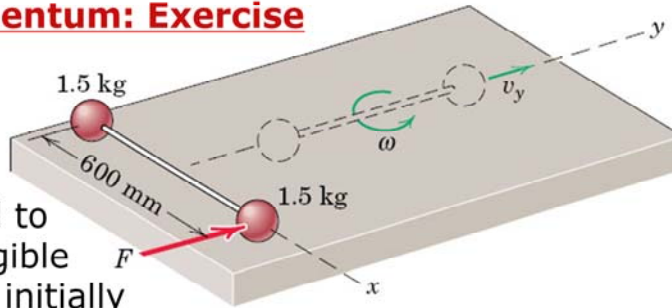**Impulse-Momentum: Exercise**
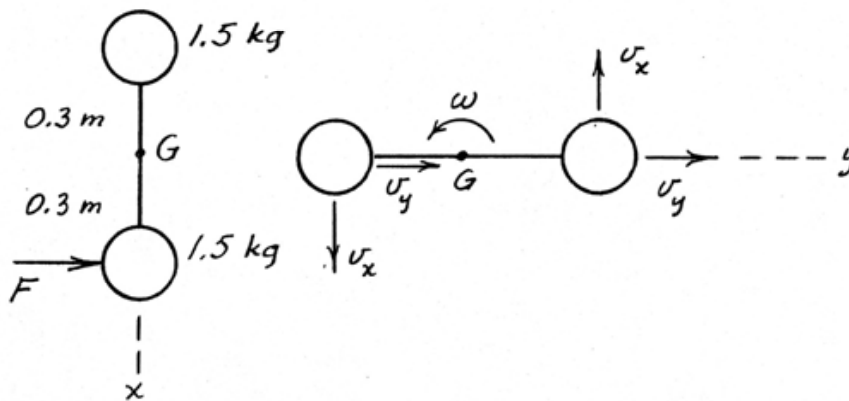
Two spheres are connected to a rod of negligible mass and are initially at rest. A **force F** is applied to **one sphere** in the **y-direction** and imparts an impulse of **10 Ns** during a negligibly short time.

Determine the **velocity** of each sphere as they pass the **dashed position**.

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$$\int \Sigma F_x \, dt = 0 \quad \text{so} \quad \Delta G_x = 0$$

$$\int \Sigma F_y \, dt = \Delta G_y: \quad 10 = 2(1.5)\upsilon_y \,, \quad \upsilon_y = 3.33 \text{ m/s}$$

$$\int \Sigma M_G \, dt = \Delta H_G: \quad 10(0.3) = 2(1.5)\upsilon_x(0.3), \quad \upsilon_x = 3.33 \text{ m/s}$$

$$\upsilon = 3.33\sqrt{2} = 4.71 \text{ m/s both spheres}$$

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