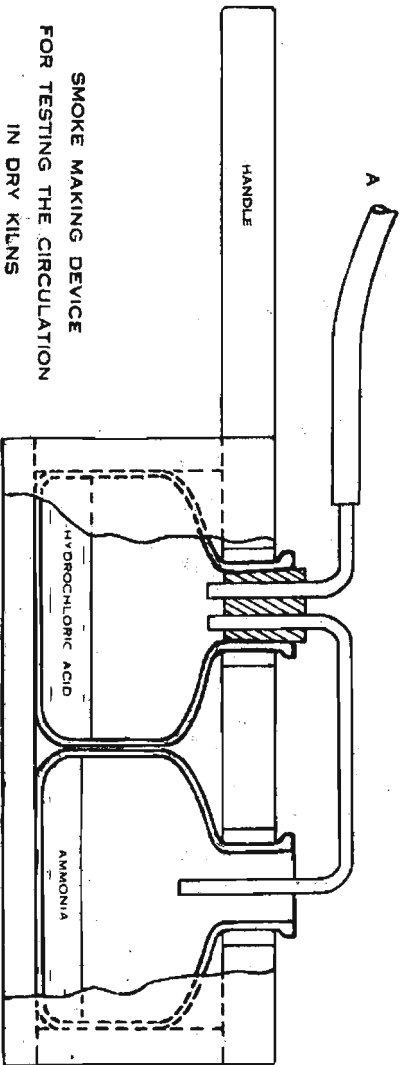


## SMOKE-MAKING DEVICE FOR TESTING THE CIRCULATION IN KILNS

Watching smoke travel through the piles of lumber is the best method of testing the circulation in a dry kiln. The smoke may be made by burning punksticks, tobacco, or rope. Some fire risk, however, attends the use of any of these. Furthermore, the smoke has a temperature higher than that of the air in the kiln and tends to rise of its own accord before following the air currents.

A device which produces a fireless chemical smoke is used for testing circulation in the kilns at the Forest Products Laboratory, Madison, Wisconsin. This device is easily made by anyone and requires only the following materials: some short, thin pieces of board; 2 small, wide-mouth bottles, (ink bottles will do); 3 feet of 1/4-inch rubber tubing; 6 inches of 1/4-inch glass tubing; a two-hole rubber stopper to fit one of the bottles; some concentrated ammonium hydroxide and some hydrochloric acid. The accompanying sketch suggests how the apparatus may be constructed. The ammonia bottle may be corked with a two-hole stopper and a glass tube run out of the second hole to direct the smoke into the lumber pile.

To use the apparatus, pour a small amount of the chemicals into the bottles as shown. Blowing through the tube A will cause a dense white smoke to issue from the bottle containing ammonia. This device may be carried into a kiln without danger of fire, and the smoke will be found to follow air currents without any tendency of its own to rise or fall.



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FOR TESTING THE CIRCULATION  
IN DRY KILNS**