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(12) United States Design Patent

Tanaka et al.

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(54) **CENTRIFUGAL PUMP**

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

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(30) **Foreign Application Priority Data**

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(51) **LOC (13) Cl.** **15-02**

(52) **U.S. Cl.**
USPC **D15/7**
CPC ***F02M 37/14*** (2013.01)

(58) **Field of Classification Search**
USPC D15/7–9; D23/225, 231, 232; 417/60, 417/235, 265, 321, 355, 358, 363, 359, 417/410.1, 415–416, 405, 900, 269, 539; 60/408, 412; 184/26–37; 415/140–147; 123/495, 509; 137/565.34
CPC F04D 7/04; F04D 29/708; F02M 37/04; F02M 37/14; F04B 53/92; F04B 1/005
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,319,573 A * 5/1967 Judd F04D 7/04 415/144
D246,714 S * 12/1977 Horvath D15/8
D247,967 S * 5/1978 Hartnett D15/7
D252,811 S * 9/1979 Arakawa D15/7
4,253,798 A * 3/1981 Sugiura F04D 29/2255 415/204
4,643,641 A * 2/1987 Clausen F16J 15/344 415/174.3
D295,047 S * 4/1988 Price D15/7
D305,124 S * 12/1989 Singhoff D15/7
D310,838 S * 9/1990 Turbanisch D15/8
D354,495 S * 1/1995 Tojo D15/7
D372,921 S * 8/1996 Ijiri D15/7
(Continued)

Primary Examiner — Richard E Chilcot

(57) **CLAIM**

The ornamental design for a centrifugal pump, as shown and described.

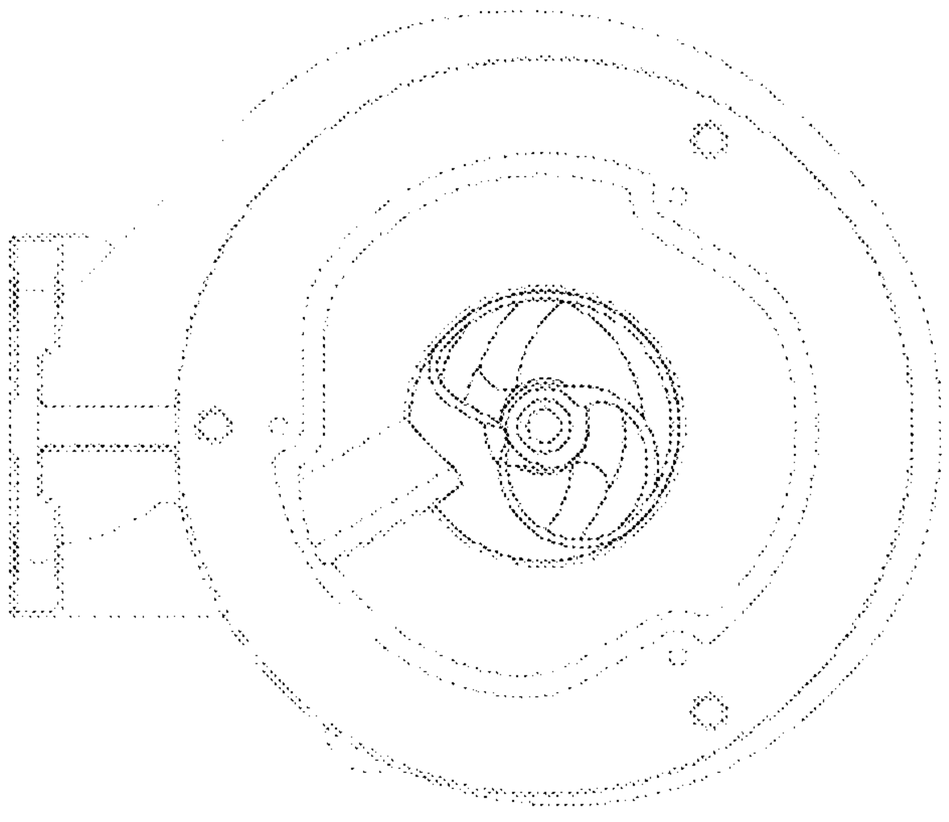
DESCRIPTION

3. Centrifugal pump
3.1: Bottom
3.2: Front
3.3: Back
3.4: Left
3.5: Right
3.6: Perspective
3.7: Perspective
3.8: Perspective
3.9: Perspective

3. Design 3 is a partial design of a centrifugal pump; a part shown by solid lines seeks protection as the partial design in the reproductions **3.1**, **3.2**, **3.3**, **3.4**, **3.5**, **3.6**, **3.7**, **3.8** and **3.9**; top view in design 3 is omitted because it is not shown in the sought partial design; the reproduction **3.6** shows that the impeller is rotated by 0-degree and 360-degrees; the reproduction **3.7** shows that the impeller is rotated by 90-degrees; the reproduction **3.8** shows that the impeller is rotated by 180-degrees; the reproduction **3.9** shows that the impeller is rotated by 270-degrees.

The broken lines and unshaded surfaces bounded by broken lines form no part of the claimed design.

1 Claim, 9 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

5,609,417	A	*	3/1997	Otte	B01F 5/0256 366/137
D482,370	S	*	11/2003	Niwatsukino	D15/7
D482,698	S	*	11/2003	Niwatsukino	D15/7
D483,041	S	*	12/2003	Niwatsukino	D15/7
D492,325	S	*	6/2004	Niwatsukino	D15/7
D503,411	S	*	3/2005	Fujiwara	D15/7
D534,547	S	*	1/2007	Racer	D15/7
D534,548	S	*	1/2007	Urano	D15/7
D712,435	S	*	9/2014	Kodera	D15/7
D713,860	S	*	9/2014	Pedrollo	D15/7
D765,145	S	*	8/2016	Takeda	D15/7
D765,146	S	*	8/2016	Takeda	D15/7
D766,987	S	*	9/2016	Takeda	D15/7
D817,361	S	*	5/2018	Weber	D15/7
D818,504	S	*	5/2018	Takeda	D15/7
D819,701	S	*	6/2018	Takeda	D15/7
D835,677	S	*	12/2018	Takeda	D15/7
D847,863	S	*	5/2019	Kidd	D15/7
D887,449	S	*	6/2020	Zwahlen	D15/7
D907,067	S	*	1/2021	Rosamilia	D15/7

* cited by examiner

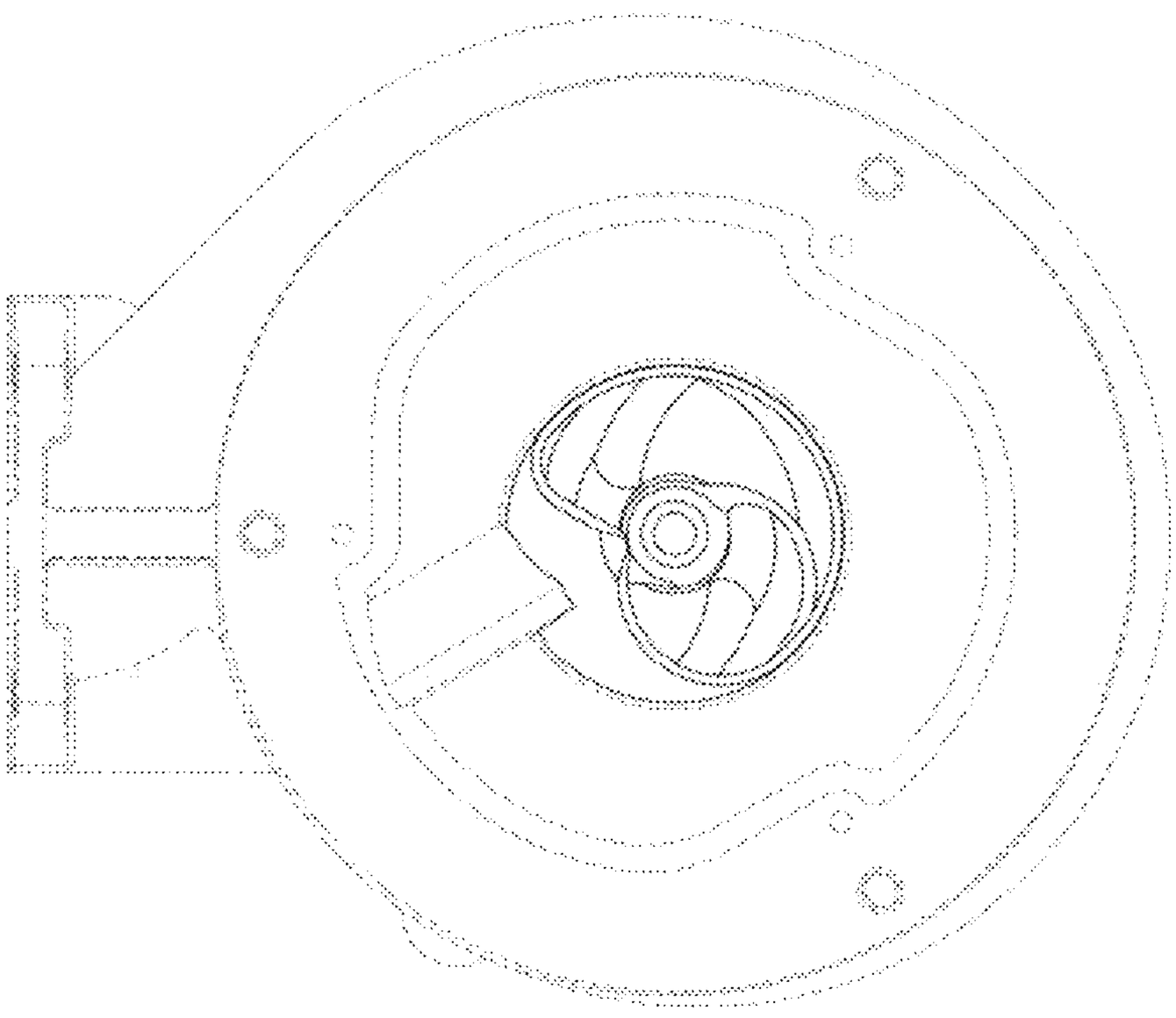


FIG. 3.1

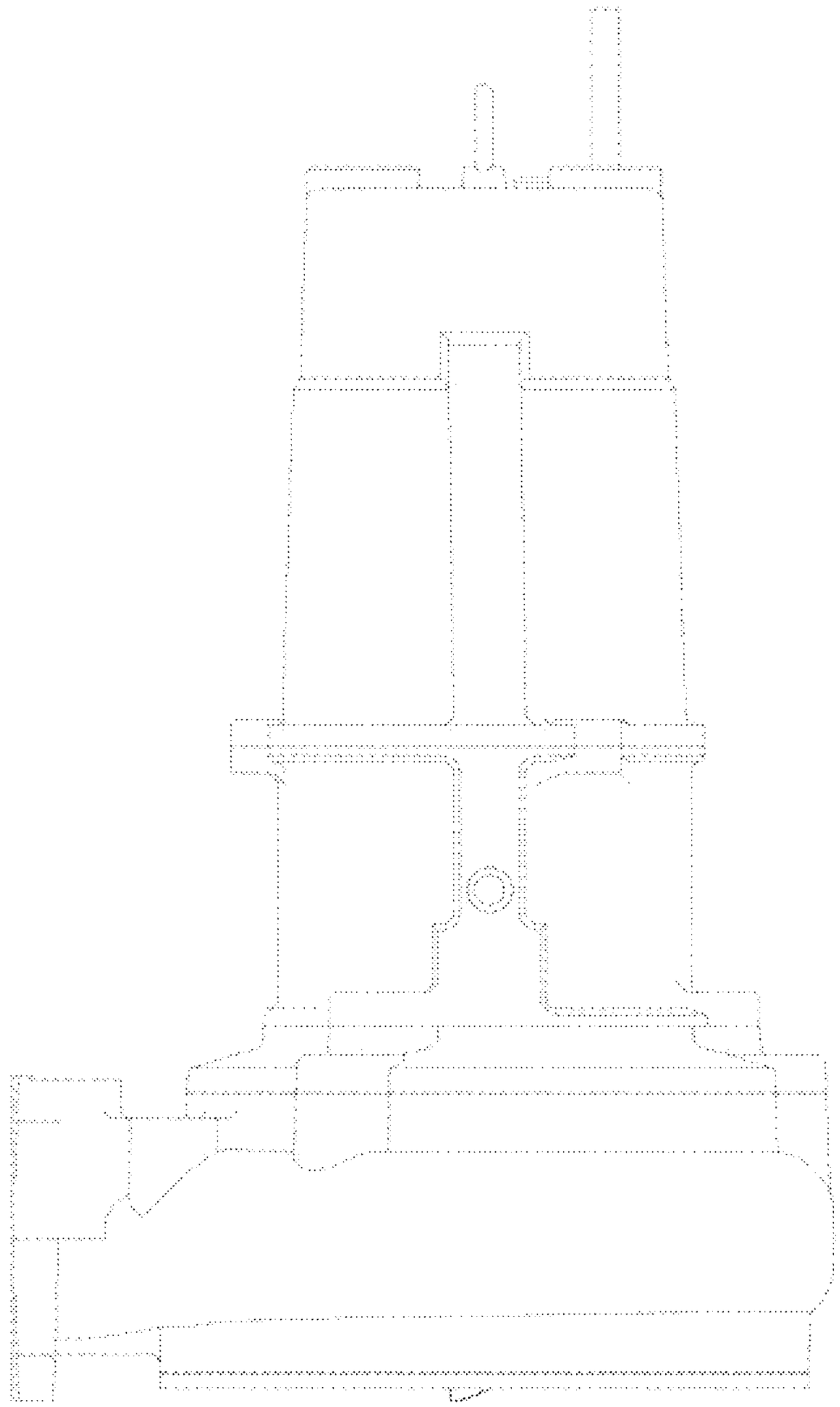


FIG. 3.2

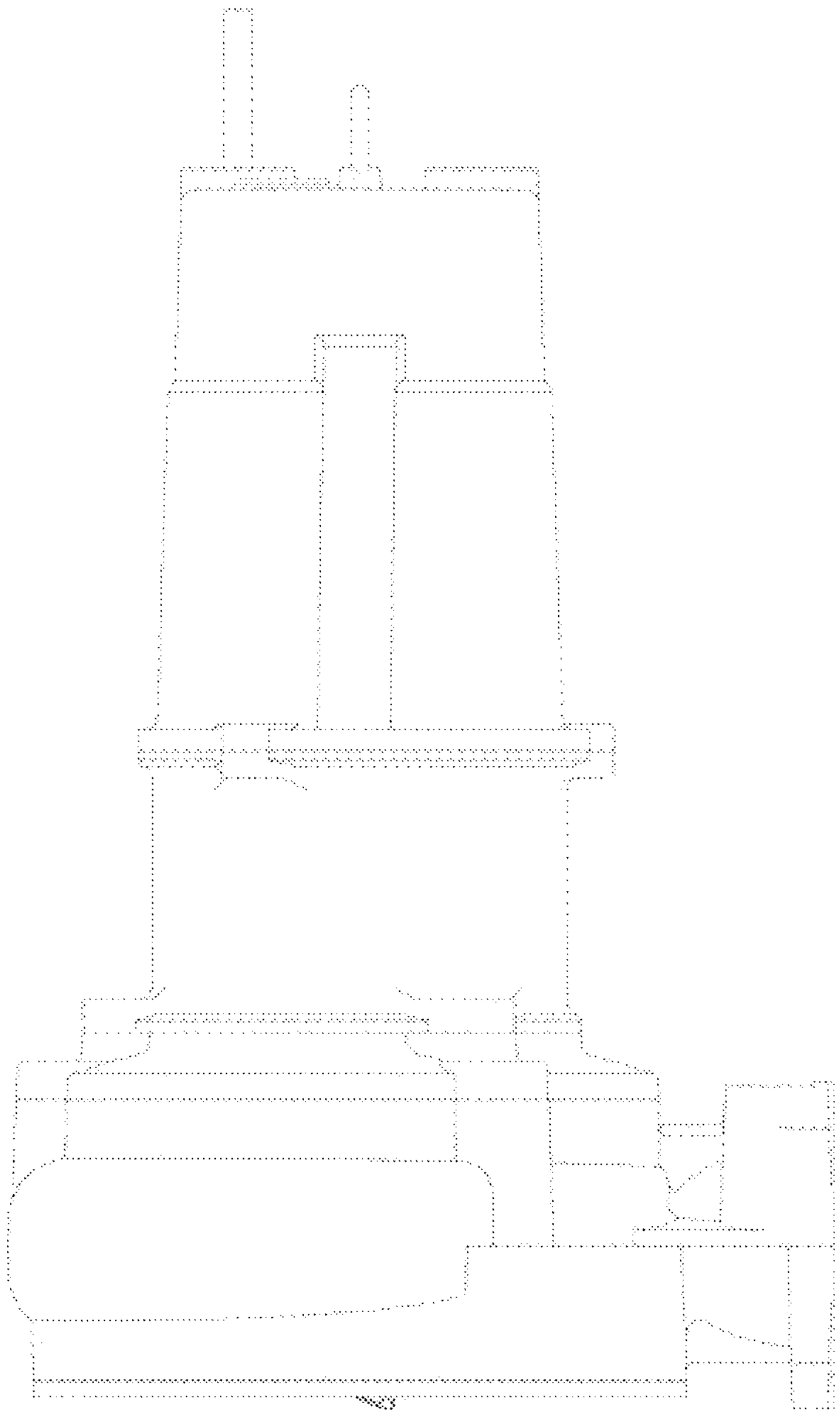


FIG. 3.3

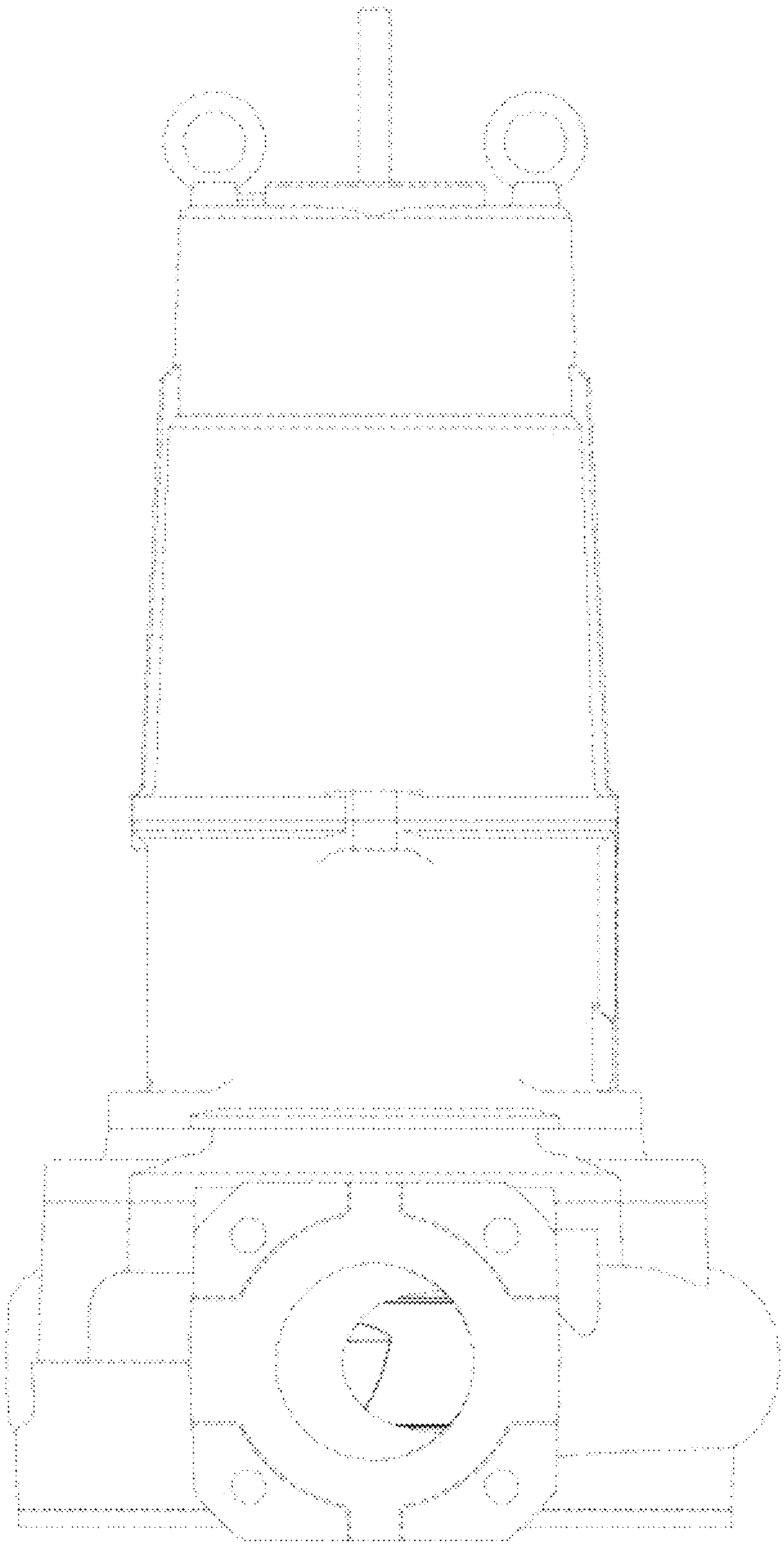


FIG. 3.4

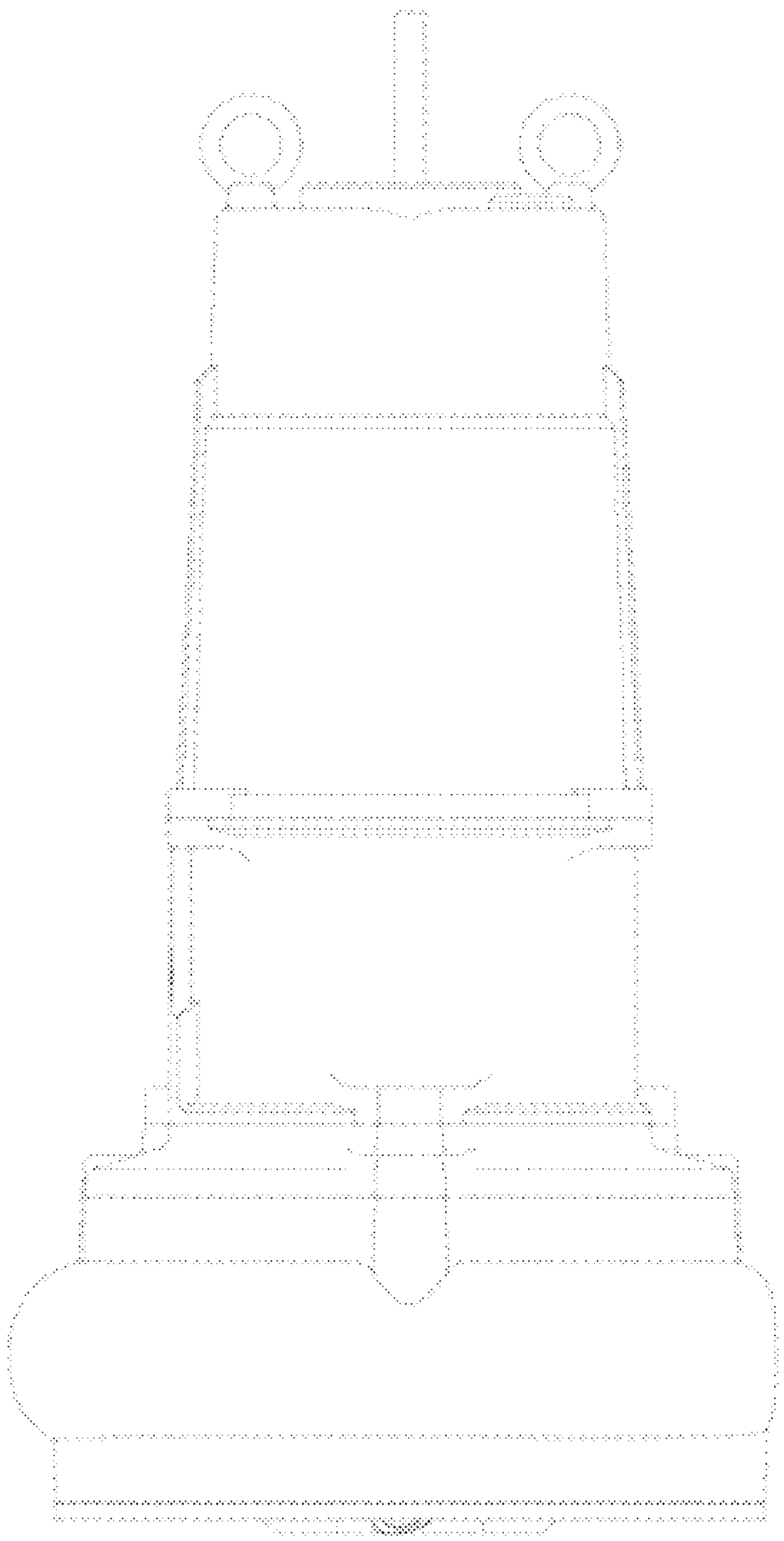


FIG. 3.5

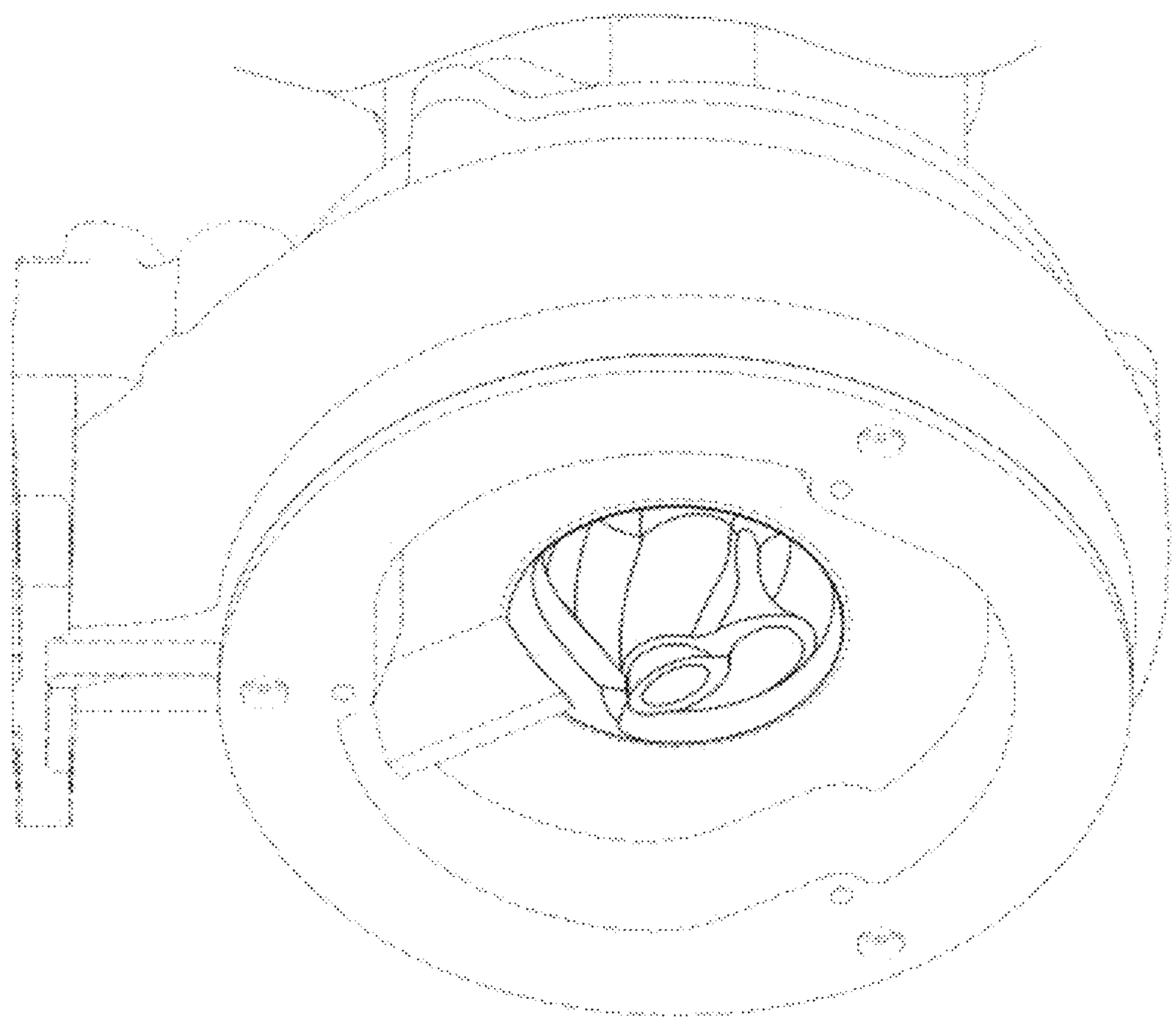


FIG. 3.6

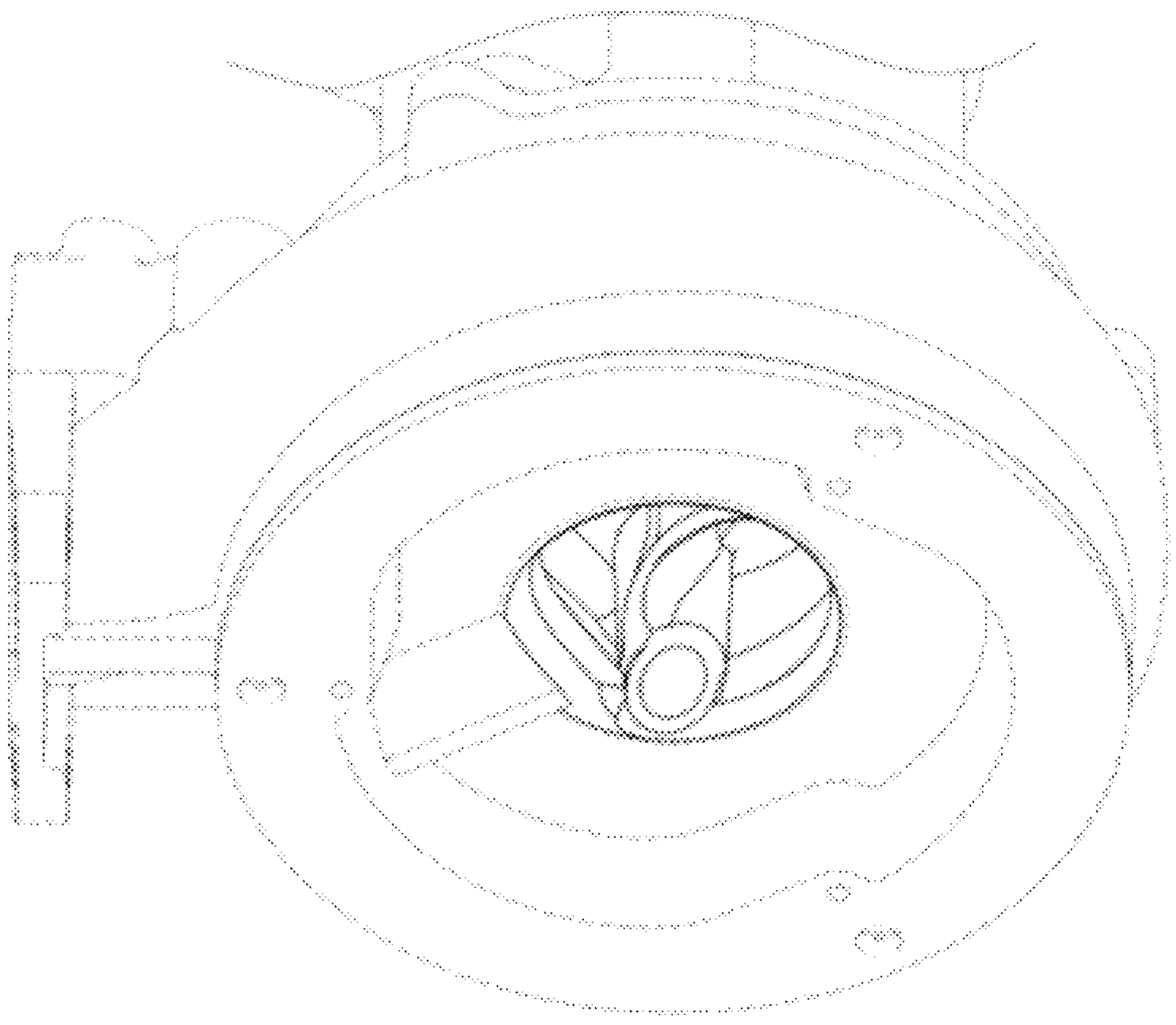


FIG. 3.7

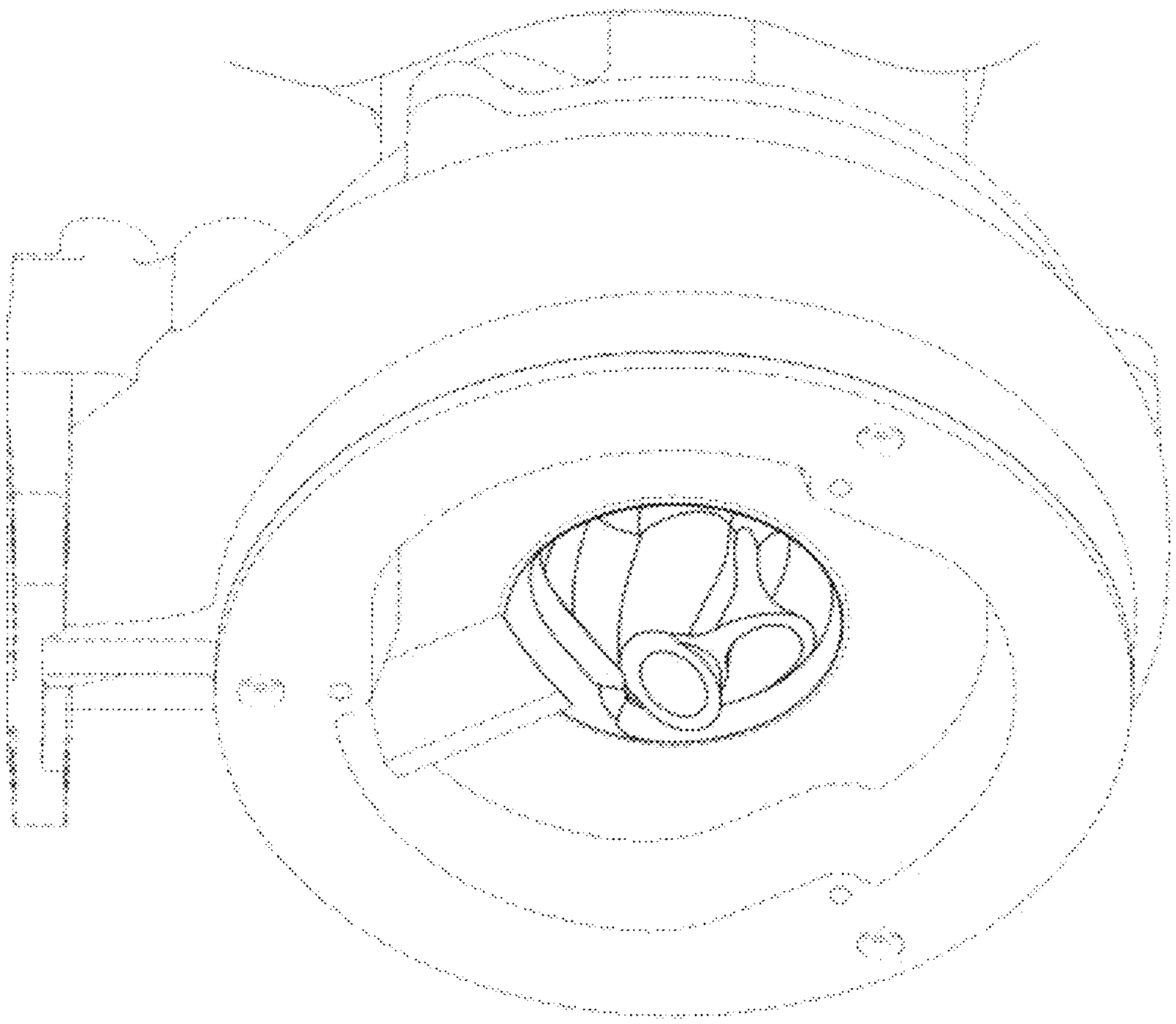


FIG. 3.8

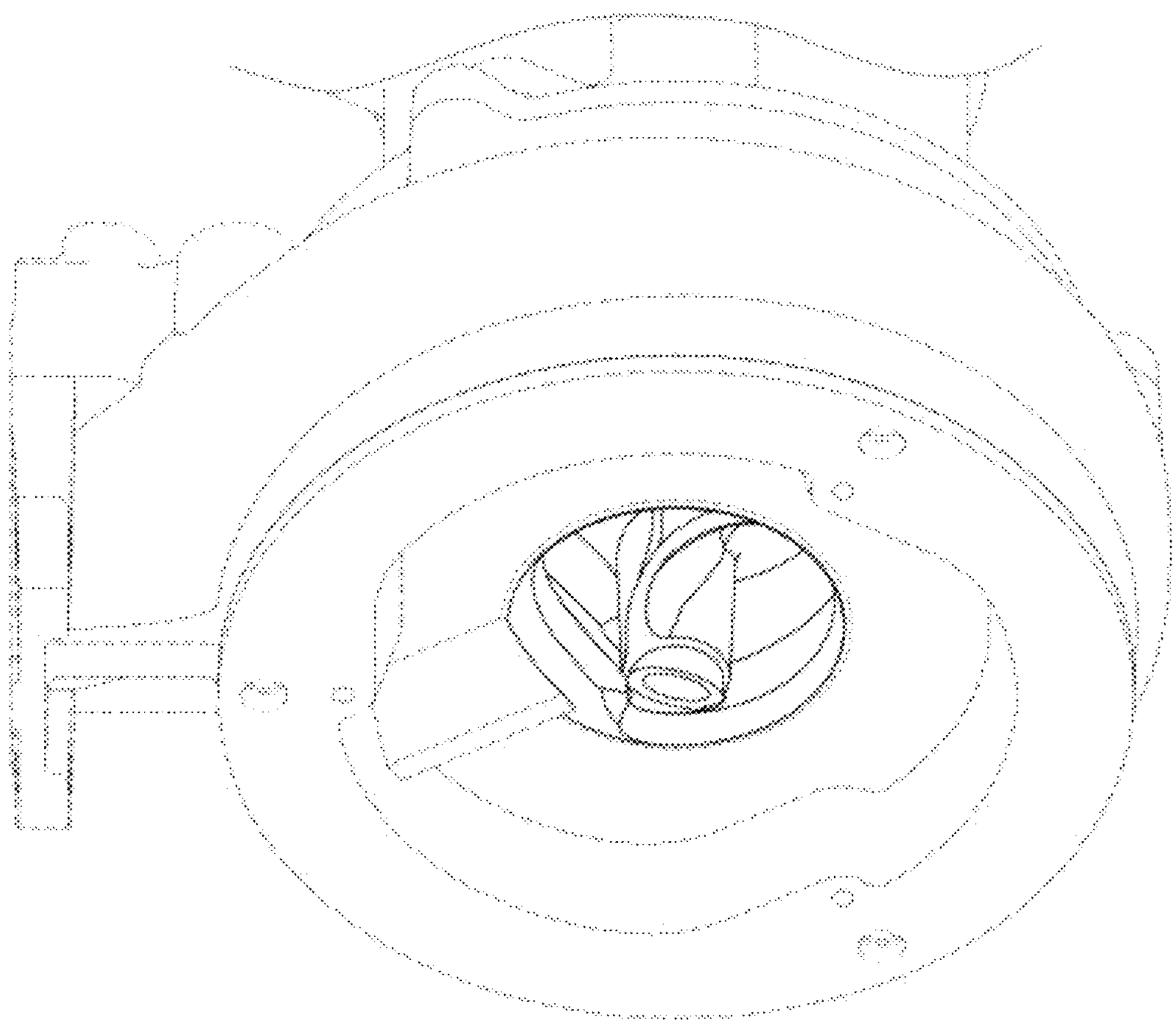


FIG. 3.9