



US00D765158S

(12) **United States Design Patent** (10) **Patent No.:** **US D765,158 S**  
**Taniguchi et al.** (45) **Date of Patent:** **\*\* Aug. 30, 2016**

(54) **SIGNAL TRANSFER MODULE FOR TOOL CHANGER**

(71) Applicant: **Nitta Corporation**, Osaka-shi (JP)

(72) Inventors: **Yosuke Taniguchi**, Yamatokoriyama (JP); **Nobuhiro Omote**, Yamatokoriyama (JP); **Ryosuke Matsumoto**, Yamatokoriyama (JP)

(73) Assignee: **Nitta Corporation**, Osaka-shi (JP)

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

(21) Appl. No.: **29/531,245**

(22) Filed: **Jun. 24, 2015**

(30) **Foreign Application Priority Data**

Dec. 25, 2014 (JP) ..... 2014-029219

(51) **LOC (10) Cl.** ..... **15-09**

(52) **U.S. Cl.**  
USPC ..... **D15/138**

(58) **Field of Classification Search**  
USPC ..... D8/70, 71, 354; D15/124, 126, 138  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

- 4,917,619 A \* 4/1990 Nishiwaki ..... B23K 9/323  
439/191
- 4,995,493 A \* 2/1991 Cotsman ..... B25J 15/0491  
192/150
- 5,044,063 A \* 9/1991 Voellmer ..... B23Q 3/15553  
294/86.4
- D367,661 S \* 3/1996 Few ..... D15/150
- D379,820 S \* 6/1997 Few ..... D15/5
- 5,779,609 A \* 7/1998 Cullen ..... B23K 9/287  
219/98
- 5,809,639 A \* 9/1998 Alvite ..... H05K 13/003  
29/740

- 5,993,365 A \* 11/1999 Stagnitto ..... B25J 15/0491  
414/736
- 6,491,612 B1 \* 12/2002 Kurup ..... B23K 9/20  
285/268
- 6,533,594 B1 \* 3/2003 Kurup ..... B23K 11/362  
439/191
- D500,510 S \* 1/2005 Annis ..... D15/199
- 2011/0277603 A1 \* 11/2011 Uchimura ..... B23B 5/08  
82/159
- 2012/0116570 A1 \* 5/2012 Nishioka ..... B23Q 3/15706  
700/179
- 2014/0256527 A1 \* 9/2014 Liu ..... B23Q 3/15706  
483/54
- 2015/0072845 A1 \* 3/2015 Murota ..... B23Q 3/15706  
483/7
- 2016/0052146 A1 \* 2/2016 Berrocal ..... B23B 31/30  
483/1

**FOREIGN PATENT DOCUMENTS**

JP 2012-250327 A 12/2012

\* cited by examiner

*Primary Examiner* — Patricia Palasik

(74) *Attorney, Agent, or Firm* — Locke Lord LLP

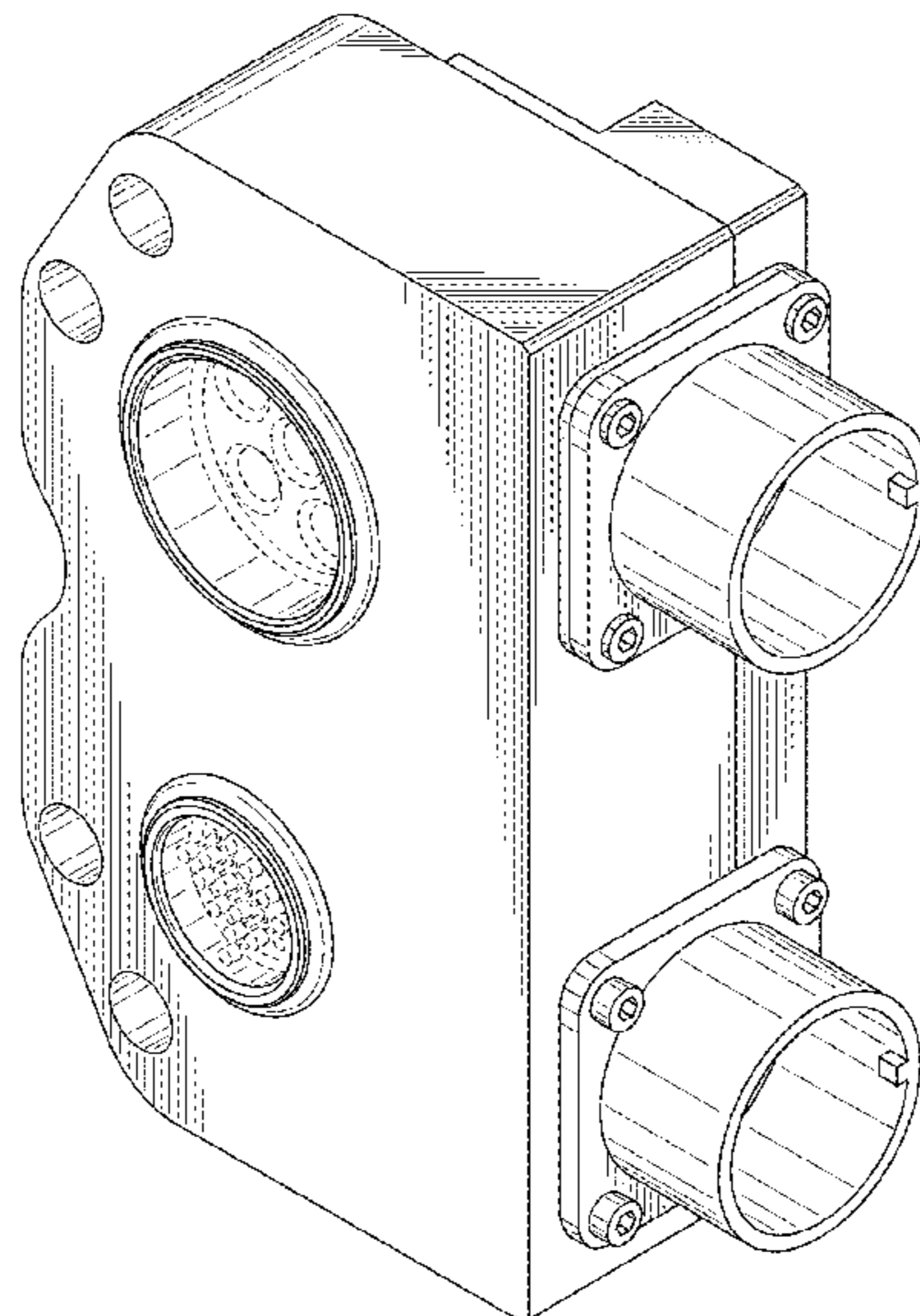
(57) **CLAIM**

The ornamental design for a signal transfer module for tool changer, as shown and described.

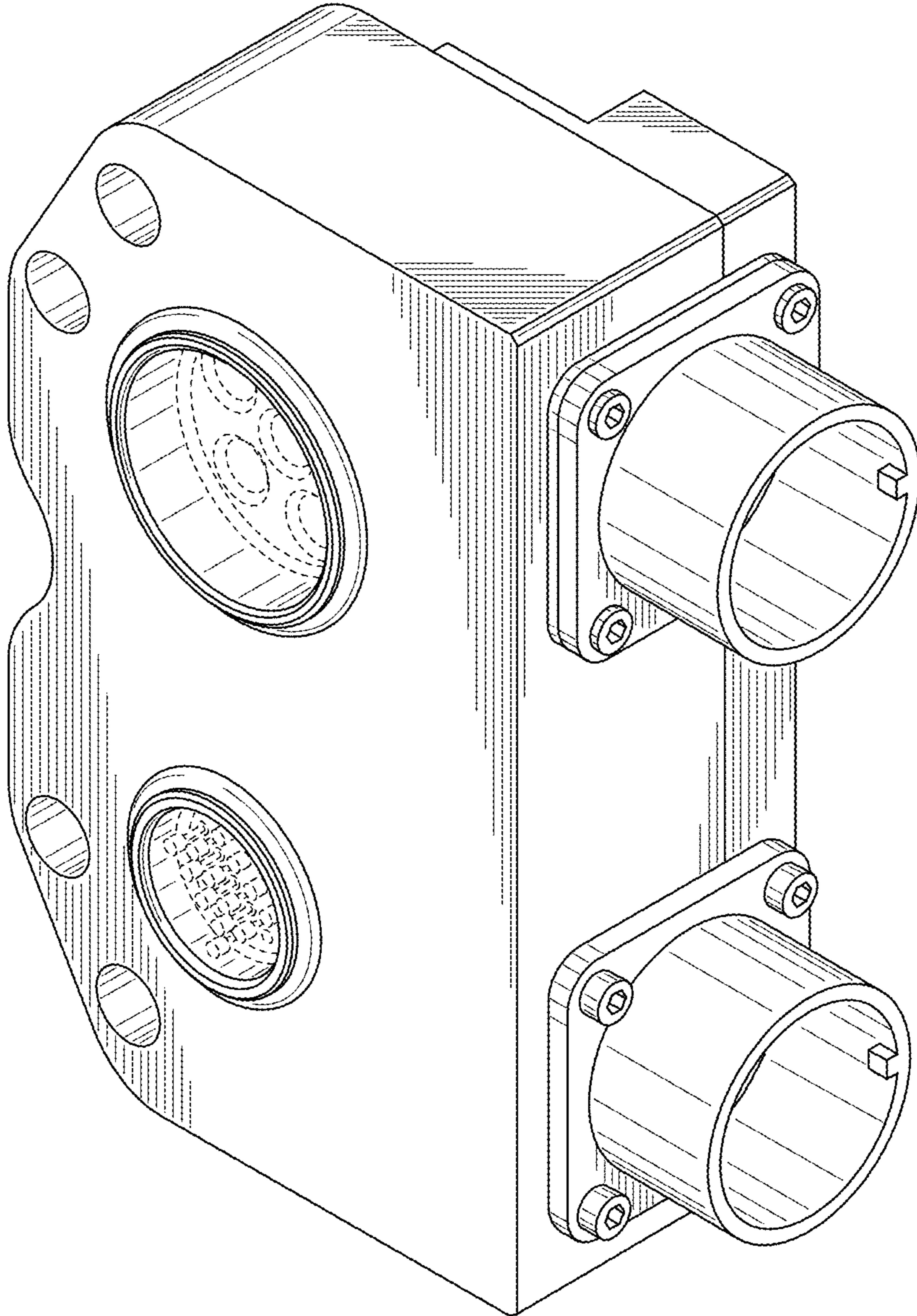
**DESCRIPTION**

FIG. 1 is a front perspective view of a signal transfer module for a tool changer showing our new design; FIG. 2 is a left side elevational view thereof; FIG. 3 is a right side elevational view thereof; FIG. 4 is a top view thereof; FIG. 5 is a bottom view thereof; FIG. 6 is a front view thereof; and, FIG. 7 is a rear view thereof.

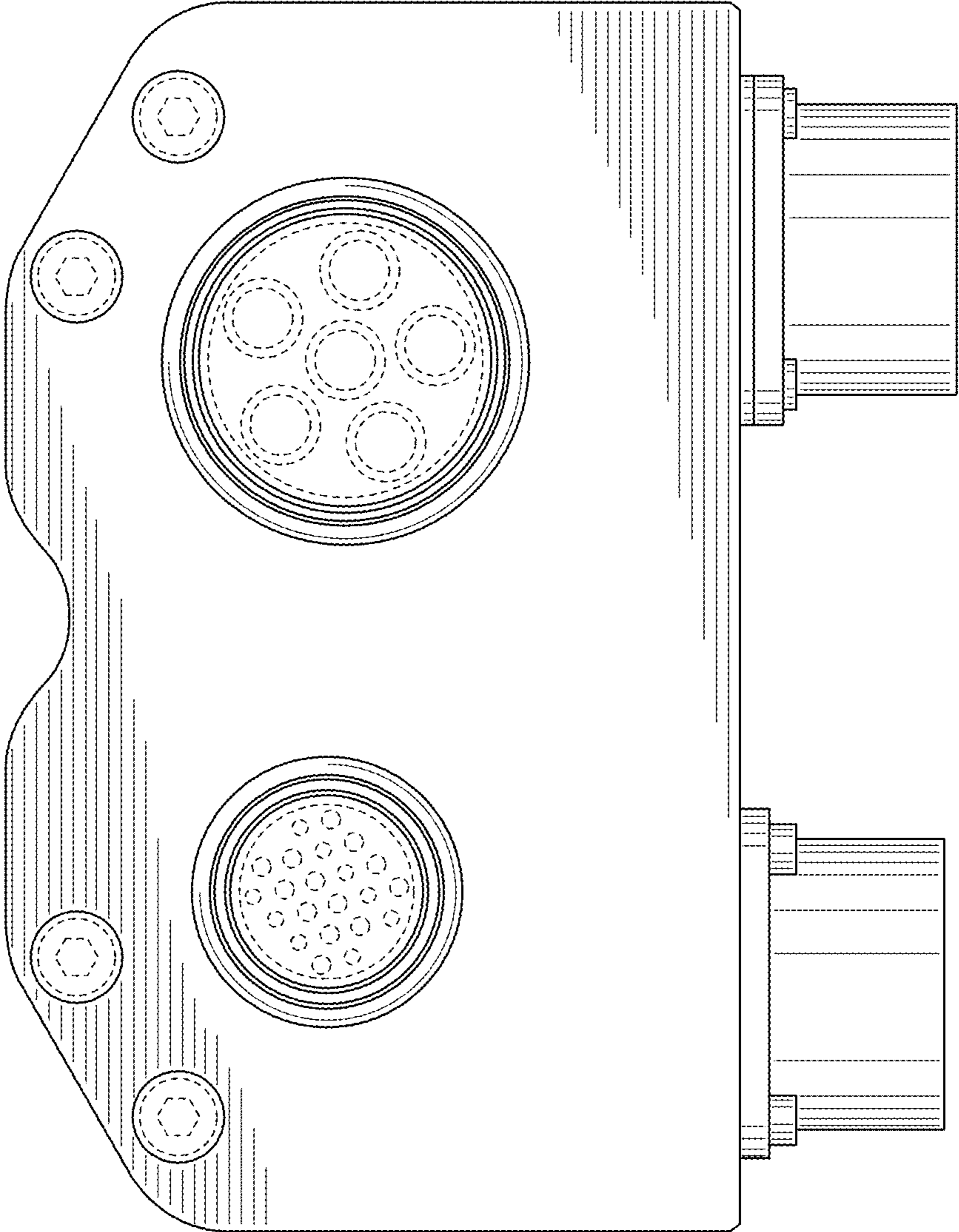
**1 Claim, 7 Drawing Sheets**



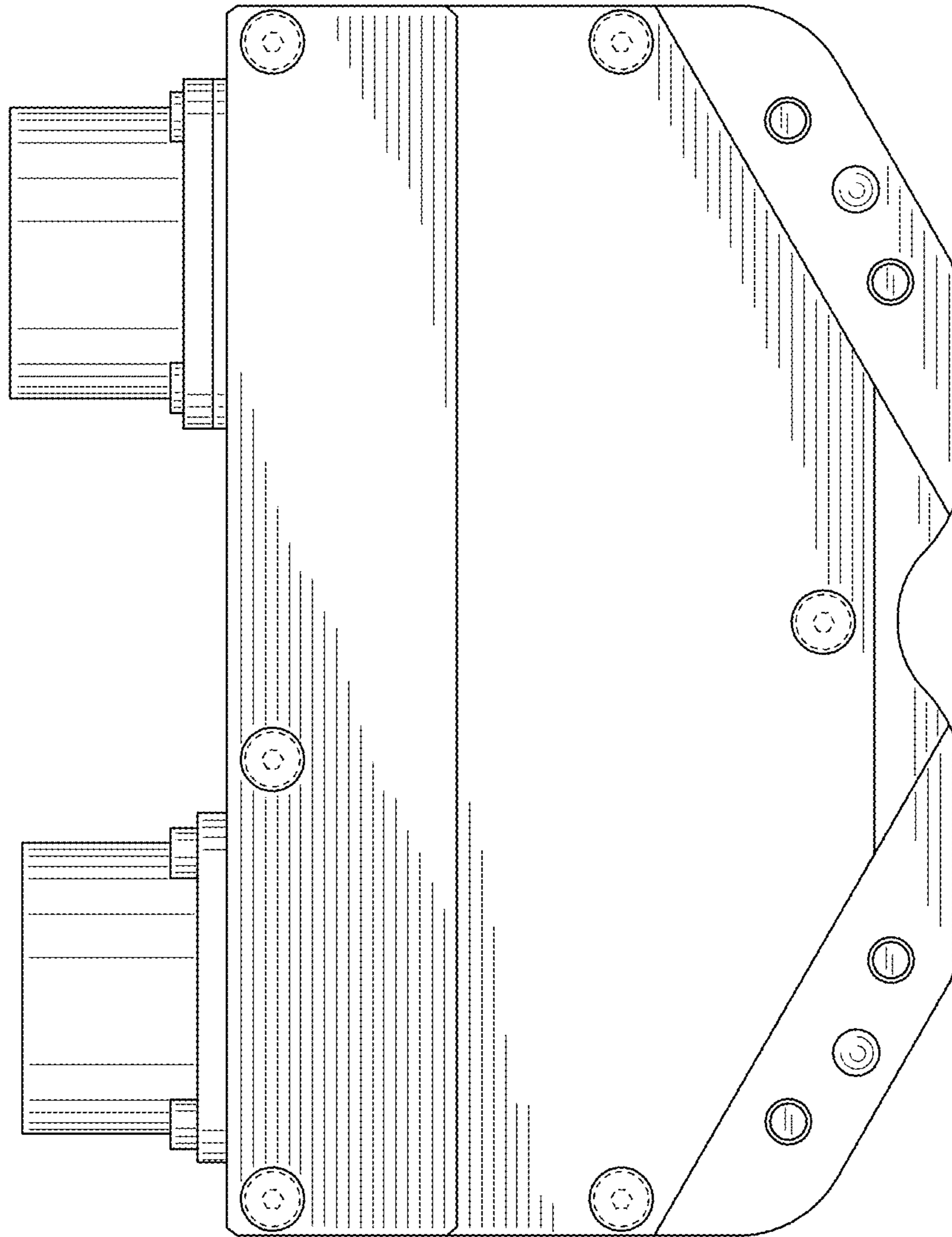
**FIG. 1**



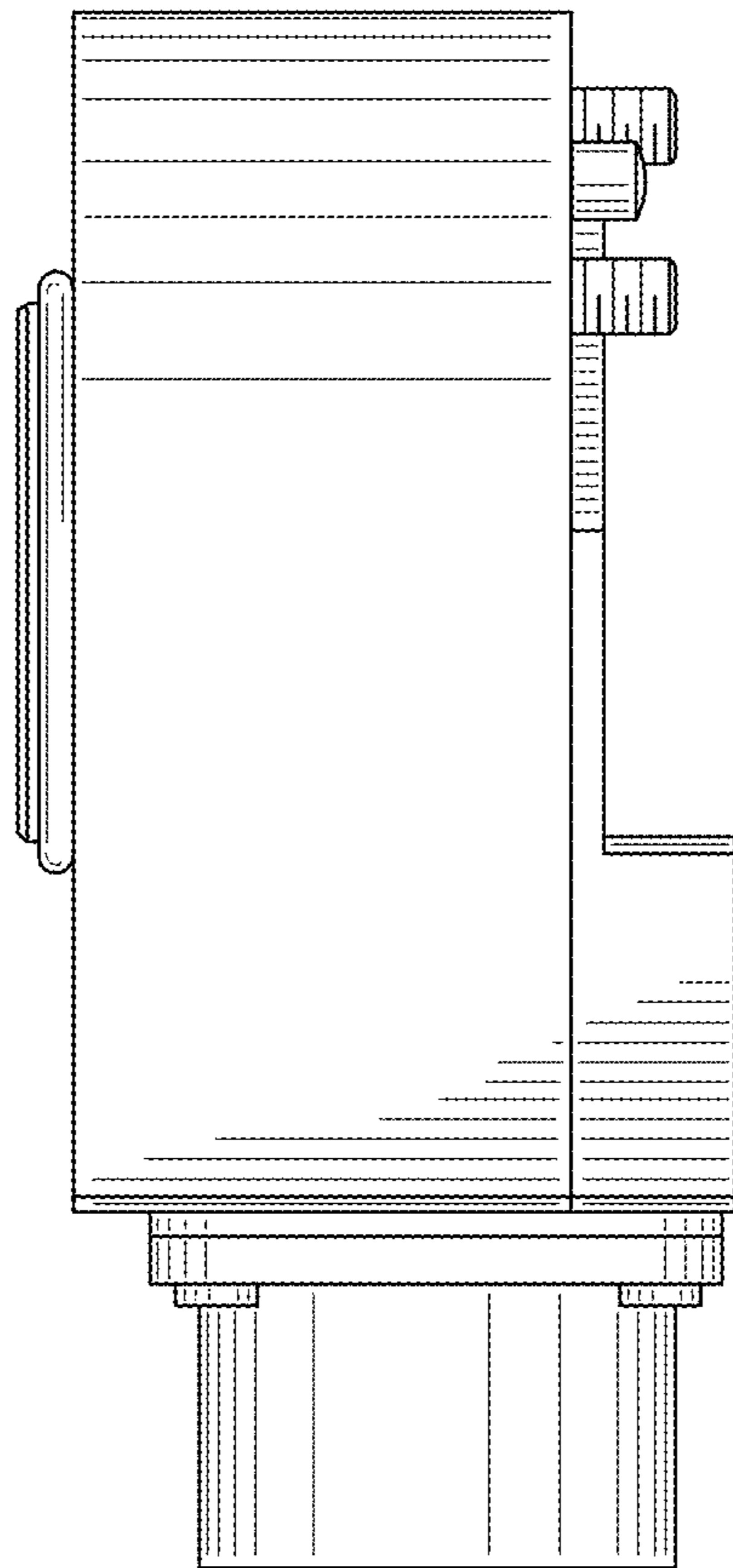
**FIG. 2**



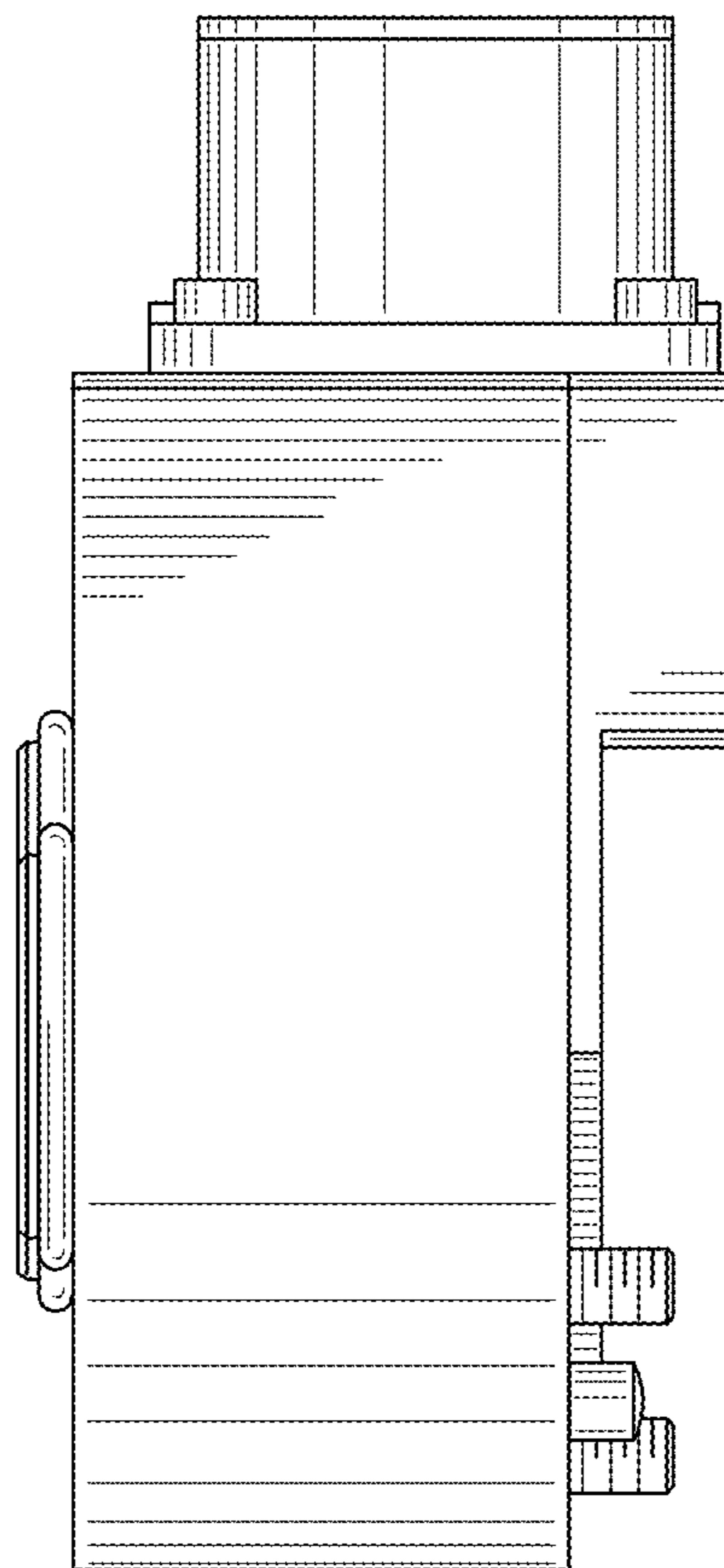
**FIG. 3**



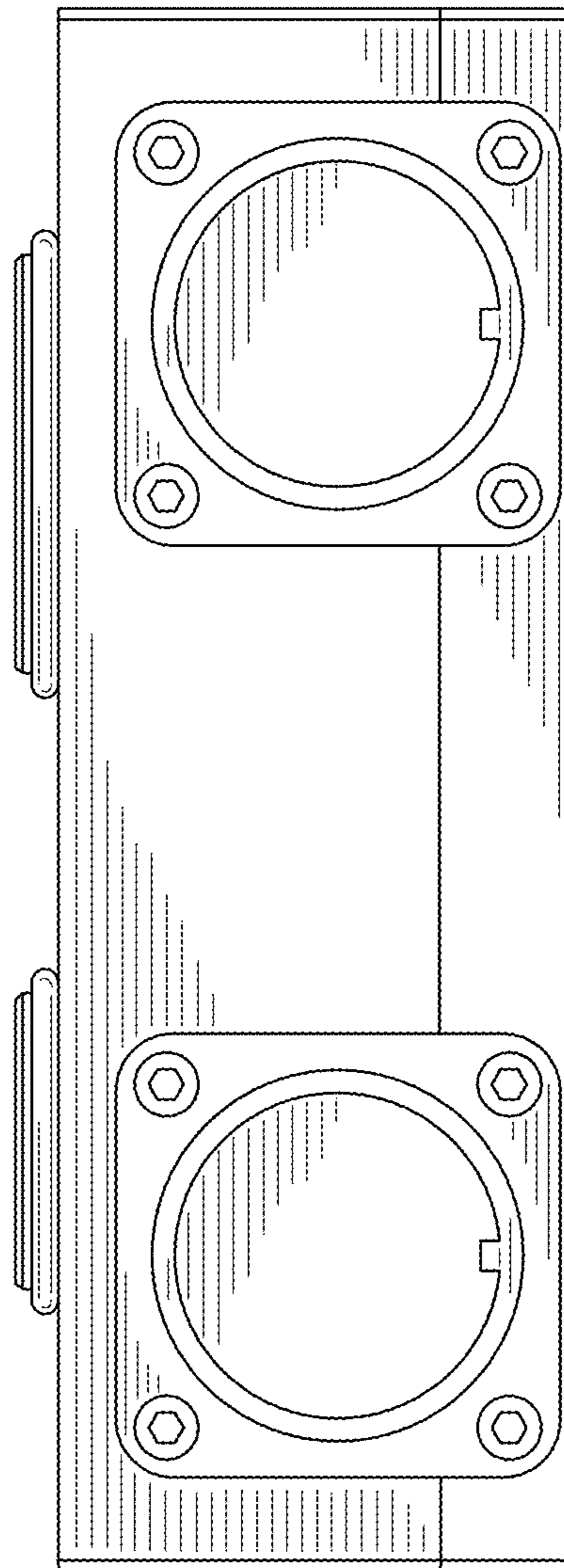
***FIG. 4***



***FIG. 5***



**FIG. 6**



**FIG. 7**

