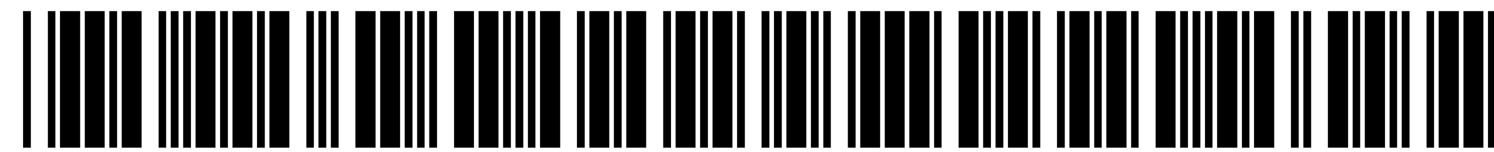
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(12) **United States Design Patent** (10) **Patent No.: US D917,585 S**
Okuma et al. (45) **Date of Patent: ** Apr. 27, 2021**

(54) **WAFER PROCESSING MACHINE FOR PRODUCING SEMICONDUCTORS**

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(73) Assignee: **HAMAMATSU PHOTONICS K.K.**, Hamamatsu (JP)

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

(21) Appl. No.: **29/689,281**

(22) Filed: **Apr. 29, 2019**

(30) **Foreign Application Priority Data**

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Oct. 31, 2018 (JP) 2018-023978
Oct. 31, 2018 (JP) 2018-023979

(51) **LOC (13) Cl.** **15-09**

(52) **U.S. Cl.**
USPC **D15/122**

(58) **Field of Classification Search**
USPC D15/122; D24/108, 164, 169, 170, 233; D16/230–234; D26/27; D10/81
CPC B23K 26/00; B23K 26/0006; B23K 26/0096; B23K 26/08; B23K 26/36; B23K 26/32; B23K 26/40; F23G 2204/202; B01D 2259/808; B65C 2009/0043; B65C 2009/1846; B65H 2301/51536; B27K 5/005; B29C 2035/0838; H01L 21/00; H01L 21/67; H01L 2221/00; H01L 2221/67; H01L 22/10; H01L 23/32; H01L 23/544; H01S 3/00; H01S 3/0007; H01S 3/0014; H01S 3/025; H01S 3/101; H01S 5/00; H01S 5/02; H01S 5/04; H01S 5/10; H05K 3/0026
See application file for complete search history.

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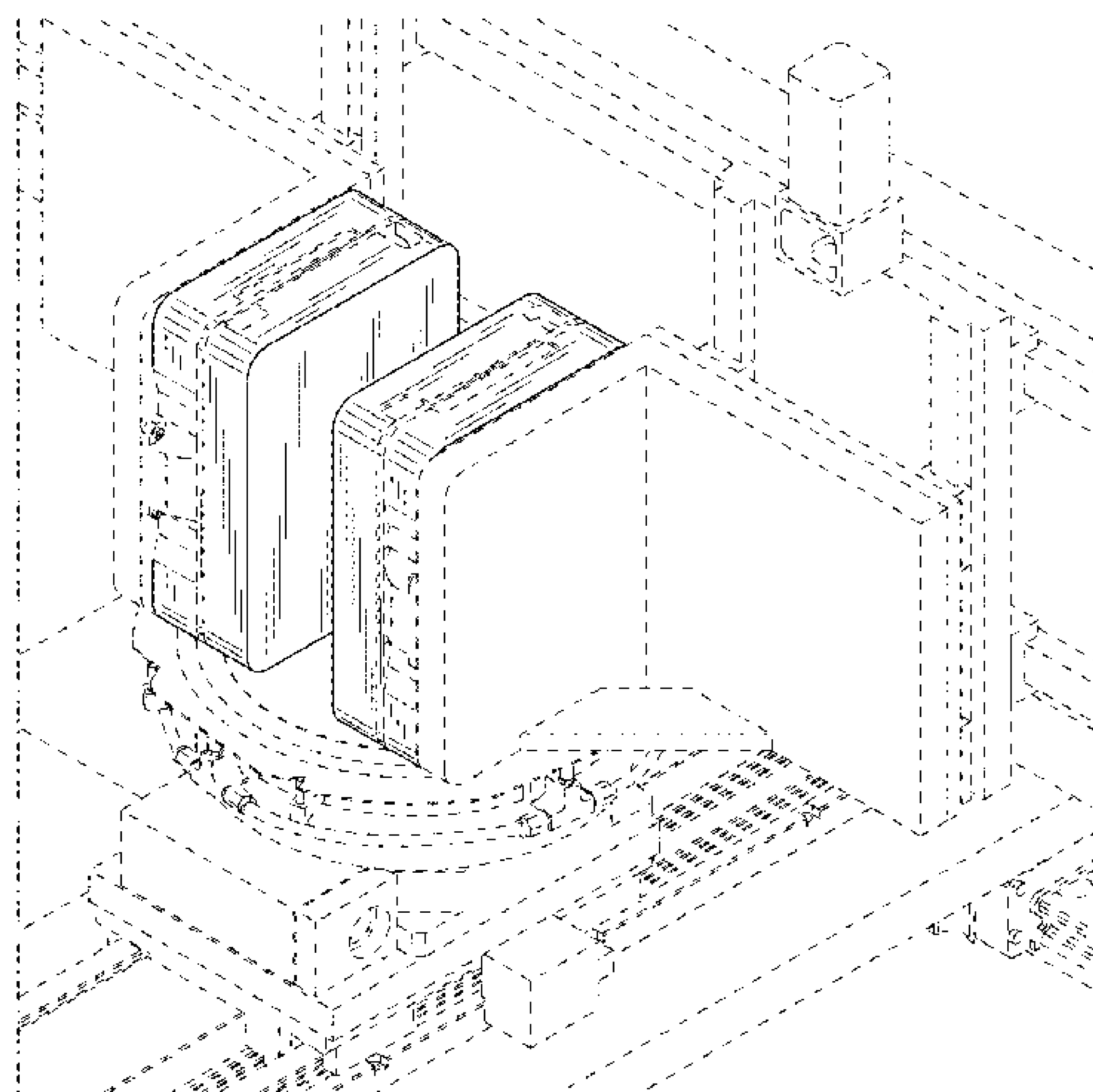

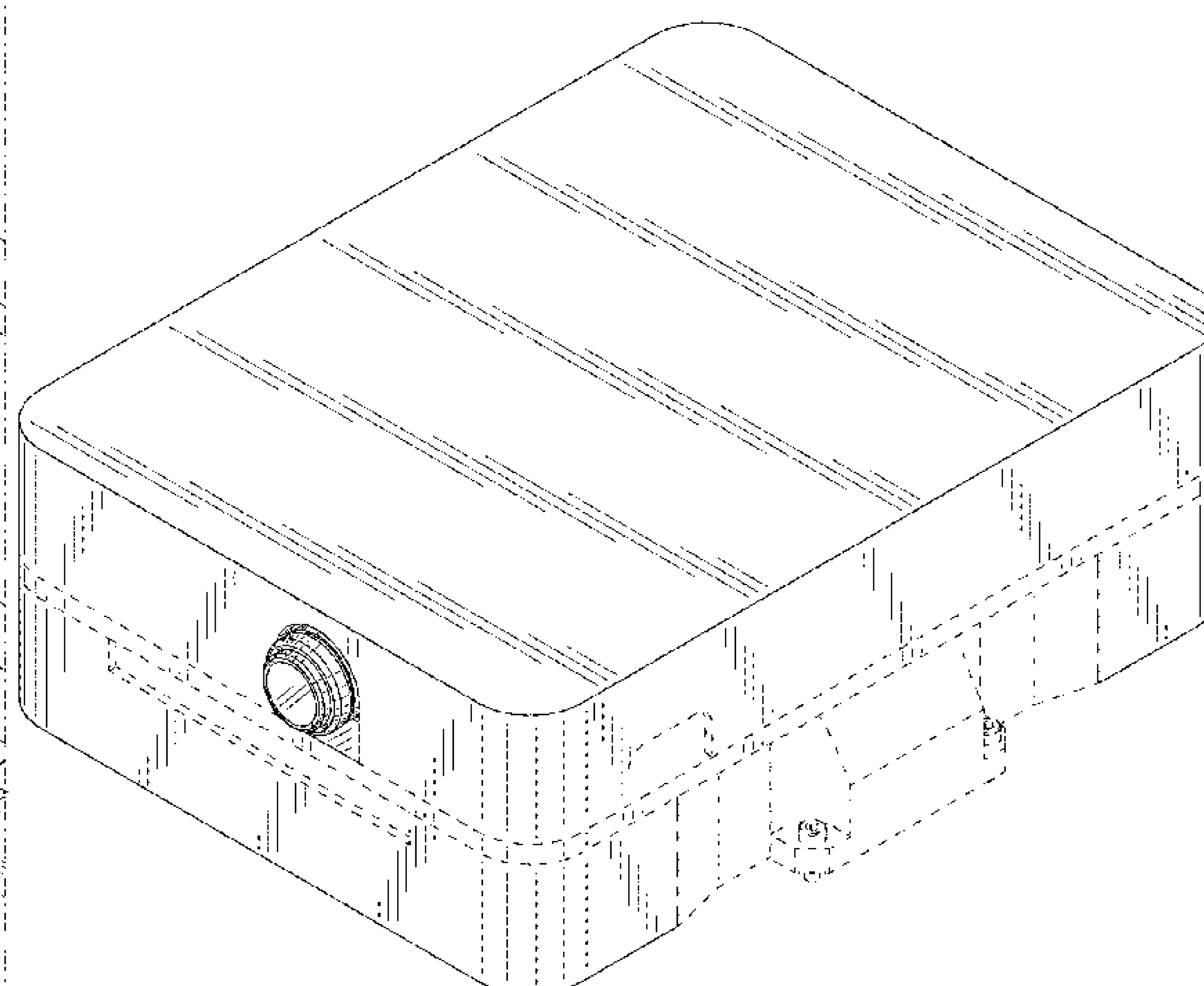

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Primary Examiner — Sheryl Lane
Assistant Examiner — Mark T. Philipps
(74) *Attorney, Agent, or Firm* — Faegre Drinker Biddle & Reath LLP

(57) **CLAIM**

The ornamental design for a wafer processing machine for producing semiconductors, as shown and described.

DESCRIPTION

FIG. **1** is a front view of the first embodiment of a wafer processing machine for producing semiconductors of the present invention;
FIG. **2** is a rear view thereof;
FIG. **3** is a top plan view thereof;
FIG. **4** is a bottom plan view thereof;
FIG. **5** is a right side view thereof;
FIG. **6** is a left side view thereof;
FIG. **7** is a Front View of Opening/Closing Part in Open State thereof;
FIG. **8** is an enlarged view thereof defined by the lines **8-8** and **8'-8'** in FIG. **7**;
FIG. **9** is an enlarged sectional view thereof taken along the line **9-9** in FIG. **5** of the portion defined by the line **9'-9'** in FIG. **7**;
FIG. **10** is an enlarged sectional view thereof taken along the line **10-10** in FIG. **7** of the portion defined by the line **10'-10'** and **10"-10"** in FIG. **3**;
FIG. **11** is an enlarged sectional view thereof taken along the line **11-11** in FIG. **7** of the portion defined by the line **11'-11'** and **11"-11"** in FIG. **3**;
FIG. **12** is an enlarged perspective view showing the claimed part and surroundings;
FIG. **13** is an enlarged perspective view 1 of the left-side processing part in FIG. **7**, which is shown symmetrical to the enlarged perspective view of the right-side processing part in FIG. **7**;
FIG. **14** is an enlarged perspective view 2 of the left-side processing part in FIG. **7**, which is shown symmetrical to the enlarged perspective view of the right-side processing part in FIG. **7**;
FIG. **15** is an enlarged sectional view thereof taken along the line **15-15** in FIG. **11** of the portion defined by the line **15'-15'** in FIG. **11**;
FIG. **16** is a front view of the second embodiment of a wafer processing machine for producing semiconductors of the present invention;
FIG. **17** is a rear view thereof;
FIG. **18** is a top plan view thereof;
FIG. **19** is a bottom plan view thereof;
FIG. **20** is a right side view thereof;
FIG. **21** is a left side view thereof;
FIG. **22** is a Front View of Opening/Closing Part in Open State thereof;
FIG. **23** is an enlarged view thereof defined by the lines **23-23** and **23'-23'** in FIG. **22**;
FIG. **24** is an enlarged sectional view thereof taken along the line **24-24** in FIG. **20** of the portion defined by the line **24'-24'** in FIG. **22**;
FIG. **25** is an enlarged sectional view thereof taken along the line **25-25** in FIG. **22** of the portion defined by the line **25'-25'** and **25"-25"** in FIG. **18**;
FIG. **26** is an enlarged sectional view thereof taken along the line **26-26** in FIG. **22** of the portion defined by the line **26'-26'** and **26"-26"** in FIG. **18**;
FIG. **27** is an enlarged perspective view showing the claimed part and surroundings;
FIG. **28** is an enlarged perspective view 1 of the left-side processing part in FIG. **22**, which is shown symmetrical to the enlarged perspective view of the right-side processing part in FIG. **22**;
FIG. **29** is an enlarged perspective view 2 of the left-side processing part in FIG. **22**, which is shown symmetrical to the enlarged perspective view of the right-side processing part in FIG. **22**;
FIG. **30** is an enlarged sectional view thereof taken along the line **30-30** in FIG. **26** of the portion defined by the line **30'-30'** in FIG. **26**;
FIG. **31** is a front view of the third embodiment of a wafer processing machine for producing semiconductors of the present invention;
FIG. **32** is a rear view thereof;
FIG. **33** is a top plan view thereof;
FIG. **34** is a bottom plan view thereof;
FIG. **35** is a right side view thereof;
FIG. **36** is a left side view thereof;
FIG. **37** is a Front View of Opening/Closing Part in Open State thereof;
FIG. **38** is an enlarged view thereof defined by the lines **38-38** and **38'-38'** in FIG. **37**;
FIG. **39** is an enlarged sectional view thereof taken along the line **39-39** in FIG. **35** of the portion defined by the line **39'-39'** in FIG. **37**;
FIG. **40** is an enlarged sectional view thereof taken along the line **40-40** in FIG. **37** of the portion defined by the line **40'-40'** and **40"-40"** in FIG. **33**;
FIG. **41** is an enlarged sectional view thereof taken along the line **41-41** in FIG. **37** of the portion defined by the line **41'-41'** and **41"-41"** in FIG. **33**;
FIG. **42** is an enlarged perspective view showing the claimed part and surroundings;
FIG. **43** is an enlarged perspective view 1 of the left-side processing part in FIG. **37**, which is shown symmetrical to the enlarged perspective view of the right-side processing part in FIG. **37**;
FIG. **44** is an enlarged perspective view 2 of the left-side processing part in FIG. **37**, which is shown symmetrical to the enlarged perspective view of the right-side processing part in FIG. **37**; and,
FIG. **45** is an enlarged sectional view thereof taken along the line **45-45** in FIG. **26** of the portion defined by the line **45'-45'** in FIG. **41**.
The broken lines showing of the laser processing machine is included for the purpose of illustrating portions of the article and forms no part of the claimed design.
The alternate long and short dash broken lines define the bounds of claim and form no part of the claimed design.

1 Claim, 45 Drawing Sheets

FIG. 1

FIG. 2

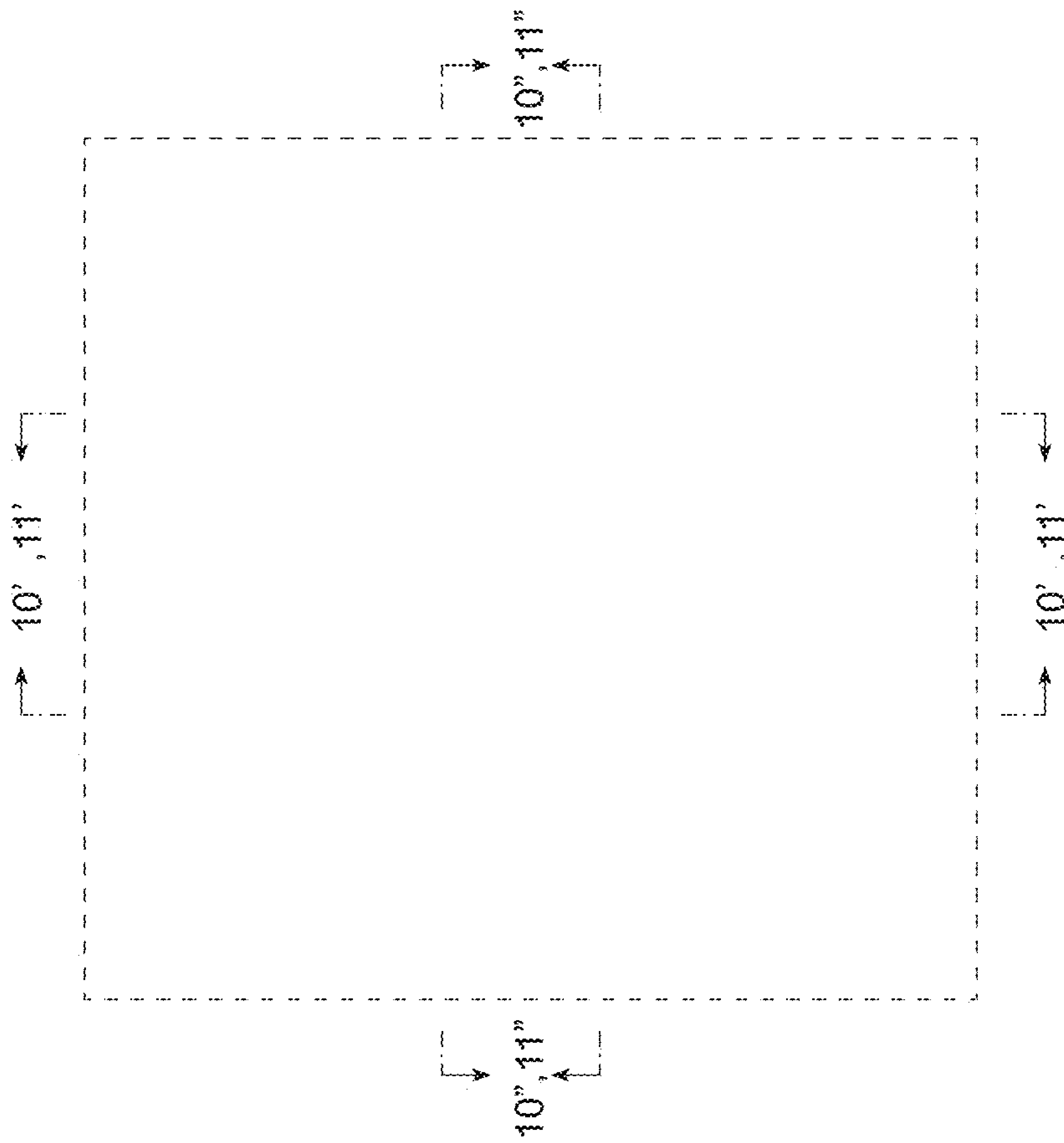
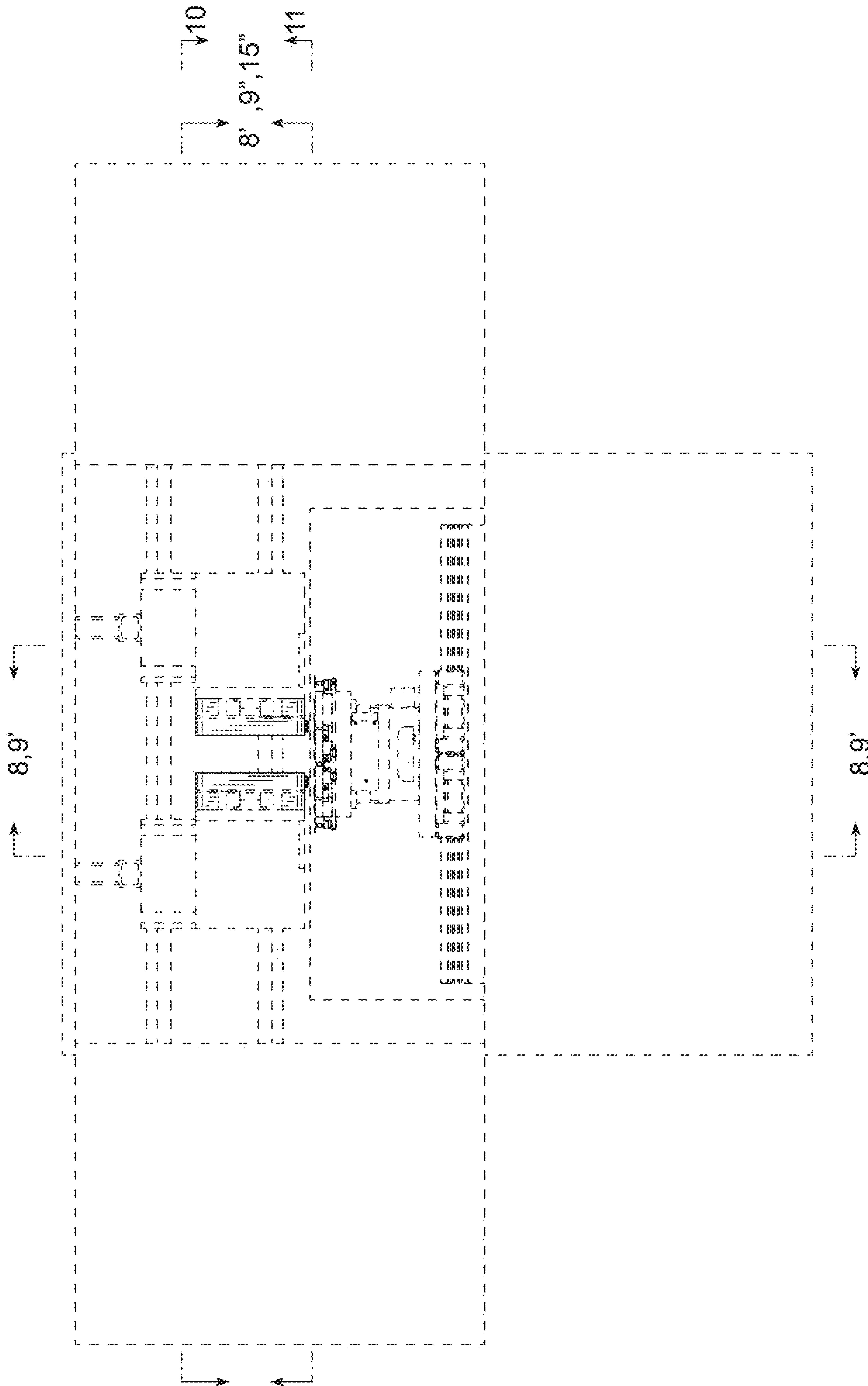


FIG. 3

FIG. 4

FIG. 5

FIG. 6



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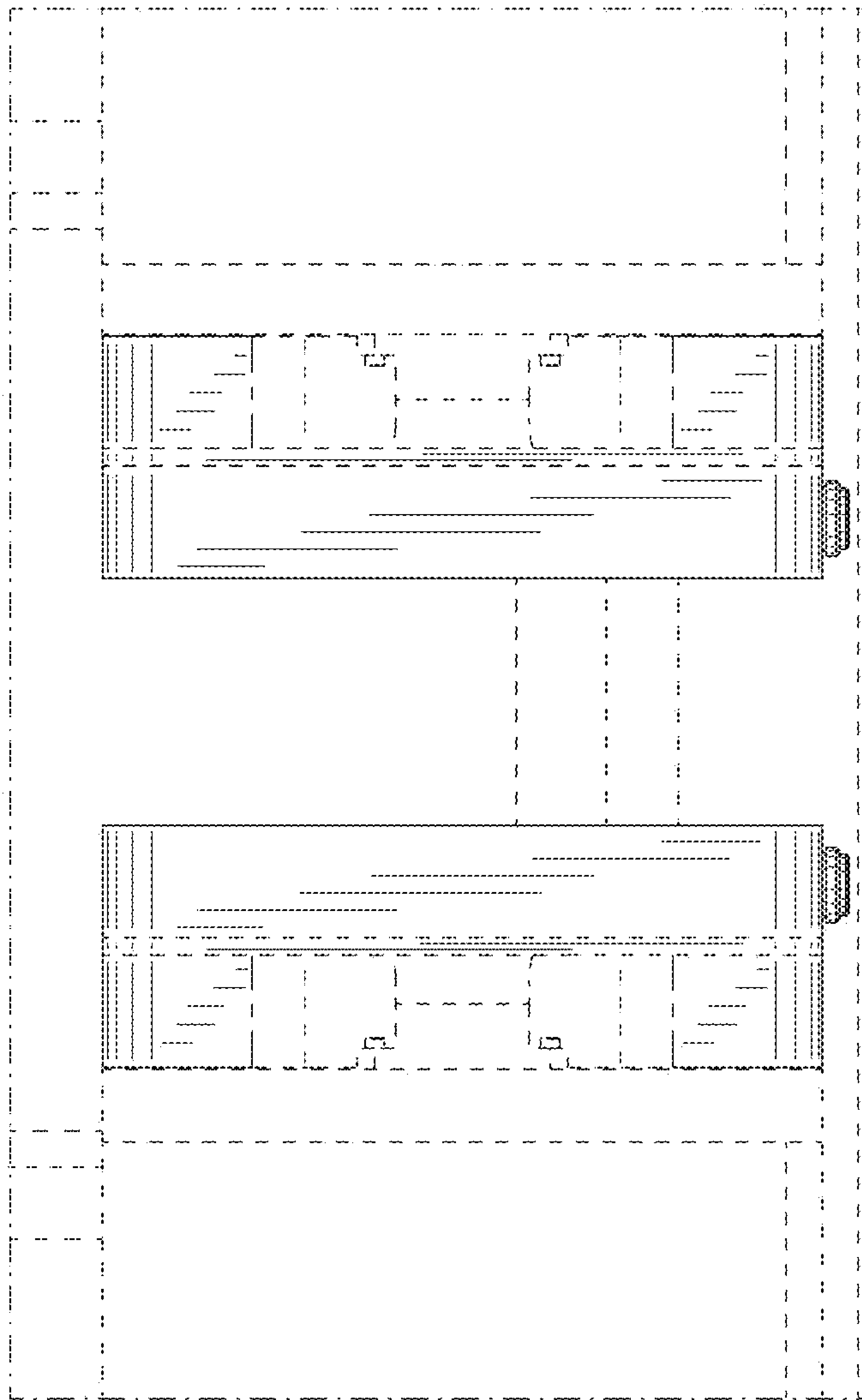


FIG. 8

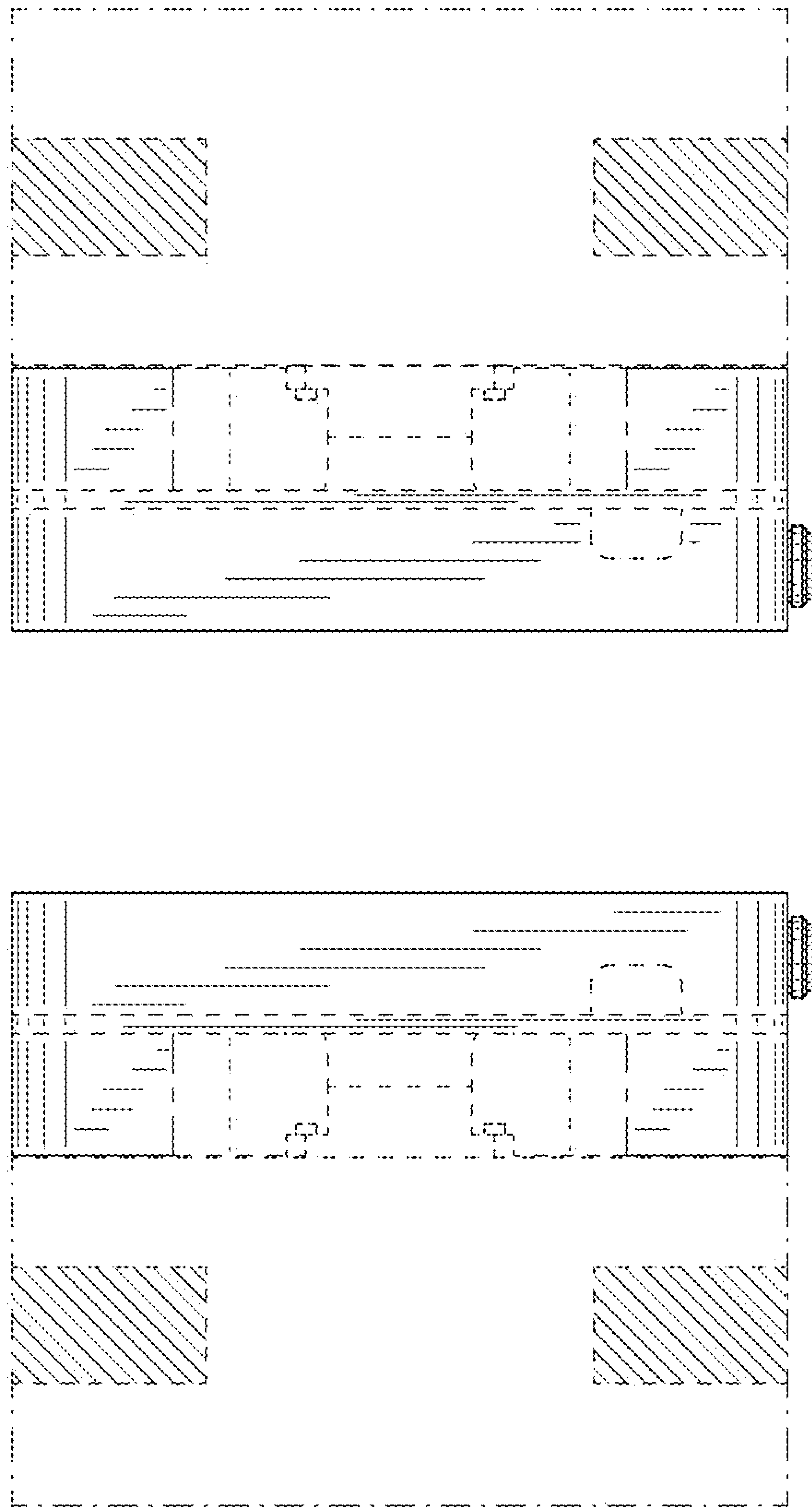


FIG. 9

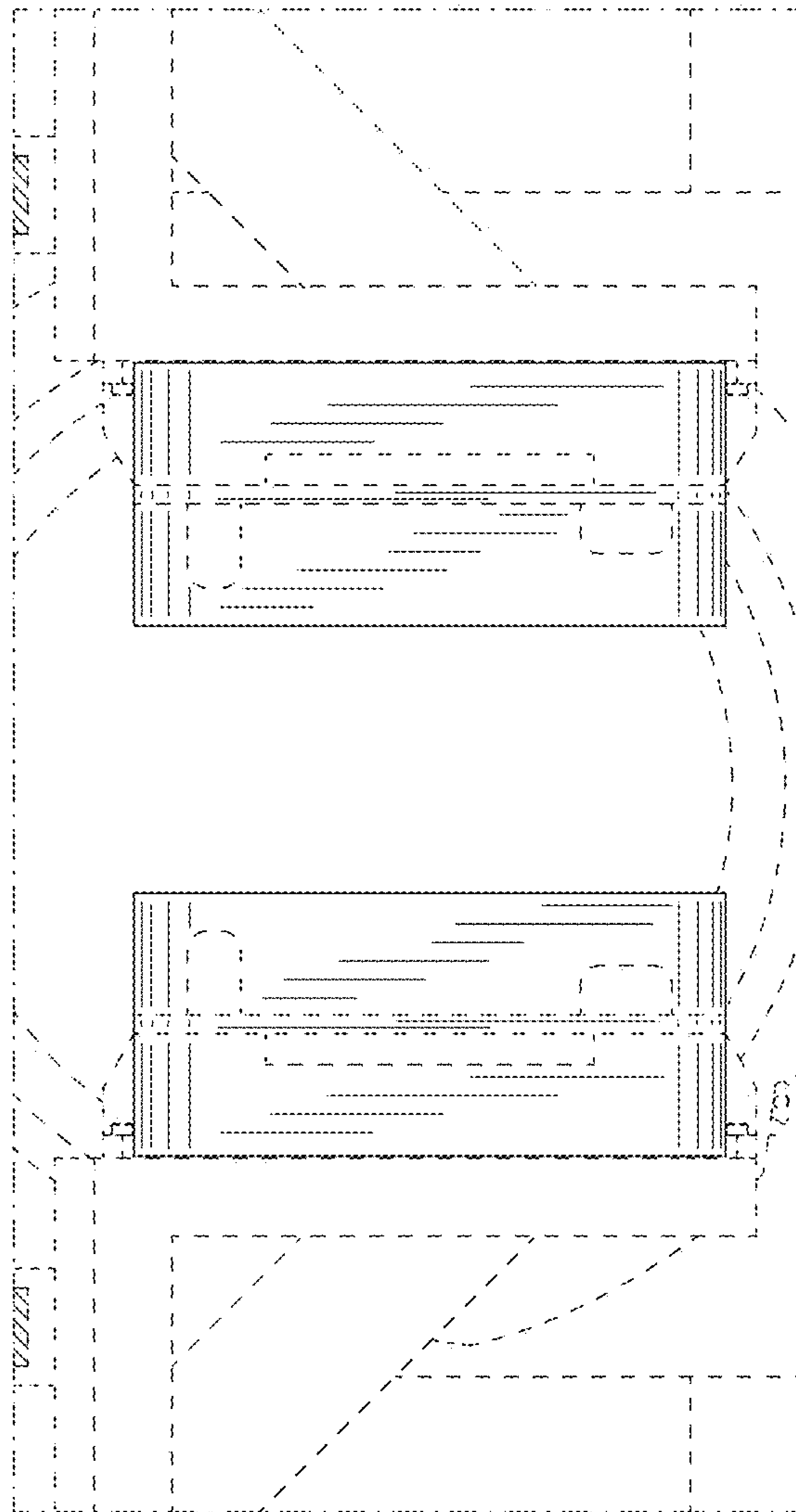
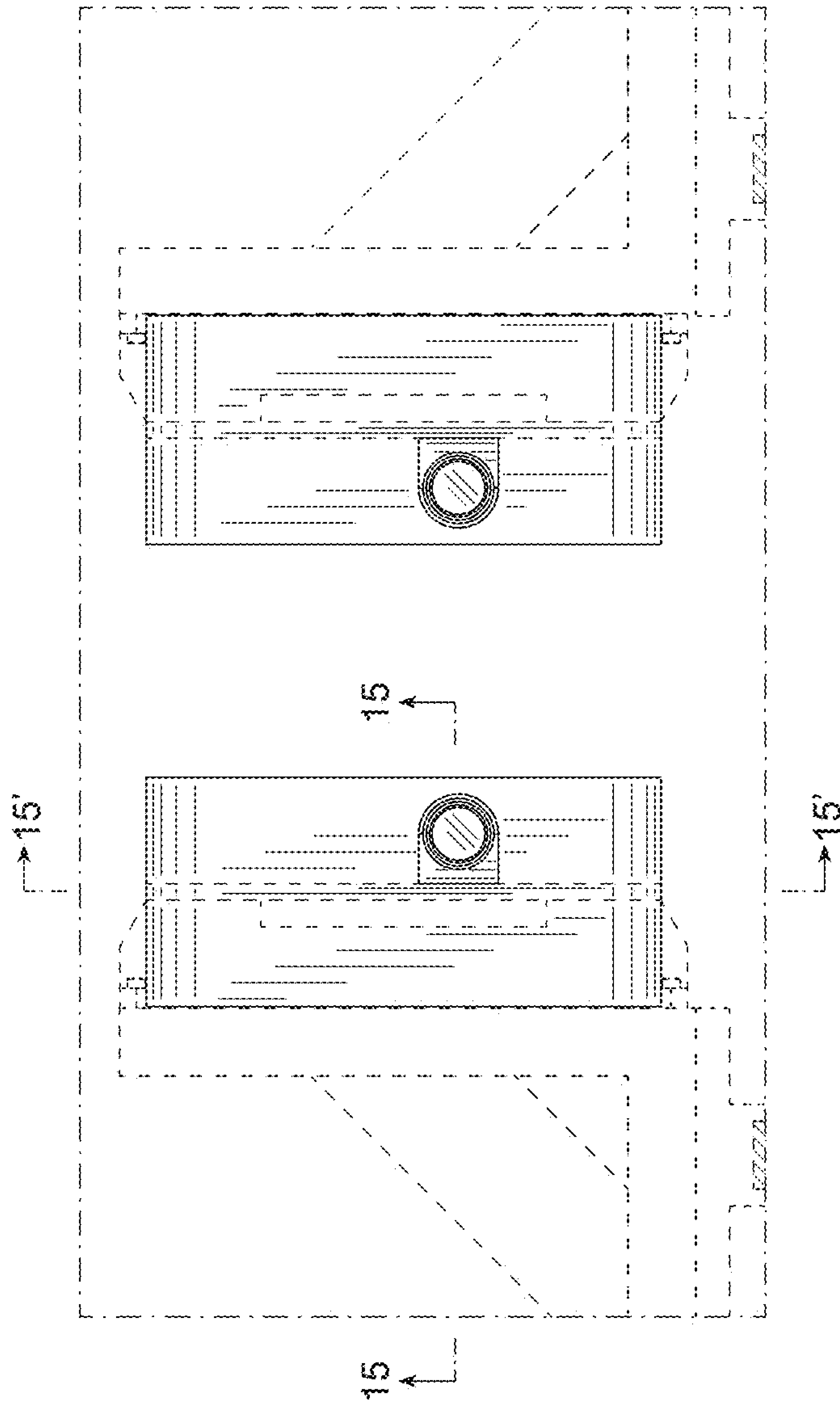


FIG. 10



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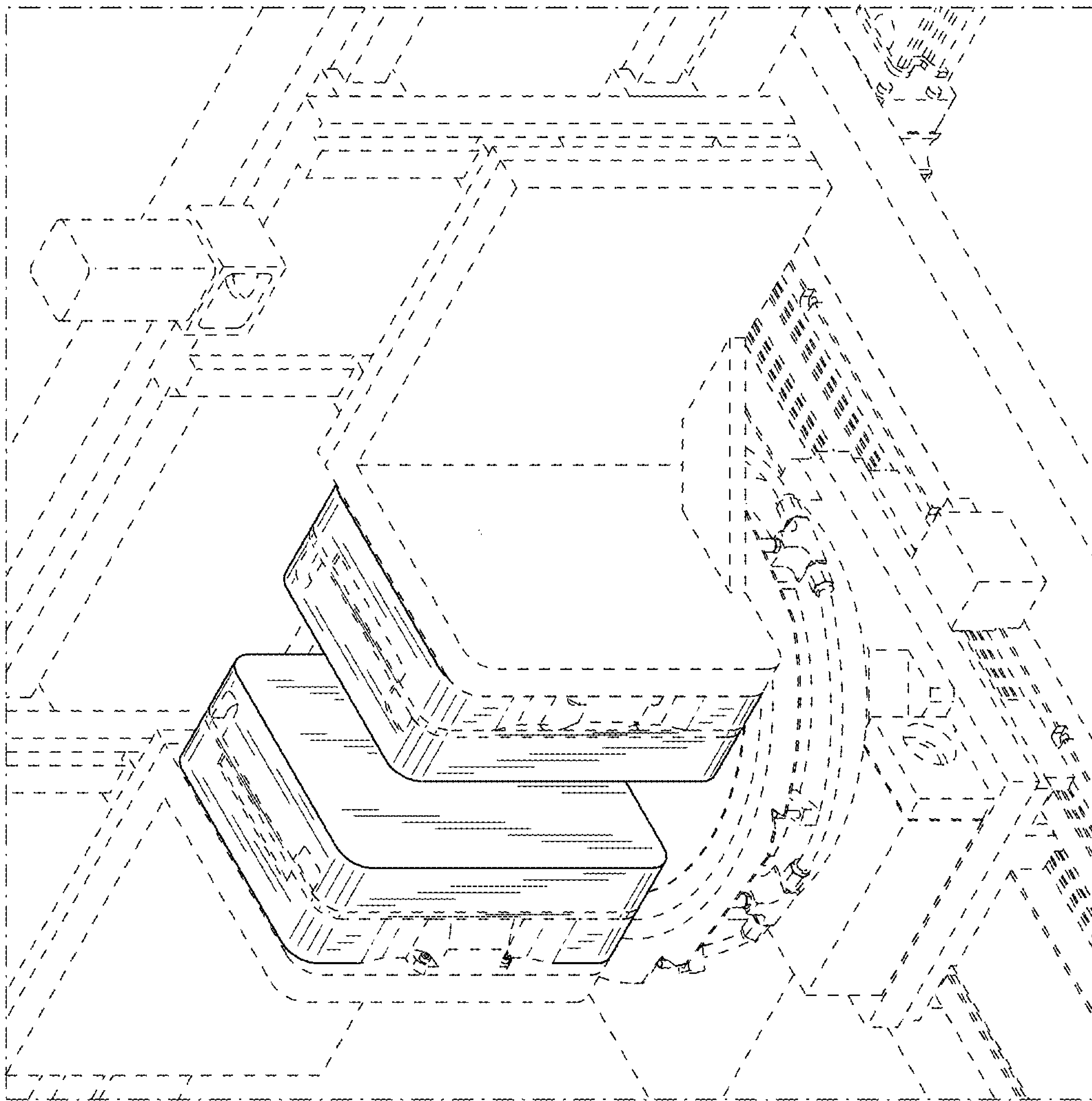


FIG. 12

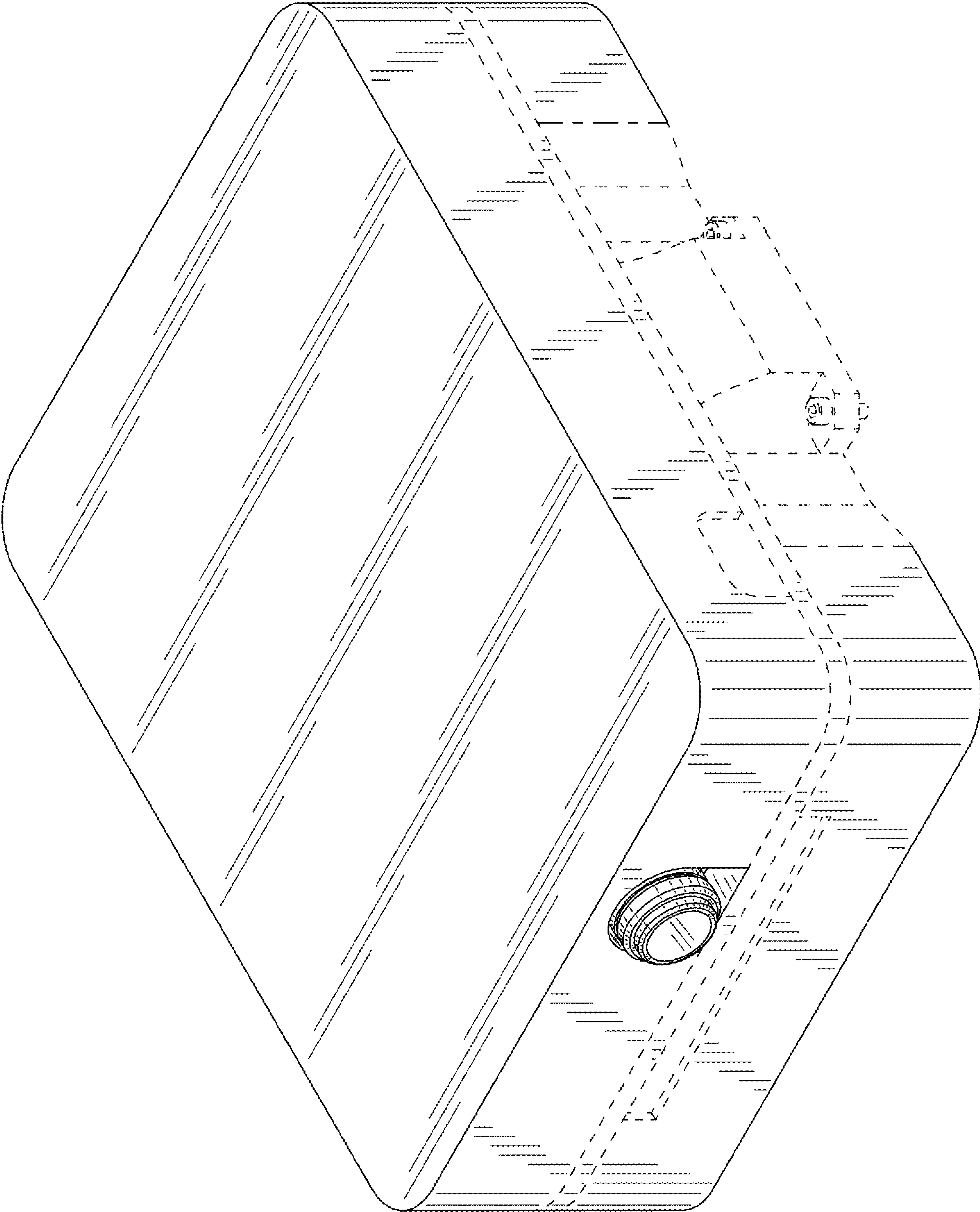
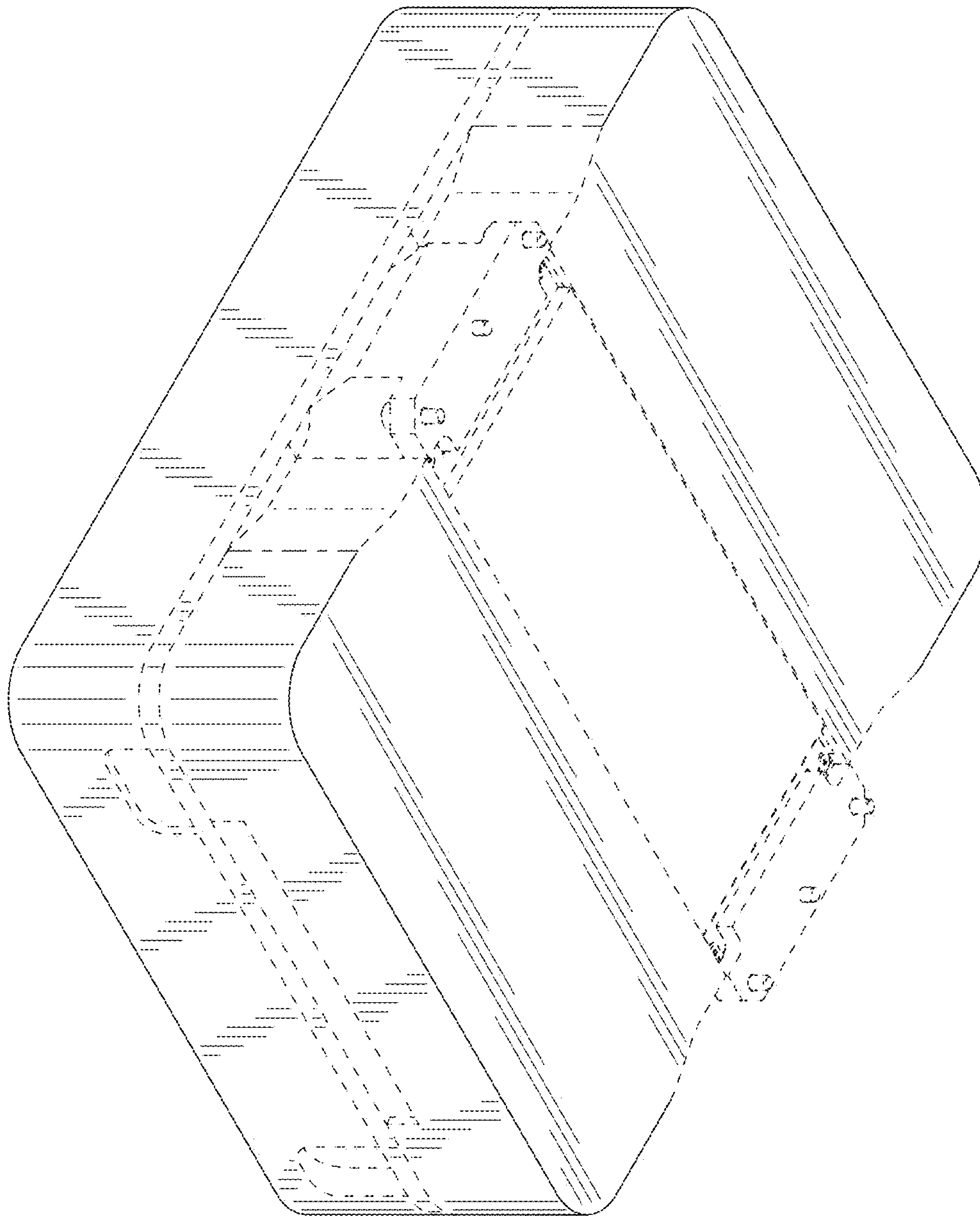


FIG. 13



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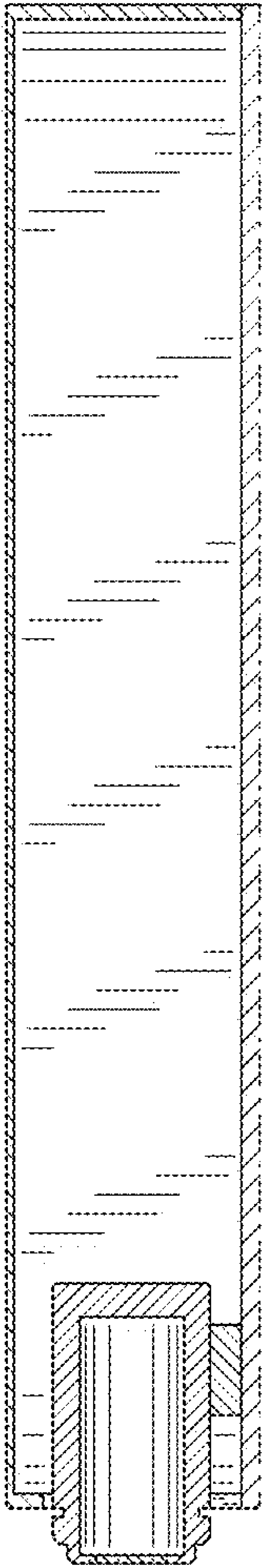


FIG. 15

FIG. 16

FIG. 17

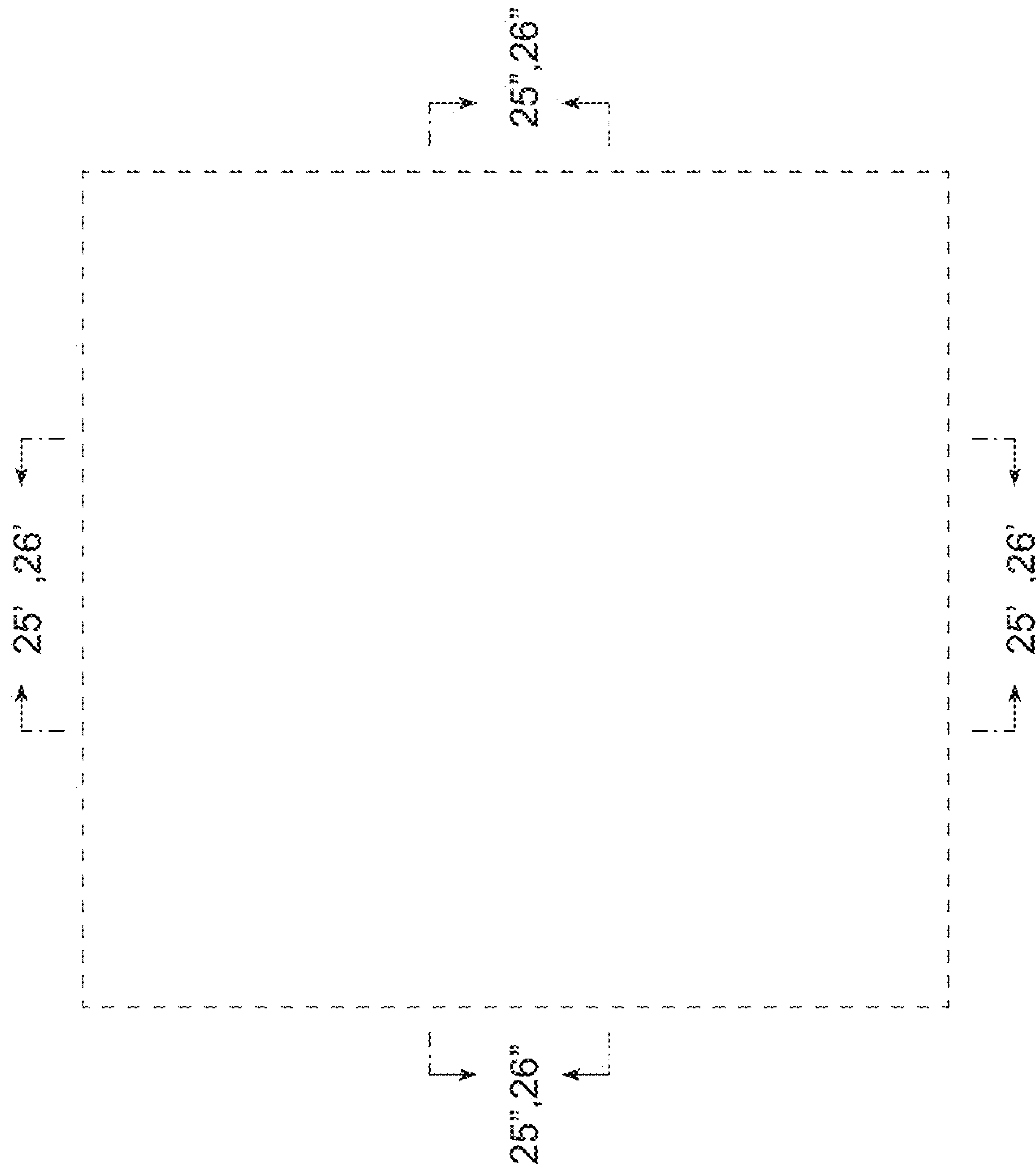
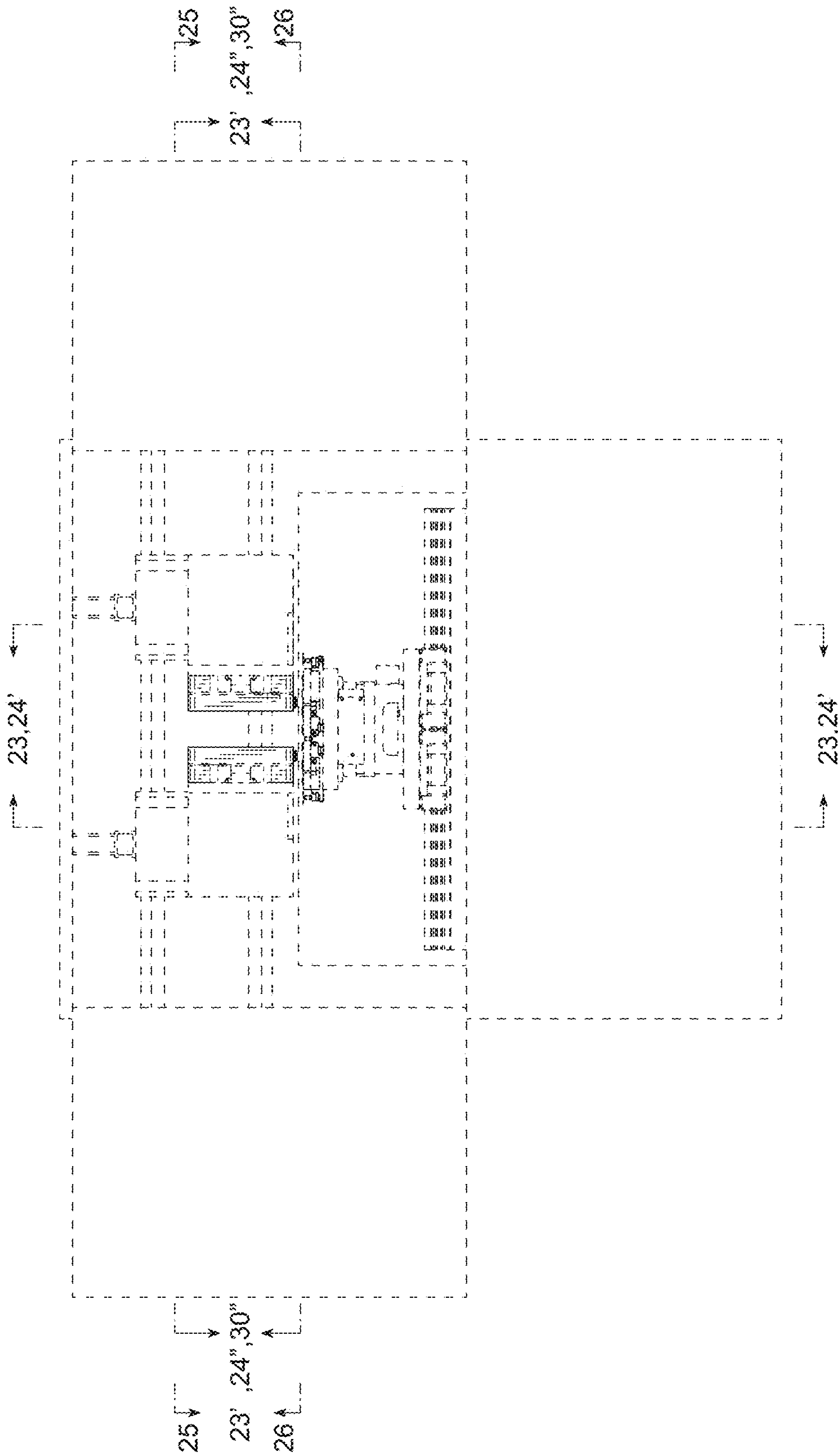


FIG. 18

FIG. 19

FIG. 20

FIG. 21



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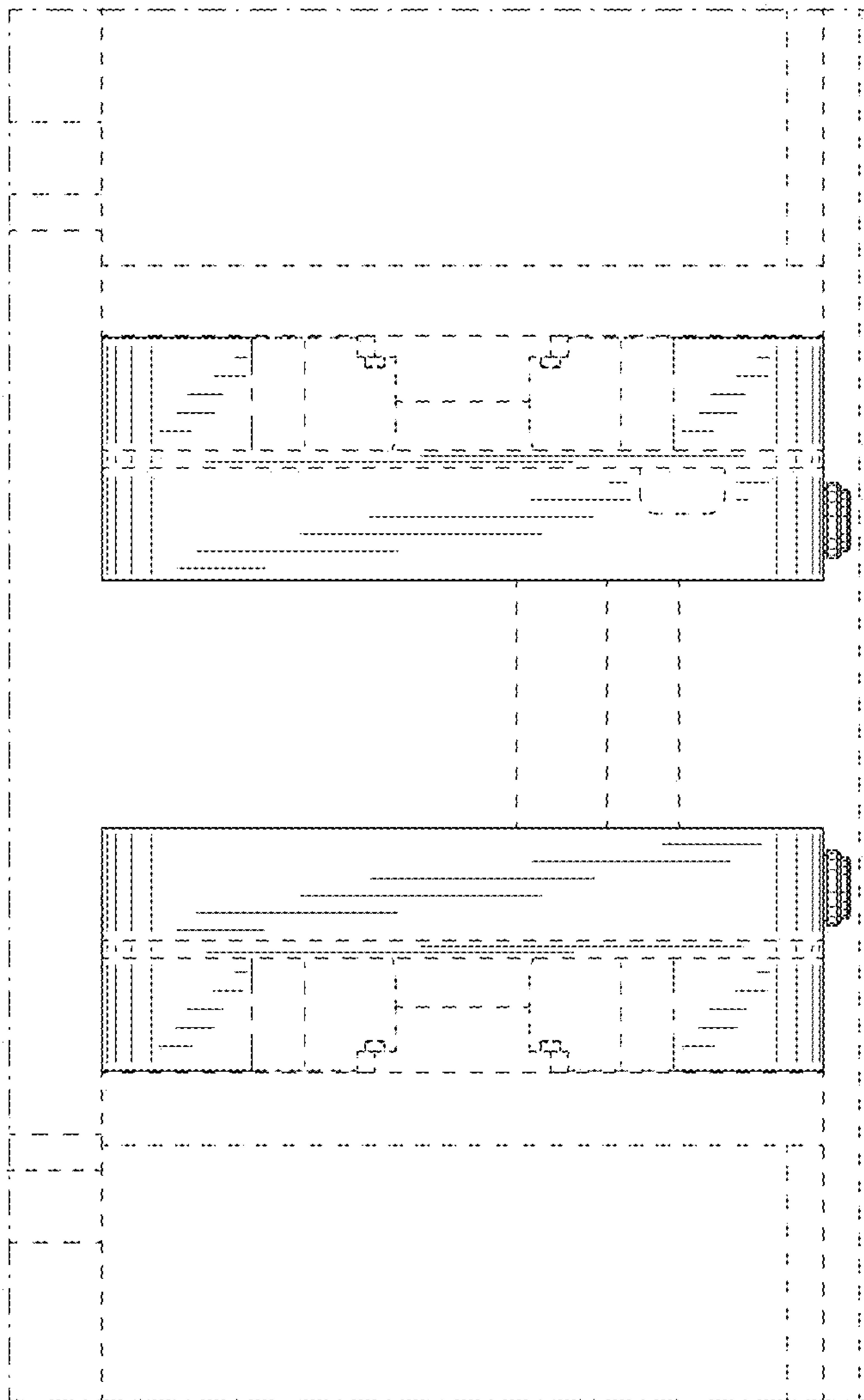

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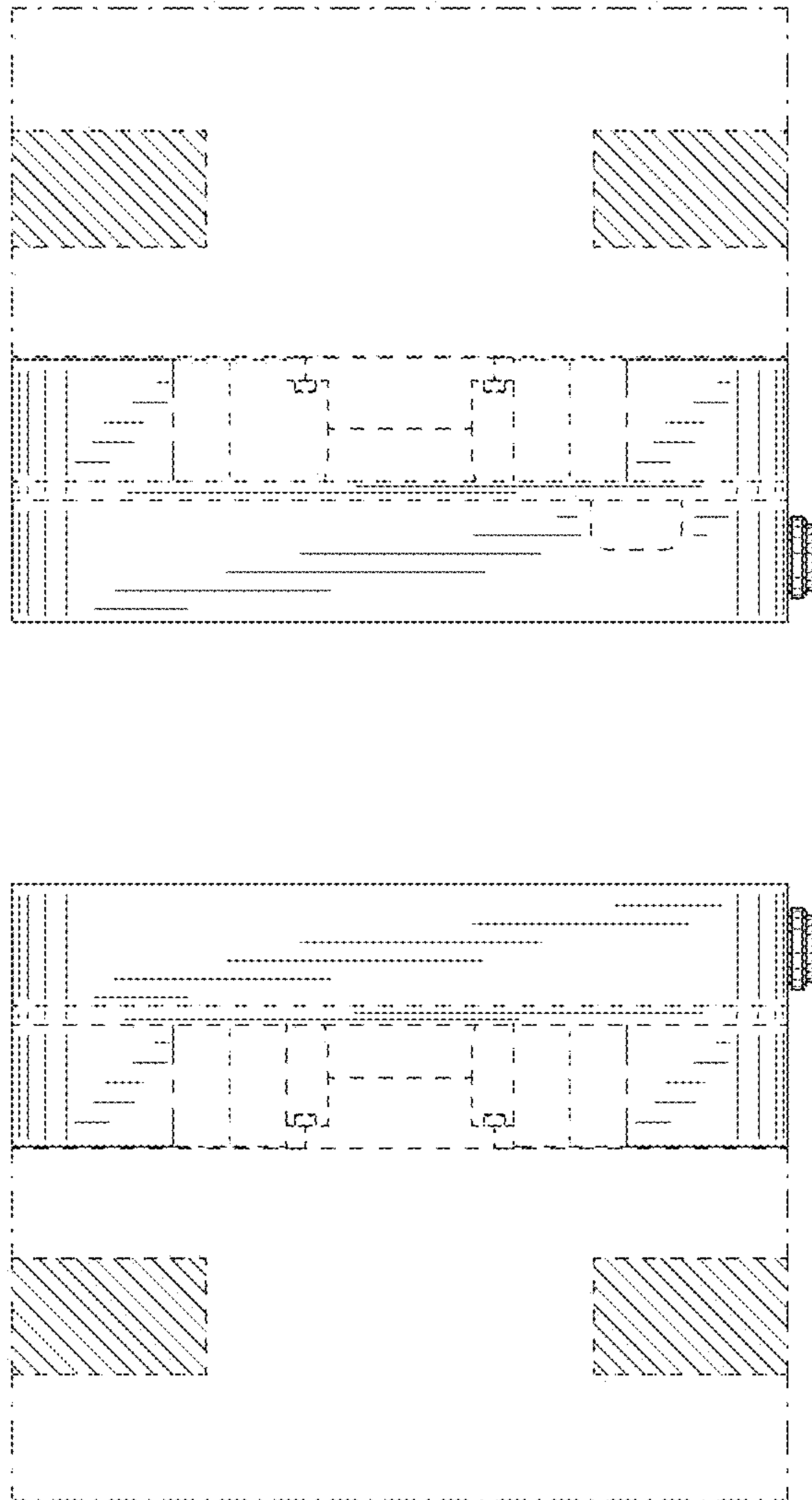
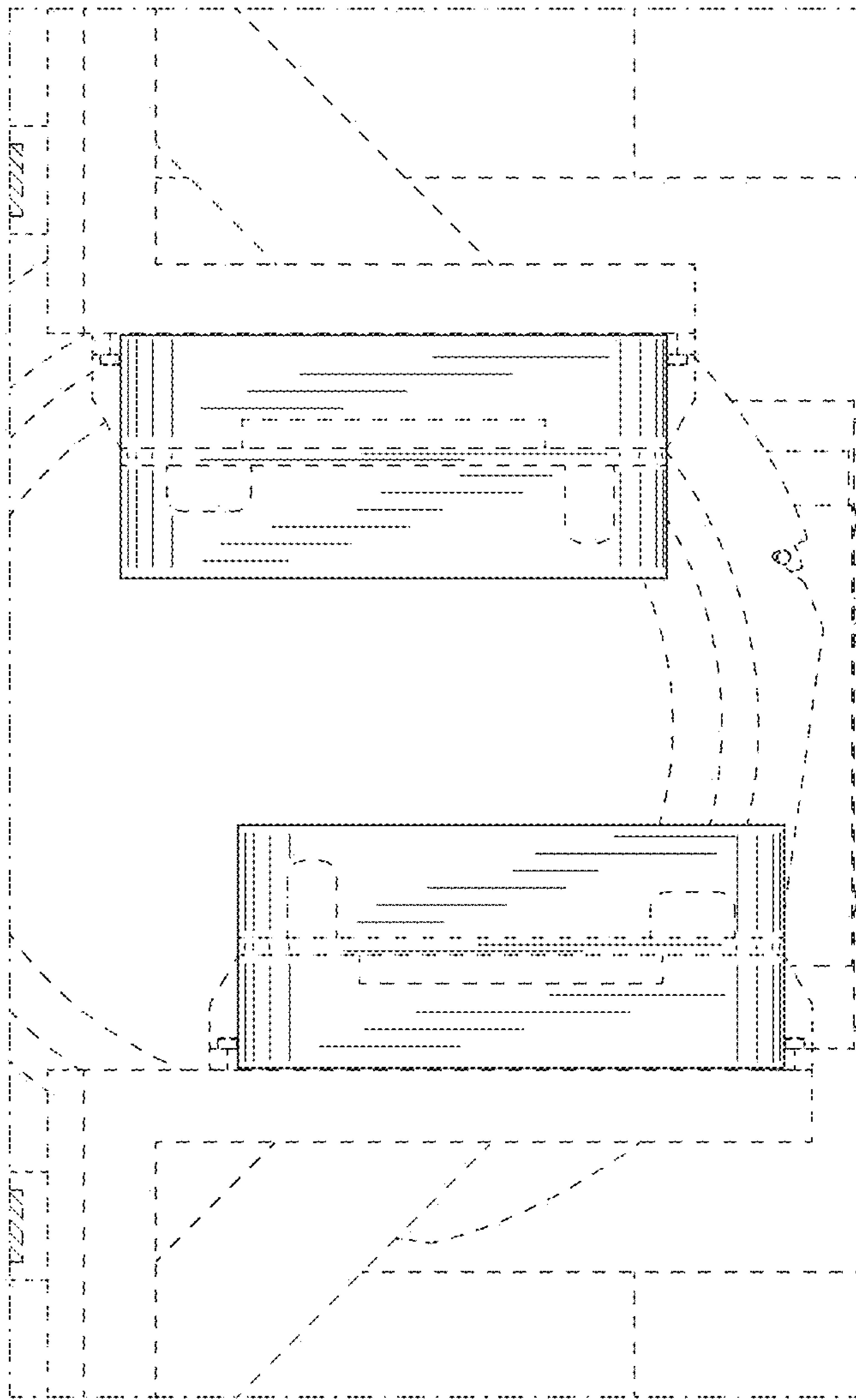


FIG. 24



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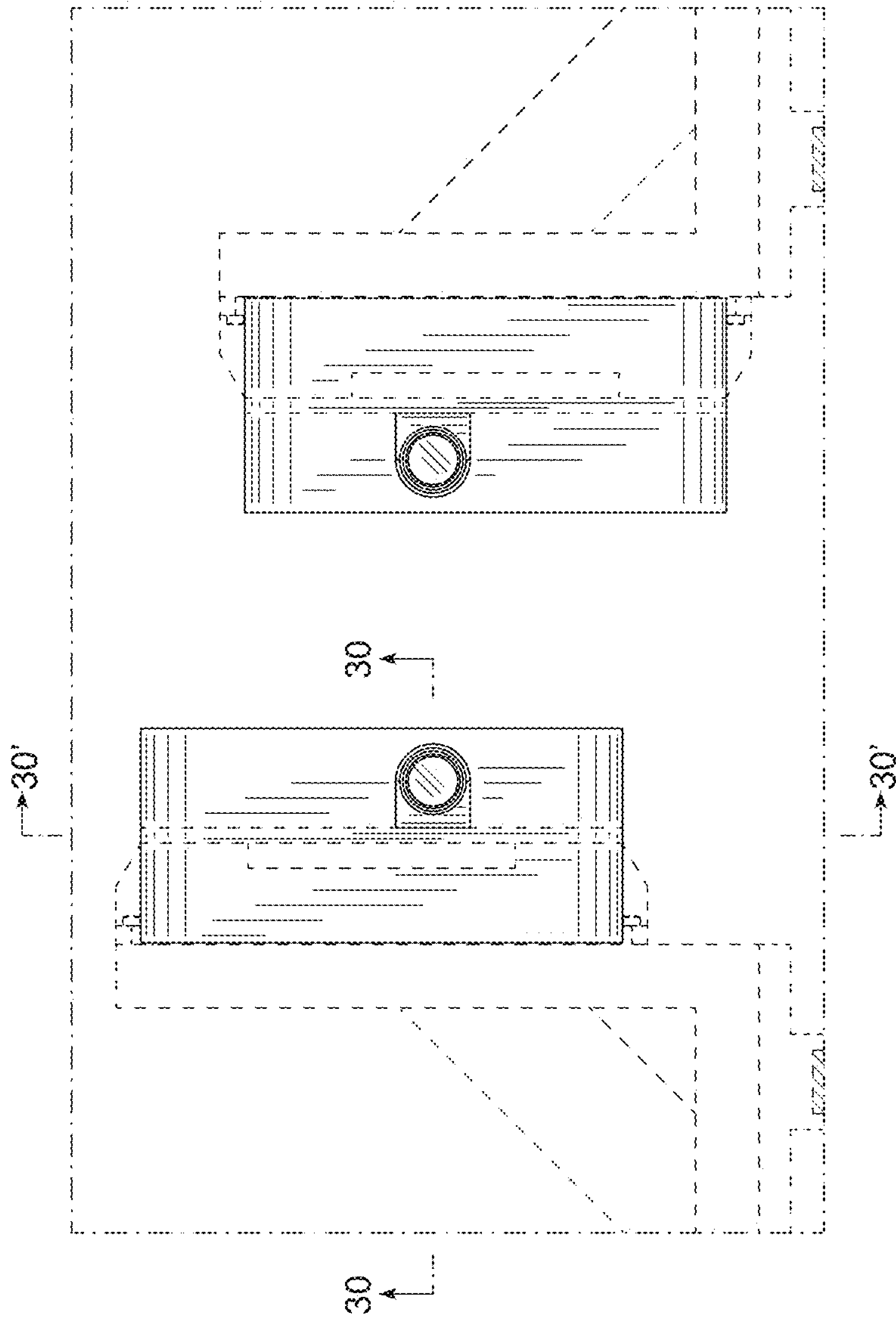

FIG. 26

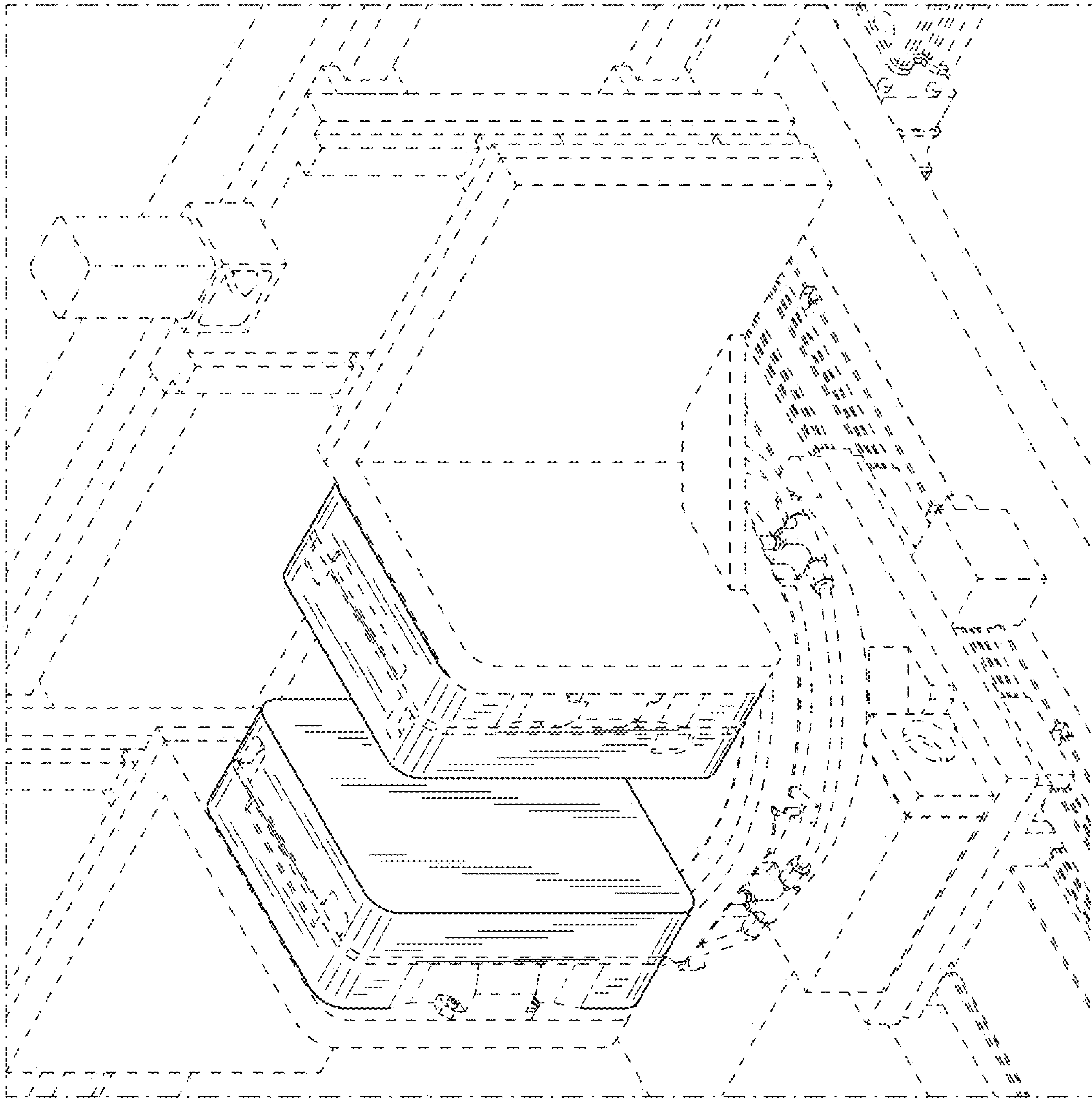

FIG. 27

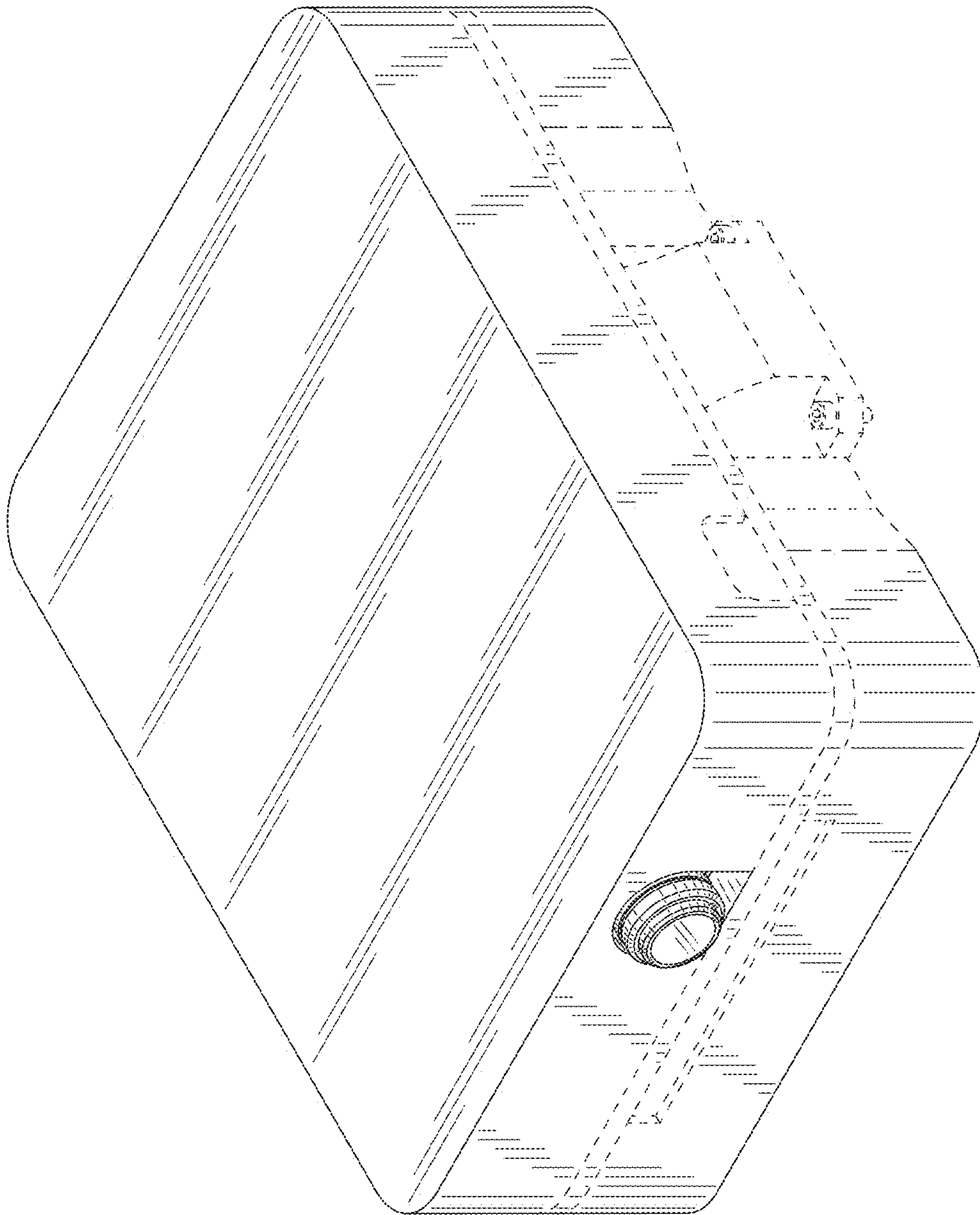

FIG. 28

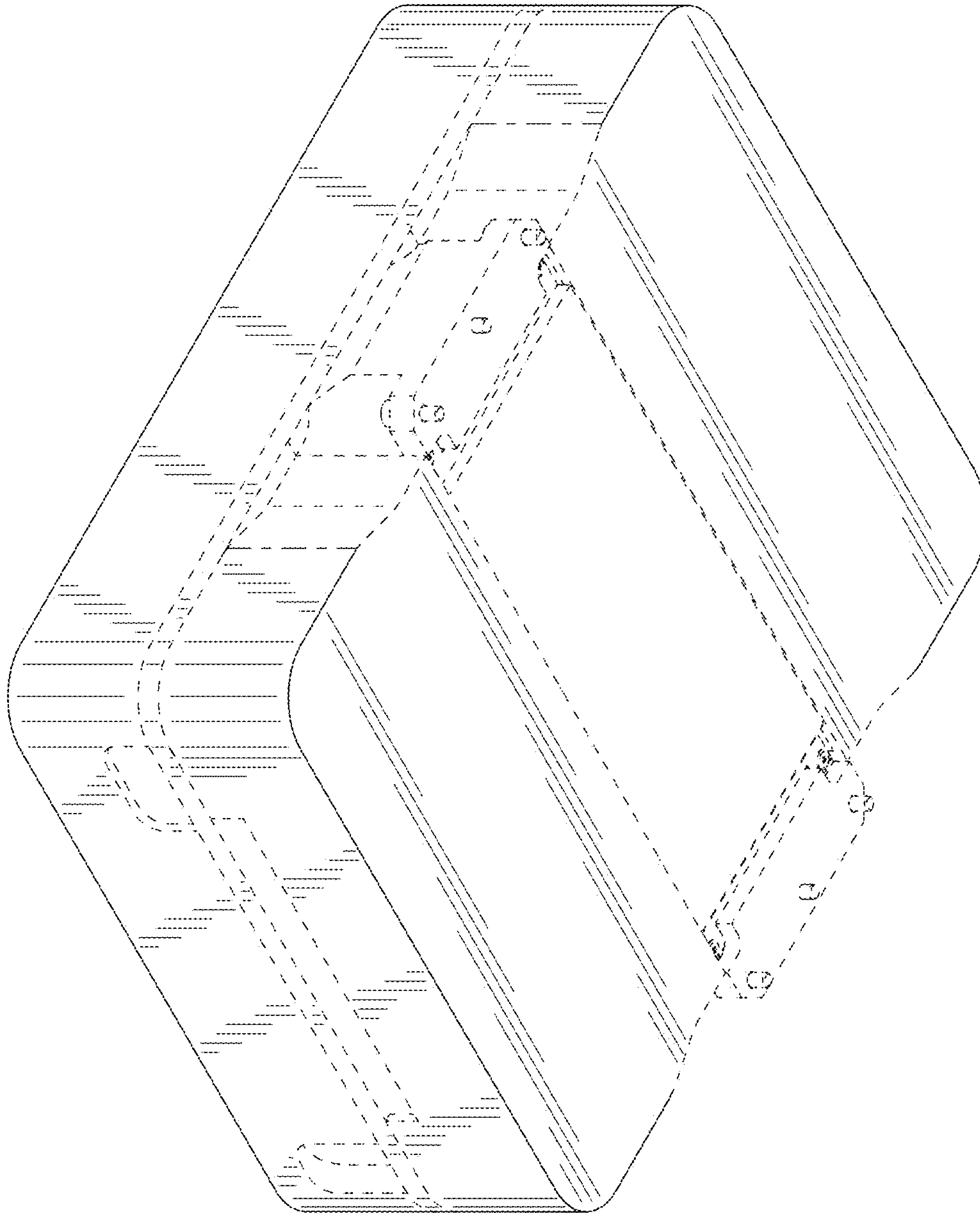

FIG. 29

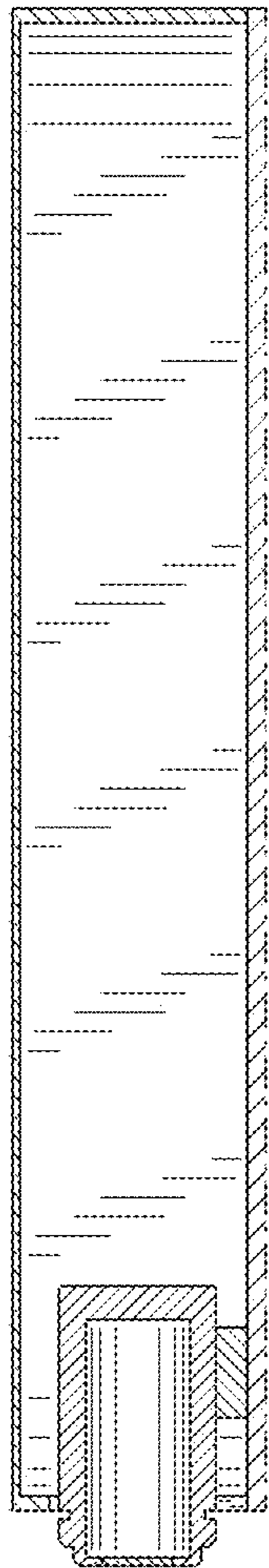

FIG. 30

FIG. 31

FIG. 32

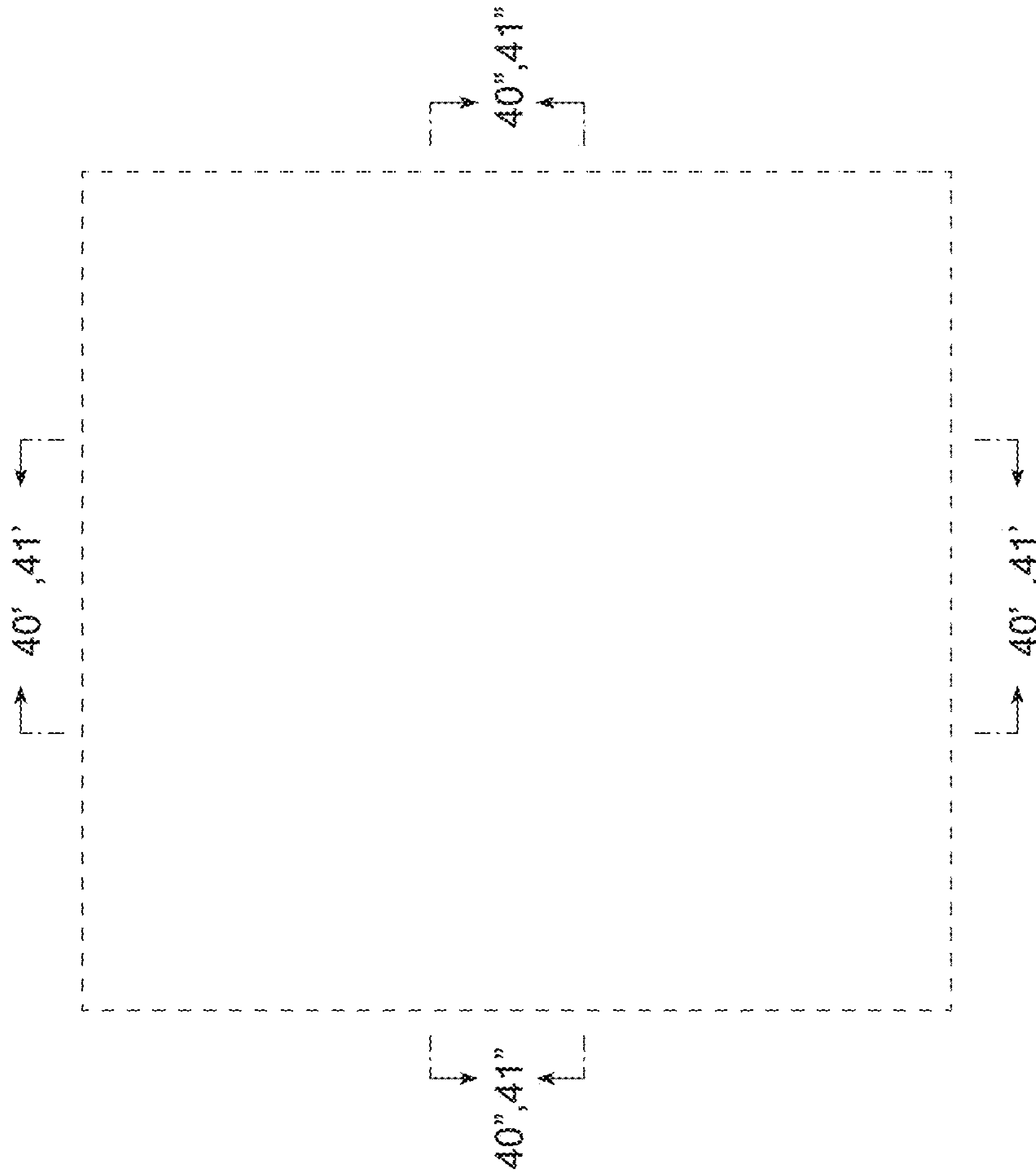

FIG. 33

FIG. 34

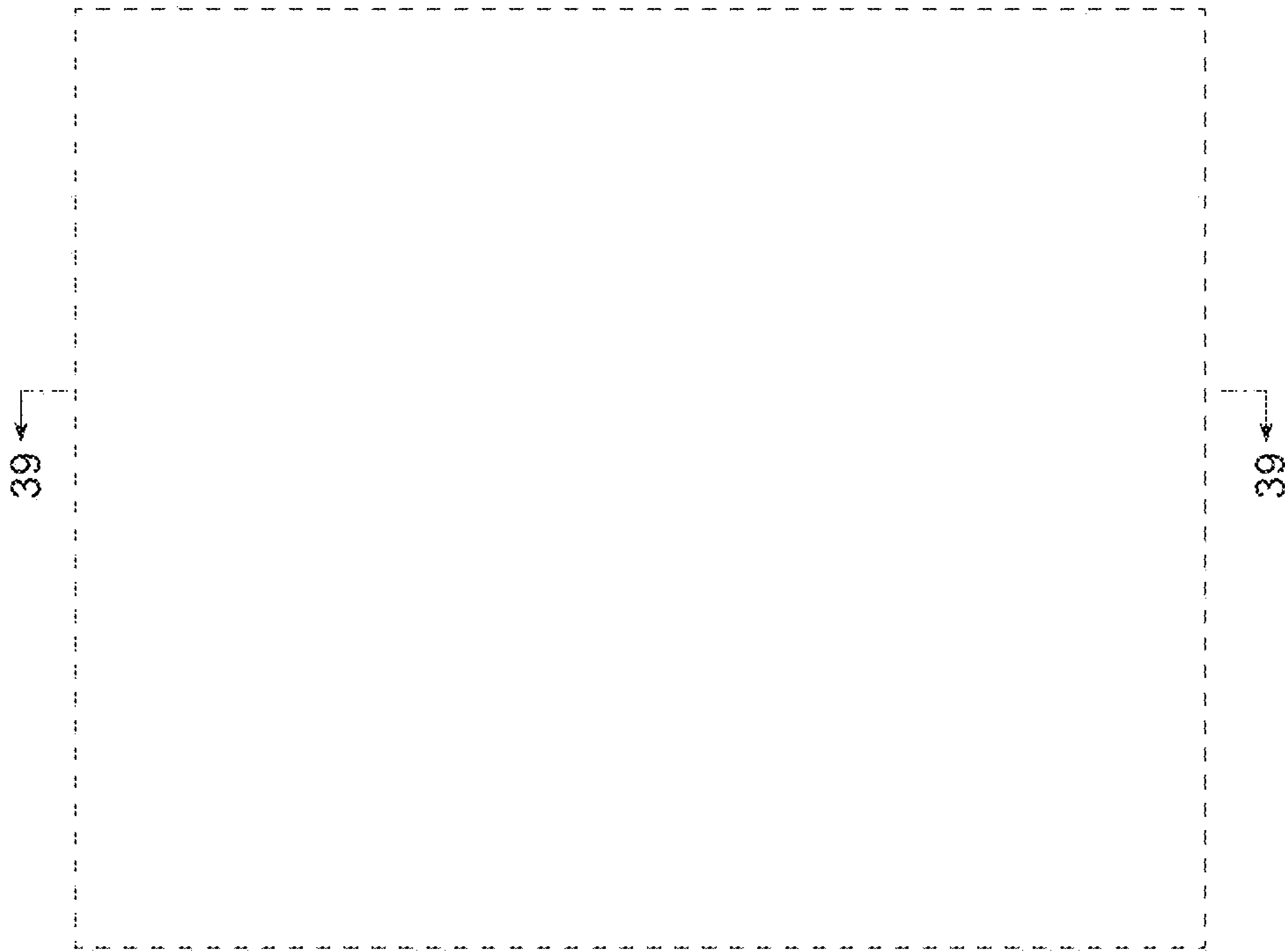

FIG. 35

FIG. 36

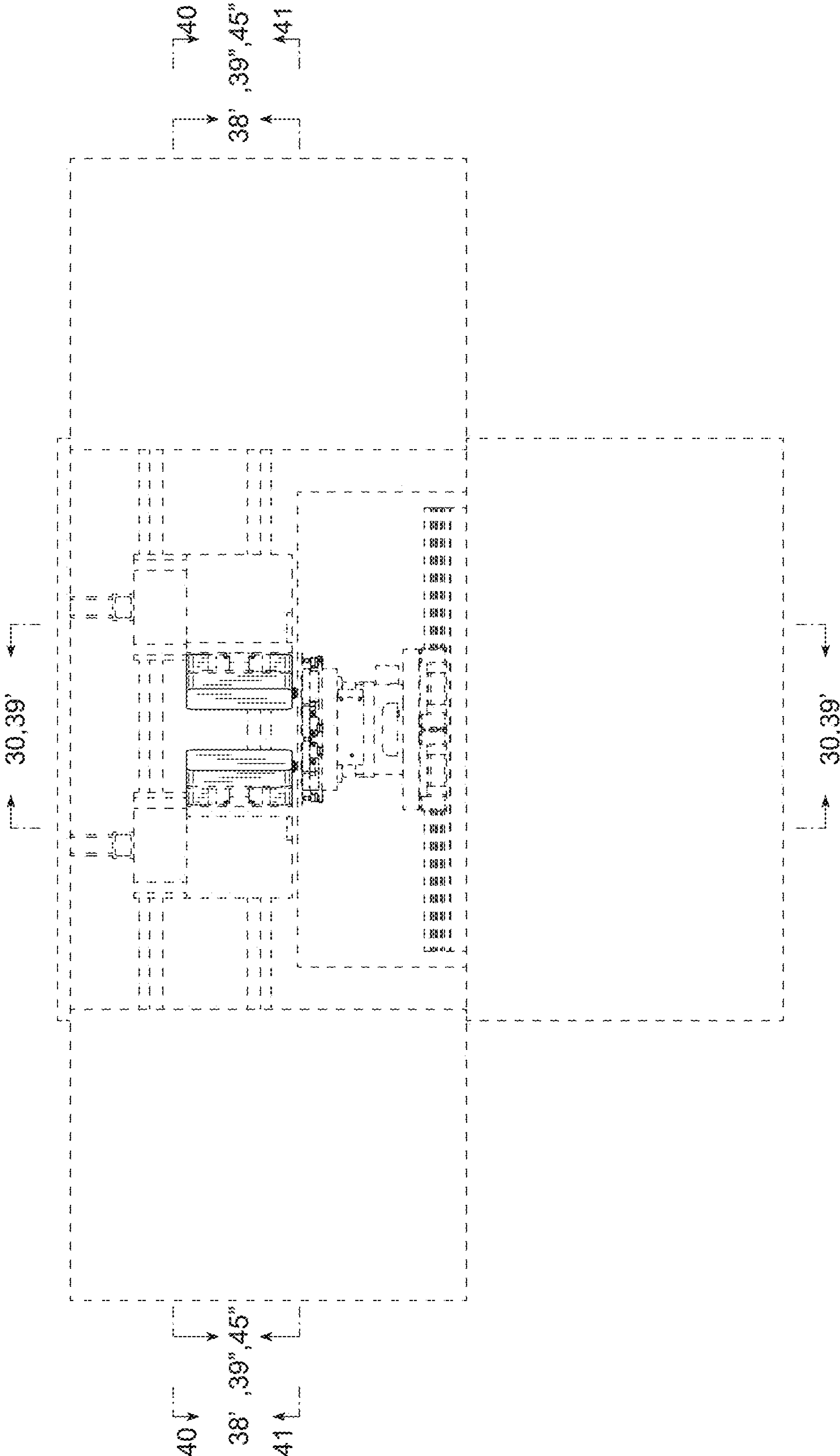

FIG. 37

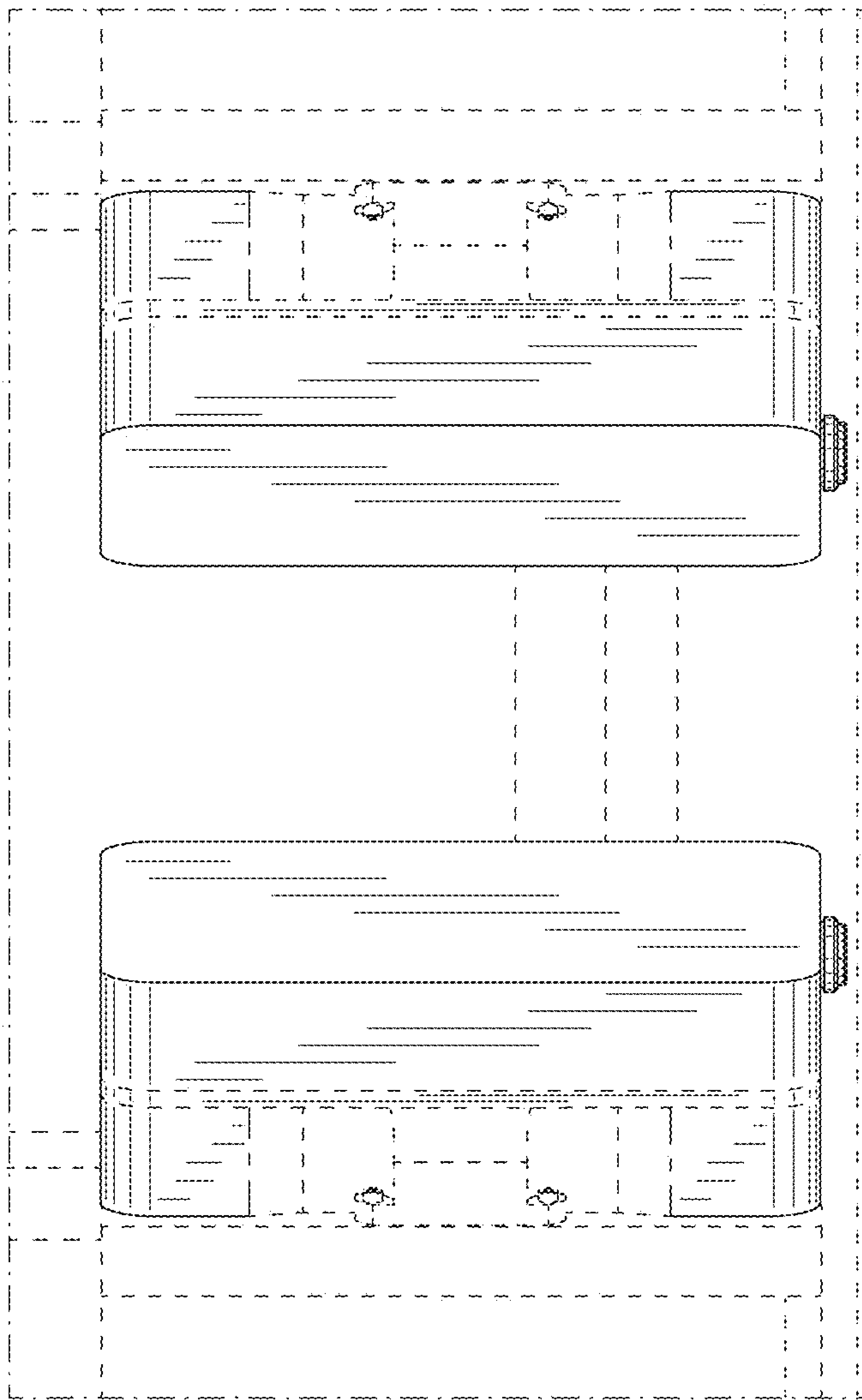

FIG. 38

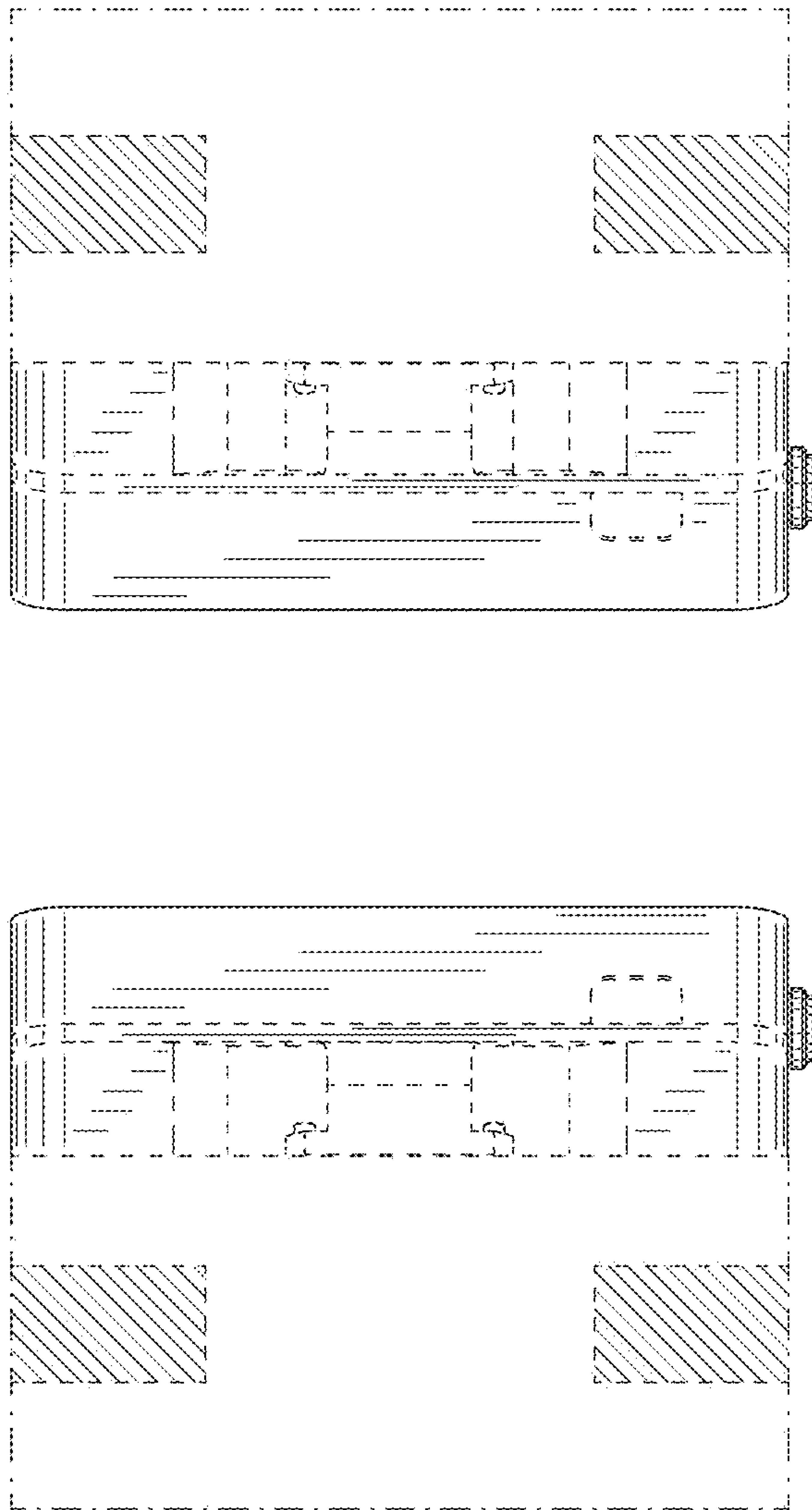

FIG. 39

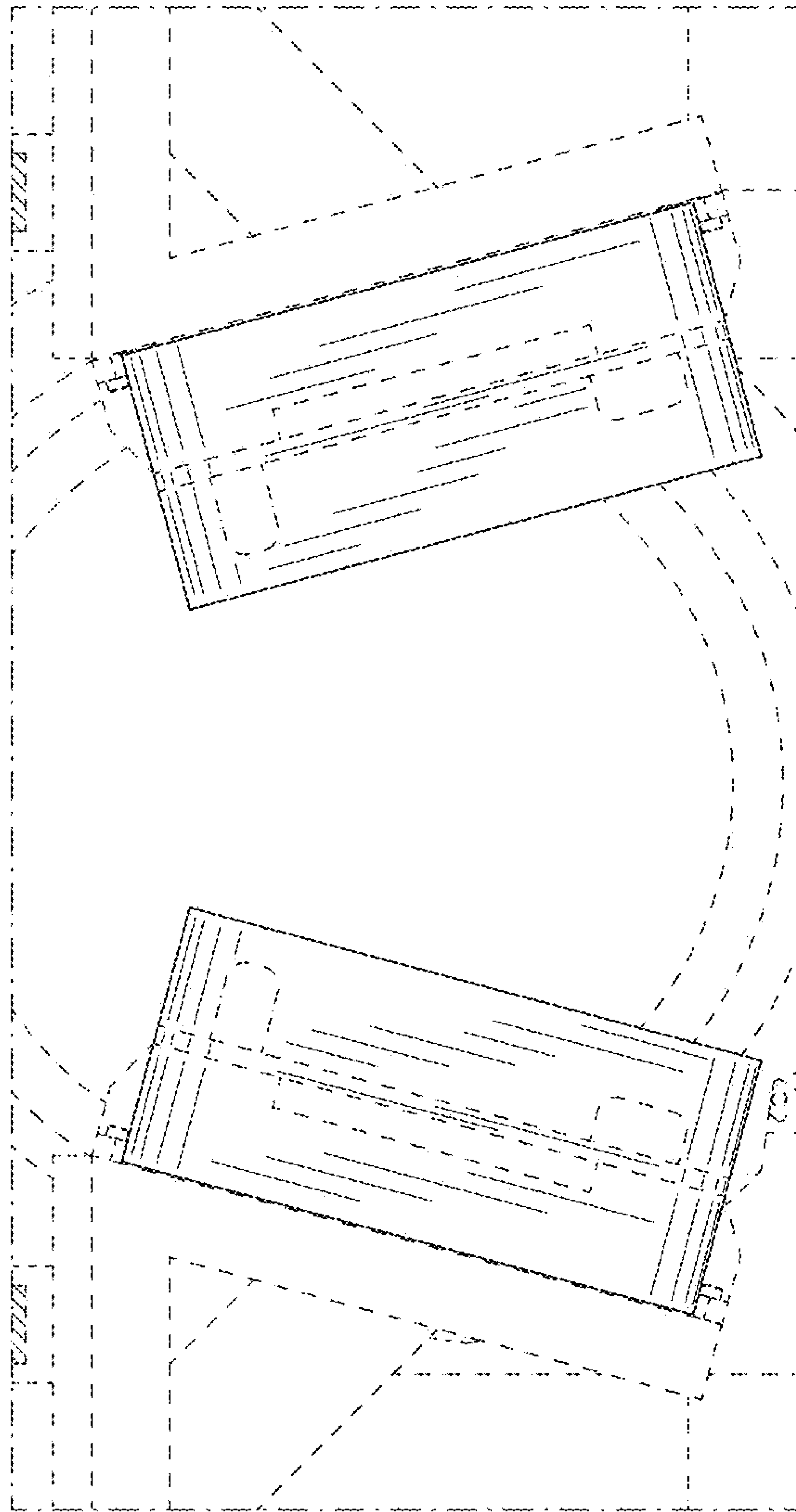

FIG. 40

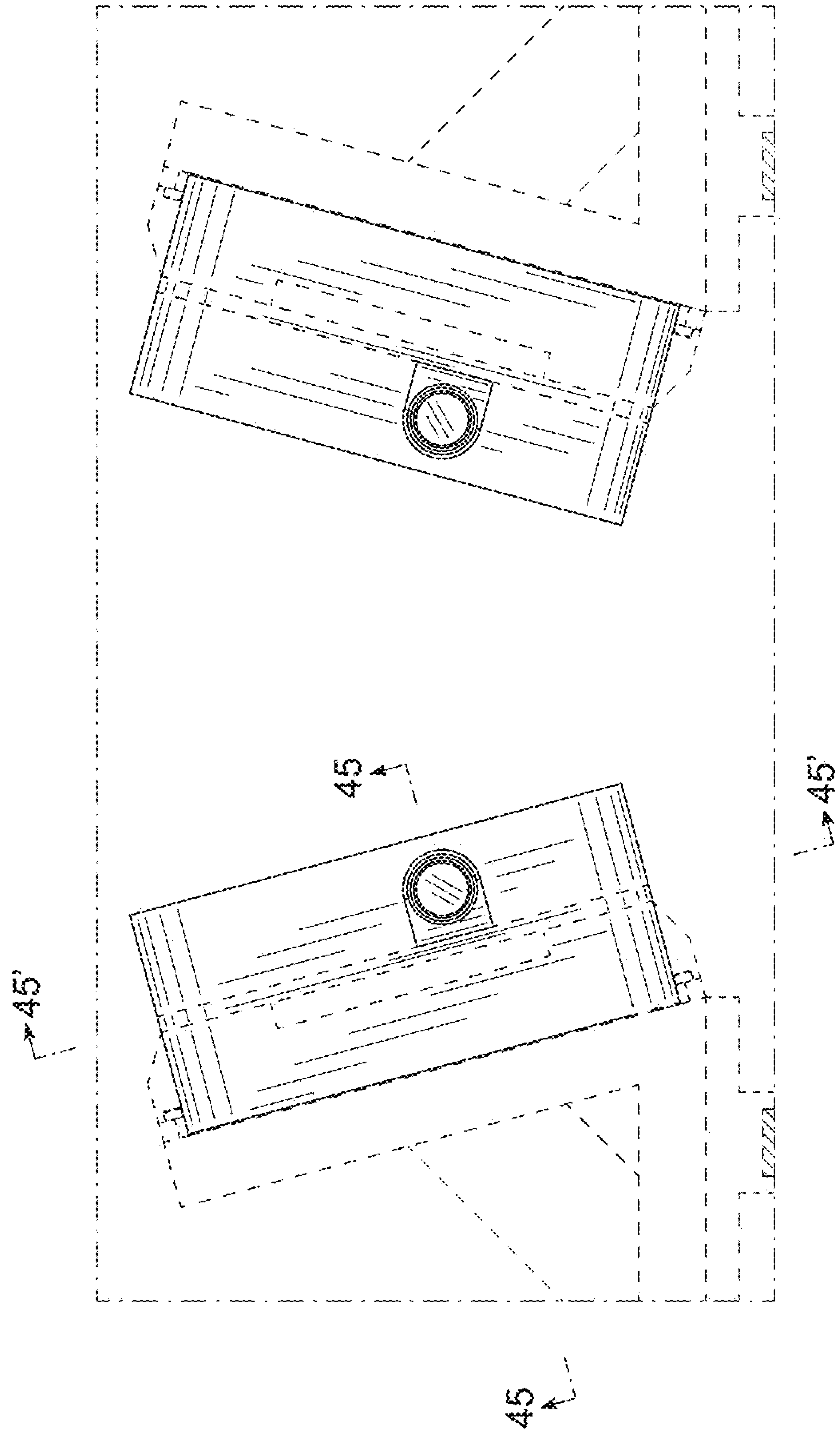

FIG. 41

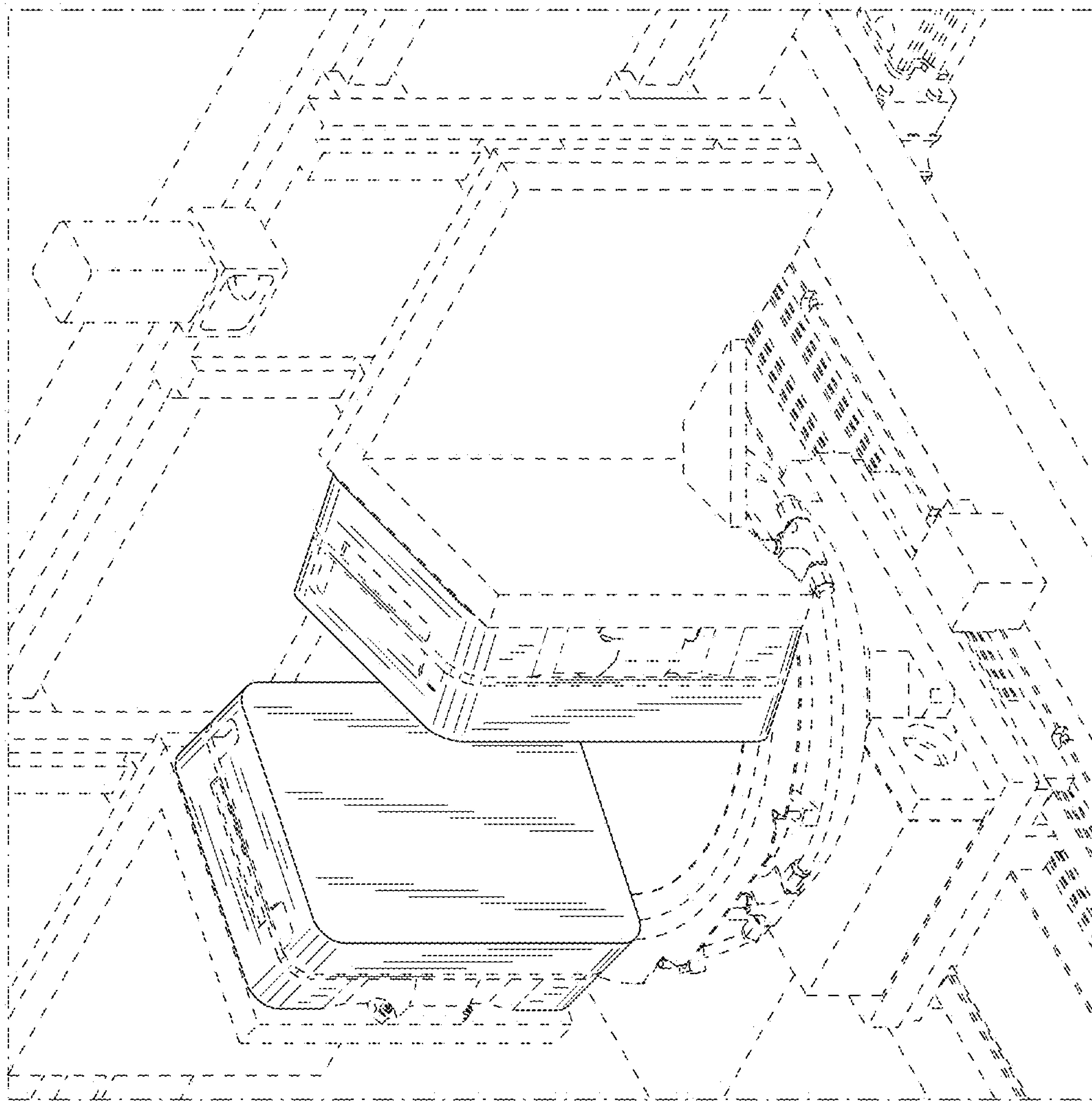

FIG. 42

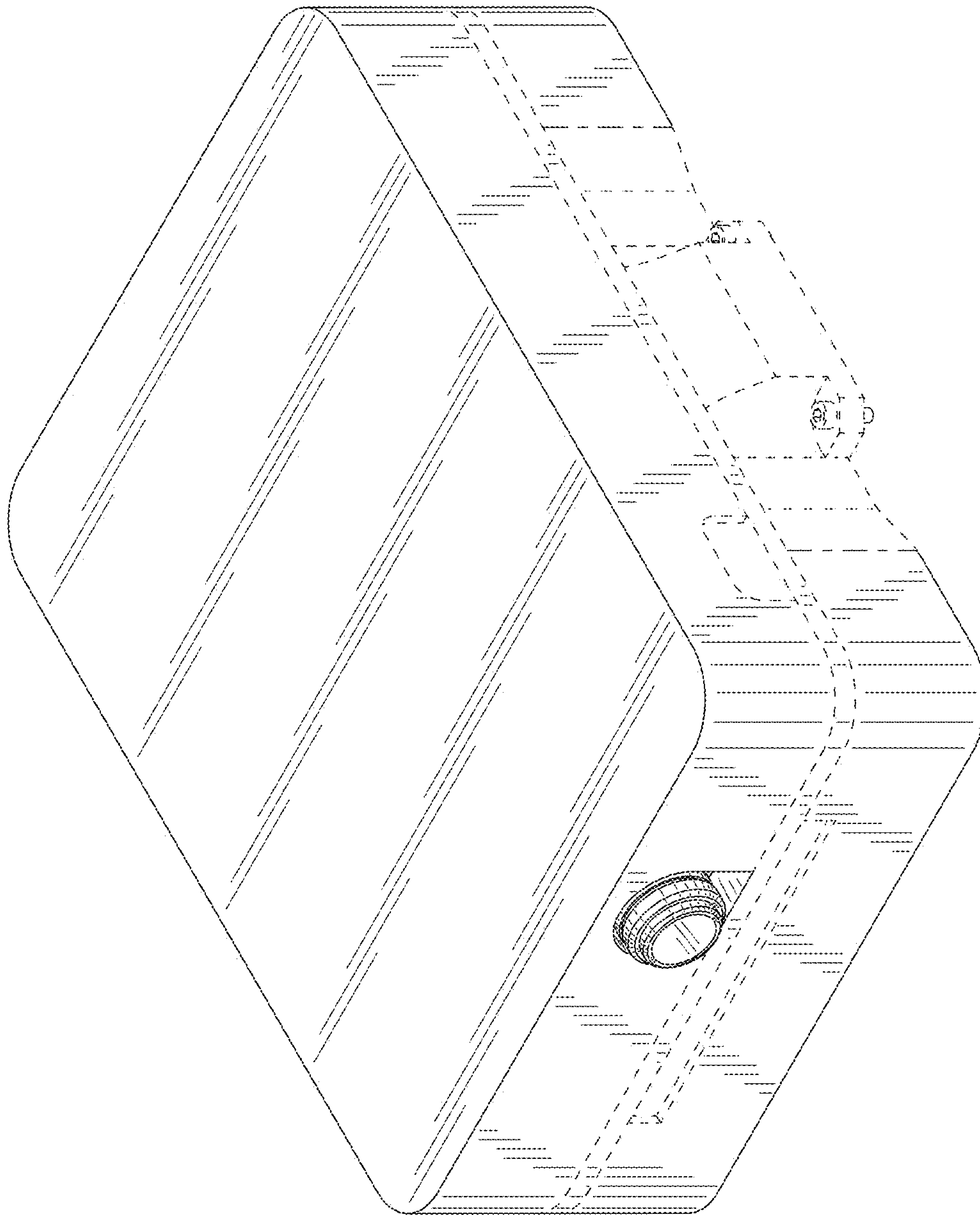

FIG. 43

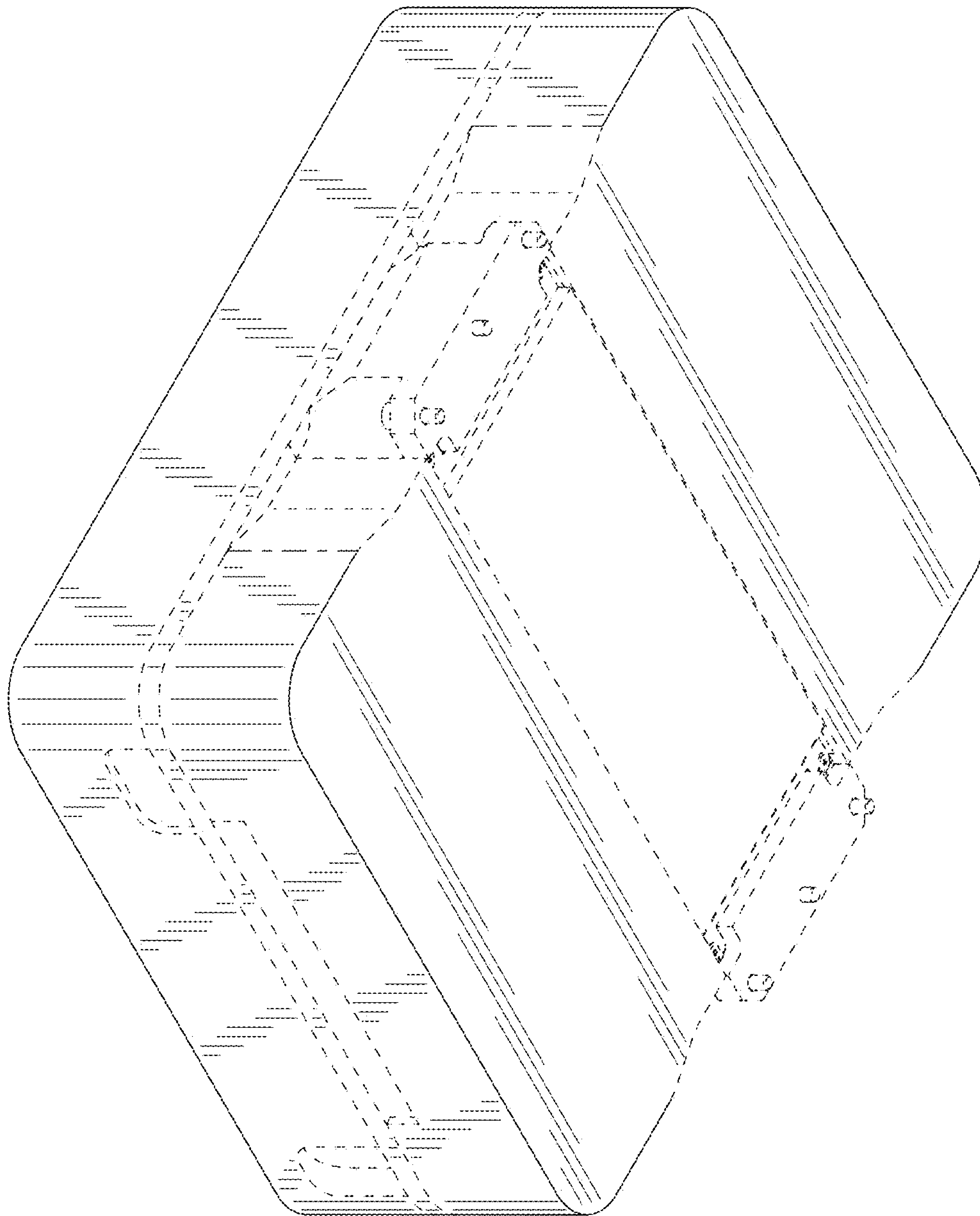

FIG. 44

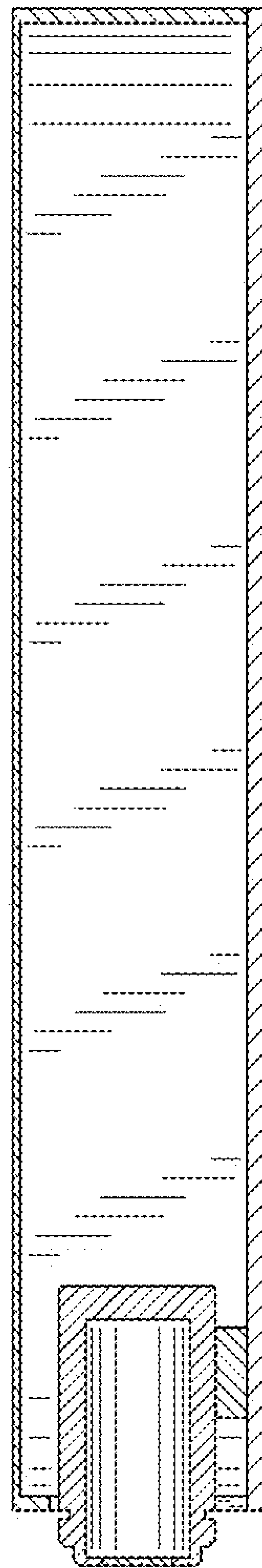

FIG. 45