

1/15

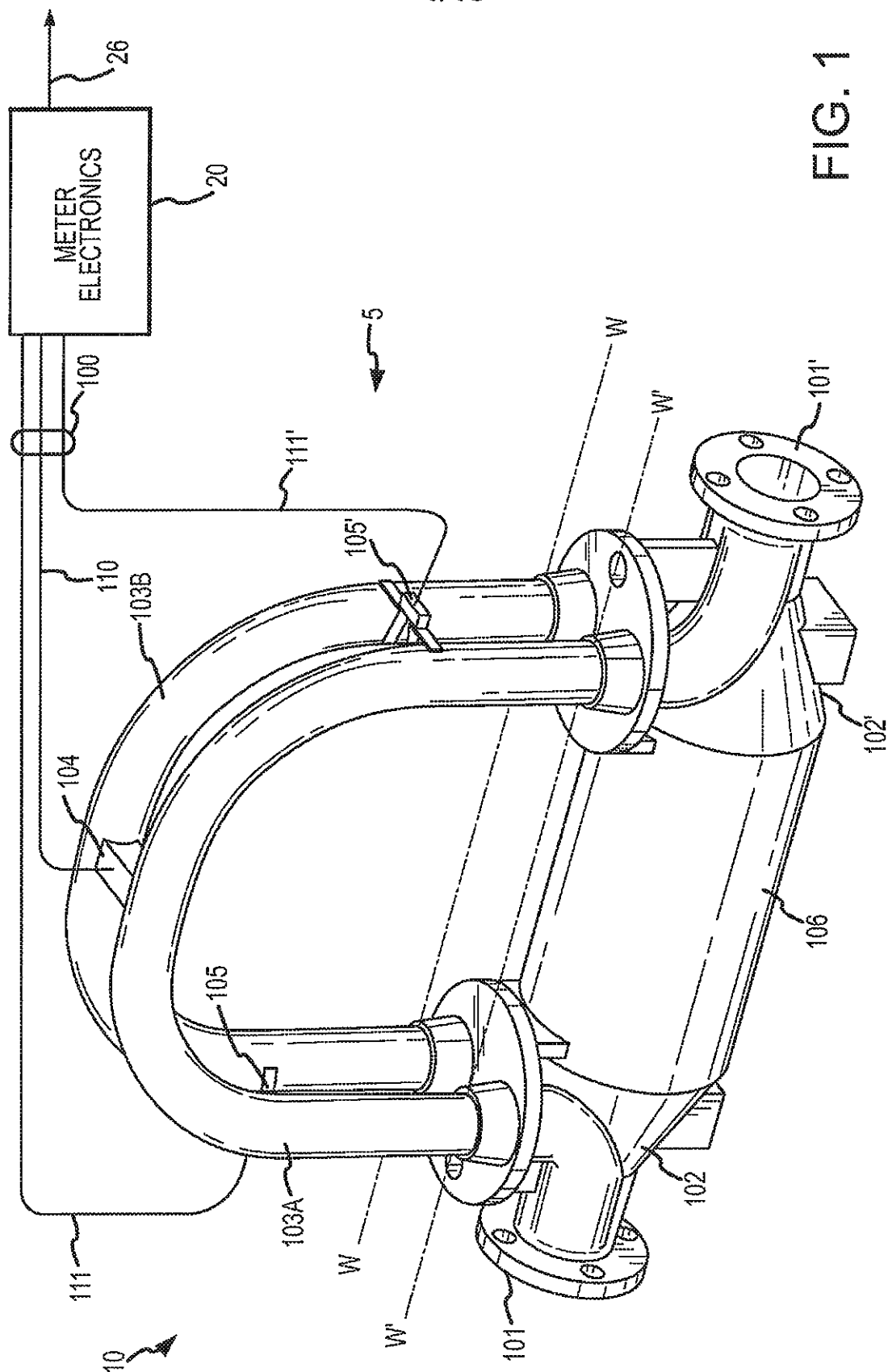


FIG. 1

2/15

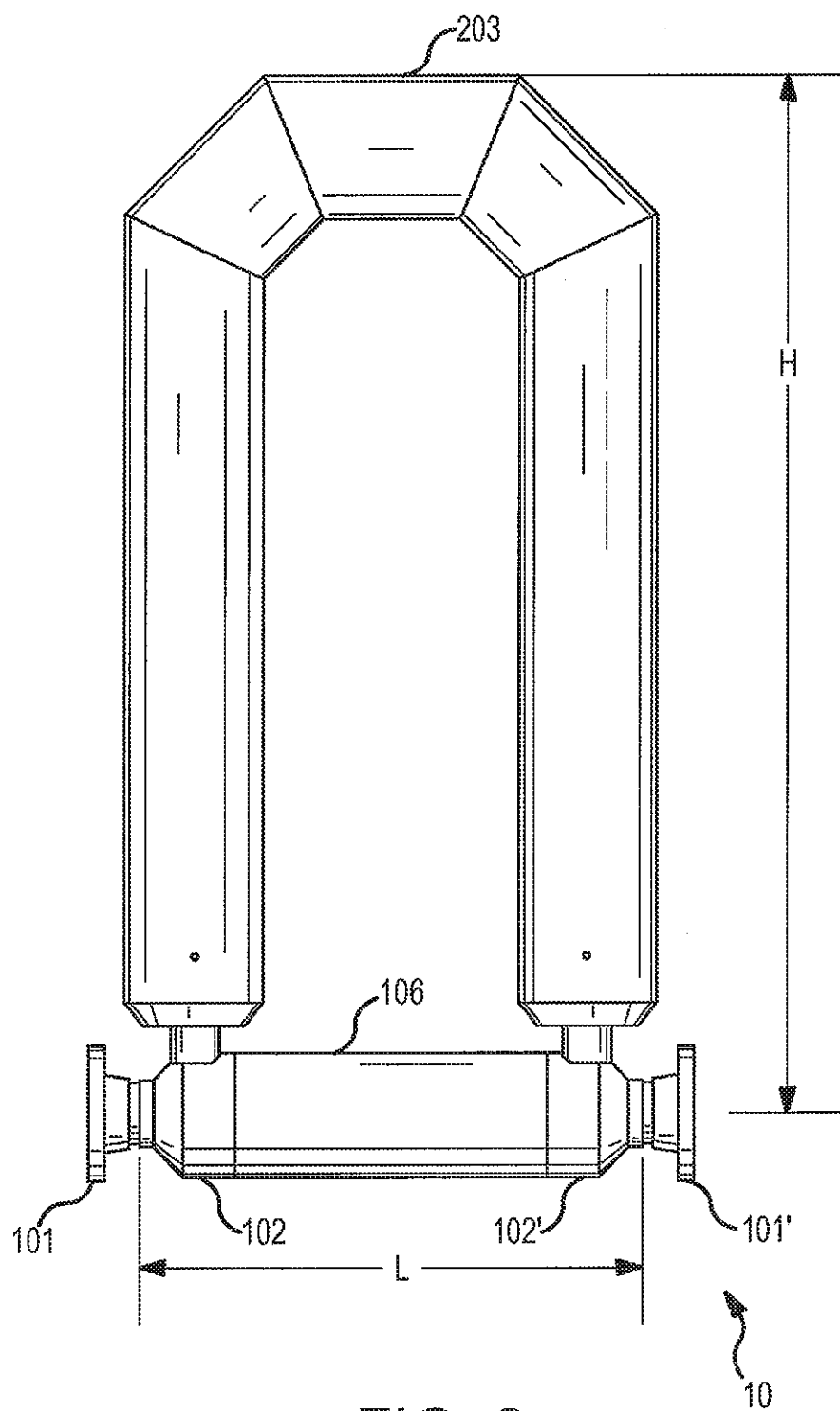


FIG. 2

3/15

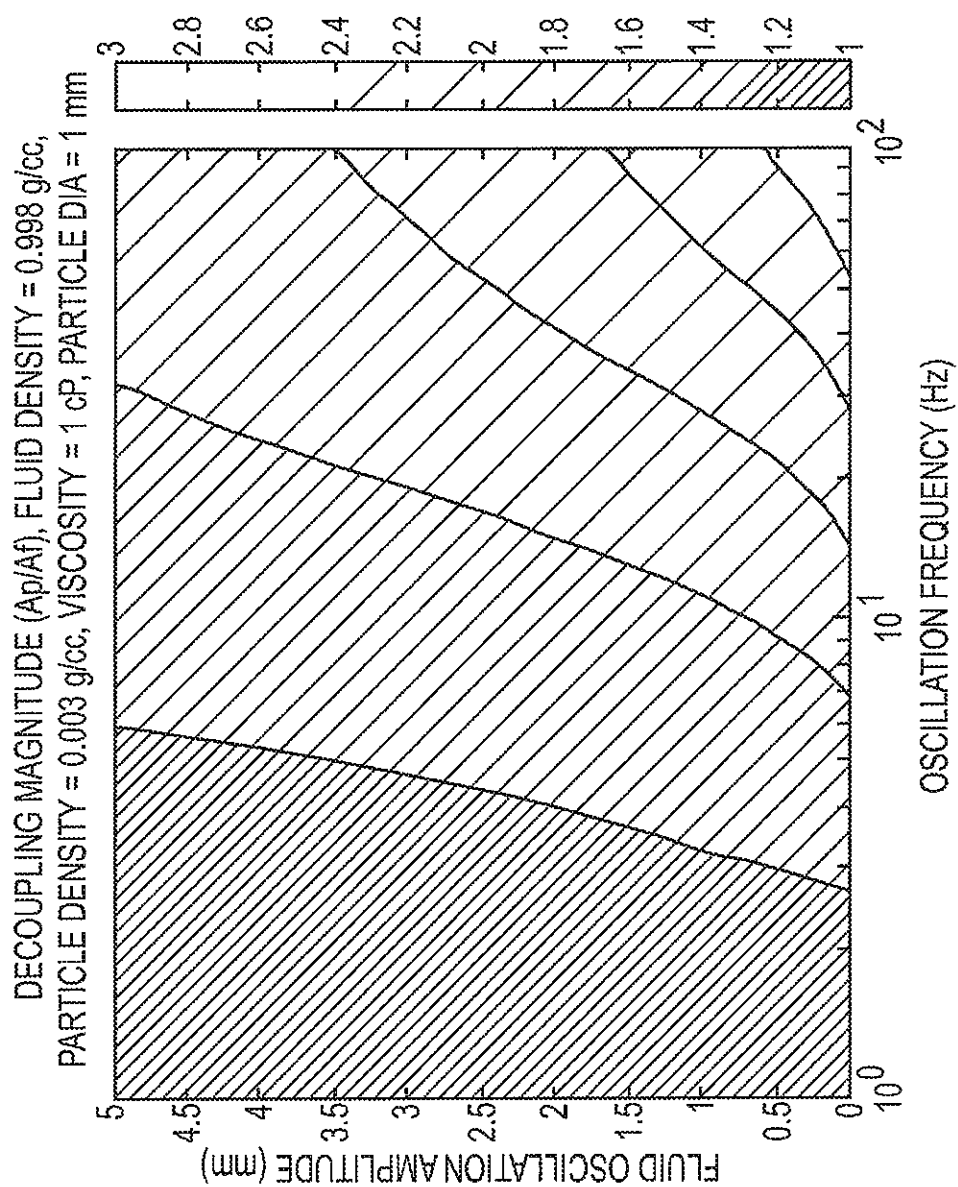


FIG. 3

4/15

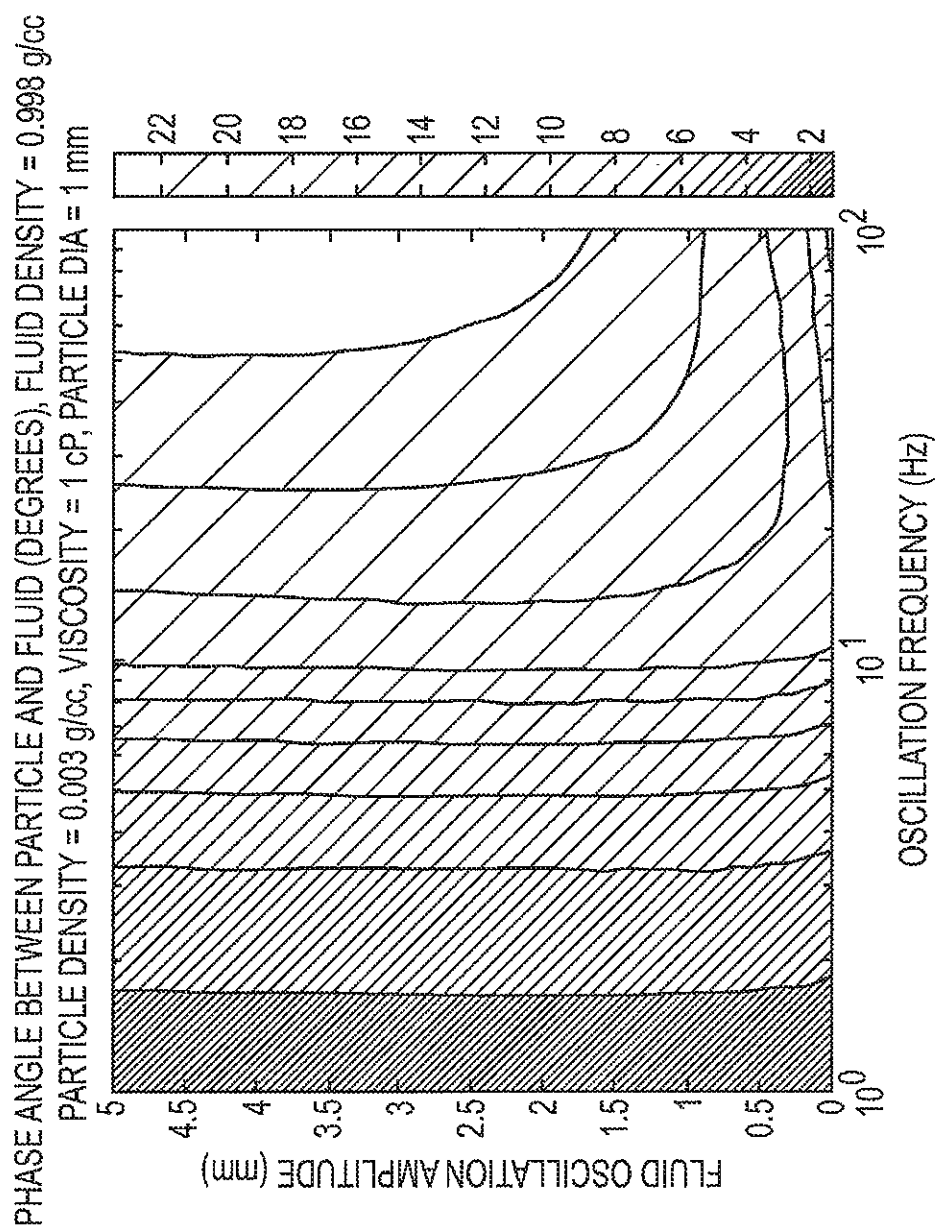


FIG. 4

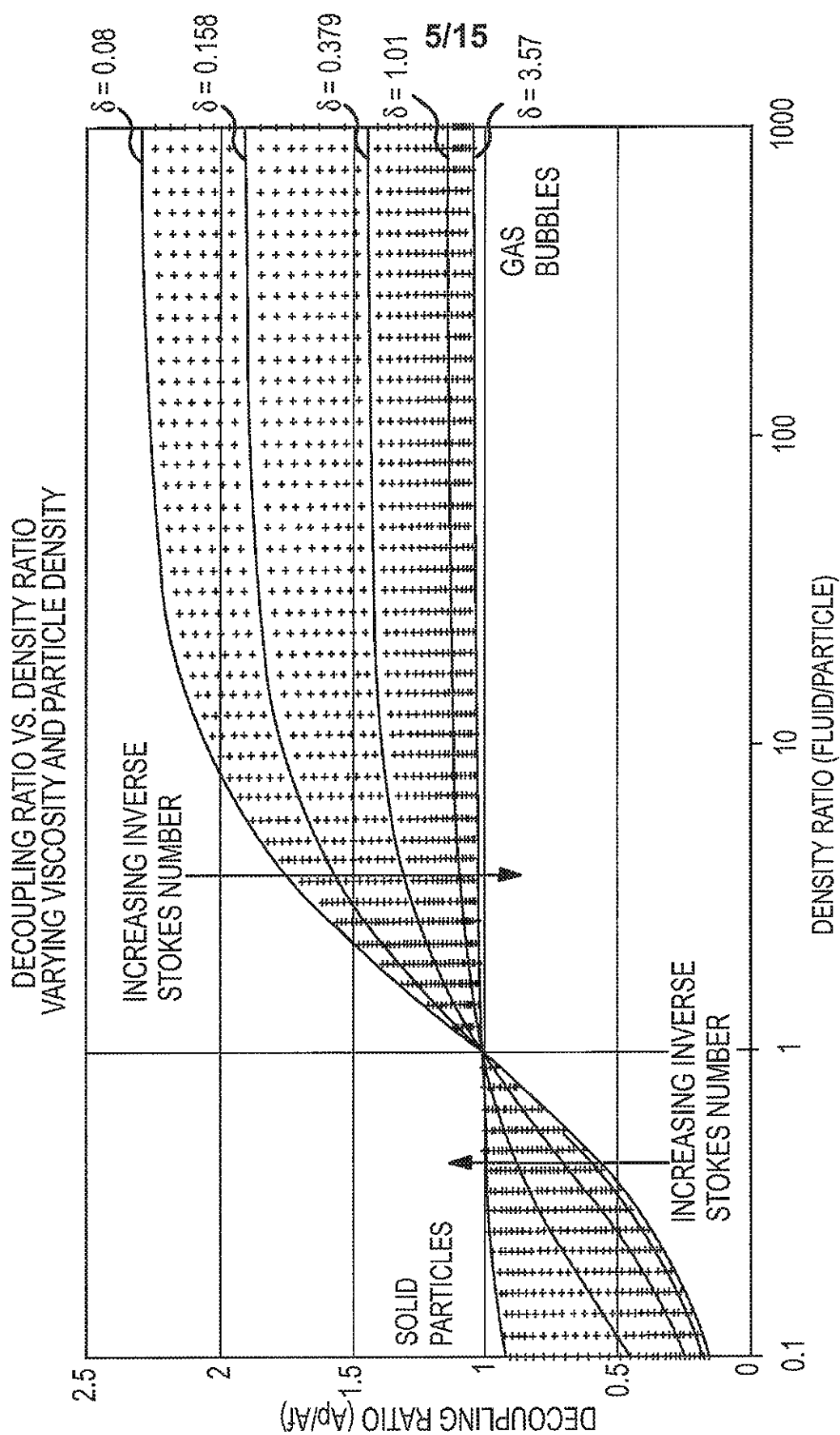


FIG. 5

7/15

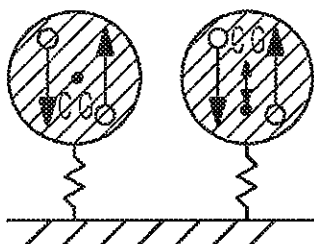


FIG. 7

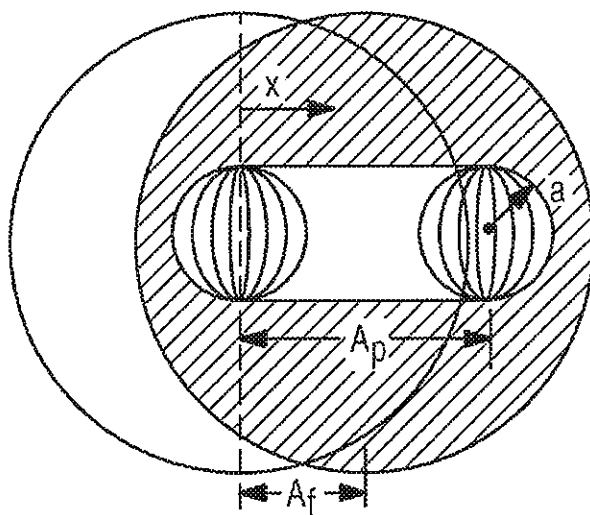


FIG. 8

8/15

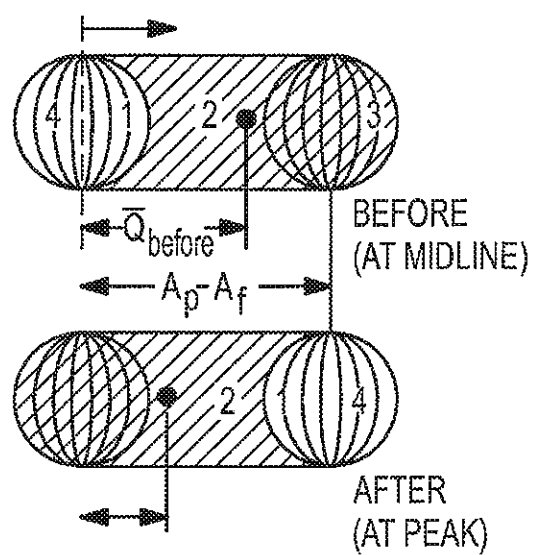


FIG.9

9/15

COMPONENT	MASS	CENTER OF GRAVITY BEFORE	CENTER OF GRAVITY AFTER
(1) FLUID HEMISPHERE	$m_1 = -\rho_f \left(\frac{1}{2} \right) \left(\frac{4}{3} \pi a^3 \right)$	$\bar{r}_1 = \frac{3a}{8}$	$\bar{r}_1 = (A_p - A_f) - \frac{3a}{8}$
(2) FLUID CYLINDER	$m_2 = \rho_f (\pi a^2) (A_p - A_f)$	$\bar{r}_2 = \frac{A_p - A_f}{2}$	$\bar{r}_2 = \frac{A_p - A_f}{2}$
(3) FLUID HEMISPHERE	$m_3 = \rho_f \left(\frac{1}{2} \right) \left(\frac{4}{3} \pi a^3 \right)$	$\bar{r}_3 = (A_p - A_f) + \frac{3a}{8}$	$\bar{r}_3 = -\frac{3a}{8}$
(4) PARTICLE SPHERE	$m_4 = \rho_p \left(\frac{4}{3} \pi a^3 \right)$	$\bar{r}_4 = 0$	$\bar{r}_4 = A_p - A_f$

FIG.10

ERROR IN MIXTURE DENSITY DUE TO DECOUPLING (1% VOLUME FRACTION) FREQUENCY = 100 Hz, FLUID DENSITY = 0.998 g/cc, PARTICLE DIA = 1 mm

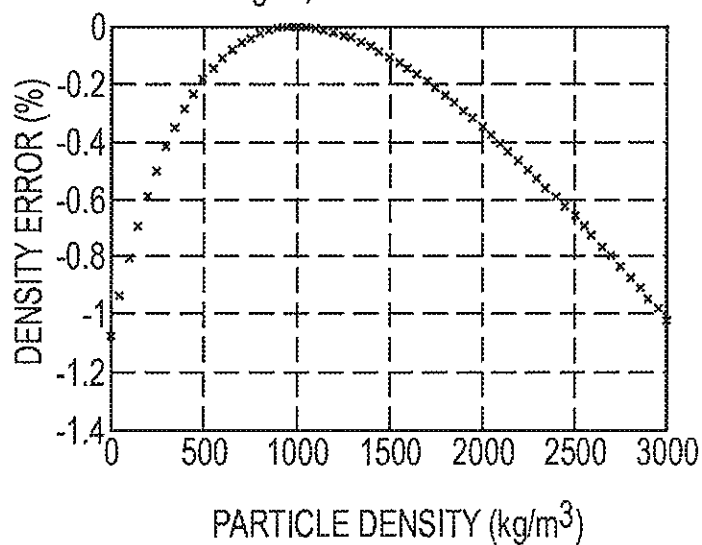


FIG.11

10/15

DENSITY ERROR (%) DUE TO DECOUPLING (1% VOLUME FRACTION) FLUID DENSITY = 0.998 g/cc, PARTICLE DENSITY = 0.003 g/cc, FREQUENCY = 100 Hz

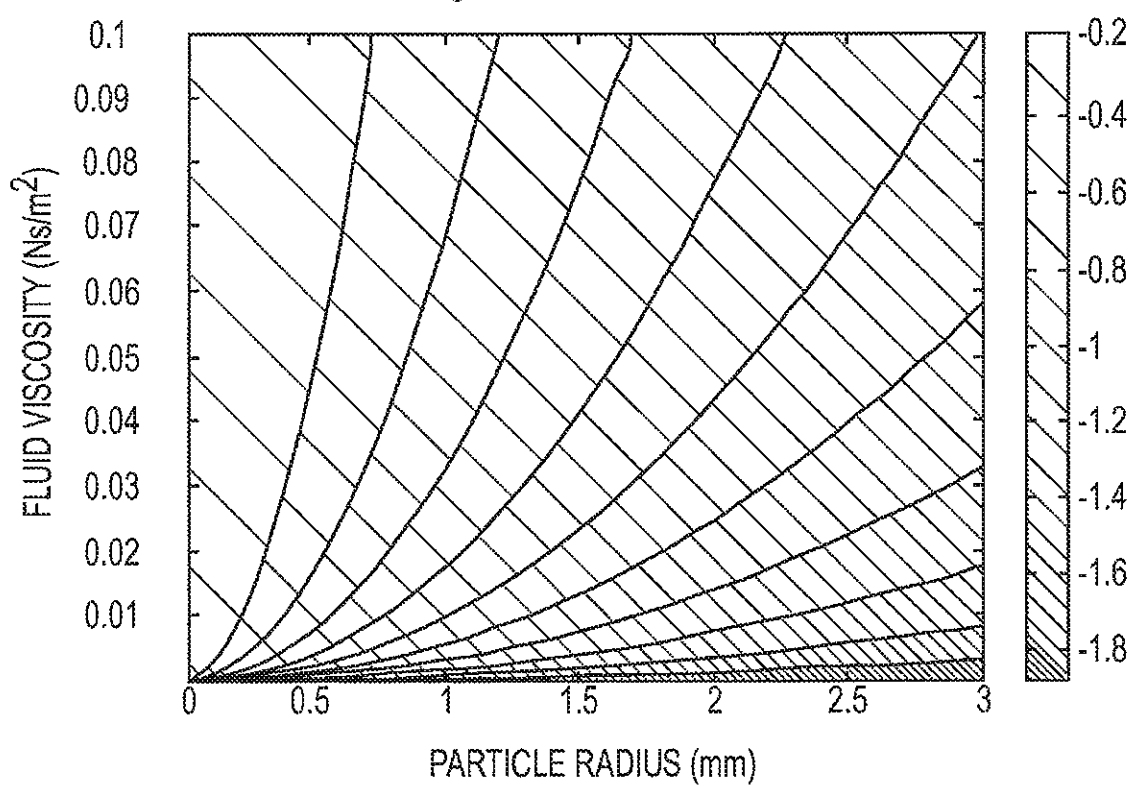


FIG.12

11/15

DENSITY ERROR (%) DUE TO DECOUPLING (1% VOLUME
FRACTION) FLUID DENSITY = 0.998 g/cc, FREQUENCY = 100 Hz,
PARTICLE DIA = 1 mm

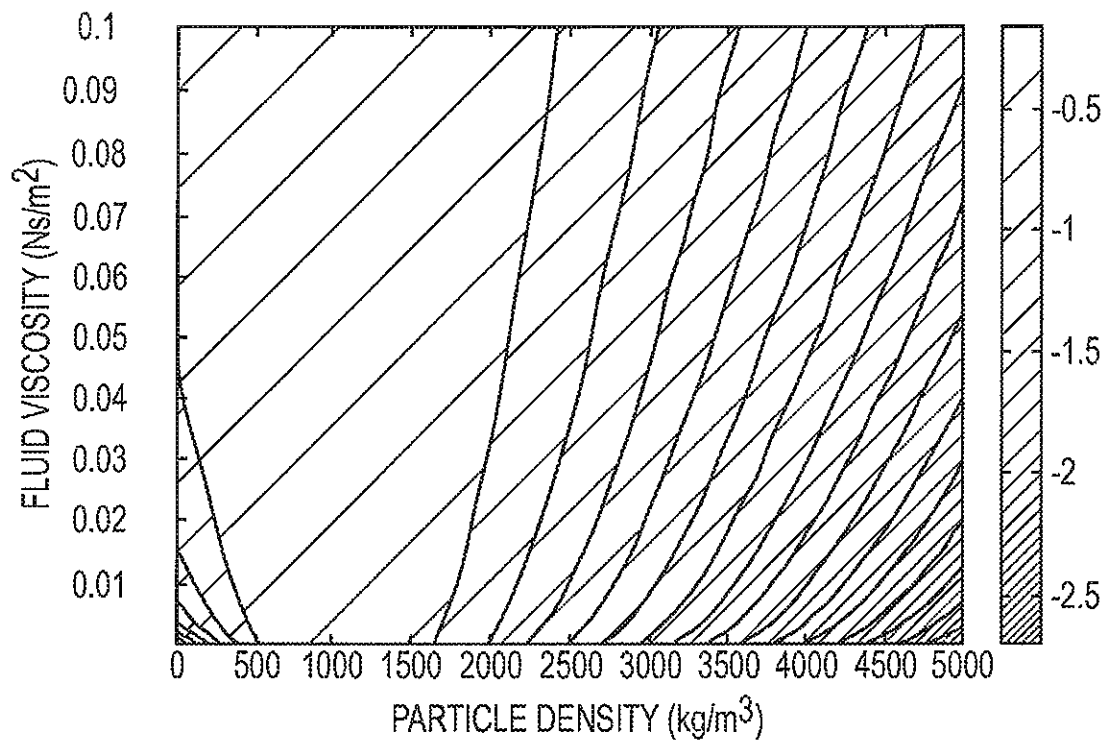


FIG.13

12/15

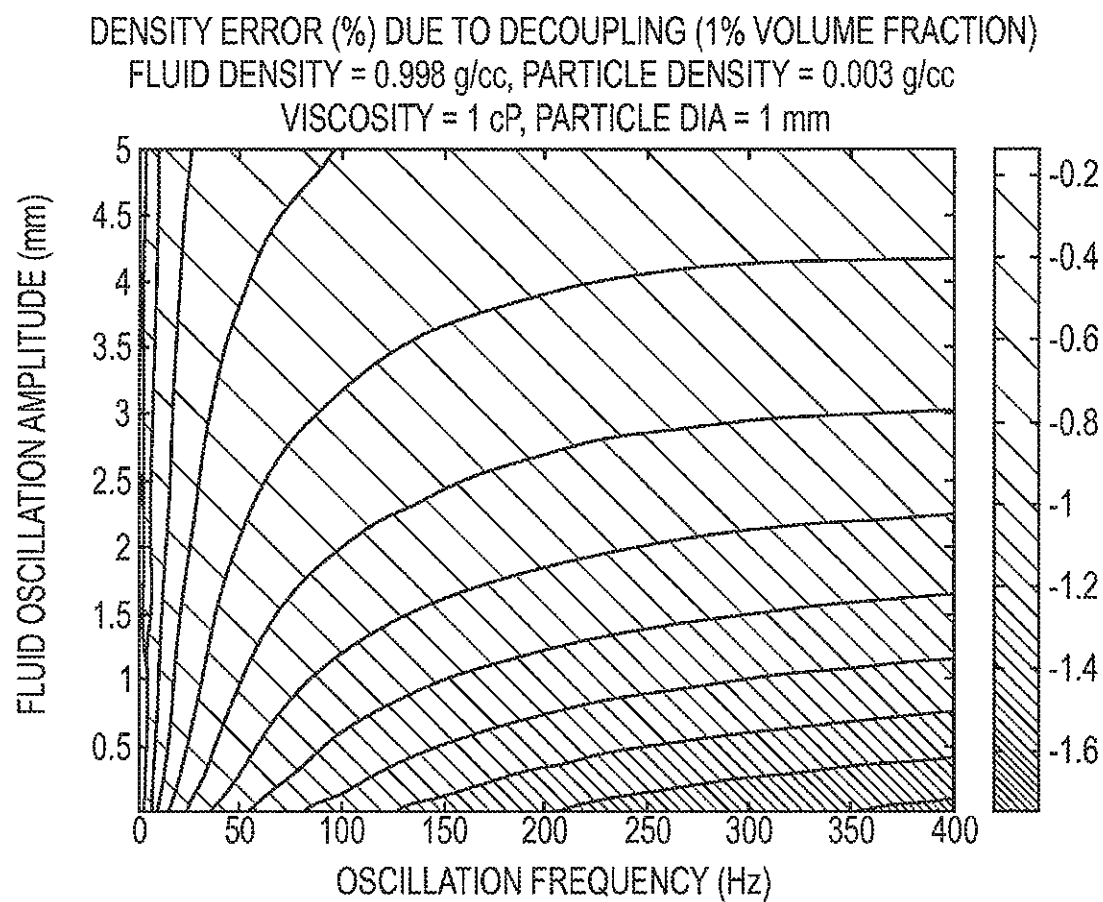


FIG.14

13/15

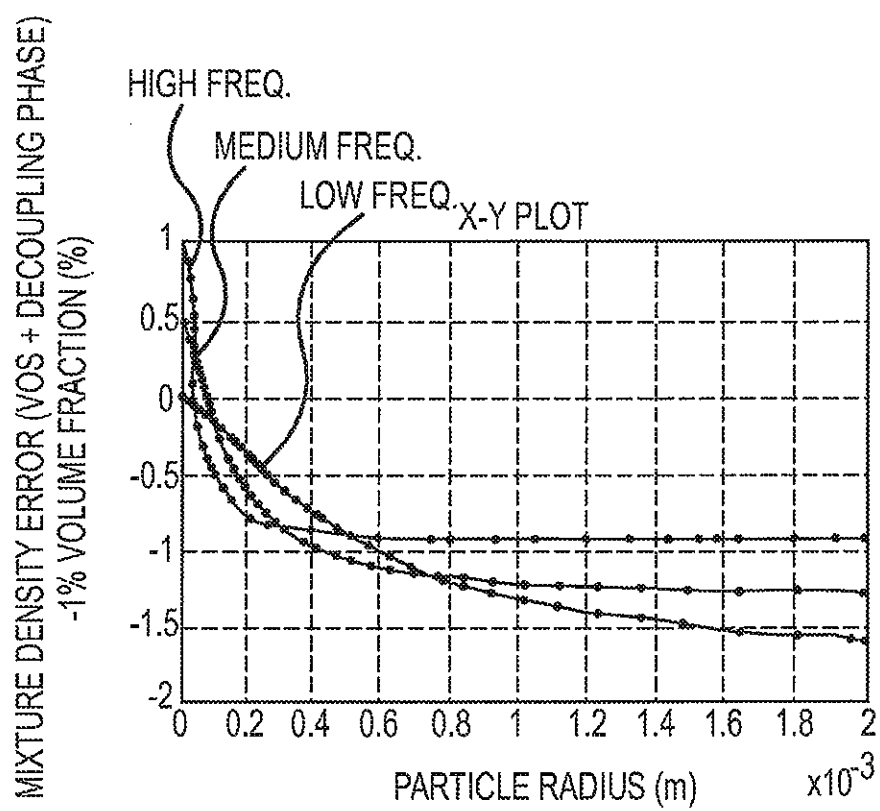


FIG. 15

14/15

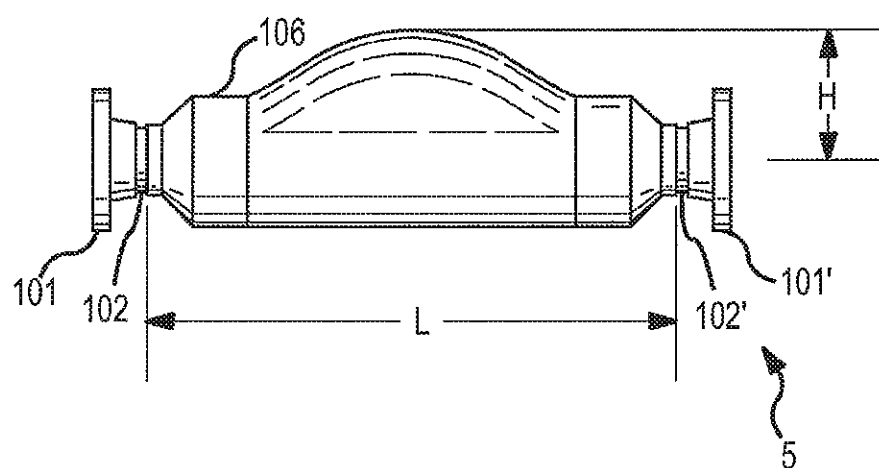


FIG. 16

15/15

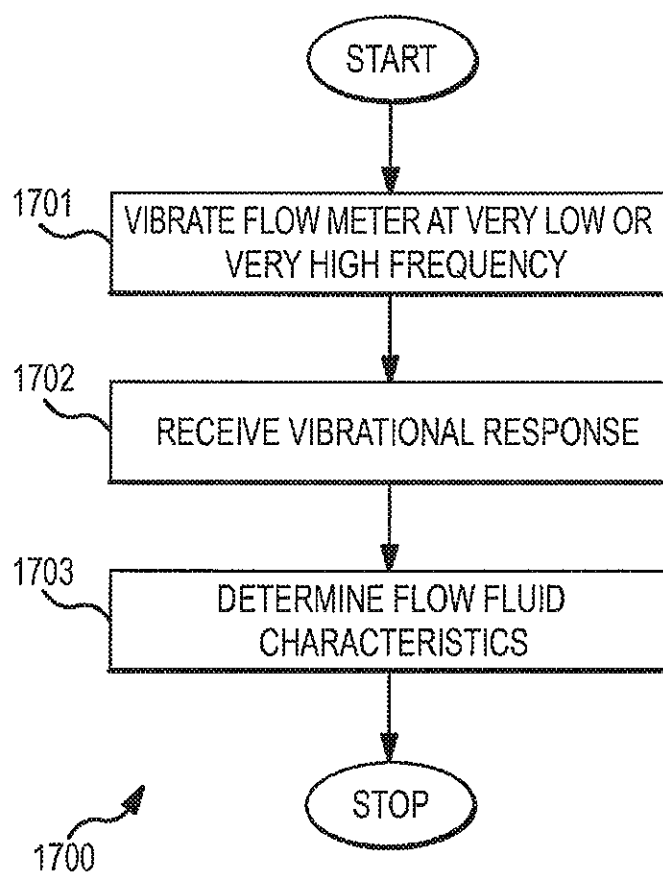


FIG.17