



US00D973603S

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

(10) **Patent No.:** **US D973,603 S**

(45) **Date of Patent:** **\*\* Dec. 27, 2022**

(54) **ELECTRIC RELAY**  
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(72) Inventors: **Changyong Jeong**, Gyeonggi-do (KR);  
**Byeongseok Jeong**, Gyeonggi-do (KR)

2,545,587 A \* 3/1951 Prouty ..... H01H 71/68  
335/188  
2,547,131 A \* 4/1951 Lewus ..... H01H 50/34  
335/274  
2,633,488 A \* 3/1953 Brion ..... H01H 51/2245  
335/274

(Continued)

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

*Primary Examiner* — Rhea Shields

(21) Appl. No.: **35/512,168**

(57) **CLAIM**

(22) Filed: **Jan. 13, 2021**

The ornamental design for an electric relay, as shown and described.

(80) **Hague Agreement Data**

**DESCRIPTION**

Int. Filing Date: **Jan. 13, 2021**  
Int. Reg. No.: **DM/212361**  
Int. Reg. Date: **Jan. 13, 2021**  
Int. Reg. Pub. Date: **Jul. 16, 2021**

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

(30) **Foreign Application Priority Data**

Jul. 15, 2020 (KR) ..... 30-2020-0032408

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

(52) **U.S. Cl.**  
USPC ..... **D13/159**

(58) **Field of Classification Search**  
USPC ... D13/159, 158, 160, 169, 162.1, 123, 182,  
D13/177; D10/106.8, 46; D14/240, 155  
CPC ..... H02B 11/12; H05K 7/20918; H01H  
51/2245; H01H 50/34; H01H 71/68;  
H01H 50/74; B23Q 5/027; B61L 29/288;  
H01R 12/675; H04M 1/652  
See application file for complete search history.

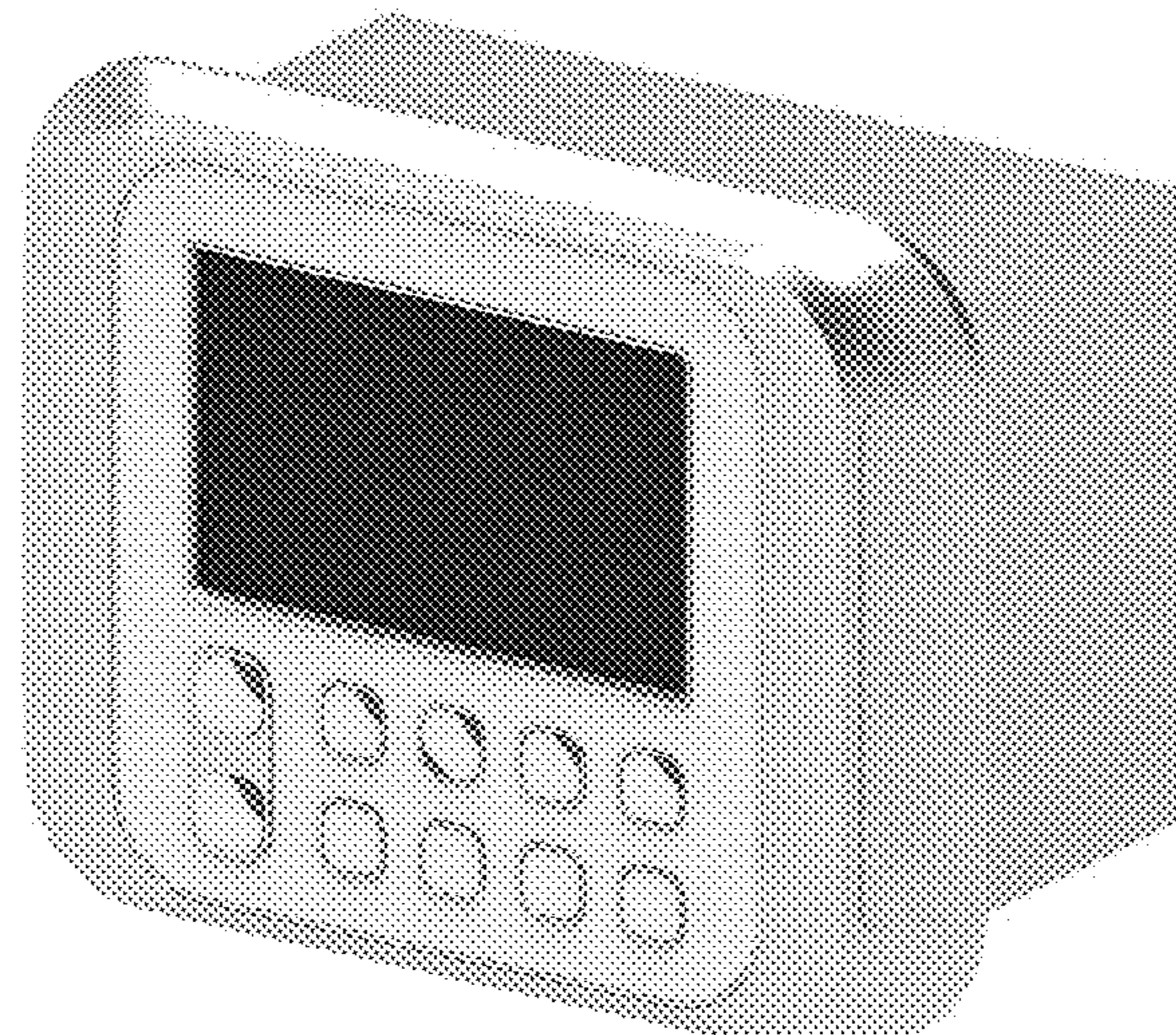
1. Relay, electric  
**1.1** : Perspective  
**1.2** : Front  
**1.3** : Back  
**1.4** : Left  
**1.5** : Right  
**1.6** : Top  
**1.7** : Bottom  
**1.8** : View wherein display module is detached  
**1.9** : Front view wherein main body is rotated  
The electric relay with a detachable display module; the matter which is shown in the reproductions, but for which protection is not claimed, is indicated by means of yellow color; the display module can be mounted in the same direction, regardless of whether the main body of the relay is mounted horizontally or vertically; reproductions **1.1-1.8** show the state when the main body of the relay is rotated horizontally; reproduction **1.9** represents a state when the relay is mounted and the main body thereof is rotated vertically.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,328,825 A \* 1/1920 Charles ..... H01H 50/74  
335/103  
2,156,684 A \* 5/1939 Fisher ..... B61L 29/288  
335/93  
2,246,739 A \* 6/1941 Leach ..... B23Q 5/027  
335/158

**1 Claim, 9 Drawing Sheets**  
**(7 of 9 Drawing Sheet(s) Filed in Color)**



(56)

## References Cited

## U.S. PATENT DOCUMENTS

3,673,332 A \* 6/1972 Muller ..... H04M 1/652  
379/74  
D333,294 S \* 2/1993 Dossey ..... D13/169  
D371,113 S \* 6/1996 Hubbell ..... D13/160  
5,610,493 A \* 3/1997 Wieloch ..... H05K 7/20918  
361/600  
D387,735 S \* 12/1997 Bender ..... D13/159  
6,095,867 A \* 8/2000 Brandt ..... H01R 12/675  
439/502  
6,878,891 B1 \* 4/2005 Josten ..... H02B 11/12  
200/50.13  
D588,035 S \* 3/2009 Schmalz ..... D10/106.8  
D595,604 S \* 7/2009 Schmalz ..... D10/106.8  
D605,120 S \* 12/2009 Pape ..... D13/177  
D671,091 S \* 11/2012 Hauser ..... D14/155  
D671,093 S \* 11/2012 Hauser ..... D14/155  
8,520,381 B2 \* 8/2013 Hobein ..... H05K 7/20918  
361/752  
D735,679 S \* 8/2015 Masters ..... D13/169  
D739,828 S \* 9/2015 Becker ..... D13/159  
D751,995 S \* 3/2016 Masters ..... D13/169  
D761,740 S \* 7/2016 Masters ..... D13/159  
D776,077 S \* 1/2017 Kondo ..... D14/155  
D822,619 S \* 7/2018 Miholic ..... D13/159  
D822,620 S \* 7/2018 Miholic ..... D13/159  
D825,501 S \* 8/2018 Yamaguchi ..... D13/182  
D829,671 S \* 10/2018 Miholic ..... D13/159  
D892,740 S \* 8/2020 Nada ..... D13/123  
D893,425 S \* 8/2020 Nada ..... D13/123  
D904,317 S \* 12/2020 Choi ..... D13/162.1  
D916,701 S \* 4/2021 Shin ..... D13/162.1  
D917,439 S \* 4/2021 Mochizuki ..... D14/240  
D927,432 S \* 8/2021 Panseri ..... D13/158  
D947,185 S \* 3/2022 Imaizumi ..... D10/46  
D962,179 S \* 8/2022 Kwon ..... D13/160

\* cited by examiner

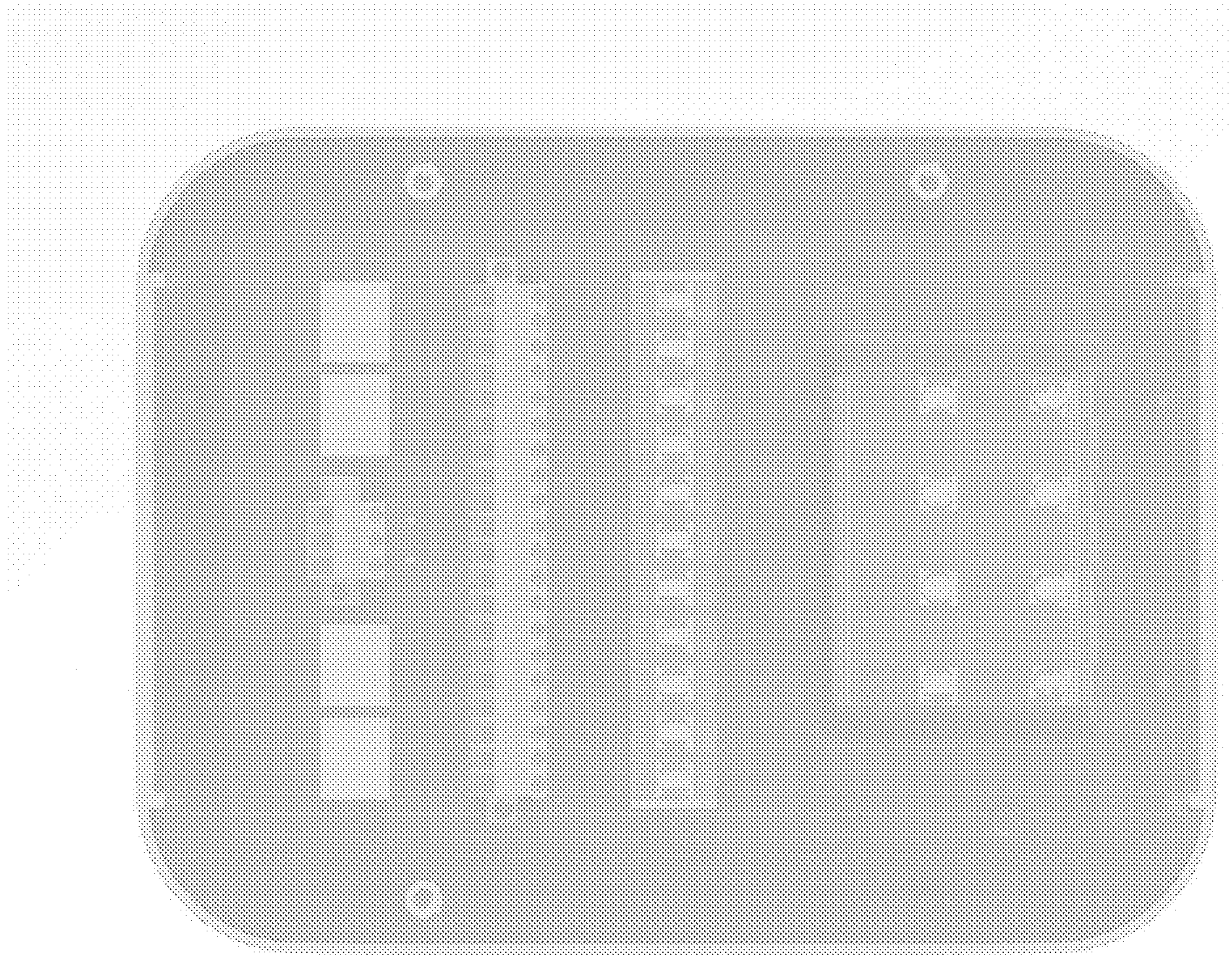
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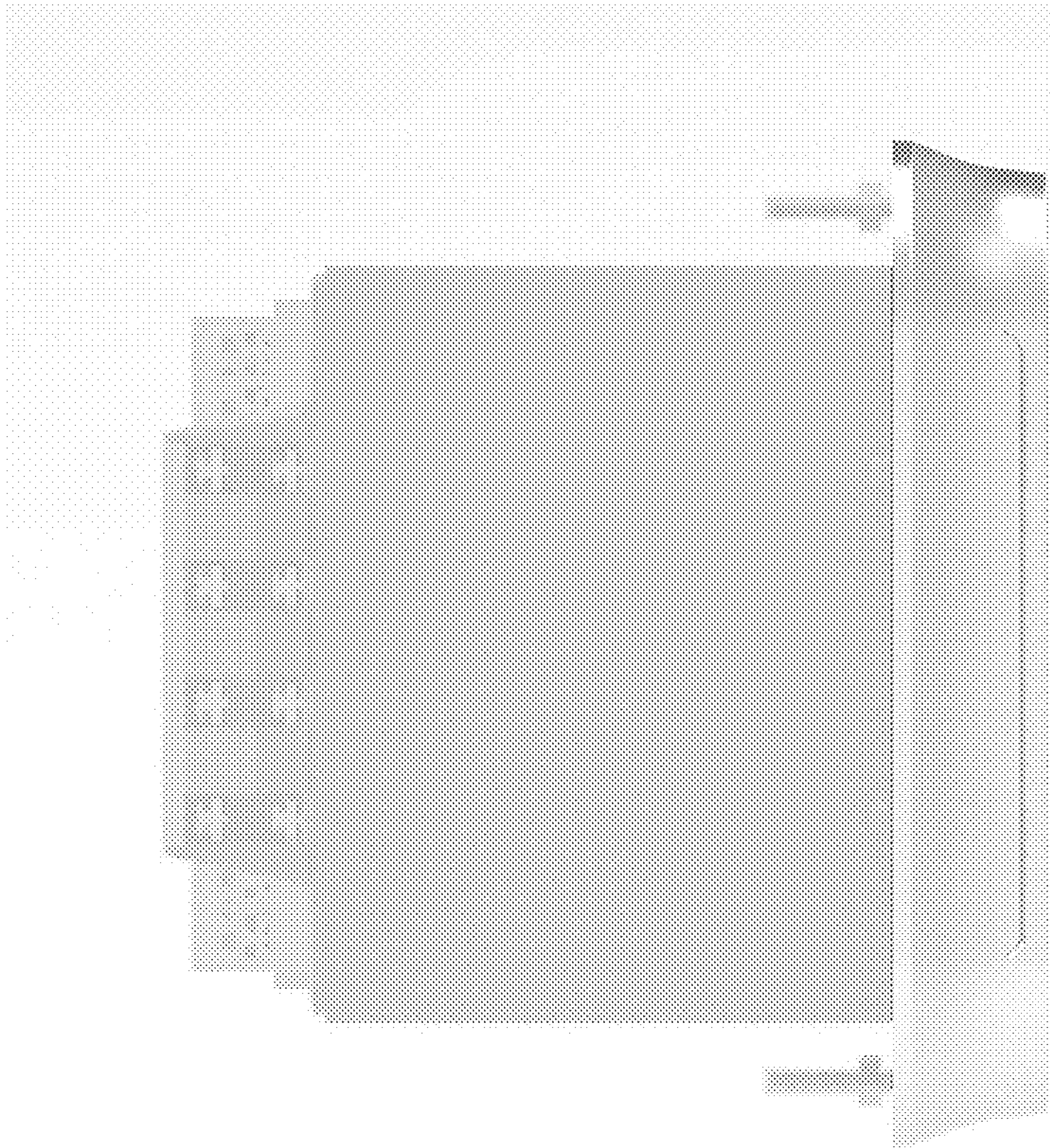
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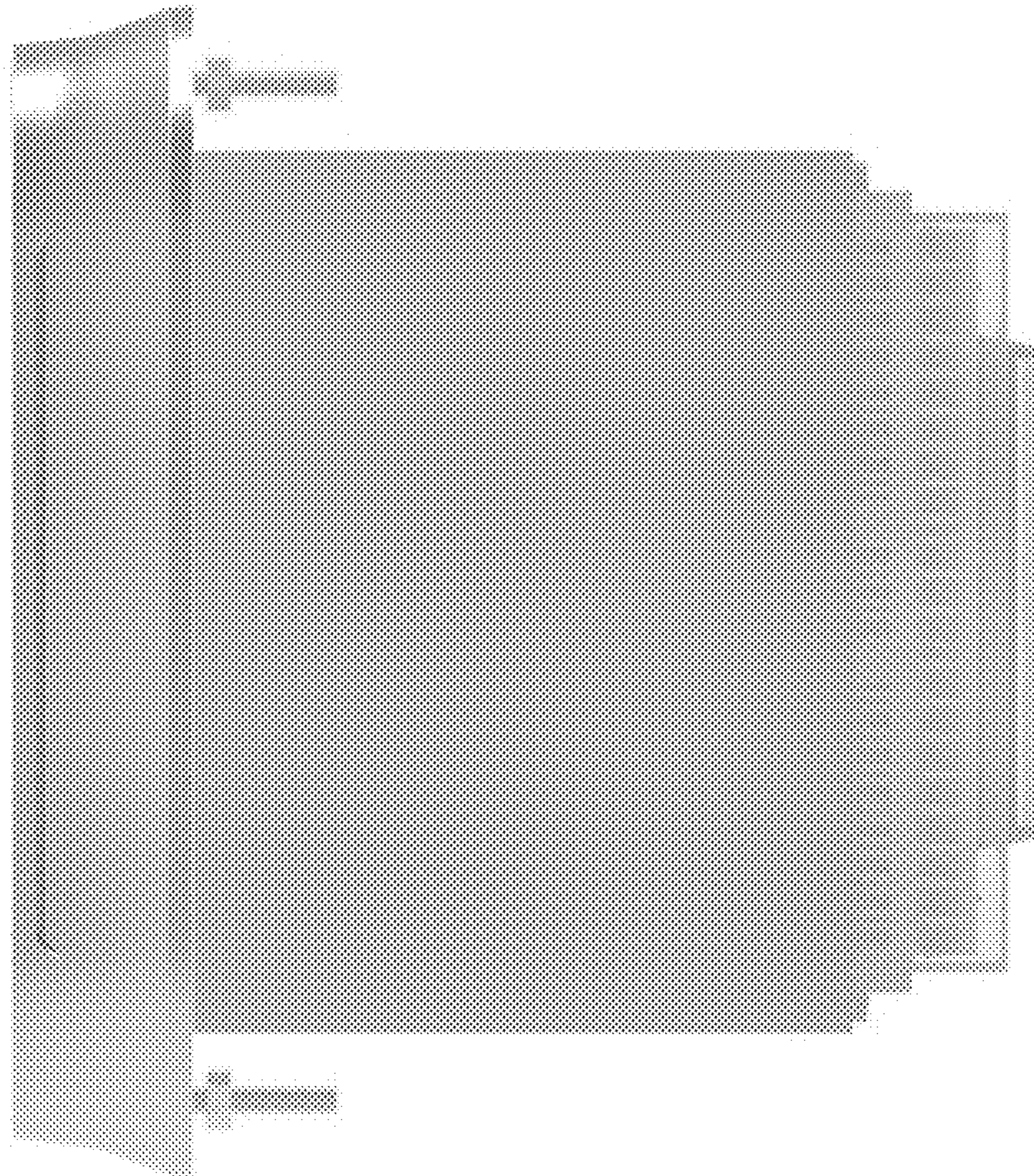
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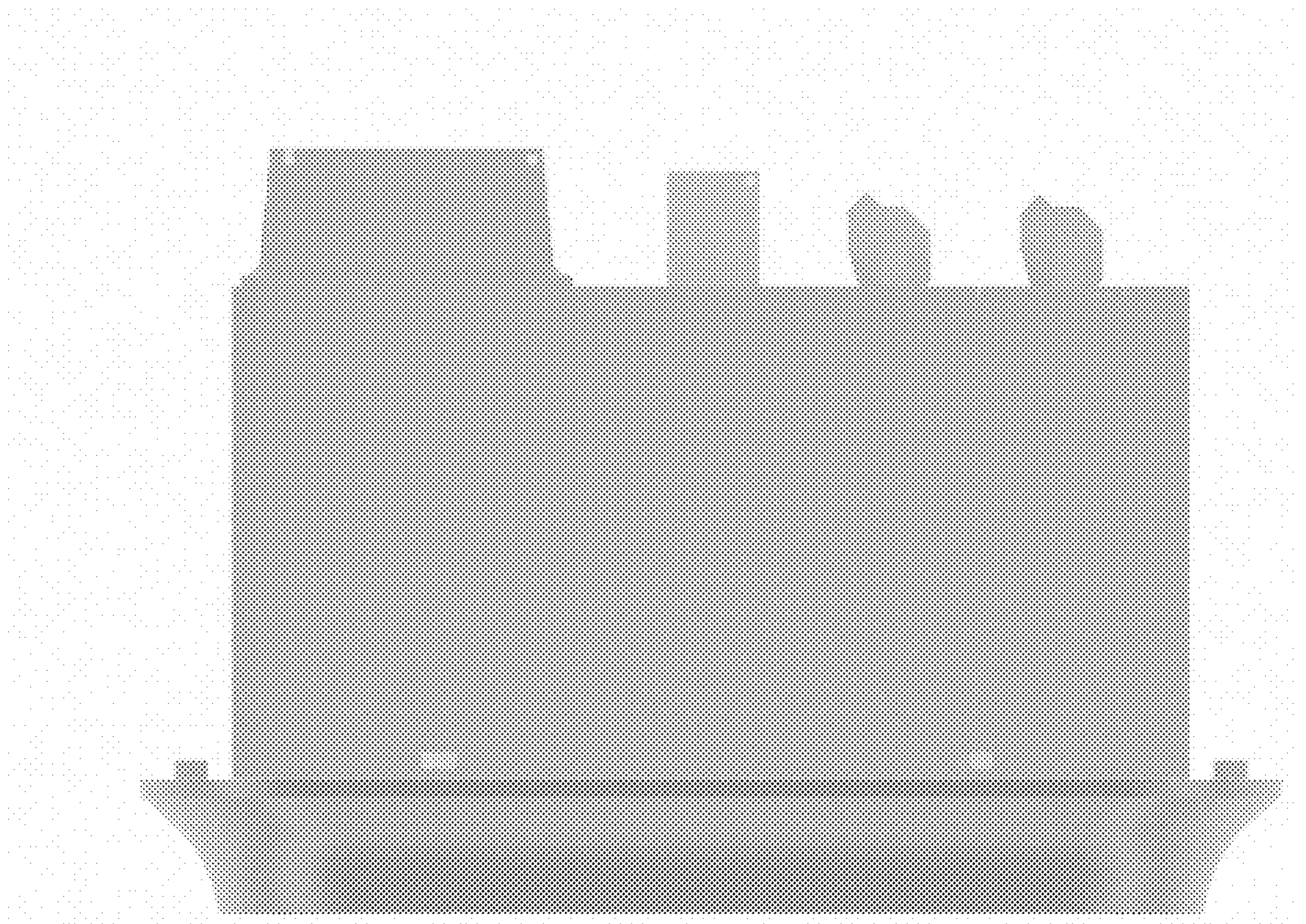
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1.5

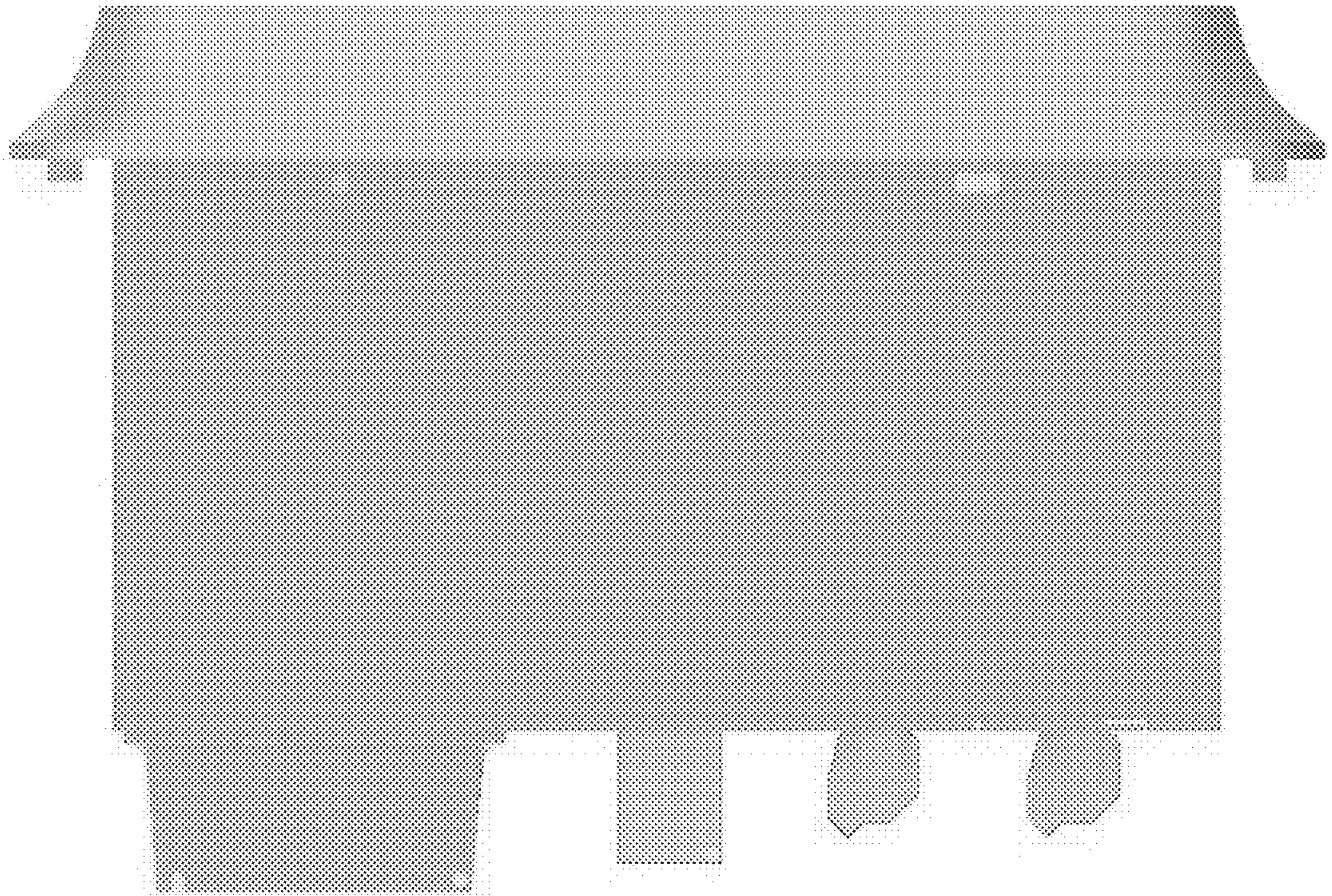


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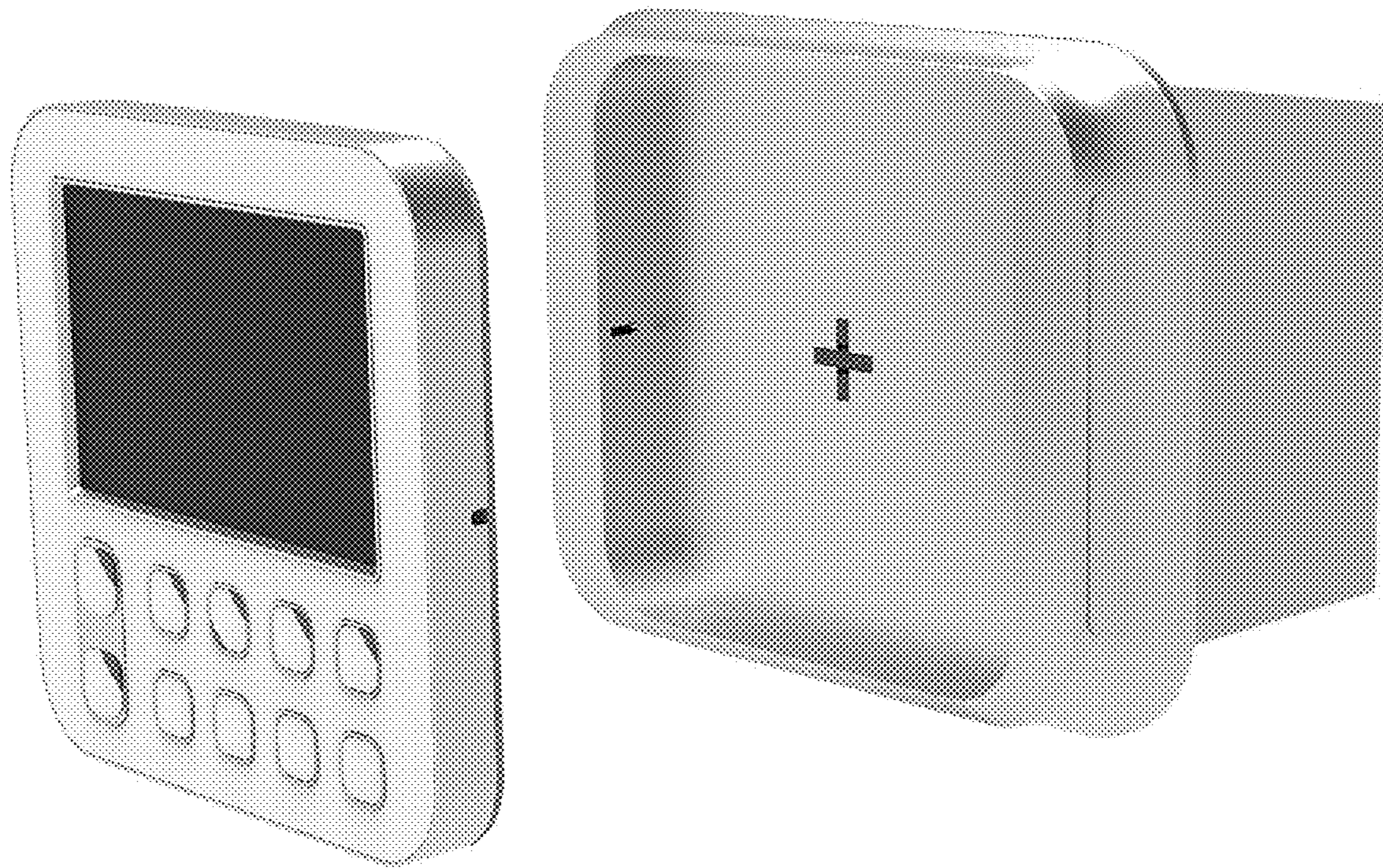




1.7



1.8



1.9

