

# THE GOLF COURSE

A MONTHLY BULLETIN DEVOTED TO THE DISCUSSION OF MODERN METHODS AS APPLIED TO GOLF COURSE CONSTRUCTION AND UPKEEP

## Modern Golf Chats

By A. W. TILLINGHAST

SOMETIMES we hear this question: "What is golf architecture?" It may be answered in few words. In the old days, when a club desired a course, there would be called in a professional player who would have very little time to give to the work, and he would be expected to know instinctively where the hole should be placed. He might walk over the ground once or twice, and after the third walk, the course would be laid out. He has done the best that he could in the short time which he has, but, after all, he only has been able to locate the greens and give a general idea of the run of the course.

The modern golf architect devotes many days to exhaustive study of conditions; the ground must be surveyed and charted, and greens and hazards are modeled in miniature before work is begun. The conscientious builder of courses desires to spend a great deal of his time on the ground as the work progresses, for often there are slight eleventh hour changes to be made. It is unfair to criticise the work of some

professionals, for they are players, and even though they have given the laying out of courses some study, they cannot devote the time which is necessary to the construction of a modern course.

Besides having a profound knowledge of the strokes of golf and the groups of strokes which should be demanded by a modern course, the architect must be something of an engineer. Greens cannot be placed always in spots which look attractive, for possibly these spots would not produce good turf.

The character of soil and drainage must be given much attention. However, I think that it is not possible to lay out a golf course by theory alone. The architect must be a player with a feel of the shots. To be sure, there are times when the first judgments may be wrong. He conceives a drive and mid-iron hole, but after it has been surveyed and he gets the actual distance, he finds that it is longer than he anticipated—possibly a drive and cleek, or drive and brasseys length; but usually the first judgment of the expert is

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# The GOLF COURSE

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R. O. SINCLAIRE, *Editor*

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IT is with particular gratification that we present this, the second number of THE GOLF COURSE, for although we rather anticipated that our little publication would be well received, the very friendly warmth of its reception came as a distinct surprise. From every section come requests for inclusion upon our mailing list.

Last month we announced that there would be printed only that which was authoritative, and the wisdom of this is proved by the calls for "More" from green committeemen, who are proving themselves Oliver Twists, hungry for real knowledge.

This very apparent desire for the last word in golf architecture, course construction and green-keeping brings with it great satisfaction, for it proves that the days of mediocrity are of the past and now there must be that near approach to perfection itself. Nothing else will satisfy the hard-working committeemen who bend every effort to provide ideal conditions, all the while knowing in their hearts that discriminating players will no longer tolerate

courses without distinction and quality.

Modern putting greens must present not only a smooth surface over which a ball may find its way without bumping, but that feel of real quality which every golfer detects immediately he sets foot upon it. A putting surface may be produced over night, with the aid of a roller, but true turf can only be produced by intelligent conception, unremitting and patient labor, and, above all, materials of tested excellence.

Although we produce THE GOLF COURSE, we are not magazine publishers, but men finding a market for their wares, and that the quality of our products finds favor in the eyes of the men who are at the head of their profession is proved by their contributions, which make possible the publication of this monthly offering.

If you are not already on the mailing list, we request that you write us, and it will afford us much pleasure to send THE GOLF COURSE to you each month.

THE PUBLISHERS.

PROFESSIONALS and green-keepers frequently request us to advise them where they can secure situations. We shall be glad to furnish the names of competent men.

## Over-watering of Putting Greens and Its Results

By PETER LEES

THERE is no doubt that to keep pace with the times it is most essential on all golf courses nowadays to have an abundant supply of water, and this applies more directly to this country, where long spells of drought are of common occurrence. Like everything else, the use of water can easily be abused and instead of doing good, as intended, may give quite the opposite result. It is not an unusual thing to hear of putting greens which a few years ago were all that a golfer could desire, but which are now very poor indeed. Money may have been lavished on them in the way of both artificial and natural manuring, but notwithstanding all the care bestowed upon them they have greatly deteriorated. Greenkeepers and Green Committees have sought diligently for the reasons for this state of affairs but quite possibly they have never thought that their system of watering the greens during the summer might be the root of the whole evil. I have never yet seen good healthy grass go bad if properly treated, but I have many times seen a fine carpet of perfect turf, quite free from weeds, utterly ruined by improper treatment, and one of the causes was the unnatural use of water. Greenkeepers should make it a point to get as near nature as possible, but never try to get beyond it, because if they try they will surely fail sooner or later. Just because an abundant supply of water has been provided it does not hold good that it can be used indiscriminately at any time or anyhow. In the course of my career I have seen this many times with disastrous results. Is it natural, let me ask, to have the

sprinklers going at mid-day under the boiling hot sun? Can this be good for the grass? I say "no" and think that the sooner this practice is given up the better. Use water at night, in the early morning or in the late afternoon after the sun has lost its power.

It seems to be the idea that in very dry weather the putting greens should be sprinkled every day so as to keep the grass alive and at the same time make the putting green good. Sprinkling in this way is wrong. If continued, the roots of the grass will keep near the surface to get the moisture and will not grow down deep and as a result the grass will grow weaker and weaker and all sorts of weeds will take its place. What I suggest, and I have learned from a wide experience, is not to water any oftener than twice a week, but thoroughly soak the surface so that the moisture will get down deep. The roots will follow it down and a much stronger turf and one far better able to withstand the dry conditions will be the result. There is no doubt in my own mind that the continual application of water is a sure means of cultivating weeds, and one weed especially, which is spreading to an alarming extent on nearly all courses. A few years back it was practically unknown, but I am positive if care is not exercised in regard to the application of water it will get the master hand on many fine putting greens before very long. The weed I refer to is Pearlwort (*Sagina procumbens*). If this weed once gets in a green, in a short time it will master the grass and kill it out entirely, and the lavish application of water will most assuredly be a help to this end. Chickweed is another weed that is creeping in and is cultivated in the same way.

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## The Cost of Construction and Maintenance of a Good Golf Course

By LEONARD MACOMBER

HOW many people realize what it means to build and maintain an up-to-date golf course? Only a few "outsiders" appreciate the amount of work involved and the cost of arranging the holes, clearing the ground, preparing the soil, producing a good golfing turf, and the annual upkeep expense.

To give any hard and fast rules on the cost and maintenance of a course is impossible, because conditions, situations, etc., vary in each case. However, it is possible to give an idea of the cost of the average modern course and point out the principal items of expense.

Generally speaking one has always to figure on a good course costing on an average of at least one thousand dollars a hole, or ten thousand dollars for a nine-hole course and twenty thousand dollars for an eighteen-hole course. This does not include the cost of the land, but just the clearing, preparation of the soil, fertilizing, seeding, construction, water system, labor and material.

During the past four or five years, there were a great many new courses constructed, and at Detroit over sixty thousand dollars was spent on an eighteen-hole course—at Cleveland over seventy-five thousand was spent—and one golf course recently added to the New York district will cost, when completed, close to a million dollars.

In building a new course—first of all it is most important to secure the services of a really competent golf architect, who is qualified to pass on the site selected and lay out the holes to the best advantage. Often it is necessary

to have topographical plans made of the ground to work out the drainage problems as well as help in mapping out the course. The modern method is also to make working models of the greens, showing every undulation and the proper trapping to protect the green. It is preferable to guard the greens properly when they are built, for the method will insure a more natural appearance of the plan, but it is always good judgment to wait until the course has been played over for a few months before attempting any other trappings except, of course, when artificial hazards are obviously needed. This latter suggestion is made inasmuch as no architect or construction expert can tell in advance just what the run of the ball will be, this depending entirely upon the condition of the turf and the peculiar slope of the land.

The complete cost of the architectural work, if a really capable architect is employed, may involve an expense of a thousand dollars or even more for an eighteen-hole proposition. To try and save a few dollars in this work is foolish and uneconomical in the end, when one considers what the total investment of a golf and country club proposition represents. There is no reason why the golf architect should not be paid as much as the clubhouse architect—but how often do we hear of professionals who call themselves golf architects laying out courses for a fee of a few dollars, ruining a piece of property and slaughtering the golf possibilities.

The next expense is in the clearing and cleaning up of the ground, and this work varies, so it is impossible to give any definite figures. The same remarks apply to the drainage expense.

The construction of the putting

greens, tees, mounds, bunkers, hazards, etc., generally make up the principal labor expense, but if the work of digging pits, traps, etc., is mapped out properly, so that material is supplied close at hand for any grading, there is a considerable saving. The average plateau green which requires considerable building-up costs three hundred to four hundred dollars—that is, just the grading—while the average tee figures about \$35 to \$40. Of course, this depends upon the distance required to haul the soil, and the nature of same—whether heavy, medium or light—and also the local labor conditions.

To build natural level greens on well drained soils the cost of preparing the surface is small, but where it is necessary to put in sub-drainage, removing and replacing top-soil, the cost runs up very fast. There is really no limit to what can be spent in designing, constructing and trapping putting greens.

We next have the water system to install, and for an eighteen-hole course the galvanized wrought iron pipes alone cost in the neighborhood of two thousand dollars, and then comes the laying expense and often the cost of a pump and pumphouse. Frequently the pipes used for this purpose are inadequate to carry the required water supply and great care should be taken to guard against this common mistake.

The seed and fertilizer requirements for an eighteen-hole golf course can be figured as follows:

The course is plowed from start to finish, and we will say the total playing distance is 6,400 yards, so that every 80 yards in length is an approximate acre. This means that there are eighty acres of playing ground in an eighteen-hole course, but as there is an acre of

“rough” in front of each tee, or about twenty acres in an eighteen-hole course, it leaves about sixty acres of important ground to carry a good golfing turf.

Artificial fertilizer generally costs about \$15 per acre to apply and the important parts—viz.: the “lies” and “approaches” should be well manured. Materials such as lime, manure and humus are required in building proper putting greens, but the quantity necessary depends largely on local conditions. Generally speaking five to ten tons of humus should be used in the construction of each green, and this material is also recommended as a top dressing.

If a good golfing turf is required inside of twelve months, the seed should be sown at the rate of at least eight bushels or two hundred pounds per acre and for fifty or sixty acres, four to five hundred bushels of fair green seed will be required. At about \$7 per bushel, this comes to \$3,000 to \$3,500. In seeding the putting greens, figure on two ounces of seed per square yard, four to five bushels of seed to each green will be needed, or eighty to a hundred bushels for all greens, costing about \$8.00 per bushel and making the total cost of all seed required figure from \$3,500 to \$4,500. On some courses as much as \$7,500 worth of seed has been sown and results were well worth the extra expenditure. It is never advisable to economize on quantity of seed.

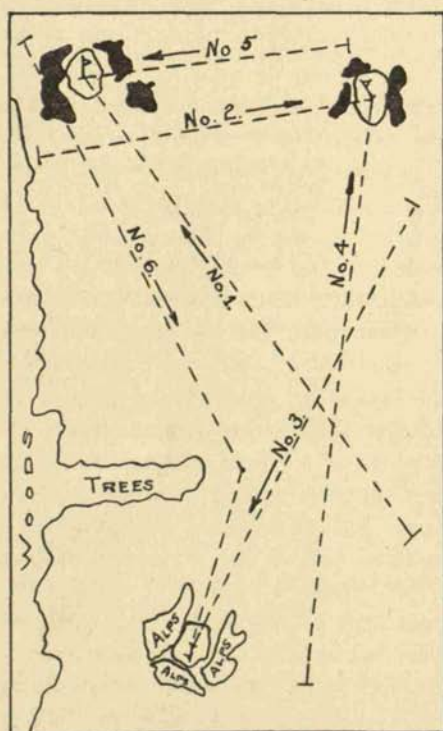
In renovating existing turf, half the above rates are usually necessary.

The average up-keep expense of a modern eighteen-hole golf course is close to \$10,000 per annum. Some clubs can keep their course in fairly good condition for perhaps \$7,000 or \$8,000 per annum, but most of the prominent clubs spend upwards of \$12,000 every year.

### Private Courses

THE number of private golf courses which are being built prove the unrelaxing hold the game has everywhere.

Owners of estates, desirous of providing for the undisturbed pleasure of themselves and their friends, are building courses which in many respects are no less notable than those of the Country Clubs.



Miniature courses—Lilliput Links—provide an excellent opportunity to practice or to learn the rudiments of the game. These miniatures are planned and modeled with the same attention to detail as the more ambitious courses.

But many private courses require harder play than do the Lilliputs, and to play them one is given quite as much to do as anywhere. The various holes

are conceived to demand all the vigor and cunning which any golfer may possess, and the architect's plans are being placed in the hands of the most famous greenkeepers for development.

A good example of these courses is shown in the sketch. This is a six-hole private course which was recently built on no more than six acres of a Long Island estate. In studying the sketch it should be borne in mind that the course was desired for the exclusive use of the owner and a small coterie of friends. Consequently there was no objection to crossing the lines of play, which would be unheard of in planning regularly.

The two greens at one end of the tract were partly created by nature, but the lone green in the middle of the meadow land is entirely artificial, yet built on such bold and rugged lines as to appear quite natural.

In these six acres every club in the bag is called into play. The problem of making three greens for six holes was solved, although in each instance strokes of varying types find a green from different directions.

### Resignation

(Suggested by LANGDON SMITH'S "EVOLUTION")

When you were a duffer, and so was I,  
As we started in to play,  
And side by side—Gee whiz! how we  
tried

To golf in the proper way;  
We read what Willie McFozzle wrote  
About stance, and swing and grip;  
And we thought that Will was a wonder  
till

He was trimmed by Joe Letrip.

Then keenly we followed Joseph's dope,  
And we started in again,

And gave every thought to what he  
taught;

His book cost a dollar-ten.

From McFozzle's style we tried Letrip's  
Till our strokes were naught but  
cramp;

But in weal and woe to stick to Joe—  
And then came another champ.

His name—Walter Wallop—he wrote  
a book

That proved that the others were  
punk,

So we poor dubs bought Wallop's clubs,  
And our old ones we sold for junk.

Our drives soon got to a mashie's length,  
And we sliced, we topped, we swore,  
Then there came the book by Sandy  
Hook,

And another by Jimmie Gore.

And that seems a million years ago,  
If we count the time by strokes;  
Yet here to-day—in the same old way  
We play like a couple of jokes.  
We've played our shots in a million  
ways,

But we never play two the same.

We tried all the grips, the swings, the  
flips,

Of the best men playing the game.

We know their books from McFozzle's,  
up

To the last one by Aleck Brice.

Like two damned fools, we've followed  
their rules,

But we've still got the same old slice.

We still play round in a hundred and  
ten—

That is, if we're going strong,

Still it's not too late—be patient and  
wait—

But how long, old Pal, how long?

A. W. T.

## The Relation of Golf to Real Estate

SOMETIMES the Real Estate man  
secures property outside the town  
and then sits down and waits for the  
town to come to him. Maybe it doesn't  
come.

But a very sure way of directing the  
trend of residential development is to  
use a modern golf course as the magnet.

Investigation will prove that never  
has there been built a golf course but  
has property in the immediate vicinity  
materially increased in value, and which  
is more, been in great demand.

A search of the records also will  
prove that a golf course never has been  
abandoned except to secure a more des-  
irable site or because leased property  
has had to be given over to building  
operations. This fact provides a strong  
argument for club ownership of golf  
courses.

But as a business proposition, an  
enterprising dealer in real estate has  
only to consult records of marvelously  
increased valuations of property nearby  
golf courses to appreciate the fact that  
the subject is worthy of further investi-  
gation.

## Over-watering of Putting Greens

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Another thing which helps to kill the  
grass when excessively watered, is the  
use of too heavy a roller when the sur-  
face is wet. The roller packs the soil  
very hard and closes the air spaces, and  
as a result no air can get through to the  
roots and the grass dies.

When applying sand, or stimulants  
of any kind, manures, etc., a very good  
plan is to put them on when the sur-  
face is dry and then water well. By  
this method quicker and more beneficial  
results will be obtained.

In conclusion I would point out that  
the foregoing are my own personal ob-  
servations, carefully studied, and I hope  
they may help, in some small measure,  
Greenkeepers and Green Committees  
who may be in difficulties in regard to  
this question.



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**T**HE plans for this less strenuous form of golf are prepared by A. W. TILLINGHAST, who has laid out many courses of distinction.

An accurate working model in plasticine, showing every undulation and hazard, is created after either a personal inspection of the ground or a study of sketches or charts.

LILLIPUT LINKS are planned to occupy any space, and vary in size from the large putting green, on which four or five holes can be placed, to the more ambitious tracts of several acres.

These model approaching and putting courses are ideal for ladies and children, but they provide rare expert practice, too; for the plans are quite as scientific as those prepared for regulation courses.



**To  
Green  
Committees**

When getting your links in shape for the 1916 season, don't overlook the SPALDING line of GOLF COURSE EQUIPMENT

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Our MR. GEORGE LOW is ready to advise Green Committees on the proper equipment for the upkeep of the course

**ASK US ABOUT IT**



## Greenkeeping Notes

THE freight situation in the East should be considered by all farsighted Green Committees when thinking about Spring requirements. The congestion all over the country is very great and if material is to be on hand when needed, it is most important to send orders in NOW for seed, humus, mowers, implements, and the many other things necessary for Spring work. It is impossible for any shipper to guarantee shipments under present conditions.

The season of 1915 was not a normal one, and many clubs were deceived as to the condition of their course and did very little work on them. The results of this policy will be apparent this Summer in the shape of dead or sickly greens and fairways. An early start this Spring will help greatly. A systematic plan for taking care of any Golf Course will not only produce good results but will maintain it at the highest possible pitch.

The wet, muddy condition of the turf during the Winter and Spring is due principally to the movements of millions of worms, which loosen the soil and throw to the surface much slimy mud. If any attempt is made to make the turf firm by using a roller, the casts either stick to the roller, or else they roll down hard and smother out the finer grasses. If they are swept off with a broom, the grass is not only impoverished by the loss of soil, but becomes unhealthy by being smeared over by the mud, and the broom bruises the surface roots. In either case the lawn remains soft and sticky. The only thing to do is to remove the worms, an operation which may be performed with ease and at small expense. After the worms are eliminated by the proper method it will

be a long time before further attention is required, and the club will save considerable labor expense. We will be very glad to supply further information on this point to anyone interested.

Lime should never be mixed with manure as it liberates the nitrogen into the air. Good compost piles are frequently rendered valueless by this treatment.

## Peter Lees

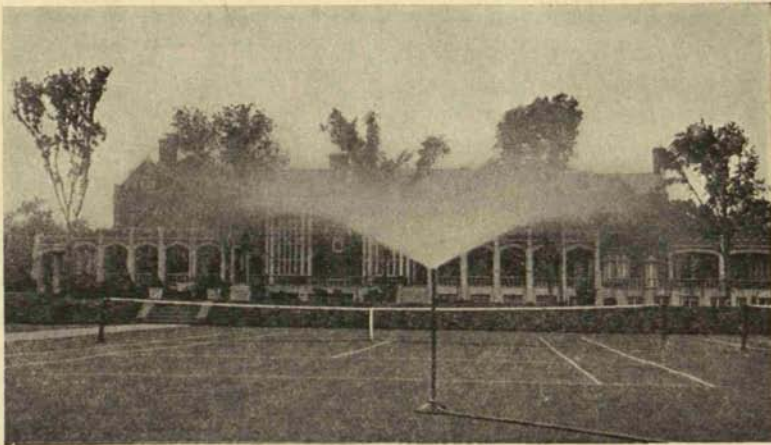
THE GOLF COURSE articles on green-keeping from the pen of Peter Lees are of the utmost interest, for he is regarded as an unquestioned authority. Previous to 1911 the course of the Mid-Surrey Club in the old deer park at Richmond, England, was not looked upon as a particularly satisfactory test of golf. Peter Lees was the Mid-Surrey green-keeper, and, together with J. H. Taylor, the renowned pro', he introduced a scheme of grass hollows and mounds which relieve the flat inland course of its monotony, and almost in a night, made it famous. Experts from all parts of Great Britain and the Continent flocked to Richmond to investigate the "Alpinization," and departed enthusiastic over the prospect of a new era for inland courses.

The work of mountain and valley treatment was accomplished on a large scale, and the rugged ranges rose in places to a height of sixteen feet, and in some instances they were as much as eighty yards long and thirty yards in width.

Lees came to this country to take charge of the construction of the new course of Lido, and his ingenuity is reflected by the work there, and experts agree that the new links will rank among the greatest in the world.

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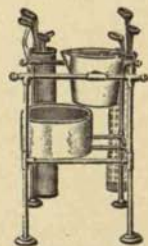
## COMPLETE EQUIPMENT

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## Modern Golf Chats

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nearly correct. It is the feel of the shots rather than the measure of tape that is the greatest asset to the builder of courses.

Wherever the construction of a golf course is contemplated, it is desirable that an expert advise in the selection of ground for a proposed course. In his eyes the undeveloped ground is a finished creation, and his experience enables him to determine immediately the most promising site. A modern course requires from one hundred to one hundred and fifty acres, although in some instances, when the tracts have been spread out considerably, very satisfactory lay-outs have placed eighteen holes on a trifle less than ninety acres. Then, step by step:

Permit a golf architect of recognized repute to plan the course. There are many possible arrangements on every tract, but he will determine the best one.

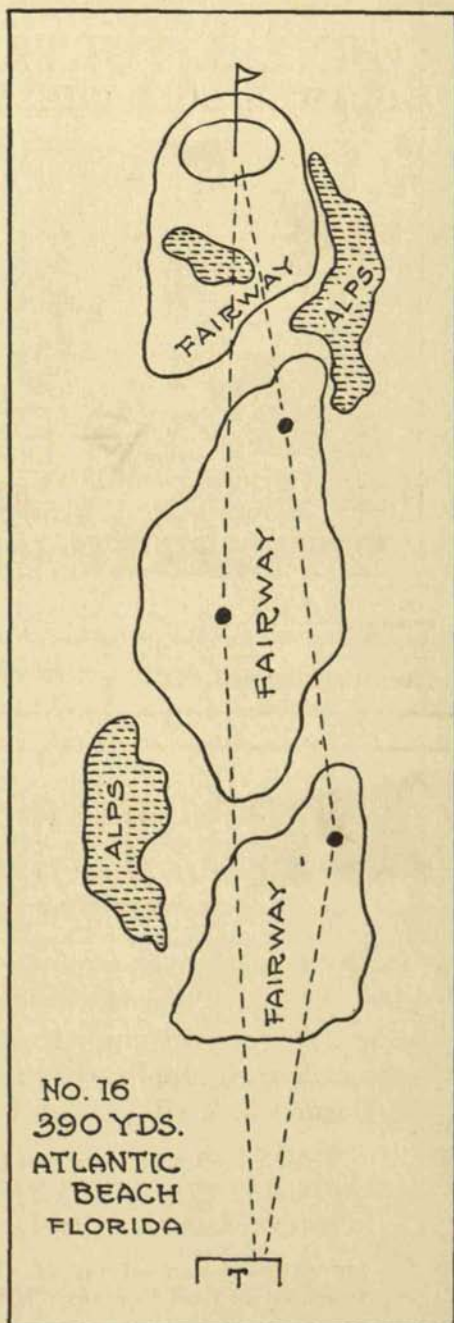
Call in a green-keeper and constructor of unquestioned merit. Place in his hands the prints and models prepared by your architect.

Permit your constructor to follow the plans unhampered and without the slightest interference.

Adhere unwaveringly to the expert advice which you have paid for, and use only materials of known and tested excellence.

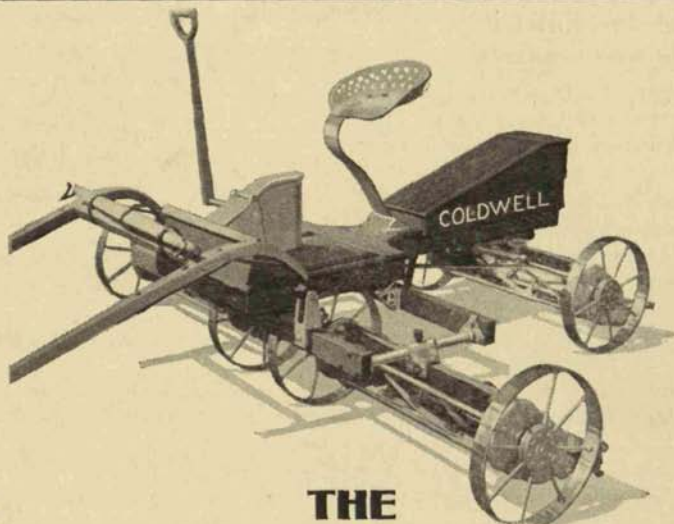
It is my purpose each month to illustrate types of modern holes, and in this number there is shown one from the course at Atlantic Beach, Florida, planned by the writer last August. The segregated fairways are distinctly modern, and they are particularly effective in sandy country. The islands of green, standing out prominently in the midst of the surrounding sand, not only are pleasing to the eye, but provide very sound golf.

Of course the expert will play directly on to the middle fairway, which enables him to be home with his second, a feat beyond the powers of the short



driver, who places his tee shot on the first fairway.

Segregated fairways are economical, for the work of upkeep is concentrated.



## THE COLDWELL "THREESOME"

We call your particular attention to the features mentioned hereafter, as they are absolutely essential to a perfect machine of this type and are *found only in the Coldwell "Threesome."*

1—All gears and axles of drive wheels are run in dust proof grease cases, which only need filling once in four or five months. This means easy draft, long life to the machine and a great saving of time.

2—The **Back Rollers** are made in three sections, which insures against tearing the lawn when turning circles. These rollers are each provided with bronze bearings, turning on a hollow grease-filled shaft. This shaft, once filled, needs no further attention for months.

3—The **Drive Wheels** have malleable hubs, steel spokes, wrought-iron rims and are made fast to shafts which turn on ball bearings inside the grease case. (All wear easily taken up from inside of case.)

4—**No springs are necessary** to keep the back roller from jumping up, as the Lawn Mowers are swung from the main frame by large friction surface hangers, which hold it down.

5—A single lever at the operator's right enables him to lift all three cutting knives free from the ground at once. It also permits him to throw out of gear all three revolving cutters without leaving his seat.

6—The weight of the super-structure and operator is evenly divided over the three Lawn Mowers. The combination of the carrying frame and a very simple draw rod mechanism makes one of the most desirable features of this machine, and it is this combination that makes absolutely positive the accurate position of the rear machine relative to the two front machines, insuring at all times, and under all conditions, the proper overlapping of the cuts. This valuable feature is found only in this machine.

*This style of machine* is designed for cutting wide swaths on grounds that are settled and dry, also where rolling and fine cutting are not the first consideration. On fine lawns where the turf is right and where pride is taken in having fine cutting and a beautiful velvety surface, free from horse marking, streaks, etc., there is only one type to use, that is the motor-driven Lawn Mower, which rolls the lawn every time it is cut. We make several varieties of this type, including both the "Walk" and "Ride" types, circulars of which we will be pleased to furnish on application.

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