

1896

**SIMPSON CYCLES**

119 REGENT STREET  
LONDON. W

PRELIMINARY + LIST + OF

# The Simpson Cycles

Fitted with the Celebrated SIMPSON LEVER CHAIN,

MANUFACTURED BY

**SIMPSON'S LEVER CHAIN Ltd.**

**119, REGENT STREET, LONDON, W.**

**Telegrams:—"LEVERWOOD, LONDON."**

**Telephone No. "GERRARD 2659."**

**Manager: A. PELLANT.**

**Works:—DRAYCOTT, DERBYSHIRE, ENGLAND.**

*May, 1896.*

HOWITT & SON, PRINTERS AND LITHOGRAPHERS, NOTTM.



In consequence of the demand created by the **Simpson Lever Chain**, and the difficulty experienced in getting Machines of the various makers fitted with despatch with the Chain, we have set aside a portion of our extensive works at Draycott for the manufacture of High Grade Cycles only.

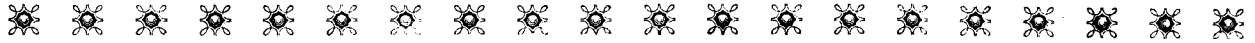
These Machines are of the very Latest Design, only the very Best Material procurable being used, and are manufactured by the most Modern Machinery, specially designed for the requirements of the Cycle Trade.

We guarantee all Machines made by us to be free from imperfections, and will make good at any time, within Twelve Months, any defect not caused by accident, rough usage, or neglect.

All Machines of any other manufacture, sold by us as agents, are subject to the same guarantee as given by the makers.

Tyres and other specially ordered articles are subject to the same guarantee as given by the makers of those articles.

We have confidence in saying that the Machines turned out by us are second to none in beauty of design and excellence of finish in every detail.



*The following are the opinions of prominent Racing Men who are using the Chain:—*

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**J. MICHAEL**, the Little Wonder, says:—Since having the Simpson Chain fitted to my Gladiator, it runs smoother and quicker than it ever did before.

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**J. PLATTS BETTS** says:—I am riding faster and better on the Machine fitted with the Simpson Chain than I have ever done on any machine.

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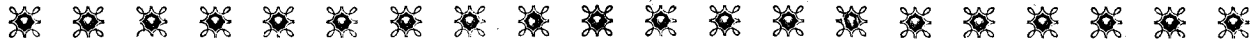
**A. V. LINTON** says:—I feel I can do more on the Simpson Chain Machine than I have ever been able to do before.

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**T. LINTON** says:—I can make a record on the Simpson Chain Machine.

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**T. OSBORN** says:—I never made European records until I used the Simpson Chain.



*Amongst the many users of the Simpson Lever  
Chain are the following:—*

H.R.H. THE PRINCE OF WALES

H.R.H. THE DUKE OF YORK

H.R.H. PRINCESS VICTORIA

H.R.H. PRINCESS MAUDE

H.R.H. PRINCE GEORGE OF GREECE

DUDLEY WARD ESQ.

LORD WALTER GORDON LENNOX

SIR THOMAS HASKETH

LADY JEUNE

LADY CHARLES BERESFORD

SIR FRANCIS KNOLLYS

MISS KNOLLYS

CAPTAIN YOUNGS

CAPTAIN DUTTON HUNT

H. LABOUCHERE ESQ., M.P.

MISS NORNA LABOUCHERE

BARON DE PALLANDT.

CECIL PAGET ESQ.

A. E. GUINNESS ESQ.

T. LOUGH, ESQ., M.P.

A. DRUCKER ESQ., M.P.

RUPERT GUINNESS ESQ.

CAPTAIN GERARD LEIGH

JEROME K JEROME

DR. H. WILLIAMS

MISS BARNBEY.

E. M. MUNDY ESQ.

MRS. HALL

MISS BURBAGE.

## RECORDS MADE ON THE SIMPSON LEVER CHAIN.

### ON ROAD, Tandem.

- $\frac{1}{4}$ -mile Tandem World's Record 20 3-5 secs., on 3rd Oct., 1895.  
 $\frac{1}{2}$ -mile ditto. 44 4-5 secs., on 3rd October, 1895.  
 1-mile ditto. 1 min. 31 1-5 secs., on 13th Nov., 1895.

### ON THE ROAD, Single.

- York to London, 10 hours, 48 mins.  
 100 Kilometres 2.48, 26 2-5th secs.  
 Nottingham to Skegness, 78 miles, time 3 hours, 23 mins, 53 secs.  
 $\frac{1}{4}$ -mile, 20 3-5 secs., 3rd Oct., 1895.  
 $\frac{1}{2}$ -mile, 46 2-5 secs., 3rd Oct., 1895.  
 1-mile Safety Record. 1 min. 36 $\frac{1}{2}$  secs.

### ON THE PATH, Single.

- |  |                   |
|--|-------------------|
| $\frac{1}{2}$ -Kilometre .. ..           | 30th April, 1896. |
| 1 Kilometre, 1 min. 4 secs. .. ..        | " "               |
| 5 Miles, 9 mins. 47 4-5ths. secs. .. ..  | " "               |
| 10 Kilometres mins. 9 1-5th. secs. .. .. | " "               |

- One Hour World's Record by T. Linton, 30 miles 214 yards.  
 Bordeaux to Paris Race, beating Record by 2 hours 54 mins.  
 370 miles. Time, 21 hours 17 mins.  
 50 Miles World Record by C. Huret. Time, 1 hour 42 mins.  
 42 secs.

### ON PATH, On 4th Oct., 1895.

- 2 miles to 44. All previous British Records.  
 10 miles to 44. All previous World's Records.  
 $\frac{1}{2}$ -mile, 57 $\frac{1}{2}$  secs.  
**1-HOUR, WORLD'S RECORD, 29 MILES 45 YARDS.**  
 1 hour ditto. 36 kilometers, 906 meters.  
 $\frac{1}{4}$ mile Professional, 29 3-5 secs.  
 $\frac{1}{2}$ -mile ditto 56 1-5 secs.  
 $\frac{3}{4}$ -mile ditto 1 min. 24 3-5 secs.  
 $\frac{1}{4}$ -mile Flying Start, 25 4-5 secs.  
 1-mile ditto 1 min. 49 4-5 secs.

### 4 to 10 miles Professional Records:—

10 miles, 20 min. 18 2-5 secs.

### THE FOLLOWING RECORDS BY J. MICHAEL AT OLYMPIA:—

- 2-mile Indoor Track Professional Record, 3 min. 59 1-5 secs.**  

3-mile	ditto	ditto	6 min.
4-mile	ditto	ditto	7 min. 59 secs.
5-mile	ditto	ditto	9 min. 59 2-5secs.
6-mile	ditto	ditto	12 min. 6 4-5 secs.

### 10 to 100 Kilometres Lady's Records, by Mdlc. Lisette.

- 1 HOUR PROFESSIONAL RECORD. 29 miles 1,310 yards.**  
 50 Kilometres Record. 1 hour 3 min. 41 2-5 secs.

*The following are a few of the important Races won on the **SIMPSON LEVER CHAIN**:-*

**100 Kilometres Race, Paris.**—T. Linton on the Simpson Chain defeated all comers.

**Michael v. Jacquelin.**—Michael using the Chain won two races, rendering the third unnecessary.

**Jacquelin v. Barden.**—Jacquelin, on the Chain, won easily.

**Beaugé v. T. Linton.**—Beaugé won, this time using the Simpson Chain.

**Lisette v. Mrs. Grace.**—Lisette won by 16 laps, using the Simpson Chain.

100 Miles Scratch Race, Agricultural Hall.

The 24 Hours Race, 1st, 2nd, 3rd and 4th. Also the special daily prize for the greatest distance ridden, Agricultural Hall.

Ladies' One Mile Handicap, 1st from scratch.

50 Miles Match—Mdle. Dutrieux v. Miss Harwood. Won by the former, using the Simpson Chain.

France v. England—Ladies' 50 Miles Match. France won, using the Chain.

At Wood Green Track, 10 Miles Paced Race, 1st, 2nd, and 3rd.

At Coventry, on the 4th April, 1896, One Hour Scratch Race, 1st, 2nd and 4th.

At Coventry, on the 7th April, 1896, 10 Miles Scratch Race, 1st.

At The Surrey Meeting on 18th April, 1896, 1st and 2nd in 5 miles Scratch Race.

At Royal Aquarium, 1st in the 6 days' International Ladies' Race, beating World's Records.

At Catford Track, 1st in the 5 miles Scratch Race, Polytechnic v. Catford.

## GENERAL DETAILS.

**Height of Frames.**—The standard heights are given in the Specifications, we however increase or decrease the height of frames to order.

**Gear Cases** of the most approved pattern are fitted to Lady's machines and to all other patterns to order.

**Special Coloring.**—We are prepared to Enamel Machines any color to order at an extra charge of 15s.

**All Spoon Brakes** are fitted with renewable rubber shoes. Brakes and Mud Guards are entirely detachable, and when detached leave no trace of having been fitted.

**Hubs and Pedals** are made perfectly dust proof and oil retaining.

**Rims.**—Unless otherwise specified we use the Hercules Hollow Rims.



## TERMS OF BUSINESS.

**Orders.**—All communications should be sent to our London Depot.

**Purchase Hiring.**—We are prepared to supply any of our Machines on a system of deferred payments. Conditions on application to the London Depot.

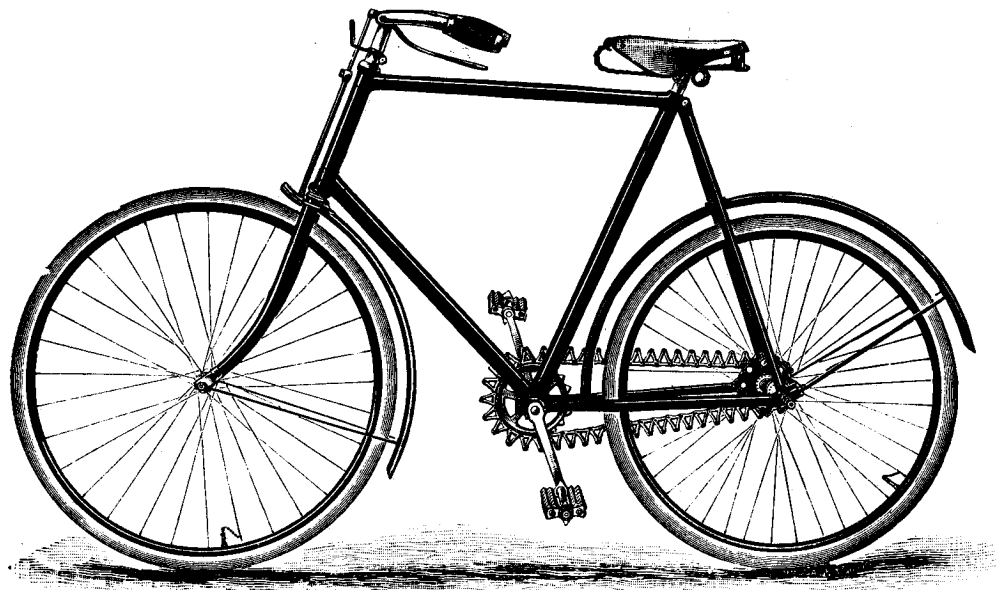
**Crates and Cases.**—Crates for Safety, 2s.; Tricycle, 2s. 6d.; Tandem, 3s. 6d.; Closed cases for one Safety, 10s.

**Railway Transit.**—All goods are delivered free on rail in good condition, and are signed for as being so by the railway companies, who then become the agents of the purchaser, the latter paying all charges for carriage, etc. Customers should, therefore, carefully examine Machines when received, and if damaged, sign accordingly, and make an immediate claim upon the carriers.

**Remittances.**—Cheques and Post Office Orders must be made payable to "Simpson's Lever Chain Ltd.," and crossed *Nottingham Joint Stock Bank, Ltd.*



# THE SIMPSON LIGHT ROADSTER.



— No. 1. —

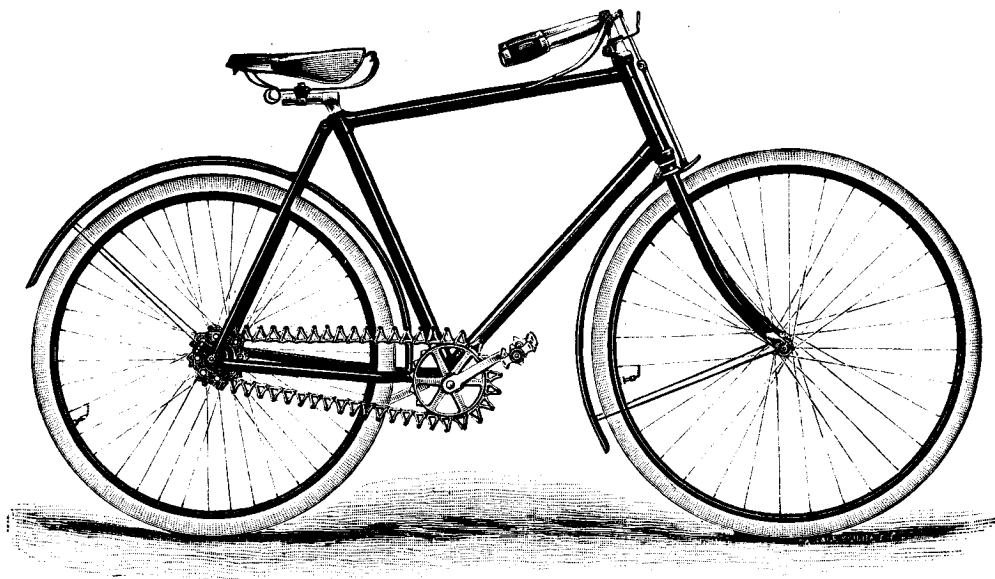
Gear Case can be fitted.

Built specially for the greatest possible ease in touring, fitted with the Simpson Lever Chain, and all latest improvements. The tread has been designed less than in most machines with ordinary chain, viz., 5 $\frac{1}{2}$ in. with Gear Case. Made in 3 sizes of frame, viz:—22, 24 and 26 inches.

**SPECIFICATION.**—28in. equal wheels, tangent spokes, Hercules HOLLOW rims, 6 $\frac{1}{2}$ in. cranks, 70in. gear, (this with Lever Chains is quite as easy as 63in. on ordinary chains), detachable brake, with renewable rubber shoe, light detachable mud guards, 4in. pedals. Weight, with 1 $\frac{1}{4}$ in. tyres, about 29lbs.

**PRICE, including Hollow Rims, Dunlop Tyres & Simpson Chain** - **£24.**  
**Extra-Gear Case** - - - **£2.**

# THE SIMPSON ROADSTER.



— No. 2. —

Gear Case can be fitted.

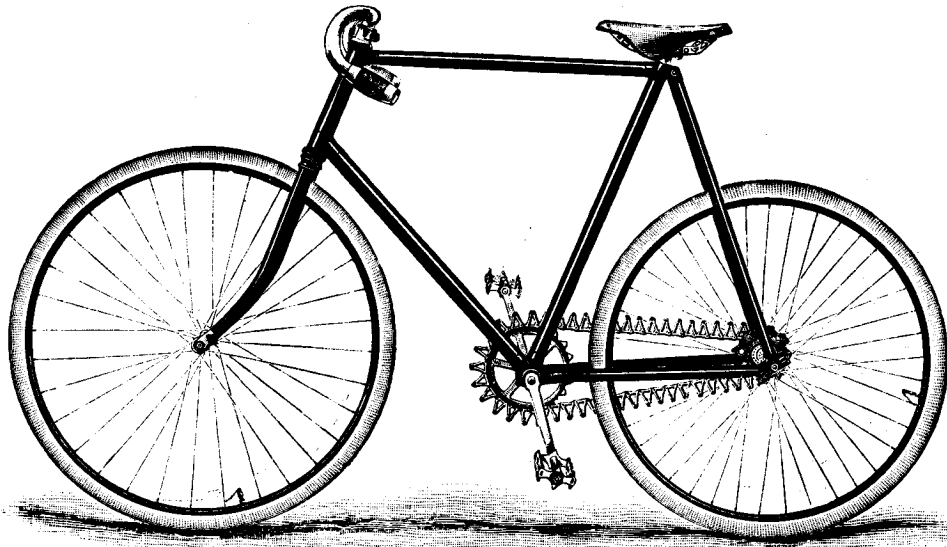
Precisely the same details as No. 1, except that the frame is carried to the top of a longer head, giving an easy upright position without exposing a great length of handle-bar stem.

**SPECIFICATION.**—28in. equal wheels,  $1\frac{3}{4}$ in. tyres, tangent spokes, hollow rims,  $6\frac{1}{2}$ in. cranks, 66in. gear, detachable brake, with renewable rubber shoe, light detachable mud guards, 4-in. pedals. Weight, with  $1\frac{3}{4}$ in. tyres, 33lbs.

**PRICE, including Hollow Rims, Simpson Chain and Dunlop Tyres - - £24.**

**Extra-Gear Case - - - £2.**

# THE SIMPSON ROAD RACER.



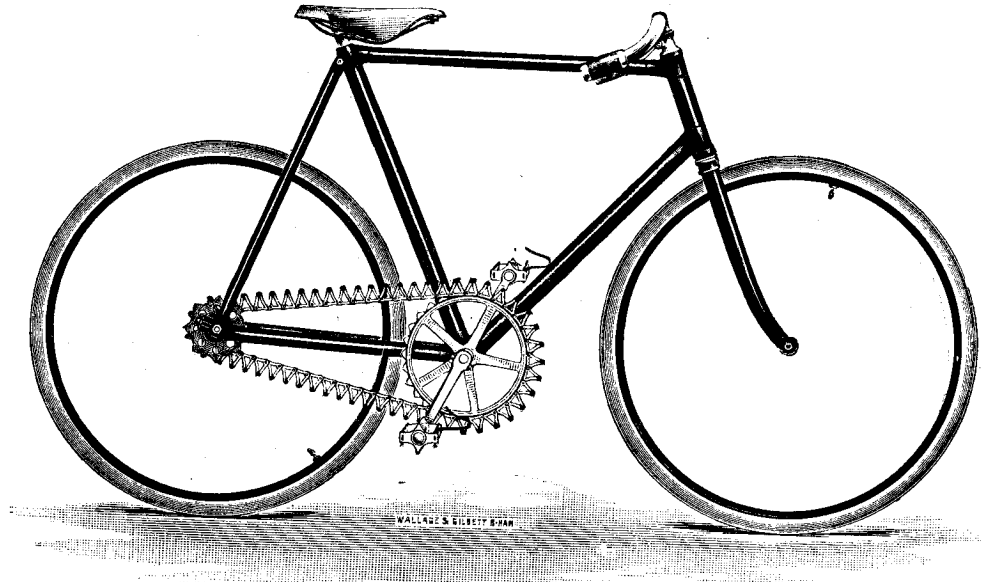
— No. 3. —

**SPECIFICATION.**—28in. equal wheels, tangent spokes, hollow rims,  $6\frac{1}{2}$ in. cranks,  $3\frac{1}{2}$ in. rat-trap pedals.  
76 or any gear to order. Weight about 24-lbs.

**PRICE, including Hollow Rims, Simpson Chain and Dunlop Tyres - £24.**

This Machine can be fitted with light Mud-guards and Pneumatic Brake, making it an ideal Machine for Park riding, or touring for light weight riders.

# THE SIMPSON PATH RACER.



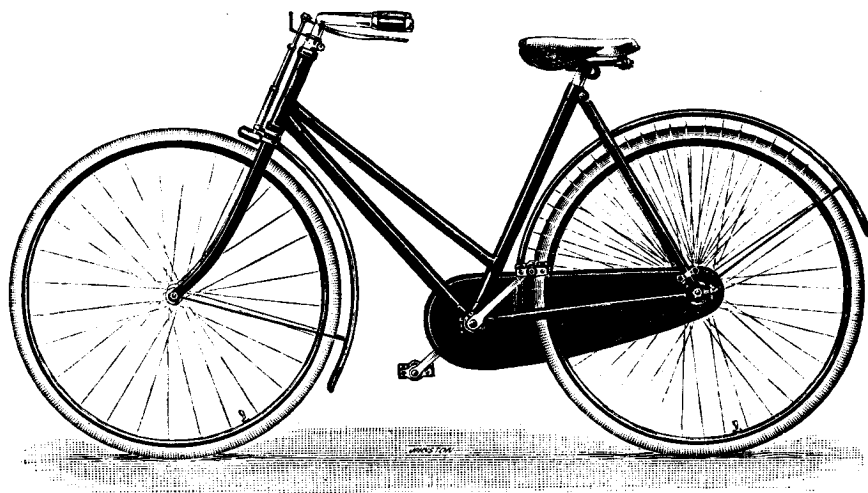
— No. 4. —

Fitted with the **SIMPSON LEVER CHAIN**, as used by Mesdames Dutreix, Lisette and Grace, and Messrs. J. Michael, A. Linton, T. Linton, Platt-Betts, T. Osborn, Jacquelin, Walters, Beauge, Banker, Johnson, &c.

**SPECIFICATION.**—28in. equal wheels, tangent spokes, hollow rims, 6½in. cranks, 8¼in. gear, 3½in. rat-trap pedals. We also build this machine with 26in. equal wheels, and any gear to order. Weight about 21lbs.

**Price, including Hollow Rims, Simpson Chain and Dunlop Tyres - £24.**

# THE SIMPSON LADIES SAFETY.



NO. 5.

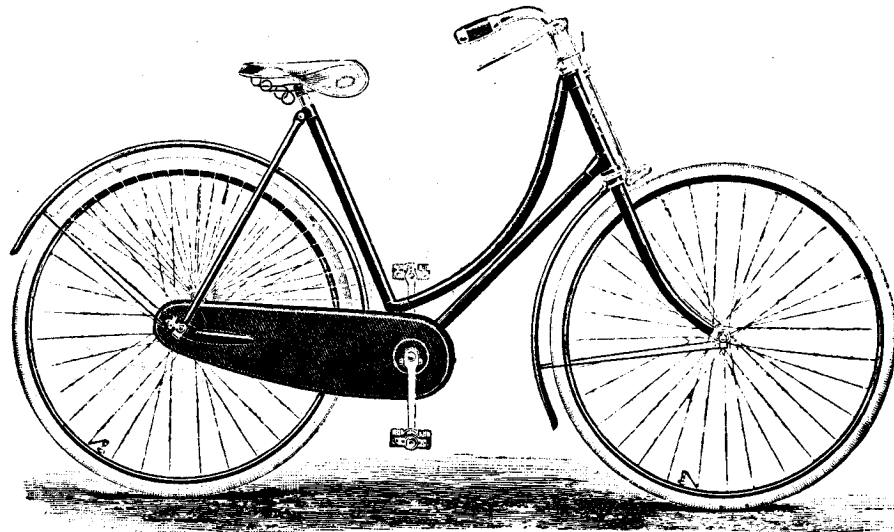
**SPECIFICATION.**—28-in. equal wheels, tangent spokes, hollow rims, ball bearings throughout ; 63-in. gear, with Simpson Chain ; Special Ladies' Pedals and Saddle, 1 $\frac{3}{4}$ -in. Pneumatic Tyres. Made in three sizes of frame, viz., 20in., 22in., and 24in.

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**PRICE, including gear case, Hollow Rims, Dunlop Tyres, and Simpson Chain - £26.**



# THE SIMPSON LADY'S SAFETY.

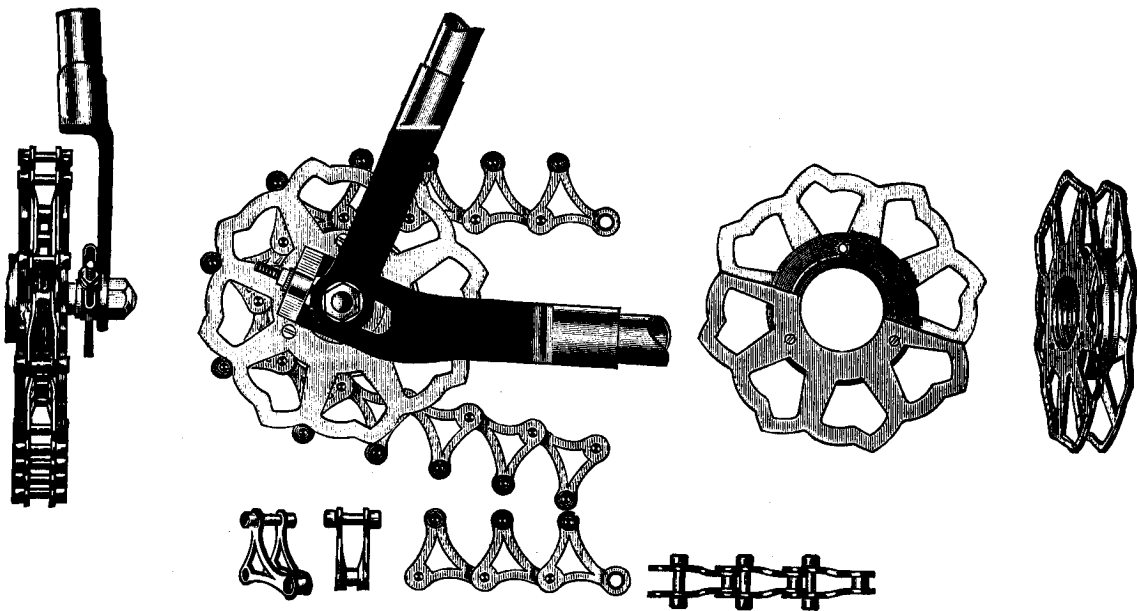


**No. 6.**

**SPECIFICATION.**—28-in. equal wheels, tangent spokes, hollow rims, ball bearings throughout, 63-in. gear with Simpson Chain. Special Lady's pedals and saddle;  $1\frac{3}{4}$ -in. Pneumatic Tyres.

Made in three sizes of frame, viz., 22-in., 24-in., and 26-in.

**PRICE, including Gear Case, Hollow Rims, Simpson Chain & Dunlop Tyres, £26.**



Simpson Lever Chain

## TESTIMONIALS & PRESS NOTICES.

**HY. WILLIAMS, Esq., M.D., writes:**

19, REGENT STREET,  
NOTTINGHAM, MARCH 9TH, 1896.

My experience is that I can ride a Machine fitted with the Simpson Lever Chain geared to  $87\frac{1}{2}$  with greater ease and comfort on the flat, and in hill climbing, than I can one with the old chain geared to 64. I am having a machine made fitted with the Lever Chain geared to 80. From what I have read I was strongly prejudiced against the chain, but the practical tests I gave it, convinced me that it was a good thing.

**A. E. JEWESBURY, Esq., of the North Road Club, writes:**

In my opinion 84 gear is equal to pushing about 70 to 72 uphill and against the wind and is tremendously fast on the level.

**Mr. C. H. LARETTE writes:**

IN "BICYCLING NEWS," JANUARY 29TH, 1896.

I began to think I should never have a chance of getting a fair trial of the Simpson chain. I could have had a machine thus fitted geared about 84, but I considered that to be no trial at all, and refused it.

A machine has been specially built for me, fitted up as a genuine roadster, with brake, mud guards, and all, weighing about 31 lbs., and geared to  $66\frac{1}{2}$ . If I had specially ordered a day to give a good power test to a machine, I could not have been better suited than by Sunday when the roads, especially where made of gravel, were in a delightfully heavy state. The frosts, followed by heavy 24 hour's rain on Saturday, had played sad havoc. I went out alone, but I soon fancied that I was travelling faster than usual, with less than my usual expenditure of power. It was not, however, until I got into Richmond Park that I began to think there was something in it. I cannot remember that I have ever climbed White House Hill, which was very heavy going, so easily, and through the heavy roads I bowled along as merrily as if my gear had been only about 56. Along the newly rolled metal on Surbiton Parade, my experience was equally favourable. On my return I was led along by three Polytechnic friends at a fifteen to sixteen

mile an hour pace, and arrived home as fresh and well as when I started. Some credit is doubtless due to the machine, a perfect little Beeston Humber, and the tyres, Dunlops with plain covers, may be a little faster than those with corrugations. Again, like other old 'uns who do not lead regular lives, it may have been one of my good days. Unfortunately I could not meet with anyone who really knows my riding, but on my return journey a gentleman with whom I have ridden several times, and who I considered at least as good a rider as myself, tried to get away from us, and though the going was dreadfully hot, and he was riding a much lower gear than I, got hopelessly left. I think therefore I have reason to believe that there is something in the chain, short as my trial has been. If the weather will only give me a chance I hope to be able to express myself definitely on the subject during the next week or two. The chain, I may add, has one slight fault, it "talks" a little bit too much to please me, but more than this I would, had its bitterest opponent been riding my machine on Sunday last, have defied him, if he had spoken the truth, to have said anything further to its disadvantage.

JANUARY 31ST, 1896.

It is with great pleasure that I have had an opportunity of trying the Simpson Chain on a normally geared ( $66\frac{1}{2}$ ) light roadster machine weighing with break, mud guards, and one regular impedimenta, about 31 to 32 lbs.

Last Sunday I rode it to Cobham and back, and though handicapped by want of a gear case, I was astonished at the ease with which I ploughed through the thick mud and mounted the hills. I have been out again to-day, and have twice mounted that severe hill in Rickmond Park, which runs parallel with the Kingston Main Road. Allowing something for the Beeston Humber to which it is fitted, I am confident that there is a gain of power somewhere by the use of the chain, but how and where I, who am no mechanic, can't tell. The only drawback that I can find is the noise it makes, but this I am sure would be very much minimised were an oil bath gear case (which I consider a necessity) used with a check lubricant, such as Hart's Viscoleum.

I must admit that I was very much prejudiced against the chain to start with. I did not think that the experts could all be wrong, but it strikes me they are.

Popular prejudice is at present against the chain, but depend upon it it will wear this down.



## FINANCIAL NEWS, December 28th, 1895.

It would take something more than President Cleveland's bit of "spread-eagleism" to disturb the unanimity of the cycling industry, which has seldom shown signs of greater activity than during the present holiday season; indeed, had this section of trade required a fillip, it would have found it in that development in mechanics recently made by Mr. W. S. Simpson, whose cleverly devised appliance, the lever chain, is finding the greatest favour among all classes of cyclists, despite—perhaps because of—the fact that it had been so vigorously opposed in certain presumably interested quarters. It is, of course, quite possible that a newly patented invention such as the Simpson lever chain may be—we will even grant it is—open to some amount of criticism; but what cannot be gainsaid is that those who have given the chain a fair test, both on road and path, have eclipsed all previous results, while it is admitted that for producing the highest speed with the least exertion the Simpson chain is unrivalled. A point which should not be overlooked is that ladies who adopt the new chain will find that it enables them to use shorter cranks, thus giving an elegance to "the female form divine" which some ill-natured satirists have ungraciously denied it when Beauty "takes the dust" astride her iron steed. This fact alone should secure for the lever chain all the popularity that its inventor can desire.

## ILLUSTRATED LONDON NEWS, Jan. 4th, 1896.

Among recent improvements in cycle mechanism is a new lever chain devised by Mr. W. S. Simpson, which in a few brief months has become extremely popular. Its vogue seems likely to increase as it becomes more widely known, for the Simpson chain has the great advantage of simplicity and economical adaptability to every kind of cycle, while the fact that already by its aid the world's records, both on road and path, have been beaten speaks volumes in its favour. Its conspicuous advantage is that it secures the greatest possible amount of power with a minimum of friction. Lady cyclists, in particular, cannot fail to appreciate this claim, for by its use they will be able to attain an increased speed without any necessity for more than ordinary exertion.

## ILLUSTRATED SPORTING AND DRAMATIC NEWS, December 28th, 1895.

Cyclists are much indebted to Mr. W. S. Simpson, for thanks to his inventive talent, the universal pastime will in

17  
future be invested with an ease and elegance hitherto lacking. The new lever chain is indeed the cyclist's "nothing beyond," and is being adopted by thousands of ardent riders throughout Europe. With the aid of this adjunct, the greatest exploits in cycling history have been fairly eclipsed, as much as forty-four miles per hour having been accomplished in one instance, all British world's records having been broken. Ladies are hailing the advent of the Simpson chain with enthusiasm, inasmuch as it enables them to get a much greater speed with only normal exertion, while, at the same time it secures for them an infinitely more attractive appearance than was possible before. To crown all the chain, at a slight cost, can be readily affixed to any description of machine.

## WORLD, December 25th, 1895.

All the talk in cycling circles of late has been of the marvellous Simpson lever chain, which is justly regarded as the invention of inventions in connection with this now universal pastime. It is simplicity itself, and by its aid results in speed have been obtained which put all previous performances in the shade. The new appliance speedily commends itself to the fair sex, inasmuch as ladies can now use shorter cranks, thereby securing greater elegance of appearance, and higher speed without any extra exertion. Old-fashioned carpers at ladies' participation in this fascinating pastime will henceforth find their lips sealed, and the natural result will follow that those of the fair sex who had never previously gone in for cycling will eagerly apply themselves to it. It may be fairly said of Mr. Simpson's immensely clever invention, that it has not its parallel, and is not likely to be equalled in living memory. It is the "nothing beyond" of the cycle maker.

## ST. JAMES'S BUDGET, January 3rd, 1896.

The newest thing in cycling is the Simpson lever chain, which has become immensely popular at a coup. Lady riders are naturally adopting it with acclamation, for one of its numerous merits is to secure an elegance of appearance which has not been hitherto obtainable; added to which the new chain attachment produces a much higher rate of speed without the necessity of more than the ordinary amount of exertion. Thanks to the lever chain, the most noted of our professionals have eclipsed all previous world's and British records, in one instance a speed averaging forty-four miles per hour having been obtained on a level road! Power hitherto wasted is now economised, and ease in riding is concurrent with the reduction of

friction to the irreducible minimum. The chain can be attached to any and all kinds of machines at a trifling expense, and this is not the least of its advantages. Mr. Simpson has produced an invention for which the whole cycling world will thank him.

### VANITY FAIR, January 2nd, 1896.

A new impetus seems to have been given to cycling by the recent Stanley Show and the third Salon du Cycle at the Palais de l'Industrie: at both of which all the novelties were displayed to tens of thousands of enthusiasts. Much discussed at these mammoth "shows" was the new lever chain that has been evolved from the busy brain of Mr. W. S. Simpson, who has introduced this ingenious contrivance. As the pneumatic tyre ensures perfect smoothness of riding, so the Simpson lever chain is said to enable you to ride at "record" speed without more than normal exertion. Ladies are adopting it widely, mindful of the fact that the employment of shorter cranks gives them an elegance of appearance which is certainly not always apparent under less favourable conditions.

### SKETCH, January 8th, 1896.

#### INTERVIEW WITH MR. SIMPSON.

##### "FIFTY MILES AN HOUR ON A BIKE."

"A friend of mine asked me if I could not improve the bicycle. I got one and considered it carefully; then I came to the conclusion that in the chain there is much loss of energy."

"You mean," said my friend, "that enough force is not generated?"

"My dear sir, we do not generate force—it is a mere phrase, as delusive and useful as the 'electrical fluid'; we utilise force. 'All the king's horses and all the king's men' cannot create a ha'porth of force. One can convert it from latent to active, and utilise it economically or extravagantly, though I fear that such a phrase as 'utilize extravagantly' has a flavour of the bull in it. Now, when I looked at the bicycle I saw at once that a large amount of the energy converted from latent to active by the pedals is wasted, because the ordinary chain is an imperfect transmitter of force."

"I suppose you know that the wheel on which the pedals of a bicycle work is called the 'driving bracket,' 'forward sprocket,' &c., and that the projection on the

axle of the rear wheel round which the chain passes, is the 'hub sprocket.' 'Hub' is a word that you know, of course?"

"Well, now, the ordinary chain passes round the driving bracket and round the hub sprocket, each of which has projections to engage in the interstices of the chain."

"It is a cog-wheel action such as at first was deemed necessary for railway locomotion, even by the famous Dr. Lardner?"

"Yes, yes. Now the 'cogs'—to use your word—in my case, so far as the hub sprocket is concerned, are on the chain, which is a set of triangles, point upwards, freely linked to one another. The points of the triangles or 'cogs' work, not on the axle of the hub sprocket wheel, but on its outer edge. Consequently, the diameter of the hub sprocket is practically increased by the height of the triangles top and bottom—that is, from two inches to four and a quarter."

"Of course, I know that increase of diameter, other things being equal, means increased power."

"Exactly. Now my chain has no more friction than the ordinary chain—in fact, less, owing to its elasticity—you will see how the 'cogs' go apart and increase the leverage when forcing the wheel, and then come together again—but, with the same amount of energy as the ordinary chain, actuates a far larger surface. The result simply is this—we hold all the world's records for speed save the one mile, from a quarter of a mile to forty-four miles. Messrs. Leitch and Pellant on a tandem have reached the rate of fifty miles an hour."

"Why not the mile?"

"Sentimental reasons. The man who was attempting it came an awful cropper in the last two hundred yards when well ahead of time. I promised him we would wait till he recovered before trying it again."

"Of course increase of speed with normal effort means normal effort with diminished effort?"

"Precisely. Revolve the pedal with half the ordinary rapidity and you will have quite the speed obtained with the ordinary chain. That is why it eases hill-climbing enormously, and why ladies take to it. They can reach the place they desire with less violence of motion, and consequently with less fatigue and more grace."

"Is it much more expensive?"

"Fitted with a new machine, it costs two or three pounds, and an old one can be adapted for about four. It is somewhat costly, because only made in one quality—finest tempered steel. I do not consider that its relation to the bicycle is the most important aspect of the chain, though some experts declare it is as important as the pneumatic tyre. The differential pitch thus attained will

be of immense value in all branches of mechanics. It will give immense impetus to electric traction, and, in fact, help it across the borderland, for the economy of force will turn the scale and make it pay. See, here are the plans I am making for chains for electric tramways at Brighton."

Of course, I tried personally a machine with the Simpson lever chain, and was delighted by its ease and smoothness. I regret that I cannot spare space for an account of some other of the inventions of the interesting, successful Mr. Simpson. Since my experiments I have made up my mind not to ride any bicycle without his remarkable chain.

**WESTMINSTER BUDGET, January 3rd, 1896.**

Improvements in the construction of cycles are seemingly as endless as is the making of books; seldom, indeed, however, is it that there comes before us an invention of such undeniable originality and ingenuity as the Simpson lever chain, which, although of quite recent introduction, has already received the *cachet* of popular favour from professionals and amateurs alike, the catalogue of the latter including a large sprinkling of fair leaders of society, and, *inter alia*, of Royalties themselves. Noted cyclists like Leitch, Pellant, G. Hunt, and Stocks have beaten world's records with the aid of the lever chain, the newest development in mechanics which the great cycling industry can as yet boast. Lady-riders will appreciate this remarkable appliance when they know that with it they can obtain greater speed without more exertion, and an elegance of appearance impossible without the help of the Simpson chain, already enjoying a great vogue throughout Europe.

**COURT JOURNAL, January 4th, 1896.**

Cyclists are a highly favoured race; the busy inventor is for ever cudgelling his brains to devise something new for them; and now comes Mr. Simpson, with a device of singular effectiveness in the shape of a lever chain, an entirely new development in mechanics, destined, apparently, judging by the instantaneous manner in which it has "caught on," to work a revolution in the ever-increasing cycling industry, and to make the pastime more popular than ever. The effect of the chain is to economise the power exercised by the rider which has hitherto been wasted—to increase the speed without necessitating any extra exertion, to reduce the friction to a minimum, and to render the sport easier and more elegant for ladies. The Simpson chain can be fitted to every description of machine at a nominal cost, and by its aid the world's records, both on road and path, have been beaten already.

**PELICAN, December 25th, 1895.**

**THE SIMPSON LEVER CHAIN.**

**A TALK WITH THE INVENTOR.**

King Street, St. James's, has always, within living memory, been regarded as the heart of that club-quarter of which many of us are so proud. It is a street full of character—a street with a world-famous banking-house at one end, and the *debris* of a ducal mansion at the other; a thoroughfare diversified by a celebrated playhouse, a "Service" club, and a *chic* club known as the Orleans, a picture-shop and flower-shops, a fashionable restaurant, and a house in which the late Emperor Napoleon III. lodged when he was sworn in as a special constable.

But New London is rapidly elbowing Old London out of the field; and so it comes about that the ground floor of No. 16, long a lodging-house of high repute, has been metamorphosed into a handsome show room for the display of the creations of a great inventor's brain!

To catalogue the heterogeneous contents of the spacious room is a task which I will not essay, if only because my attention was concentrated, on the day of my visit, on the very newest of all the new appliances appertaining to the pastime of cycling—that wondrous lever chain invented by Mr. W. S. Simpson, who was so good as to thoroughly initiate me in the use and value of this inestimable boon to the cycling world.

The information which I gathered during a long conversation with Mr. Simpson, will probably be more interesting to the reader if I present it, not in the cut-and-dried "interview" style, but in a rapid summary of the cardinal points of the new appliance, which is now one of the most prominent topics of critical and admiring comment in the cycling realm.

It was only in November, 1894, that Mr. Simpson terms the first germ of his Simpson lever chain, "fell upon his brain." He is a man of so many inventions that, even as the late Emile de Girardin naively confessed that a new idea came to him every day, so may it equally be said of Mr. Simpson, that he hits upon something novel at least six days out of the seven, the year round.

The Simpson lever chain is, in the inventor's own phrase "simplicity itself. The links are not flat, but triangular, having, as connections between their bases, small studs which engage the corresponding grooves in the bracket-wheel. These studs play no part in driving the enlarged hub-sprocket, for at that point they run smoothly over an inner grooved pulley. The apices of the triangular links

perform the work, at this part, by engaging with their rollers the teeth upon the outer periphery of the hub-sprocket. These can scarcely be called teeth, as they are a series of geometric curves, so arranged that the engagement grip and release of the chain-rollers is noiseless and frictionless. The chain therefore, may be said to have two pitches, or rather a differential pitch, by means of which a greatly increased leverage is obtained."

Such is an outline of the invention in strictly technical form. But the unscientific reader, especially if he or she be a cyclist, will demand something much less abstruse; and for such a one it may be detailed that the employment of the lever chain secures greater speed without any extra exertion, coupled without an amount of ease hitherto unknown to riders, while the friction is reduced to a minimum.

To the fair sex in particular is the Simpson lever chain most valuable, if only because it enables them to use shorter cranks, thus avoiding the necessity of lifting the knees so much as heretofore—with, of course, a corresponding lack of elegance. The increased comfort which results is of itself no small advantage, and cannot fail to be highly appreciated by all lady riders. If you are riding a bicycle fitted with the Simpson chain, you actually get 33 per cent, more out of the motive power than is otherwise obtainable. And the mention of this fact brings me to the question of speed which, even among "scorchers," is a desideratum. Here are some records on the lever chain:—E. Leith and A. Pellant, quarter-mile tandem world's record in 29 3-5 sec., last October; a half-mile ditto in 44 4-5 sec.; and one mile in 1 min. 31 1-5 secs. George Hunt is credited with a mile safety record in 1 min. 36 secs.; and the same rider also beat the Nottingham to Skegness record by about 19 mins., doing the 78 miles in 3 hrs. 23 mins., 53 secs. All the above performances were upon the road. On the path J. W. Stocks beat all previous English and world's records, while he made a world's record by doing 29 miles and 45 yards in one hour.

So much for British records with the aid of the Simpson lever chain. The leading continental riders think equally well of it. The French champions, Loste and Huret, are riding the chain, the first mentioned being the celebrated short-distance, and the latter the famous long-distance rider; while little Michael, the well-known Welsh champion, refuses to ride any but the Simpson chain.

At the recent Paris Show (the Salon du Cycle, at the Palais de l'Industrie, inaugurated by the Minister of Commerce and Industry, and visited by the President of the Republic), as well as at the Stanley Show in London, the lever chain was (continued Mr. Simpson) one of the prin-

cipal centres of attraction; the somewhat acrid controversy which has been raging *pro et con* having had the perhaps natural effect of giving the chain a decided impetus in the right direction. The public exhibitions of it given by Michael have also greatly tended to display its merits. The marvel is that, considering for how short a period the new chain has been before the public, it has become already so exceedingly popular. Not only is it in immense favour with the professionals (the keenest judges of the merits and demerits of an invention), but the cream of the *grand monde* have eagerly and rapidly adopted the chain. Many are the letters in Mr. Simpson's possession testifying to this gratifying fact.

Both on the Continent and in the United States the Simpson chain has found innumerable patrons; the German, French, and American authorities granting letters patent in an inconceivably short space of time. The expense of fitting the chain to both old and new cycles is very small.

A talk with this vigorous, fresh-minded man is a real treat. He knows so much, and is so modest withal. He completed his education under those high priests of science, Lord Kelvin and Professor McQueen Rankine, and is that *rara avis*, an inventor who knows how to turn his theories and ideas to practical account. Ere very long we shall see the principle of the lever chain extended to tram-cars; for it is as adaptable to all kinds of vehicles as it is to the bicycle and tricycle. Mr. Simpson is decidedly a scientific *homme du jour*.

## FACTS AND FIGURES, January 4th, 1896.

### THE INVENTOR OF THE SIMPSON LEVER CHAIN TELLS "FACTS AND FIGURES" ALL ABOUT IT.

At No. 16, King Street, St. James's, "between the Old Year and the New," I had the pleasure of a long talk with Mr. W. S. Simpson, the brilliant inventor of the marvellous chain which bears his name, and of many other even more striking appliances. Some of these will be presently reported on in *Facts and Figures*; to-day I must confine myself to the much-discussed chain.

It was only in November, 1894, that what Mr. Simpson terms the first germ of the idea of his lever chain "fell upon his brain." He is a man of so many inventions that, even as the late Emile de Girardin naively confessed that a new idea came to him every day, so may it be equally said of Mr. Simpson that he hits upon something novel at least six days out of the seven the year round.

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JANUARY 25th, 1896.

#### THE SIMPSON LEVER CHAIN CHALLENGE.

We are glad to learn that Mr. Simpson and Dr. McNabe have practically arranged all details, and that the contest will come off in the last week of May or the first week of June. The public belief in the chain seems to be spreading rapidly. We notice that the Humber people are associating themselves in their advertisements with the chain. One of the best known of English athletes, Warburton, is one of its strongest advocates. Large orders are being received, and the works at Draycott are busy. New plant is being put down this week. In France, too, the chain seems to be making rapid headway. The Gladiator Company of Paris is fitting it on all Michel's machines, and the racing machines of Lisette, and Dutré her rival, whilst Bathiatt, the well-known gentleman amateur rider of France, has beaten the amateur world's record unpaced by 1650 yards.