



US00D794616S

(12) **United States Design Patent** (10) **Patent No.:** **US D794,616 S**  
**Gosalia et al.** (45) **Date of Patent:** **\*\* Aug. 15, 2017**

(54) **ANTENNA**

OTHER PUBLICATIONS

(71) Applicant: **Airgain Incorporated**, San Diego, CA (US)

<http://airgain.com/our-services/embedded-antennas/>—Retrieved Jan. 4, 2017.\*

(Continued)

(72) Inventors: **Keyoor Gosalia**, Carlsbad, CA (US);  
**Bei Zheng**, Zhang Jia Gang (CN);  
**Mengyi Tao**, Zhang Jia Gang (CN);  
**Qilong Wang**, Zhang Jia Gang (CN);  
**Simon Yang**, Carlsbad, CA (US)

*Primary Examiner* — Manpreet Matharu  
*Assistant Examiner* — Mojtaba Tehrani  
(74) *Attorney, Agent, or Firm* — Clause Eight IPS;  
Michael Catania

(73) Assignee: **Airgain Incorporated**, San Diego, CA (US)

(57) **CLAIM**

The ornamental design for an antenna, as shown and described.

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

(21) Appl. No.: **29/553,323**

**DESCRIPTION**

(22) Filed: **Jan. 30, 2016**

(51) **LOC (10) Cl.** ..... **12-03**

(52) **U.S. Cl.**  
USPC ..... **D14/230**

(58) **Field of Classification Search**  
USPC ..... D14/138, 230–238.1, 299, 358; D13/182  
CPC ..... H01L 33/48; H01L 33/486; H01L 23/02;  
H05K 5/00; H01Q 13/10  
See application file for complete search history.

FIG. 1 is a top plan view of the first embodiment of an antenna, showing our new design;  
FIG. 2 is a side elevation view thereof;  
FIG. 3 is a front elevation view thereof;  
FIG. 4 is a bottom plan view thereof;  
FIG. 5 is a top perspective view thereof;  
FIG. 6 is a top plan view thereof, with unclaimed environment not shown;  
FIG. 7 is a front elevation view thereof, with unclaimed environment not shown;  
FIG. 8 is a top plan view of the second embodiment of an antenna, showing our new design;  
FIG. 9 is a side elevation view thereof;  
FIG. 10 is a front elevation view thereof;  
FIG. 11 is a bottom plan view thereof;  
FIG. 12 is a top perspective view thereof;  
FIG. 13 is a top plan view thereof, with unclaimed environment not shown; and,  
FIG. 14 is a front elevation view thereof, with unclaimed environment not shown.  
The broken line in the figure drawings represents unclaimed environment only and forms no part of the claimed design.

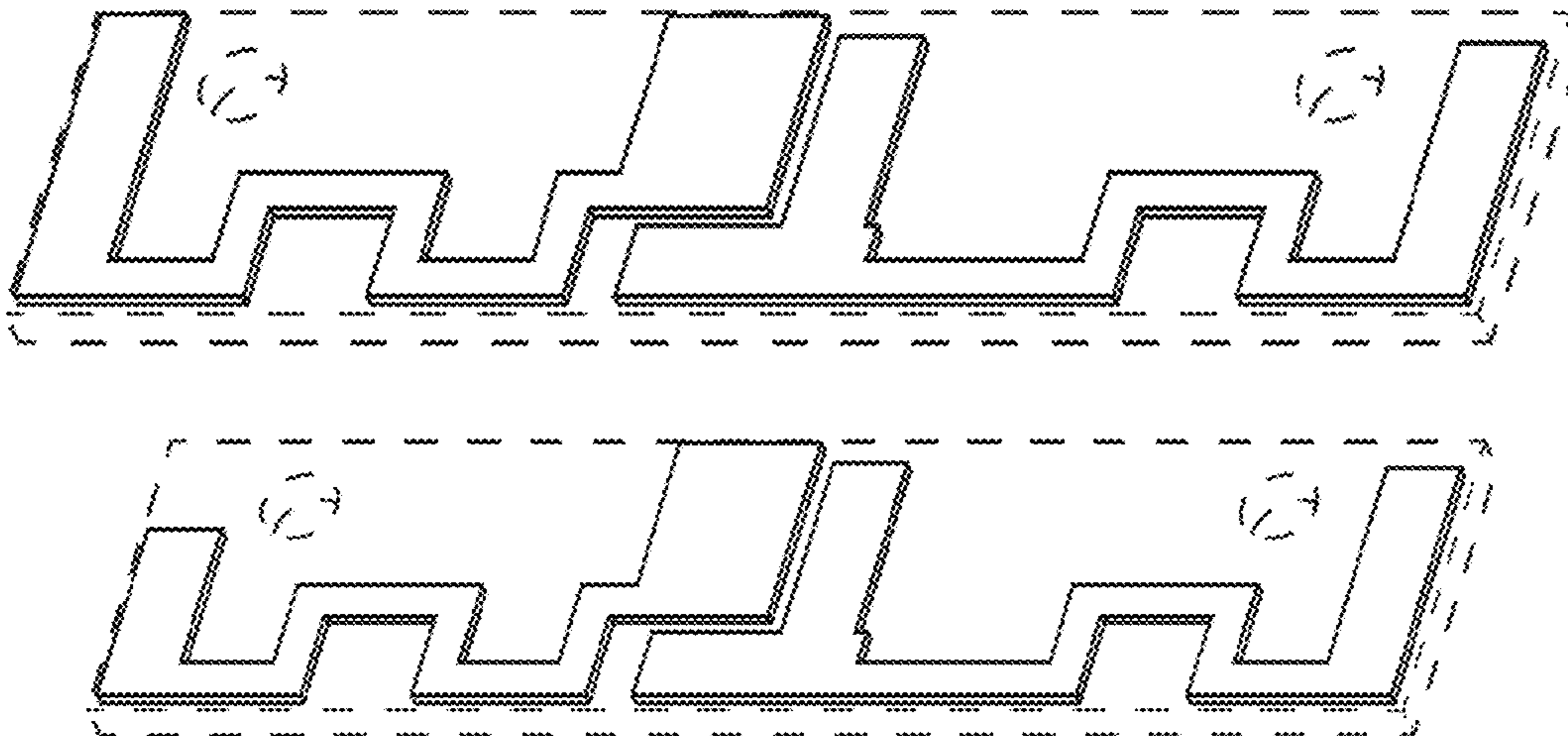
(56) **References Cited**

U.S. PATENT DOCUMENTS

7,061,437 B2	6/2006	Lin et al.
7,148,849 B2	12/2006	Lin
7,215,296 B2	5/2007	Abramov et al.
D546,821 S	7/2007	Oliver
D549,696 S	8/2007	Oshima et al.
7,333,067 B2	2/2008	Hung et al.
7,336,959 B2	2/2008	Khitrik et al.
D573,589 S	7/2008	Montgomery et al.
7,405,704 B1	7/2008	Lin et al.
7,477,195 B2	1/2009	Vance
D592,195 S	5/2009	Wu et al.

(Continued)

**1 Claim, 6 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

7,570,215 B2 8/2009 Abramov et al.  
D599,334 S 9/2009 Chiang  
D606,053 S 12/2009 Wu et al.  
D607,442 S 1/2010 Su et al.  
D608,769 S 1/2010 Bufe  
D612,368 S 3/2010 Yang et al.  
7,705,783 B2 4/2010 Rao et al.  
7,729,662 B2 6/2010 Abramov et al.  
D621,819 S 8/2010 Tsai et al.  
7,843,390 B2 11/2010 Liu  
D633,483 S 3/2011 Su et al.  
D635,127 S 3/2011 Tsai et al.  
7,907,971 B2 3/2011 Salo et al.  
D635,560 S 4/2011 Tsai et al.  
D635,963 S 4/2011 Podduturi  
D635,964 S \* 4/2011 Podduturi ..... D14/230  
D635,965 S 4/2011 Mi et al.  
D636,382 S 4/2011 Podduturi  
7,965,242 B2 6/2011 Abramov et al.  
D649,962 S 12/2011 Tseng et al.  
D651,198 S 12/2011 Mi et al.  
D654,059 S 2/2012 Mi et al.  
D654,060 S 2/2012 Ko et al.  
D658,639 S 5/2012 Huang et al.  
D659,129 S 5/2012 Mi et al.  
D659,685 S 5/2012 Huang et al.  
D659,688 S 5/2012 Huang et al.  
8,175,036 B2 5/2012 Visuri et al.  
8,184,601 B2 5/2012 Abramov et al.  
D662,916 S 7/2012 Huang et al.  
8,248,970 B2 8/2012 Abramov et al.  
D671,097 S 11/2012 Mi et al.  
8,310,402 B2 11/2012 Yang  
D676,429 S 2/2013 Gosalia et al.  
D678,255 S 3/2013 Ko et al.  
8,423,084 B2 4/2013 Abramov et al.  
D684,565 S 6/2013 Wei  
D685,352 S 7/2013 Wei  
D685,772 S 7/2013 Zheng et al.  
D686,600 S \* 7/2013 Yang ..... D14/230  
D689,474 S \* 9/2013 Yang ..... D14/230  
D692,870 S 11/2013 He

D694,738 S 12/2013 Yang  
D695,279 S 12/2013 Yang et al.  
D695,280 S 12/2013 Yang et al.  
D703,195 S 4/2014 Zheng  
D703,196 S 4/2014 Zheng  
D706,247 S 6/2014 Zheng et al.  
D706,750 S 6/2014 Bringuir  
D706,751 S 6/2014 Chang et al.  
D708,602 S 7/2014 Gosalia et al.  
D709,053 S 7/2014 Chang et al.  
D710,832 S 8/2014 Yang  
D710,833 S 8/2014 Zheng et al.  
D715,780 S \* 10/2014 Forster ..... D14/230  
8,854,265 B1 10/2014 Yang et al.  
D716,775 S 11/2014 Bidermann  
D753,096 S \* 4/2016 Li ..... D14/230  
D764,447 S \* 8/2016 Yang ..... D14/230  
D766,883 S \* 9/2016 Yang ..... D14/230  
D767,544 S \* 9/2016 Yang ..... D14/230  
D773,442 S \* 12/2016 Man ..... D14/230  
D773,444 S \* 12/2016 He ..... D14/230  
2002/0003499 A1 1/2002 Kouam et al.  
2004/0222936 A1 11/2004 Hung et al.  
2005/0073462 A1 4/2005 Lin et al.  
2005/0190108 A1 9/2005 Lin et al.  
2006/0208900 A1 9/2006 Tavassoli Hozouri  
2007/0030203 A1 2/2007 Tsai et al.  
2008/0150829 A1 6/2008 Lin et al.  
2009/0002244 A1 1/2009 Woo  
2009/0058739 A1 3/2009 Konishi  
2009/0135072 A1 5/2009 Ke et al.  
2009/0262028 A1 10/2009 Mumburu et al.  
2010/0188297 A1 7/2010 Chen et al.  
2010/0309067 A1 12/2010 Tsou et al.  
2011/0006950 A1 1/2011 Park et al.  
2012/0038514 A1 2/2012 Bang  
2012/0229348 A1 9/2012 Chiang  
2012/0242546 A1 9/2012 Hu et al.

OTHER PUBLICATIONS

<http://gerbole.en.made-in-china.com/product/HSDQCUNxChcV/China-868MHz-Antenna-GSM-PCB-Antenna-Built-in-Antenna.html>—Retrieved Apr. 12, 2017.\*

\* cited by examiner

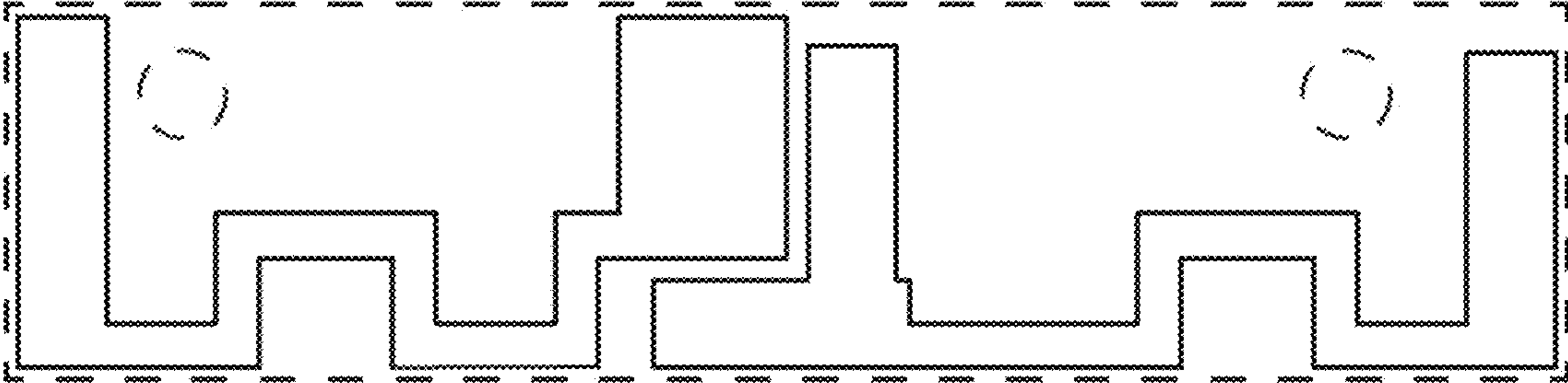


FIG. 1

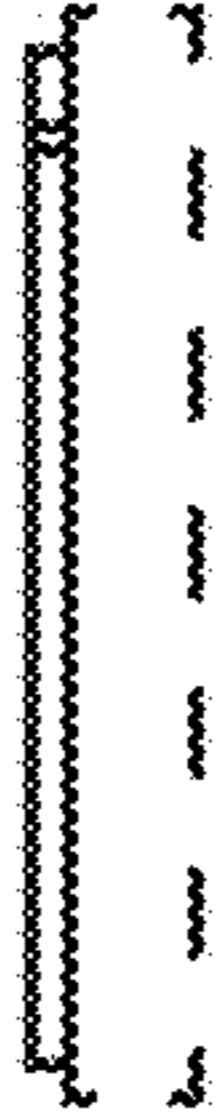


FIG. 2

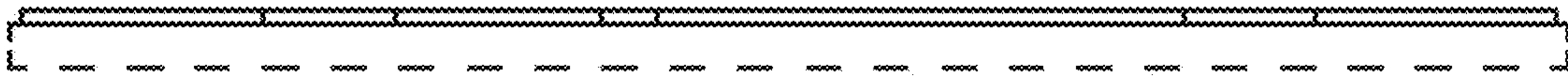


FIG. 3

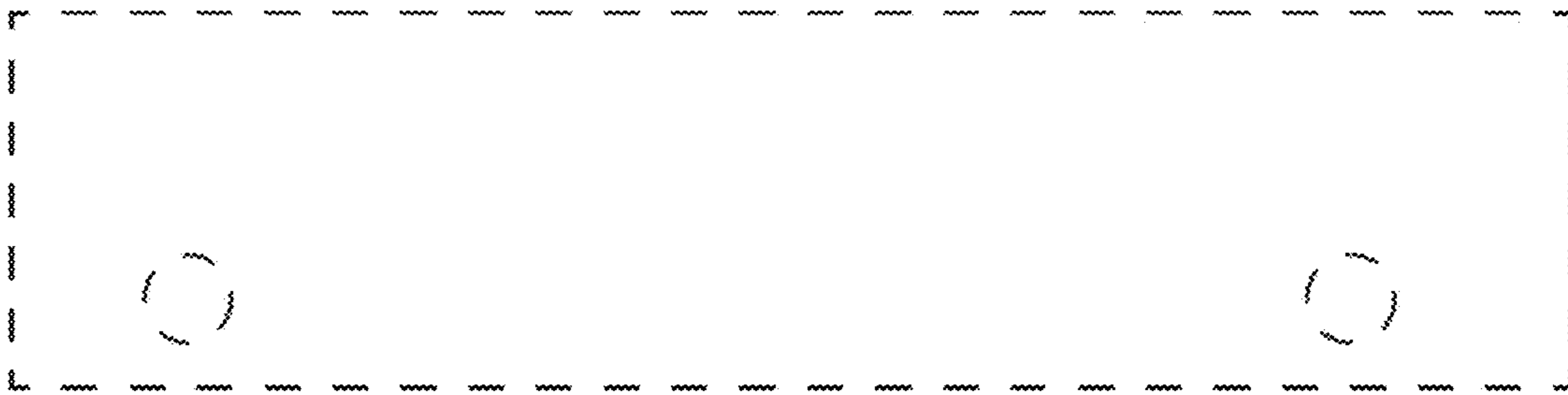


FIG. 4



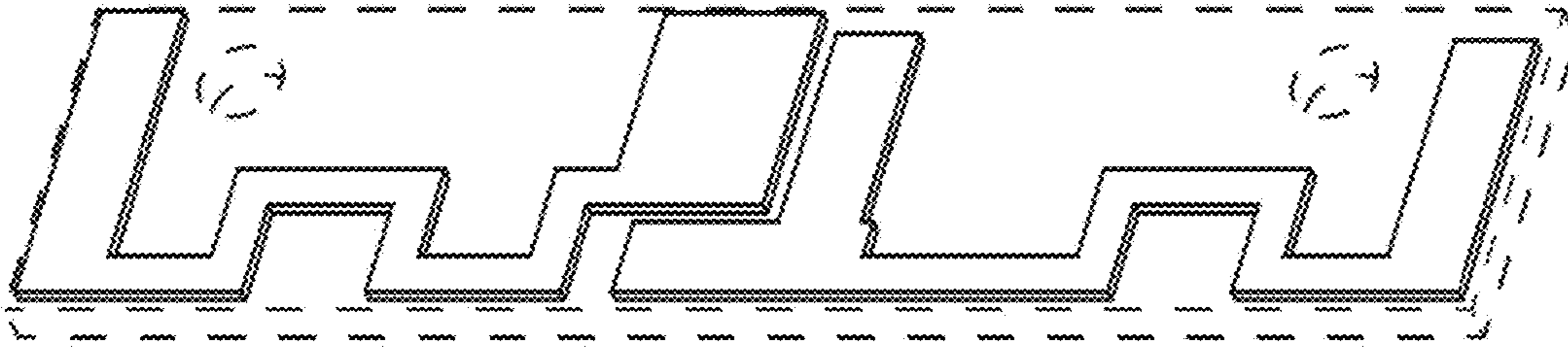


FIG. 5

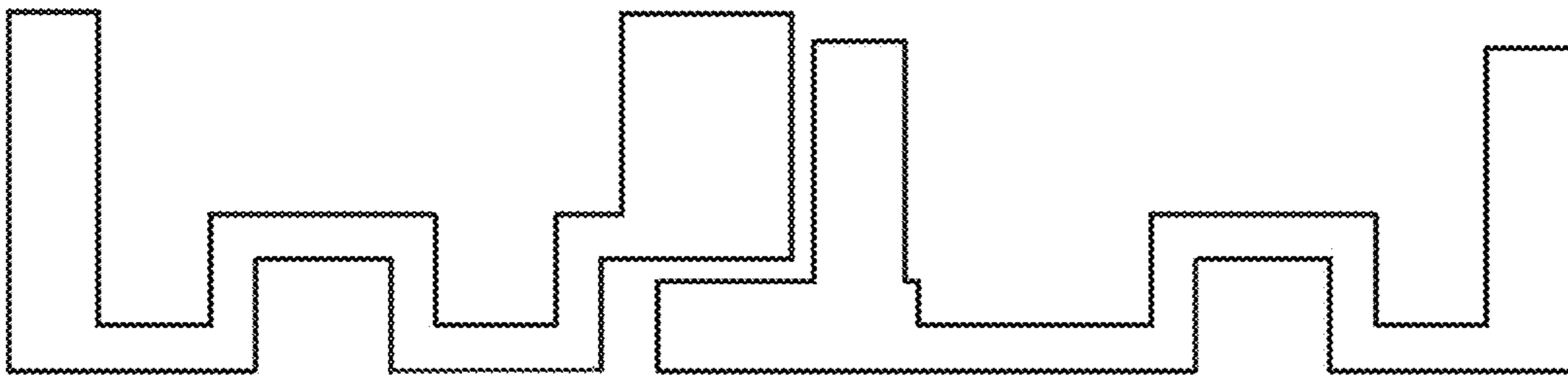


FIG. 6



FIG. 7

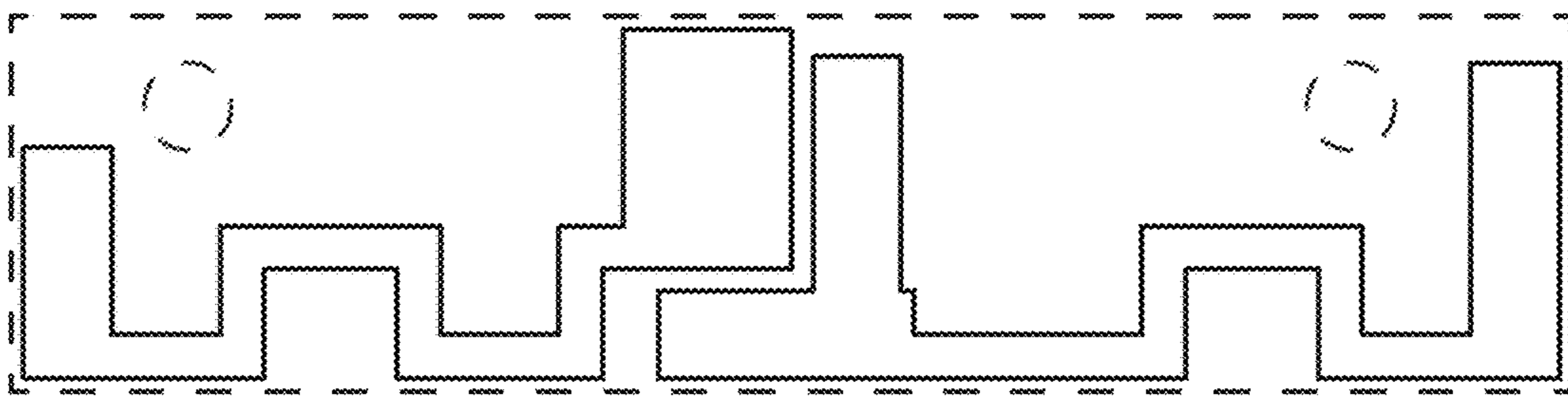


FIG. 8



FIG. 9

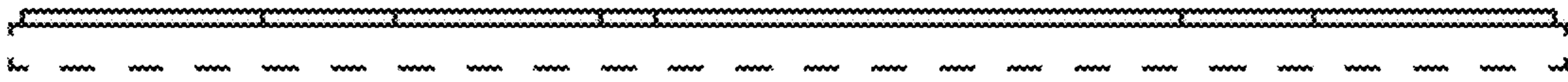


FIG. 10

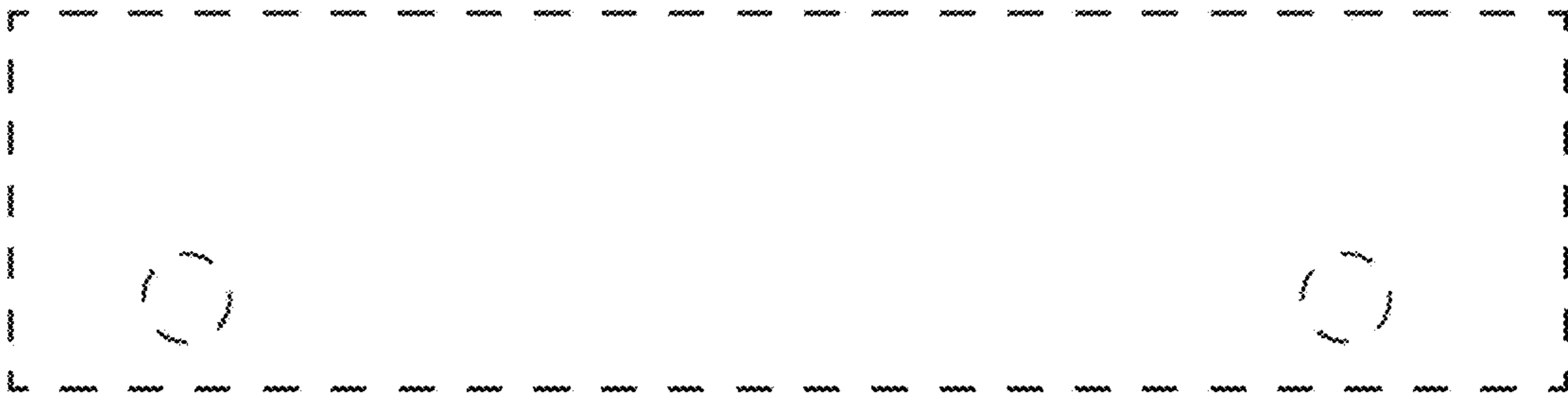


FIG. 11

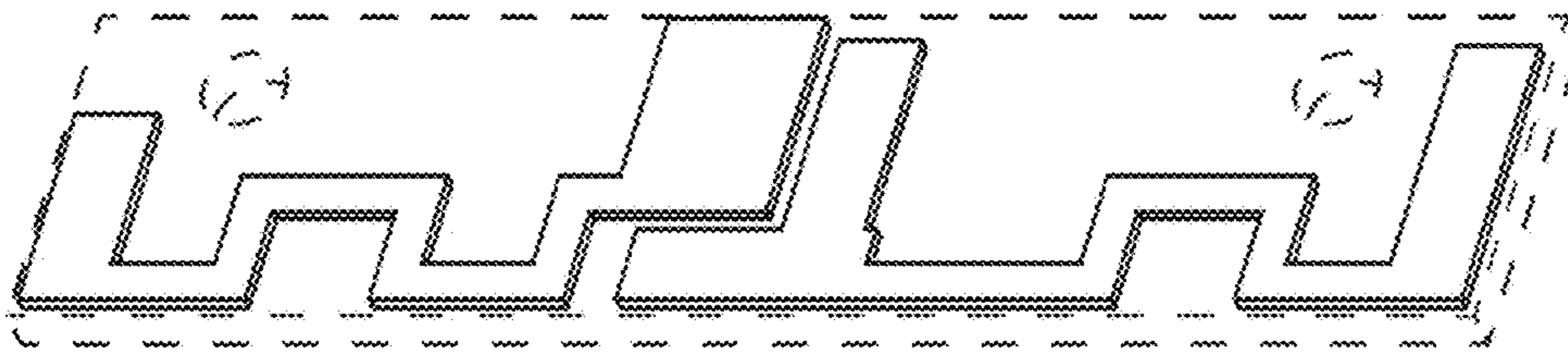


FIG. 12

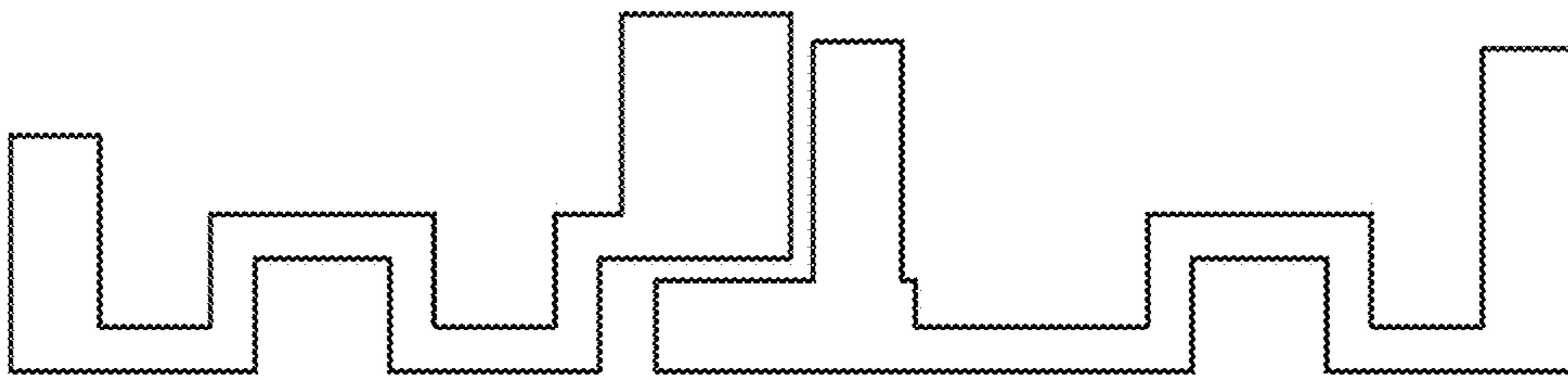


FIG. 13

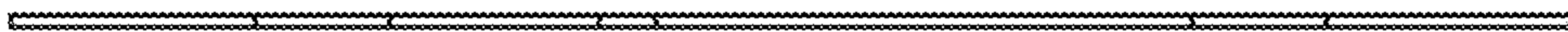


FIG. 14