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(12) **United States Design Patent**  
**Rodriguez et al.**

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(54) **STEPPED SPIRAL CHUTE ASSEMBLY  
HAVING FRICTION REDUCTION PANELS**

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

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**Related U.S. Application Data**

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Feb. 13, 2015, now Pat. No. 9,415,936.

(51) **LOC (11) Cl.** ..... **12-05**

(52) **U.S. Cl.**  
USPC ..... **D34/28**

(58) **Field of Classification Search**  
USPC ..... D34/28, 35; 193/12; 198/367, 778, 756,  
198/346; 209/651, 697  
CPC ... B65G 11/063; B65G 11/066; B65G 11/163;  
B65G 11/203; B65G 65/365  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

964,444 A \* 7/1910 Mowery ..... B07B 13/11  
193/12  
1,013,292 A \* 1/1912 Goehr ..... 193/12  
1,480,105 A \* 1/1924 Pardee ..... B65G 11/066  
193/12

1,712,714 A \* 5/1929 Pardee ..... B65G 11/066  
193/12  
2,437,259 A 3/1943 Kautz  
3,513,956 A 5/1970 Rayment  
3,565,226 A 2/1971 Winchester  
4,222,482 A 9/1980 Kelley  
4,418,813 A 12/1983 Leinenger  
4,726,456 A \* 2/1988 Hogsett ..... B65G 11/063  
193/12  
D296,489 S \* 6/1988 Nair ..... D34/28  
5,083,651 A \* 1/1992 Wiese ..... B65G 11/066  
193/12  
5,598,914 A \* 2/1997 Sulzer ..... B65G 11/203  
193/12  
6,371,275 B1 \* 4/2002 Terrell ..... B65G 11/063  
193/12  
7,641,034 B2 1/2010 Boustani  
(Continued)

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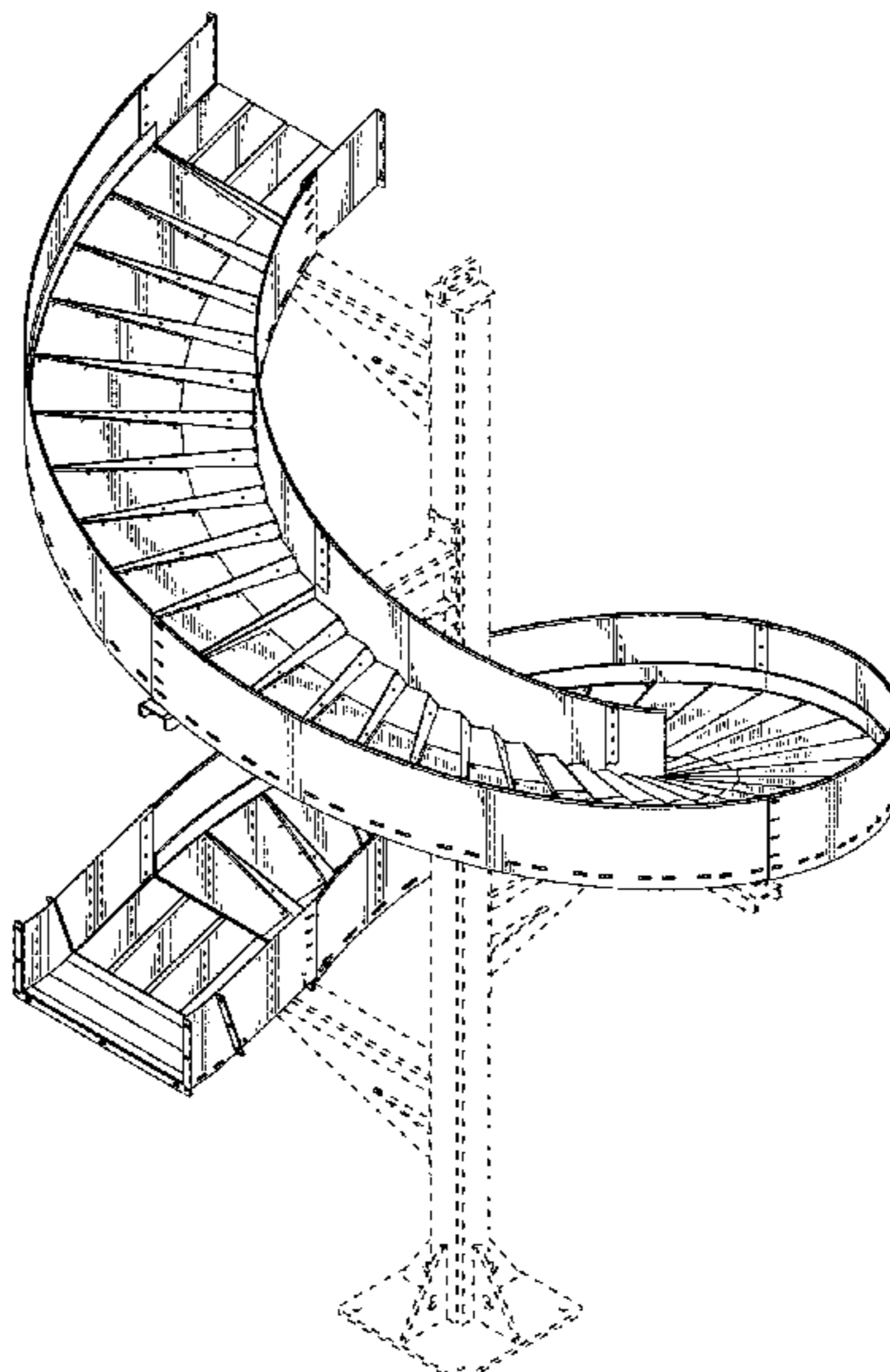
(57) **CLAIM**

We claim the ornamental design for the stepped spiral chute  
assembly having friction reduction panels, as shown.

**DESCRIPTION**

FIG. 1 is a top perspective view of a stepped spiral chute  
assembly having friction reduction panels showing our new  
design;  
FIG. 2 is a front side view thereof;  
FIG. 3 is a right side view thereof;  
FIG. 4 is a back view thereof;  
FIG. 5 is a left side view thereof;  
FIG. 6 is top view thereof; and,  
FIG. 7 is a bottom view thereof.  
The broken lines shown in the figures are for the purpose of  
illustrating portions of the stepped spiral chute assembly  
having friction reduction panels and form no part of the  
claimed design.

**1 Claim, 7 Drawing Sheets**



(56)

**References Cited**

U.S. PATENT DOCUMENTS

8,733,529 B2 \* 5/2014 Heddles ..... B65G 11/063  
193/12  
9,415,936 B1 \* 8/2016 Rodriguez ..... B65G 11/163

\* cited by examiner

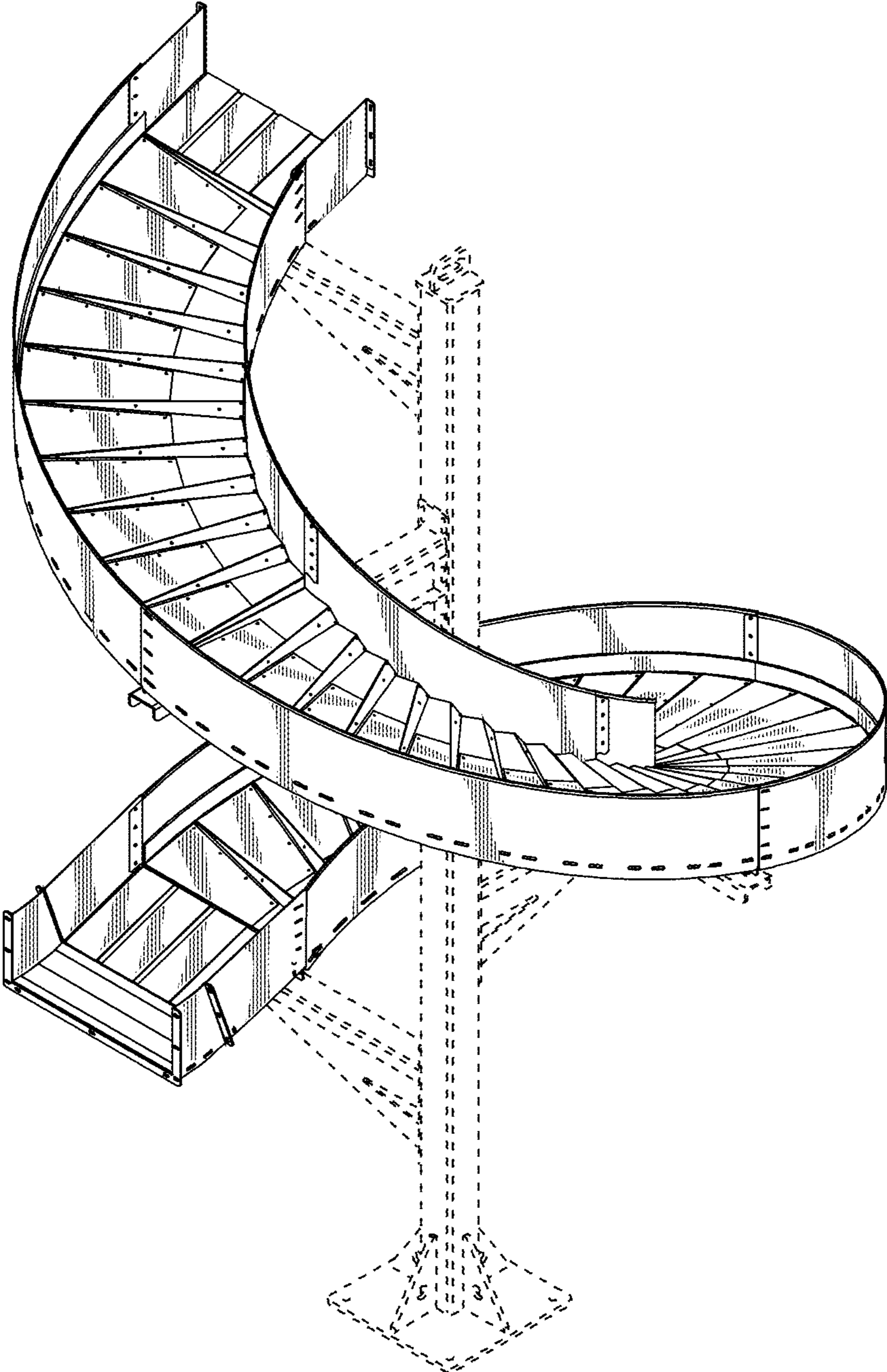


FIG. 1

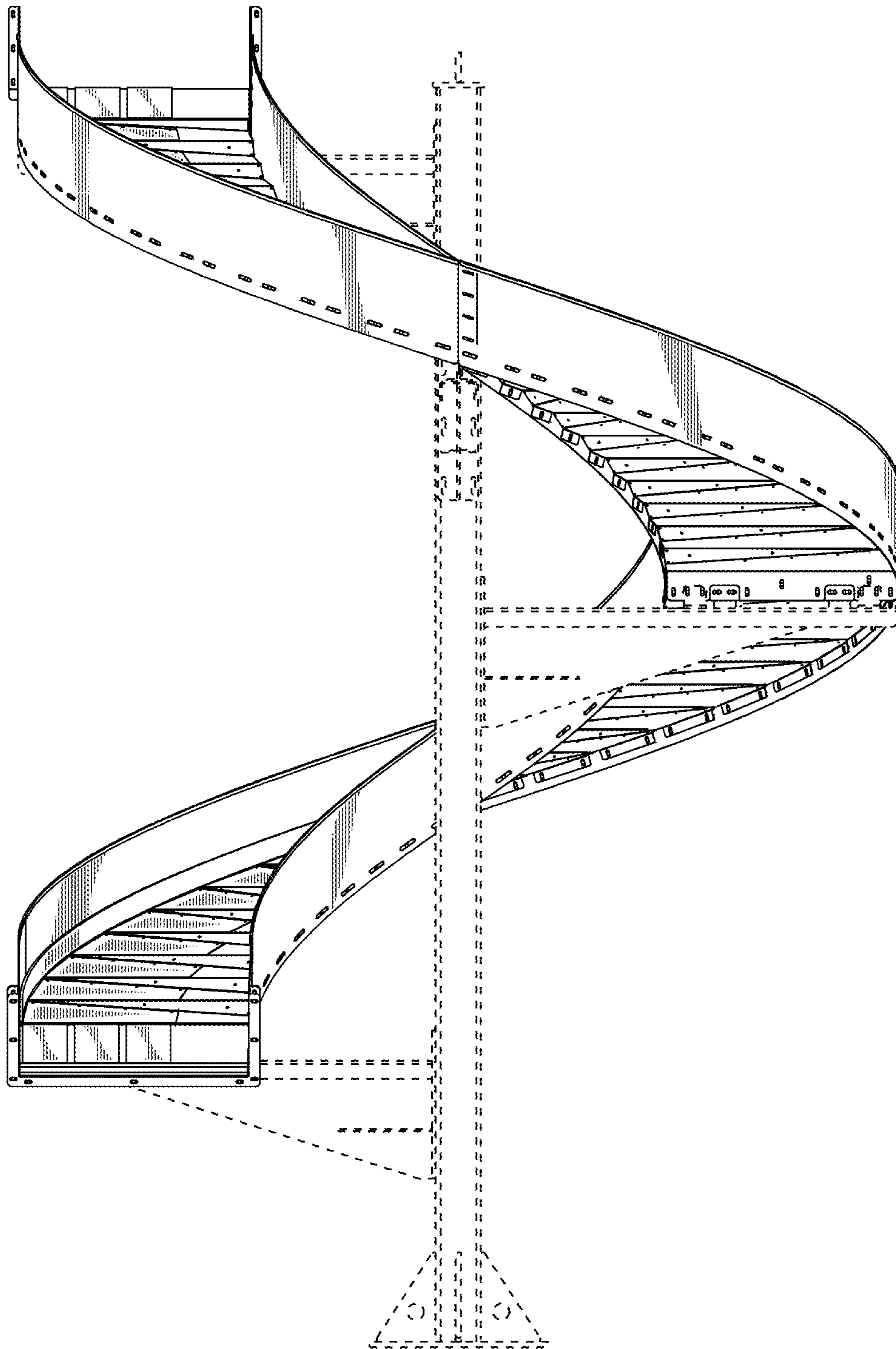


FIG. 2

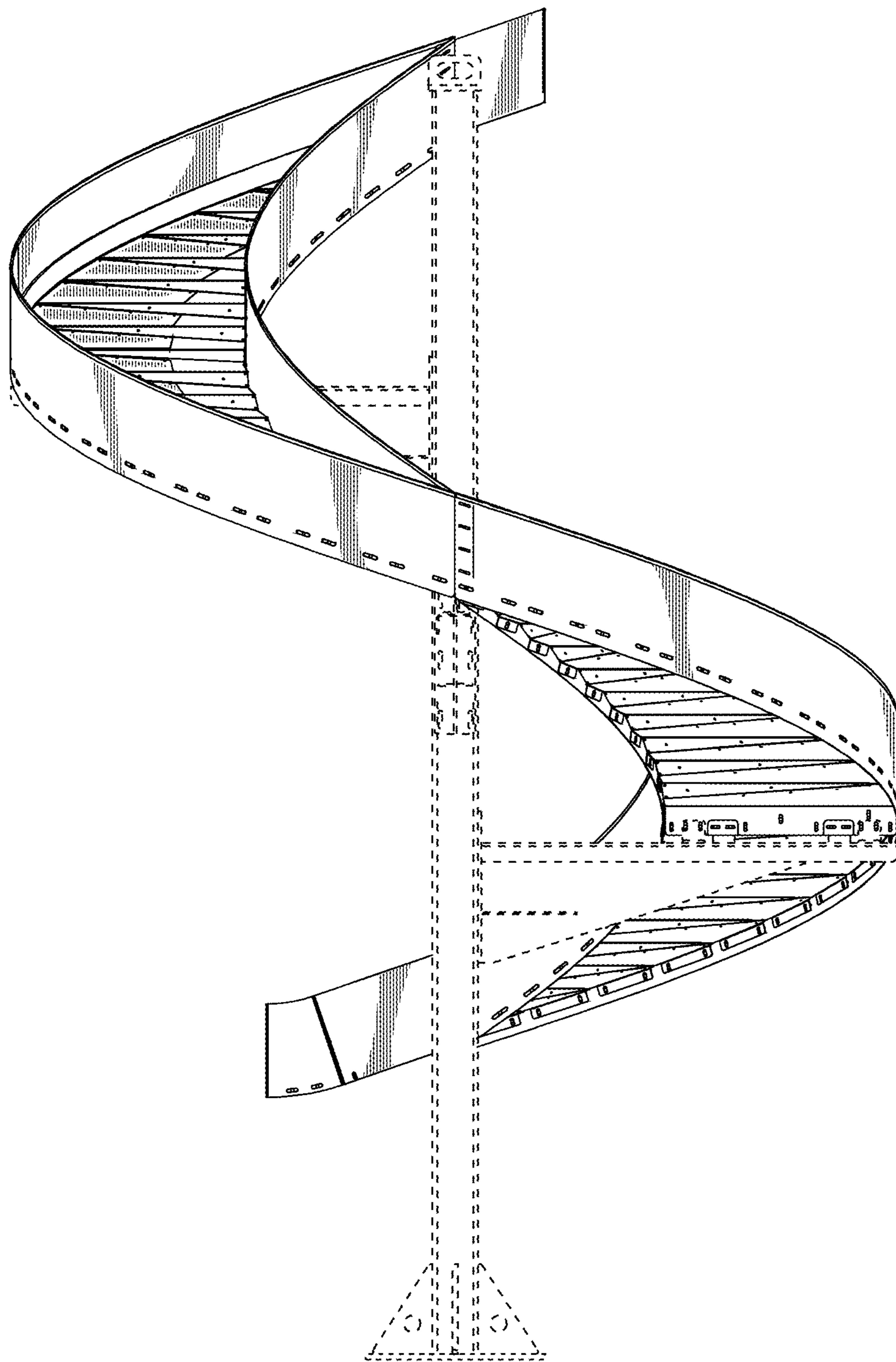


FIG. 3

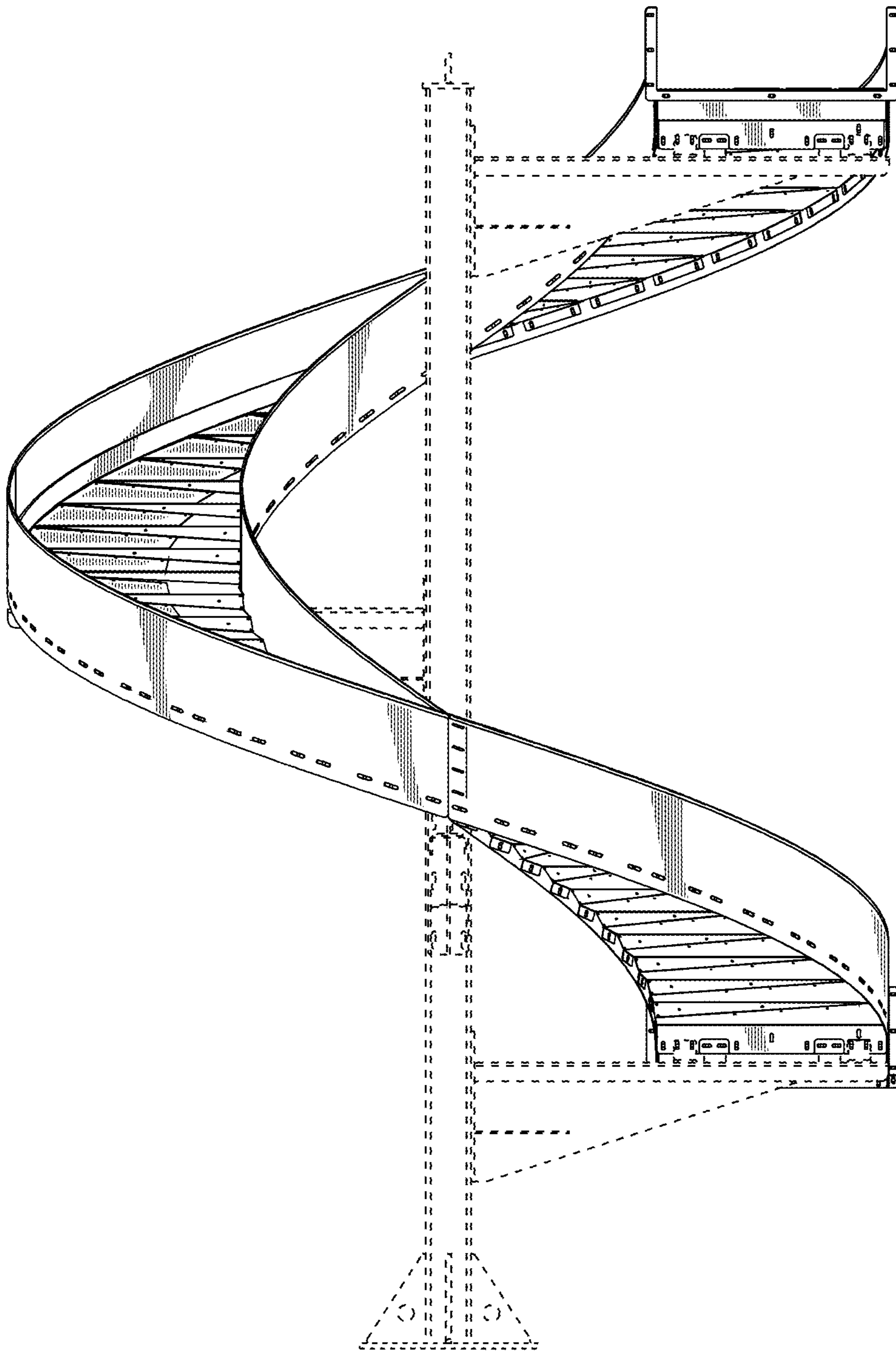


FIG. 4

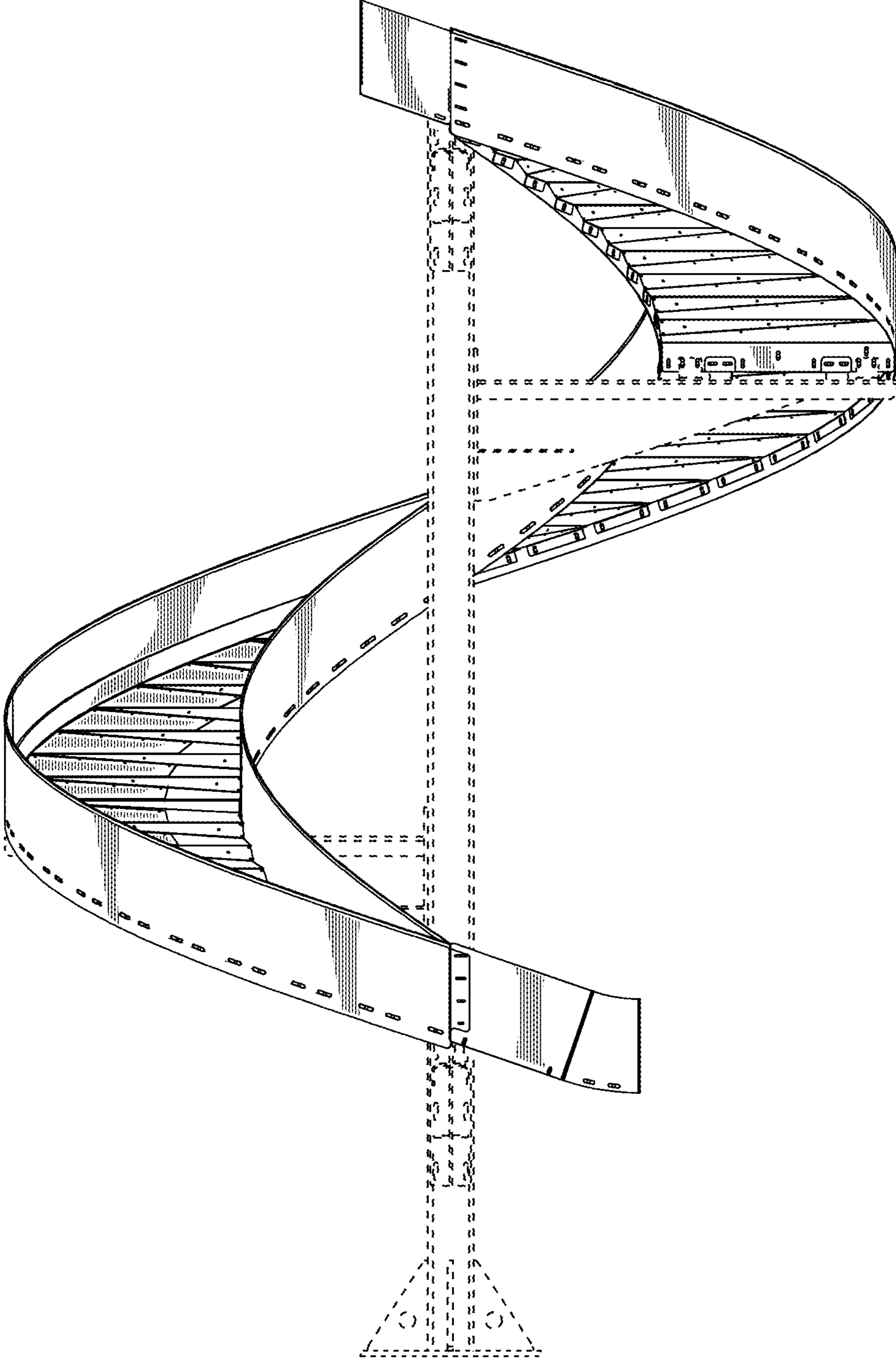


FIG. 5

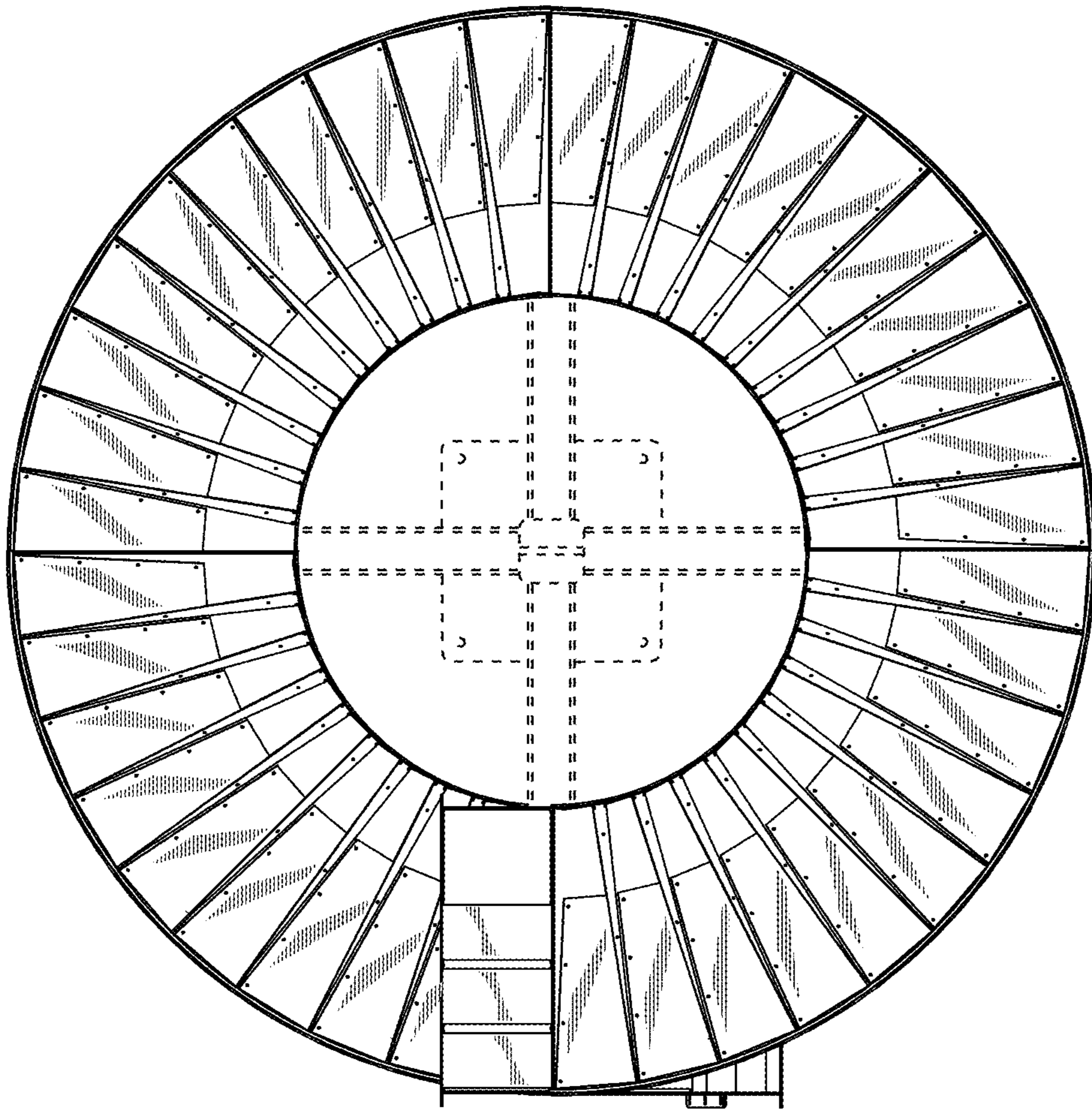


FIG. 6



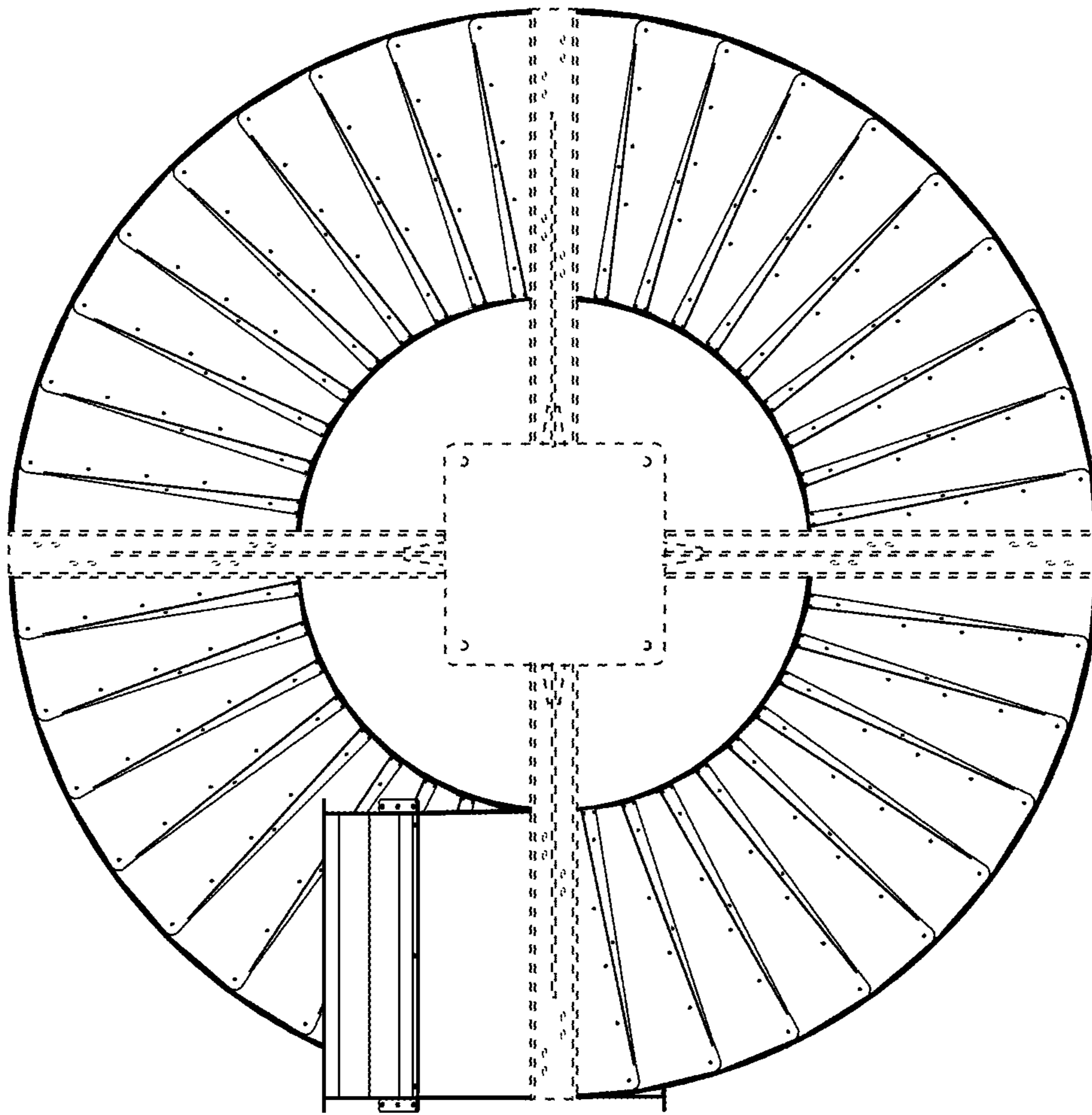


FIG. 7