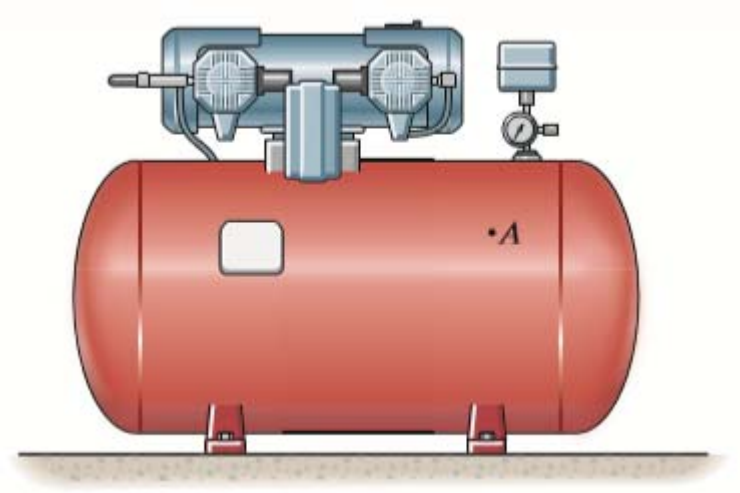
- Homework6: 8-4, 8-19, 8-21, 8-27

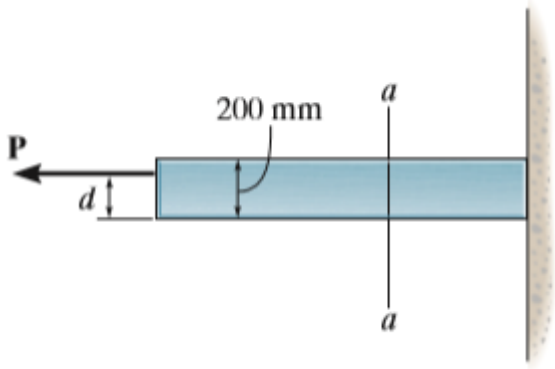
***8–4.**

The tank of the air compressor is subjected to an internal pressure of 90 psi. If the inner diameter of the tank is 22 in., and the wall thickness is 0.25 in., determine the stress components acting at point *A*. Draw a volume element of the material at this point, and show the results on the element.



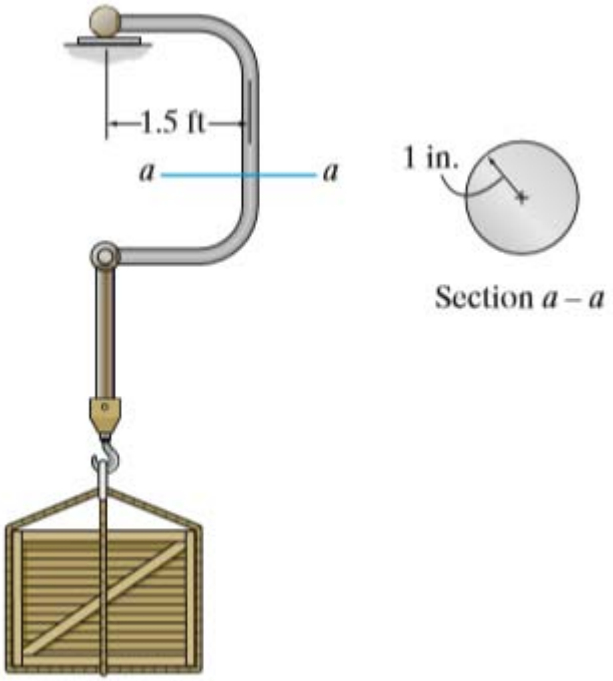
8–19.

Determine the maximum distance *d* to the edge of the plate at which the force **P** can be applied so that it produces no compressive stresses on the plate at section *a–a*. The plate has a thickness of 20 mm and **P** acts along the centerline of this thickness.



8–21.

If the load has a weight of 600 lb, determine the maximum normal stress on the cross section of the supporting member at section *a–a*. Also, plot the normal-stress distribution over the cross section.



8–27.

The screw of the clamp exerts a compressive force of 500 lb on the wood blocks. Sketch the stress distribution along section *a–a* of the clamp. The cross section is rectangular, 0.75 in. by 0.50 in.