

Now let us examine the effect of altering S and let us take two cases (1) $S = 50$ pounds, and (2) $S = 24$ pounds. Taking the first case, let us assume as before a condition of equilibrium at

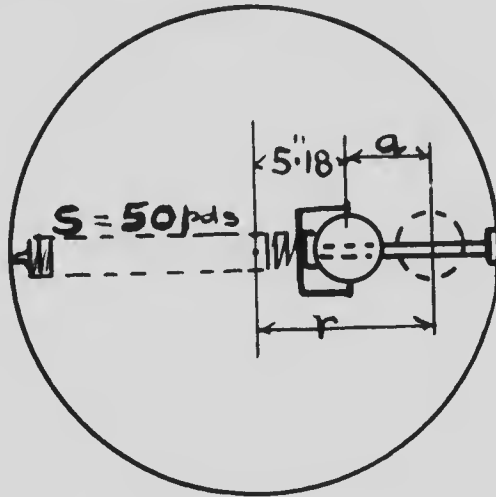


Fig. 39.

200 revs. per min. when the ball is 12 in. from the centre of rotation. Then $C = .0000284 \omega^2 r n^2 = 340.8$ pounds, and hence the extension of the spring must now be $\frac{340.8}{50} = 6.82$ in. instead of 12 in., in other words the extension of the spring will be less than the radius of

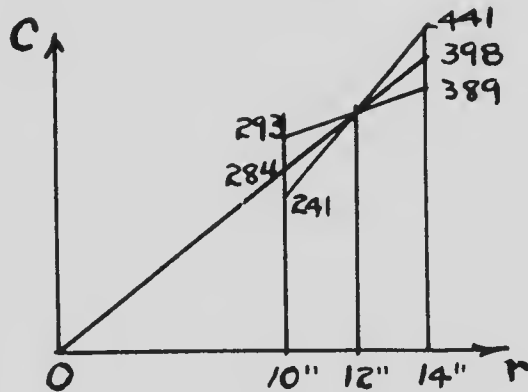


Fig. 40.

rotation of the ball or the spring will have its free length when the ball is $12 - 6.82 = 5.18$ in. from O and the arrangement is sketched in Fig. 39 in which the extension of the spring is denoted by a .