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(12) United States Design Patent

Hemphill

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(54) **CONCRETE CONNECTOR**

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(73) Assignee: **Garland Industries, Inc.**, Independence, OH (US)

(**) Term: **15 Years**

(21) Appl. No.: **29/755,392**

(22) Filed: **Oct. 20, 2020**

(51) **LOC (15) Cl.** **25-99**

(52) **U.S. Cl.**
USPC **D25/199**

(58) **Field of Classification Search**
USPC D8/14, 16, 19, 349, 354, 382, 384, 499; D25/199
CPC E01C 11/04; E01C 11/005; E01C 5/005; E01C 5/001; E01C 7/147; E04G 23/0218; E04G 23/0237; E04G 23/024; E04G 23/0229; E04G 23/0211; E04G 23/0203; E04G 23/0288; E04G 2023/0251; E04C 5/015; E04C 5/07; E04C 5/012; E04C 5/162
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,223,045 A		4/1917	Ferguson	
1,912,429 A	*	6/1933	Burgess	E01C 5/005 404/40
1,924,724 A	*	8/1933	Olney	E04B 2/8652 52/379
1,957,596 A	*	5/1934	Isett	E01C 7/147 404/74
4,342,441 A	*	8/1982	Maebara	B28B 7/186 425/417
D272,517 S	*	2/1984	Koehn	D25/199
D285,647 S	*	9/1986	Sachs	174/41
D288,288 S	*	2/1987	Hentzschel	D8/382
4,935,301 A		6/1990	Rerup et al.	

(Continued)

FOREIGN PATENT DOCUMENTS

EM	001146476-0001	*	8/2009
EP	441519 A1		8/1991

(Continued)

OTHER PUBLICATIONS

Burr et al., "Recent developments in the use of FRP anchors and masonry wall strengthening techniques" The Structural Engineer, 21, pp. 20-21 (Sep. 2004).

(Continued)

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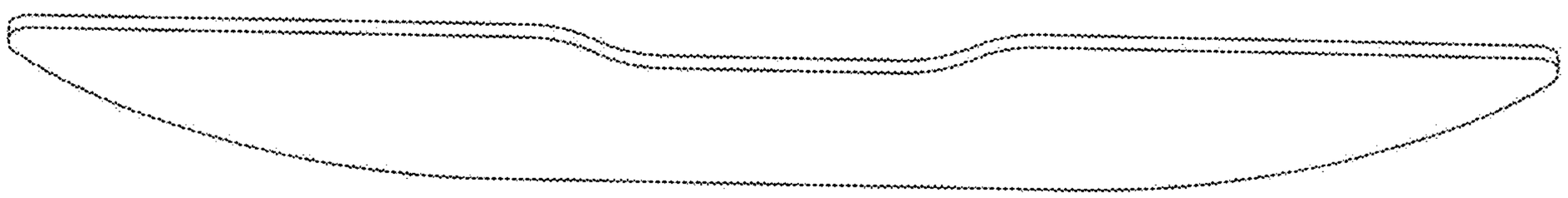
(57) **CLAIM**

The ornamental design for a concrete connector as shown and described.

DESCRIPTION

FIG. **1** is a front, top perspective view of a concrete connector of the present application;
FIG. **2** is a side plan front view of the concrete connector of FIG. **1**;
FIG. **3** is a top plan view of the concrete connector of FIG. **1**;
FIG. **4** is a bottom plan view of the concrete connector of FIG. **1**;
FIG. **5** is an enlarged right side elevation view of the concrete connector of FIG. **1**; and,
FIG. **6** is an enlarged left side elevation view of the concrete connector of FIG. **1**.

1 Claim, 2 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

4,938,449	A *	7/1990	Boeshart	E04B 2/8647 249/40
D361,710	S *	8/1995	Boeshart	D8/354
5,476,340	A	12/1995	Contrasto	
5,513,925	A	5/1996	Dempsey et al.	
D376,751	S *	12/1996	Hanson	D12/162
D378,049	S *	2/1997	Boeshart	D8/354
D383,373	S *	9/1997	Boeshart	D8/354
5,763,043	A	6/1998	Porter et al.	
5,771,557	A *	6/1998	Contrasto	E04G 23/0218 29/402.11
D414,400	S *	9/1999	Williams	D8/382
D422,894	S *	4/2000	Kubica	D8/382
6,052,964	A *	4/2000	Ferm	E01C 11/14 404/75
6,183,835	B1	2/2001	Cho et al.	
6,185,897	B1	2/2001	Johnson et al.	
6,263,629	B1	7/2001	Brown, Jr. et al.	
6,312,541	B1 *	11/2001	Hemphill	E01C 7/147 156/95
6,330,776	B1	12/2001	Jinno et al.	
6,389,775	B1	5/2002	Steiner et al.	
6,416,693	B1	7/2002	Lockwood	
6,532,714	B1	3/2003	Ferm et al.	
7,207,149	B2	4/2007	Fyfe et al.	
RE39,839	E	9/2007	Wheatley et al.	
7,311,964	B2	12/2007	Aldea et al.	
7,574,840	B1	8/2009	Fyfe	
7,736,088	B2	6/2010	Boxall et al.	
8,087,210	B2	1/2012	Agneloni	
D736,059	S *	8/2015	Kong	D8/349
D771,479	S *	11/2016	Slater	D8/382
D793,352	S *	8/2017	Hill	D8/19
10,017,275	B2 *	7/2018	Merritt	B64F 5/40
D861,464	S *	10/2019	Eveland	D8/354
D901,282	S *	11/2020	Miller	D25/199
D927,025	S *	8/2021	Keen	D25/199
D959,218	S *	8/2022	Mitchell	D8/19
2001/0047844	A1	12/2001	Edwards et al.	
2001/0049399	A1	12/2001	Edwards et al.	
2002/0170259	A1 *	11/2002	Ferris	E04F 11/116 52/586.1
2006/0162845	A1	7/2006	Bogard et al.	
2012/0073231	A1 *	3/2012	Hemphill	B32B 3/30 52/514
2015/0068154	A1 *	3/2015	Merlob	E04B 1/41 52/741.1
2015/0300033	A1 *	10/2015	Weber	E04G 23/0203 52/514
2016/0305076	A1 *	10/2016	Doan	E04G 23/0203
2018/0266128	A1 *	9/2018	Kochan, Jr.	E04G 23/0229
2019/0010719	A1 *	1/2019	Secrest	E04G 23/0288
2020/0208421	A1 *	7/2020	Weise	E04G 23/0203
2022/0120103	A1 *	4/2022	Hemphill	E04G 23/0237
2025/0059788	A1 *	2/2025	Hemphill	B32B 3/30

FOREIGN PATENT DOCUMENTS

KR	300922468.0000	*	9/2017
KR	300922470.0000	*	9/2017
WO	WOD103607-005	*	3/2019

OTHER PUBLICATIONS

Kim et al., "Behaviour of Handmade FRP anchors under tensile load in uncracked concrete" Advances in Structural Engineering, vol. 12, No. 6, pp. 845-865 (2009).

Neimitz et al., "Experimental behavior of carbon fiber-reinforced polymer (CRFP) sheets attached to concrete surfaces using CRFP anchors", Jour. of Composites for Construction, pp. 185-194 (2010).

Ozdemir, Gokhan, "Mechanical properties of CFRP anchorages" Thesis, Middle East Technical Univ., Jan. 2005.

Pham, Le Tuan, "Development of a quality control test for carbon fiber reinforced polymer anchors" Thesis, Univ. of Texas at Austin, May 2009.

* cited by examiner

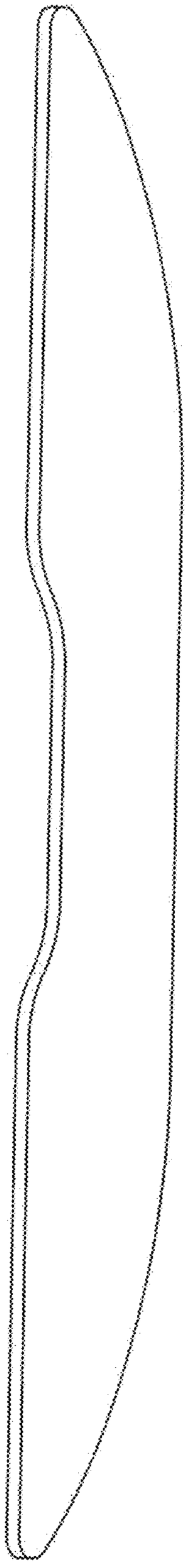


FIG. 1

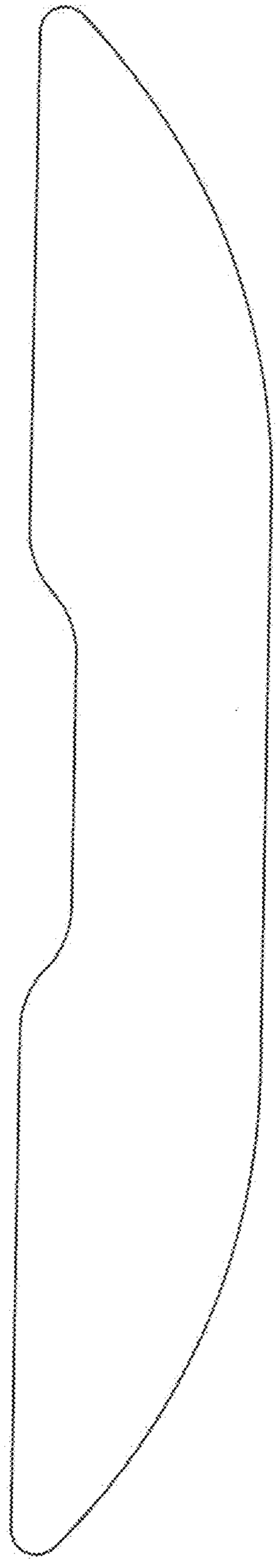


FIG. 2

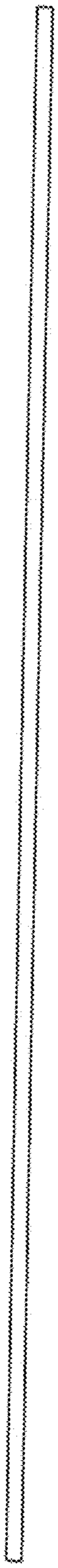


FIG. 3

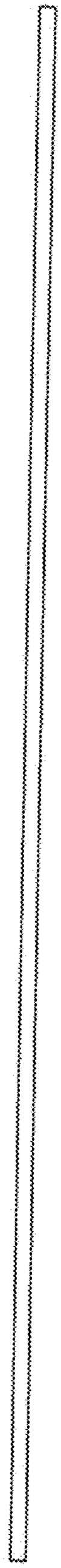


FIG. 4

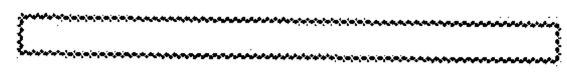


FIG. 6

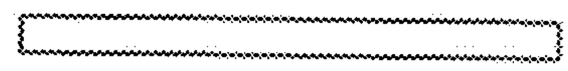


FIG. 5