A SIMPLE CONE-MEASURING DEVICE

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Quick and accurate measurement of the thousands of Douglas-fir cones collected for a study in correlation of size of trees, cones, and seeds necessitated the invention of the device described here. It was designed and built by two members of our shop crew, Albert Rieg and Arthur Hawks. We have found that it gives more accurate results than a hand ruler and that measurements take less time than with an ordinary caliper. The device can be adapted to measure cones of almost any size without modification.

The device (fig. 1) is made of aluminum plate and channel. Detailed drawings are shown in figure 2. A piece of bar 3/8 inch thick, 1 3/4 inches wide, and 12 3/8 inches long is fitted into a section of channel 18 5/16 inches long and 1 3/4 inches wide inside. Sides of the channel are 1/2 inch high and 1/8 inch thick. The bottom of the bar is relieved 3/1000 inch, leaving 1/10 inch on each side to form runners, which greatly reduce friction. Both backstops are made of plate 4 inches wide, 3 11/12 inches high, and 3/8 inch thick.

To set the stops over the channel, a piece 2 inches wide and 33/64 inch high is cut from the bottom of the stop, leaving a wing 1 inch wide on each side. The left backstop is fastened to the sliding bar and has its two wings connected with two 6-32 RH screws by a brass band 1/32 inch thick to keep the sliding bar from rising out of the channel. The right backstop is not movable and is attached to the right base plate by two 6-32 FH screws. Both base plates are set about 2 inches in from the end and fastened to the channel with two 6-32 FH screws. In addition, an area 1/8 inch high and 1/2 inch wide has to be relieved from the right (stationary) backstop to permit movement of the ruler.

A plastic ruler is glued to the sliding plate but offset 3/8 inch from the moving backstop so that the reading can be taken to the right of the stationary backstop. The advantage of this arrangement is that the view of the ruler cannot be obscured by the cone.

Our records show that measurement of width and length of a Douglas-fir cone with this device takes about one minute. Time required for measurement of cones of other species should not differ appreciably.

Costs to build the original tool were $36.50, including nearly $30 for labor. Copies could probably be built for less than $20.

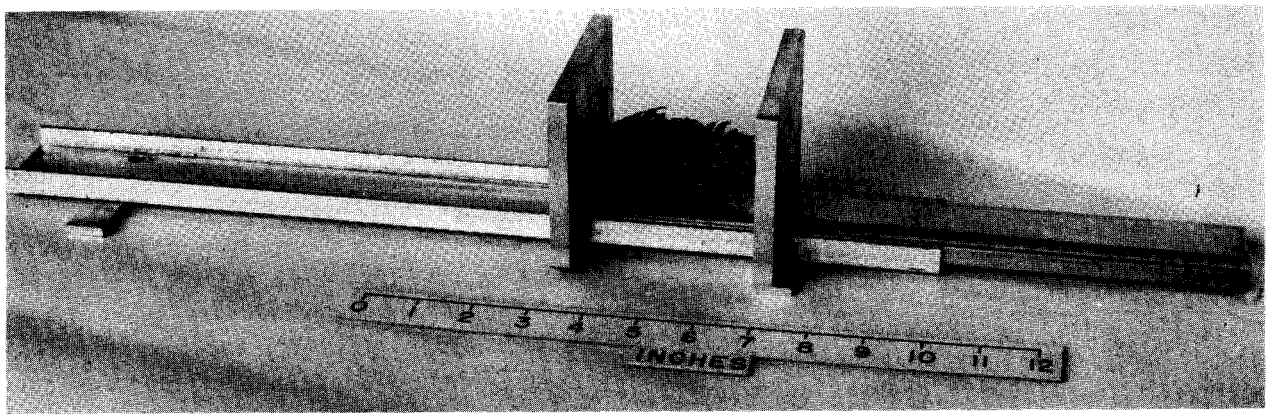

Figure 1.—Douglas-fir cone in position for measuring.

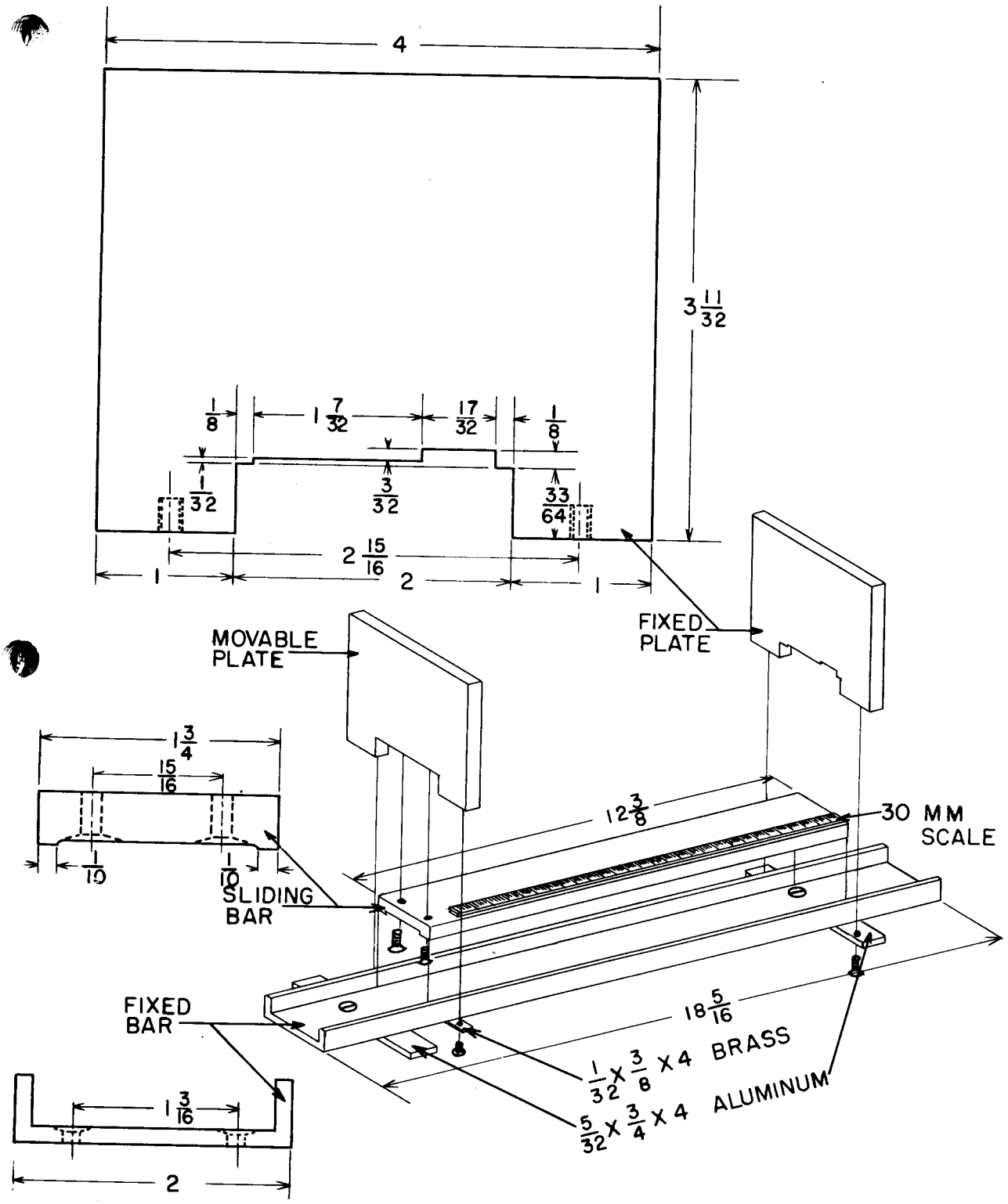

Figure 2.—Details of device for measuring tree cones. It does the job faster and more accurately than a ruler or caliper.