MEASURING LAND.

Some Simple Tools with Which It Can Be Easily and Accurately Done.

Certain simple tools, for measuring both garden and farm crops, or the contents of fields, are sometimes a great convenience. For moderate distances, a light pole (Fig. 1) may be used to advantage and with much accuracy. It is eleven feet long, so that three lengths will make thirty-three feet or two rods. It is made of light, stiff wood, or of the material used for making fishing-rods.

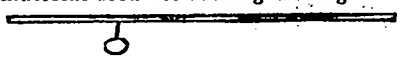


FIG. 1.

A small handle of round iron to carry it, may be screwed into it near one end, for convenience in measuring by one person. This handle is easily made and the screw cut by a common blacksmith. When used, small slits of tin are placed against the ends to show its exact position as moved onwards.

Fig. 2 represents a measuring machine which we constructed some twenty years ago, for the rapid measuring of fields, and which has the advantage over the surveyor's chain or tape line, in that it is always used by one person. The spokes of the wheel are a little larger than common lath. These spokes form a wheel of such size that one revolution measures exactly one rod. This will be effected if each one is thirty-two

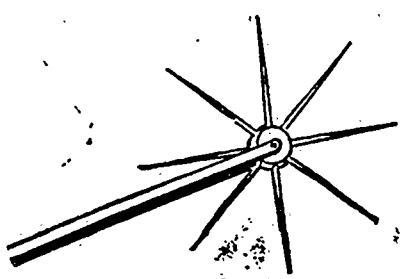


FIG. 2.

and one-half inches long. The hub is made of two circular pieces of inch board screwed face to face together, holding the spokes firmly in grooves previously cut. There are eight spaces between the points, and if they are just long enough for each space to be twenty-four and three-fourths inches, the implement will measure accurately one rod. The points should not be so sharp as to sink into soft ground. The axle is an iron rod with a nut on each end, and a sole-leather washer is placed between. A suitable size for the spokes is half an inch thick and one-and-a-half inches wide at the hub, tapering to an inch or less at the point. Sometimes a wagon wheel has been used, but it is too heavy, and the jerks which its weight causes, makes it inaccurate. On a smooth surface we have found the measuring of our wheel not to vary

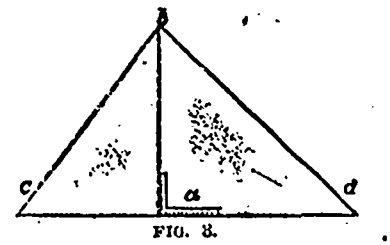


FIG. 3.

more than half an inch in a rod, and on grass land not over an inch in a rod. A common carpenter made the machine.

Fig. 3 shows how a triangular field or piece of ground, b, c, d, may be easily and accurately measured. As a right-angled triangle contains exactly one-half as much as a square or rectangle, divide the three-sided piece into two right-angled triangles, as represented by Fig. 3; the common square, a, being used to form the right angles. Multiply the two shorter sides of the two triangles thus formed together, add the products and, divide the sum by two, and the quotient will be the area. Use feet for small pieces and rods for fields.

Fig. 4 represents the way in which an irregular four-sided field may be meas-

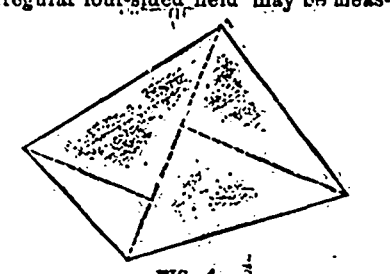


FIG. 4.

ured, by dividing it into four right angled triangles, and measuring each in the way just described. A few light stakes inserted into the ground at the right places will make the division distinct while the measuring is going on. It will be more convenient to set the square used for finding the right angles, in a stake as shown by Fig. 5.

It becomes desirable sometimes to lay out curved lines on ornamental grounds,

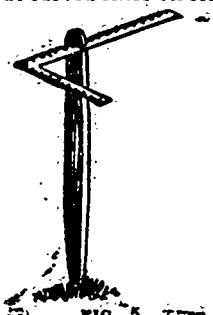
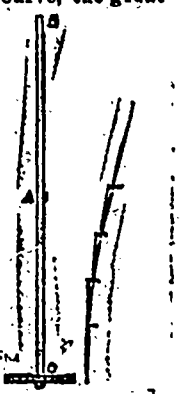


FIG. 5.

or for walks or carriage drives, where if badly done with breaks or angles they will have a very bad or broken appearance. True curves, with any degree of deviation from the right line, may be laid out by using the rod represented by Fig. 6. An iron pin at the middle, A, holds it from sliding on the ground while used, where also is an open socket to receive the marking stake. C is a graduated cross bar for varying the curve. Fig. 7 shows how it is used for making the curve, the greater the deviation at each move, the shorter the curve. At each move a peg or stake is inserted and the curve is thus regularly marked. A short curve may be made to run gradually into a longer one, and vice versa, by a regular increase or decrease on the short scale at each measurement with the pole. Such curves as are represented by Fig. 8 are thus accurately laid out.



FIGS. 6 AND 7.

A convenient measure, which the farmer or gardener wants to use

FIG. 8.

oftener perhaps than any other, is the one represented by Fig. 9, which enables him rapidly to lay off drills or rows of hills three feet apart, or three and a half or four feet. Holding it in his hand, a single placing on the ground gives the desired distance, which is better than the common practice of guessing how far apart are the rows of corn, potatoes, etc., or measuring by spreading the feet.

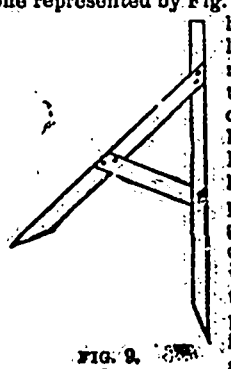


FIG. 9.

Hauling Fodder.

In autumn, before the sleds can be used, the appliances illustrated herewith will commend themselves. For hauling fodder on a wagon, the hay-rack is best; but to use it would often require shifting from box to rack and back again each day when the farmer has only one wagon and daily hauls some green fodder to help out the pastures. In such case it is better to use the wagon with the bed on, laying the fodder lengthwise in the bed until it is full, and then crosswise,

FIG. 1.