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(12) **United States Design Patent** (10) **Patent No.:** **US D784,221 S**
Lv et al. (45) **Date of Patent:** **** Apr. 18, 2017**

(54) **BRAKE DRUM**

(71) Applicant: **Shandong Haoxin Machinery Co., Ltd.**, Changyi, Shandong Province (CN)

(72) Inventors: **Jixian Lv**, Changyi (CN); **Guangming Pu**, Changyi (CN); **Shiyong Zhu**, Changyi (CN); **Shiyang Gao**, Changyi (CN); **Weidong Su**, Changyi (CN)

(73) Assignee: **SHANDONG HAOXIN MACHINERY CO., LTD.**, Changyi (CN)

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(52) **U.S. Cl.**
USPC **D12/180**

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CPC B64C 2201/024; B64C 2201/042; B64C 2201/146; B64C 2201/201; G05D 1/06; B60P 1/00; B60P 3/00; B60T 7/00; B60T 8/265; B60T 83/255; B60T 11/00; B60T 11/103; B60T 13/00; B60T 13/66; B60T 17/223; B60T 2201/00; B60T 2201/03; B60T 2260/00; B60T 2270/00; B60T 2270/82; B60T 2270/83; B60T 2270/84; B60T 1/06; B62L 1/02; B62L 3/02; B62K 23/06; F16D 55/224; F16D 55/228; F16D 65/092; F16D 65/095; F16D 65/847; F16D 65/12

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,702,613 A * 2/1955 Walther, Sr. F16D 65/10
188/218 R
2,978,073 A * 4/1961 Soddy F16D 65/10
188/218 R
4,796,728 A * 1/1989 Kanengieter F16D 55/38
188/18 A
D340,024 S * 10/1993 Passmore D12/180
D352,020 S * 11/1994 Powers D12/180
5,509,510 A * 4/1996 Ihm F16D 65/125
164/112
D373,839 S * 9/1996 Rasul D26/28

(Continued)

OTHER PUBLICATIONS

Volvo truck brake drum, image post date May 21, 2014, site visited Sep. 23, 2016, (online), <<https://www.tineye.com/search/b3ddb259a898bba331aa4c2b39e6f91935900b74/>>.*

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Primary Examiner — Kevin Rudzinski

Assistant Examiner — Sean D Lough

(74) *Attorney, Agent, or Firm* — Michael F. Fedrick; Loza & Loza, LLP

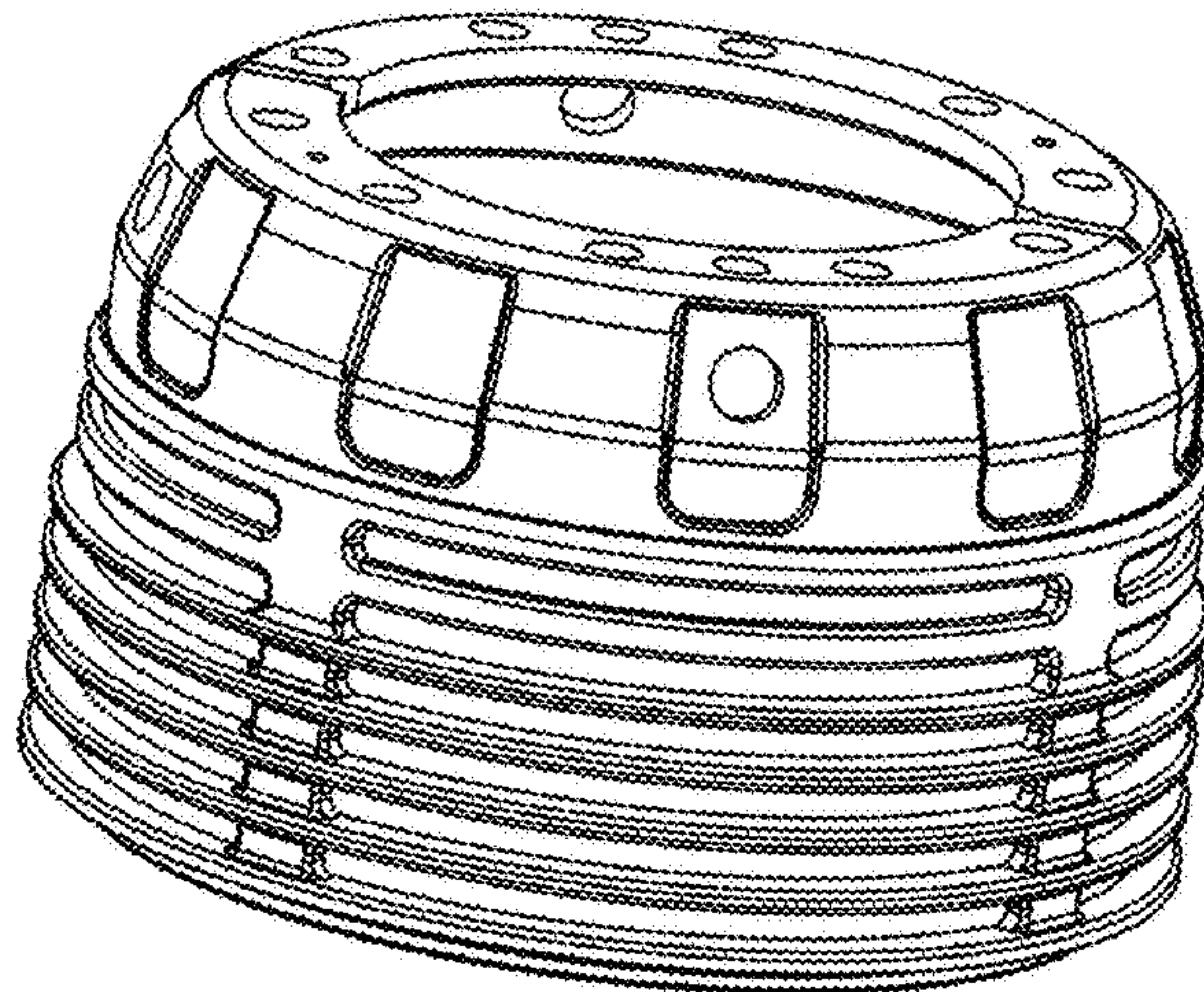
(57) **CLAIM**

The ornamental design for a brake drum, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of the brake drum;
FIG. 2 is a front view thereof;
FIG. 3 is a rear view thereof;
FIG. 4 is a right side view thereof;
FIG. 5 is a left side view thereof;
FIG. 6 is a top view thereof; and,
FIG. 7 is a bottom view thereof.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,686,144 A * 11/1997 Thebault B05D 1/18
427/282
6,161,660 A * 12/2000 Suga F16D 65/0006
188/218 XL
6,186,292 B1 * 2/2001 Dickerson F16D 65/0006
188/218 XL
D449,025 S * 10/2001 Nicol D12/179
6,308,803 B1 * 10/2001 Oberti F16D 65/127
188/1.11 W
D462,927 S * 9/2002 Horner D12/180
6,531,011 B2 * 3/2003 Gross C04B 35/573
156/293
6,564,912 B1 * 5/2003 Koschinat F16D 65/12
188/18 A
D484,836 S * 1/2004 Gavin D12/180
6,679,357 B1 * 1/2004 Jenkinson F16D 65/10
188/218 R
6,705,437 B2 * 3/2004 Severinsson F16D 65/12
188/71.1
7,325,659 B2 * 2/2008 Pfaff F16D 51/16
188/218 R
D565,487 S * 4/2008 Zhang D12/180
7,410,036 B2 * 8/2008 Wimmer F16D 65/12
188/18 A
D585,345 S * 1/2009 Maier D12/180
7,472,777 B2 * 1/2009 Schlitz F16D 65/12
188/18 A
D603,314 S * 11/2009 Schmitz D12/180
D605,570 S * 12/2009 Schmitz D12/180
D606,916 S * 12/2009 Settineri D12/180
D607,796 S * 1/2010 Schmitz D12/180
D608,706 S * 1/2010 Schmitz D12/180
7,708,121 B1 * 5/2010 Morais F16D 65/00
188/73.44
D619,521 S * 7/2010 Schmitz D12/180
7,784,592 B1 * 8/2010 Denstedt F16D 65/0006
188/18 A
7,854,301 B2 * 12/2010 Chang F16D 65/12
188/18 A
D637,125 S * 5/2011 Griffin D12/179
7,967,115 B2 * 6/2011 Keller F16D 65/12
188/218 XL
D640,960 S * 7/2011 Schmitz D12/180
D655,992 S * 3/2012 Noyes D12/180
8,181,753 B2 * 5/2012 Levering F16D 65/827
188/218 R
8,460,137 B2 * 6/2013 Kajigaya F16H 9/18
474/11
D690,649 S * 10/2013 Lin D13/122

D691,528 S * 10/2013 Joseph D12/180
D695,584 S * 12/2013 Chen D8/70
8,631,915 B2 * 1/2014 Rosenlocher F16D 65/128
188/218 XL
D719,198 S * 12/2014 Tsuchiya D15/138
9,103,394 B2 * 8/2015 Cornett F16D 65/10
9,121,463 B2 * 9/2015 Berwanger F16D 65/10
9,145,937 B2 * 9/2015 Fakhoury F16D 65/10
9,291,227 B2 * 3/2016 Burgoon B60T 8/329
9,322,443 B2 * 4/2016 Bordere
9,322,446 B2 * 4/2016 Plantan F16D 65/78
9,355,346 B2 * 5/2016 Butz B60C 11/24
2006/0076196 A1 * 4/2006 Palladino F16D 66/026
188/1.11 W
2011/0108378 A1 * 5/2011 Leone F16D 65/128
188/218 XL
2012/0168266 A1 * 7/2012 Veneziano F16D 65/12
188/218 XL
2013/0133998 A1 * 5/2013 Maronati F16D 65/123
188/218 XL
2015/0267768 A1 * 9/2015 Butz F16D 65/127
188/1.11 W
2016/0040770 A1 * 2/2016 Pitcavage F16H 57/04
74/457
2016/0195149 A1 * 7/2016 Pu F16D 65/12
188/218 R

OTHER PUBLICATIONS

Brake Drum Massey Ferguson, image post date Apr. 18, 2008, site visited Sep. 23, 2016, (online), <<https://www.tineye.com/search/834c7d681188ad079100d4ec8c92cefa3caff9f2/>>.*
Front Wheel Mini Drum Brake, image post date May 22, 2013, site visited Sep. 23, 2016, (online), <<http://cyrilhuzeblog.com/2013/05/22/front-wheel-mini-drum-brake/>>.*
NeoBrake Premium Machine-Balanced Brake Drum, image post date Nov. 15, 2014, site visited Sep. 23, 2016, (online), <<http://neobrake.com/neobrake-debuts-machine-balanced-brake-drum/>>.*
Ford tractor brake drum, image post date Apr. 13, 2013, site visited Sep. 23, 2016, (online), <http://web.archive.org/web/20130413110407/http://www.tractorpartsinc.com/ford_tractor_parts_brake_drum_c5nn1126e_3415_prd1.htm>.*
Yadong Manufacturing Base Truck Brake Drum, image post date Mar. 15, 2010, site visited Sep. 23, 2016, (online), <<https://www.tineye.com/search/a60fd6c605bd35c039cfb3e289418388a61072fa/>>.*
Transit-Coach Brake Drums, image post date Jun. 15, 2013, site visited Sep. 23, 2016, (online), <http://web.archive.org/web/20130615014908/http://www.webbwheel.com/severeduty/products_brakedrums_transit_coach.html>.*

* cited by examiner

Figure 1

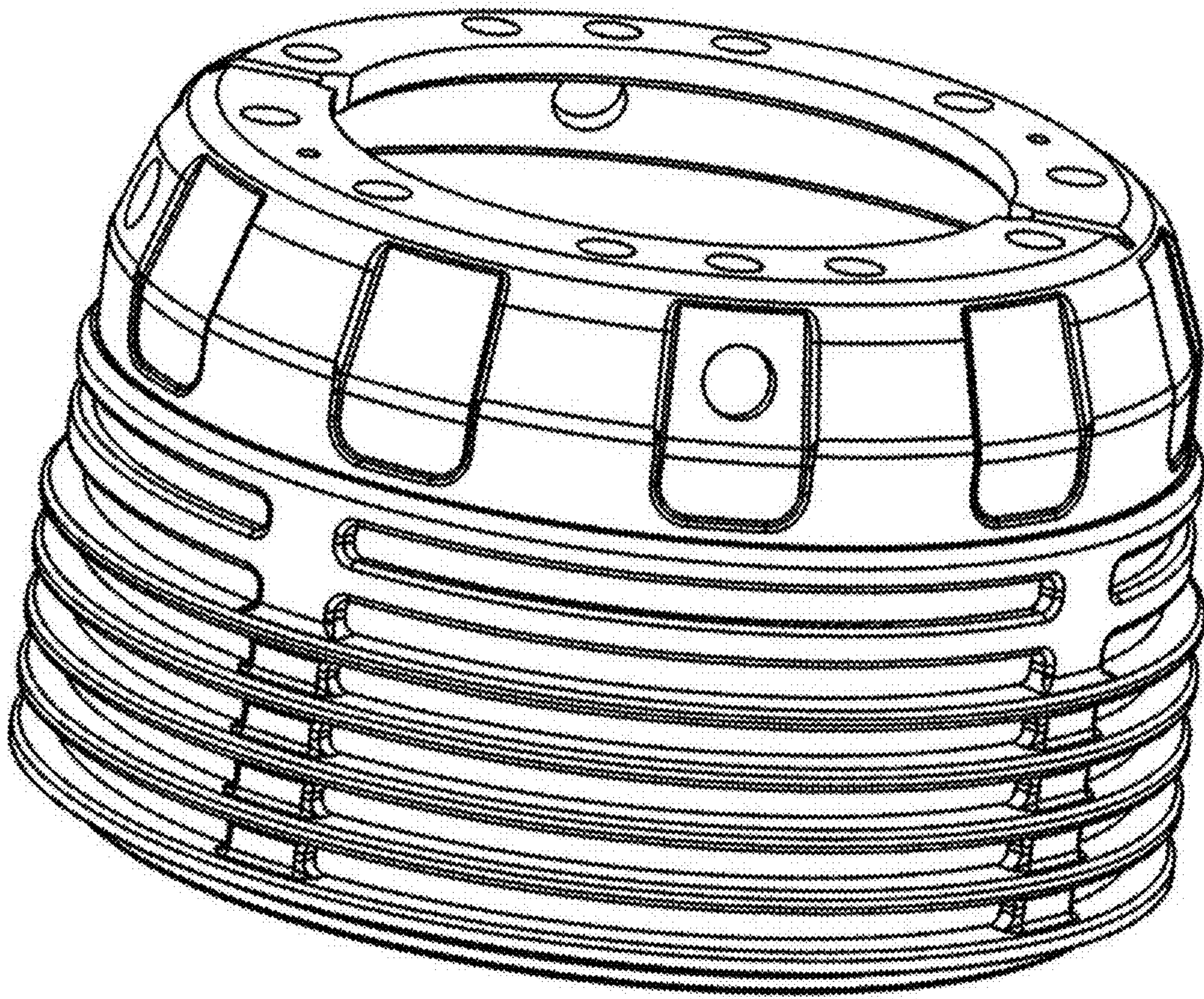


Figure 2

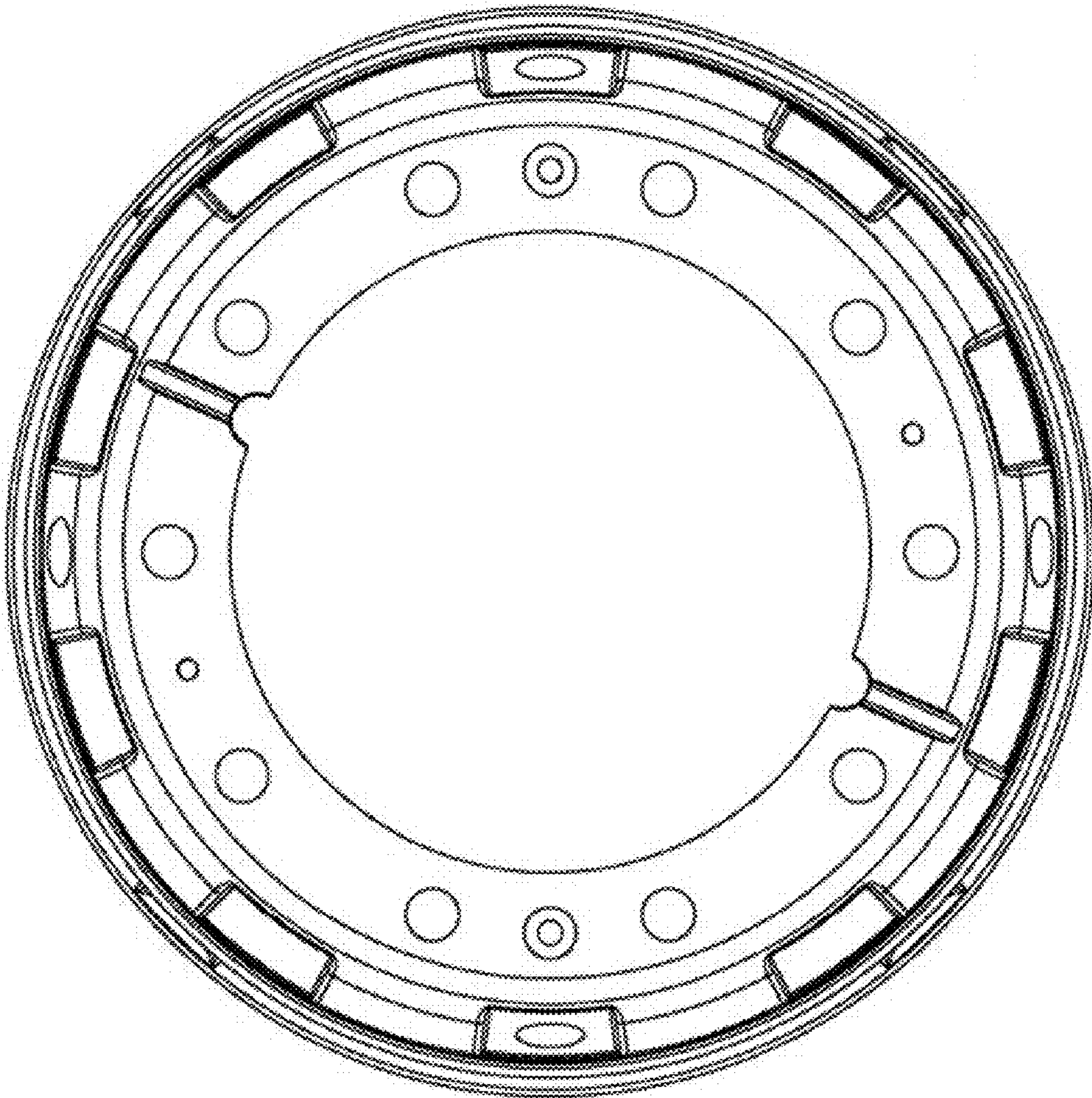


Figure 3

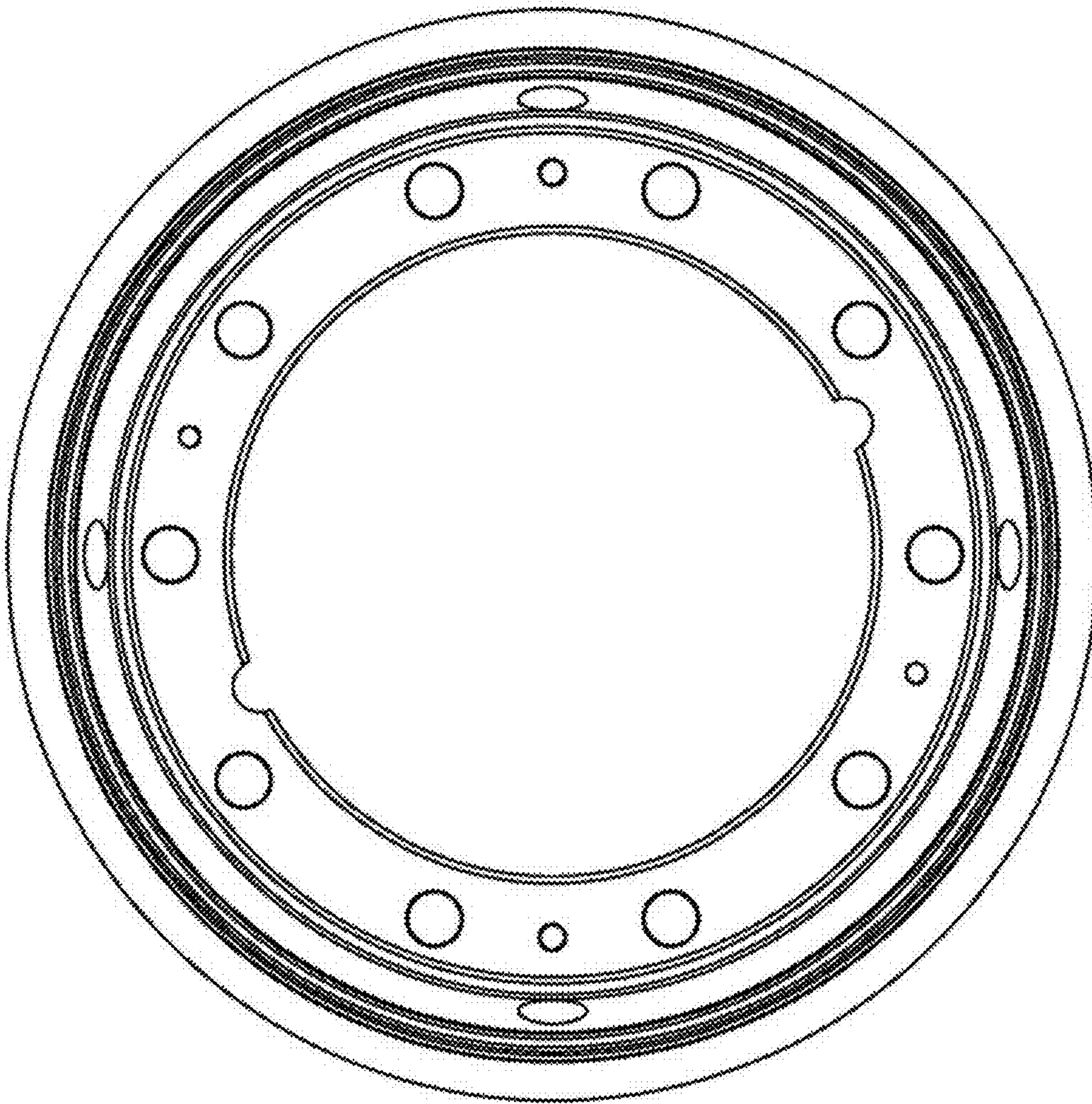


Figure 4

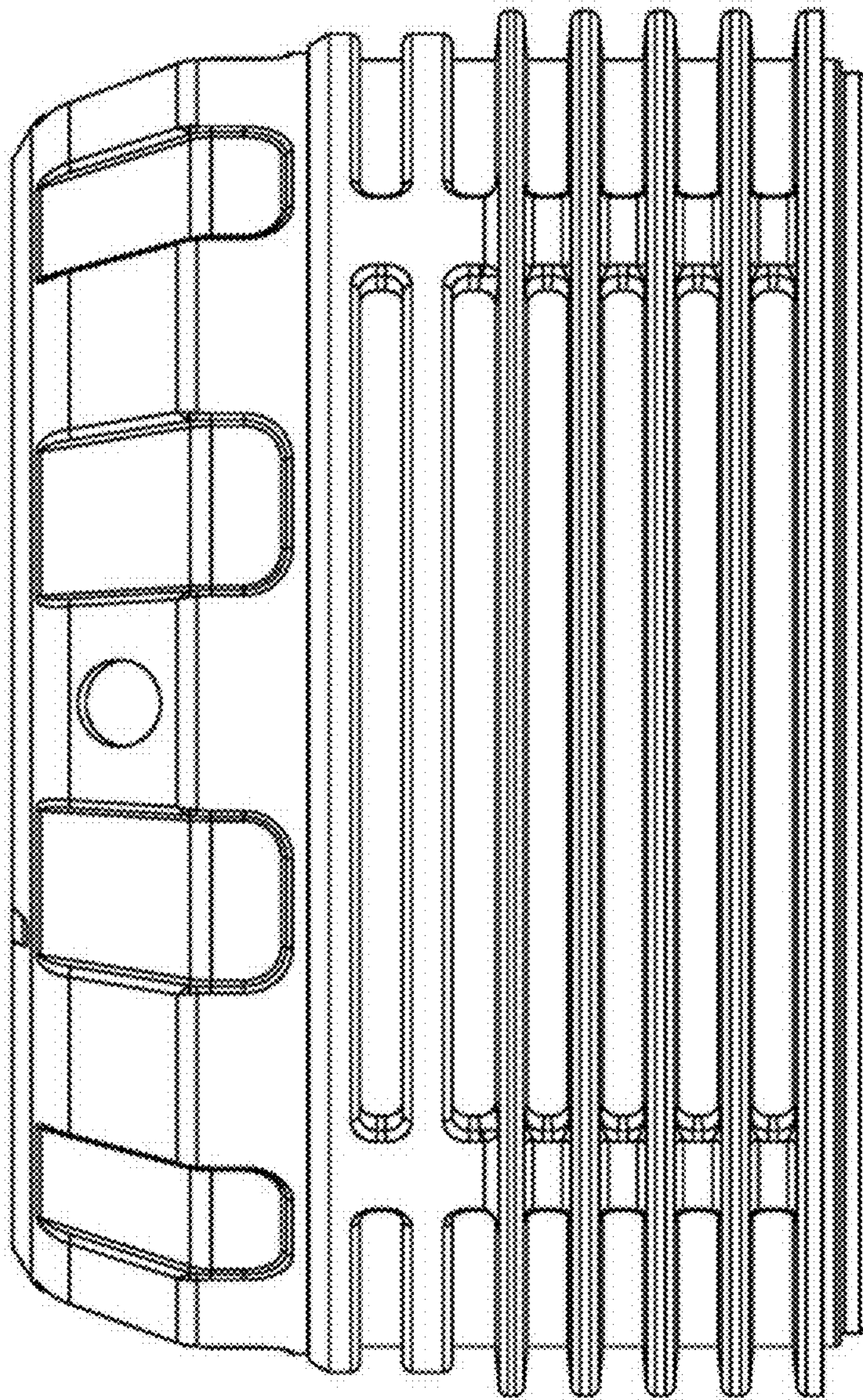


Figure 5

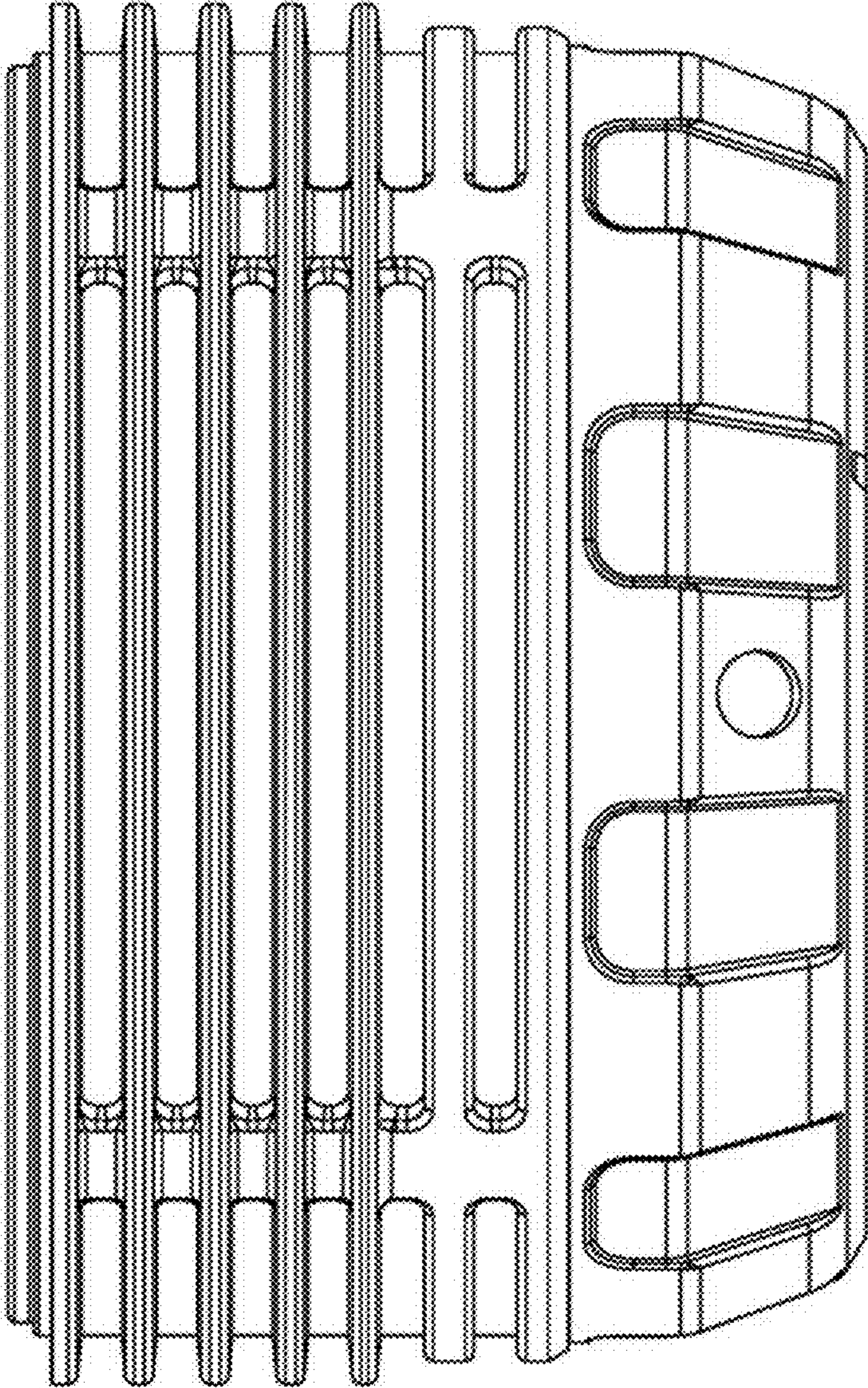


Figure 6

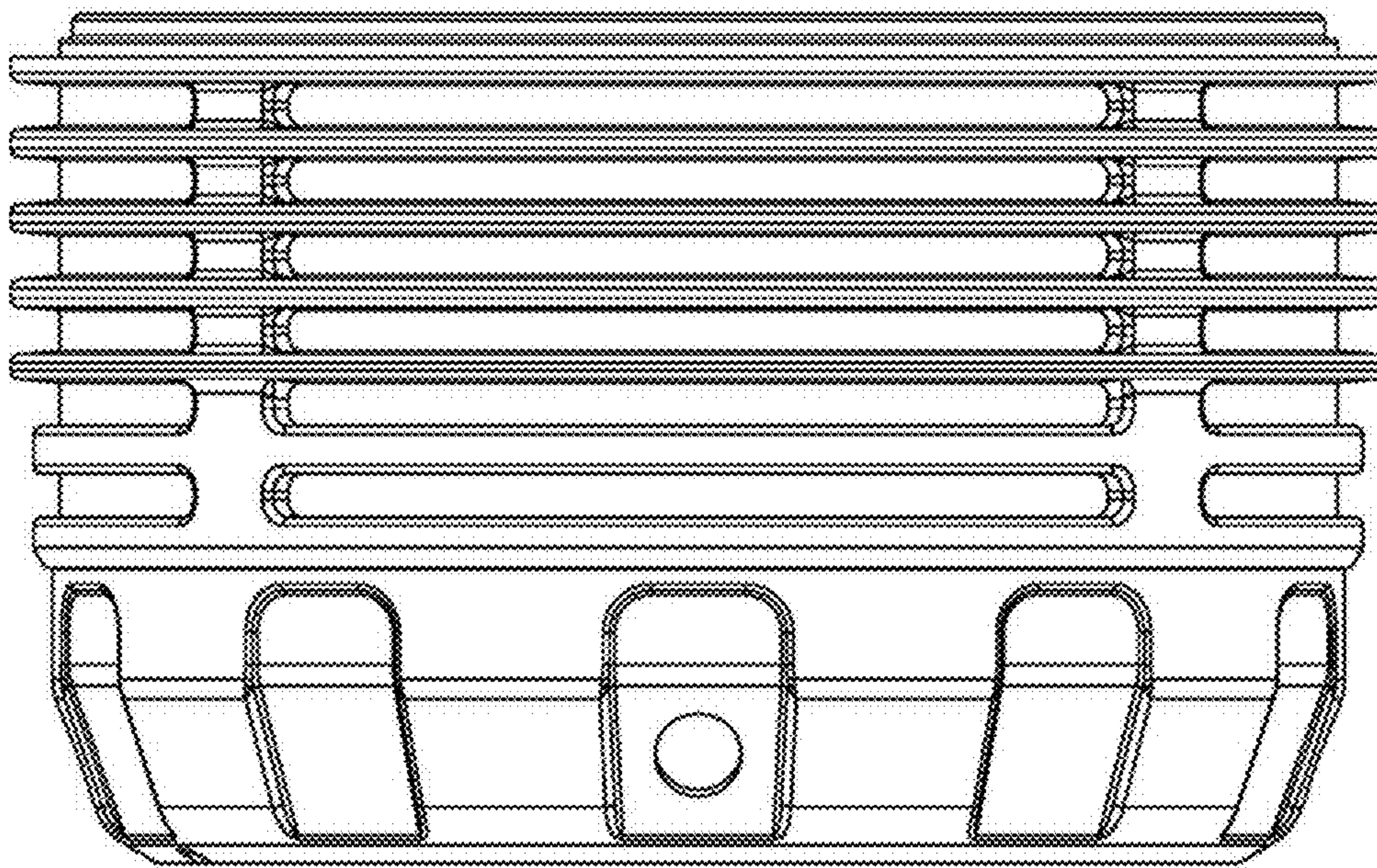


Figure 7

