

US00RE46613E

(19) **United States**  
(12) **Reissued Patent**  
**Oren et al.**

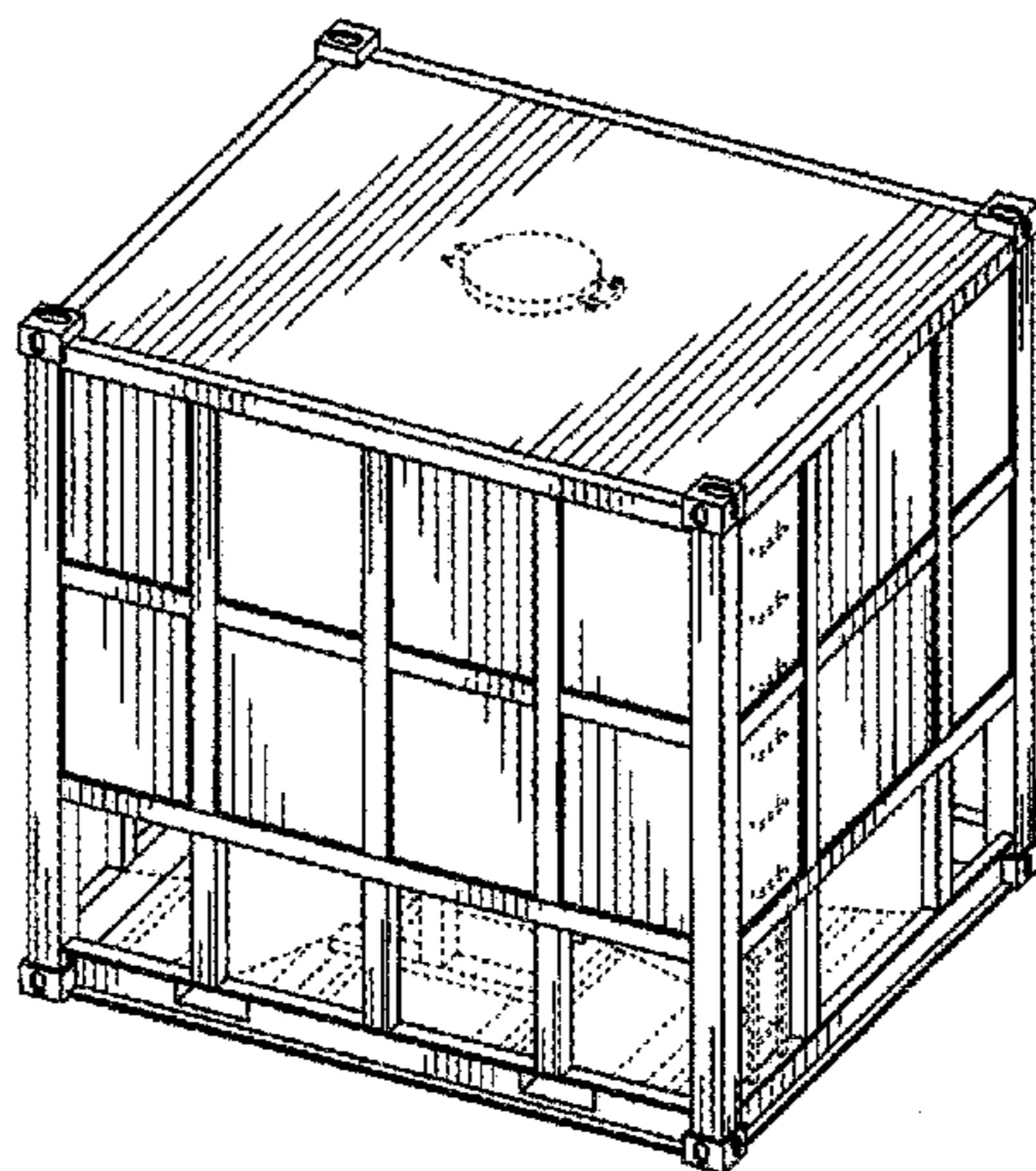
(10) **Patent Number:** **US RE46,613 E**  
(45) **Date of Reissued Patent:** **Nov. 28, 2017**

- (54) **PROPPANT VESSEL**
- (71) Applicant: **Oren Technologies, LLC**, Houston, TX (US)
- (72) Inventors: **John Oren**, Houston, TX (US); **Joshua Oren**, Houston, TX (US)
- (73) Assignee: **OREN TECHNOLOGIES, LLC**, Houston, TX (US)
- (21) Appl. No.: **29/500,679**
- (22) Filed: **Aug. 27, 2014**

1,807,447 A	5/1931	Smith
1,850,000 A	3/1932	Fernand
1,932,320 A	10/1933	Steward
1,973,312 A	9/1934	Hardinge
2,020,628 A	11/1935	Woodruff
2,233,005 A	2/1941	Garlinghouse
2,255,448 A	9/1941	Morris
2,293,160 A	8/1942	Miller et al.
2,368,672 A	2/1945	McNamara
2,381,103 A	8/1945	Frank
2,385,245 A	9/1945	Willoughby
2,423,879 A	7/1947	De Frees
2,564,020 A	8/1951	Mengel
2,603,342 A	7/1952	Martinson
2,616,758 A	11/1952	Meyers
2,622,771 A	12/1952	Tulou
2,652,174 A	9/1953	Shea et al.
2,670,866 A	3/1954	Glesby
2,678,145 A	5/1954	Ejuzwiak et al.
2,693,282 A	11/1954	Sensibar
2,700,574 A	1/1955	Tourneau
2,792,262 A	4/1955	Hathorn
2,774,515 A	12/1956	Johansson et al.
2,791,973 A	5/1957	Dorey
2,801,125 A	7/1957	Page et al.
2,808,164 A	10/1957	Glendinning
2,812,970 A	11/1957	Martinson
2,837,369 A	6/1958	Stopp
2,865,521 A	12/1958	Fisher et al.
2,873,036 A	2/1959	Noble
2,894,666 A	7/1959	Campbell, Jr.
2,988,235 A	6/1961	Ronyak
2,994,460 A	8/1961	Matthews
3,041,113 A	6/1962	Sackett
3,049,248 A	8/1962	Heltzel et al.
3,064,832 A	11/1962	Heltzel
3,083,879 A	4/1963	Coleman
3,090,527 A	5/1963	Rensch
3,109,389 A	11/1963	Karlsson
3,122,258 A	2/1964	Raymond
3,135,432 A	6/1964	McKinney
3,163,127 A	12/1964	Gutridge et al.
3,187,684 A	6/1965	Ortner
3,198,494 A	8/1965	Curran et al.
3,199,585 A	8/1965	Cronberger
3,248,026 A	4/1966	Kemp
3,255,927 A	6/1966	Ruppert et al.
3,265,443 A	8/1966	Simas
3,270,921 A	9/1966	Nadolske et al.
3,281,006 A	10/1966	Wei
3,294,306 A	12/1966	Aredy
3,318,473 A	5/1967	Jones et al.
3,353,599 A	11/1967	Swift

- Related U.S. Patent Documents**
- Reissue of:
- (64) Patent No.: **Des. 688,350**  
 Issued: **Aug. 20, 2013**  
 Appl. No.: **29/436,169**  
 Filed: **Nov. 2, 2012**
  - (51) **LOC (10) Cl.** ..... **23-01**
  - (52) **U.S. Cl.**  
 USPC ..... **D23/202**
  - (58) **Field of Classification Search**  
 USPC ..... D23/202-206; 222/185.1, 460; 206/386,  
 206/600; 414/813; 220/581  
 See application file for complete search history.

- (56) **References Cited**  
 U.S. PATENT DOCUMENTS
- |             |         |                 |
|-------------|---------|-----------------|
| 137,871 A   | 4/1873  | Worsley         |
| 150,894 A   | 5/1874  | Safely          |
| 384,443 A   | 6/1888  | Hoover          |
| 448,238 A   | 3/1891  | Johnson         |
| 711,632 A   | 10/1902 | Johnson         |
| 917,649 A   | 4/1909  | Otto            |
| 1,143,641 A | 6/1915  | McGregor        |
| 1,331,883 A | 2/1920  | Stuart          |
| 1,344,768 A | 6/1920  | Messiter        |
| 1,434,488 A | 11/1922 | Forsythe et al. |
| 1,520,560 A | 12/1923 | Burno           |
| 1,506,936 A | 9/1924  | Lea             |
| 1,526,527 A | 2/1925  | Butler          |
| 1,573,664 A | 2/1926  | Wetherill       |



# US RE46,613 E

3,354,918 A	11/1967	Coleman	4,397,406 A	8/1983	Croley
3,378,152 A	4/1968	Warner	4,398,653 A	8/1983	Daloisio
3,387,570 A	6/1968	Pulcrano et al.	4,402,392 A	9/1983	Fabian et al.
3,396,675 A	8/1968	Stevens	4,407,202 A	10/1983	McCormick
3,397,654 A	8/1968	Snyder	4,408,886 A	10/1983	Sampson et al.
3,406,995 A	10/1968	McCarthy	4,410,106 A	10/1983	Kierbow et al.
3,407,971 A	10/1968	Oehler	4,420,285 A	12/1983	Loyer et al.
3,425,599 A	2/1969	Sammarco et al.	4,427,133 A	1/1984	Kierbow et al.
3,455,474 A	7/1969	Truncali	4,428,504 A	1/1984	Bassett et al.
D216,511 S *	1/1970	Coleman ..... D23/202	4,449,861 A	5/1984	Saito et al.
3,499,694 A	3/1970	Coppel	4,453,645 A	6/1984	Usui et al.
3,508,762 A	4/1970	Pratt	4,474,204 A	10/1984	West
3,524,567 A	8/1970	Coleman	4,475,672 A	10/1984	Whitehead
3,528,570 A	9/1970	Pase	4,478,155 A	10/1984	Cena et al.
3,561,633 A	2/1971	Morrison et al.	4,483,462 A	11/1984	Heintz
3,587,834 A	6/1971	Dugge	4,525,071 A	6/1985	Horowitz
3,596,609 A	8/1971	Ortner	4,526,353 A	7/1985	Stomp
3,601,244 A	8/1971	Ort et al.	4,532,098 A	7/1985	Campbell
3,602,400 A	8/1971	Cooke	4,552,573 A	11/1985	Weis
3,650,567 A	3/1972	Danielson	4,569,394 A	2/1986	Sweatman et al.
3,653,521 A	4/1972	Bridge	4,571,143 A	2/1986	Hellerich
3,661,293 A	5/1972	Gerhard et al.	4,608,931 A	9/1986	Ruhmann et al.
3,692,363 A	9/1972	Tenebaum et al.	4,619,531 A	10/1986	Dunstan
3,704,797 A	12/1972	Suykens	4,624,729 A	11/1986	Bresciani et al.
3,721,199 A	3/1973	Hassenauer	4,626,155 A	12/1986	Hlinsky et al.
3,729,121 A	4/1973	Cannon	4,626,166 A	12/1986	Jolly
3,734,215 A	5/1973	Smith	4,628,825 A	12/1986	Taylor et al.
3,738,511 A	6/1973	Lemon et al.	4,660,733 A	4/1987	Snyder et al.
3,752,511 A	8/1973	Racy	4,701,095 A	10/1987	Berryman et al.
3,777,909 A	12/1973	Rheinfrank	4,715,754 A	12/1987	Scully
3,785,534 A	1/1974	Smith	4,738,774 A	4/1988	Patrick
3,800,712 A	4/1974	Krug, Jr.	4,741,273 A	5/1988	Sherwood
3,802,584 A	4/1974	Sackett	4,801,389 A	1/1989	Brannon et al.
3,817,261 A	6/1974	Rogge	4,819,830 A	4/1989	Schultz
3,820,762 A	6/1974	Bostrom et al.	4,836,735 A	6/1989	Dennehy
3,827,578 A	8/1974	Hough	4,848,605 A	7/1989	Wise
3,840,141 A	10/1974	Allom et al.	4,882,784 A	11/1989	Tump
3,854,612 A	12/1974	Snape	4,889,219 A	12/1989	Key
3,861,716 A	1/1975	Baxter et al.	4,901,649 A	2/1990	Fehrenbach et al.
3,883,005 A	5/1975	Stevens	4,909,378 A	3/1990	Webb
3,909,223 A	9/1975	Schmidt	4,909,556 A	3/1990	Koskinen
3,933,100 A	1/1976	Dugge	4,917,019 A	4/1990	Hesch et al.
3,963,149 A	6/1976	Fassauer	4,919,583 A	4/1990	Speakman, Jr.
3,970,123 A	7/1976	Poulton et al.	4,923,358 A	5/1990	Van Mill
3,986,708 A	10/1976	Hellzel et al.	4,946,068 A	8/1990	Erickson et al.
3,997,089 A	12/1976	Clarke et al.	4,947,760 A	8/1990	Dawson et al.
4,003,301 A	1/1977	Norton	4,954,975 A	9/1990	Kalata
4,004,700 A	1/1977	Empey	4,956,821 A	9/1990	Fenelon
4,057,153 A	11/1977	Weaver	4,964,243 A	10/1990	Reiter
4,058,239 A	11/1977	Van Mill	4,975,205 A	12/1990	Sloan
4,063,656 A	12/1977	Lambert	4,995,522 A	2/1991	Barr
4,073,410 A	2/1978	Melcher	5,004,400 A	4/1991	Handke
4,125,195 A	11/1978	Sasadi	5,042,538 A	8/1991	Wiese
4,138,163 A	2/1979	Calvert et al.	5,069,352 A	12/1991	Harbolt et al.
4,178,117 A	12/1979	Brugler	5,080,259 A	1/1992	Hadley
4,204,773 A	5/1980	Bates	5,082,304 A	1/1992	Preller
4,210,273 A	7/1980	Hegele	5,102,281 A	4/1992	Handke
4,210,963 A	7/1980	Ricciardi et al.	5,102,286 A	4/1992	Fenton
RE30,358 E	8/1980	Sensibar	5,105,858 A	4/1992	Levinson
4,222,498 A	9/1980	Brock	5,131,524 A	7/1992	Uehara
4,227,732 A	10/1980	Kish	5,190,182 A	3/1993	Copas et al.
4,232,884 A	11/1980	DeWitt	5,195,861 A	3/1993	Handke
4,239,424 A	12/1980	Pavolka	5,199,826 A	4/1993	Lawrence
4,245,820 A	1/1981	Muryn	5,201,546 A	4/1993	Lindsay
4,247,228 A	1/1981	Gray et al.	5,224,635 A	7/1993	Wise
4,247,370 A	1/1981	Nijhawan et al.	5,253,746 A	10/1993	Friesen et al.
4,258,953 A	3/1981	Johnson	5,253,776 A	10/1993	Decroix et al.
4,265,266 A	5/1981	Kierbow et al.	5,265,763 A	11/1993	Heinrici et al.
4,278,190 A	7/1981	Oory et al.	5,286,158 A	2/1994	Zimmerman
4,282,988 A	8/1981	Hulbert, Jr.	5,290,139 A	3/1994	Hedrick
4,287,921 A	9/1981	Sanford	5,317,783 A	6/1994	Williamson
4,287,997 A	9/1981	Rolfe et al.	5,320,046 A	6/1994	Hesch
4,289,353 A	9/1981	Merritt	5,324,097 A	6/1994	DeCap
4,299,597 A	11/1981	Oetiker et al.	5,339,996 A	8/1994	Dubbert
4,306,895 A	12/1981	Thompson et al.	5,345,982 A	9/1994	Nadeau et al.
4,329,106 A	5/1982	Adler	5,358,137 A	10/1994	Shuert et al.
4,350,241 A	9/1982	Wenzel	5,373,792 A	12/1994	Pileggi et al.
4,359,176 A	11/1982	Johnson	5,392,946 A	2/1995	Holbrook et al.
4,363,396 A	12/1982	Wolf et al.	5,402,915 A	4/1995	Hogan

# US RE46,613 E

5,413,154 A	5/1995	Hurst et al.	6,457,291 B2	10/2002	Wick
5,429,259 A	7/1995	Robin	6,498,976 B1	12/2002	Ehlbeck et al.
5,441,321 A	8/1995	Karpisek	6,505,760 B1	1/2003	Werner
5,465,829 A	11/1995	Kruse	6,508,387 B1	1/2003	Simon et al.
5,470,175 A	11/1995	Jensen et al.	6,508,615 B2	1/2003	Taylor
5,470,176 A	11/1995	Corcoran et al.	6,523,482 B2	2/2003	Wingate
5,493,852 A	2/1996	Stewart	6,537,002 B2	3/2003	Gloystein
5,507,514 A	4/1996	Jacques	6,575,614 B2	6/2003	Tosco et al.
5,538,286 A	7/1996	Hoff	6,660,693 B2	12/2003	Miller et al.
5,549,278 A	8/1996	Sidler	6,663,373 B2	12/2003	Yoshida
5,564,599 A	10/1996	Barber et al.	6,666,573 B2	12/2003	Grassi
5,570,743 A	11/1996	Padgett et al.	6,675,073 B2	1/2004	Kieman et al.
5,590,976 A	1/1997	Kilheffer et al.	6,705,449 B2	3/2004	Wagstaffe
5,601,181 A	2/1997	Lindhorst	6,720,290 B2	4/2004	England et al.
5,602,761 A	2/1997	Spoerre et al.	6,772,912 B1	8/2004	Schall et al.
5,613,446 A	3/1997	DiLuigi et al.	6,774,318 B2	8/2004	Beal et al.
5,617,974 A	4/1997	Sawyer	6,776,235 B1	8/2004	England
5,647,514 A	7/1997	Toth et al.	6,783,032 B2	8/2004	Fons
RE35,580 E	8/1997	Heider et al.	6,811,048 B2	11/2004	Lau
5,667,298 A	9/1997	Musil	6,828,280 B2	12/2004	England et al.
5,687,881 A	11/1997	Rouse et al.	6,835,041 B1	12/2004	Albert
5,690,466 A	11/1997	Gaddis et al.	6,882,960 B2	4/2005	Miller
5,697,535 A	12/1997	Coleman	6,902,061 B1	6/2005	Elstone
5,704,477 A *	1/1998	Hermann et al. .... 206/386	6,915,854 B2	7/2005	England et al.
5,706,614 A	1/1998	Wiley et al.	6,953,119 B1	10/2005	Wening
5,718,555 A	2/1998	Swalheim	6,955,127 B2	10/2005	Taylor
5,722,552 A	3/1998	Olson	6,964,551 B1	11/2005	Friesen
5,722,688 A	3/1998	Garcia	6,968,946 B2	11/2005	Shuert
5,746,258 A	5/1998	Huck	6,974,021 B1	12/2005	Boevers
5,761,854 A	6/1998	Johnson et al.	7,008,163 B2	3/2006	Russell
5,762,222 A	6/1998	Liu	7,036,662 B2 *	5/2006	Schutz ..... 206/386
5,772,390 A	6/1998	Walker	7,051,661 B2	5/2006	Herzog et al.
5,782,524 A	7/1998	Heider et al.	7,084,095 B2	8/2006	Lee et al.
5,785,421 A	7/1998	Milek	7,104,425 B2	9/2006	Le Roy
5,803,296 A	9/1998	Olson	7,140,516 B2	11/2006	Bothor
5,806,863 A	9/1998	Heger et al.	7,146,914 B2	12/2006	Morton et al.
5,836,480 A	11/1998	Epp et al.	7,201,290 B2	4/2007	Mehus et al.
5,845,799 A	12/1998	Deaton	7,214,028 B2	5/2007	Boasso
5,876,172 A	3/1999	Di Rosa	7,240,681 B2	7/2007	Saik
5,906,471 A	5/1999	Schwoerer	7,252,309 B2	8/2007	Eng Goh
5,911,337 A	6/1999	Bedeker	7,284,579 B2	10/2007	Elgan et al.
5,927,558 A	7/1999	Bruce	7,284,670 B2	10/2007	Schmid
5,960,974 A	10/1999	Kee	7,316,333 B2	1/2008	Wegner
5,971,219 A	10/1999	Karpisek	7,367,271 B2	5/2008	Early
5,993,202 A	11/1999	Yamazaki et al.	7,377,219 B2	5/2008	Brandt
5,997,099 A	12/1999	Collins	7,410,623 B2	8/2008	Mehus et al.
6,002,063 A	12/1999	Bilak et al.	7,475,796 B2	1/2009	Garton
6,006,918 A	12/1999	Hart	7,500,817 B2	3/2009	Furrer et al.
6,069,118 A	5/2000	Hinkel et al.	7,513,280 B2	4/2009	Brashears et al.
6,077,068 A	6/2000	Okumura	7,591,386 B2	9/2009	Hooper
6,092,974 A	7/2000	Roth	7,640,075 B2	12/2009	Wietgreffe
6,109,486 A	8/2000	Lee	7,695,538 B2	4/2010	Cheng
6,120,233 A	9/2000	Adam	7,753,637 B2	7/2010	Benedict et al.
D431,358 S	10/2000	Willemsen	7,798,558 B2	9/2010	Messier
6,155,175 A	12/2000	Rude et al.	7,802,958 B2	9/2010	Garcia et al.
6,186,654 B1	2/2001	Gunteret et al.	7,803,321 B2	9/2010	Lark et al.
6,190,107 B1	2/2001	Lanigan et al.	7,837,427 B2	11/2010	Beckel
6,192,985 B1	2/2001	Hinkel et al.	7,841,394 B2	11/2010	McNeel et al.
6,196,590 B1	3/2001	Kim	7,845,516 B2	12/2010	Pessin et al.
6,205,938 B1	3/2001	Foley et al.	7,858,888 B2	12/2010	Lucas et al.
6,247,594 B1	6/2001	Garton	7,867,613 B2	1/2011	Smith
6,263,803 B1	7/2001	Dohr et al.	7,878,327 B2 *	2/2011	Cassina ..... 206/386
6,269,849 B1	8/2001	Fields	7,891,304 B2	2/2011	Herzog et al.
6,273,154 B1	8/2001	Laug	7,891,523 B2	2/2011	Mehus et al.
6,283,212 B1	9/2001	Hinkel et al.	7,896,198 B2	3/2011	Mehus et al.
6,286,986 B2	9/2001	Grimland	7,897,223 B2 *	3/2011	Schubbach et al. .... 428/35.7
6,296,109 B1	10/2001	Nohl	7,921,783 B2	4/2011	Forbes et al.
6,306,800 B1	10/2001	Samuel et al.	7,958,995 B2 *	6/2011	Dedmon et al. .... 206/386
6,328,156 B1	12/2001	Otsman	7,967,161 B2	6/2011	Townsend
6,328,183 B1	12/2001	Coleman	7,980,803 B2	7/2011	Brandstatter et al.
6,364,584 B1	4/2002	Taylor	7,997,623 B2	8/2011	Williams
6,374,915 B1	4/2002	Andrews	8,083,083 B1	12/2011	Mohns
6,382,446 B1	5/2002	Hinkle et al.	8,201,520 B2	6/2012	Meritt
6,390,742 B1	5/2002	Breeden	8,313,278 B2	11/2012	Simmons et al.
6,401,983 B1	6/2002	McDonald et al.	8,366,349 B2	2/2013	Beachner
6,412,422 B2	7/2002	Dohr et al.	8,375,690 B2	2/2013	LaFargue et al.
6,415,909 B1	7/2002	Mitchell et al.	8,379,927 B2	2/2013	Taylor
6,416,271 B1	7/2002	Pigott et al.	8,387,824 B2	3/2013	Wietgreffe
6,425,725 B1	7/2002	Ehlers	8,393,502 B2	3/2013	Renyer et al.

# US RE46,613 E

Page 4

8,424,666	B2	4/2013	Berning et al.	2010/0278621	A1	11/2010	Redekop
D688,351	S	8/2013	Oren	2010/0288603	A1	11/2010	Schafer
8,505,780	B2	8/2013	Oren	2010/0320727	A1	12/2010	Haut et al.
8,544,419	B1	10/2013	Spalding et al.	2011/0011893	A1	1/2011	Cerny
8,545,148	B2	10/2013	Wanek-Pusset et al.	2011/0017693	A1	1/2011	Thomas
8,562,022	B2	10/2013	Nadeau et al.	2011/0101040	A1	5/2011	Weissbrod
8,573,387	B2	11/2013	Trimble	2011/0109073	A1	5/2011	Williams
8,573,917	B2	11/2013	Renyer	2011/0127178	A1	6/2011	Claussen
8,585,341	B1	11/2013	Oren	2011/0160104	A1	6/2011	Wu et al.
D694,670	S	12/2013	Oren	2011/0162838	A1	7/2011	Mackenzie et al.
8,616,370	B2	12/2013	Allegretti	2011/0168593	A1	7/2011	Neufeld et al.
8,622,251	B2	1/2014	Oren	2011/0222983	A1	9/2011	Dugic et al.
8,636,832	B2	1/2014	Stutzman et al.	2011/0297702	A1	12/2011	Hildebrandt et al.
8,646,641	B2	2/2014	Moir	2012/0103848	A1	5/2012	Allegretti et al.
8,668,430	B2	3/2014	Oren	2012/0219391	A1	8/2012	Teichrob et al.
D703,582	S	4/2014	Oren	2012/0255539	A1	10/2012	Kolecki
8,820,559	B2	9/2014	Beitler et al.	2013/0004272	A1	1/2013	Mintz
8,827,118	B2	9/2014	Oren	2013/0022441	A1	1/2013	Uhryn et al.
8,887,914	B2	11/2014	Allegretti	2013/0206415	A1	8/2013	Sheesley
8,905,266	B2	12/2014	De Brabanter	2013/0209204	A1	8/2013	Sheesley
8,915,691	B2	12/2014	Mintz	2013/0233545	A1	9/2013	Mahoney
9,051,801	B1	6/2015	Mintz	2013/0284729	A1	10/2013	Cook et al.
9,052,034	B1	6/2015	Wegner et al.	2013/0309052	A1	11/2013	Luharuka
D740,556	S	10/2015	Huber	2013/0323005	A1	12/2013	Rexius et al.
9,162,261	B1	10/2015	Smith	2014/0020765	A1	1/2014	Oren
9,267,266	B2	2/2016	Cutler et al.	2014/0020892	A1	1/2014	Oren
9,309,064	B2	4/2016	Sheesley	2014/0023465	A1	1/2014	Oren et al.
D780,883	S	3/2017	Schaffner et al.	2014/0034662	A1	2/2014	Chalmers et al.
D783,771	S	4/2017	Stegemoeller et al.	2014/0044507	A1	2/2014	Naizer et al.
D783,772	S	4/2017	Stegemoeller, III et al.	2014/0083554	A1	3/2014	Harris
2001/0022308	A1	9/2001	Epp et al.	2014/0093319	A1	4/2014	Harris et al.
2001/0045338	A1	11/2001	Ransil et al.	2014/0097182	A1	4/2014	Sheesley
2002/0134550	A1	9/2002	Leeson et al.	2014/0166647	A1	6/2014	Sheesley
2002/0139643	A1	10/2002	Peltier et al.	2014/0203046	A1	7/2014	Allegretti
2003/0006248	A1	1/2003	Gill et al.	2014/0234059	A1	8/2014	Thomeer
2003/0111470	A1	6/2003	Fouillet et al.	2014/0321950	A1	10/2014	Krenek et al.
2003/0145418	A1	8/2003	Ikeda et al.	2015/0004895	A1	1/2015	Hammers et al.
2003/0156929	A1	8/2003	Russell	2015/0069052	A1	3/2015	Allegretti et al.
2004/0065699	A1	4/2004	Schoer et al.	2015/0110565	A1	4/2015	Harris
2004/0074922	A1	4/2004	Bother et al.	2015/0159232	A1	6/2015	Zucchi et al.
2004/0084874	A1	5/2004	McDougall et al.	2015/0209829	A1	7/2015	De Siqueira et al.
2004/0206646	A1	10/2004	Goh	2016/0148813	A1	5/2016	Rogers et al.
2004/0245284	A1	12/2004	Mehus et al.	2016/0185522	A1	6/2016	Herman et al.
2005/0158158	A1	7/2005	Porta	2016/0280480	A1	9/2016	Smith et al.
2005/0201851	A1	9/2005	Jonkka	2017/0129721	A1	5/2017	Harris et al.
2006/0012183	A1	1/2006	Marchiori et al.				
2006/0027582	A1	2/2006	Beach				
2006/0053582	A1	3/2006	Engel et al.				
2006/0091072	A1	5/2006	Schmid et al.				
2006/0151058	A1	7/2006	Salaoras et al.	CA	2023138	2/1992	
2006/0180062	A1	8/2006	Furrer et al.	CA	2791088	3/2013	
2006/0180232	A1	8/2006	Glewwe et al.	CN	201390486	1/2010	
2006/0239806	A1	10/2006	Yelton	CN	201881469	6/2011	
2006/0267377	A1	11/2006	Lusk et al.	CN	103350017	10/2013	
2006/0277783	A1	12/2006	Garton	DE	3108121	9/1982	
2006/0289166	A1	12/2006	Stromquist et al.	DE	3342281	6/1985	
2007/0096537	A1	5/2007	Hicks	DE	4217329	5/1993	
2007/0125543	A1	6/2007	McNeel et al.	EP	0019967	12/1980	
2008/0008562	A1	1/2008	Beckel et al.	EP	322283	6/1989	
2008/0029546	A1	2/2008	Schuld	EP	0564969	10/1993	
2008/0029553	A1	2/2008	Culleton	EP	0997607	5/2000	
2008/0058228	A1	3/2008	Wilson	EP	1052194	11/2000	
2008/0017905	A1	7/2008	McGough et al.	EP	1167236	1/2002	
2008/0179324	A1	7/2008	McGough et al.	EP	1775190	4/2007	
2008/0213073	A1	9/2008	Benedict et al.	EP	2062832	5/2009	
2008/0226434	A1	9/2008	Smith et al.	EP	2311757	4/2011	
2008/0264641	A1	10/2008	Slabaugh et al.	FR	2173445	10/1973	
2008/0277423	A1	11/2008	Garton	FR	2640598	6/1990	
2009/0038242	A1	2/2009	Cope	GB	1296736	11/1972	
2009/0078410	A1	3/2009	Krenek et al.	GB	2374864	10/2002	
2009/0278326	A1	11/2009	Rowland et al.	JP	S4871029	9/1973	
2010/0021258	A1	1/2010	Kim	JP	S4876041	9/1973	
2010/0037572	A1	2/2010	Cheng	JP	S58161888	10/1983	
2010/0038143	A1	2/2010	Burnett et al.	JP	410087046	4/1998	
2010/0040446	A1	2/2010	Renyer	JP	10264882	10/1998	
2010/0065466	A1	3/2010	Perkins	MX	2012011046	5/2013	
2010/0108711	A1	5/2010	Wietgreffe	WO	1990008082	7/1990	
2010/0129193	A1	5/2010	Sherrer	WO	1992002437	2/1992	
2010/0199668	A1	8/2010	Coustou et al.	WO	1993001997	2/1993	
				WO	1993006031	4/1993	

## FOREIGN PATENT DOCUMENTS

CA	2023138	2/1992
CA	2791088	3/2013
CN	201390486	1/2010
CN	201881469	6/2011
CN	103350017	10/2013
DE	3108121	9/1982
DE	3342281	6/1985
DE	4217329	5/1993
EP	0019967	12/1980
EP	322283	6/1989
EP	0564969	10/1993
EP	0997607	5/2000
EP	1052194	11/2000
EP	1167236	1/2002
EP	1775190	4/2007
EP	2062832	5/2009
EP	2311757	4/2011
FR	2173445	10/1973
FR	2640598	6/1990
GB	1296736	11/1972
GB	2374864	10/2002
JP	S4871029	9/1973
JP	S4876041	9/1973
JP	S58161888	10/1983
JP	410087046	4/1998
JP	10264882	10/1998
MX	2012011046	5/2013
WO	1990008082	7/1990
WO	1992002437	2/1992
WO	1993001997	2/1993
WO	1993006031	4/1993

WO	1996025302	8/1996
WO	2006039757	4/2006
WO	2007061310	5/2007
WO	2007005054	10/2007
WO	2010026235	3/2010
WO	2011099358	8/2011
WO	2012021447	2/2012
WO	2012058059	5/2012

## OTHER PUBLICATIONS

International Search Report for related International Application No. PCT/US2012/066639, dated Feb. 25, 2013.

International Search Report for related International Application No. PCT/US2013/035442, dated Jun. 23, 2013.

International Search Report for related International Application No. PCT/US2013/032819, dated May 23, 2013.

International Search Report for related International Application No. PCT/US2013/049028, dated Mar. 4, 2014.

International Preliminary Report on Patentability for PCT/US2012/066639, dated Feb. 26, 2013.

International Preliminary Report on Patentability for PCT/US2013/032819, dated Sep. 23, 2014.

File History for U.S. Appl. No. 61/538,616, Robert A. Harris, Sep. 23, 2011. (21 pages).

International Search Report for PCT/US2015/024810, dated Jul. 8, 2015. (13 pages).

European Search Report for Application No. 15167039.5, dated Sep. 8, 2015. (7 pages).

SandBox Logistics, "Mine to Wellhead Logistics," Houston, TX, May 2013.

SandBox Logistics, screenshots from video made in Apr. 2013 and publicly shown in May 2013, Arnegard, North Dakota.

International Search Report for PCT/US15/35635, dated Oct. 30, 2015. (12 pages).

International Search Report for PCT/US2015/012990, dated May 6, 2015. (15 pages).

FS-35 Desert Frac-Sanders. NOV (National Oilwell Varco). Mar. 19, 2012. ([https://web.archive.org/web/20120319070423/http://www.nov.com/Well\\_Service\\_and\\_Completion/Frac\\_Sand\\_Handling\\_Equipment/Frac\\_Sanders/FS-35.aspx](https://web.archive.org/web/20120319070423/http://www.nov.com/Well_Service_and_Completion/Frac_Sand_Handling_Equipment/Frac_Sanders/FS-35.aspx)).

Non-Final Office Action dated Dec. 28, 2016 for co-pending U.S. Appl. No. 13/628,702.

Non-Final Office Action dated Jan. 13, 2017 for co-pending U.S. Appl. No. 14/923,920.

Final Office Action dated Jan. 12, 2017 for co-pending U.S. Appl. No. 14/841,942.

Non-Final Office Action dated Dec. 23, 2016 for co-pending U.S. Appl. No. 14/485,686.

Non-Final Office Action dated Jan. 27, 2017 for co-pending U.S. Appl. No. 14/485,687.

Non-Final Office Action dated Dec. 20, 2016 for co-pending U.S. Appl. No. 14/831,924.

Final Office Action dated Jan. 19, 2017 for co-pending U.S. Appl. No. 13/660,855.

Final Office Action dated Nov. 25, 2016 for co-pending U.S. Appl. No. 15/152,744.

Non-Final Office Action dated Dec. 15, 2016 for co-pending U.S. Appl. No. 14/848,447.

Non-Final Office Action dated Dec. 9, 2016 for co-pending U.S. Appl. No. 14/927,614.

International Search Report for PCT Application No. PCT/US2016/050859 dated Dec. 9, 2016.

Non-Final Office Action dated Apr. 3, 2017 for co-pending U.S. Appl. No. 13/555,635.

Non-Final Office Action dated Feb. 14, 2017 for co-pending U.S. Appl. No. 14/943,111.

Final Office Action dated Mar. 7, 2017 for co-pending U.S. Appl. No. 15/144,296.

Non-Final Office Action dated Apr. 6, 2017 for co-pending U.S. Appl. No. 13/768,962.

Non-Final Office Action dated Mar. 6, 2017 for co-pending U.S. Appl. No. 15/152,744.

Non-Final Office Action dated Feb. 24, 2017 for co-pending U.S. Appl. No. 14/943,182.

International Search Report and Written Opinion for PCT/US2017/012271, dated May 22, 2017.

Non-Final Office Action dated Apr. 24, 2017 for co-pending U.S. Appl. No. 14/738,485.

Final Office Action dated May 4, 2017 for co-pending U.S. Appl. No. 15/143,942.

Final Office Action dated May 30, 2017 for co-pending U.S. Appl. No. 13/625,675.

Final Office Action dated Apr. 19, 2017 for co-pending U.S. Appl. No. 15/219,640.

Non-Final Office Action dated Jun. 1, 2017 for co-pending U.S. Appl. No. 15/219,640.

Final Office Action dated May 2, 2017 for co-pending U.S. Appl. No. 15/219,676.

Non-Final Office Action dated May 10, 2017 for co-pending U.S. Appl. No. 14/882,973.

Non-Final Office Action dated May 13, 2016 for co-pending U.S. Appl. No. 14/986,826.

Final Office Action dated Sep. 15, 2016 for co-pending U.S. Appl. No. 14/922,836.

Non-Final Office Action dated Feb. 4, 2016 for co-pending U.S. Appl. No. 14/922,836.

Final Office Action dated Aug. 25, 2016 for co-pending U.S. Appl. No. 14/927,614.

Non-Final Office Action dated Mar. 1, 2016 for co-pending U.S. Appl. No. 14/927,614.

Non-Final Office Action dated Apr. 29, 2016 for co-pending U.S. Appl. No. 14/943,182.

Final Office Action dated Sep. 15, 2016 for co-pending U.S. Appl. No. 14/882,973.

Non-Final Office Action dated Feb. 11, 2016 for co-pending U.S. Appl. No. 14/882,973.

Non-Final Office Action dated Aug. 11, 2016 for co-pending U.S. Appl. No. 13/625,675.

Final Office Action dated Nov. 11, 2015 for co-pending U.S. Appl. No. 13/625,675.

Non-Final Office Action dated Mar. 11, 2015 for co-pending U.S. Appl. No. 13/625,675.

Arrows Up, Inc., Jumbo BTS—Bulk Transport System, Aug. 1, 2014.

Arrows Up, Inc., Reusable Packaging Association, Member Spotlight: John Allegretti, President & CEO, Arrows Up, Inc., Jun. 23, 2016.

Seed Today, Arrows Up, Inc. Bulk Transport System (BTS), Country Journal Publishing Co., Decatur, IL, Mar. 2, 2011.

SeedQuest, Arrows Up, Inc. launches innovative bulk transport system for see, Barrington, IL, Mar. 2, 2011.

Monster Tanks, Inc., Sand Monster Website, <http://monstertanksinc.com/sandmonster.html>, 2012.

Solaris Oilfield Infrastructure, Mobile Sand Silo System, 2016.

Final Office Action dated Sep. 27, 2016 for co-pending U.S. Appl. No. 13/555,635.

Non-Final Office Action dated Mar. 23, 2016 for co-pending U.S. Appl. No. 13/555,635.

Final Office Action dated Jul. 30, 2015 for co-pending U.S. Appl. No. 13/555,635.

Non-Final Office Action dated Oct. 22, 2014 for co-pending U.S. Appl. No. 13/555,635.

Final Office Action dated Jun. 21, 2016 for co-pending U.S. Appl. No. 13/628,702.

Non-Final Office Action dated Feb. 23, 2016 for co-pending U.S. Appl. No. 13/628,702.

Final Office Action dated Sep. 22, 2015 for co-pending U.S. Appl. No. 13/628,702.

Non-Final Office Action dated Jul. 28, 2015 for co-pending U.S. Appl. No. 13/628,702.

Final Office Action dated Mar. 24, 2015 for co-pending U.S. Appl. No. 13/628,702.

Non-Final Office Action dated Sep. 18, 2014 for co-pending U.S. Appl. No. 13/628,702.

- Final Office Action dated Jun. 27, 2016 for co-pending U.S. Appl. No. 14/831,924.
- Non-Final Office Action dated Feb. 16, 2016 for co-pending U.S. Appl. No. 14/831,924.
- Final Office Action dated Jun. 27, 2016 for co-pending U.S. Appl. No. 14/923,920.
- Non-Final Office Action dated Feb. 9, 2016 for co-pending U.S. Appl. No. 14/923,920.
- Final Office Action dated Sep. 15, 2016 for co-pending U.S. Appl. No. 14/943,111.
- Non-Final Office Action dated Apr. 5, 2016 for co-pending U.S. Appl. No. 14/943,111.
- Final Office Action dated Jul. 18, 2016 for co-pending U.S. Appl. No. 14/948,494.
- Non-Final Office Action dated Apr. 8, 2016 for co-pending U.S. Appl. No. 14/948,494.
- Non-Final Office Action dated Sep. 6, 2016 for co-pending U.S. Appl. No. 15/144,296.
- Non-Final Office Action dated Jul. 25, 2016 for co-pending U.S. Appl. No. 13/660,855.
- Final Office Action dated Apr. 28, 2016 for co-pending U.S. Appl. No. 13/660,855.
- Non-Final Office Action dated Oct. 6, 2015 for co-pending U.S. Appl. No. 13/660,855.
- Final Office Action dated Aug. 6, 2015 for co-pending U.S. Appl. No. 13/660,855.
- Non-Final Office Action dated Apr. 29, 2015 for co-pending U.S. Appl. No. 13/660,855.
- Final Office Action dated Dec. 17, 2014 for co-pending U.S. Appl. No. 13/660,855.
- Non-Final Office Action dated Sep. 4, 2014 for co-pending U.S. Appl. No. 13/660,855.
- Final Office Action dated Sep. 24, 2013 for co-pending U.S. Appl. No. 13/660,855.
- Non-Final Office Action dated May 14, 2013 for co-pending U.S. Appl. No. 13/660,855.
- Non-Final Office Action dated Jul. 5, 2016 for co-pending U.S. Appl. No. 14/996,362.
- Non-Final Office Action dated Jul. 6, 2016 for co-pending U.S. Appl. No. 15/144,450.
- Final Office Action dated Sep. 29, 2016 for co-pending U.S. Appl. No. 13/768,962.
- Non-Final Office Action dated Apr. 5, 2016 for co-pending U.S. Appl. No. 13/768,962.
- Final Office Action dated Oct. 9, 2015 for co-pending U.S. Appl. No. 13/768,962.
- Non-Final Office Action dated May 1, 2015 for co-pending U.S. Appl. No. 13/768,962.
- Non-Final Office Action dated Jul. 18, 2016 for co-pending U.S. Appl. No. 15/152,744.
- Non-Final Office Action dated Apr. 13, 2016 for co-pending U.S. Appl. No. 14/738,485.
- Non-Final Office Action dated Sep. 7, 2016 for co-pending U.S. Appl. No. 14/841,942.
- Final Office Action dated May 12, 2016 for co-pending U.S. Appl. No. 14/841,942.
- Non-Final Office Action dated Nov. 30, 2015 for co-pending U.S. Appl. No. 14/841,942.
- Non-Final Office Action dated Jul. 21, 2016 for co-pending U.S. Appl. No. 15/083,596.
- Non-Final Office Action dated Aug. 19, 2016 for co-pending U.S. Appl. No. 15/084,613.
- Non-Final Office Action dated Sep. 6, 2016 for co-pending U.S. Appl. No. 15/143,942.
- Final Office Action dated Sep. 1, 2016 for co-pending U.S. Appl. No. 14/848,447.
- Non-Final Office Action dated Apr. 8, 2016 for co-pending U.S. Appl. No. 14/848,447.
- PCT International Search Report for PCT/US15/49074, dated Dec. 17, 2015. (11 pages).
- PCT International Search Report for PCT/US15/57601, dated May 6, 2016. (11 pages).
- SandBox Logistics, LLC, screenshots from video dated Sep. 19, 2013.
- SandBox Logistics, LLC, screenshots from video dated Aug. 22, 2014.
- SandBox Logistics, LLC, screenshots from video dated Oct. 11, 2013.
- SandBox Logistics, LLC, screenshots from video dated Apr. 10, 2013.
- Grit Energy Solutions, LLC, Fidelity, Screenshots from video dated May 16, 2014.
- Grit Energy Solutions, LLC, Gate, Screenshots from video dated Dec. 6, 2013, <https://www.youtube.com/user/gritstack>.
- Grit Energy Solutions, LLC, Screen, Screenshots from video dated Dec. 6, 2013, <https://www.youtube.com/user/gritstack>.
- Grit Energy Solutions, LLC, The Grit Stack System—Live Frac, Screenshots from video dated Jun. 15, 2015, <https://www.youtube.com/user/gritstack>.
- Grit Energy Solutions, LLC, The Grit Stack System, Screenshots from video dated Feb. 7, 2014, <https://www.youtube.com/user/gritstack>.
- Frac Sand Primer by Brian D. Olmen, Kelrick, LLC, from Hydraulic Fracturing by Michael Berry Smith and Carl Montgomery (CRC Press, Dec. 16, 2015), p. 384.
- Premier Silica LLC, Sands Application in the Energy Market, Irving, TX, Copyright 2016.
- Getty, John, Montana Tech; ASTM International, Overview of Proppants and Existing Standards and Practices, Jacksonville, FL, Jan. 29, 2013.
- Non-Final Office Action dated Oct. 27, 2016 for co-pending U.S. Appl. No. 15/219,676.
- Non-Final Office Action dated Nov. 9, 2016 for co-pending U.S. Appl. No. 14/948,494.
- Final Office Action dated Nov. 4, 2016 for co-pending U.S. Appl. No. 14/738,485.
- Non-Final Office Action dated Jul. 26, 2017 for co-pending U.S. Appl. No. 15/463,201.
- Final Office Action dated Jul. 27, 2017 for co-pending U.S. Appl. No. 14/738,485.
- Non-Final Office Action dated Aug. 3, 2017 for co-pending U.S. Appl. No. 15/219,676.
- Beckwith, Robin, Proppants: Where in the World, Proppani Shortage, JPT, Apr. 2011 (6 pages).
- Kullman, John, The Complicated World of Proppant Selection . . . , South Dakota School of Mines & Technology, Oct. 2011 (65 pages).
- Lafollette, Randy, Key Considerations for Hydraulic Fracturing of Gas Shales, BJ Services Company, Sep. 9, 2010 (53 pages).
- WW Trailers Inc., Model GN2040EZ datasheet, Portland, OR, Jan. 2007 (4pages).
- WW Trailers Inc., Model GN204S9A datasheet, Portland, OR, Jan. 2007 (4pages).
- Yergin, Daniel, The Quest: Energy, Security, and the Remaking of the Modern World, 2011.
- Gold, Russell, The Boom: How Fracking Ignited the American Energy Revolution and Changed the World, 2014.
- Yergin, Daniel, Stepping on the Gas, Wall Street Journal, Apr. 2, 2011.
- Raimi, Daniel et al., Dunn County and Watford City, North Dakota: A case study of the fiscal effects of Bakken shale development, Duke University Energy Initiative, May 2016.
- Local Economic Impacts Related to Marcellus Shale Development, The Center for Rural Pennsylvania, Sep. 2014.
- Eagle Ford Shale Task Force Report, Railroad Commission of Texas, Convened and Chaired by David Porter, Mar. 2013.
- Sandbox Logistics LLC et al v. Grit Energy Solutions LLC*, 3:16-cv-00012, 73.Parties' P.R. 4-3 Joint Claim Construction and Prehearing Statement by Oren Technologies LLC, SandBox Enterprises LLC, SandBox Logistics LLC, Nov. 17, 2016.
- Beard, Tim, Fracture Design in Horizontal Shale Wells—Data Gathering to Implementation, EPA Hydraulic Fracturing Workshop, Mar. 10-11, 2011.

Economic Impact of the Eagle Ford Shale, Center for Community and Business Research at the University of Texas at San Antonio's Institute for Economic Development, Sep. 2014.

Kelsey, Timothy W. et al., Economic Impacts of Marcellus Shale in Pennsylvania: Employment and Income in 2009, The Marcellus Shale Education & Training Center, Aug. 2011.

2006 Montana Commercial Vehicle Size and Weight and Safety Trucker's Handbook, Montana Department of Transportation Motor Carrier Services Division, Fifth Edition, Jun. 2010.

Budzynski, Brian W., Never Meant to Take the Weight, Roads & Bridges, Apr. 2015.

Interstate Weight Limits, 23 C.F.R. § 658, Apr. 1, 2011.

VIN Requirements, 49 C.F.R. § 565, Oct. 1, 2011

Benson, Mary Ellen et al., Frac Sand in the United States—A Geological and Industry Overview, U.S. Department of the Interior, U.S. Geological Survey, 2015-2017.

Beekman, Thomas J. et al., Transportation Impacts of the Wisconsin Fracture Sand Industry, Wisconsin Department of Transportation, Mar. 2013.

U.S. Silica Company, Material Safety Data Sheet, Jan. 2011.

Texas Transportation Code, Chapter 621, General Provisions Relating to Vehicle Size and Weight (Sec. 621.101 effective Sep. 1, 2005 and Section 621.403 effective Sep. 1, 1995).

Garner, Dwight, Visions of an Age When Oil Isn't King, New York Times, Sep. 20, 2011.

\* cited by examiner

Primary Examiner — Phillip S Hyder

(74) Attorney, Agent, or Firm — Hogan Lovells US LLP

(57) **CLAIM**

The ornamental design for a proppant vessel, as shown and described.

#### DESCRIPTION

*This application is a reissue application of U.S. Pat. No. D688,350 issued on Aug. 20, 2013, from U.S. application Ser. No. 29/436,169, filed on Nov. 2, 2012. A divisional reissue application of this reissue application was filed Feb. 27, 2015, as application Ser. No. 29/518,830.*

*Notice: More than one reissue application has been filed for the reissue of U.S. Pat. No. D688,350. The reissue applica-*

*tions are application Ser. No. 29/500,679 (the present application) filed Aug. 27, 2014, and application Ser. No. 29/518,830, filed Feb. 27, 2015.*

FIG. 1 is an upper perspective view of [the] *an embodiment of a proppant vessel showing our [deign.] new design,*

FIG. 2 is a front elevation view [thereof] *of the embodiment in FIG. 1;*

FIG. 3 is a rear elevation view [thereof] *of the embodiment in FIG. 1;*

FIG. 4 is a side elevation view [thereof] *of the embodiment in FIG. 1;*

FIG. 5 is an opposite side elevation view [thereof] *of the embodiment in FIG. 1;*

FIG. 6 is a top plan view [thereof; and,] *of the embodiment in FIG. 1;*

FIG. 7 is a bottom plan view [thereof.] *of the embodiment in FIG. 1;*

*FIG. 8 is an upper perspective view of an alternate embodiment of the proppant vessel of our design;*

*FIG. 9 is a front elevation view of the embodiment in FIG. 8;*

*FIG. 10 is a rear elevation view of the embodiment in FIG. 8;*

*FIG. 11 is a right side elevation view of the embodiment in FIG. 8;*

*FIG. 12 is a left side elevation view of the embodiment in FIG. 8;*

*FIG. 13 is a top plan view of the embodiment in FIG. 8; and, FIG. 14 is a bottom plan view of the embodiment in FIG. 8.*

**[The features presented in broken lines are for environmental purposes only and form no part of the claimed design.]**  
*The broken lines depict portions of the proppant vessel in which the design is embodied that are not considered part of the claimed design.*

#### 1 Claim, 4 Drawing Sheets

**Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue; matter printed in italics indicates the additions made by reissue.**

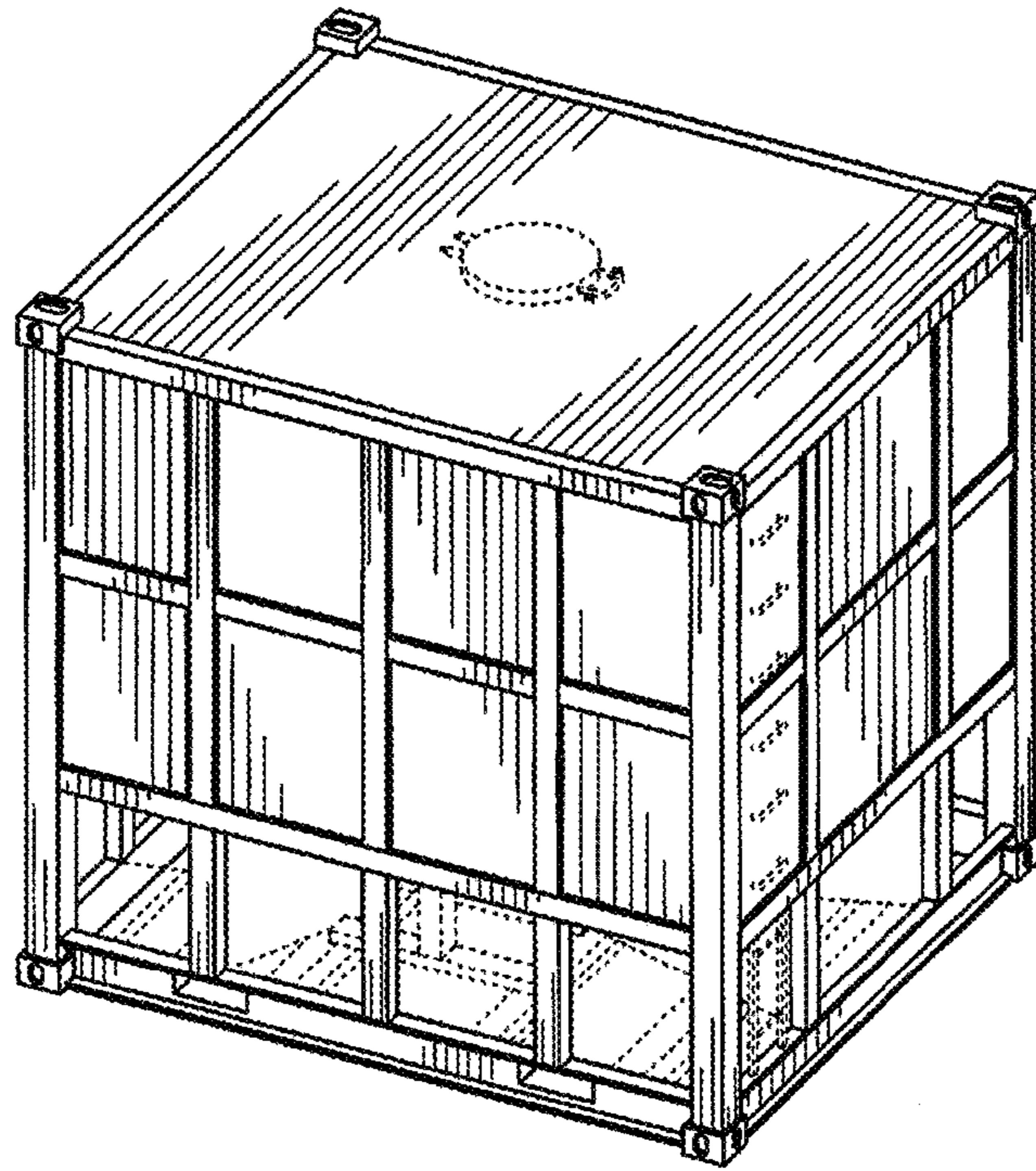


FIG. 1

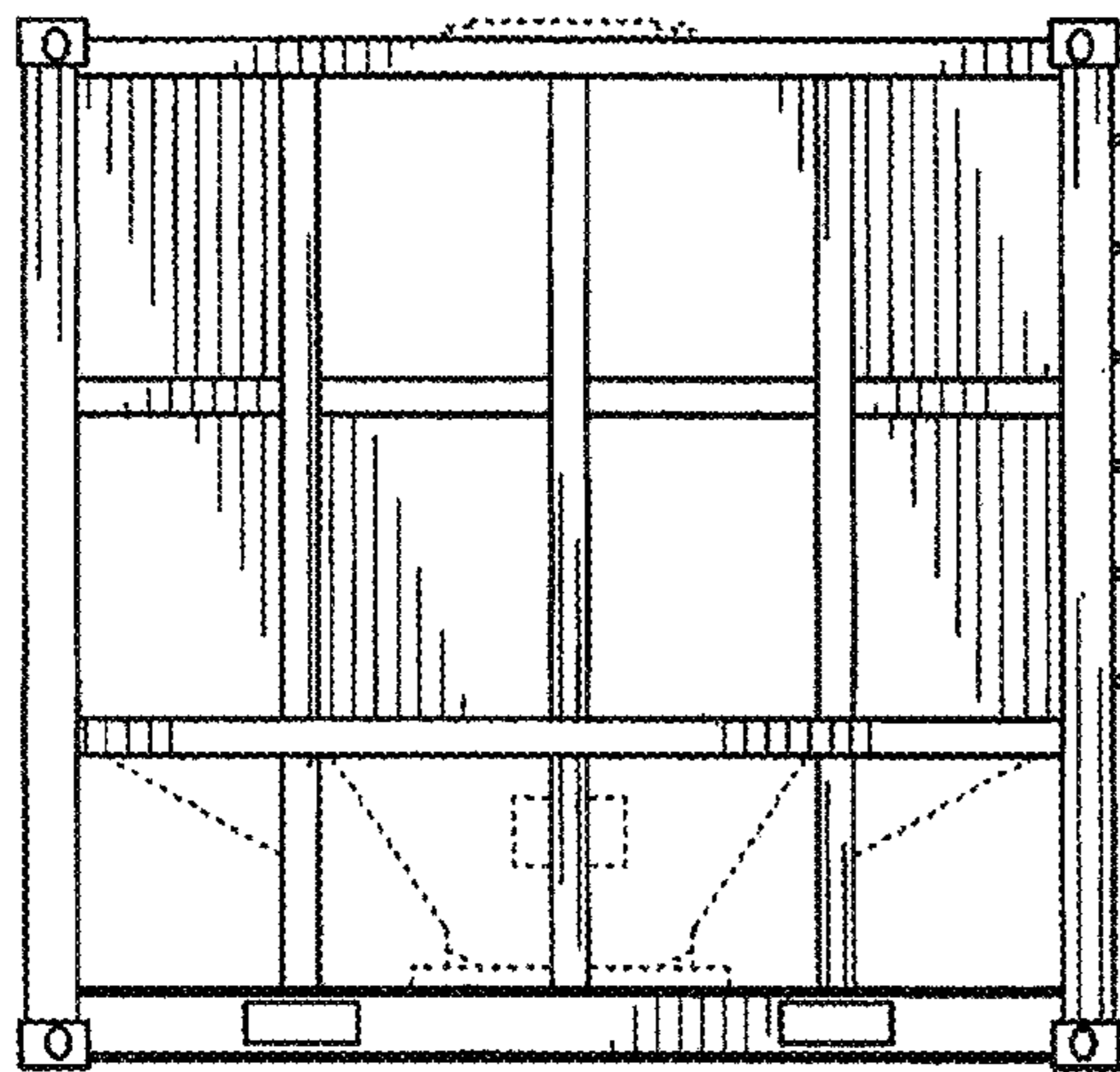


FIG. 2

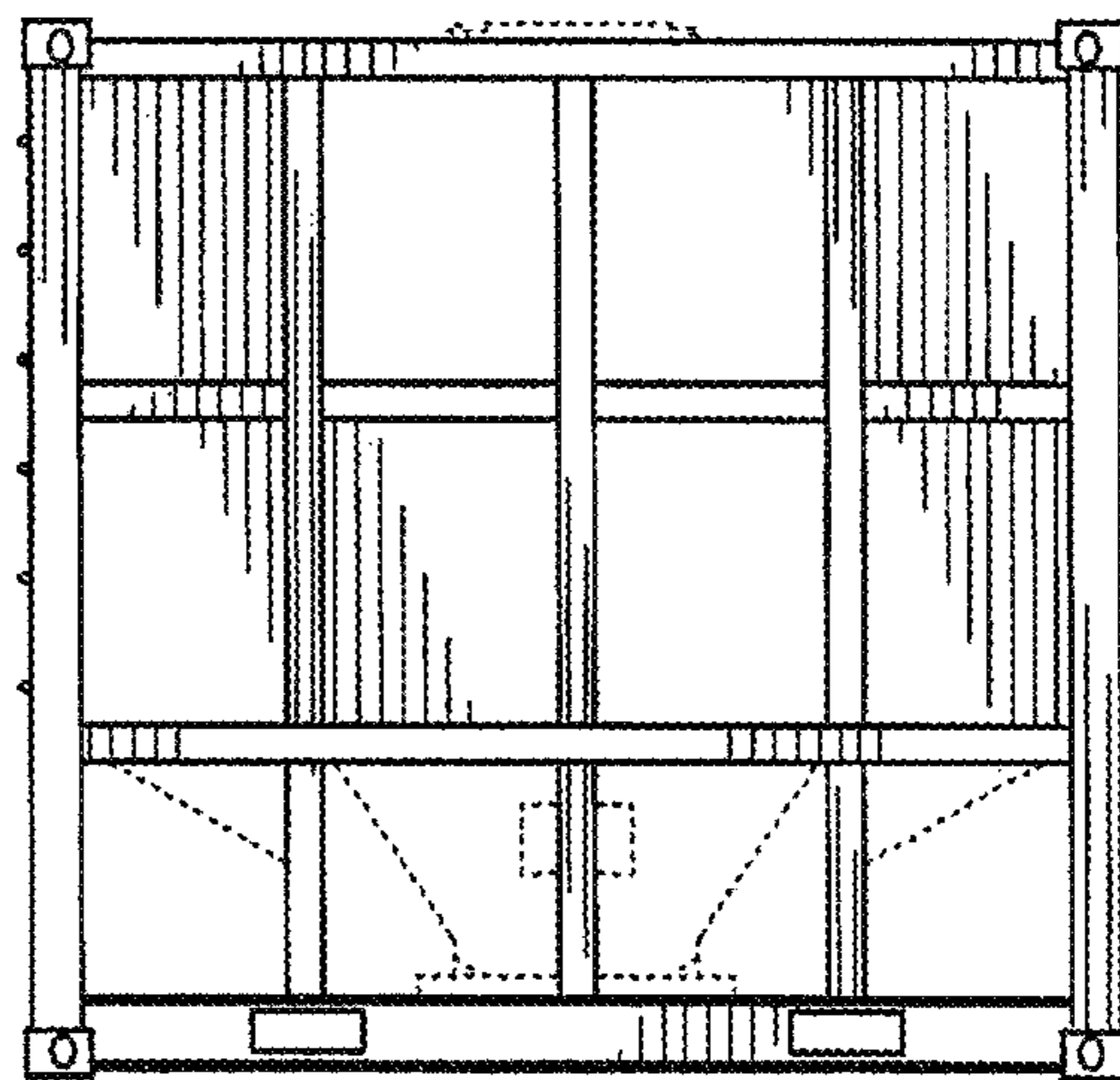


FIG. 3



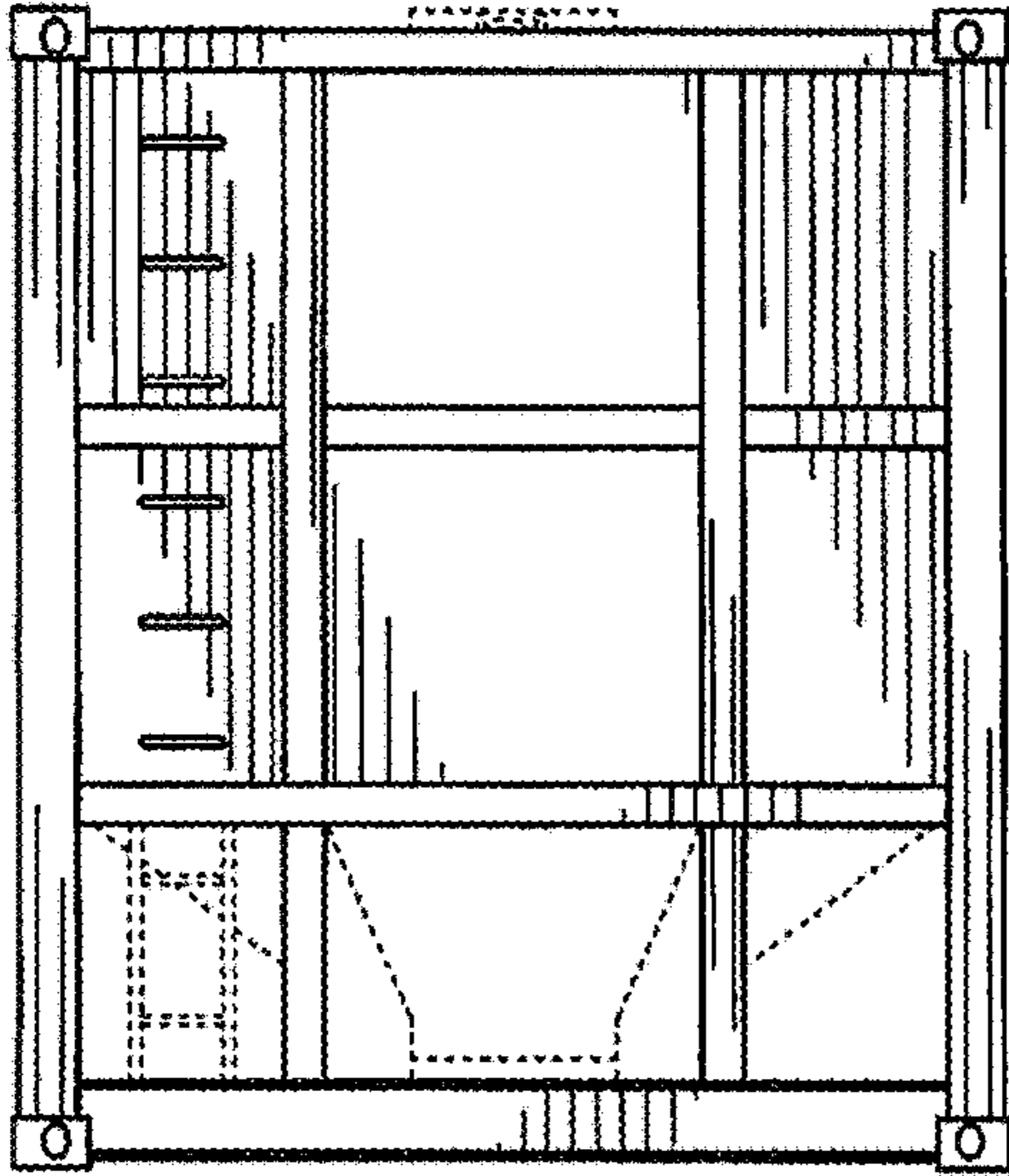


FIG. 4

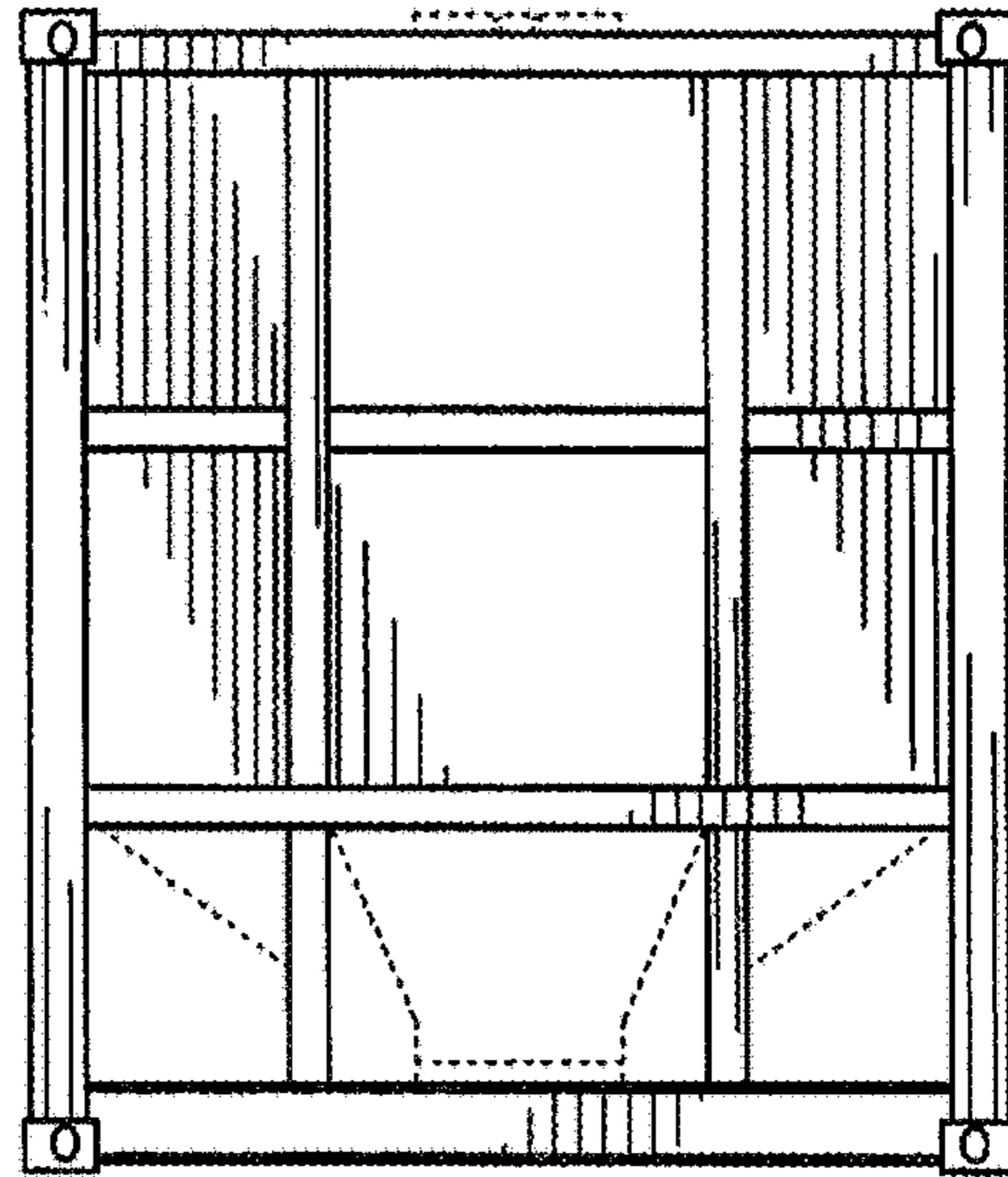


FIG. 5

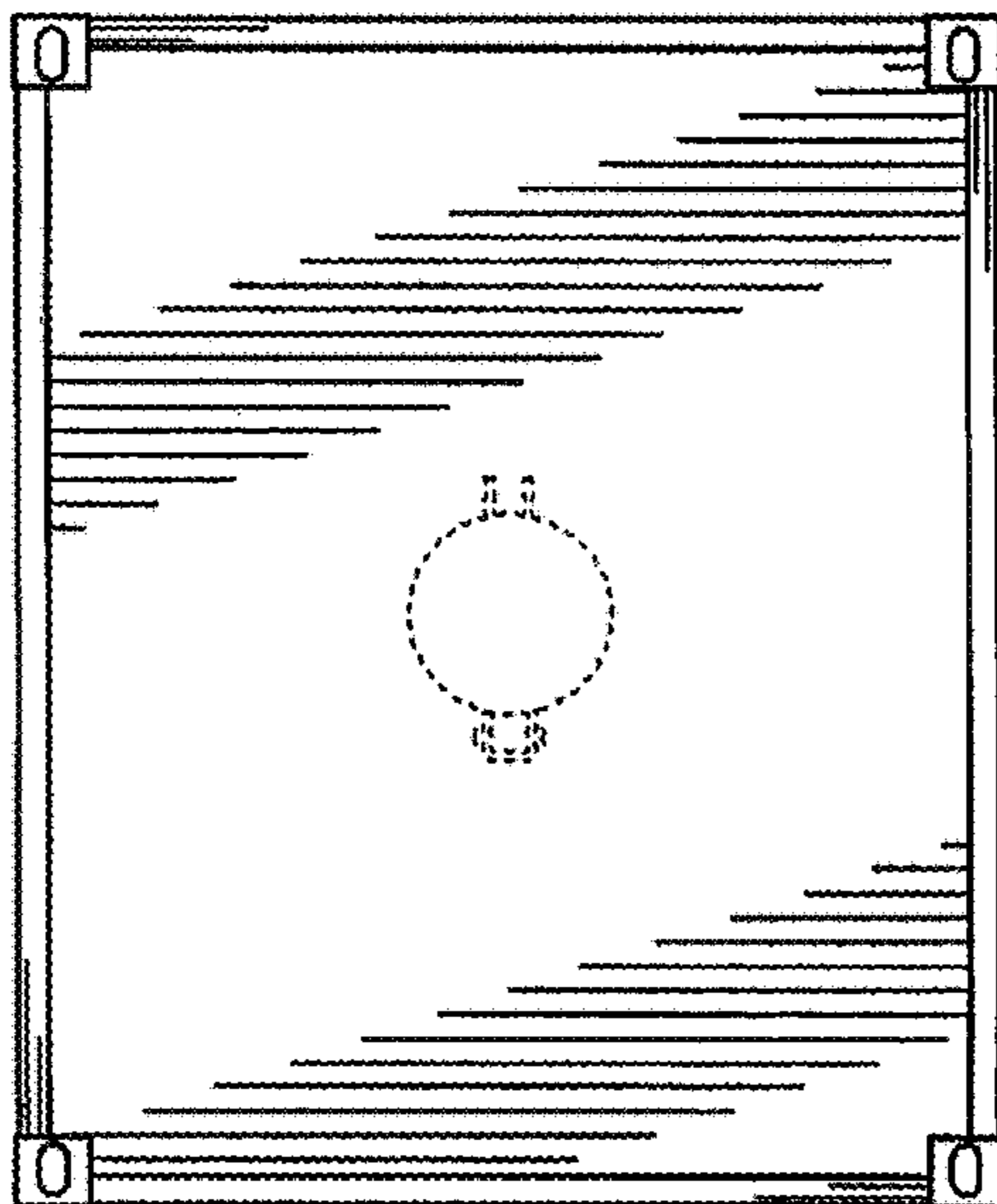


FIG. 6

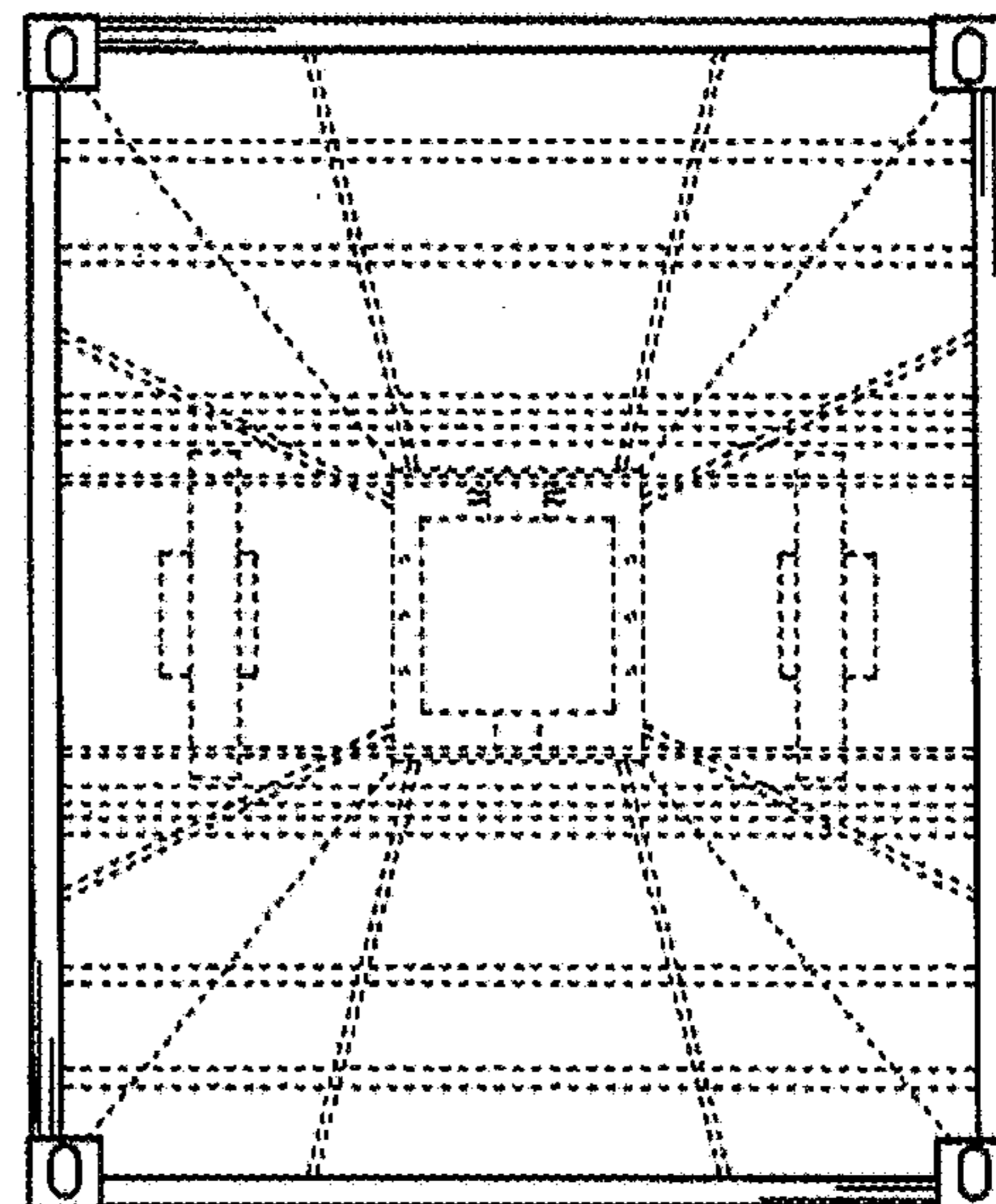


FIG. 7

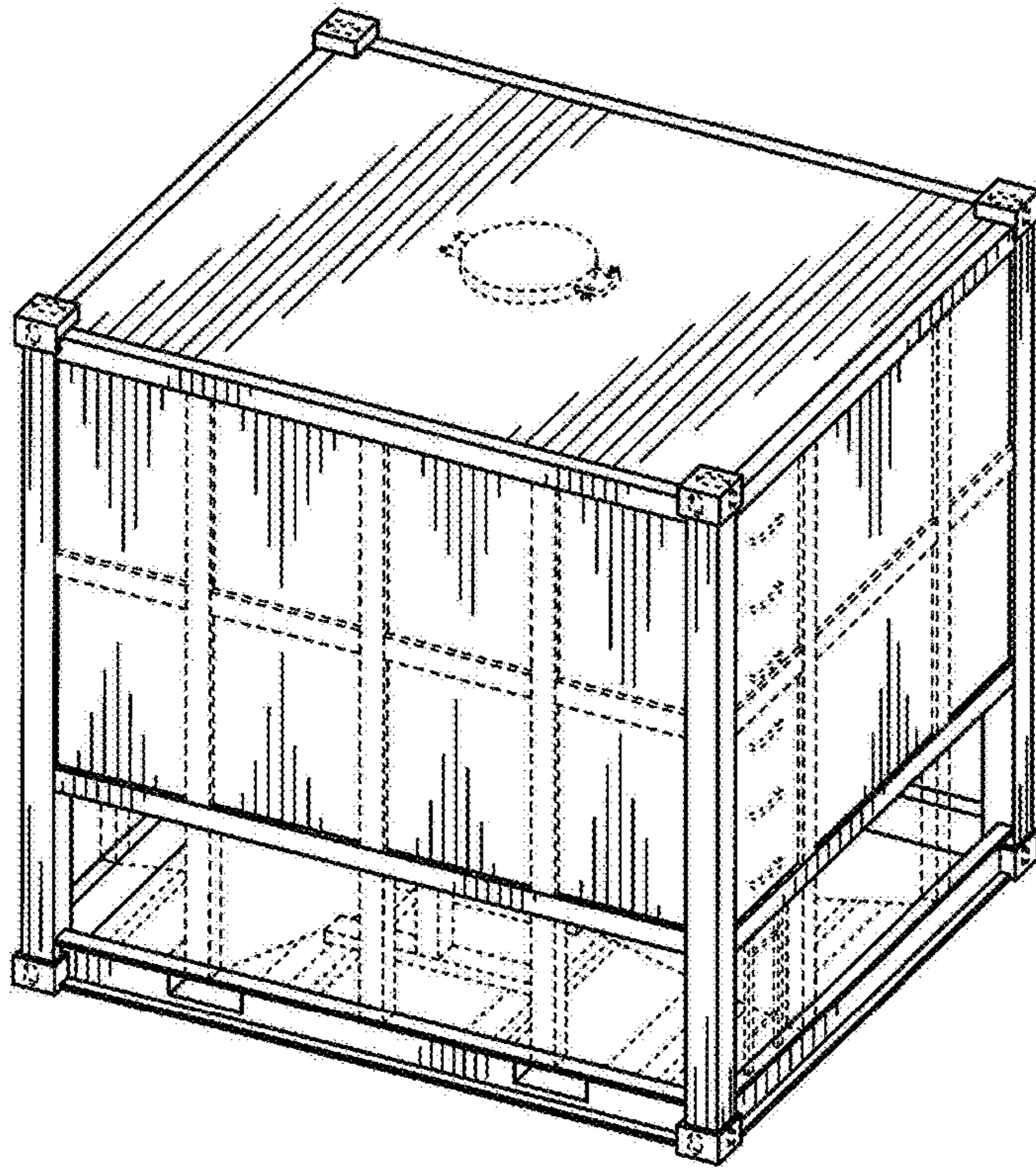


FIG. 8  
NEW

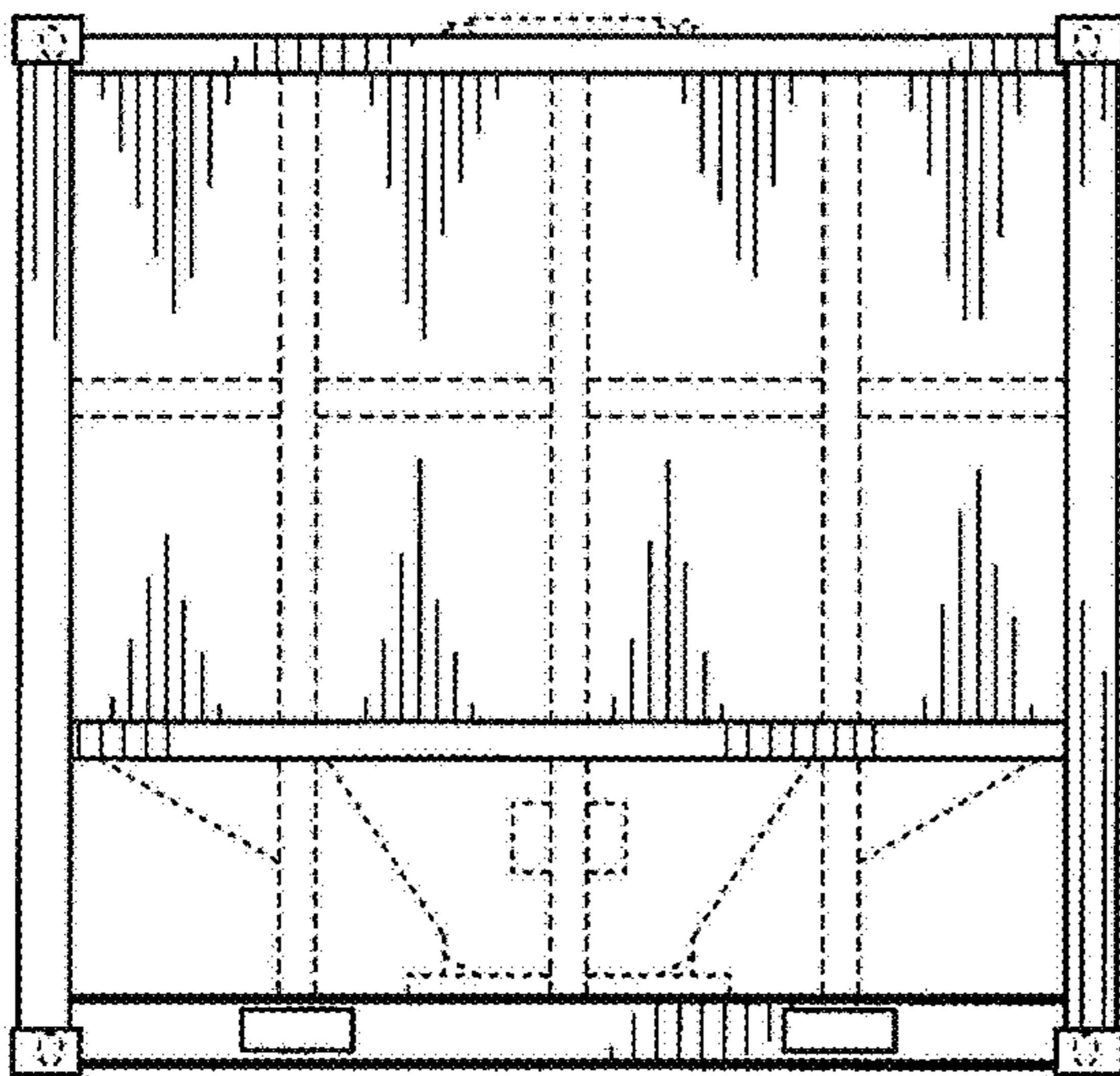


FIG. 9  
NEW

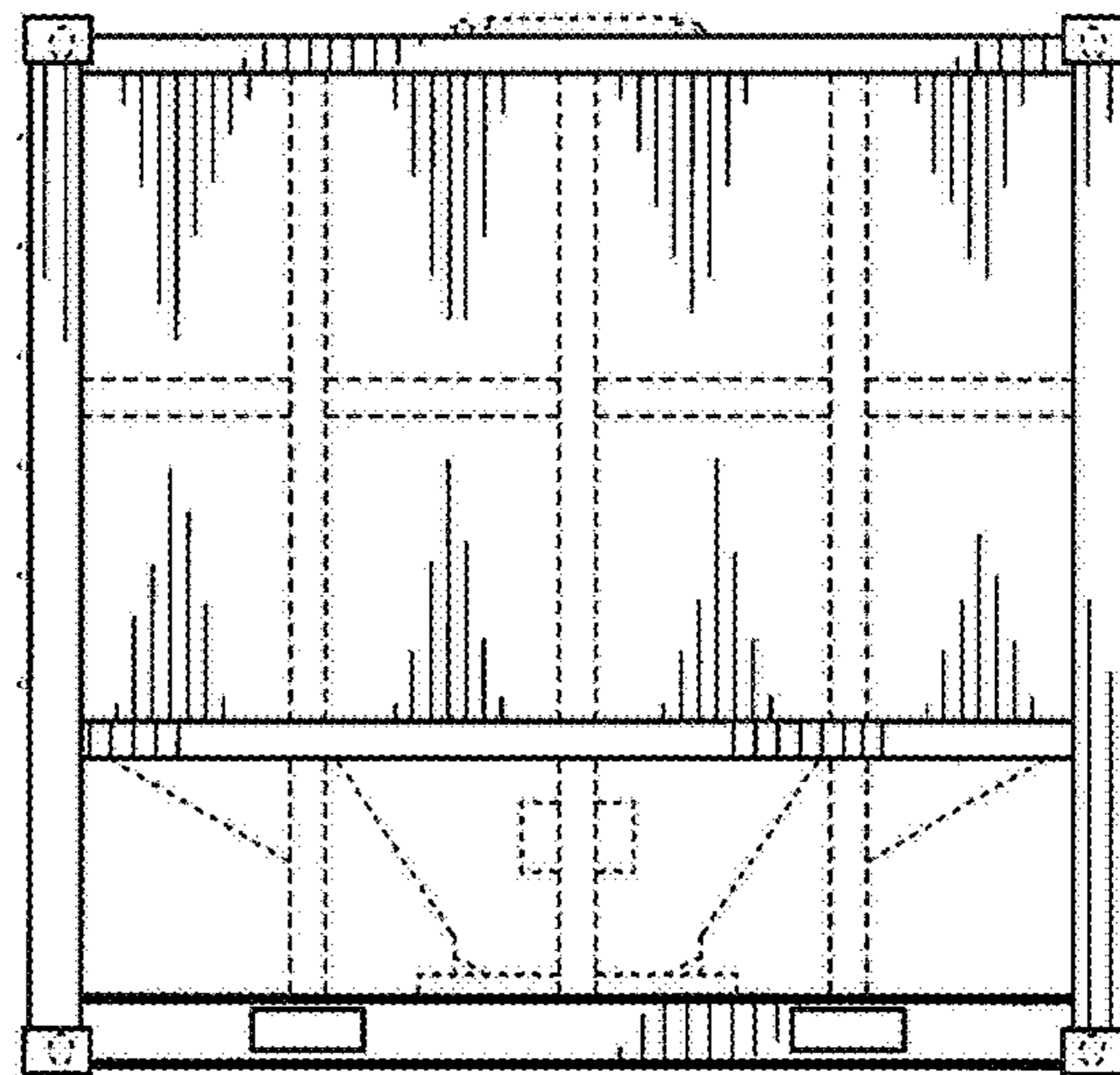


FIG. 10  
NEW

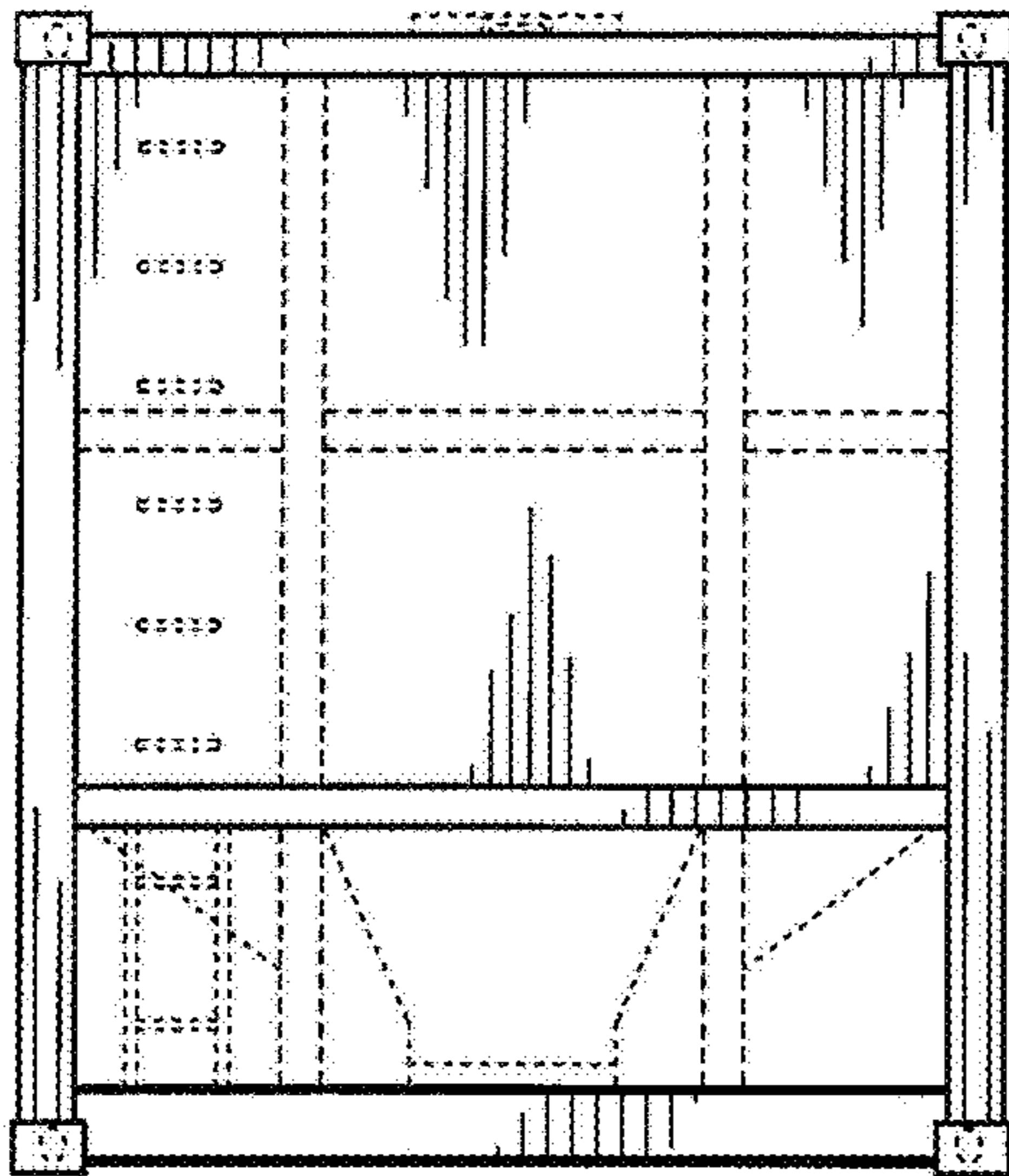


FIG. 11  
NEW

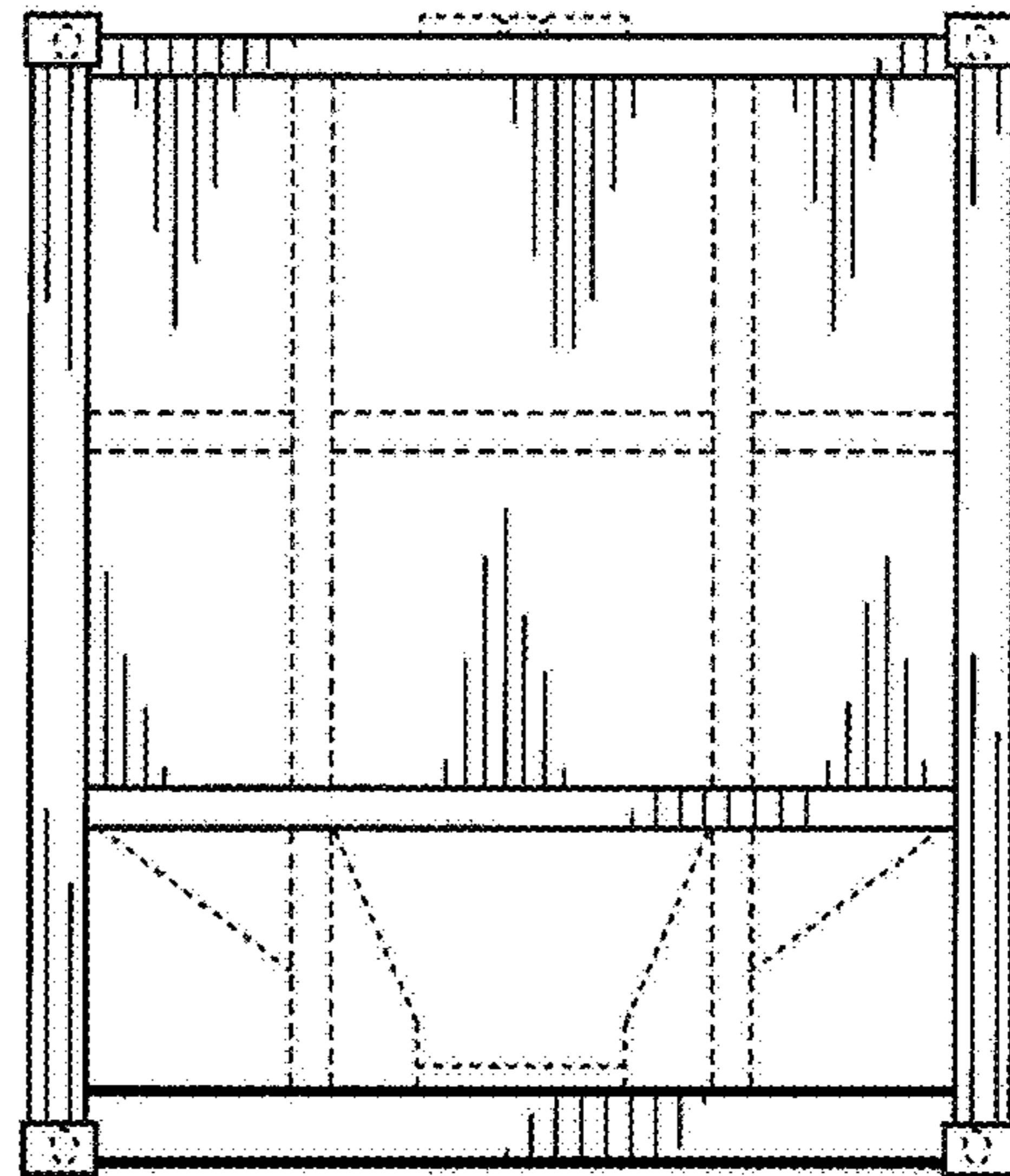


FIG. 12  
NEW

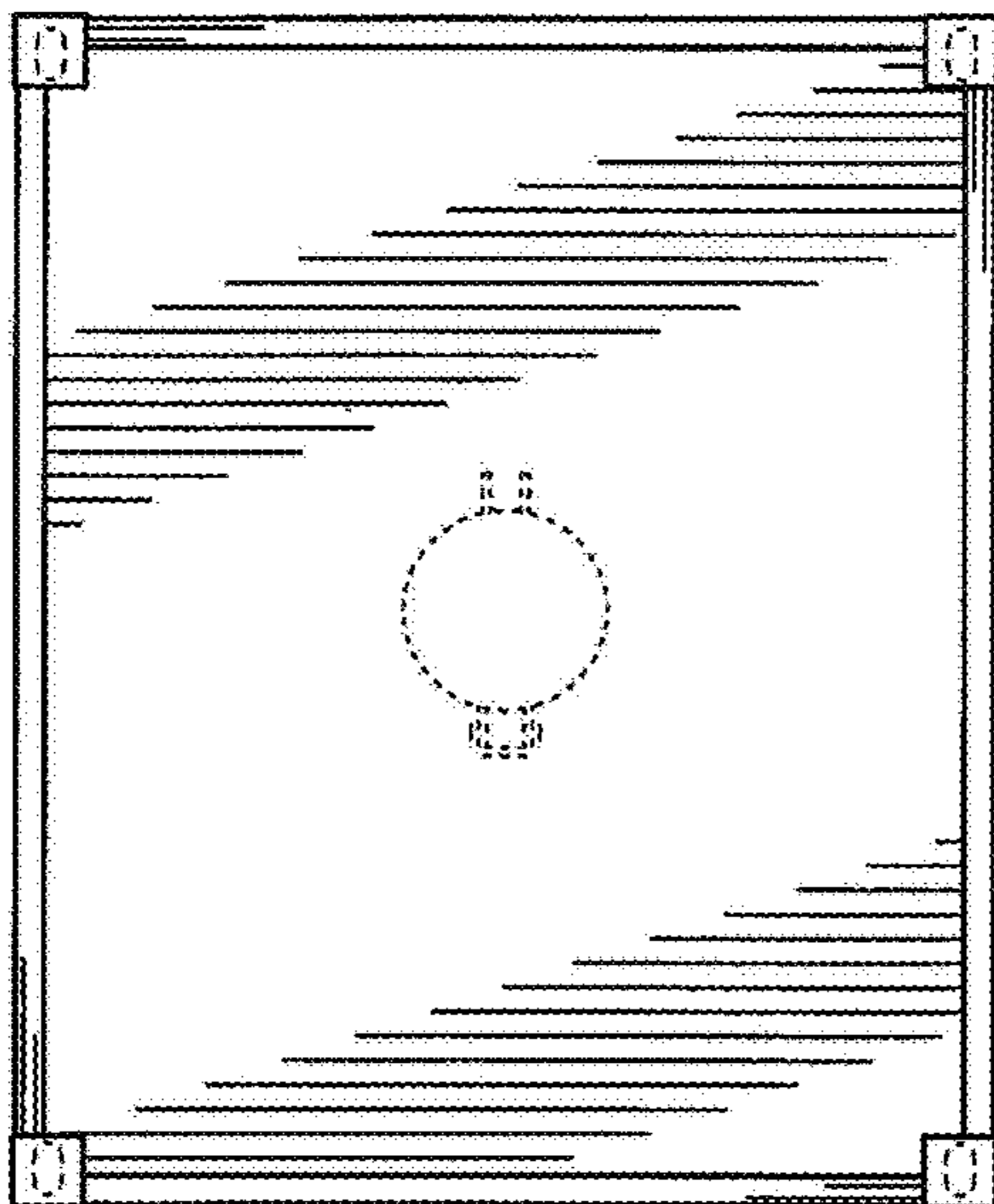


FIG. 13  
NEW

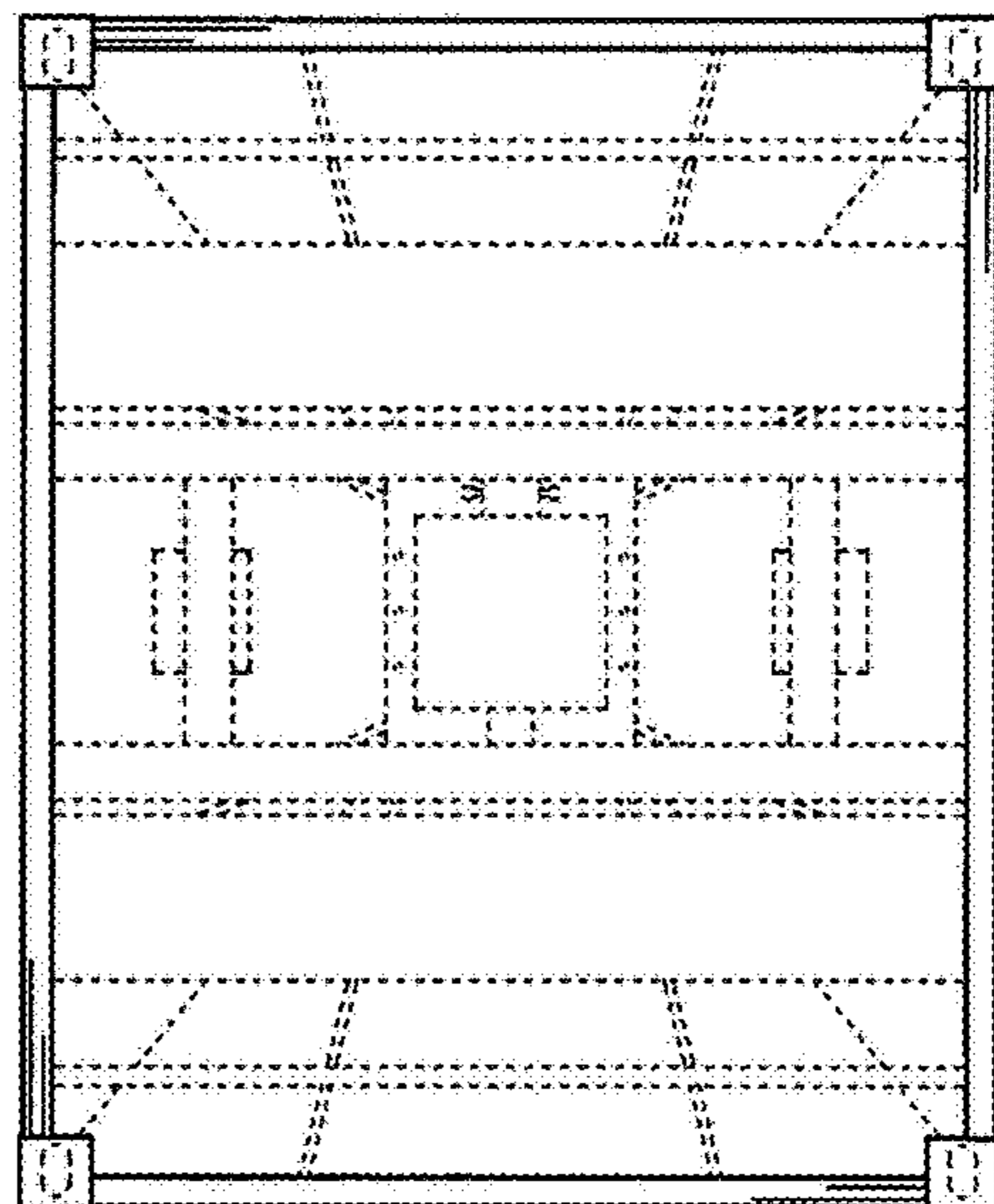


FIG. 14  
NEW