

A handy ravine supplies the site for an inexpensive reservoir. Well pump discharges into reservoir. Surface run-off saves pumping.

the necessity for locating the reservoir some distance from the pumping plant, a connecting pipe line was required at a cost of \$1,660.00. The total cost of the completed system, including all charges of every description, was \$58,102.00. This represents, in our opinion, the maximum cost for an 18-hole hose system where the water supply already exists; this system is representative of the best that money can buy.

Pomonok Country Club (Flushing, Long Island).

This club has a sandy subsoil and hence requires considerably more water than the average club. The Pomonok club intended to sink wells, but an engineering investigation disclosed the availability of New York City water supply adjacent to the property at a pressure of 40 pounds and at a cost of ten cents per 1,000 gallons, which is as cheap as water pumped from

CAN YOUR CHEF SHOOT PAR?



Par golfers possess clubs for every shot—and know how to use them. Your chef to make par should have all the implements demanded by the knowledge of his profession. Ability plus equipment equals par.

Outstanding clubs, hotels and restaurants of the United States use Gloekler food service equipment. Their chefs know that every item from a butcher knife to a complete kitchen installation possesses quality that performs perfectly in actual use.

In refurbishing or in building kitchens ask for Gloekler co-operation and suggestions, without obligation.



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Manufacturers of Complete Kitchen Equipment.

1627-33 Penn Ave., Pittsburgh, Pa.

Representatives in all Principal Cities.

GLOEKLER PITTSBURGH
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MANUFACTURERS SINCE 1856

You save time and money by answering GOLFDOM ads.



A well-watered green at Cascade Hills Country Club. Three automatic sprinklers do the job.

wells in that vicinity. The Pomonok system is complete, including automatic concealed tee sprinklers under individual control, with fairway hose system and snap valve outlets for the greens. This system required 15,170 feet of 2, 4, 6 and 8 inch cast iron pipe, 118 snap valve outlets, and 26 concealed tee sprinklers, all at a cost of \$23,692.00. The hose, sprinklers, and couplers cost \$1,020.00, the pump-house structure \$2,750.00, while the booster pumping plant with automatic control cost \$4,102.00, or a grand total for the entire construction of \$31,564.00 including all

charges and expenses of the enterprise.

This construction cost is typical of a high grade system operated at high pressure and utilizing municipal water supply.

Cascade Hills Country Club (Grand Rapids, Michigan).

This system comprises hoseless tees and greens and hose fairways with 24,434 feet of pipe, all cast and wrought iron pipe, with 118 snap valve outlets, and 21 concealed tee sprinklers, at a cost of \$17,220.00 not including either the cost of a tee system or the hoseless greens. The

Approximate Costs of Construction—Eighteen Hole Irrigation Systems—Average Course.

(A) Fairways only, hose system	\$14,000 to \$20,000
(B) Fairways only, hoseless system, California type	25,000 to 35,000
(C) Fairways only, hoseless system, concealed sprinkler type.....	32,500 to 41,000
(D) Fairways only, hoseless system, Miller high pressure one-man method	23,000 to 29,000
NOTE: The above figures do not include tees, greens, or clubhouse areas.	
(E) Additional for new hose tees and green outlets.....	2,000 to 2,500
(F) Additional for hoseless tees (concealed automatic tee sprinklers), and new hose green outlets.....	4,000 to 5,000
(G) Additional for hoseless tees and hoseless greens.....	6,000 to 7,500
(H) Clubhouse areas and dust settling in parking areas.....	Depends
The above estimates do not include water supply or water storage. For these two items, the following figures are taken from actual installations:	
(I) Pumping plant (water supply), contiguous lakes or rivers, etc., including pressure pump, compressor, pressure tank, automatic control, intake and pumphouse structure.....	4,500 to 7,000
(J) Same, City water	4,500 to 7,000
(K) Same, shallow wells, including well, casing, screen, and turbine pump	6,000 to 10,000
(L) Same as (K), deep wells.....	10,000 to 15,000
(M) Water storage, tanks, reservoir, or pond.....	4,000 to 12,000
(N) Hose and sprinklers, for hose fairway systems, eighteen holes..	950

The above figures are based on the use of wrought iron and cast iron pipe, and the highest standards of engineering practice. If a new course (under construction) deduct ten (10%) per cent from distribution system figures. In the South, below the frost belt, deduct five (5%) per cent.

HANDS

escape the

SHOCK



THE greatest gift to golf since the steel shaft was invented. Now, smooth, joltless shots. Now, the *natural* shock absorber, Torsion, added to the steel shaft.

Bristol Torsion Steel Shafts, on woods or irons, swallow up the shock of impact, give the sweetest feeling shots you ever hit.

Bristol does *not* make clubs. Bristol makes only the shafts. You can get clubs of your favorite make with these new Torsion shafts, from your pro or sporting goods dealer. McGregor, Spalding, Wilson-Western, Hillerich & Bradsby, Kroydon, Vulcan, Great Lakes, Butchart-Nicholls and others.

Send today for your free copy of *Bristolite*, packed with news and gossip of golf. The Horton Manufacturing Company, 188 Horton Street, Bristol, Connecticut.

When you buy a golf club, iron or wood, look for the Bristol Torsion trade mark and the open torsion seam on the shaft. It is this seam that makes torsion possible. Double steel walls give greater strength and power.

TORSION SEAM

DOUBLE STEEL WALLS

BRISTOL
Torsion
STEEL SHAFTS
ALLAN LARD PAT. PEND.

It's the only steel shaft with TORSION

When you mention GOLFDOM the advertiser knows you mean business.



Four automatic green sprinklers in operation at Cascade Hills Country Club, Grand Rapids, Mich.

hoseless tee system, with a single hose outlet at each green, was contracted for at \$2,638.00 but the committee decided they wanted hoseless green sprinklers, which required an extra expenditure of \$2,984.00 including 60 fixed position above-ground sprinklers. The hose, portable sprinklers, couplers, etc., cost about \$800.00.

This installation involved the sinking of a test well followed by a permanent well, which was cased to bed rock (about 120 feet) and equipped with 24 feet of expensive sand screen, at a total cost of \$2,940.00. There was an additional outlay of \$1,650.00 for a turbine well pump. The pressure pumping plant cost \$3,850.00, the pump-house structure \$983.00 and a reservoir, established by damming a ravine, cost \$1,190.00 or a grand total cost of \$34,256.00.

This construction cost is representative of a high grade installation using permanent pipe and providing a complete water supply and storage facilities, which in this case because of natural advantages were developed at very low capital outlay.

There will be further variations due to amount of freight on pipe (distance from mill), compactness of layout of property, location of pumping plant with reference to distribution lines, climate as respects freezing, whether machine trenching can be used in digging the pipe trenches, whether tight or loose soil, local prices of skilled and unskilled labor, whether installed on the present "buyers market" or during a "flush" period; these, together with numerous other factors influence the final cost to a marked degree.

Again the cost of installation would vary widely for each individual club, ac-

cording to the skill, knowledge, experience, and care represented in the design and specifications of the system and whether the club is in position to know about and take advantage of the many mistakes in other installations over the country.

There will be further variations in cost due to the care and skill expressed in planning the greenkeeper's operation and the operating cost. The design of the system is necessarily affected by the predetermined cost of operating the system and the manner in which the greenkeeper is to operate it. This important factor is generally overlooked in planning the water system—and after the system is in operation the club wonders why the system operates with a high labor cost.

Controlling the Construction Cost.

Within reasonable limits, the construction cost of a high grade irrigation system and water supply can be controlled. It is not to be inferred that the examples cited indicate that 18-hole irrigation systems and water supplies for other clubs would necessarily cost as much as stated. Some clubs, having ample funds or resources, want the last word in high grade construction and will spend more money than above indicated.

There will be many more clubs which desire fairway irrigation but which will have to limit the appropriation to \$15,000.00, to \$20,000.00 or \$25,000.00. Where the water supply already exists or can be developed at very low cost the engineer can plan a fairway system and water supply, which of necessity must be a compromise between the best grade of construction and the funds available.



H A R M O N Y

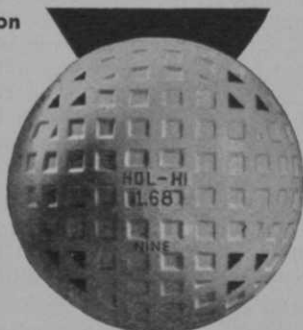
Singing in tune ▼▼ singing the praises of Hol-Hi, the new legal size ball that is sweeping the country ▼▼ John Alibi likes it. It has cut his quota of topped shots nearly to zero. It is keeping his scores below the fever point ▼▼ Eddie Champ likes it. It gives him all his accustomed distance plus enough increased steadiness around the greens to bag extra birdies ▼▼ The pro loves it. As a ball, it's a darb. As a business investment, it shows faster turnover and gives him a better break on profits than anything else in his shop.

Wilson
GOLF EQUIPMENT

WILSON-WESTERN SPORTING GOODS CO.

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Movie Golf Teaching Big Hope of Pro Profits

By CHARLES HALL

Professional, Country Club of Birmingham, Ala.

A COMPETENT survey of the pro golf situation today could not point out any pro golf activity of greater promise of profit to both pro and player than the motion picture instruction work now being pushed along by George Sargent. Mr. Sargent is the P. G. A. official to whom the association has delegated entire responsibility for getting this picture method of teaching on a substantial basis.

To the rank and file member of the P. G. A. the prospect of increasing his income from tournament winnings is remote. There are not more than two dozen pros in the country whose tournament incomes are worth considering. The rest of the nation's 2,500 professionals must depend upon their instruction, merchandising, and in some cases, greenkeeping ability, for an earning figure sufficient to keep them enthusiastically devoted to a career in the golf business. Naturally, when the P. G. A. and its new business administrator got together and planned how the vast majority of the pros could be given definite help by their association, an increase in lesson profits and an improvement in lesson results was a favorite topic of thought.

To a marked extent, a pro's success as a merchandiser depends on his activities and results as a teacher. That is so repeatedly demonstrated that it need not be referred to for any other reason than to point out the importance of correct instruction as the foundation of a successful professional's business. Therefore, it is obvious that pro teaching must be given a serious study in order that we all may decide, first of all, what we are trying to teach, and then, how to teach it best. It is ridiculous of us to suppose that in all the march of progress in educational methods during the last half century golf instruction alone would be immune from improvement. When the moving pictures of golfers got out of the novelty stage,

it didn't take the thoughtful pro instructors any time to see that many details of the golf stroke were being taught one way and played another. That discovery effected some revolutions in practice and I think that any experienced professional will agree that his teaching, during the last six years, has been easier and more effective, due to the instruction innovations brought by the moving pictures.

Can't Standardize Teaching

But still we have a long way to go before we set upon instruction methods our profession can boast of as having the advanced and simplified pedagogy of even a six-lesson course in jazz piano-playing. As I see it, no pro can look for the P. G. A. plan to produce standardized instruction. Golf instruction is an art and not an exact science. There are certain sound and helpful principles of the art that can be brought forth from a painstaking, expert study of these key pictures. From these we may expect a simplification and directness now generally lacking in golf instruction. Today we are depending too much on the tutelage of genius and the qualifications of a genius in golf instruction are far too exacting to expect them to spring to light as frequently as they are required by the popularity of golf. With the key pictures of Jones, Miss Weathered and Vardon analyzed by experts we may confidently look forward to codifying in a fairly positive manner the elements of a correct golf swing. By using these pictures in comparison with the pictures of the swings of our pupils it is almost certain that we will be able to emphasize the faults and implant the correct ideas without today's handicap of involved and embarrassing attempts at vocal instruction.

Better Scores—Bigger Profits

We are getting to the point where we are adopting the old Chinese saying that "a picture says more than a thousand

"GOLFER, spare that ball" !



may have been the old
refrain but, NOW

top or hack the
P. G. A. KRO-FLITE
all you want to . . .

you'll never cut it . . .
and it's a ball with
plenty of carry.

The
**P. G. A.
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DIMPLE
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Selection Committee

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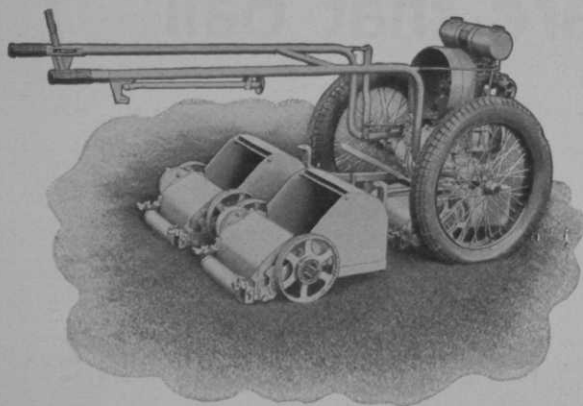
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WORTHINGTON

LAWN TRACTORS—LAWN MOWERS—
MOWERS—ROLLERS—TEE STANDS



THE WORTHINGTON "OVERGREEN"

Combination. Two distinct elements—a complete tractor and complete gang mower.

Tractor. Engine of world-wide reputation for reliability. Drives through an automobile differential. One clutch only is used.

Tires. Rubber pneumatic. Partly deflated. Forms a soft pad which adapts itself to every undulation or irregularity of ground surface, and leaves no impression on the most sensitive surface.

Mower Gang. Three units, each 13 or 18 inches wide. Entirely separated from the tractor. Each has independent rising and rocking motion.

Combined Swath. Thirty-six or fifty inches.

Work Accomplished. Finishes an average green in less than ten minutes. Perfect surface guaranteed.

Price, complete, 50 inch cut.....\$425.00
Price, complete, 36 inch cut.....\$400.00

THE WOR LAWN

Engine, Ford

Short Wheel Base. Turns
Minimum Weight. 1000
the turf.

Abundance of Power. 23
Worthington gang mow-
ing, on any golf course

Unequalled Speed. Safe
hour.

Lighting System. Enable
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It has become the stand-
most clubs, parks, and p
Fully guaranteed.

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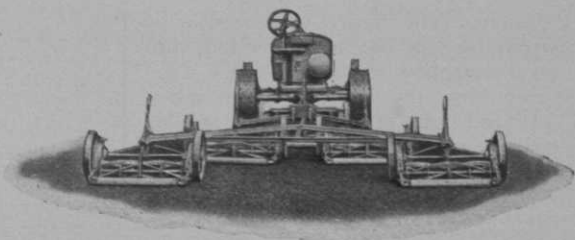
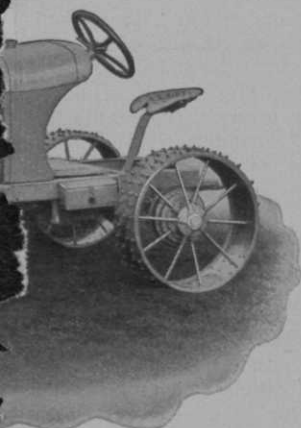
horse. Guaranteed to pull a
up any hill that requires cut-
America.

operated at ten miles per

tractor to cut the fairways

own tractor of the fore-
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ts extra).....\$496.00
-.....\$650.00



THE WORTHINGTON TRIPLE AND QUINTUPLEX AND "MULTIGANG" GANG MOWERS

Have revolutionized all former practice in lawn and golf course mowing.

Mower Units. Unequalled simplicity, lightness and strength.

Bed-knife Regulation. By means of a thumb-nut. All wrenches discarded—only the fingers used.

Housings. Absolutely tight. Splash lubrication.

Fly-knife Reels. Seven bladed. Noiseless in operation. Self-sharpening. Unequalled strength.

Bed-knife. Special alloy steel.

Gang Frames. Indestructible. Great strength combined with lightness and flexibility.

Width of Swath. Triple, seven feet. Quintuplex, nearly twelve feet. Multigang, sixteen feet.

Price—Triple Tractor Hitch.....	\$360.00
Triple Horse Hitch	\$385.00
Quintuplex	\$610.00
Multigang	\$860.00

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Tell us any idea for making GOLFDOM advertising more helpful.

SORRY, BUT—

In the interview with Al Lesperance printed in August GOLFDOM, reference was made to the Jones P. G. A. pictures showing the ball and clubhead in contact for 18 inches. This was a rank error. The real distance of contact is approximately $\frac{3}{4}$ of one inch.

Sorry. The figure was obviously wrong and if we hadn't noted the error ourselves in the first copy that came from the bindery, there were lots and lots of letters that would have kept us from overlooking it.

words" and the practical application of this proverb seems sure to open a field of great promise of improved instruction results and consequent greater instruction income for the professional. With lower scores it is logical to assume there will be even a greater interest in the game and another boost to the professionals' hard earned profits.

Professionals who have done work with movie instruction are well aware of what the P. G. A. is up against in its efforts to get these key pictures and their plan of distribution and use correct from the start. It is not an enterprise that can be put under way in a few weeks after its inception but the progress made to date has been fully satisfying. The coming year is bound to see in the P. G. A. movie instruction work one of the greatest boons the game has witnessed, so we have a bright picture of earnings in prospect from this work.

COME-PUTT PAPER RINGS NEW GREENS AID

Boston, Mass.—Innovations and improvements of various kinds are constantly being introduced into golf, but hitherto little or nothing has been done to increase the visibility of the hole on the green. Considerable interest, therefore, has been granted the announcement of "Come-Putts" which are designed to help the golfer to locate the hole easily and to protect the hole.

These little white rings are fitted into the upper part of the hole by simply sinking the metal cup a half-inch lower than usual. With the visibility improved by this means it is possible for the caddy to remove the flag from the hole and get off the green, leaving the player free to com-

plete his putt without distracting influences, even from a distance of 30 or 40 feet. The hole is clearly visible from that distance. In addition to the improvement in visibility, these "Come-Putts" support the edges of the hole, and keep it in better condition and reduce the number of changes of hole location due to wear. This new improvement is spoken of very highly by greenkeepers and pros who have seen it and tried it, and it has already been adopted as standard equipment by a number of well-known clubs in the east.

Patents, Trade-Marks, Copyrights—Law and Practice by Oscar A. Geier.

Cloth-bound 6 in. x 9 in., 128 pages, published by Richards & Geier, Patent and Trade-Mark Attorneys, 274 Madison Ave., New York, N. Y.

This book is written in terms the man in the golf business understands, and covers the essential features of patent, trade-mark and copyright laws.

The patent law section of the book explains who may obtain a patent, what may be patented, the importance of specification and claims, patent interferences, reissues, appeals, infringement suits, etc.

The trade-mark end of the book covers trade-marks in general, valid trade-marks, invalid trade-marks, unfair competition, state registration, interferences, oppositions, appeals, infringements, etc.

In addition to facts about American patents and trade-marks, this book also gives a large amount of information about the foreign patents and trade-marks which will be of particular interest to manufacturers who export. The index, with which it concludes, affords ready reference to the many important subjects treated in this book.

A copy will be sent free by the publishers.

LUMBERJACK'S IDEA ADOPTED BY GOLFERS

WATERBURY, Conn.—Lipscomb concave disc screw calks, which are sold in large quantities for men and women's golf shoes, were developed from the logging experience of Abraham Lipscomb, veteran inventive lumberjack, whose notion of a special hardened steel calk with a concave disc to keep the calk in place and avoid discomfort to the sole of the foot, first attained wide favor among brother lumberjacks.

The General Mfg. Co., makers of the Lipscomb calks, worked in refinements made necessary by golfing conditions, and introduced the invention successfully to the golf market.