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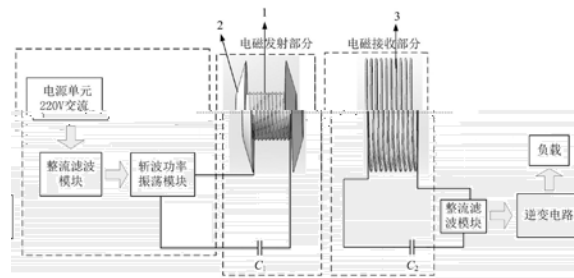
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 (22) 2018. 03. 16 US 9628707 B2, 2017. 04. 18  
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$$J_{eq} = \frac{2 - 2F_z \left( 0, \frac{z_1}{R} \right) - \frac{z_1}{\sqrt{R^2 + z_1^2}}}{\sqrt{1 - \left[ 2 - 2F_z \left( 0, \frac{z_1}{R} \right) - \frac{z_1}{\sqrt{R^2 + z_1^2}} \right]^2}} R$$

$$L_{eq} = L + 2\sqrt{(r_2 - r_1)^2 + h^2}, \quad F_z \left( 0, \frac{z_1}{R} \right) = F, \quad r_2 = R_2, \quad f_{\%} \quad F_{\%} \quad \backslash \quad \text{\#} ($$

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$$\alpha = 2 \arctan \frac{r_2 - r_1}{h}$$

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[0005] 
$$L_{eq} = z_1 + \frac{2 - 2F_z\left(0, \frac{z_1}{R}\right) - \frac{z_1}{\sqrt{R^2 + z_1^2}} R}{\sqrt{1 - \left(2 - 2F_z\left(0, \frac{z_1}{R}\right) - \frac{z_1}{\sqrt{R^2 + z_1^2}}\right)^2}}$$

[0006] 
$$L_{eq} = z_1 + \frac{2 - 2F_z\left(0, \frac{z_1}{R}\right) - \frac{z_1}{\sqrt{R^2 + z_1^2}} R}{\sqrt{1 - \left(2 - 2F_z\left(0, \frac{z_1}{R}\right) - \frac{z_1}{\sqrt{R^2 + z_1^2}}\right)^2}}$$

[0007] ¼

[0008]  $\alpha = 2 \arctan \frac{r_2 - r_1}{h}$

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$$\xi = \frac{\rho}{R},$$

[0029]

$$F_z \left( \frac{y_1}{R}, \frac{z_1}{R} \right) = A \left( \frac{y_1}{R}, \frac{z_1}{R} \right) + A \left( \frac{y_1}{R}, \frac{L_{eq} - z_1}{R} \right) \quad (3)$$

[0030]

$$F_y \left( \frac{y_1}{R}, \frac{z_1}{R} \right) = B \left( \frac{y_1}{R}, \frac{z_1}{R} \right) - B \left( \frac{y_1}{R}, \frac{L_{eq} - z_1}{R} \right) \quad (4)$$

[0031]

[0032]

$$B \left( \frac{y_1}{R}, \frac{z_1}{R} \right) = \frac{1}{4\pi} \int_0^1 \xi d\xi \int_0^{2\pi} \frac{\left( \frac{y_1}{R} - \xi \sin \theta \right) d\theta}{\left[ (\xi \cos \theta)^2 + \left( \frac{y_1}{R} - \xi \sin \theta \right)^2 + \left( \frac{z_1}{R} \right)^2 \right]^{\frac{3}{2}}}$$

[0033]

$$B \left( \frac{y_1}{R}, \frac{z_1}{R} \right) = \frac{1}{4\pi} \int_0^1 \xi d\xi \int_0^{2\pi} \frac{\left( \frac{y_1}{R} - \xi \sin \theta \right) d\theta}{\left[ (\xi \cos \theta)^2 + \left( \frac{y_1}{R} - \xi \sin \theta \right)^2 + \left( \frac{z_1}{R} \right)^2 \right]^{\frac{3}{2}}}$$

[0034]

$$A \left( \frac{y_1}{R}, \frac{L_{eq} - z_1}{R} \right) = \frac{1}{4\pi} \int_0^1 \xi d\xi \int_0^{2\pi} \frac{\frac{L_{eq} - z_1}{R} d\theta}{\left[ (\xi \cos \theta)^2 + \left( \frac{y_1}{R} - \xi \sin \theta \right)^2 + \left( \frac{L_{eq} - z_1}{R} \right)^2 \right]^{\frac{3}{2}}}$$

[0035]

$$B \left( \frac{y_1}{R}, \frac{L_{eq} - z_1}{R} \right) = \frac{1}{4\pi} \int_0^1 \xi d\xi \int_0^{2\pi} \frac{\left( \frac{y_1}{R} - \xi \sin \theta \right) d\theta}{\left[ (\xi \cos \theta)^2 + \left( \frac{y_1}{R} - \xi \sin \theta \right)^2 + \left( \frac{L_{eq} - z_1}{R} \right)^2 \right]^{\frac{3}{2}}}$$

[0036]

$$\frac{y_1}{R} = 0$$

[0037]  $F_y\left(0, \frac{z_1}{R}\right) = 0$  (5)

[0038]

[0039]  $F_z\left(0, \frac{z_1}{R}\right) = 1 - \frac{1}{2} \left( \frac{\frac{z_1}{R}}{\sqrt{1 + \left(\frac{z_1}{R}\right)^2}} + \frac{\frac{L_{eq} - z_1}{R}}{\sqrt{1 + \left(\frac{L_{eq} - z_1}{R}\right)^2}} \right)$  (6)

[0040]

[0041] (7)  $L_{eq} = z_1 + \frac{z_1 \sqrt{R^2 + z_1^2}}{\sqrt{1 - \left( 2 - 2F_z\left(0, \frac{z_1}{R}\right) - \frac{z_1}{\sqrt{R^2 + z_1^2}} \right)^2}}$

[0042]  $L_{eq} = L + 2\sqrt{(r_2 - r_1)^2 + h^2}$

[0043]  $F_z\left(0, \frac{z_1}{R}\right) = F_z$  ,  $f_{\&} F_{\&} f_{\%}$

[0044]  $F_{\%} \setminus @\#( fl\& @ F_{\&} F_{\%} @$

[0045]  $\tan \alpha = \frac{4(R_2 - R_1)}{L}$  (8)  $\alpha = \arctan$

[0046]

[0047]  $B_{\%} X_{\&} \# @ fl\&$

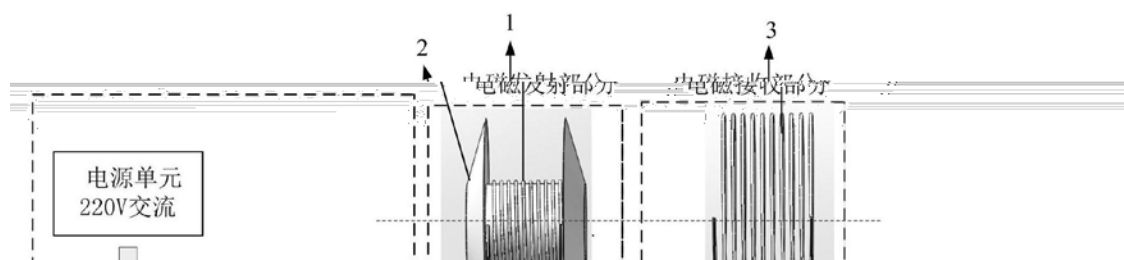
[0048]

[0049]  $\& B_{\%} F_{\&} B_{\%} X_{\&} \# @ fl\&$

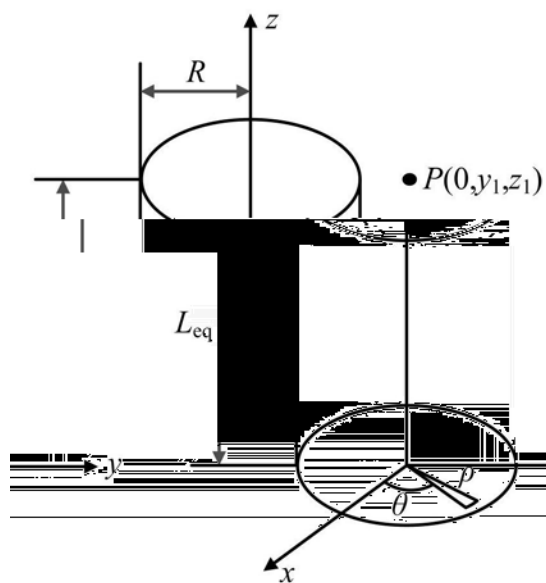
[0050]  $F_{\%} @ F_{\&} X_{\&} f_{\%}$

[0051] )

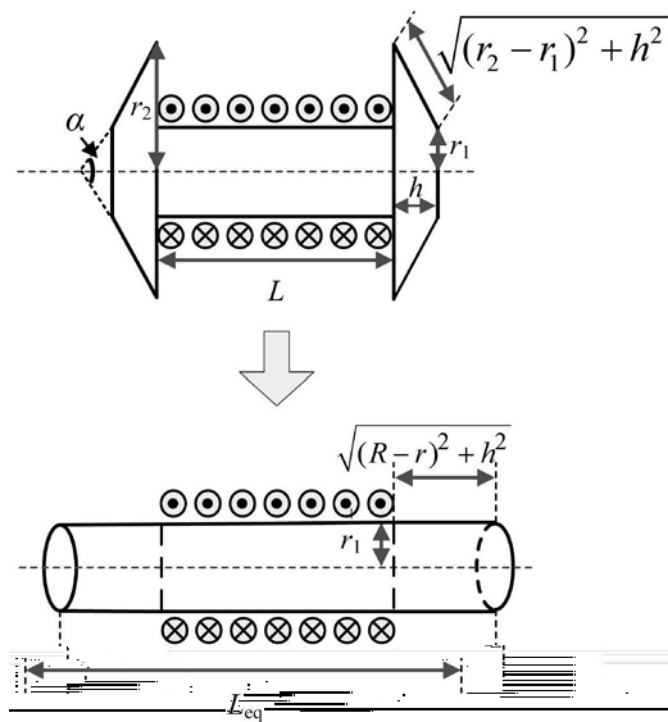
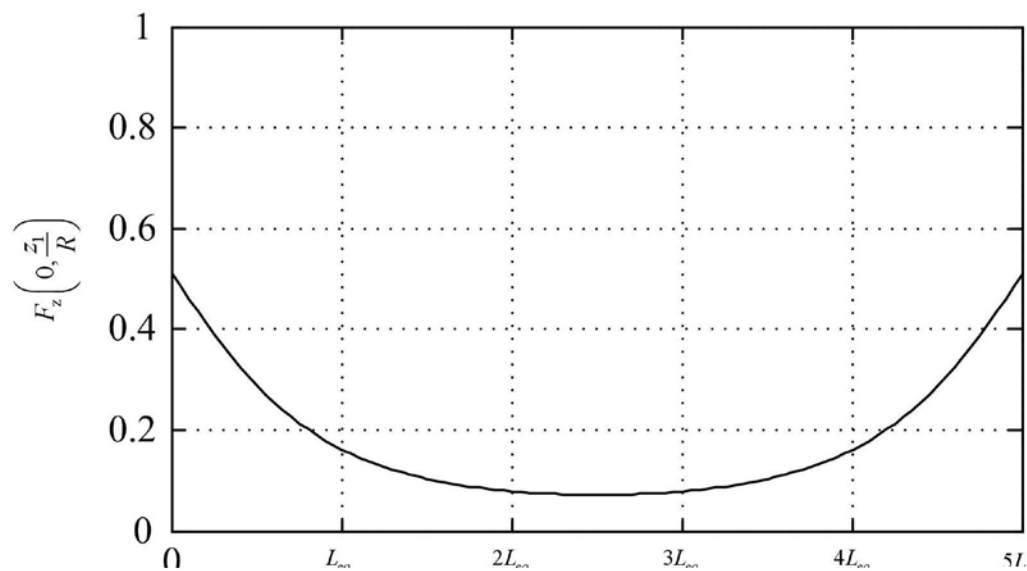
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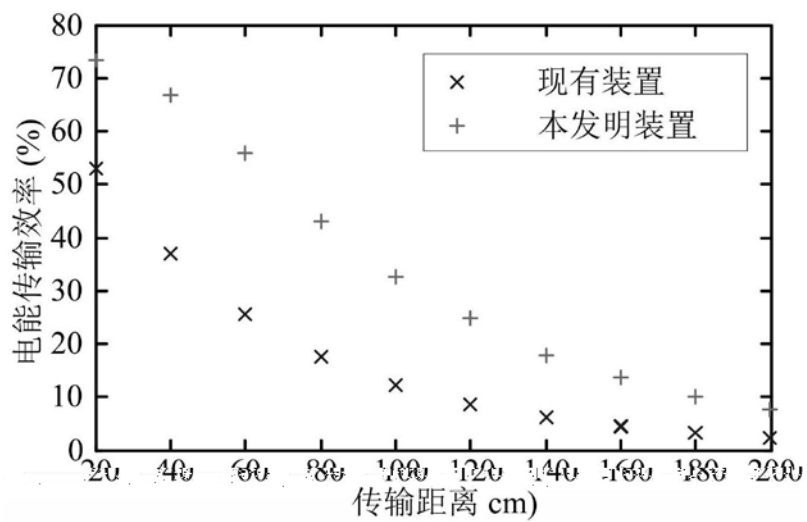


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