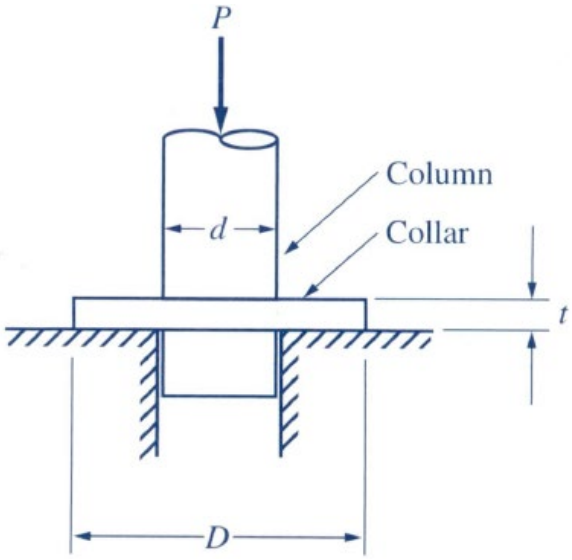
9-23

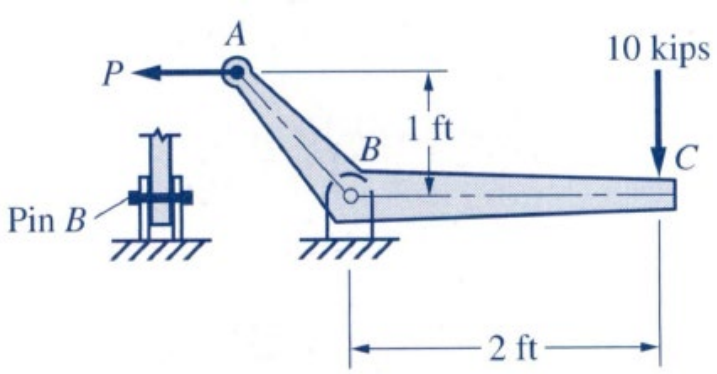
In the collar bearing shown in Fig. P9-23, the average bearing stress between the collar and the support is known to be 4000 psi. If d = 2 in., D = 4 in., and t = ½ in., determine (a) the load P applied to the column and (b) the average shear stress on the area between the collar and the column.



Solution.

9-25

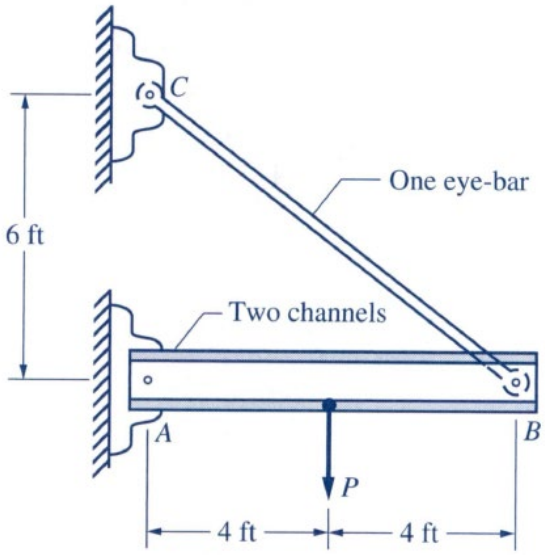
The bell crank mechanism in Fig. P9-25 is subjected to a vertical force of 10 kips applied at C. The force is resisted by a horizontal force P at A and a reaction at B. If the mechanism is in equilibrium and the allowable shear stress of the pin is 15 ksi, select the size of the pin at B.



Solution.

9-29

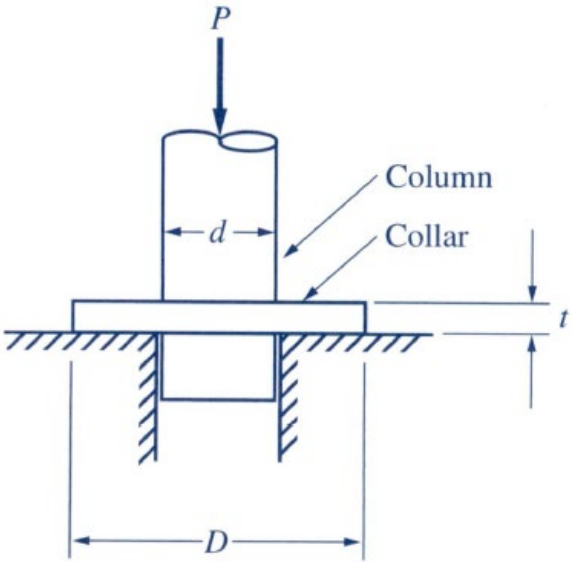
The wall bracket shown in Fig. P9-29 carries a load of P = 12 kips. The allowable tensile stress in the eye bar is 20 ksi, and the allowable shear stress in the pins is 12 ksi. Select (a) the diameter of the eye bar and (b) the diameter of the pin at A, which is in double shear.



Solution.

9-30

In the collar bearing shown in Fig. P9-30, the thickness of the collar is ½ in. The load P is 50 kips. The allowable compressive stress in the column is 20 ksi, the allowable shear stress in the collar is 15 ksi, and the allowable bearing stress between the collar and the support is 5 ksi. Select the proper sizes for d and D.



Solution.