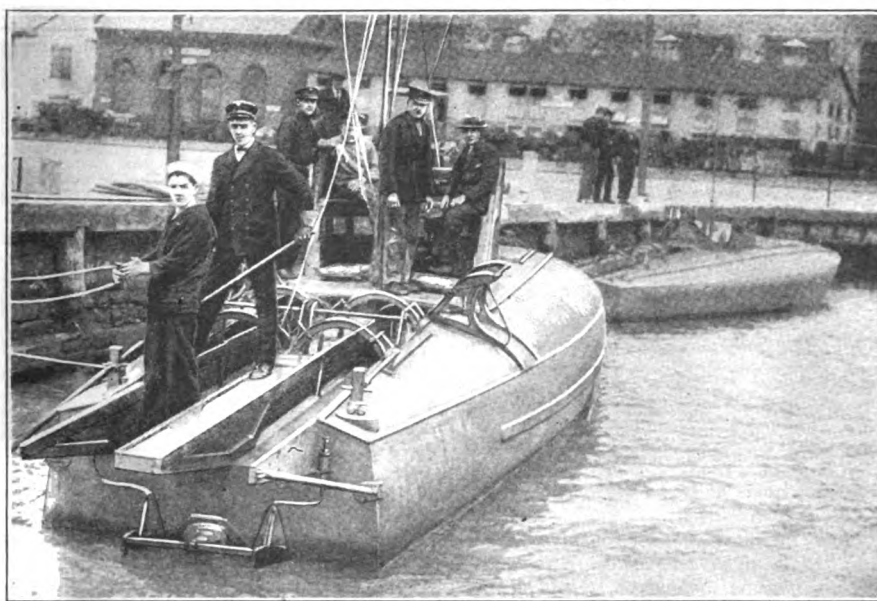


Coastal Motor Boat Must Dodge Own Torpedoes

IN RECENT tests on the Thames River, England, armored coastal motor boats destined for the United States navy, clipped off a two hours' run at a speed of 46 miles an hour.

The miniature vessels are only 45 feet in length and eight feet six inches in beam. Each is driven by a 12-cylinder 375-horsepower gas engine, which in turn is started by a small 2¾-horsepower auxiliary engine. Equipment for two depth charges and two 18-inch torpedoes is included as part of the armament.

The hull is constructed of two-ply mahogany with canvas between the layers to insure waterproof construction. In general, the hull design follows that of hydroplanes with a step beneath for lifting the bow out of water. Thus the draft at full speed is



From the stern of the little speed craft, torpedoes are discharged along the two troughs shown in the above photograph

only a few inches. For carrying and releasing the two torpedoes, two troughs, formed of mahogany boards, are provided in the after portion of the boat. Along both

be used for mine laying, the mines are carried in the torpedo troughs. Sling plates are provided for lifting the craft out of water and carrying it aboard a mother ship.

sides of the troughs are oak runners faced with strips of manganese bronze, and the torpedoes, which lie in the troughs, are fitted with angle brackets that rest on the runners.

One or both torpedoes are discharged over the stern while the boat is traveling full speed in the direction of the objective. Since the torpedo travels in the same direction, the course of the boat is altered as soon as the deadly missile is launched.

The torpedo is aimed by bringing the pointer of a director gear, the stem of the boat, and the objective in line, and is discharged by the usual torpedo tube.

When the boat is to



Cider Barrel Becomes a Talking Machine

SOMETHING strictly new in musical instruments has been evolved by William T. Weinshank, of Chicago, who converted a cider barrel into an attractive phonograph at a cost of only \$11.75.

After thoroughly cleaning the barrel, Mr. Weinshank cut double doors in the top side with a keyhole saw and swung the doors on hinges. A second hand spring motor and tone arm suspended from the inside of the barrel completed the works. The crank protruded from one end.

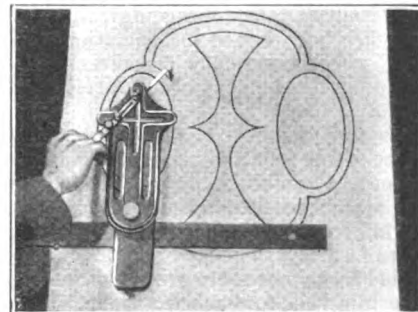
To give the talking machine a finish, the barrel was placed on a special support into which the circular heads fitted, and, as a final realistic touch, Mr. Weinshank added a spigot.

ONLY 30 per cent of the wood in a forest reaches the form of seasoned, unplanned lumber, government reports show.

Draftsman's Instrument Will Draw Ellipse

BASED on the theory of the ellipse—that the two axes have a definite relation to each other throughout the path of the curve—an instrument has been devised for draftsmen that readily draws ellipses of any size from one by two inches to 11 by 15. The geometrical figures can be drawn in any position with one circular motion.

The entire instrument, which is made for attachment to the regulation T-square, is 12 inches long, two inches high, and three inches wide.



Designing of intricate patterns is simplified by this instrument attached to T-square

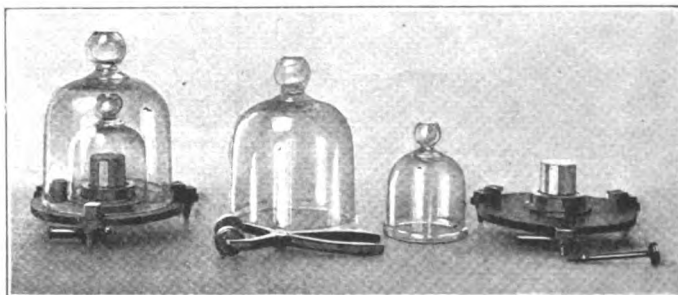
National Kilograms Marvels of Accuracy

AT THE Bureau of Standards in Washington, D. C., are two small cylinders of whitish metal, insignificant in appearance, yet of tremendous importance to the scientific and technical world. They are the two national kilograms on which scientific weighing in the metric system is based. They stand just an inch and a half high, and their diameter is the same as their height.

These two chunks of metal, preserved under glass covers in a vault, have recently been used to verify the precision working standards in use at the Bureau for many years. They have also been checked by comparing them with each other. The results are most satisfactory.

The comparisons of the working standards with the

national standards were made with an accuracy corresponding to one part in 100,000,000. In other words, if one of these kilograms were regarded as being owned equally by every one in the United States, the removal of the share of one person from the whole could be detected. The agreement between the two national standard kilograms was even closer than this. On comparing the weighings, the final results checked out exactly to the last figure to which the computations were carried.



Each of the two national standard kilograms is protected by double glass covers, as shown above