Problem 7, Tire Testing

The apparatus shown above could be used to test the durability of airplane tires. Tire 1 with radius $r_1$ and moment of inertia $I_1$ is mounted on a fixed stand and spun about a frictionless bearing to an initial angular velocity $\omega_0$. Tire 2 with radius $r_2$ and moment of inertia $I_2$ is also mounted on a frictionless bearing but is initially not rotating. The upper tire is lowered onto the lower one. At first the tires slip with respect to each other, but they eventually begin to roll together without slipping. What is the final angular velocity of tire 1?