Substituting $2\pi T$ for ω, and dividing by $d F$ as before, we have

$$\text{tangent } \alpha = \frac{\left(1 + \frac{r}{R\sqrt{2}}\right)^2}{4\pi T d T}$$

Suppose r to be $\frac{1}{3}$ of R, T to be three revolutions per second, and $d t$ to be one second; then tangent α becomes 0.0406, and α is less than $2\frac{1}{2}°$. If $d t$ is $\frac{1}{4}$ of one second, then α becomes about 22°, and if $d t$ is $\frac{1}{100}$ of one second, α is about 76°. The extremes of these three cases are shown graphically in Fig. 16 for both right and left hand motion. This illustrates to how great an extent, when changes of speed are sudden, inertia force may be useful to assist centrifugal force; also to what a slight extent inertia acts when changes are not sudden.

It also shows that if the direction of motion be badly chosen,

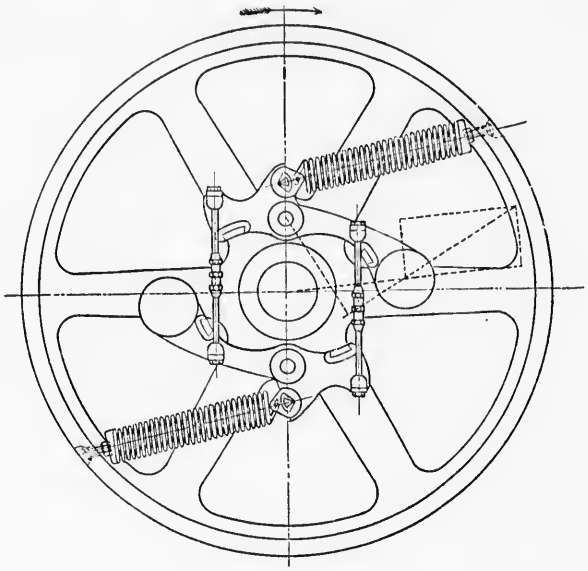

Fig. 17.

the combined forces may produce an instantaneous moment about the weight pivot in the wrong direction, thus interfering with sensitive governing.

As to the actual value of $d t$ in practice, it may often be a very