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(54) **LIGHTING MODULE LOCKING MECHANISM**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D120,548 S	5/1940	Guth
D122,145 S	8/1940	MacCarthy
D122,067 S	10/1940	Rubinstein
D122,887 S	10/1940	Beals
D123,887 S	12/1940	Koehler
D127,398 S	5/1941	Jordan
D128,961 S	8/1941	Hrabak
D129,726 S	9/1941	Scribner
D130,570 S	12/1941	Borkland
2,312,617 A	3/1943	Beck

(Continued)

OTHER PUBLICATIONS

Flex Essentials Series Sell Specification Sheets, Published Jun. 2016 (28 pages).

(Continued)

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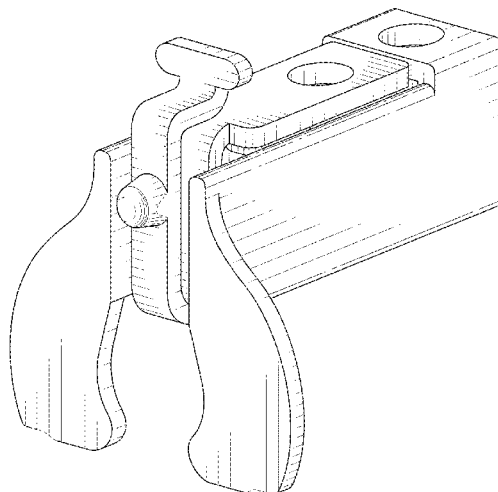
(57) **CLAIM**

What is claimed the ornamental design for a lighting module locking mechanism, as shown and described.

DESCRIPTION

FIG. 1 is a front, perspective view of a lighting module locking mechanism in accordance with the present design; FIG. 2 is a front view of the lighting module locking mechanism of FIG. 1; FIG. 3 is a rear view of the lighting module locking mechanism of FIG. 1; FIG. 4 is a left, side view of the lighting module locking mechanism of FIG. 1; FIG. 5 is a right, side view of the lighting module locking mechanism of FIG. 1; FIG. 6 is a top view of the lighting module locking mechanism of FIG. 1; FIG. 7 is a bottom view of the lighting module locking mechanism of FIG. 1; and, FIG. 8 is a perspective view of the lighting module locking mechanism of FIG. 1, with components of a lighting module shown attached to the lighting module locking mechanism of FIG. 1 and in broken lines to illustrate environment for the lighting module locking mechanism of FIG. 1. The broken lines provided in the drawings form no part of the claimed design.

1 Claim, 5 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D139,669	S	12/1944	Lippincott	7,663,342	B2	2/2010	Kimball et al.
D142,126	S	8/1945	Sabatini	7,670,638	B2	3/2010	Luan et al.
D150,735	S	8/1948	Schwartz et al.	7,681,090	B2	3/2010	Kimball et al.
D151,575	S	10/1948	Winkler et al.	7,705,237	B2	4/2010	Swanson
2,606,998	A	8/1952	Winkler et al.	7,708,578	B1	5/2010	Lenox
D173,255	S	10/1954	Brooks et al.	7,718,888	B2	5/2010	Cousins
2,715,449	A	8/1955	Lemmerman et al.	7,737,357	B2	6/2010	Cousins
2,849,595	A	* 8/1958	Zurawski F21V 21/02 362/219	7,755,916	B2	7/2010	Krein et al.
D188,436	S	7/1960	Budke et al.	7,774,998	B2	8/2010	Aschenbrenner
3,009,055	A	11/1961	Franzese	7,780,472	B2	8/2010	Lenox
3,209,142	A	9/1965	Michel et al.	7,786,375	B2	8/2010	Swanson et al.
D208,491	S	9/1967	Brooks	7,804,022	B2	9/2010	De Ceuster
D255,851	S	7/1980	Crane	7,807,918	B2	10/2010	Shingleton et al.
D291,598	S	8/1987	Elkerbout	7,812,250	B2	10/2010	Smith
4,726,781	A	2/1988	Bernhart et al.	7,820,475	B2	10/2010	De Ceuster et al.
D391,136	S	* 2/1998	King, Jr. D8/354	7,824,070	B2	11/2010	Higley et al.
6,061,978	A	5/2000	Dinwoodie et al.	7,838,062	B2	11/2010	Cousins et al.
6,076,943	A	6/2000	Lassovsky	7,851,698	B2	12/2010	De Ceuster et al.
6,274,402	B1	8/2001	Verlinden et al.	D632,418	S	2/2011	Bisberg et al.
6,295,818	B1	10/2001	Ansley et al.	7,883,343	B1	2/2011	Mulligan et al.
6,313,395	B1	11/2001	Crane et al.	7,888,587	B2	2/2011	Shingleton et al.
6,333,457	B1	12/2001	Mulligan et al.	7,888,588	B2	2/2011	Shingleton
6,337,283	B1	1/2002	Verlinden et al.	7,893,409	B1	2/2011	Cousins
6,387,726	B1	5/2002	Verlinden et al.	7,897,867	B1	3/2011	Mulligan et al.
6,423,568	B1	7/2002	Verlinden et al.	7,945,413	B2	5/2011	Krein
6,495,750	B1	12/2002	Dinwoodie	7,956,281	B2	6/2011	O'Brien et al.
6,501,013	B1	12/2002	Dinwoodie	7,958,886	B2	6/2011	Barsun et al.
D472,007	S	3/2003	Weitgasser	7,982,434	B2	7/2011	Kimball et al.
6,536,326	B2	3/2003	Unger et al.	7,994,657	B2	8/2011	Kimball et al.
6,570,084	B2	5/2003	Dinwoodie	8,004,865	B2	8/2011	Krein et al.
6,684,637	B2	2/2004	Beale	8,008,575	B2	8/2011	De Ceuster et al.
6,722,357	B2	4/2004	Shingleton	D644,609	S	9/2011	Marroquin
6,745,687	B1	6/2004	Kaminar	D644,610	S	9/2011	Marroquin
D492,809	S	7/2004	Weitgasser	8,029,683	B2	10/2011	Rose et al.
6,809,251	B2	10/2004	Dinwoodie	8,061,091	B2	11/2011	Botkin et al.
6,809,253	B2	10/2004	Dinwoodie	8,062,693	B2	11/2011	Cousins
6,883,290	B2	4/2005	Dinwoodie	8,065,844	B2	11/2011	Botkin et al.
D510,315	S	10/2005	Shugar et al.	8,080,819	B2	12/2011	Mueller et al.
D511,576	S	11/2005	Shingleton et al.	D651,970	S	* 1/2012	Turk D13/102
D516,017	S	2/2006	Mascolo	8,101,849	B2	1/2012	Almy et al.
6,998,288	B1	2/2006	Smith et al.	8,108,081	B2	1/2012	Lenox
D519,444	S	4/2006	Mascolo	8,120,933	B2	2/2012	Chapman et al.
D521,172	S	5/2006	Chen	8,134,217	B2	3/2012	Rim et al.
7,072,096	B2	7/2006	Holman et al.	8,148,627	B2	4/2012	Rose et al.
7,135,350	B1	11/2006	Smith et al.	8,158,877	B2	4/2012	Klein et al.
7,140,742	B2	11/2006	Pohlert et al.	8,163,638	B2	4/2012	De Ceuster et al.
7,144,214	B2	12/2006	Kinpara et al.	8,172,989	B2	5/2012	Pass
7,155,870	B2	1/2007	Almy	8,174,856	B2	5/2012	Chapman
7,172,184	B2	2/2007	Pavani et al.	8,188,363	B2	5/2012	Xavier et al.
7,178,295	B2	2/2007	Dinwoodie	8,192,048	B2	6/2012	Kristoffersen et al.
7,178,941	B2	2/2007	Roberge et al.	8,192,056	B2	6/2012	Villard
7,297,865	B2	11/2007	Terao et al.	8,193,788	B2	6/2012	Chapman
7,297,866	B2	11/2007	Aschenbrenner	8,198,528	B2	6/2012	Luan et al.
D562,225	S	2/2008	Almy et al.	8,206,009	B2	6/2012	Tickner et al.
7,328,534	B2	2/2008	Dinwoodie	8,207,444	B2	6/2012	Cousins
RE40,158	E	3/2008	Weitgasser	8,207,637	B2	6/2012	Marroquin et al.
D564,958	S	3/2008	Almy et al.	8,211,731	B2	7/2012	Harley et al.
7,339,110	B1	3/2008	Mulligan et al.	8,215,071	B2	7/2012	Lenox
D565,505	S	4/2008	Shugar et al.	8,220,210	B2	7/2012	Botkin et al.
7,388,147	B2	6/2008	Mulligan et al.	8,221,600	B2	7/2012	Ganti
7,390,961	B2	6/2008	Aschenbrenner et al.	8,221,601	B2	7/2012	Chen et al.
7,435,134	B2	10/2008	Lenox	8,222,516	B2	7/2012	Cousins
7,438,432	B2	10/2008	Yaphe et al.	8,227,942	B2	7/2012	Marroquin et al.
7,455,787	B2	11/2008	Rose et al.	8,230,850	B2	7/2012	Barsun et al.
7,468,485	B1	12/2008	Swanson	8,234,824	B2	8/2012	Botkin et al.
D586,737	S	2/2009	Shugar et al.	8,242,354	B2	8/2012	Smith
D592,785	S	5/2009	Bisberg et al.	D666,974	S	9/2012	Marroquin et al.
7,530,830	B1	5/2009	Lenox	8,258,395	B2	9/2012	Wares
7,554,030	B2	6/2009	Shingleton	8,263,899	B2	9/2012	Harley et al.
7,554,031	B2	6/2009	Swanson et al.	8,276,329	B2	10/2012	Lenox
7,557,292	B2	7/2009	Shingleton et al.	8,279,642	B2	10/2012	Chapman et al.
7,622,912	B1	11/2009	Adams et al.	8,279,649	B2	10/2012	Esrman et al.
7,633,006	B1	12/2009	Swanson	8,284,574	B2	10/2012	Chapman et al.
7,648,257	B2	1/2010	Villard	8,291,654	B2	10/2012	Botkin et al.
				8,294,022	B2	10/2012	Lenox
				8,304,644	B2	11/2012	Wares et al.
				8,308,324	B2	11/2012	Van Horn et al.
				8,317,987	B2	11/2012	Abas et al.
				D673,320	S	12/2012	Guercio et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,322,300	B2	12/2012	Pavani et al.	8,662,008	B2	3/2014	Abas et al.
8,324,015	B2	12/2012	Harley et al.	8,664,519	B2	3/2014	De Ceuster et al.
8,325,499	B2	12/2012	Krein et al.	8,679,889	B2	3/2014	Cousins et al.
8,334,161	B2	12/2012	Dennis et al.	D703,858	S	4/2014	Miller
8,334,489	B2	12/2012	Beardsworth et al.	8,683,761	B2	4/2014	Danning
8,336,539	B2	12/2012	Linderman et al.	8,692,111	B2	4/2014	Kim et al.
8,350,411	B2	1/2013	Kimball et al.	8,709,851	B2	4/2014	Dennis et al.
8,350,417	B1	1/2013	Dooley et al.	8,712,745	B2	4/2014	Wayne et al.
8,352,220	B2	1/2013	Wayne et al.	8,716,596	B1	5/2014	Swanson
8,360,601	B2	1/2013	Muschaweck et al.	8,737,093	B1	5/2014	Baker et al.
8,377,738	B2	2/2013	Dennis et al.	8,737,100	B2	5/2014	Chapman et al.
8,378,706	B2	2/2013	Kinyon et al.	8,744,791	B1	6/2014	Kraft et al.
8,393,707	B2	3/2013	Cudzinovic et al.	8,748,736	B2	6/2014	Luan et al.
8,399,287	B1	3/2013	Mulligan et al.	8,754,627	B1	6/2014	Le
8,402,703	B2	3/2013	Brandt et al.	8,757,567	B2	6/2014	Ciasulli et al.
8,409,902	B1	4/2013	Harley et al.	8,763,316	B2	7/2014	Concho et al.
8,409,911	B2	4/2013	Cousins	8,767,421	B2	7/2014	Chapman
8,409,912	B2	4/2013	de Ceuster et al.	8,772,894	B2	7/2014	Smith
8,423,312	B2	4/2013	Krein	8,774,007	B2	7/2014	Hussain et al.
8,424,255	B2	4/2013	Lenox et al.	8,776,781	B2	7/2014	Meydbray
8,426,974	B2	4/2013	Linderman et al.	8,778,787	B2	7/2014	Manning
8,448,391	B2	5/2013	Botkin et al.	8,785,233	B2	7/2014	Loscutoff et al.
8,448,652	B2	5/2013	Almy et al.	8,785,236	B2	7/2014	Harley et al.
8,449,238	B2	5/2013	Mulligan et al.	8,785,830	B2	7/2014	Judkins
8,450,134	B2	5/2013	De Ceuster et al.	8,786,095	B2	7/2014	Linderman et al.
8,450,985	B2	5/2013	Gray et al.	8,790,957	B2	7/2014	Li et al.
8,451,638	B2	5/2013	Chapman et al.	8,793,942	B2	8/2014	Almy et al.
8,455,806	B2	6/2013	Judkins	8,796,061	B2	8/2014	Bunea
8,456,876	B2	6/2013	Chapman	8,796,535	B2	8/2014	Linderman
8,460,963	B2	6/2013	Smith	8,796,884	B2	8/2014	Naiknaware et al.
8,461,813	B2	6/2013	Chapman	8,802,486	B2	8/2014	Li et al.
8,462,518	B2	6/2013	Marroquin et al.	8,809,671	B2	8/2014	Linderman et al.
8,482,947	B2	7/2013	Chapman et al.	8,815,631	B2	8/2014	Cousins
8,486,746	B2	7/2013	Rim et al.	8,817,510	B2	8/2014	Esrām et al.
8,492,253	B2	7/2013	Manning	8,818,924	B2	8/2014	Wayne et al.
8,503,200	B2	8/2013	Chapman et al.	8,822,257	B2	9/2014	Rim et al.
8,508,964	B2	8/2013	Gray et al.	8,822,262	B2	9/2014	Loscutoff et al.
8,516,754	B2	8/2013	Botkin et al.	8,822,812	B2	9/2014	Wares
8,519,729	B2	8/2013	Capulong et al.	8,823,356	B2	9/2014	Chapman
D690,453	S	9/2013	Guercio et al.	8,824,178	B1	9/2014	Baker et al.
8,528,366	B2	9/2013	Berrada Sounni et al.	8,839,784	B2	9/2014	Wares et al.
8,530,990	B2	9/2013	Linderman et al.	8,842,454	B2	9/2014	Johnson et al.
8,534,007	B2	9/2013	Almy et al.	8,859,933	B2	10/2014	Harley et al.
8,546,681	B2	10/2013	Wares et al.	8,860,162	B2	10/2014	Linderman et al.
8,548,637	B2	10/2013	Lenox	8,860,242	B1	10/2014	Pruett et al.
8,552,288	B2	10/2013	Xavier	8,877,617	B2	11/2014	Wong et al.
8,557,093	B2	10/2013	Cousins et al.	8,878,053	B2	11/2014	Cousins
8,558,101	B2	10/2013	Mascolo et al.	8,881,415	B2	11/2014	Barton
8,563,849	B2	10/2013	Johnston et al.	8,883,247	B2	11/2014	Cousins et al.
8,567,134	B1	10/2013	Grushkowitz et al.	8,893,713	B2	11/2014	Wares et al.
8,572,836	B2	11/2013	Lenox	8,901,010	B2	12/2014	Westerberg et al.
8,580,599	B2	11/2013	Rim et al.	8,904,717	B2	12/2014	Lenox
8,584,406	B2	11/2013	Wexler et al.	8,912,038	B2	12/2014	Li et al.
8,584,667	B2	11/2013	Linderman et al.	8,922,062	B2	12/2014	Johnson et al.
8,586,397	B2	11/2013	Wu et al.	8,922,185	B2	12/2014	Ehlmann et al.
8,586,403	B2	11/2013	Harley et al.	8,929,094	B2	1/2015	Marroquin et al.
8,597,970	B2	12/2013	Cousins et al.	8,943,765	B2	2/2015	Danning et al.
8,599,587	B2	12/2013	Chapman et al.	8,945,978	B2	2/2015	Behnke
8,604,404	B1	12/2013	Linderman	8,946,541	B2	2/2015	Wares et al.
8,609,977	B2	12/2013	Jones et al.	8,955,267	B2	2/2015	Wexler et al.
8,611,107	B2	12/2013	Chapman et al.	8,956,018	B2	2/2015	Deshpande et al.
8,615,941	B2	12/2013	Botkin et al.	8,962,082	B2	2/2015	Pavani et al.
8,624,561	B1	1/2014	Slavin	8,962,373	B2	2/2015	Cousins et al.
8,624,621	B2	1/2014	Capulong et al.	8,963,185	B2	2/2015	Cousins
8,629,383	B2	1/2014	Beardsworth et al.	8,963,375	B2	2/2015	DeGraaff
8,630,077	B2	1/2014	Johnston et al.	8,964,401	B2	2/2015	Escamilla et al.
8,634,216	B2	1/2014	Chapman	8,975,175	B1	3/2015	Pass
8,636,198	B1	1/2014	Linderman et al.	8,975,717	B2	3/2015	Smith
D699,176	S *	2/2014	Salomon D13/102	8,988,096	B1	3/2015	Naiknaware
8,647,911	B2	2/2014	Smith	8,991,682	B2	3/2015	Linderman et al.
8,650,813	B2	2/2014	Botkin et al.	8,992,803	B2	3/2015	Loscutoff et al.
8,656,660	B2	2/2014	Danning	9,010,041	B2	4/2015	Danning
8,658,454	B2	2/2014	Pass et al.	9,018,033	B2	4/2015	Wu et al.
D700,991	S	3/2014	Johnson et al.	9,018,516	B2	4/2015	Shepherd et al.
8,661,753	B2	3/2014	Lenox	9,020,653	B2	4/2015	Lenox
				9,029,689	B2	5/2015	Phu et al.
				9,035,167	B2	5/2015	Swanson et al.
				9,035,168	B2	5/2015	Barton
				9,035,172	B2	5/2015	Kim et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,035,633	B1	5/2015	Slavin et al.	9,300,224	B2	3/2016	Johnson et al.
9,038,421	B2	5/2015	Berrada Sounni et al.	D754,064	S	4/2016	Mackler et al.
9,048,740	B2	6/2015	Gray et al.	9,303,285	B2	4/2016	Piazza et al.
9,054,255	B2	6/2015	Swanson et al.	9,306,085	B2	4/2016	Westerberg et al.
9,059,604	B2	6/2015	Johnson	9,312,042	B2	4/2016	Sewell et al.
9,062,854	B2	6/2015	Livesay et al.	9,312,406	B2	4/2016	Loscutoff et al.
9,065,354	B2	6/2015	Chapman et al.	9,312,425	B2	4/2016	Kim et al.
9,070,804	B2	6/2015	Cousins	9,316,417	B2	4/2016	Danning
9,077,202	B1	7/2015	Baker	9,322,437	B2	4/2016	Agullo
9,082,925	B2	7/2015	Solomon et al.	9,322,963	B2	4/2016	Linderman et al.
9,083,121	B2	7/2015	DeGraaff et al.	9,326,339	B2	4/2016	Nieberlein et al.
9,087,939	B2	7/2015	Harley et al.	9,328,427	B2	5/2016	Behnke
9,093,919	B2	7/2015	Chapman et al.	9,329,322	B2	5/2016	Yamada et al.
D736,595	S *	8/2015	Moore D13/102	9,337,369	B2	5/2016	Smith
9,101,082	B1	8/2015	Dorenkamp et al.	9,342,088	B2	5/2016	Batten et al.
9,112,066	B2	8/2015	Dennis et al.	9,347,619	B2	5/2016	Schupple et al.
9,112,097	B2	8/2015	Tu	9,353,970	B2	5/2016	Linderman et al.
9,116,202	B2	8/2015	Capulong et al.	9,362,427	B2	6/2016	Sewell et al.
9,136,710	B1	9/2015	Baker et al.	D811,909	S *	3/2018	Simonton D10/74
9,142,696	B2	9/2015	Loscutoff et al.	2002/0181229	A1	12/2002	Wei
9,147,795	B2	9/2015	Li et al.	2010/0276558	A1*	11/2010	Faust F24J 2/5205 248/222.14
9,153,712	B2	10/2015	Zhu	2011/0312119	A1	12/2011	Rose et al.
9,159,521	B1	10/2015	Chen et al.	2012/0134189	A1	5/2012	Krein
9,160,408	B2	10/2015	Krohne et al.	2012/0180845	A1	7/2012	Cole et al.
9,166,079	B2	10/2015	Manning	2012/0192925	A1	8/2012	Grushkowitz et al.
9,178,104	B2	11/2015	Moors et al.	2012/0216852	A1	8/2012	Almy et al.
9,184,324	B2	11/2015	Wares et al.	2013/0000694	A1	1/2013	Bunea et al.
9,184,327	B2	11/2015	Rose et al.	2013/0106196	A1	5/2013	Johnson et al.
9,185,759	B2	11/2015	Nieberlein et al.	2013/0239947	A1	9/2013	Almy et al.
9,186,741	B2	11/2015	Kumaria et al.	2013/0248668	A1*	9/2013	Lu H02S 20/00 248/222.14
9,190,839	B2	11/2015	Johnston et al.	2013/0255749	A1	10/2013	Kinyon et al.
9,193,014	B2	11/2015	Danning	2013/0305787	A1	11/2013	Berrada Sounni et al.
9,196,758	B2	11/2015	Rim et al.	2013/0340379	A1	12/2013	Danning
D744,684	S	12/2015	Guercio et al.	2013/0340380	A1	12/2013	Danning
D744,690	S	12/2015	Boyer et al.	2014/0000187	A1	1/2014	Botkin et al.
9,202,960	B2	12/2015	Luan et al.	2014/0000695	A1	1/2014	Stone
9,212,808	B2	12/2015	Higley et al.	2014/0000705	A1	1/2014	Sounni et al.
9,217,206	B2	12/2015	Behnke et al.	2014/0014499	A1	1/2014	Cousins et al.
9,219,173	B2	12/2015	Swanson et al.	2014/0034111	A1	2/2014	Bunea et al.
9,222,193	B2	12/2015	Abas et al.	2014/0034122	A1	2/2014	Cousins
9,224,902	B2	12/2015	Swanson	2014/0034455	A1	2/2014	Mulligan et al.
9,225,256	B2	12/2015	Chapman et al.	2014/0036563	A1	2/2014	Chapman et al.
9,225,285	B2	12/2015	Peurach et al.	2014/0048119	A1	2/2014	Johnston et al.
9,231,129	B2	1/2016	Harley et al.	2014/0090637	A1	4/2014	Grushkowitz
9,231,145	B2	1/2016	Smith	2014/0090638	A1	4/2014	Grushkowitz
9,239,153	B2	1/2016	Goodman et al.	2014/0090701	A1	4/2014	Rim et al.
9,240,682	B2	1/2016	Sivakumar et al.	2014/0102505	A1	4/2014	Lenox
9,243,818	B2	1/2016	Shugar et al.	2014/0102512	A1	4/2014	Jones et al.
9,246,037	B2	1/2016	Linderman	2014/0116495	A1	5/2014	Kim et al.
9,246,046	B1	1/2016	Harrington et al.	2014/0133197	A1	5/2014	Chapman
9,249,044	B2	2/2016	Judkins et al.	2014/0150846	A1	6/2014	Beardsworth et al.
9,249,523	B2	2/2016	Rim	2014/0174905	A1	6/2014	Landry
9,252,314	B2	2/2016	Wares et al.	2014/0182661	A1	7/2014	Kinyon
9,252,319	B2	2/2016	Loscutoff et al.	2014/0190561	A1	7/2014	De Ceuster et al.
9,253,935	B2	2/2016	Morris et al.	2014/0202492	A1	7/2014	Grossman et al.
9,257,575	B1	2/2016	Pass et al.	2014/0238470	A1	8/2014	Ciasulli et al.
9,257,847	B2	2/2016	Johnson et al.	2014/0261626	A1	9/2014	Ripoll Agulo
9,263,183	B2	2/2016	Chapman et al.	2014/0268908	A1	9/2014	Zhou et al.
9,263,601	B2	2/2016	Wu et al.	2014/0290715	A1	10/2014	Meydbray
9,263,602	B2	2/2016	Harley et al.	2014/0291852	A1	10/2014	Linderman et al.
9,263,622	B2	2/2016	Pass et al.	2014/0305501	A1	10/2014	Li et al.
9,263,625	B2	2/2016	Smith et al.	2014/0306092	A1	10/2014	Judkins
9,263,895	B2	2/2016	Naiknaware et al.	2014/0311054	A1	10/2014	Concho et al.
9,266,468	B2	2/2016	Mizushiro et al.	2014/0322855	A1	10/2014	Bunea
9,267,649	B2	2/2016	Janik et al.	2014/0345688	A1	11/2014	Cousins
D751,976	S	3/2016	Mackler et al.	2014/0352761	A1	12/2014	Linderman et al.
9,273,845	B2	3/2016	Eom et al.	2014/0373910	A1	12/2014	Luan et al.
9,276,635	B2	3/2016	Rothblum et al.	2015/0000724	A1	1/2015	Pass et al.
9,279,457	B2	3/2016	Grushkowitz	2015/0004737	A1	1/2015	Harley
9,279,569	B2	3/2016	Lamonato et al.	2015/0020867	A1	1/2015	Linderman et al.
9,281,419	B2	3/2016	Klein et al.	2015/0040944	A1	2/2015	Dinwoodie et al.
9,281,429	B2	3/2016	Xavier et al.	2015/0047690	A1	2/2015	Shen et al.
9,281,431	B2	3/2016	Linderman	2015/0053248	A1	2/2015	Rim et al.
9,285,081	B2	3/2016	Douglas et al.	2015/0083215	A1	3/2015	Cousins
9,293,624	B2	3/2016	Cudzinovic et al.	2015/0090328	A1	4/2015	Smith
				2015/0090329	A1	4/2015	Pass
				2015/0108692	A1	4/2015	Harley et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

- | | | | |
|--------------|----|---------|-------------------|
| 2015/0117067 | A1 | 4/2015 | Naiknaware et al. |
| 2015/0122305 | A1 | 5/2015 | Marroquin et al. |
| 2015/0128437 | A1 | 5/2015 | Barton |
| 2015/0144197 | A1 | 5/2015 | Cousins et al. |
| 2015/0146315 | A1 | 5/2015 | Wares et al. |
| 2015/0155819 | A1 | 6/2015 | Wexler et al. |
| 2015/0163074 | A1 | 6/2015 | Pruett et al. |
| 2015/0180238 | A1 | 6/2015 | DeGraaff |
| 2015/0180404 | A1 | 6/2015 | Braunstein et al. |
| 2015/0194539 | A1 | 7/2015 | Shepherd et al. |
| 2015/0194927 | A1 | 7/2015 | Naiknaware |
| 2015/0206988 | A1 | 7/2015 | Loscutoff et al. |
| 2015/0212535 | A1 | 7/2015 | Ehlmann et al. |
| 2015/0214744 | A1 | 7/2015 | Lenox |
| 2015/0222225 | A1 | 8/2015 | Danning |
| 2015/0229221 | A1 | 8/2015 | Gray et al. |
| 2015/0249405 | A1 | 9/2015 | Chapman et al. |
| 2015/0249423 | A1 | 9/2015 | Braunstein et al. |
| 2015/0263200 | A1 | 9/2015 | Dennis et al. |
| 2015/0270803 | A1 | 9/2015 | Barton |
| 2015/0280038 | A1 | 10/2015 | Sethi et al. |
| 2015/0282365 | A1 | 10/2015 | Escamilla et al. |
| 2015/0287875 | A1 | 10/2015 | Phu et al. |
| 2015/0288328 | A1 | 10/2015 | Swanson et al. |
| 2015/0311357 | A1 | 10/2015 | Harley et al. |
| 2015/0325710 | A1 | 11/2015 | Tu |
| 2015/0326168 | A1 | 11/2015 | Johnson |
| 2015/0326178 | A1 | 11/2015 | Capulong et al. |
| 2015/0333617 | A1 | 11/2015 | Chapman et al. |
| 2015/0340868 | A1 | 11/2015 | Chapman |
| 2015/0342084 | A1 | 11/2015 | Dorenkamp et al. |
| 2015/0349158 | A1 | 12/2015 | Manning |
| 2015/0349706 | A1 | 12/2015 | Grossman et al. |
| 2015/0349709 | A1 | 12/2015 | Ponec et al. |
| 2015/0364625 | A1 | 12/2015 | Solomon et al. |
| 2015/0372638 | A1 | 12/2015 | Degraaff et al. |
| 2015/0377518 | A1 | 12/2015 | Maxey et al. |
| 2015/0380578 | A1 | 12/2015 | Zhu |
| 2016/0011246 | A1 | 1/2016 | Fischer et al. |
| 2016/0020827 | A1 | 1/2016 | Krohne et al. |
| 2016/0027953 | A1 | 1/2016 | Moors et al. |
| 2016/0028345 | A1 | 1/2016 | Wares et al. |
| 2016/0035908 | A1 | 2/2016 | Rose et al. |
| 2016/0036380 | A1 | 2/2016 | Johnston et al. |
| 2016/0043267 | A1 | 2/2016 | Rim et al. |
| 2016/0043684 | A1 | 2/2016 | Harif |
| 2016/0064576 | A1 | 3/2016 | Luan et al. |
| 2016/0065119 | A1 | 3/2016 | Danning |
| 2016/0071991 | A1 | 3/2016 | Smith |
| 2016/0071996 | A1 | 3/2016 | Swanson et al. |
| 2016/0071999 | A1 | 3/2016 | Loscutoff et al. |
| 2016/0079450 | A1 | 3/2016 | Harley et al. |
| 2016/0079911 | A1 | 3/2016 | Rose et al. |
| 2016/0087425 | A1 | 3/2016 | Sivakumar et al. |
| 2016/0090662 | A1 | 3/2016 | Capulong et al. |
| 2016/0105027 | A1 | 4/2016 | Johnson et al. |
| 2016/0108541 | A1 | 4/2016 | Abas et al. |
| 2016/0111583 | A1 | 4/2016 | Harrington et al. |
| 2016/0112003 | A1 | 4/2016 | Morris et al. |
| 2016/0118516 | A1 | 4/2016 | Harley et al. |
| 2016/0133759 | A1 | 5/2016 | Pass et al. |
| 2016/0133767 | A1 | 5/2016 | Smith et al. |
| 2016/0134233 | A1 | 5/2016 | Chapman et al. |
| 2016/0142100 | A1 | 5/2016 | Rothblum et al. |
| 2016/0156309 | A1 | 6/2016 | Almogly et al. |
| 2016/0164300 | A1 | 6/2016 | Johnson et al. |
| 2016/0164427 | A1 | 6/2016 | Chapman et al. |

OTHER PUBLICATIONS

Flex Lighting Solutions Specification Sheets, Essentials Series,
Published May 2017 (9 pages).

* cited by examiner

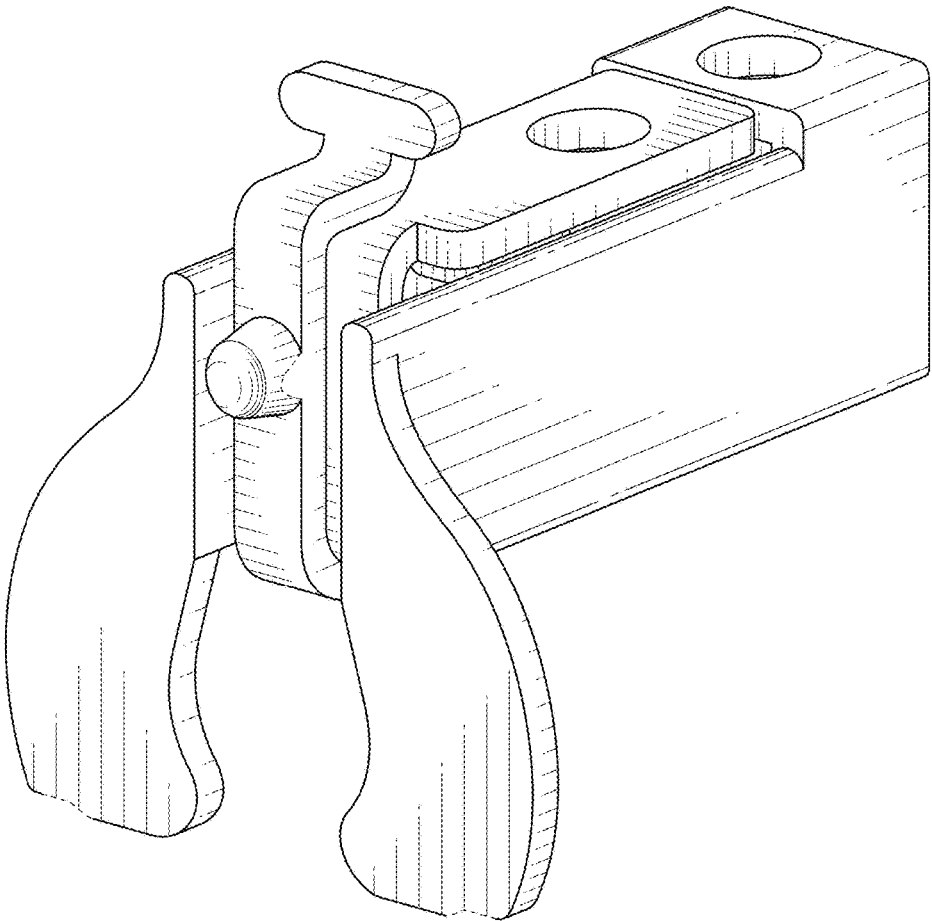


FIG. 1

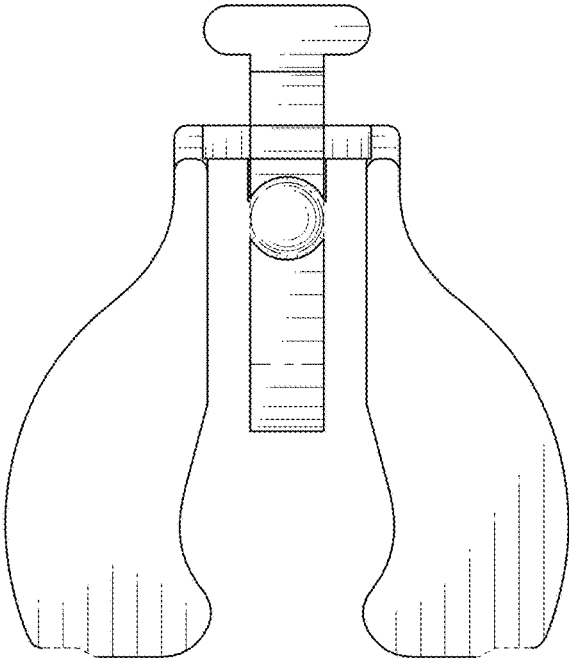


FIG. 2

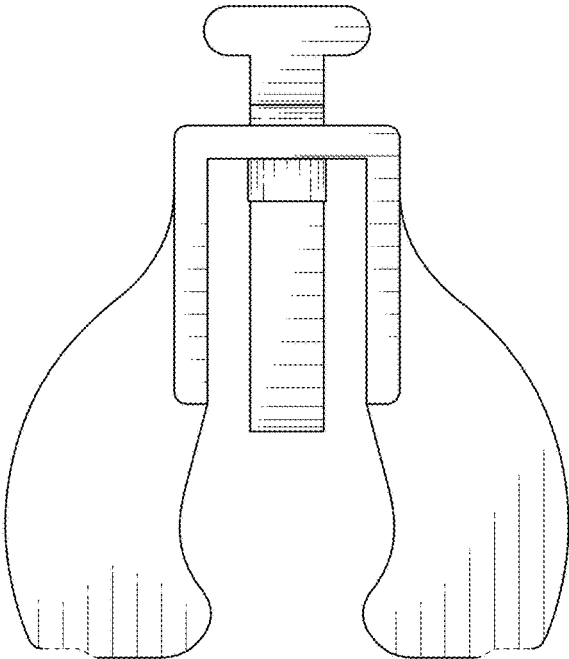


FIG. 3

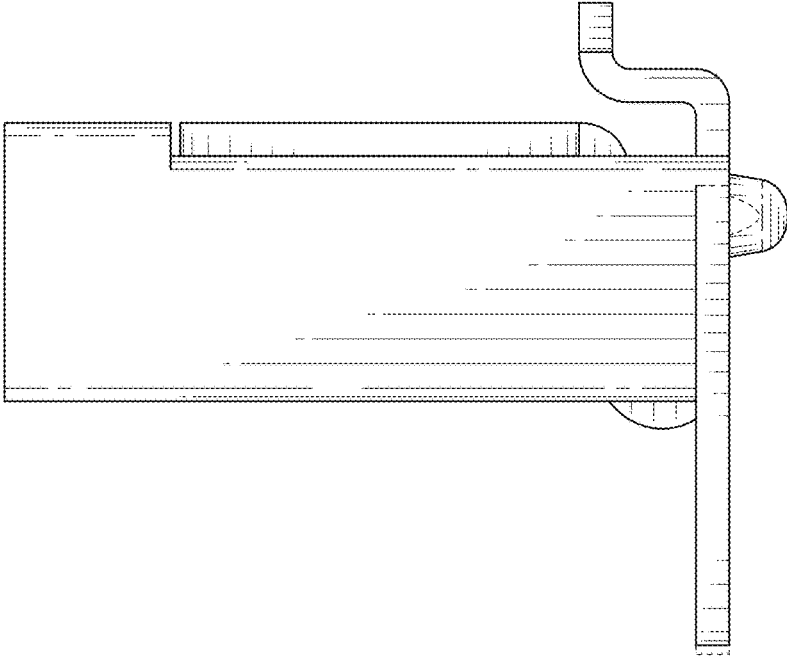


FIG. 4

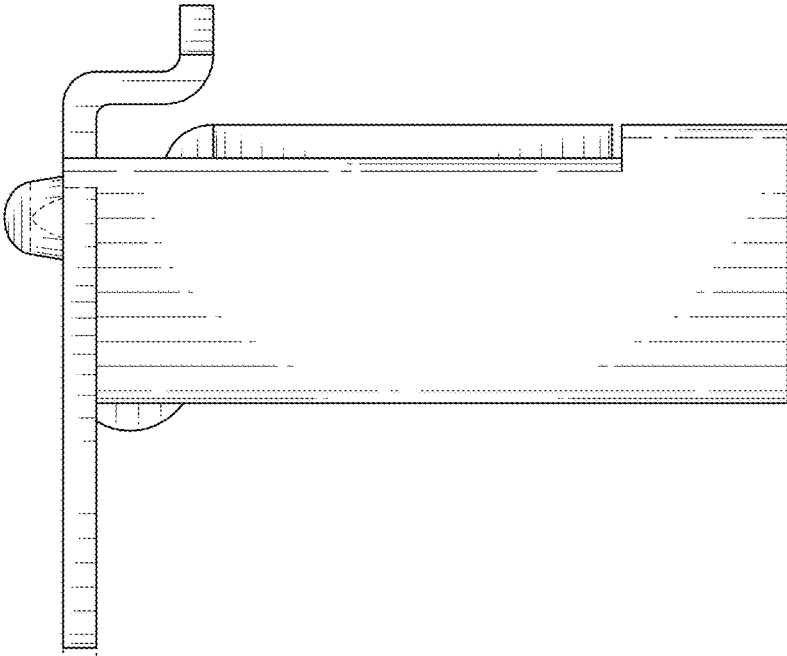


FIG. 5

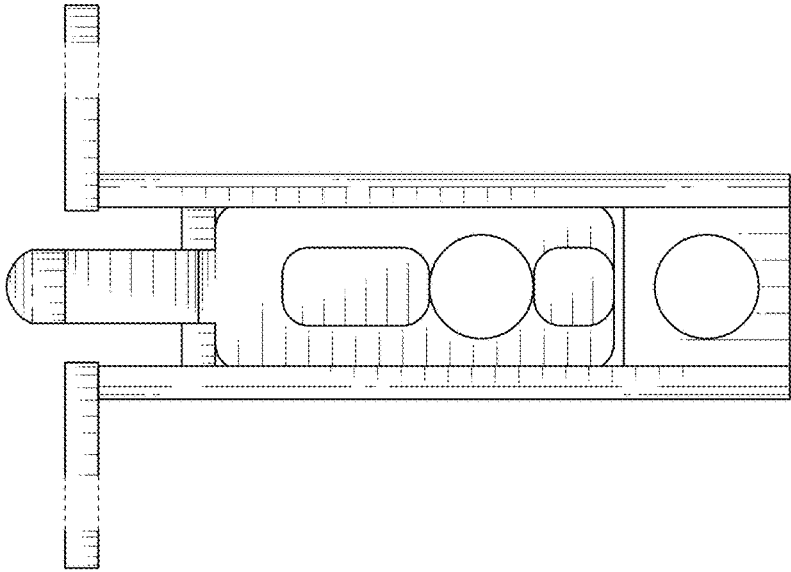


FIG. 7

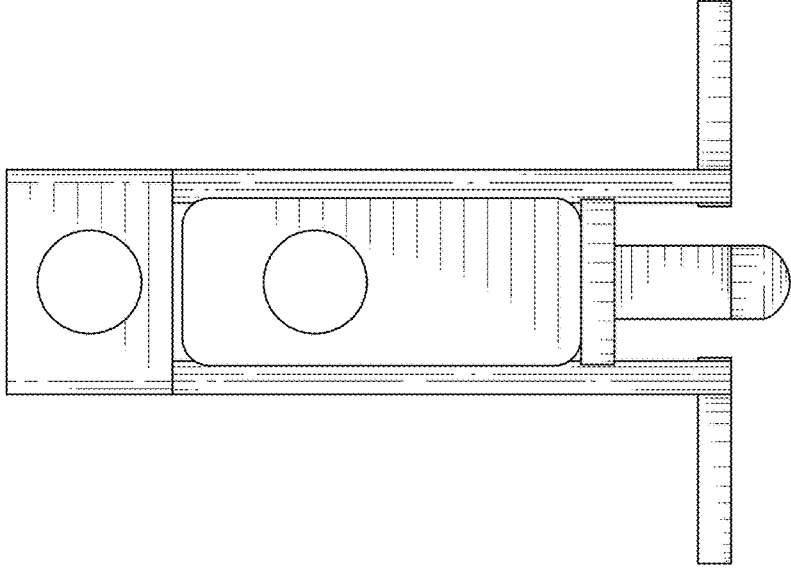


FIG. 6

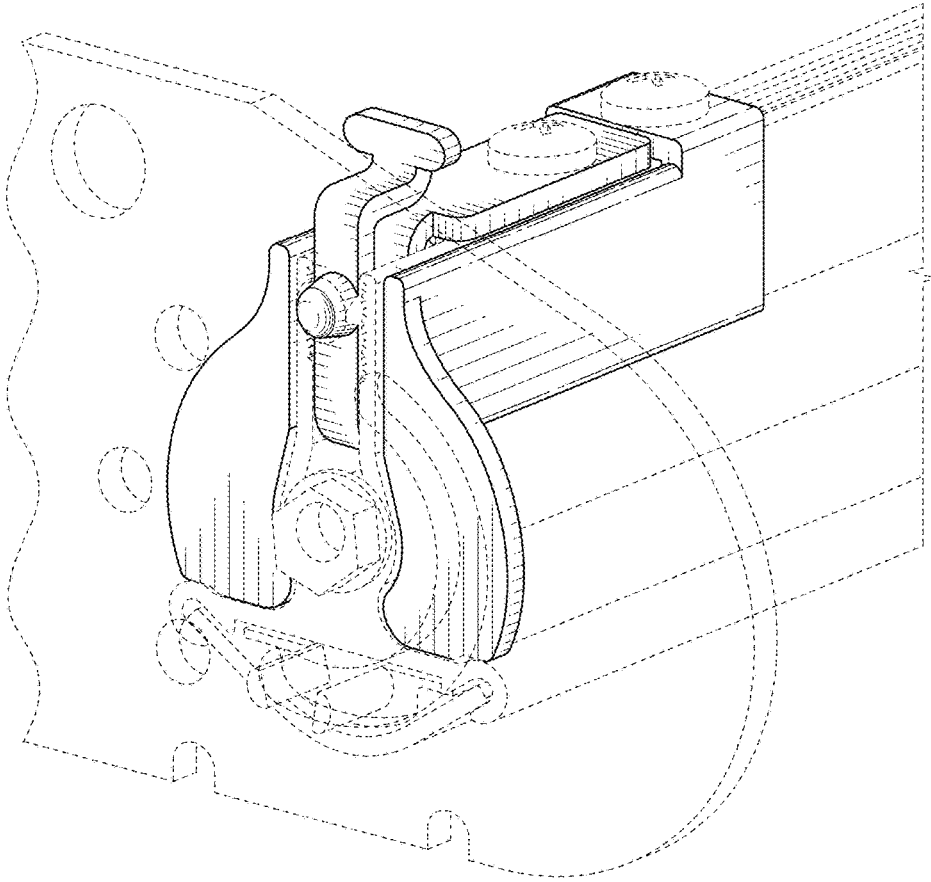


FIG. 8