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

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(54) **VIBRATION ELEMENT FOR A HAPTIC ACTUATOR**

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

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(30) **Foreign Application Priority Data**

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(51) **LOC (11) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/174; D13/199**

(58) **Field of Classification Search**
USPC D10/75, 85; D15/147; D13/21, 121,
D13/122, 171-175, 199
CPC H03H 9/0595; H03H 9/131; H03H 9/178;
H03H 9/205
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D250,185 S *	11/1978	Kubrin	.....	D13/121
D250,186 S *	11/1978	Pohto	.....	D13/121
5,917,398 A *	6/1999	Kunz	.....	H01H 11/04 324/419
D814,432 S *	4/2018	Yeng	.....	D13/182
2018/0062616 A1 *	3/2018	Kijima	.....	H03H 9/0595
2018/0120938 A1 *	5/2018	Frescas	.....	G06F 3/016

OTHER PUBLICATIONS

PiezoHapt Actuators, posted on product.tdk.com, no posted date given, no production date given, [online], [site visited Jun. 20, 2018], Available from Internet, URL: https://product.tdk.com/info/en/products/sw_piezo/haptic/piezohapt/index.html (Year: 2018).*

(Continued)

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(57) **CLAIM**

The ornamental design for a vibration element for a haptic actuator, as shown and described.

DESCRIPTION

FIG. 1 is a front view of a vibration element for a haptic actuator of the present invention.

FIG. 2 is a rear view thereof.

FIG. 3 is a top plan view thereof.

FIG. 4 is a bottom view thereof.

FIG. 5 is a right side view thereof.

FIG. 6 is a left side view thereof.

FIG. 7 is a perspective view thereof.

FIG. 8 is an enlarged sectional view of the vibration element for a haptic actuator taken along section line 8-8 of FIG. 1.

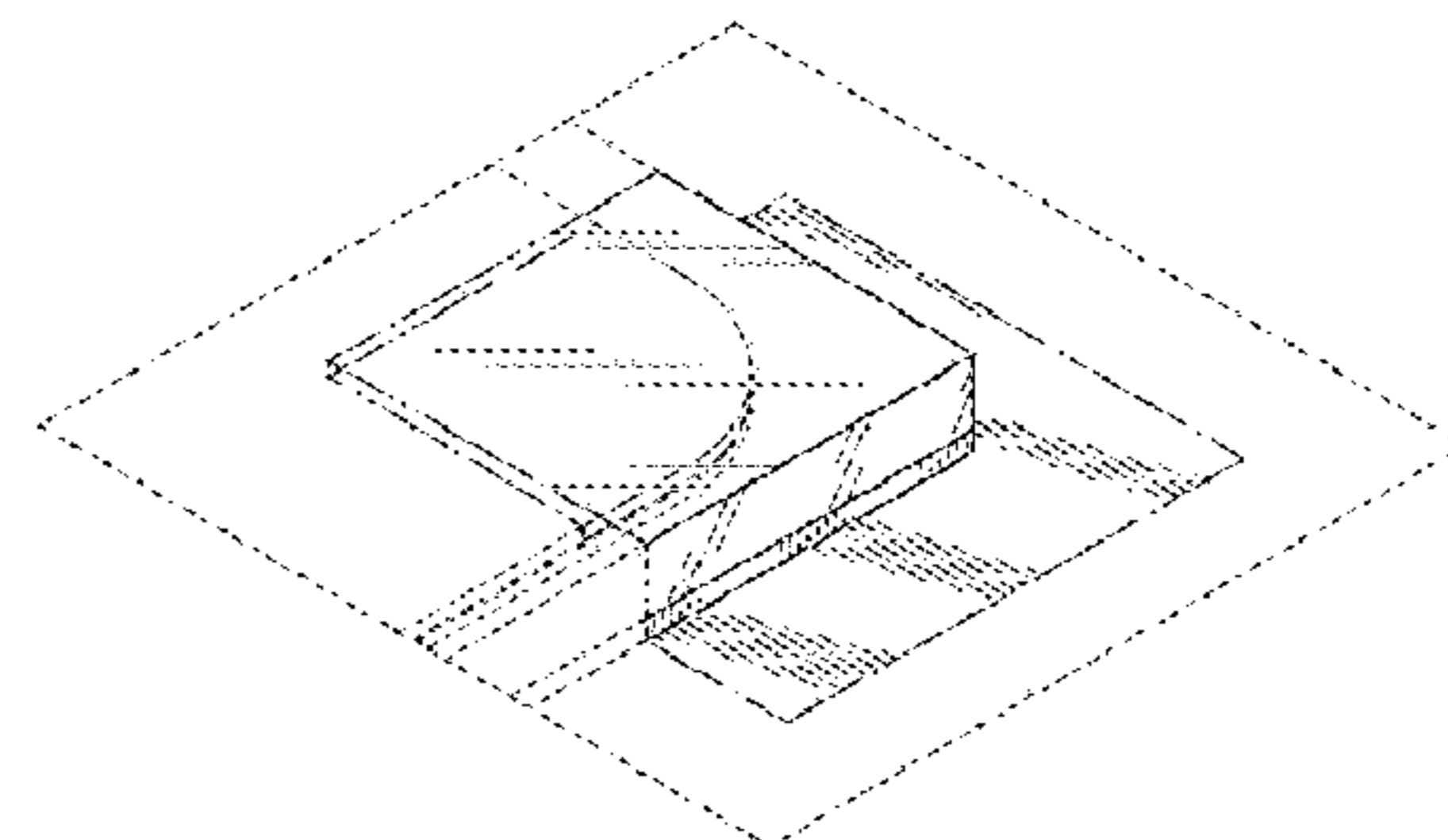
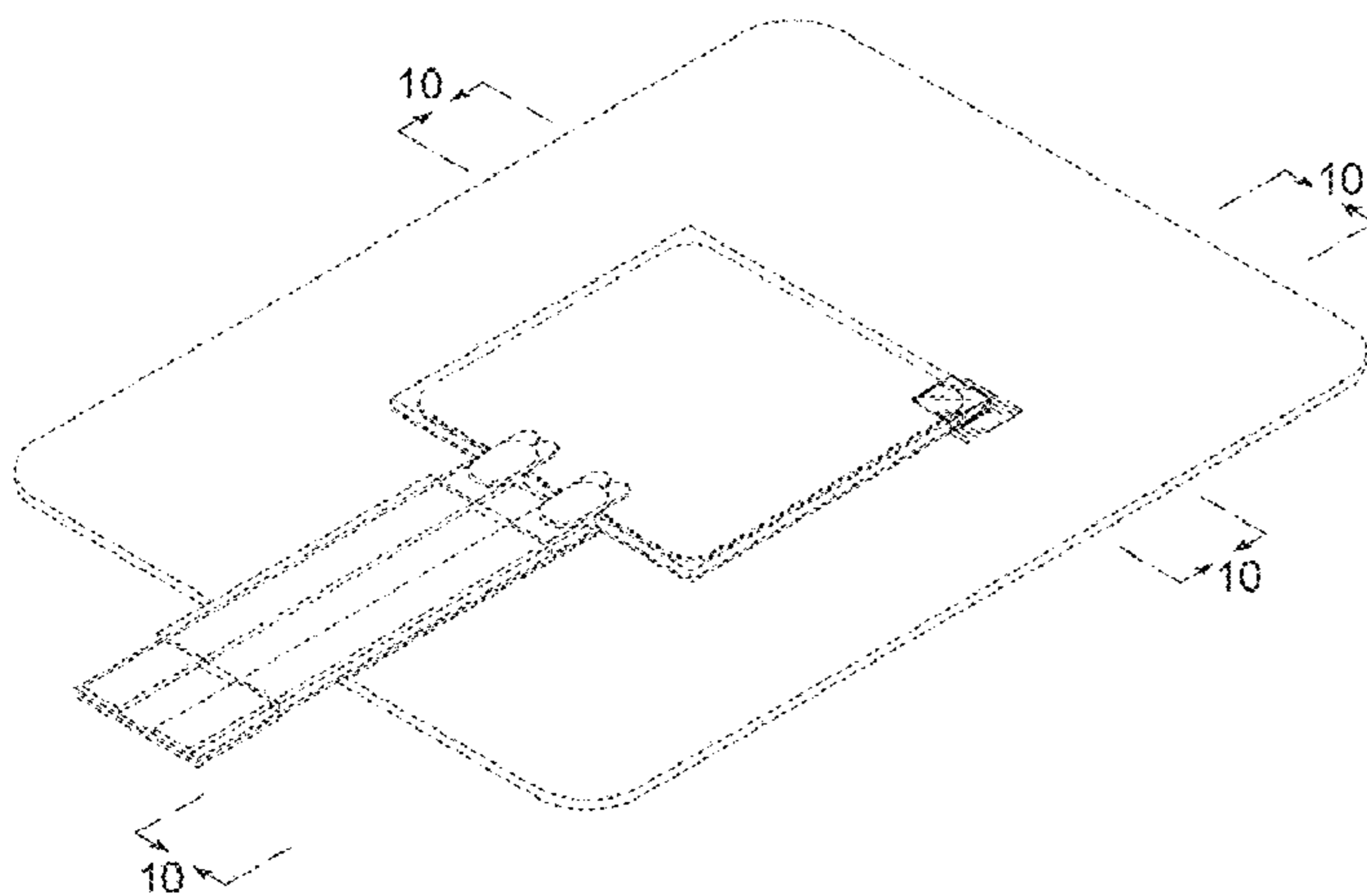
FIG. 9 is an enlarged view of the portion indicated by arrows 9-9 of the vibration element for a haptic actuator of FIG. 4; and,

FIG. 10 is an enlarged view of the portion indicated by arrows 10-10 of the vibration element for a haptic actuator of FIG. 7.

The alternating long and short dashed lines indicate bounds of the claimed design and form no part thereof.

The features shown in broken lines depict environmental subject matter only and form no part of the claimed design.

1 Claim, 10 Drawing Sheets



(56)

References Cited

OTHER PUBLICATIONS

Piezoelectric Haptic Actuator, osted on materia.nl, posted May 28, 2014, no production date given, [online], [site visited Jun. 20, 2018], Available from Internet, URL: <https://materia.nl/material/hek-200-haptic-evaluation-kit/> (Year: 2014).*

* cited by examiner

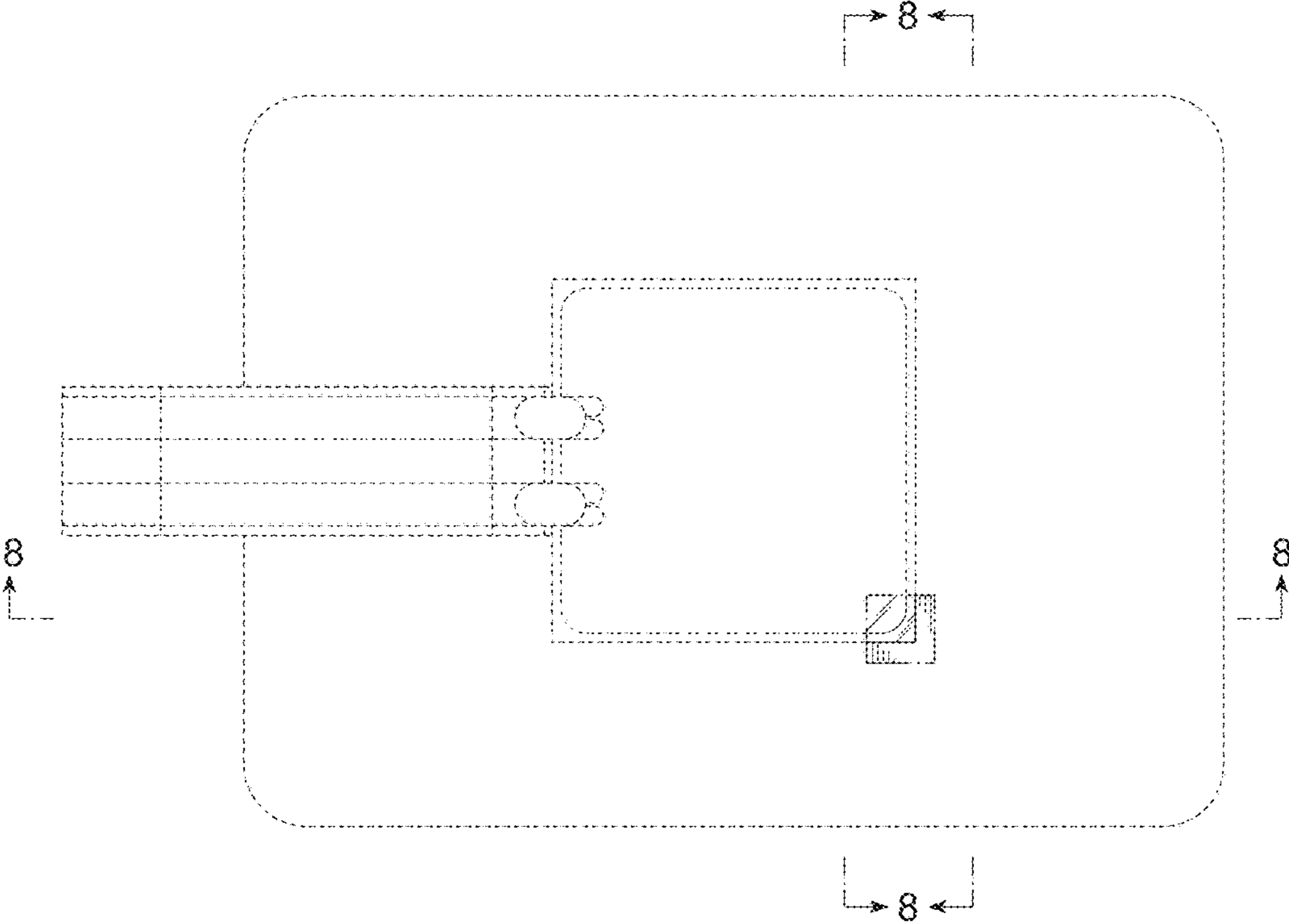


FIG. 1



FIG. 2

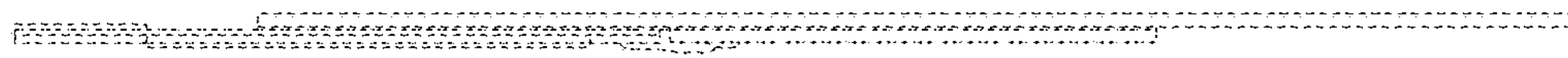


FIG. 3

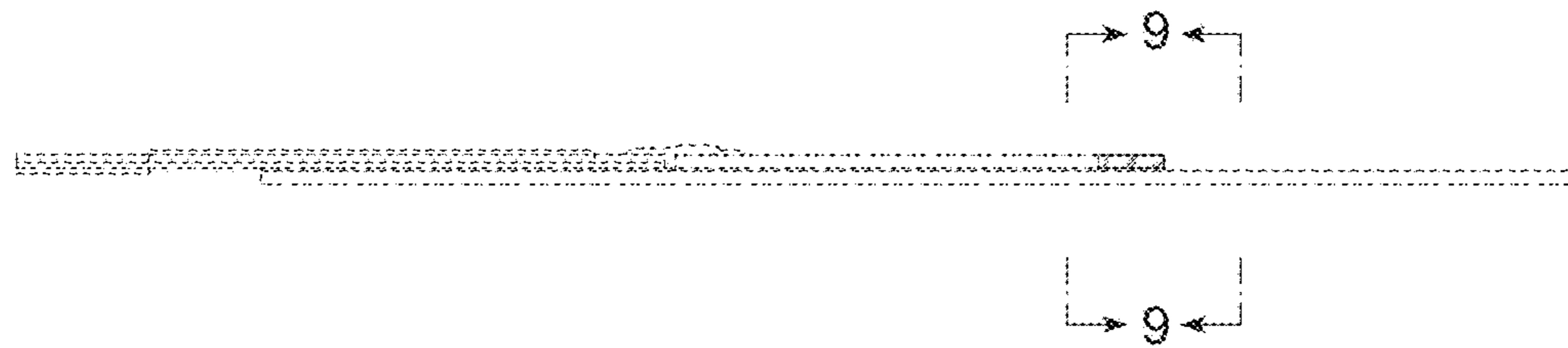


FIG. 4

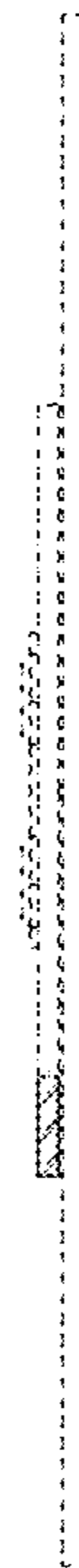


FIG. 5

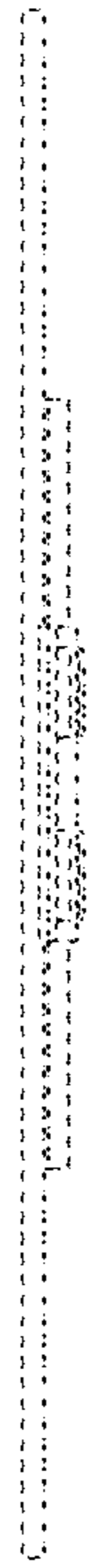


FIG. 6

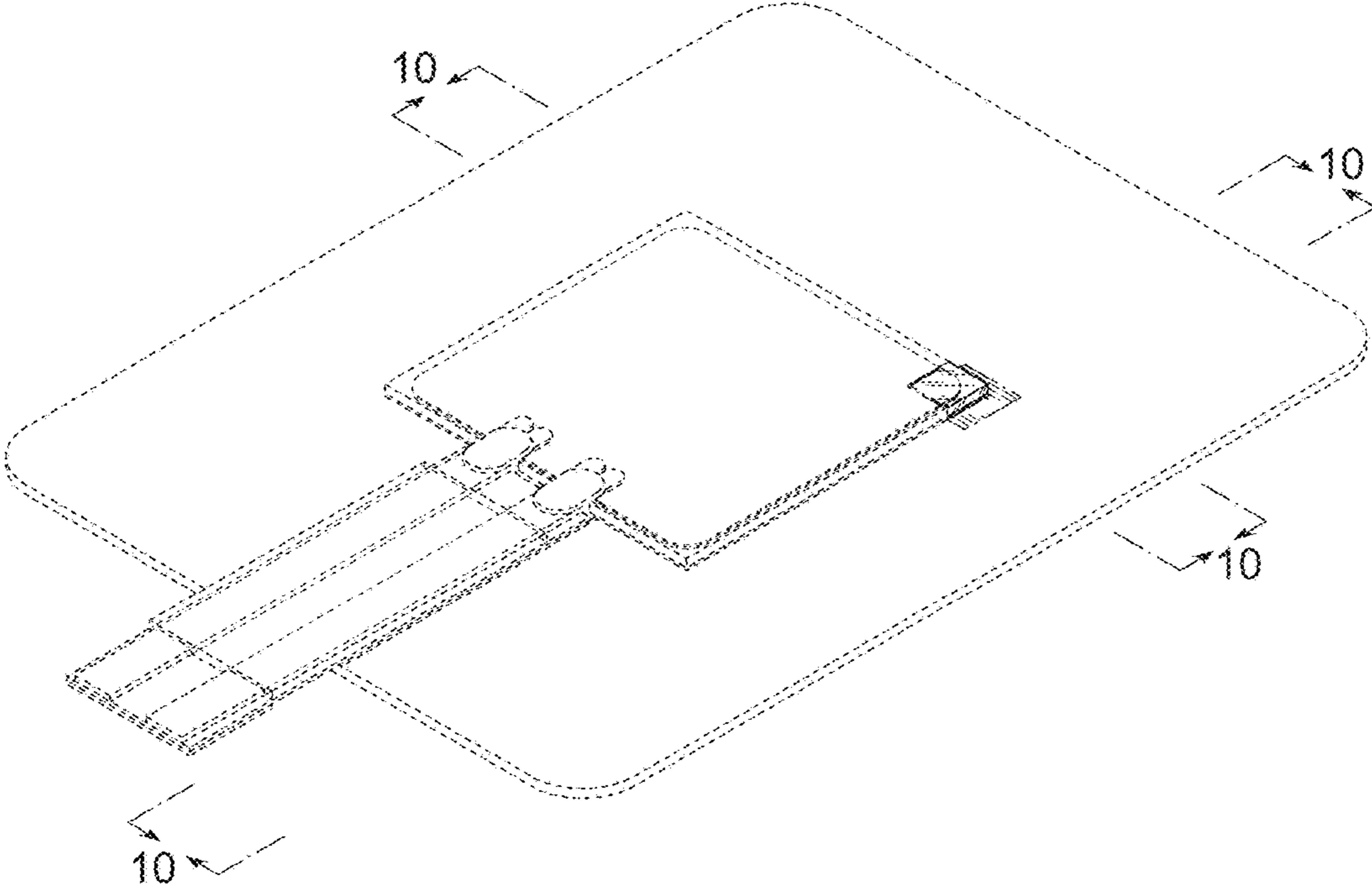


FIG. 7

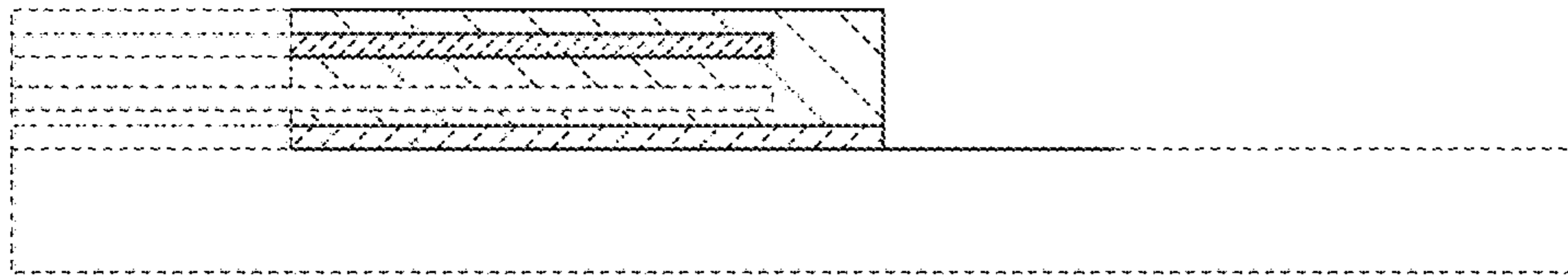


FIG. 8

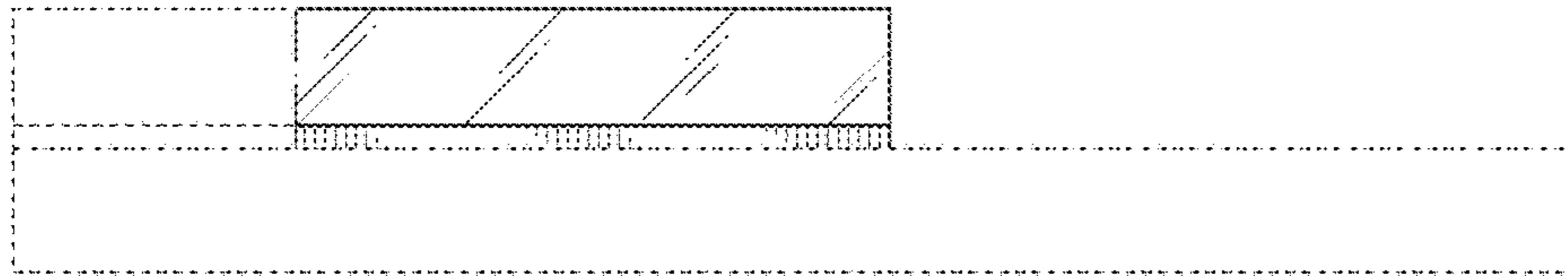


FIG. 9

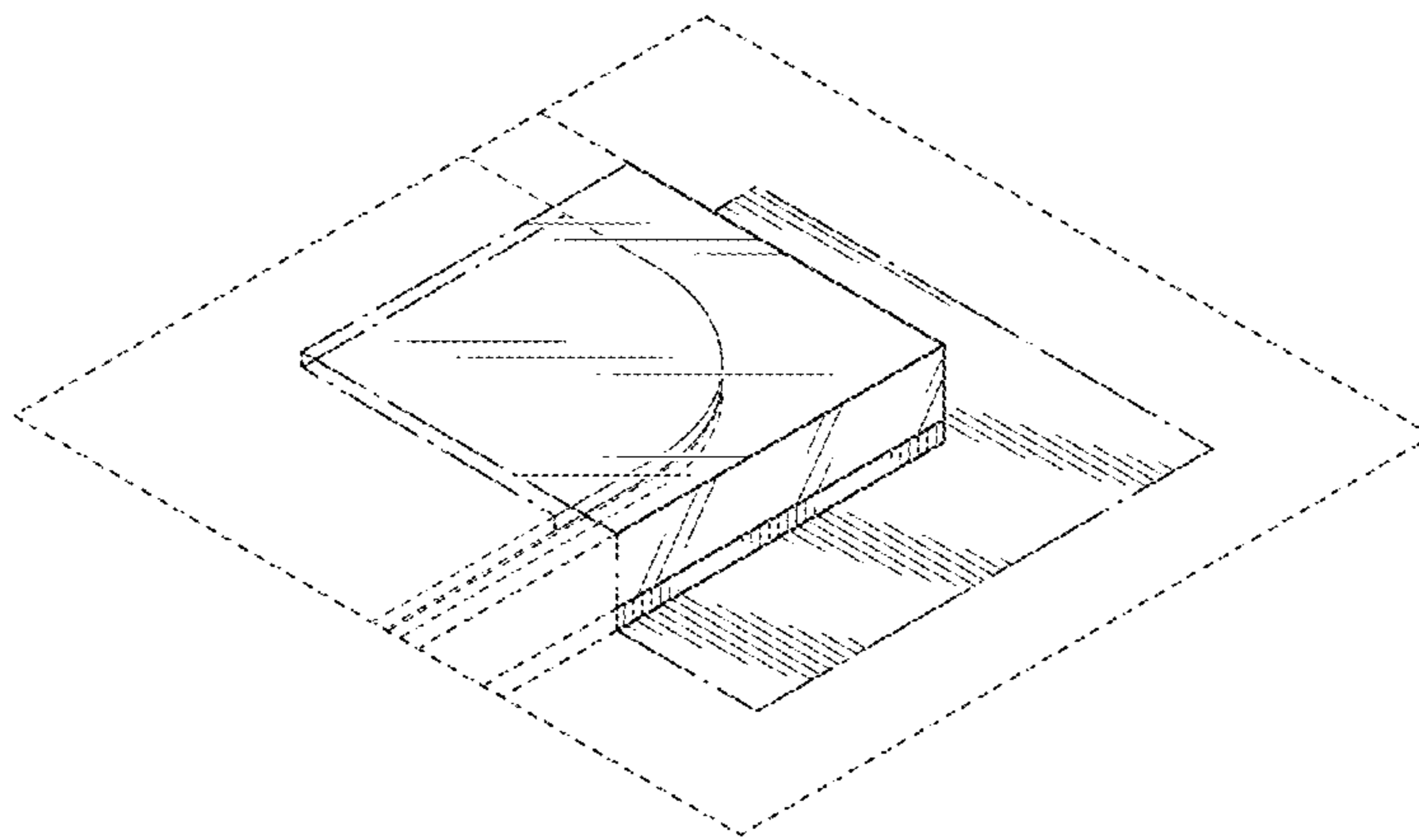


FIG. 10