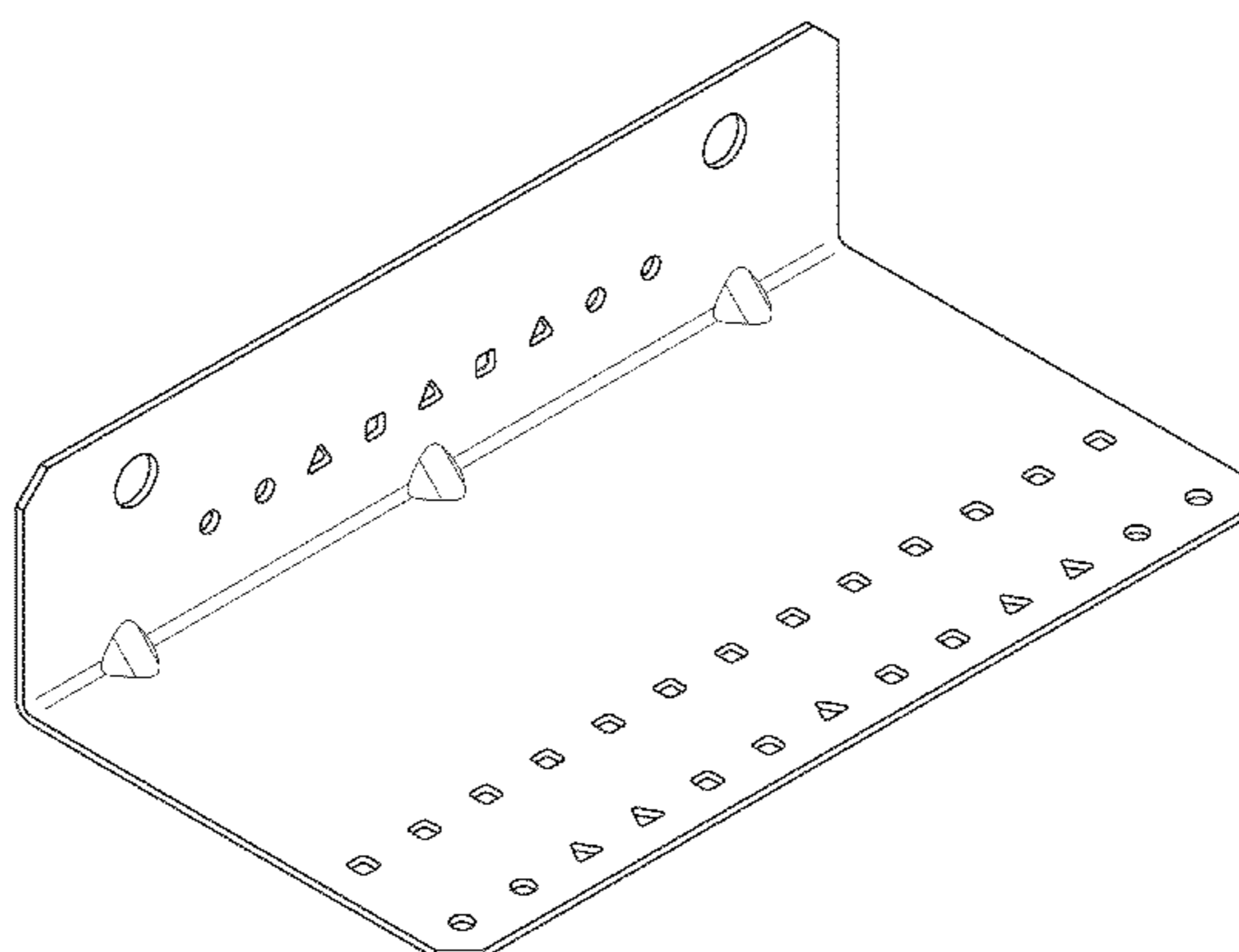
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52/702, 481.1, 241, 235, 489.1, 289, 92.2,

(56) **References Cited**

U.S. PATENT DOCUMENTS

719,191 A	1/1903	Collins	
992,941 A	5/1911	Danielson	
1,101,745 A	6/1914	Jones	
1,346,426 A	7/1920	Sherbner	
1,568,944 A	1/1926	Beebe	
1,729,935 A	10/1929	Froehlich	
1,791,197 A	2/1931	Dickson	
1,945,925 A	2/1934	Stiefel	
2,065,529 A	12/1936	Kehr et al.	
2,218,426 A	10/1940	Hurlbert, Jr.	
2,361,828 A *	10/1944	Drayer	52/204.2
2,365,478 A	12/1944	Grotta	
2,610,710 A	9/1952	Shannon	
2,751,644 A *	6/1956	Pedersen	403/384
2,815,863 A *	12/1957	Larson	211/70.1
2,873,828 A	2/1959	Zitomer	
2,900,677 A	8/1959	Yetter	
2,905,426 A	9/1959	Ross	
2,918,995 A	12/1959	Kruger	
3,003,600 A	10/1961	MacKenzie	
3,038,568 A	6/1962	Morgan	
3,083,794 A	4/1963	Stovail	
3,126,928 A	3/1964	McMillan	
3,299,839 A	1/1967	Nordbak	
3,321,880 A	5/1967	Ferrell et al.	
3,322,447 A	5/1967	Biggs	
3,482,369 A	12/1969	Burke	
3,490,604 A	1/1970	Klein	
3,490,797 A	1/1970	Platte	
3,537,219 A	11/1970	Navarre	
D220,877 S *	6/1971	Tigerman	D25/199
3,606,227 A	9/1971	Klein	
3,653,172 A	4/1972	Schwartz	



US D730,545 S

3,715,850 A	2/1973	Chambers		5,274,981 A	1/1994	Commins	
3,737,131 A *	6/1973	Larson	248/220.41	5,287,664 A	2/1994	Schiller	
3,778,952 A	12/1973	Soucy		5,313,752 A	5/1994	Hatzinikolas	
3,798,865 A	3/1974	Curtis		5,323,577 A	6/1994	Whitmyer	
3,805,465 A	4/1974	Dietrich		5,325,651 A	7/1994	Meyer et al.	
3,858,988 A	1/1975	Cohen		5,335,469 A	8/1994	Stuart	
3,897,163 A	7/1975	Holmes		5,363,622 A	11/1994	Sauer	
3,907,445 A *	9/1975	Wendt	403/191	2,365,501 A	12/1994	Walstrom	
3,945,741 A	3/1976	Wendt		5,402,612 A	4/1995	diGirolamo	
3,972,168 A	8/1976	Allen		5,403,110 A	4/1995	Sammann	
3,972,169 A	8/1976	Sheppard, Jr.		5,446,969 A	9/1995	Terenzoni	
4,018,020 A	4/1977	Sauer et al.		5,467,566 A	11/1995	Swartz et al.	
4,027,453 A	6/1977	Bridge		5,471,805 A	12/1995	Becker	
4,043,689 A	8/1977	Spencer		D371,506 S *	7/1996	Nofziger	D8/354
4,067,168 A	1/1978	Thurner		5,555,694 A	9/1996	Commins	
4,075,810 A	2/1978	Zakrzewski et al.		5,572,844 A	11/1996	Stackenwalt et al.	
D248,274 S *	6/1978	Kingston et al.	D8/354	5,577,860 A	11/1996	Plank	
D248,275 S *	6/1978	Gilb	D8/380	5,600,926 A	2/1997	Ehrlich	
4,095,912 A *	6/1978	Hagberg	403/187	5,603,580 A	2/1997	Leek et al.	
D249,164 S *	8/1978	Grant	D25/199	5,605,024 A	2/1997	Sucato et al.	
4,121,391 A	10/1978	Schroeder		5,625,995 A	5/1997	Martin	
4,128,979 A	12/1978	Price		5,632,128 A	5/1997	Agar	
4,140,294 A	2/1979	Zwarts		5,640,823 A	6/1997	Bergeron et al.	
4,140,417 A	2/1979	Danielsen et al.		5,642,597 A *	7/1997	Hendrickson	52/715
4,174,911 A	11/1979	Maccario et al.		5,664,392 A	9/1997	Mucha	
4,199,907 A *	4/1980	Bains et al.	52/122.1	5,669,198 A	9/1997	Ruff	
D255,323 S *	6/1980	Palmroth	D8/373	5,671,580 A	9/1997	Chou	
4,208,851 A	6/1980	Sauer		5,682,935 A	11/1997	Bustamente	
4,235,054 A	11/1980	Cable et al.		5,689,922 A	11/1997	Daudet	
4,246,736 A	1/1981	Kovar et al.		D388,313 S *	12/1997	Benner et al.	D8/354
4,280,308 A *	7/1981	Svensson	52/98	5,697,725 A	12/1997	Ballash et al.	
4,330,971 A *	5/1982	Auberger	52/210	5,720,138 A	2/1998	Johnson	
4,406,374 A	9/1983	Yedor		5,720,571 A	2/1998	Frobosilo et al.	
4,422,792 A *	12/1983	Gilb	403/232.1	5,729,939 A *	3/1998	Di Benedetto	52/293.3
4,426,822 A	1/1984	Gailey		5,732,519 A *	3/1998	Leek	52/293.3
4,428,172 A	1/1984	Larsson		5,755,066 A	5/1998	Becker	
4,433,524 A	2/1984	Matson		5,784,850 A	7/1998	Elderson	
4,448,004 A	5/1984	Thorsell		5,797,694 A *	8/1998	Breivik	403/231
4,464,074 A	8/1984	Green		D397,809 S *	9/1998	Nelson et al.	D25/199
529,154 A	11/1984	Banks		D398,283 S *	9/1998	Miller	D12/223
4,480,941 A	11/1984	Gild et al.		D400,986 S *	11/1998	Kanta	D25/199
4,516,874 A	5/1985	Yang et al.		D401,496 S *	11/1998	Lambert et al.	D8/354
4,522,009 A	6/1985	Fingerson		5,846,018 A	12/1998	Frobosilo	
4,560,301 A	12/1985	Gilb		5,857,295 A *	1/1999	Mikawa	52/92.2
4,570,400 A	2/1986	Slager et al.		5,876,006 A	3/1999	Sharp	
4,586,841 A	5/1986	Hunter		5,899,041 A	5/1999	Durin	
4,625,415 A	12/1986	Diamontis		5,904,023 A	5/1999	diGirolamo	
D288,171 S *	2/1987	Dey	D8/73	5,906,080 A *	5/1999	diGirolamo et al.	52/243.1
4,641,474 A *	2/1987	Cannarsa	52/514	5,913,788 A	6/1999	Herren	
4,693,047 A	9/1987	Menchetti		5,921,411 A	7/1999	Merl	
D296,186 S *	6/1988	Korn	D8/346	5,937,605 A	8/1999	Wendt	
4,791,766 A	12/1988	Egri, II		5,943,838 A	8/1999	Madsen	
4,796,403 A	1/1989	Fulton et al.		5,964,071 A	10/1999	Sato	
4,809,476 A	3/1989	Satchell		5,983,589 A	11/1999	Daudet	
4,819,401 A	4/1989	Whitney, Jr.		6,021,618 A	2/2000	Elderson	
4,840,005 A	6/1989	Cochrane		6,058,668 A	5/2000	Herren	
4,843,776 A	7/1989	Guignard		6,088,982 A	7/2000	Hiesberger	
4,850,169 A	7/1989	Burkstrand et al.		6,101,780 A	8/2000	Kreidt	
4,858,407 A	8/1989	Smolik		6,112,495 A	9/2000	Gregg et al.	
4,864,791 A	9/1989	Platt		6,120,206 A *	9/2000	Benner et al.	403/231
4,912,894 A	4/1990	Platt		D432,000 S *	10/2000	Hays	D8/354
4,914,878 A	4/1990	Tamaki et al.		D432,394 S *	10/2000	Hays	D8/354
4,916,877 A	4/1990	Platt		6,131,358 A *	10/2000	Wise	52/702
4,932,173 A *	6/1990	Commins	52/92.2	D434,639 S *	12/2000	Willett	D8/354
4,949,929 A	8/1990	Kesselman et al.		6,158,188 A	12/2000	Shahnazarian	
4,951,436 A	8/1990	Burkstrand et al.		6,164,028 A	12/2000	Hughes	
4,964,253 A	10/1990	Loeffler		D436,017 S *	1/2001	Hays	D8/354
5,027,494 A	7/1991	Martin		D438,650 S *	3/2001	Neuhofer, Jr.	D25/199
5,092,100 A	3/1992	Lambert et al.		D438,778 S *	3/2001	Ribe	D8/354
5,104,252 A	4/1992	Colonias et al.		6,199,336 B1	3/2001	Poliquin	
5,113,631 A	5/1992	diGirolamo		6,199,929 B1	3/2001	Hansch	
5,127,760 A	7/1992	Brady		6,213,679 B1	4/2001	Frobosilo et al.	
5,155,962 A	10/1992	Burkstrand et al.		6,242,698 B1	6/2001	Baker, III et al.	
5,189,857 A	3/1993	Herren		6,254,306 B1 *	7/2001	Williams	403/403
5,216,858 A	6/1993	Gilmour		6,260,318 B1	7/2001	Herren	
5,218,803 A	6/1993	Wright		6,290,214 B1	9/2001	DeSouza	
5,253,465 A	10/1993	Gilb		6,295,781 B1	10/2001	Thompson	
5,265,396 A	11/1993	Amimoto		6,301,854 B1	10/2001	Daudet et al.	
5,274,973 A	1/1994	Liang		6,315,137 B1	11/2001	Mulford	

US D730,545 S

D459,974 S *	7/2002	Hawker	D8/354	D618,085 S *	6/2010	Lin et al.	D8/354
6,418,695 B1	7/2002	Daudet		D618,825 S *	6/2010	Johnson	D25/164
6,430,890 B1	8/2002	Chiwhane et al.		7,735,295 B2	6/2010	Surowiecki	
D463,575 S	9/2002	Daudet		7,739,850 B2	6/2010	Daudet	
D467,007 S	12/2002	Daudet et al.		7,752,817 B2	7/2010	Pilz et al.	
6,513,298 B2	2/2003	Rassel		7,788,878 B1	9/2010	diGirolamo et al.	
6,523,321 B1	2/2003	Leek et al.		7,810,291 B2 *	10/2010	McPherson	52/302.3
6,523,322 B1	2/2003	Michalski et al.		7,836,657 B1	11/2010	diGirolamo	
D472,791 S *	4/2003	Callahan et al.	D8/349	7,856,763 B2	12/2010	Keys et al.	
D472,792 S *	4/2003	Callahan et al.	D8/349	7,913,472 B2	3/2011	Troth et al.	
6,578,335 B2	6/2003	Poliquin		7,955,027 B2	6/2011	Nourian et al.	
6,591,562 B2	7/2003	Ting		7,971,409 B2	7/2011	Bak et al.	
6,598,361 B2	7/2003	Ting		7,971,410 B2 *	7/2011	Jerke	52/702
6,612,087 B2	9/2003	diGirolamo et al.		7,971,411 B2	7/2011	Commins	
6,625,945 B2	9/2003	Commins		7,987,636 B2	8/2011	Hunt	
6,644,603 B2	11/2003	Bailleux		D644,503 S	9/2011	Crane et al.	
6,655,096 B1 *	12/2003	Pryor	52/92.2	8,011,160 B2	9/2011	Rice	
6,662,520 B1	12/2003	Nelson		D648,249 S	11/2011	Noble et al.	
6,668,510 B2	12/2003	McManus		8,083,187 B2	12/2011	Bernard et al.	
6,688,069 B2	2/2004	Zadeh		D652,951 S *	1/2012	Crane et al.	D25/61
6,691,482 B1	2/2004	Ault		8,091,316 B2	1/2012	Beck et al.	
6,694,695 B2	2/2004	Collins		D654,063 S *	2/2012	Sergi	D14/238
6,698,971 B1 *	3/2004	Wilhelmi	403/403	D657,891 S	4/2012	Jones	
6,701,689 B2	3/2004	diGirolamo		8,167,250 B2	5/2012	White	
6,702,270 B1	3/2004	Reschke		8,181,419 B1	5/2012	diGirolamo	
6,708,460 B1	3/2004	Elderson		8,205,402 B1	6/2012	diGirolamo	
6,718,698 B1 *	4/2004	Thompson	52/92.2	D663,020 S *	7/2012	Purnell	D23/386
6,719,481 B2	4/2004	Hoffmann		8,210,504 B1 *	7/2012	Skornickel	256/65.01
D489,598 S *	5/2004	Balaban	D8/354	8,225,581 B2	7/2012	Strickland et al.	
D489,960 S *	5/2004	Grendahl	D8/354	D667,249 S	9/2012	London	
6,739,562 B2	5/2004	Rice		D667,289 S *	9/2012	Preda	D8/354
6,748,705 B2	6/2004	Orszulak et al.		D667,718 S	9/2012	Preda	
6,763,634 B1 *	7/2004	Thompson	52/92.2	8,347,582 B1 *	1/2013	Thompson	52/712
6,792,733 B2	9/2004	Wheeler		8,387,321 B2	3/2013	diGirolamo et al.	
6,799,407 B2	10/2004	Saldana		8,407,947 B2 *	4/2013	Yaggi et al.	52/93.1
6,843,035 B1	1/2005	Glynn		D682,069 S *	5/2013	Lehane et al.	D8/354
6,854,237 B2	2/2005	Surowiecki		8,443,561 B2 *	5/2013	Ceccotti et al.	52/285.2
6,871,470 B1	3/2005	Stover		D684,280 S *	6/2013	Moore	D25/199
6,920,734 B2	7/2005	Elderson		8,528,292 B2	9/2013	Morey	
7,017,310 B2	3/2006	Brunt		D692,746 S	11/2013	Lawson et al.	
7,021,021 B2	4/2006	Saldana		8,615,935 B1 *	12/2013	Calini	52/92.2
7,065,932 B2 *	6/2006	Roesset et al.	52/712	D697,102 S *	1/2014	Farradas	D15/148
D526,558 S *	8/2006	Banta	D8/354	D702,860 S *	4/2014	Rice	D25/119
7,104,022 B2 *	9/2006	Burgess	52/702	8,733,061 B1 *	5/2014	McDonald	52/715
7,104,024 B1	9/2006	diGirolamo et al.		2001/0045075 A1 *	11/2001	Watanabe	52/712
D529,792 S *	10/2006	Klein et al.	D8/373	2002/0059773 A1	5/2002	Elderson	
RE39,462 E	1/2007	Brady		2002/0062617 A1 *	5/2002	diGirolamo et al.	52/688
7,159,369 B2	1/2007	Elderson		2002/0112439 A1 *	8/2002	Rosas	52/712
7,168,219 B2	1/2007	Elderson		2002/0124483 A1 *	9/2002	Rosas	52/92.2
7,174,690 B2	2/2007	Zadeh		2003/0009980 A1	1/2003	Shahnazarian	
7,213,377 B1 *	5/2007	Sackett	52/696	2003/0037494 A1	2/2003	Collins	
7,225,590 B1	6/2007	diGirolamo et al.		2003/0089053 A1	5/2003	Elderson	
7,293,393 B2	11/2007	Kelly et al.		2003/0145537 A1	8/2003	Bailey	
7,299,593 B1	11/2007	diGirolamo et al.		2003/0167722 A1	9/2003	Klein et al.	
D558,039 S	12/2007	Skinner		2003/0223807 A1 *	12/2003	Lanphier	403/167
7,316,098 B1 *	1/2008	Sackett	52/92.2	2004/0079034 A1 *	4/2004	Leek	52/92.2
7,334,372 B2	2/2008	Evans et al.		2004/0107653 A1 *	6/2004	Collie	52/92.2
7,367,168 B2	5/2008	Lin		2004/0163355 A1 *	8/2004	Collie	52/702
D573,873 S	7/2008	Wall		2005/0086905 A1	4/2005	Ralph et al.	
7,398,620 B1 *	7/2008	Jones	52/92.2	2006/0032180 A1 *	2/2006	Peterson	52/712
7,398,621 B2	7/2008	Banta		2006/0053736 A1 *	3/2006	Patton	52/731.7
7,451,573 B2	11/2008	Orszulak et al.		2006/0096192 A1	5/2006	Daudet	
7,478,508 B2	1/2009	Peterson		2007/0234662 A1	10/2007	Hanig et al.	
7,503,148 B2	3/2009	Lin		2007/0251186 A1	11/2007	Rice	
7,503,150 B1	3/2009	diGirolamo		2008/0053015 A1 *	3/2008	Matechuk	52/235
7,520,100 B1	4/2009	Herrman		2008/0163581 A1 *	7/2008	Greth	52/702
7,533,508 B1	5/2009	diGirolamo et al.		2008/0283702 A1 *	11/2008	Ikerd	248/228.1
7,559,519 B1	7/2009	Dragic		2009/0193750 A1 *	8/2009	Klima	52/712
7,596,921 B1	10/2009	diGirolamo		2010/0011697 A1	1/2010	Nguyen et al.	
7,617,643 B2	11/2009	Pilz et al.		2010/0031601 A1	2/2010	Lin	
7,631,463 B2 *	12/2009	Greenlee et al.	52/182	2010/0126103 A1	5/2010	diGirolamo et al.	
7,634,889 B1	12/2009	diGirolamo et al.		2011/0107710 A1	5/2011	Sias	
7,640,701 B2	1/2010	Rutherford		2011/0154770 A1	6/2011	Friis	
7,644,549 B2	1/2010	Speck		2011/0197522 A1 *	8/2011	Noturno	52/92.2
7,658,356 B1	2/2010	Nehls		2011/0219720 A1 *	9/2011	Strickland et al.	52/655.1
7,681,365 B2	3/2010	Klein		2013/0104490 A1	5/2013	Daudet et al.	
7,707,785 B2	5/2010	Lin		2014/0047792 A1	2/2014	Daudet et al.	
7,716,899 B2	5/2010	Beck et al.		2014/0270916 A1	9/2014	Daudet et al.	
D617,442 S *	6/2010	Grages	D23/393				

2014/0270923 A1 9/2014 Daudet et al.
 2014/0290163 A1* 10/2014 Rice 52/289
 2015/0033662 A1 2/2015 Daudet et al.

FOREIGN PATENT DOCUMENTS

WO WO-96/31667 A1 10/1996

OTHER PUBLICATIONS

“Wall Bridging Detail”. NuconSteel Product Catalog, 2003, front cover, table of contents, p. 34. NuconSteel, USA.

“Double Deep-Leg Track”, “Bridge Clip Installation”, “BC600 & BC800 Installation”, “BridgeBar”, “BridgeClip”, “BC600 or BC800”. The Steel Network, Inc. Product Catalog, Jan. 2004, front cover, p. 11, 27, 49. Steel Network, Inc., USA.

“Bridging, Bracing & Backing: Spazzer 5400 Spacer Bar (SPZS), Bar Guard (SPBG) & Grommet (SPGR)”. Clip Express Product Catalog: Clips, Connectors & Framing Hardware, Apr. 2012, p. 77. Clark Dietrich Building Systems, USA.

“Metal-Lite Products”. Metal Lite website, metal-lite.net. Accessed Sep. 20, 2013, one page. Metal Lite 2012, USA.

“Mantisgrip Product Catalog 2012”. Catalog, 2012, 10 pages and cover. Mantisgrip 2012, USA.

U.S. Appl. No. 13/845,057, “Inverted Bridging Connector”. Unpublished (filed Mar. 7, 2013), (Daudet, Larry R. and Oellerich, Paul H., Applicants), application p. 1-38; drawings p. 1-10.

“Multiple Truss Hangers; Twist Straps; Girder Tiedowns”. Simpson Strong-Tie Product Catalog: Plated Truss Connectors and Masonry Connectors, C-2011, p. 141 and 163, USA.

“HD/HDN Holdowns”, Simpson Strong-Tie Product Catalog: Strong-Tie Connectors. 1986, p. 6, USA.

“Hold Downs: KHDA/KHD/KHDN”, Lumberlok: Engineered Metal Fasteners Product Catalog. MiTek Group Company, 1988, p. 6 and back cover, USA.

“Wood to Wood Uplift Connector Assembly; Masonry Uplift Connectors”, Hughes Manufacturing, Inc. Product Catalog, 1997/1998. pp. 24, 37 and front cover. Largo, FL.

“Angles and Hold Downs”, KC Metals Superspeed Connectors Product Catalog, 1980. p. 26, USA.

“StiffClip CL Floor Tie”, Steel Network Product Catalog, Aug. 2011. p. 49, USA.

“Wood Construction Connectors”, Simpson Strong-Tie Company Catalog, C-2009, pgs. front cover, 25, 40128,136,152,158, 162-164, 166-167, 171, 179, 180, back cover. 2009-2010, Simpson Strong-Tie Company, Inc., USA.

“Handverkerkatalog”, BMF Catalog, 1989, pgs. front cover, 1.10.2, 1.15.2, 1.20.2, 1.25.2, 1.30.2, 1.35.2, 1.40.2, 1.45.2,1.50-51.2, 1.55.2, 1.65.2, 3.20.2, 5.10.2, 6.10.2, 7.25.2, 9.00.2, 13.00. Printed in the Netherlands.

“Re-Defining the Standard” USP Lumber Connectors, A Gibraltar Company, Full Line Catalog 2000. pgs. front cover, 14, 18, 27, 7275, 78, 81, 101, 149. United Steel Products Company, 2000, Montgomery, MN.

“Wood To Wood: Heavy Angles” Hughes Manufacturing, Inc. Product Catalog, 1997-1998. pgs. front cover and p. 25. Hughes Manufacturing, Inc., 1998, Largo, Florida, USA.

“Advanced Connector Systems: Connectors for Wood Construction” Product Catalog 1997, pgs. front cover, 29, 30, 33. Advanced Connector Systems, USA.

“Metal Connectors” SEMCO Product Catalog 1997-1998, pgs. cover, 16, 21, 24, 34, 35, 53, 59, back cover. Southeastern Metals Manufacturing Company, Inc., 1998, Jacksonville, FL.

“Superspeed Connectors: Structural Wood Fasteners”, Golden Gate Equipment Product Catalog, Jan. 1974. pgs. cover p. 9, 12, 23. KC Metal Products, Jan. 1974, USA.

“Structural Wood Fasteners”, TECO Product Catalog, June 1972. pgs. cover, 5, 7, 11, back cover. TECO Publication No. 101, Washington D.C., 1972, USA.

“Structural Timber Connectors”, HMP Product Catalog No. 390. pgs. cover, 4, 7, 8, 15, 18, 20, 24-26, back cover. Harlen Metal Products, Inc., 1990, Compton, CA, USA.

“Connectors”, KANT-SAG Product Catalog No. 100-7/84. pgs. cover, 12, 30, 32, 38, 40-42, 50. United Steel Products Company, 1984, Minnesota, USA.

“Silver Catalog S81 Sweet’s 1981 Architectural File”, Silver Metal Products Catalog, 1981. pgs. cover, 19-22, 25. Silver Metal Products, Inc., 1981, USA.

“Framing Accessories: Building and Concrete Construction Devices” Bowman Product Catalog 1978-1979. pgs. cover, 3, 5, 6, 20. P.H. Bowman Co., Inc., Jun. 1978, USA.

“Engineered Metal Fasteners” Lumberlok Product Catalog, 1988. pgs. cover, 32-33, 38-39, 47. A MiTek Group Company, LumberLok, May 1988, USA.

“Superspeed Connectors: Structural Wood Fasteners” KC Metals Product Catalog, 1978. pgs. front cover, 5, 36, 41, back cover. KC Metals Products, Inc., 1978, San Jose, CA, USA.

“Superspeed Connectors: Connectors for Wood Construction”, KC Metals Product Catalog, 1992. pgs. front cover, 16, 19, 24, 34, 36, 38, back cover. KC Metals Products, Inc., 1992, San Jose, CA, USA.

Tanaka Steel Product Catalog, pgs. front cover, 40, 72. Tanaka Steel, Inc., Jul. 1996, Japan.

“Curtain Wall Systems; DriftClip and DriftTrak”, The Steel Network Product Catalog, May 2009. pgs. front cover, 32 and 36. The Steel Network Inc., Durham, NC, USA, 2009.

“Deflection Clips: Bypass Slab Slide Clip PLC2”, Priceless Steel Products Catalog, 2004. pp. 12 and 13. SCAFCO Steel Stud Manufacturing, Co., www.pricelesssteel.com, USA.

“Clip Central”, Priceless Steel Products Clip Central website, <http://www.pricelesssteel.com>, printed on Aug. 30, 2010, 2 pgs.

“VertiClip SLB”, Steel Network Products website, <http://www.steelnetwork.com/Product/VertiClipSLB>, printed on Dec. 26, 2012, 2 pgs.

“Curtainwall Deflection Solutions”, Super Stud Building Products Catalog, 2001. pgs. front cover, inside cover, 8-13, 16-17, specifications page, company overview page, back cover. Super Stud Building Products, Inc., 2000, NY, USA.

“Light Steel Framing Connections: Interior, Exterior, Vertical Deflection, Drift”, The Steel Network Product Catalog, Nov. 2013. pgs. front cover, 6,9,11,13,15-21,27-32,35-37,42,47,50-53, 55,65,69,75,76. The Steel Network, Inc., 2013, USA.

“CD-Clip Express” Clark Dietrich Product Catalog, Apr. 2012. pgs. front cover, 15-19,22-23,30-49,94, back cover. Clark Dietrich Building Systems, 2012, OH, USA.

“CD-Clip Express: Rigid Connections: Moment Clip (MC Series)”, Clark Dietrich Product Catalog, Nov. 2014. pp. 1 and 2, Clark Dietrich Building Systems, 2014, OH, USA.

“FA—Secure Floor Anchor Clip”, Scafco Product Catalog, Apr. 2013. p. 23. Steel Stud Company, Inc., 2013, USA.

“FrameRite Connectors: Rigid Clip Connector (RCC)”, MarinoWare Product Catalog, Jul. 2008. 2 pages. Marino Ware and www.marinoware.com, USA.

Schafer, B.W., et al., “Accommodating Building Deflections: What every EOR should know about accommodating deflections in secondary cold-formed steel systems.” NCSEA/CASE/SEI, Structure Magazine, Apr. 2003, Chicago.

“International Search Report and The Written Opinion of the International Searching Authority,” PCT/US2012/030963, Jul. 30, 2012, 6 pages.

“Redi Klip Submittal: Head-of-Wall Positive Attachment Deflection Clip,” Total Steel Solution, as early as May 22, 2013, 2 pages, USA.

“Posi Klip Product Information: Head-of-Wall Positive Attachment Deflection Clip,” FireTrak Corporation, as early as May 22, 2013, 1 page, USA.

“Sliptrack Systems: Slotted Deflections Track Systems for Interior and Exterior Walls,” SlipTrack Systems, 2003, 6 pages. Dietrich Metal Framing: A Worthington Industries Company, USA.

“TSN Products: Steel framing products,” The Steel Network TSN website, 2010, 2 pages. The Steel Network, Inc., USA.
“TSN Product: VertiClip® SLB,” The Steel Network TSN website, Dec. 26, 2012, 2 pages, The Steel Network, Inc., USA.
“Priceless Steel Products Clip Central,” Priceless Steel Products Website, Aug. 30, 2010, 2 pages. Scafco Steel Stud Manufacturing Co., WA.
“Bypass Slab Slip Clip: PLC2,” Priceless Steel Product Catalog, as early as May 22, 2013, p. 12-13. Scafco Steel Stud Manufacturing Co., WA.
“SLP-TRK® Slotted Track (BDTK),” “Head of Wall,” SlipTrack Systems, as early as Jul. 2010, p. 26-29. Dietrich Metal Framing: A Worthington Industries Company, USA.
“Curtainwall Deflection Solutions,” Buy Super Stud Website, Aug. 2010, 2 pages. Super Stud Building Products, Inc., Edison.
“Curtain Wall Systems”, “Jam Stud Introduction”, “Design Considerations”, “Header/Sill Solutions”, “Connections”, “VertiClip: Vertical Deflection Connectors”, “DriftClip and DriftTrk: Vertical Deflection and Lateral Drift”, “Bridging”, “Design Software,” TSN The Steel Network Product Catalog, May 2009, cover page, p. 1, 4,18, 30-33, 35, 36, back cover. The Steel Network, Inc., USA.

* cited by examiner

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(57)

CLAIM

We claim the ornamental design for a joist and rafter connector, as shown and described.

DESCRIPTION

FIG. 1 is an upper perspective view of the joist and rafter connector showing my design.

FIG. 2 is a lower perspective view of the joist and rafter connector of FIG. 1.

FIG. 3 is a front elevation view of the joist and rafter connector of FIG. 1.

FIG. 4 is a rear elevation view of the joist and rafter connector of FIG. 1.

FIG. 5 is a top plan view of the joist and rafter connector of FIG. 1.

FIG. 6 is a bottom plan view of the joist and rafter connector of FIG. 1.

FIG. 7 is a right side elevation view of the joist and rafter connector of FIG. 1; and,

FIG. 8 is a left side elevation view of the joist and rafter connector of FIG. 1.

1 Claim, 5 Drawing Sheets

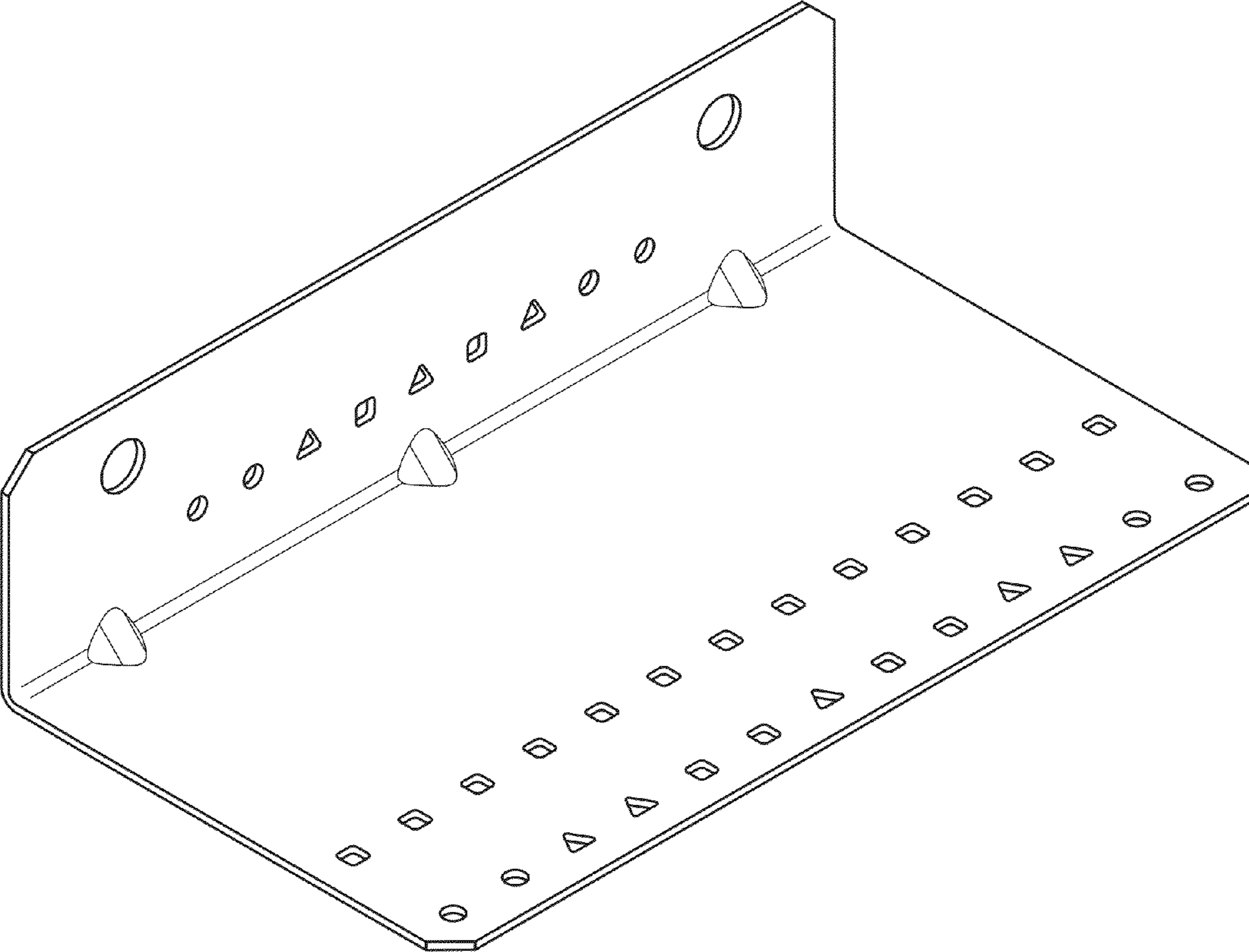


Fig. 1

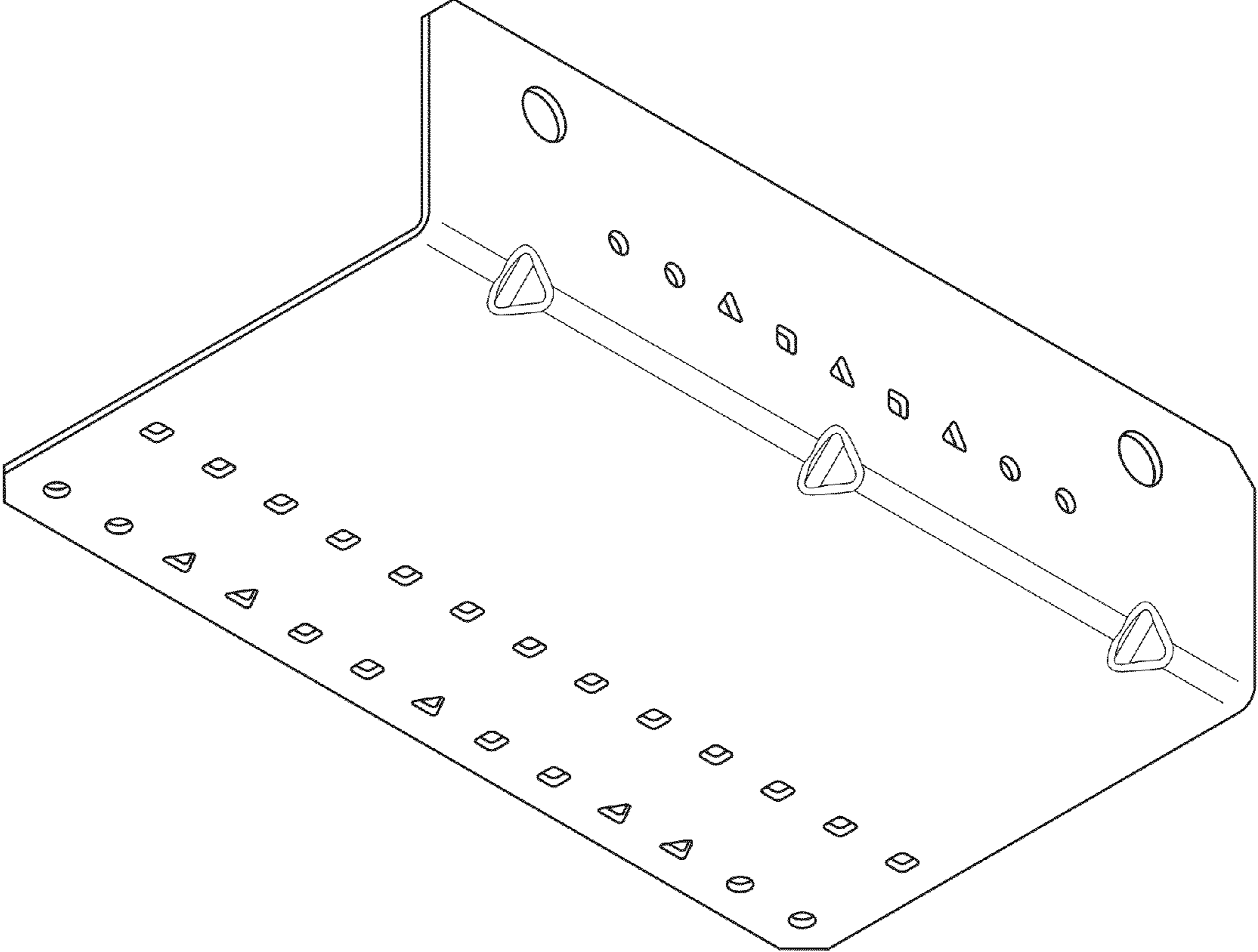


Fig. 2

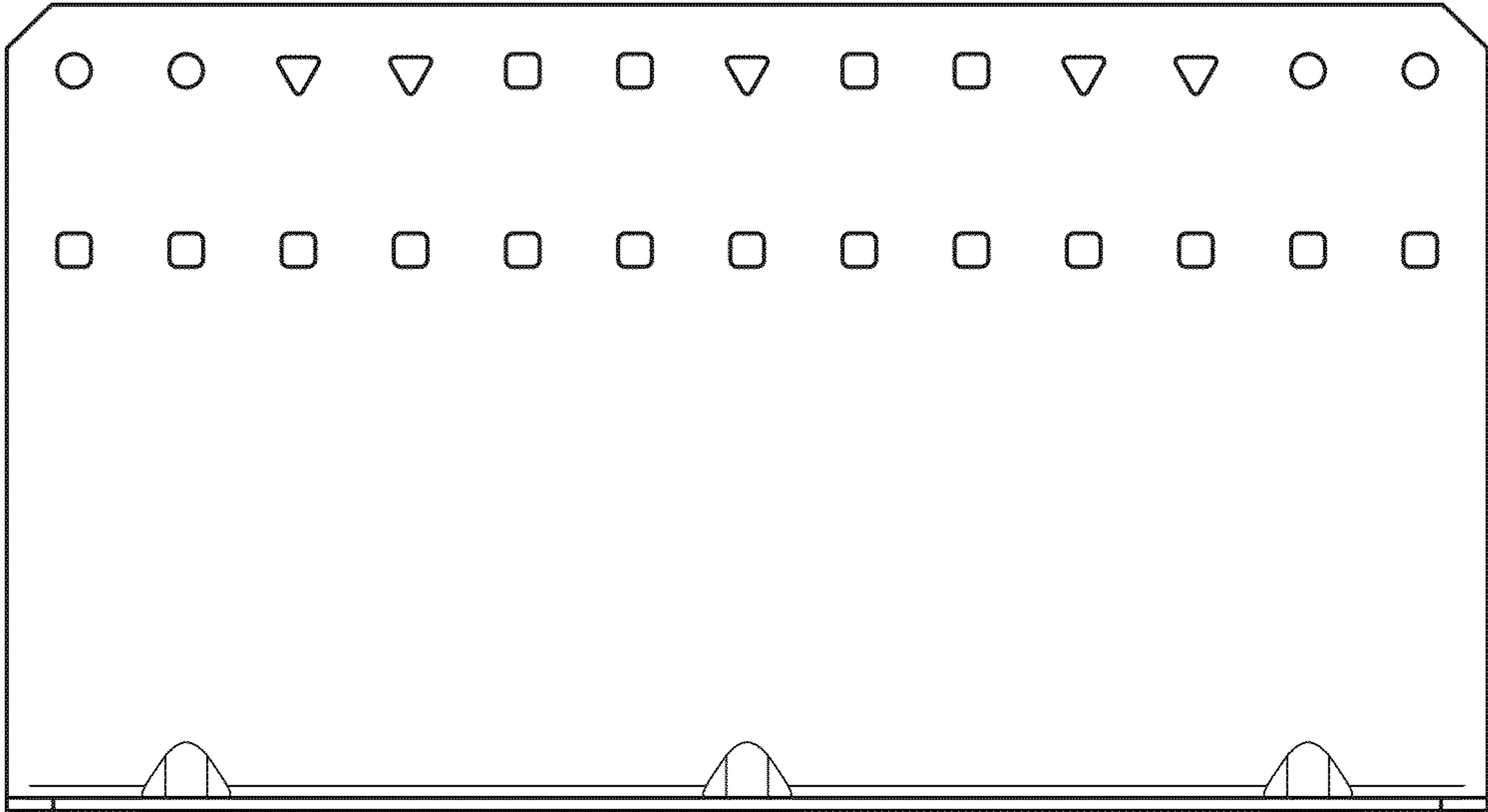


Fig. 3

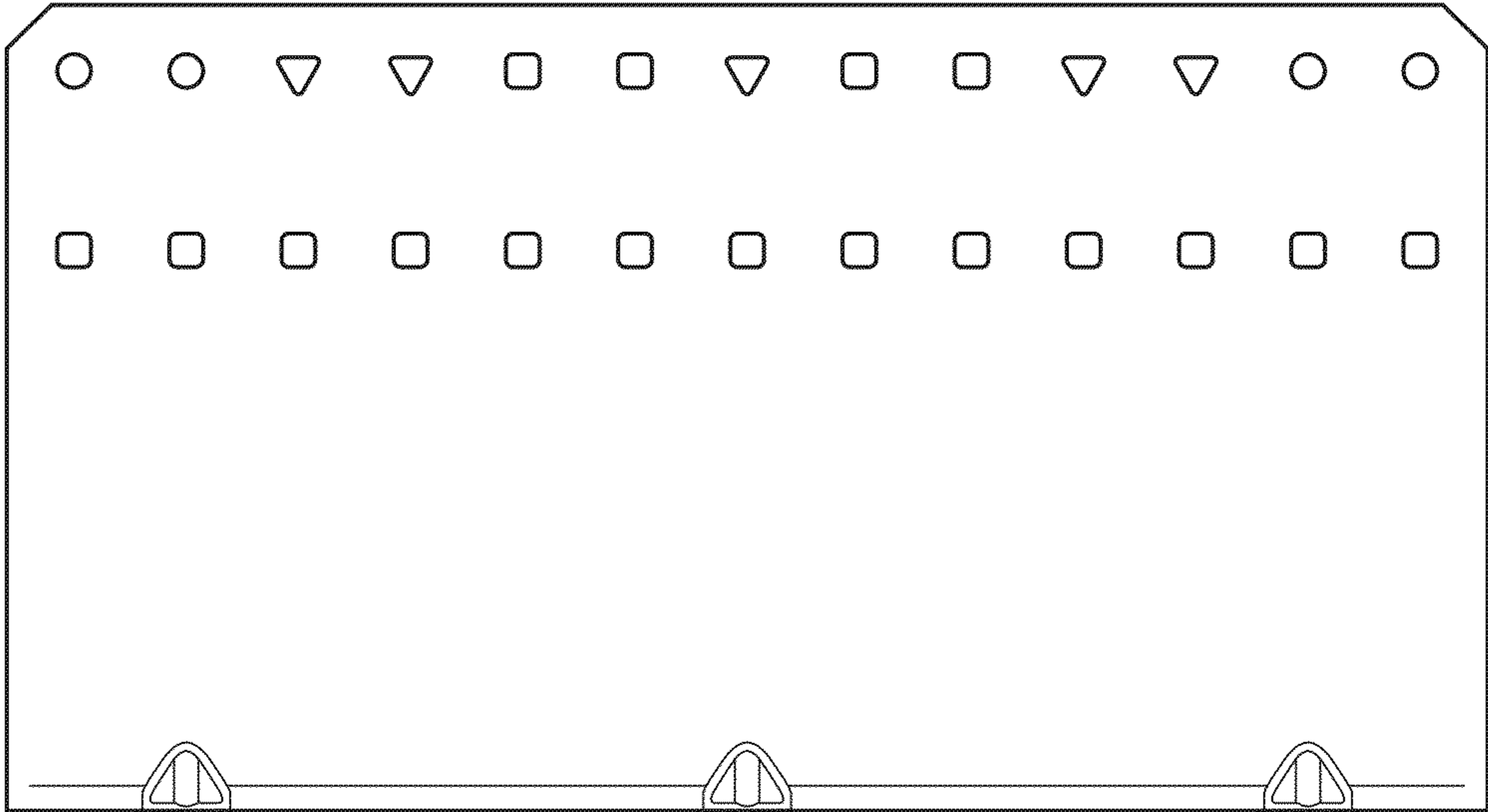


Fig. 4

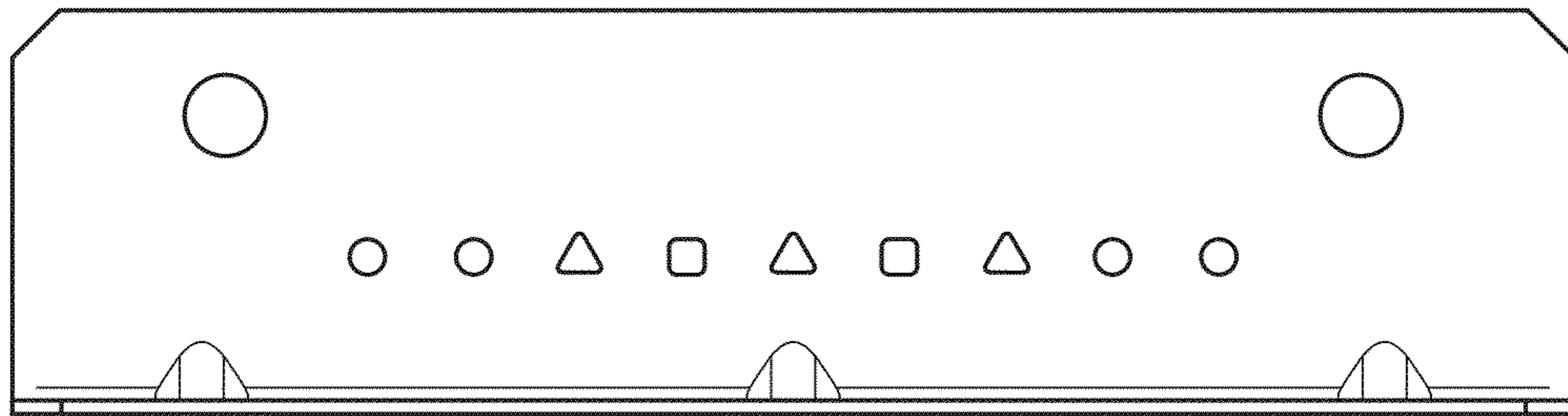


Fig. 5

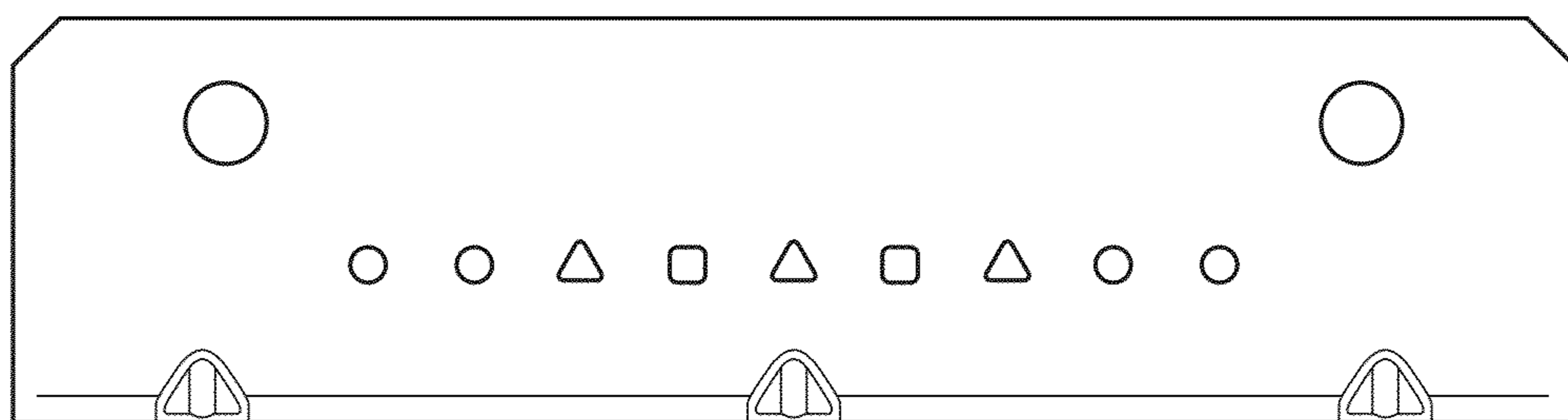


Fig. 6



Fig. 7

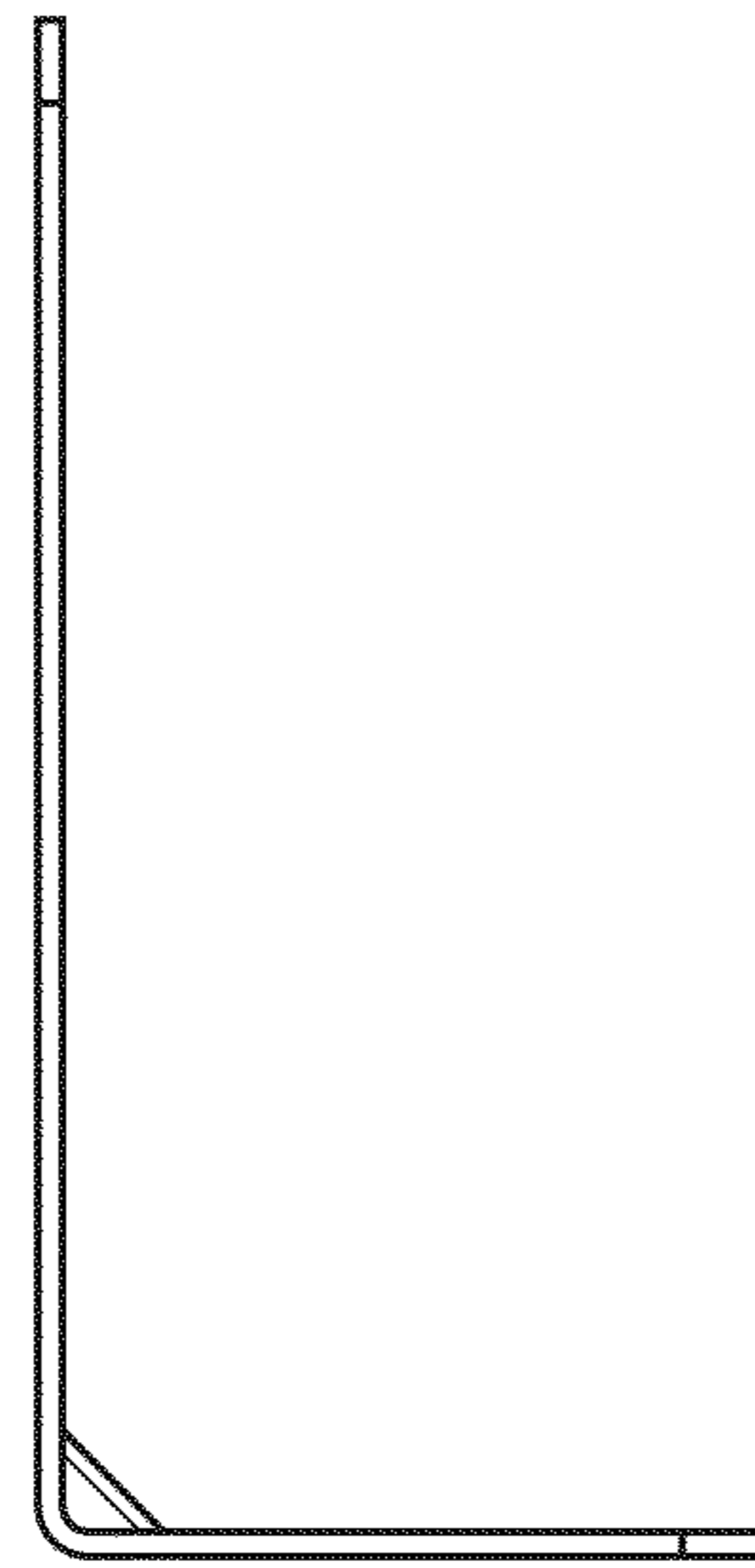


Fig. 8