Consider a bucket of water with two outlets through which water is discharged. Water can be discharged from a hole \( B \) at the bottom of a bucket which is some distance \( d \) below the water surface. It can also be discharged from a downspout which starts at the top "\( T \)" and has its opening at the same distance "\( d \)" below the water surface.

If we neglect any friction effects, the water coming out of hole \( B \) has

A) more speed than that coming out of the downspout.
B) less speed than that coming out of the downspout.
C) the same speed as that coming out of the downspout.
Since both the hole B and the downspout are connected to the water body, Bernoulli’s principle

\[ P + \frac{1}{2} \rho v^2 + \rho g h = \text{constant} \]

is applicable here.

Both spouts are at the same height and have the same external pressure. This leads to the identity in their speeds.

Answer C

15.07-02 Two Water Outlets 2004-3-24