US00D898825S

(12) United States Design Patent

Grant et al.

(10) Patent No.: US D898,825 S
(45) Date of Patent: ** Oct. 13, 2020

(54) **ELECTRON HOUSE TEACHING AID**

(71) Applicant: **Research Foundation of the City University of New York**, New York, NY (US)

(72) Inventors: **Kristen J. Grant**, Mount Vernon, NY (US); **Dustin Wheeler**, Forest Hills, NY (US)

(73) Assignee: **Research Foundation of City University Of New York**, New York, NY (US)

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

(21) Appl. No.: **29/689,473**

(22) Filed: **Apr. 30, 2019**

(51) **LOC (12) Cl.** **19-07**

(52) **U.S. Cl.**
USPC **D19/64**

(58) **Field of Classification Search**
USPC D19/59–64
CPC G06N 99/005; G09B 23/181; G09B 23/24; G09B 23/00
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D179,025	S *	10/1956	Mullins	D21/340
3,276,148	A	10/1966	Snelson	
D240,619	S *	7/1976	Holcomb	D19/64
D243,085	S *	1/1977	Holcomb	D19/64
D243,847	S *	3/1977	Holcomb	D19/64
D293,336	S *	12/1987	Fenner	D19/62
D386,789	S *	11/1997	Willis	D19/59
D405,114	S *	2/1999	Hossfeld	D10/44
6,508,652	B1 *	1/2003	Kestyn	G09B 23/26 434/278
8,672,685	B2	3/2014	Doherty	

(Continued)

FOREIGN PATENT DOCUMENTS

CA	2419300	A1 *	8/2004
GB	4043768	*	10/2015

OTHER PUBLICATIONS

Doc Brown's Chemistry. Link: http://www.docbrown.info/page07/ASA2ptable2a.htm. Visited Jun. 2, 2020. Periodic table: element electron configurations: revision notes Advanced A level inorganic chemistry. (Year: 2020).*

(Continued)

Primary Examiner — Susan Bennett Hattan
Assistant Examiner — Lauren D McVey
(74) *Attorney, Agent, or Firm* — Peter J. Mikesell; Schmeiser, Olsen & Watts, LLP

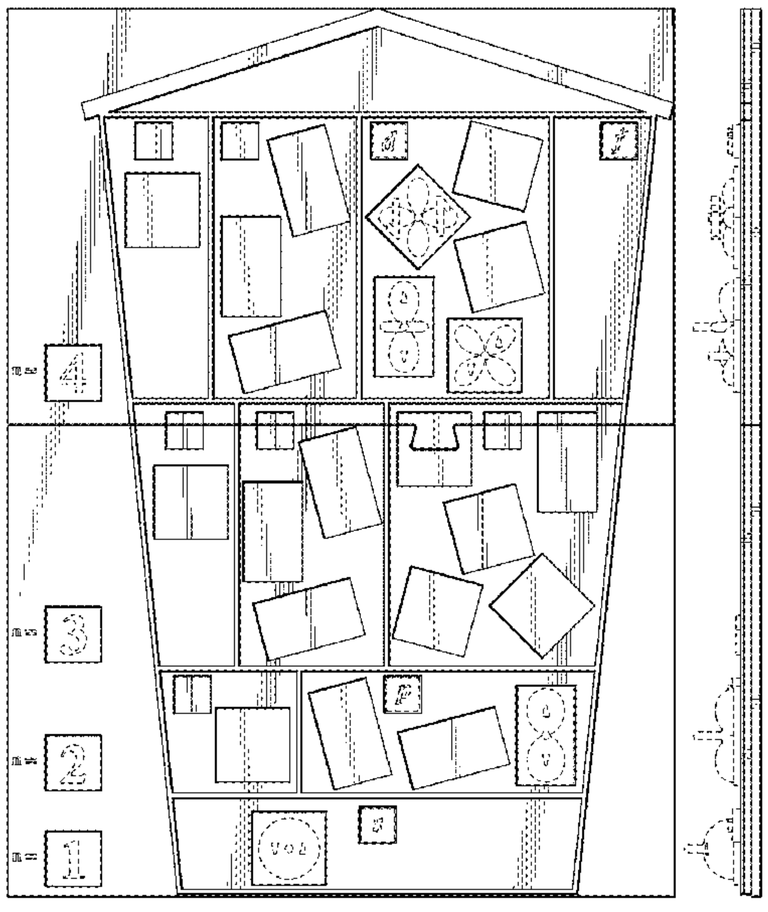
(57) **CLAIM**

The ornamental design for an "electron house teaching aid", as shown and described.

DESCRIPTION

FIG. **1** is a top right front elevation view of an electron house teaching aid showing my new design in a joined state;
FIG. **2** is another top right front elevation view thereof in a separated state;
FIG. **3** is top plan view of FIG. **1**;
FIG. **4** is a left elevation view thereof;
FIG. **5** is a right elevation view thereof;
FIG. **6** is a rear elevation view thereof; and,
FIG. **7** is a front elevation view thereof.
The broken lines immediately adjacent to the shaded areas depict the bounds of the claimed design, while all other broken lines are directed to environment. In addition, the unshaded surfaces that directly adjoin the claimed solid line edges form no part of the claimed design.

1 Claim, 3 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

D752,684	S *	3/2016	Lanza	D19/59
D834,644	S *	11/2018	Allen	D19/64
2018/0165990	A1 *	6/2018	Cummins	G09B 23/183

OTHER PUBLICATIONS

Mashhadi , Azam; Student's Conceptions of the "Reality Status" of Electrons; Annual Meeting to the Singapore Educational Research Association, 1998.

Millikan, Roger; Why Teach the Electron Configuration of the Elements as We Do?; J. Chem. Educ. V. 59, No. 9, Sep. 1982.

Al-Balushi, Sulaiman M.; The Relationship Between Learners' Distrust of Scientific Models, Their Spatial Ability, and the Vividness of their Mental Images; Int. J. Of Sci. and Mathematics Education, V. 11, Issue 3, pp. 707-732, Jun. 2013.

Mackinnson, Gregory, Students' Understanding of Orbitals: A Survey; https://eric.ed.gov/; 1999.

Adhikary, Chandan; Chunking Strategy as a Tool for Teaching Electron Configuration; J. Chem. Educ. 2015, 92, 664-667.

Garofalo, Anthony; Housing Electrons: Relating Quantum numbers, energy levels, and Electron Configurations; J. Chem. Edu., v. 74, No. 6, Jun. 1997 709-710.

Gillespie, Ronald, Demystifying Introductory Chemistry. Part 1: Electron Configurations from Experiment. Journal of Chemical Education 73:617-622, 1996.

Nika GG, Parameswaran R. 1997. Geometric Electron Models . Science Teacher 64:44-46.

Papaphotis, G, 2008. Conceptual versus Algorithmic Learning in High School Chemistry: The Case of Basic Duantum Chemical Concepts—Part 2. Students' Common Errors, Misconceptions and Difficulties in Understanding. Chemistry Education Research and Practice 9:332-340.

Specht Z, Raley D. 2014. Modeling Electron Density and Atomic Orbitals Using Marbles and Carbon Paper: An Exercise for High School Students. Journal of Chemical Education 91:151-153.

Strong JA. The Periodic Table and Electron Configurations. Journal of Chemical; J. Chem. Educ. vol. 63, No. 10, Oct. 1986, 834-836.

Taber KS. Straw Men and False Dichotomies :Overcoming Philosophical Confusion in Chemical Education. Journal of Chemical Education 2010, 87:552-558.

* cited by examiner

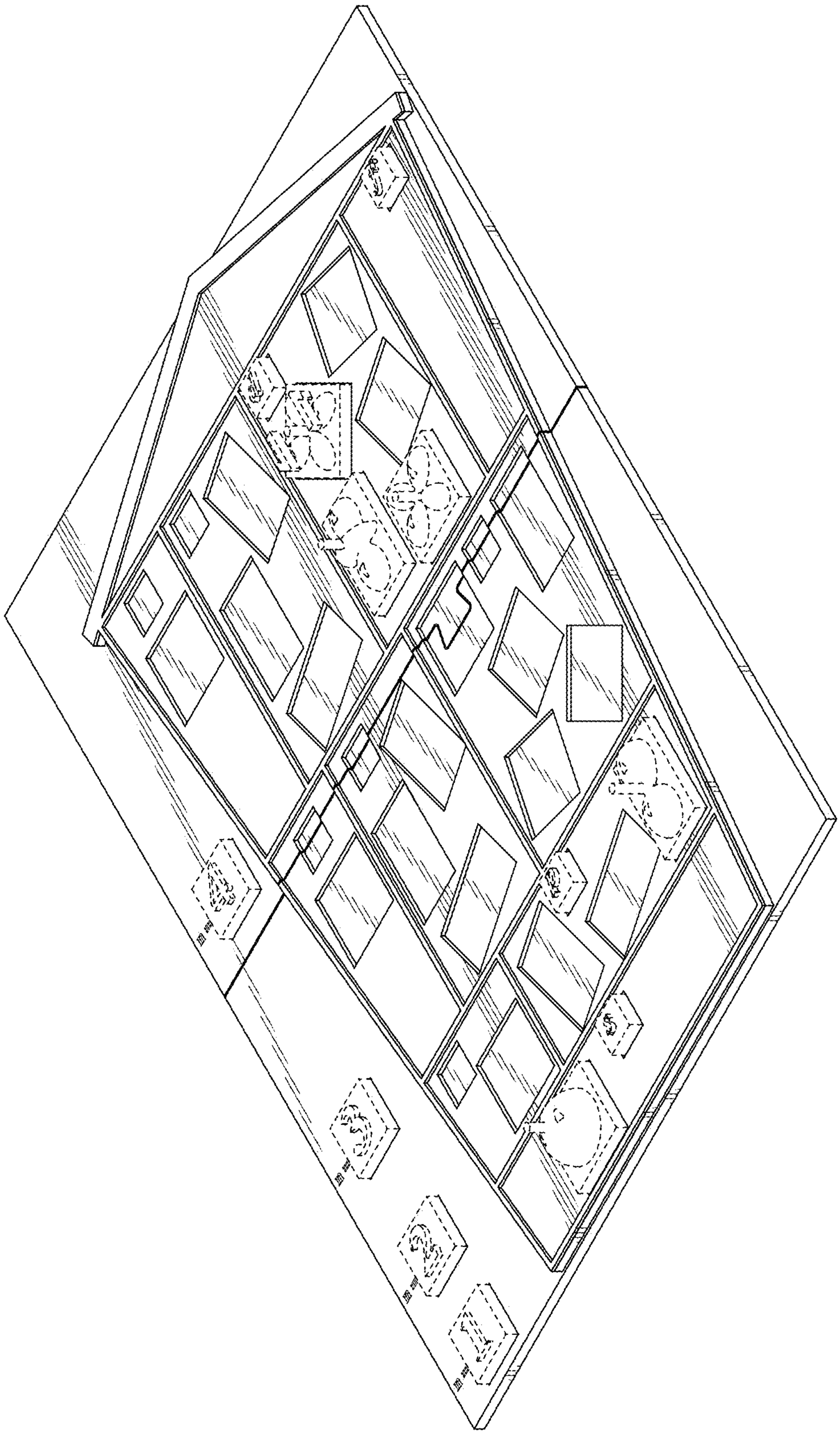


FIG. 1

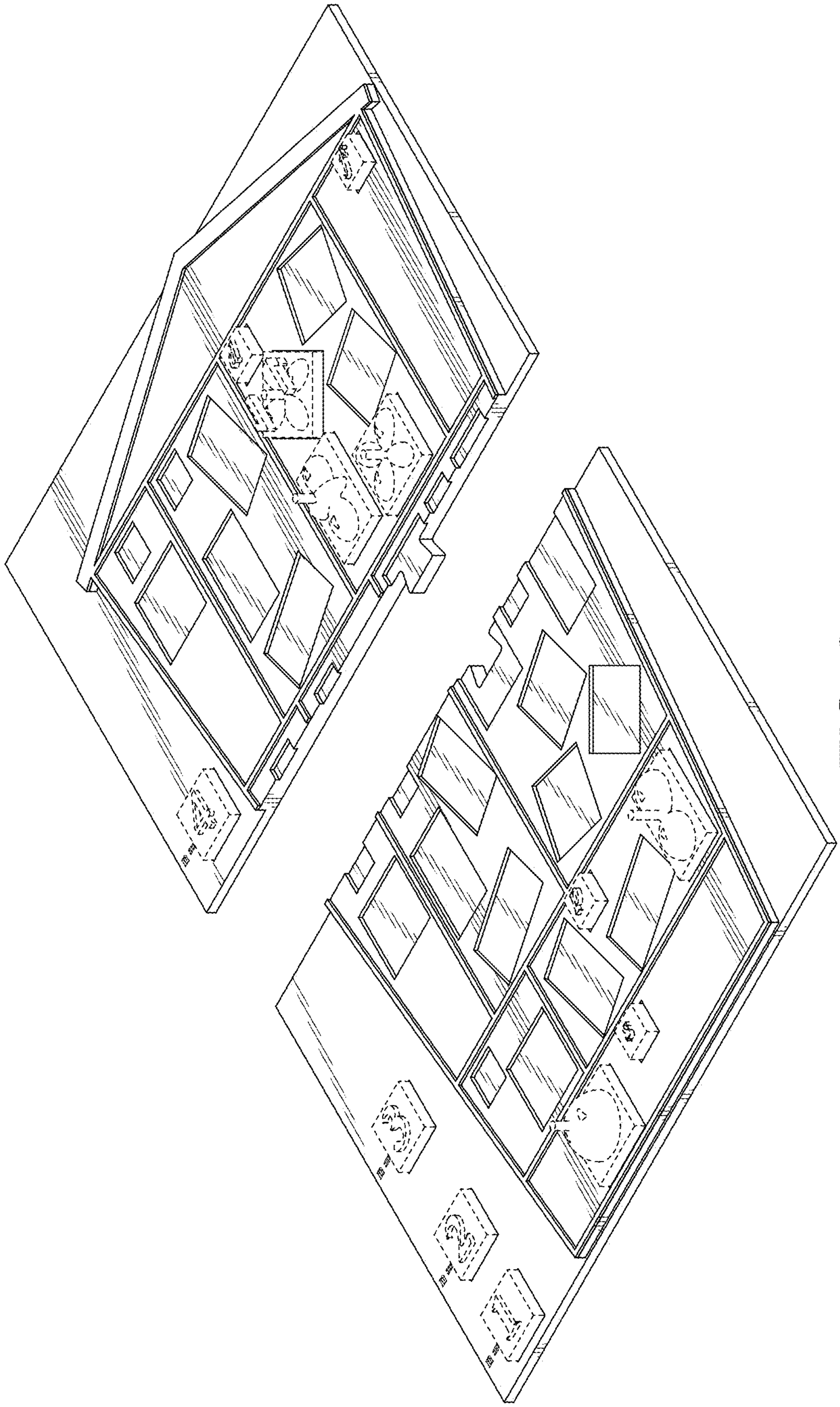


FIG. 2

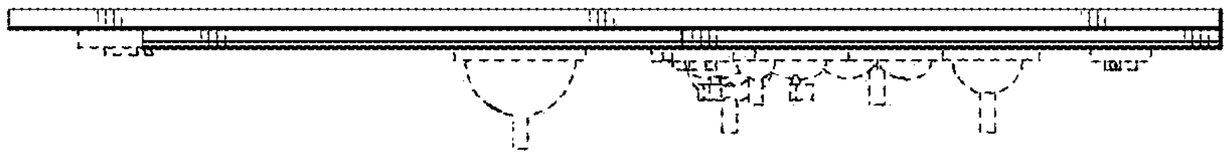


FIG. 6

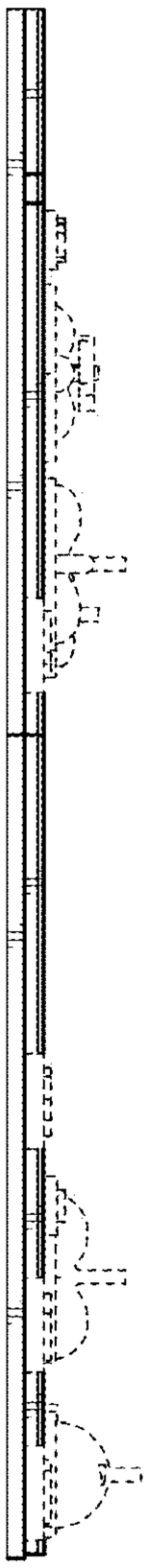


FIG. 4

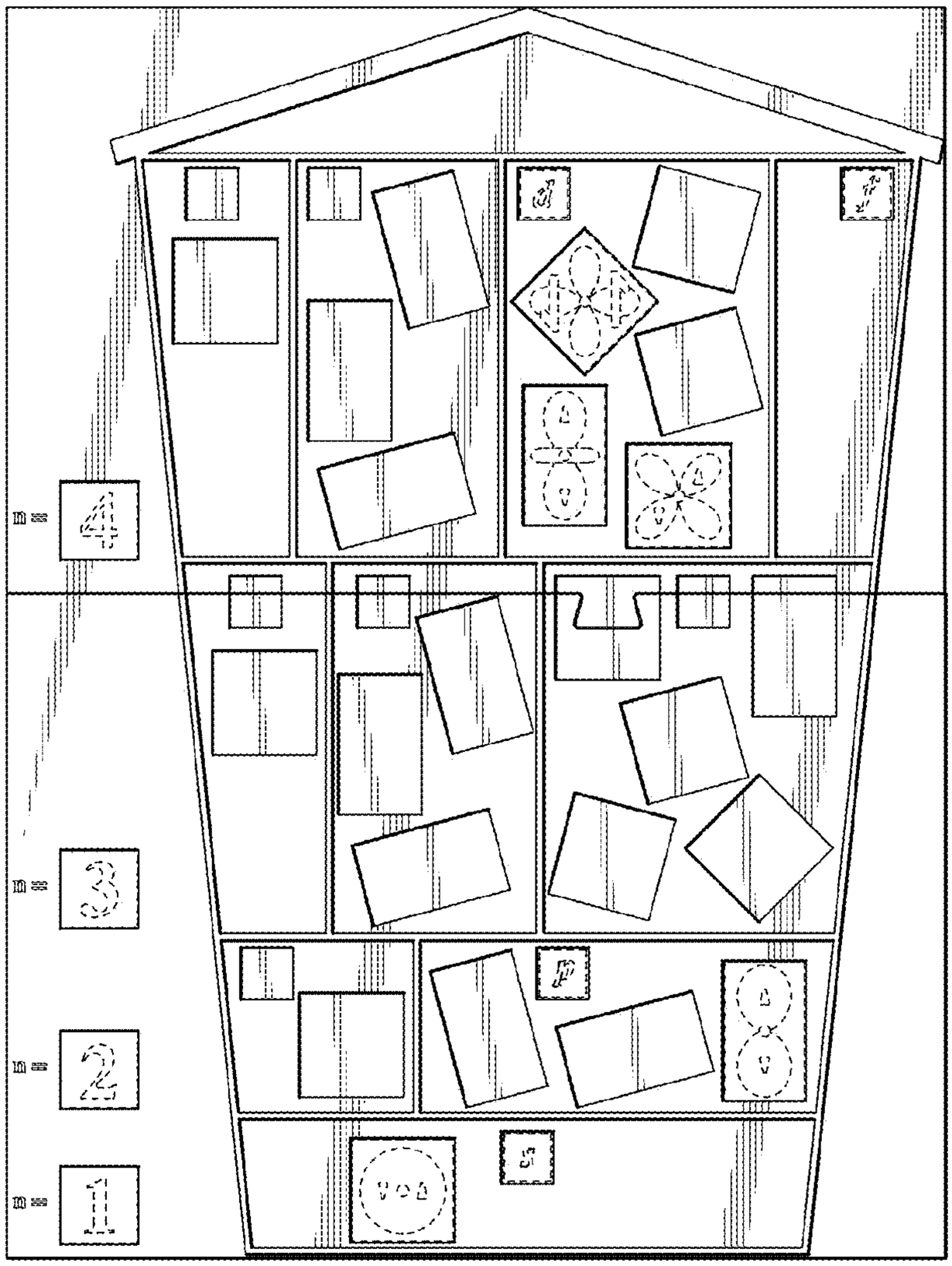


FIG. 3

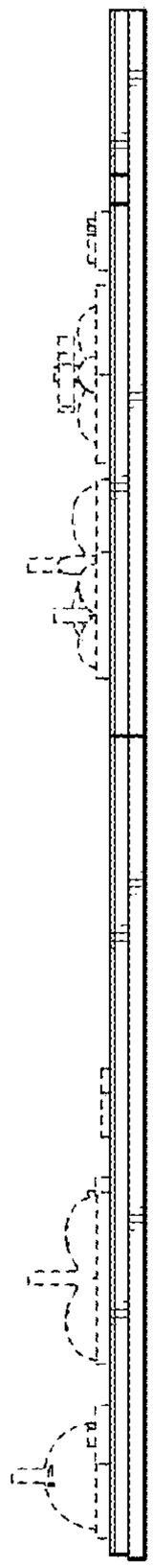


FIG. 5

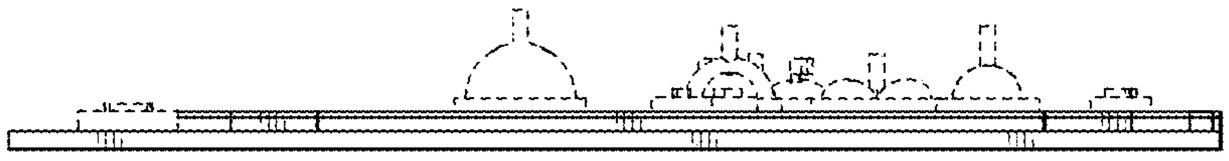


FIG. 7