The length of the 0.0625-in.-diameter steel wire $CD$ has been adjusted so that with no load applied, a gap of 0.2 in. exists between the end $B$ of the rigid beam $ACB$ and a contact point $F$. Knowing that the modulus of elasticity is $E = 29 \times 10^6$ psi for the steel wire, determine the weight $W$ of the block that should be placed as shown on the beam in order to cause contact between $B$ and $F$.

\[ \delta_{CD} = \frac{8}{40} = 0.04 \text{ in.} \]

\[ \delta = \frac{PL}{AE} : \quad 0.04 = \frac{F_{CD}(25)}{\pi (0.0625/2)^2 (29 \times 10^6)} \quad F_{CD} = 142.35 \text{ lb} \]

\[ +\sum M_A = 0 : \quad 8F_{CD} - 22W = 0 \quad W = 51.76 \]

\[ W = 51.8 \text{ lb} \]