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Misaizu et al.

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(54) **STRAIN GAUGE**

(71) Applicant: **MINEBEA MITSUMI Inc.**, Nagano (JP)

(72) Inventors: **Eiji Misaizu**, Kanagawa (JP); **Akiyo Yuguchi**, Shizuoka (JP); **Shigeyuki Adachi**, Shizuoka (JP); **Toshiaki Asakawa**, Shizuoka (JP); **Atsushi Kitamura**, Shizuoka (JP)

(73) Assignee: **MINEBEA MITSUMI Inc.**, Nagano (JP)

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(52) **U.S. Cl.**
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(58) **Field of Classification Search**
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CPC B60K 2001/003; B60K 5/04; G01P 1/02; G01P 1/07; G01P 1/12; G01P 3/02; G01P 3/26; G01P 3/64; G01P 9/00; G01D 1/04; G01L 1/04; G01L 1/08; G01L 1/10; G01L 1/12; G01L 1/14; G01L 3/00; G01L 7/00; G01L 1/2287; G01L 1/16; B32B 1/00; B32B 5/00; B32B 27/281; B32B 15/43; G01B 7/16; G01N 27/223; G01M 5/0091

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D860,838 S * 9/2019 Misaizu D10/83
D860,839 S * 9/2019 Misaizu D10/83
2006/0213278 A1 * 9/2006 Arms G01B 7/16
73/781

(Continued)

FOREIGN PATENT DOCUMENTS

JP D1556899 * 11/2015
JP D1561634 10/2016

(Continued)

OTHER PUBLICATIONS

Daoki, BF350-3AA BF350350 ohm High-Precision Pressure Resistance Strain Gauge, Date first available Aug. 31, 2019, [online]retrieved Feb. 7, 2022,available from https://www.amazon.com/DAOKI-BF350-3AA-High-Precision-Pressure-Resistance/dp/B07X87CJD8/ref=sr_1_1_sspa?crid=2VGTK82UX9T5H&key (Year: 2019).*
Micro Measurment a VPG Brand, Strain Gage Selection:Criteria, Procedures, Recommendations, Date first available May 30, 2018, [online]retrieved Feb. 7, 2022,available from <http://www.vishaypg.com/docs/11055/tn505.pdf> (Year: 2018).*

(Continued)

Primary Examiner — Keli L Hill

Assistant Examiner — Sara S Sahneh

(74) *Attorney, Agent, or Firm* — IPUSA, PLLC

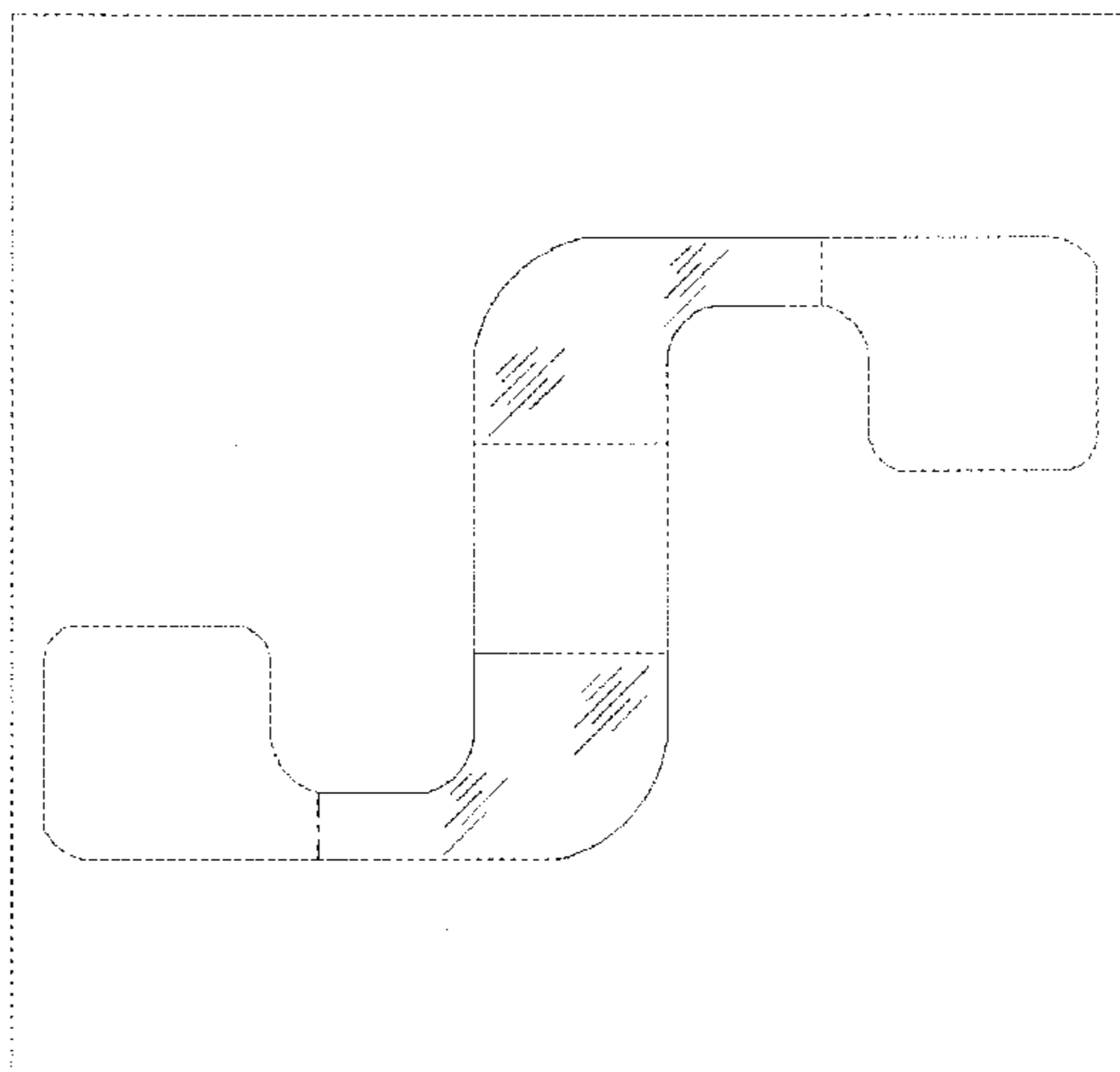
(57) **CLAIM**

The ornamental design for a strain gauge, as shown and described.

DESCRIPTION

FIG. 1 is a top plan view of a strain gauge, showing our new design;
FIG. 2 is a front view thereof;
FIG. 3 is a right side view thereof; and,
FIG. 4 is a bottom plan view thereof.
The broken lines and the uneven-length broken lines shown in the drawings represent portions of the strain gauge that form no part of the claimed design. All sides not shown form no part of the claimed design.

1 Claim, 2 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2006/0288795 A1* 12/2006 Kieffer G01L 1/2287
73/795
2009/0205443 A1* 8/2009 Takeuchi G01L 1/2287
156/230
2011/0023630 A1* 2/2011 Zandman G01L 1/2262
29/595
2016/0334289 A1* 11/2016 Kieffer H01C 1/16
2018/0217016 A1* 8/2018 Inamori G01B 7/18
2020/0088593 A1* 3/2020 Mullen G01M 5/0016
2020/0309505 A1* 10/2020 Hercowitz G01B 7/16
2020/0333199 A1* 10/2020 Asakawa G01B 7/16
2020/0393311 A1* 12/2020 Aizawa G01L 1/2287
2021/0190606 A1* 6/2021 Kieffer B32B 27/281

FOREIGN PATENT DOCUMENTS

JP D1593195 * 2/2017
JP D1622664 * 1/2018
KR 300567273 8/2010
KR 300811655.0000 * 12/2014

OTHER PUBLICATIONS

Walfront Store, Thin Film Pressure Sensor High Precise Force-Sensitive, Date first available Jun. 13, 2019, [online]retrieved Feb. 7, 2022,available from https://www.amazon.com/Pressure-Precise-Force-Sensitive-Resistor-Resistance-type/dp/B07T1CHY58/ref=pd_sbs_5/133-9420367-9745951?pd_rd_ (Year: 2019).*
Office Action dated Apr. 13, 2021 (Japanese Design Application No. 2019-016075).
Japanese Office Action dated May 19, 2020 (JP Design Application No. 2019-016075).
Japanese Office Action dated May 19, 2020 (JP Design Application No. 2019-016077).
Japanese Office Action dated May 26, 2020 (JP Design Application No. 2019-016078).
Kyoawa Electronic Instrument Co., Ltd., "Strain Gauge", National Catalogue for Industrial Property Information and Training, accepted by the National Institute of Industrial Property Information and Training on Oct. 21, 2016, p. 34, Publication Date: Dec. 7, 2016. U.S. Appl. No. 29/717,352, filed Dec. 17, 2019, Minebea Mitsumi Inc.

* cited by examiner

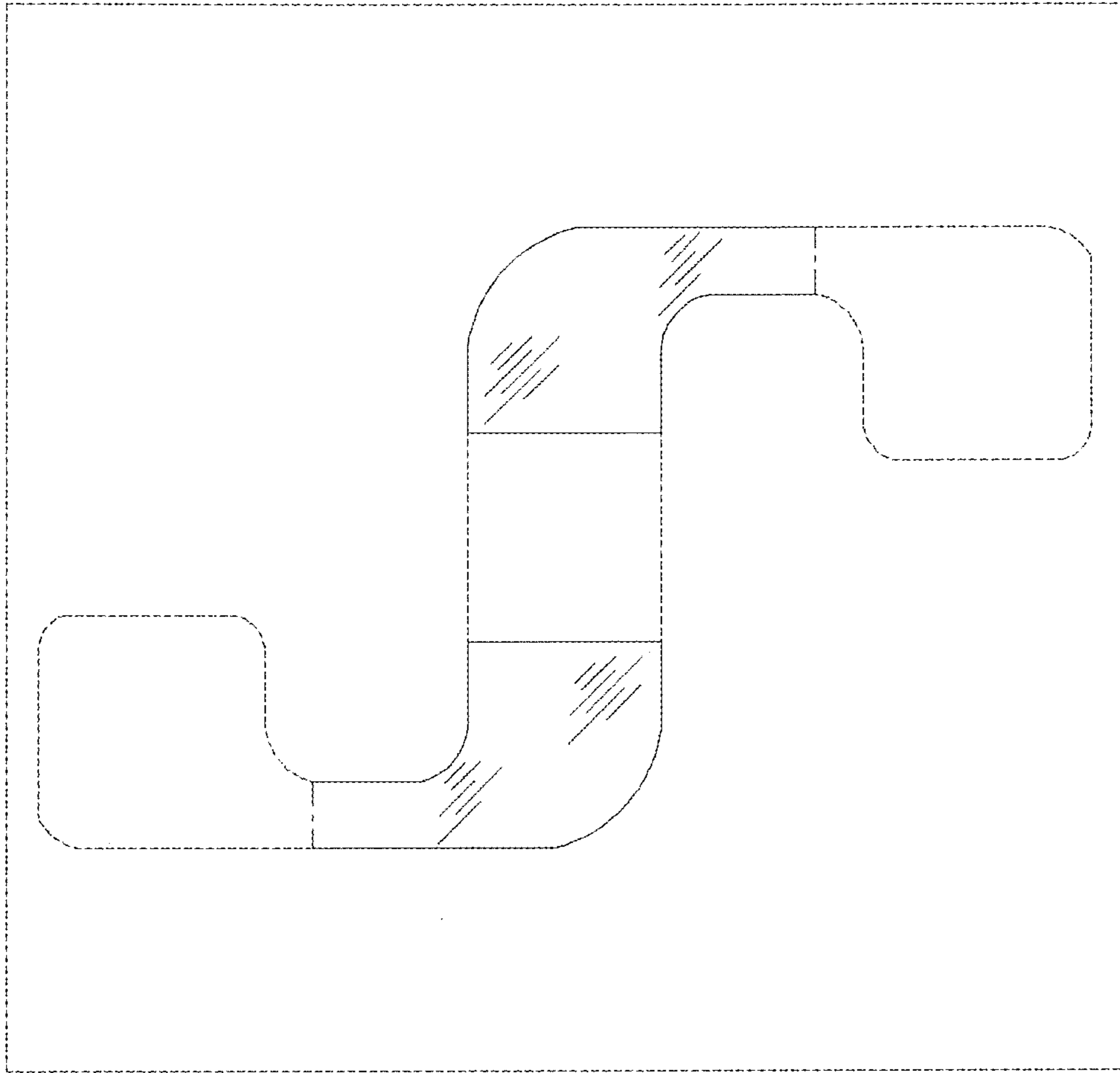


Fig. 1

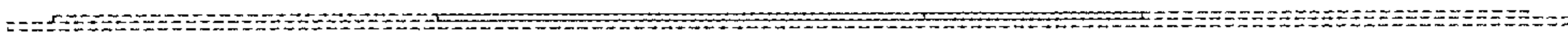


Fig. 2

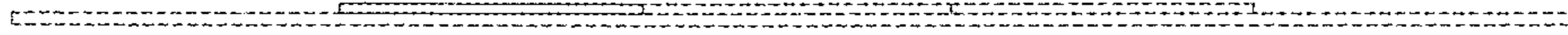


Fig. 3

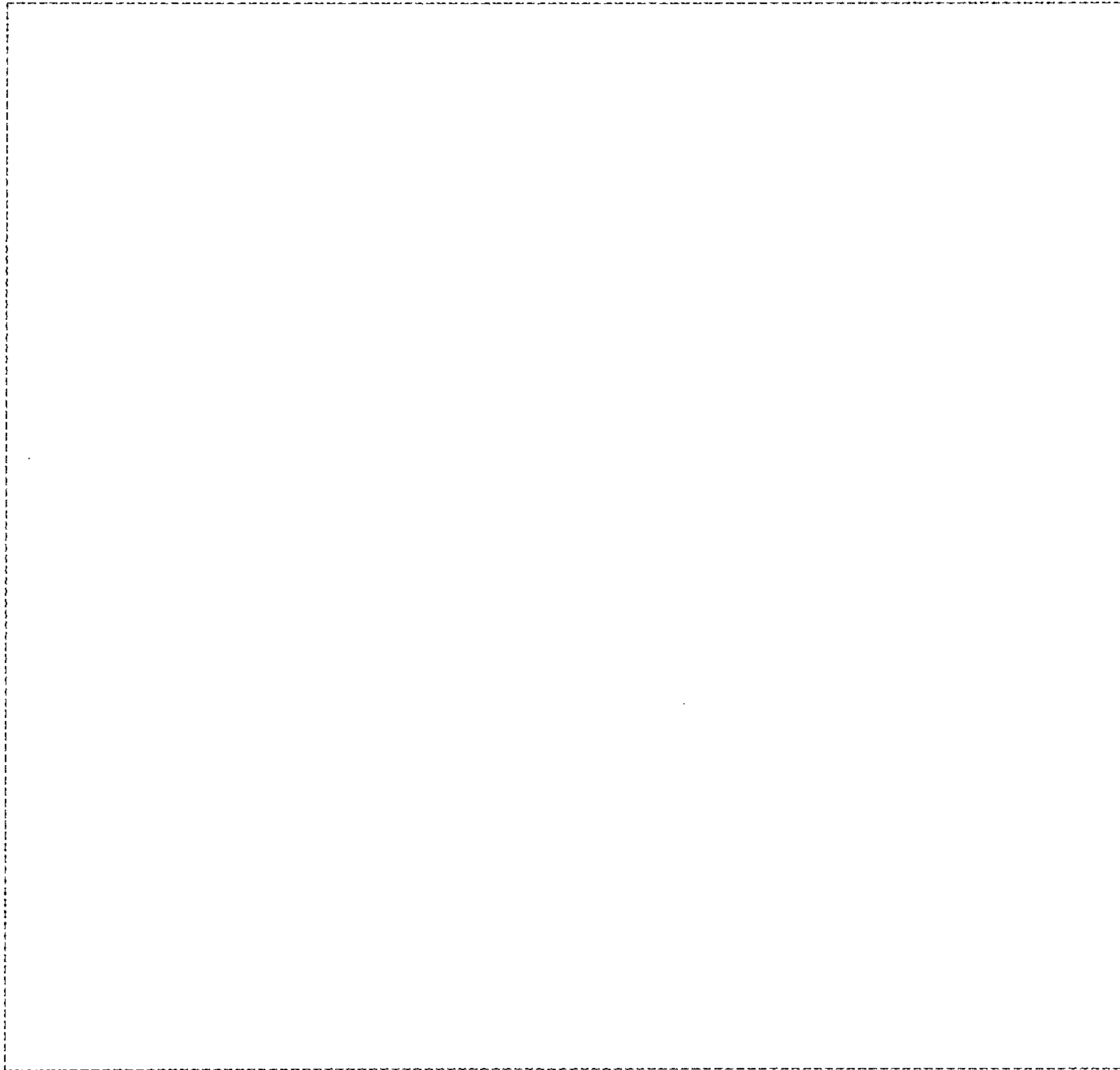


Fig. 4