



Ray Rolf demonstrates his sub-irrigator. Small stream of water flowing through welding tip brazed on end of tube accounts for ease of inserting tube in most compact soil generally found beneath localized dry spots.

## ROLF SUB-IRRIGATOR FOR DRY SPOTS

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Localized dry spots are becoming common on greens throughout the country, especially on some of the creeping bent turf. Nobody seems to know their exact cause. Sometimes it is heavily matted turf, but faulty watering practices, soil compaction, excessive soil acidity, and tree roots in the green are contributing factors.

Heavily matted turf is the most com-

mon cause. Roofs made of grass are common on buildings in the agricultural sections of Europe and elsewhere. They shed water perfectly and keep the building and its contents dry. Matted turf on a putting green does the same thing. Applied water cannot pass freely through the heavy blanket of grass and wet the soil below. Evaporation and transpiration by the grass leaves soon make the soil dry and hard. Heavily contoured greens are difficult to water with rotary sprinklers. Either the high spots are too dry, or the low ones too wet. The necessity for keeping plenty of moisture in banks and slopes around the greens is often over-



Sub-irrigator wets soil completely to desired depth in matter of minutes. Photo at right shows original beer pump tube at right, tube with hose coupling attached in center and sub-irrigator with hose coupling and welding tip brazed on end at left.

looked. Unless that is done, dry spots develop along the edge of the green proper.

The effect of soil compaction is obvious, but the reason behind soil acidity is not often recognized. Clay particles in acid soil exist as separate entities for the most part. Water penetration is slow because the fissures or channels for absorption are small and narrow. In the presence of lime, the colloidal clay particles gather into flocs and form large size clusters. Soil structure is thereby improved and water intake speeded because soil fissures



Soil plugs taken out with hole-cutter show water from surface sprinkler wets only top half-inch of soil on localized dry spot but moves deep into the soil on normal area. Sub-irrigator wets the soil from the bottom up and gets same degree of moisture to soil in dry spot as shown in normal condition at right.

are larger and wider. Trees pump enormous quantities of water out of the soil. Greens filled with their roots become dry to a depth of several feet or more. The putting surface becomes hard and greens refuse to absorb water.

Dry soil sheds water. The soil particles resist wetting because of a waxy coating on them—like feathers on a duck's back. But once soil becomes moist it absorbs water in a normal manner. This is the reason why it is impossible to eliminate dry spots by sprinkling, or by spiking with a device which does not make holes deeper than 1 to 2 inches. Such a spiker is useful to prevent dry spots, but not to re-wet them.

Deep forking with a hollow-tine fork, followed by drenching with water enough times to moisten the soil, or the use of a tree sub-irrigator are the most common methods used to eliminate dry spots. Both are slow and the tree sub-irrigator is a tricky tool to use.

Turf on all the greens at North Hills was badly matted when Ray Rolf returned this spring. Infrequent mowing,

because of the manpower shortage during and after the war produced the excessive mat. It was too late to remove the surplus by raking and close cutting. So a sub-irrigator was devised by Rolf—one which quickly and effectively restored moisture in the dry spots. With the Rolf sub-irrigator a workman does a green in a short time, and finishes a bad one in half an hour or less.

The main part of the sub-irrigator is the center tube from an old beer pump. The lower end is cut off with a hack-saw to remove a strainer located there. A discarded welding tip, because it is made of hard metal, is brazed to the bottom of the tube. The welding tip is straight and has a hole in the end about the size of a lead pencil, or less. A hose coupling is attached to the top and then the irrigator is ready for use. The method of operation is illustrated in the accompanying picture. The valve is opened part way before the tube is inserted in the ground. The straight stream of water softens the soil so the irrigator can be inserted easily into the hard dry spot. The Rolf sub-irrigator introduces water from below. It restores moisture and softens the soil, without blowing out the turf, which frequently happens with the ordinary tree sub-irrigator equipped with three small side holes and a closed pointed tip.

### Ex-Champ Cyril Walker Dies

Cyril Walker, 58, winner of the 1924 U.S. National Open championship at Birmingham Hills CC (Detroit dist.) was found dead Aug. 6 in a cell at Hackensack, N.J. police headquarters where he'd applied the previous night for permission to sleep. The diminutive Walker had been going downhill for some years. Jersey pros conducted benefits for him and made other efforts to assist him in rehabilitation but the little fellow who'd led Jones, Mehlhorn, Cruickshank, Hagen, Mac Smith, Chick Evans, Tommy Armour, Gene Sarazen and the rest of the greats in winning a title, couldn't beat himself and J. Barleycorn. Best Walker ever was able to do in the PGA was in 1920 when Hagen beat him 5 and 4 in the quarter finals. Walker was born in England and came to the U.S. in 1914 on a job in Wanamaker's sports dept. He held jobs as pro at Shackamaxon, Idle Hour at Macon, Ga., Englewood, N.J., Oklahoma City and Saddle River, N.J. At one time he operated a driving range in New Jersey. During recent years he caddied in the winter around Miami. His 74, 74, 74, 75—297 won the 1924 Open by three strokes when Jones soared to a 78 in the last round. Cyril was a sick little guy at the time but held together when Jack Mackie got for him an effective remedy for dysentery.