

THOMPSON

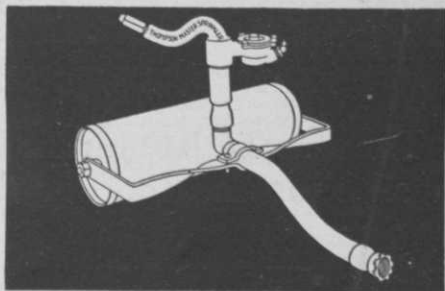
Sprinkling Systems

WIN AGAIN

Sportsman's Club selects Thompson Masters and Quick-Coupling Valves

After a series of competitive tests against sprinkling systems of other manufacture, Thompson Master Sprinklers and Quick-Coupling Valves were chosen by the Sportsman's Club of Chicago for their famous 27 hole golf course! 100 Master Sprinklers, 450 Thompson Quick-Coupling Valves, and 100 Thompson Quick-Couplers were ordered.

Al Espinosa, the Sportsman's Club professional, will now be sure of sleek, velvety greens and fairways. Edward Dearie, architect and designer of the grounds, knows that his course will always be fresh and green despite hot middle-western droughts. Thompson Master Sprinklers are designed to give



thorough, even coverage at minimum upkeep.

SEND FOR OUR INTERESTING CATALOG! Shows everything that a modern golf course needs in sprinkling equipment. The coupon below will bring YOUR free copy without any obligation on your part.

Thompson
Sprinkling Systems
Solve Sprinkling Problems

(Address nearest office)

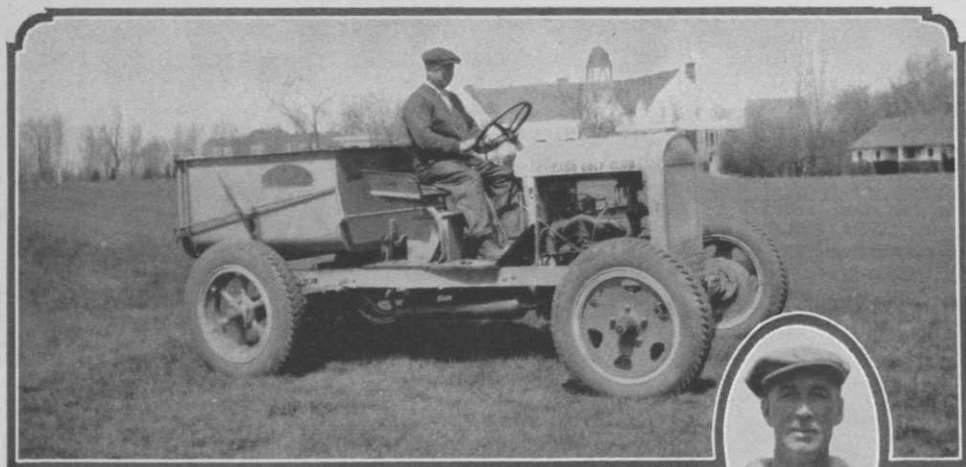
THOMPSON MANUFACTURING CO.
2251 East 7th St., Los Angeles, California,
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Send me your FREE booklet on Golf Course Irrigation.

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Address.....

G-730

When you mention GOLFDOM the advertiser knows you mean business.



The new TORO Junior Tractor specially equipped with rubber tired wheels for the Chicago Golf Club

John
McGregor
Supt.
Chicago
Golf Club

"The new TORO Junior is exceptionally well built and thoroughly satisfactory"

Says John
McGregor

JOHN MCGREGOR, Superintendent of the Chicago Golf Club, understands golf course maintenance problems thoroughly, and also the value of modern machinery.

Like many other progressive Superintendents, he watches the market closely and is quick to see the value of an improved piece of equipment.

So this spring, after looking the market over, he decided that the new Toro Junior Tractor was the best general utility tractor that was offered and promptly placed his order.

As a result, he is not only highly satisfied, but has received many commendations from the members of the Chicago Golf Club on the appearance and quietness of the new Toro Junior.

It is interesting to know that the fast growing list of Toro Junior tractor owners

includes some of the most prominent golf clubs in this country, among them being Old Elm, Knollwood, The Ridge Club, Walnut Hills of Chicago, the Sunningdale Country Club, Shinnecock Hills, National Golf Links of America, Cherry Valley, Shelter Rock, Wee Burn of New York, Pinehurst, San Francisco Golf Club, Beresford Golf Club of San Francisco, and hundreds of others.

The new Toro Junior is the best built small tractor that is offered on the American market. It is not a makeshift but to the contrary is built from the ground up, to provide trouble free service over a long period of years.

Noiseless in its operation, it will receive the approval of every player on your course. Its trim lines and fine appearance will gain many friends for you. Its heavy duty rear end will never cause a moment's trouble or expense. By all means, investigate the new Toro Junior today.

**Toro Manufacturing Co., 3042-3168 Snelling Ave.
MINNEAPOLIS, MINN.**

Service Stations at:

New York, N. Y.
Philadelphia, Pa.
Newton, Mass.
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TORO

Tell us any idea for making GOLFDOM advertising more helpful.

TABLE 1.

Labor Cost Percentages of Olympia Fields and Warren, Ohio, with Supervision							
	Greens	Fairways	Tees	Traps	Rough	Super	Balance
Olympia	35.5	11.5	10.5	12.9	9.4	11.2	13
Warren, Ohio	47	11.8	3	0.0	5	24	12

TABLE 2.

Labor Cost Percentages of Olympia Fields and Warren, Ohio, with Supervision Distributed on a Percentage Basis, and Heald's Average from Page 24, June GOLFDOM							
	Greens	Fairways	Tees	Traps	Rough	Balance	
Olympia	38.5	12.5	12	13.2	10.4	14.5	100*
Ohio	59	13.8	3.8	0.0	6.2	15.3	98.1
Heald (18)	32	12	6	9	5	36	100

*Probably Olympia's supervision should not be distributed as a labor cost.

TABLE 3.

Percentage Range Found by Heald on 18-Hole Courses and Those of Olympia and Ohio							
	Greens	Fairways	Tees	Traps	Rough	Balance	
Heald (18)	23-50	4-18	2-10	2-16	1-8	21-58	
Olympia	38.5	12.5	11.6	13.2	10.4	14.5*	
Ohio	59	13.8	3.8	0.0	6.2	15.3	
Heald (9)	29-48	7-13	4-8	0-8	2-11	31-49	

*Probably Olympia's supervision should not be distributed as a labor cost.

check these figures to see if my idea on cost ratios holds.

"Do you think if one told the greenkeeper or chairman of Warren that they are spending in proportion to their labor allowance as much to mow fairways as Olympia Fields spent, they would credit the information? Tables One and Two show it to be a fact. What would they say if you told them 18 other clubs averaged the same amount? Table Three practically shows it.

"As regards traps on this course in Ohio, certainly they must have them. Are they charged to greens? In that case the greens would be a little high as they appear.

"As the two courses listed supervision separate, I have treated them alike and the distributed supervision on a percentage basis, on the items including balance and compared to my findings, Table Two.

"I do not understand the wide difference in balance when compared to my original findings. This matter I would like to look into.

"Now for a minute let us forget the definite average and look at Table Three showing the range of per cent on 18-hole courses. You will note that all findings stay in the original range save Ohio's greens and traps (I still feel that there is an error on traps) and balance, and Olympia's tees and rough, the tees are close enough to consider in the range. These figures are with supervision distributed.

"Isn't there something substantial when in this comparison of averages when, having established a range for an 18-hole course or even a nine, that you can pick at random other courses, sift the figures,

throw out materials and the like, and have them fall in the range?

"Do not these findings prove that the matter of unit area has nothing to do with the findings?

"Isn't there evidence of the average percentage for labor for maintenance being established within reason, not hard and fast, if the figures are at hand to use?

"I believe that this is a start and the field can be made to cover materials, percentage relation of monies expended on the golf course as related to income, and perhaps the best thing to be established and the hardest is the percentage per month.

"I am frankly getting more interested in this subject as the facts present themselves and feel that if a definite plan were worked out it would not be long before a satisfactory answer would be obtained."

"The Lawn," by Prof. Lawrence S. Dickinson—Orange Judd Pub. Co., New York City, \$1.25.

TO MANY greenkeepers this book will prove more or less elementary but its handling of the basic principles of turf culture entitled it to a prominent place in greenkeeping bibliography. Prof. Dickinson, as readers of GOLFDOM know, has a happy knack of dealing with the essentials in a way that nails them down as the platform of turf culture. Not only for the work around the clubhouse grounds and course does the latest Dickinson book justify itself, but for the important and profitable field into which many greenkeepers are getting, the province of consulting and supervising experts for members.

Course Watering System Features Described

By WENDELL P. MILLER

(Part Two)

Classification of Turfed Area Irrigation Methods

THERE are five methods of turf area irrigation, of which four are artificial, viz:

- 1—Rainfall.
- 2—Hose Systems.
- 3—Hoseless Systems.
- 4—Open ditching and flooding methods.
- 5—Monitors or hydraulic "Giant" systems.

The hoseless systems can be further classified between:

- 3A—Portable Sprinkler.
- 3B—Fixed Sprinkler Systems.

The portable sprinkler hoseless systems can be still further divided between:

3A—(1) Snap valve or individual sprinkler control system.

3A—(2) Plain quick couplings with a single valve controlling batteries.

The fixed sprinkler hoseless systems can be grouped as follows:

3B—(1) Underground, concealed, or "pop-up" systems.

3B—(2) Above ground—fixed position sprinklers.

There are odd methods ranging from street water carts used in emergencies to the overhead garden piping systems; but these odd methods are of little use for turf areas. Group 4 would include the loose-underground-tile method but this truck garden method has not proved satisfactory for turf areas.

Open Ditch and Flooding Method

This method is used only in western irrigated agricultural regions, and is rapidly disappearing—piped systems are coming in. This method has very limited application due to the special conditions required. Anyone interested in this method need only to visit the Phoenix (Ariz.) C. C.

Monitor or Giant Method

This method is of very recent development (1929-1930) with three installations

(polo fields at Cleveland, Toledo and Colorado Springs). The monitor method has no immediate application to golf, yet because of its numerous possibilities we shall describe it.

Briefly, the monitor is a high pressure universal mounted-nozzle of the type used on fire trucks. This same nozzle is used for surface stripping in mining operations, on gold and other dredges, and in many other industrial applications.

The standard polo field is 450x900 ft. with a margin around it. Five and four, or five nozzles on each side, and staggered, are used. The nozzles are permanently placed inside wooden stake guards, 200 ft. apart and twenty-five feet back from the side boards. Each nozzle is mounted on a full universal mounting, limited in depression to 15° above the horizontal. Only one nozzle is operated at a time.

Terrific Pressure Used

The operating pressure is 300 to 350 pounds, throwing 350 gallons per minute over a range of 250 ft. The breakup is excellent. Each nozzle must be located so it can cover the ground around its neighboring nozzles. Each nozzle puts out one-half inch of water in about 30 minutes.

One man can irrigate a 10-acre polo field in a few hours. This method is best adapted to flat ground—or if slightly graded then only on loose, porous, soil. The run-off on tight soils can be minimized by using each nozzle for a few minutes and going the rounds several times.

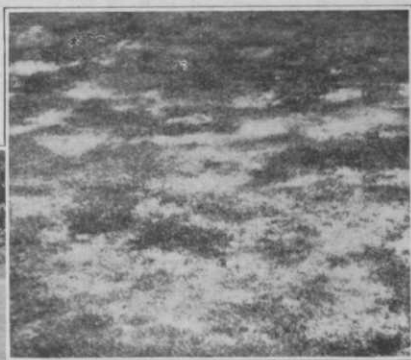
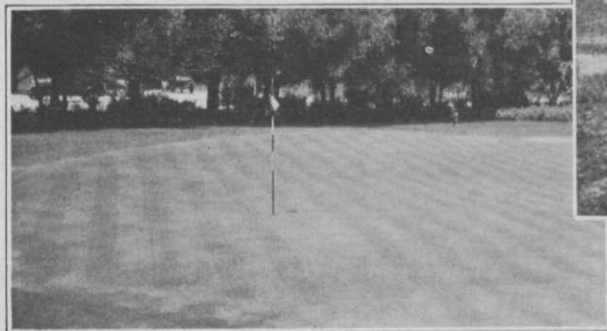
Future applications of this novel method will be for airport and industrial area dust control, and old-fashioned cemeteries where the monument congestion has necessitated hand sprinkling. Perhaps you will see the monitor on the golf courses of the future. It is too early to prophesy.

Monitor System Installation

A four-stage pumping plant is required costing, with automatic control and pump-

Kill BROWN PATCH

before it kills
YOUR TURF



The destructive effect of brown patch on turf is shown above. The fine green at the left was protected from the disease with Semesan.

NOW is the time that brown patch inflicts its greatest damage. July's blistering days and sultry nights favor the disease. Your costly turf may be ruined unless you prevent brown patch, or kill it as soon as it appears.

For both prevention and cure, leading greenkeepers now depend on Du Bay Semesan and Nu-Green. Applied to turf at regular intervals, either of these organic mercury fungicides can prevent large and small brown patch. If the disease has already appeared, a prompt application quickly restores the grass to normal health.

For the control of the disease one pound of Semesan or Nu-Green to 50 gallons of water will treat 1000 square feet of turf by sprinkling. Applied by a power sprayer 50 gallons of the Semesan solution treats from 2000 to 3000 square feet of turf, and 50 gallons of Nu-Green solution treats from 1500 to 2000 square feet. Neither fungicide will burn or injure the finest turf.

SEMESAN gives excellent control under the most severe conditions. Recommended where soil fertility is high.

5 lbs.....	\$13.00	100 lbs.....	\$220.00
25 lbs.....	56.25	300 lbs.....	645.00

NU-GREEN, which contains the same effective ingredient as Semesan, is recommended where fertility is lower.

5 lbs.....	\$ 9.00	100 lbs.....	\$145.00
25 lbs.....	37.50	300 lbs.....	420.00

Order at once from your seedsman or golf supply house. Bayer-Semesan Co., Inc., 105 Hudson St., New York, N. Y.



SEMESAN

REG. U. S. PAT. OFF.

NU-GREEN

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Really Good Greens

are all important when clubs are striving to hold or increase their membership.

You can't go wrong when you use

GODWIN'S

Proven Strain of Washington Bent

It has been used in hundreds of bent greens on courses famous for their turf. Some of these greens are among the oldest bent greens in service—and not one of them has failed to establish a reputation for excellent putting, resistance to disease, color and ease of maintenance.

Ask any of the following clubs about Godwin's bent and hear how proudly their greenkeepers, green-chairmen and members speak of their greens.

Aronomink Country Club, Philadelphia, Pa.
 Country Club of Detroit, Grosse Pointe, Mich.
 Cincinnati Country Club, Cincinnati, O.
 St. Charles Country Club, Winnipeg, Man.
 Brookside Country Club, Canton, Ohio.
 Tam O'Shanter Golf Club, Detroit
 Elm Ridge Country Club, Montreal, Que.
 Lost Nation Country Club, Cleveland, O.
 Buffalo Country Club, Buffalo, N. Y.
 Essex Country Club, Sandwich, Ont.
 Milwaukee Country Club, Milwaukee, Wis.
 Franklin Hills Country Club, Franklin, Mich.
 Municipal courses in Michigan at Detroit,
 Pontiac, Lansing, Grand Rapids and Flint.

Prompt shipment of Stolons or Sod from either of two nurseries.

HIRAM F. GODWIN

BENT GRASS

Box A. Redford Station, Detroit, Mich. or Box 51, Wayne, Pa.



Giant high-pressure nozzle in action on polo field at Colorado Springs

house, at least \$6,000. If a permanent installation is required special grades of expensive pipe are required (six inch mains with four inch risers). High grade workmanship and highly technical detailed plans and specifications according to best hydraulic engineering practice are required. A complete system for one polo field, not counting cost of wells, etc., will run from \$10,000 to \$15,000 according to grade of pipe and class of pumping equipment. Polo field irrigation is a necessity—and this method is admirably adapted to the purpose, hence we may look for numerous installations of this system on American polo fields.

Having mentioned the methods which are side issues, we will dismiss them from our discussion. Rainfall (1) will be discussed separately in connection with water requirements.

Hose Methods: Tees and Greens

Every reader is familiar with hose irrigation and more especially with "watering" lawns. Most readers of GOLFDOM are familiar with tee and green irrigation systems of their golf courses which are identical with lawn systems. Convenient outlets are placed near the tees and greens, and lawns. Large hose (one inch) is customary. (This size would be large for lawns where five-eighths inch garden hose is commonly used. A few clubs use three-quarter inch hose. Every kind of sprinkler made is used on the tees, greens, and lawns.

These systems, characterized by small sizes of pipe, high friction losses, and by cheaper grades of pipe are of little value for fairway watering for several reasons namely, (1) inconvenience of location, not having been planned for extension, (2)

water supplies wholly inadequate for fairway requirements.

Standard green and tee practice requires a minimum size of one and one-half inch wrought iron pipe (or equivalent grade) at the extremities of the system, 60 pounds or more pressure at the farthest outlet, one inch hose, quick detachable hose connections (outlets) and specialized golf course sprinklers with a range of 100 ft. or more and distributing from 15 to 25 gallons per minute. The average tee and green system uses 25,000 gallons of water per day (California, Florida, Long Island and several other places use more). Often two men are required on the night sprinkling shift for 18 holes; these are frequently supplemented by sprinkling of tees early in the morning. Most tees and greens are over irrigated and the water stomach-ache is a common ill.

But few clubs are equipped according to the standards mentioned. Fewer systems still can be extended into fairway systems—and just as few are designed so that fairway watering can be installed without complete abandonment of the existing facilities. The average club does not even bother to have on hand a map of its water and drainage system. If there be one outstanding feature in connection with the more than 4,000 tee and green irrigation systems of the United States it is the almost complete failure to plan for expansion into fairway irrigation.

This, however, is easily explained. The tee and green irrigation is the first irrigation investment of each club and as the funds never meet all purposes, the watering systems are the simplest, plainest, and usually the cheapest, that will serve. New clubs are usually more concerned with struggle for life than with providing for

their future. As maturity is reached and ambitious competition develops newer desires, the expansion of the existing systems into fairway irrigation becomes a major problem.

Fairway Hose Irrigation

Fairway irrigation is spreading. The current irrigation projects runs 95% to the method calling for the smallest plant investment—hose irrigation. This proposition will, however, change when financing is available because underground sprinkling equipment has reached an advanced stage of development. This fairway hose systems are an extension of the tee and green idea. Convenient outlets are placed in the rough along the fairways. Various types of outlets are used, mostly with one inch hose in 100 ft. lengths. Many of the green sprinklers and numerous novelty sprinklers are used on the fairways.

Fairway systems require from 200,000 to 300,000 gallons (more in California, Florida, Long Island, Argentina, etc.) of water every 24 hours during extreme drouths. The tee and green piping systems cannot carry any such volumes of water, hence a special system of large size mains is required.

Hose Fairway Systems

Standard practice requires looped piping systems with water fed to the outlets from two or more directions through permanent pipe not smaller than three inches (and not much of that size—a minimum main of four inches is desirable) with quick coupling outlets spaced not over 120 ft. apart; one inch hose in 100 ft. lengths with quick attachable couplings;

60 pounds, or more residual pressure at the farthest outlet; and sprinklers which cover an area of not less than 8,000 sq. ft. (seven settings per acre).

Systems of this type, wholly apart from the tees and greens, and without the pumping plant, can be installed for \$15,000 to \$25,000 dollars according to location of water supply, grade of pipe used, and whether winter drainage or a winter-proof system is desired.

The outstanding characteristic of hose fairway systems is the high labor and supply operating expense. Usually an 18-hole club can profitably pay interest on the extra cost of a hoseless system to secure the savings inherent in the latter method.

In Plate One we show a portion of a hose fairway system illustrating method of looping and location of fairway outlets.

Hoseless Fairway Systems

Hoseless systems are just what the name implies. The requirements of the hose fairway systems are observed except that a slightly high water pressure is desirable, particularly in the fixed sprinkler types. Each outlet of the hose system arrangement is extended onto the fairways through underground pipe laterals terminating in fixed outlets in the fairway turf. These outlets present no obstruction to the mowing equipment and none worth mentioning to the players. The outlets are only three inches in diameter: ground rules permit the player to move his ball when too close. The better installations, pressure from 70 to 100 pounds, run from seven to ten outlets per acre. The better California courses—perhaps 50 or more enjoy hoseless irrigation. This method

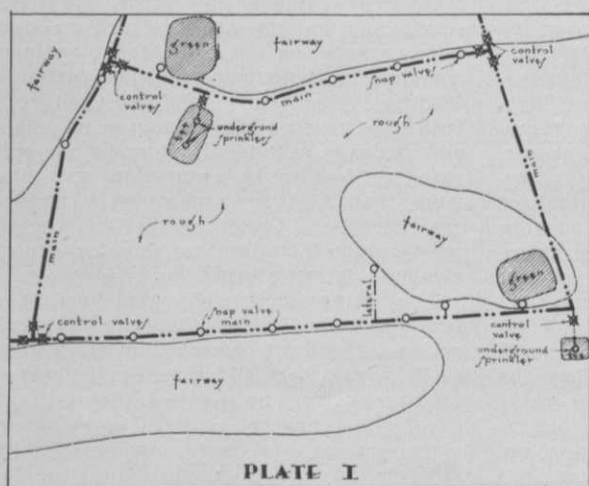


Diagram of a typical fairway watering system designed for hose coupling from convenient outlets in the rough.