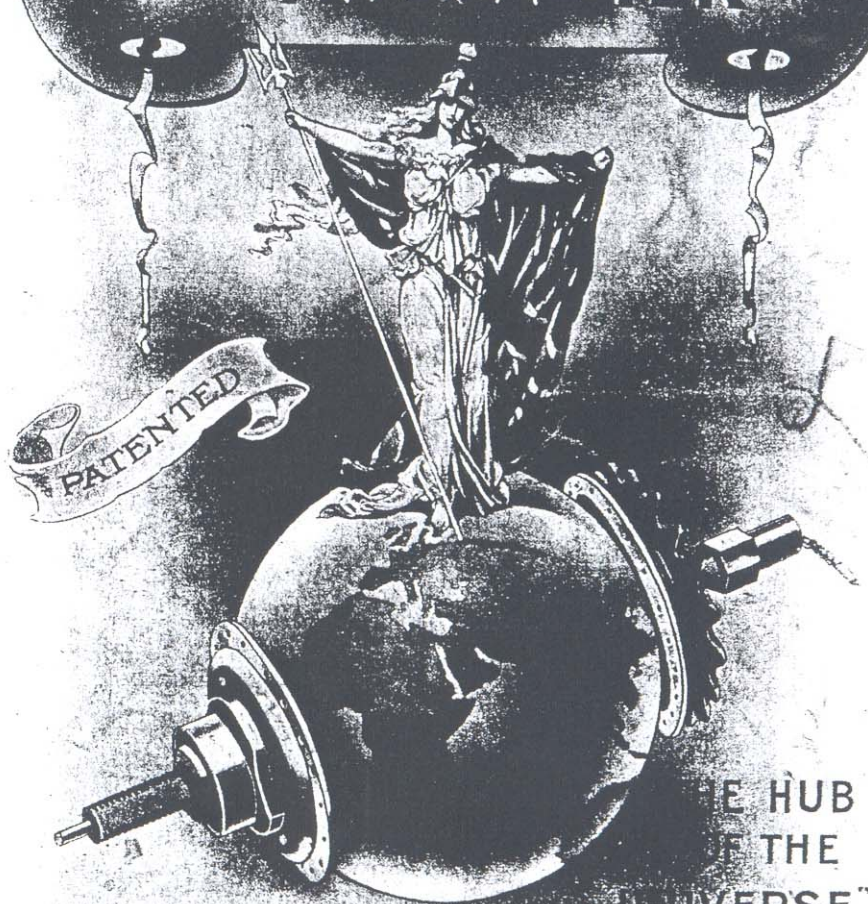


ALL ABOUT THE

STURMEY-ARCHER SPEED 3 GEAR AND "TRICOASTER"



THE HUB
OF THE
UNIVERSE"

"MAKES CYCLING EASY"

MANUFACTURED BY
STURMEY-ARCHER GEARS, LIMITED,
LENTON, NOTTINGHAM.

FIRST IN 1901—BEST EVER SINCE

THE

STURMEY-ARCHER SPEED 3 GEAR

Can be easily fitted to nearly
all chain driven bicycles
& tandems, whether
new or old.



BEWARE OF THE "JUST AS GOOD."

THE GENUINE STURMEY-ARCHER COSTS NO MORE.

SEE THE NAME STURMEY-ARCHER STAMPED ON THE HUB.

MANUFACTURED BY

Sturmey-Archer Gears, Ltd.

LENTON, NOTTINGHAM.

Telegrams: "TRIPLE. NOTTINGHAM."

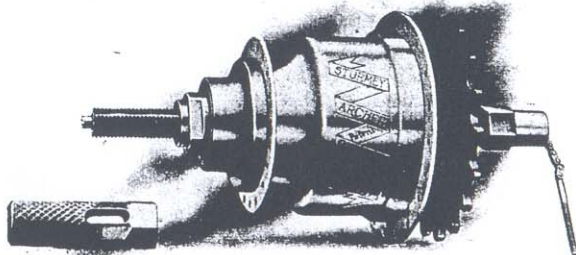
Telephone: 2232

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There is nothing "just as good" as the Sturmey-Archer:

— THE —
STURMEY-ARCHER
— 3-SPEED GEAR —



WITH PATENT BALL-BEARING PINIONS.

THE STURMEY-ARCHER THREE-SPEED GEAR, which is protected by the first and most valuable patents, dating from 1901, is the invention of Mr. HENRY STURMEY, Honorary Member of the Institute of Cycle Engineers, for many years Editor of the *Cyclist*, *Photography*, and the *Auto-car* (now on the staff of *Cycling*), and of Mr. JAMES ARCHER, Engineer; with improvements by Mr. WILLIAM REILLY, Inventor of the Hub Two-Speed Gear, Mr. G. P. MILLS, A.M.I.C.E., M.I.M.E., and Mr. ALFRED PELLANT, Cycle Expert.

THE STURMEY-ARCHER GEAR was the first practical three-speed gear invented for cycles, many improvements and refinements have been made in it from time to time, and it is still far ahead of all others.

The gear will stand any amount of hard work, and with ordinary usage is as reliable as any other part of a bicycle.

FIRST IN 1901, THE BEST EVER SINCE.

THE UNEQUALLED STURMEY-ARCHER SPEED GEAR

Every part is thoroughly tested, and the complete gear when assembled is again tested before leaving the factory. That is why we guarantee it for 12 months.

Some of these gears have been ridden more than 45,000 miles (see page 23).

It has now been in use by the public for seven years, with unqualified success.

Its popularity has increased every year by leaps and bounds, so that to-day no machine may be considered complete or up-to-date unless fitted with the Sturmey-Archer.

Practically all the leading cycle manufacturers catalogue and recommend our gear, and the following extracts from some of their catalogues show they consider the Sturmey-Archer is the

BEST 3-SPEED GEAR ON THE MARKET.

THE CENTAUR CYCLE CO., LTD., say:—

“During the past four years we have used a considerable number with more than an average amount of satisfaction.”

THE ELSWICK CYCLE CO., LTD., say:—

“Having found this Hub perfectly satisfactory in all respects, we have again decided to adopt it.”

RUDGE-WHITWORTH, LTD., refer to it as—

“This fine piece of mechanism.”

THE SPARKBROOK MFG. CO., LTD., say:—

“Those requiring a three-speed gear cannot do better than have the Sturmey-Archer.”

THE ROVER CO., LTD., say:—

“The Sturmey-Archer Hub is a self-contained dust and rain-proof oil-bath, in which the gear works practically without friction, etc., etc.”

There is nothing “just as good” as the Sturmey-Archer:

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

THE PREMIER CYCLE CO., LTD., say:—

“The SturmeY-ArchEr Three-Speed Gear, fitted to all Premier bicycles when specially ordered, has now passed through years of severe tests with unqualified success.”

SINGER & CO., LTD., say:—

“The SturmeY-ArchEr Three-Speed is a well-known device and fitted to order to all our models.”

THE TRIUMPH CYCLE CO., LTD., say:—

“The SturmeY-ArchEr Three-Speed Gear has been fitted by us during the past year with entire satisfaction to our customers.”

The following are some of the leading cycle firms who catalogue, recommend and fit our Gear:—

Alldays & Onions, Ltd.
Bradbury & Co., Ltd.
Centaur Cycle Co., Ltd.
Calcott Bros., Ltd.
Coventry Eagle Cycle Co.
Campion Cycle Co., Ltd.
Challenge Cycle Co., Ltd.
Coventry Works, Ltd.
Chater Lea Mfg. Co., Ltd.
Enfield Cycle Co., Ltd.
Elswick Cycle Co., Ltd.
Gloria Cycle Co., Ltd.
Lea & Francis, Ltd.
Mead Cycle Co.
Monopole Cycle & Carriage Co., Ltd.

Macbeth, A. R., Ltd.
Premier Cycle Co., Ltd.
Quadrant Cycle Co., Ltd.
Robin Hood Cycle Co.
Rover Co., Ltd.
Raleigh Cycle Co. Ltd.
Rudge, Wedge & Co.
Rudge-Whitworth, Ltd.
Robinson & Price, Ltd.
Riley Cycle Co., Ltd.
Singer & Co., Ltd.
Sparkbrook Mfg. Co.
Swift Cycle Co., Ltd.
Triumph Cycle Co., Ltd.
Victoria Cycle Co., Ltd.
Wearwell Cycle Co., Ltd.

and many foreign cycle manufacturers.

FIRST IN 1901, THE BEST EVER SINCE.

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

Any other maker of cycles will fit the SturmeY-ArchEr Three-Speed Gear when specially ordered, except a few who are financially interested in some other variable gear. Insist on having the genuine SturmeY-ArchEr and refuse imitations.

WARNING.

We specially desire to warn you against the Three-Speed Imitations which are now being advertised. See that the name **STURMEY-ARCHER** is stamped upon the barrel of the hub.

Should you desire our Gear fitted to your present machine, it can easily be done by any good cycle agent.

It is interesting to note that many of the first SturmeY-ArchEr Gears, made six or seven years ago, are still running to-day as well as ever.

We make the following claims for the SturmeY-ArchEr Three-Speed Gear, and they will be found fully substantiated in the unsolicited testimonials and press notices from experts and tourists which are hereafter quoted.

The Special Advantages OF THE SturmeY-ArchEr 3-Speed Gear

GEARS ALWAYS IN MESH.

As the three gears are always in mesh, any possibility of damaging them when changing is entirely removed.

Other variable gears have to be disengaged when changing gears, that is, the pedals are momentarily free both ways. This we have found to be absolutely dangerous to the rider, as the possibility of the pedals suddenly slipping forward might result in serious consequences.

DUST PROOF AND OIL RETAINING.

The gears are dust-proof and the entire mechanism runs in oil, with that smoothness and "silkeness" only to be found in the SturmeY-ArchEr.

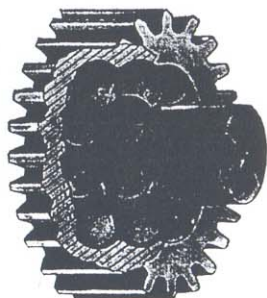
There is nothing "just as good" as the SturmeY-ArchEr:

THE UNEQUALLED STURMEY-ARCHER SPEED GEAR

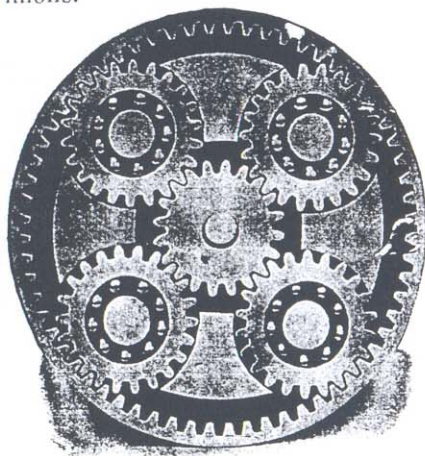
SCIENTIFIC TEST OF EFFICIENCY.

Sturmey-Archer gears, by reason of their patent ball-bearing pinions, are practically frictionless; that is to say, the hub runs on both the high and low gears as freely as on the normal, which is a direct drive and revolves like an ordinary hub. We went to considerable trouble, time and expense in carrying out experiments and tests to show the relative friction of plain bearing hubs and Sturmey-Archer patent ball-bearing gears.

The tests showed the actual frictional loss due to gearing to be barely $1\frac{1}{2}$ per cent., or, to be exact, 1.400 per cent. with Sturmey-Archer Patent Ball-bearing Pinions.



Planet pinion (enlarged)
showing sectional
view of Ball bearings.



The same tests applied to a three-speed hub with plain bearing pinions, such as are found in other gears, showed a saving of over 3 per cent. in favour of S.-A. ball-bearing pinions, as will be seen from the following figures:—

Friction due to Gearing.

	HIGH.	LOW.
Hub with ordinary Pinions (as in other gears)	5.155	4.563
Hub with S.A. Patent Ball-bearing Pinions ...	1.815	1.400

As the figures are merely to show loss due to gearing up and down, we take the friction of our normal gear as being .0,

FIRST IN 1901, THE BEST EVER SINCE.

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

although, actually, there was a decimal fraction of friction on both types of hubs on the normal gear. The higher you gear the greater the resistance and friction, which accounts for the slight increase on the high gear, but it must be remembered that it is on this gear where it is least felt, as it is only used under favourable circumstances.

RATIOS.

The gears are the popular ratios of gearing, which by experience have been found to be the best and most suitable all round. (See page 12).

STRENGTH AND SIMPLICITY.

The gears are immensely strong and reliable, and have been subjected to some of the most searching tests with perfect success. An examination of the hub will show the great margin of strength provided in the working parts, which are comparatively few in number, making the Sturmeley-Archer by far **the simplest three-speed on the market.** (See tandem records and mountain climbing tests, pages 29 and 21.

ACCURACY.

The most minute care, accuracy, and years of experience, are necessary for the perfect manufacture of a three-speed gear. The Sturmeley-Archer is the *only* three-speed hub embodying many years of experience, our output probably being equal to all other three- and two-speed gears combined. It is made by the most modern, elaborate and costly automatic machinery working on gauges set to the two-thousandth part of an inch,—consequently there are no **specially made Sturmeley-Archer Hubs.**

DURABILITY.

Correct hardening of the pinions and other working parts in conjunction with our perfected design makes the Sturmeley-Archer the most durable and reliable of all variable gears. No one in the trade has had more experience in case hardening than ourselves, which with us has been brought to a fine

There is nothing "just as good" as the Sturmeley-Archer:

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

art. Every part of a SturmeY-ArchEr is case-hardened in our works under the most expert supervision. We have no hesitation in saying that a SturmeY-ArchEr will last as long as a bicycle. Some of our gears have run 45,000 miles without any trouble. Many of our first hubs made in 1901 and 1902, we hear, are running to-day with perfect satisfaction.

SIMPLICITY.

A step is supplied free with every hub, and in the step is an indicator by which a child can see that the wire is properly adjusted. Adjust it by following the directions on page 13.

EASE OF CHANGING GEAR.

The gears may all be changed from the handle-bar without moving a hand, as easily as ringing the bell. Each change may be made while pedalling, free wheeling, or when the machine is standing. The new handle-bar control, which we strongly recommend, is a revelation of neatness and ease in changing gear.

FREE WHEEL.

An automatic free wheel inside the hub, practically silent, running in oil, acts on each of the three gears.

SUITS ANY MACHINE.

The three-speed hub can be easily fitted to any chain-driven bicycle, or tandem bicycle.

LIGHTEST OF ALL 3-SPEED GEARS.

The new SturmeY-ArchEr only adds about 14-ozs. to a bicycle, and is $\frac{1}{2}$ -lb. (in many cases more) lighter than other three-speed gears. Our unique design and methods of manufacture enable us to produce a three-speed gear that is unapproached by any other for lightness and strength. All parts are of tandem strength.

FIRST IN 1901, THE BEST EVER SINCE.

THE UNEQUALLED STURMEY-ARCHER SPEED GEAR

RANGE OF GEARS.

Any combination of gears may be obtained to suit a strong or a weak rider in a hilly or a level country, against, or with the wind. The range of gears depends on the number of teeth on gear wheel of bicycle. (See page 30). With the Sturmeiy-Archer you have:

First.—A low gear for climbing hills and riding against head winds with ease.

Second.—A normal or middle gear—that to which you have been accustomed on a single-gear machine—with which the drive is direct.

Third.—A high gear, with which, when the wind or road is favourable, you enjoy to the full the exhilaration of going fast without extra exertion or more rapid movement of your feet.

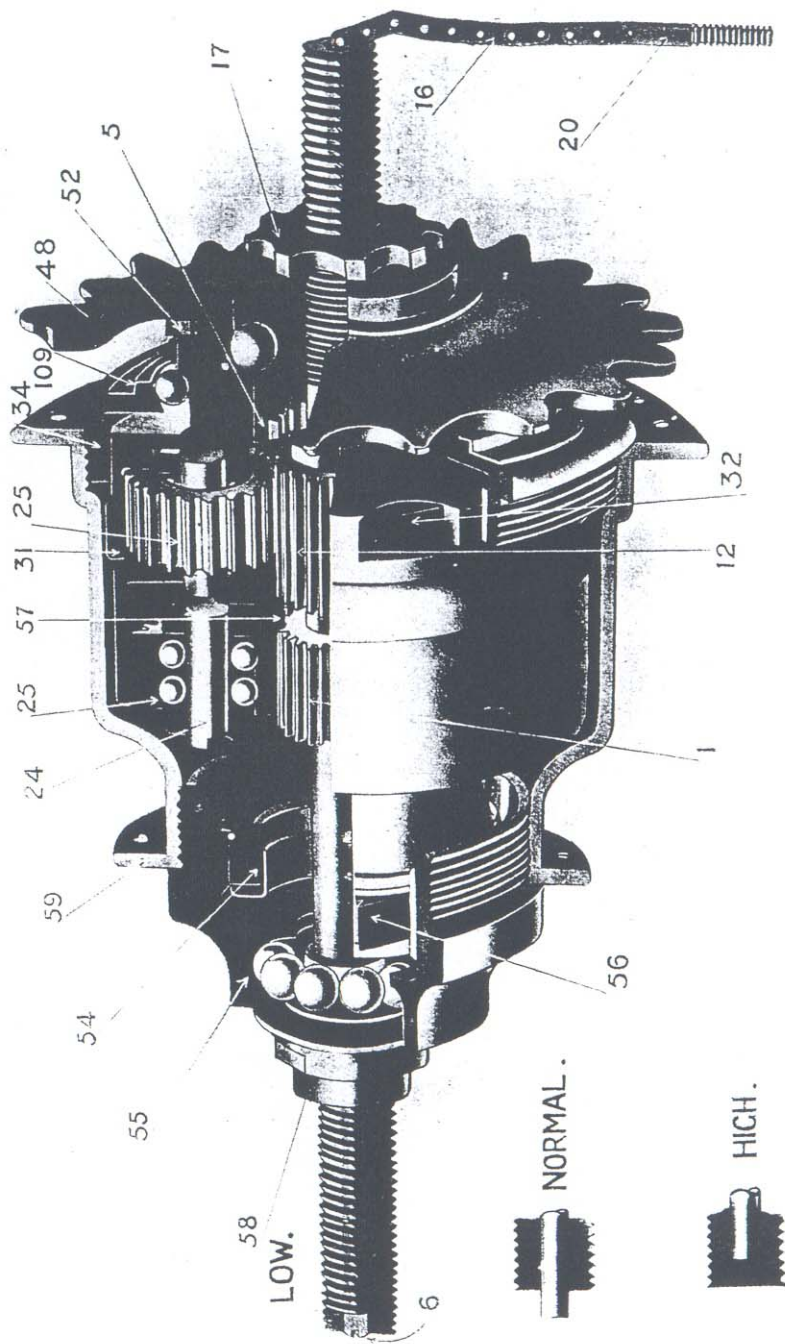
Illustrations of the handle-bar and top tube controls will be found on page 13; of the Hub and parts on page 14. Instructions for ordering, page 16. Directions for fitting, page 15. How the gear works, page 12. Some simple directions for riders, pages 13 and 14. The "Tricoaster," page 17. Test of efficiency page 21, and Testimonials, page 23.

The Sturmeiy-Archer Three-Speed Gear is simple in construction, simple in its method of application, and simply marvellous in the way it will help you to climb hills and increase your rate of speed without extra exertion, "**halving your labour and doubling your pleasure,**" by simply remembering to keep up an even rate of pedalling when using the lower gears, the result of which will be that you will—as hereafter stated in letters we have received—find a new delight in cycling and appreciate the gear more and more the longer you use it. In fact, it

MAKES CYCLING EASY

— & MORE FASCINATING. —

There is nothing "just as good" as the Sturmeiy-Archer:



SECTIONAL VIEW OF 3-SPEED HUB (Enlarged).



Action of Gears.

(See illustration on preceding page.)

The gear is changed by sliding the sun pinion (12) along the axle to three different positions.

THE HIGH GEAR is obtained when the sun pinion is drawn to the right, when it engages and is locked to the axle by the clutch teeth (5) on the right-hand cone, as the planet pinions (25) carried round by the driver are thus caused to rotate upon their axles and impart an increased speed to the gear-ring (31), which in turn drives the hub through the pawls (32).

THE NORMAL GEAR is obtained when the sun pinion is drawn to the left, when it engages the clutch teeth (57) of the driver, thus locking the planets (25) and gear-ring (31) solid to the driver and causing the gear-ring and hub to rotate turn for turn with the driver.

THE LOW GEAR is obtained by sliding the sun pinion to a central position between the clutches (5) and (57), thus rendering this train of gears inoperative, whilst the drive is then through the driver (57) to the cage planets (25) and fixed axle pinion (1), which gives a reduced speed to the cage, which is imparted to the hub through the cage pawls (56).

INDICATING.—The position of the sliding sun pinion is indicated by the small rod within the axle which is just level with end of axle when the pinion is in its central position, set the change-speed lever for this position and the other positions must follow as a matter of course.

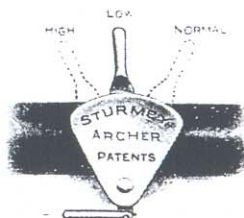
The normal gear is according to the number of teeth on the front and rear chain wheels, as in a single-speed machine; the ratios of all hubs are the same, the high gear being 31.25 above the normal, and the low 23.8 below it. (For table of gears, see page 30).

One of the following illustrations shows our handle-bar arrangement for changing the gear without removing a hand. It is actuated by a combination of the Sturmey-Archer and Bowden Patents, the device being so simple that the change, after about one ride, is as easy as ringing the bell. If preferred by some riders—who do not mind removing their hands and who are accustomed to the usual lever and quadrant fitted to the top

There is nothing "just as good" as the Sturmey-Archer:

THE UNEQUALLED STURMEY ARCHER SPEED 3 GEAR

tube of a bicycle—we supply the other device. It will be noticed that the middle notch of quadrant on the top tube gives the low gear. With handle-bar control, however, the middle notch is the normal gear. The wire is slack on the normal gear.



By following these simple directions, riders will have no trouble.

The Editor of the *Cyclist*, after riding our gear for some time, wrote in that journal: "To the unmechanical the arrangement may appear complicated, but it is nothing of the kind, and so far as the rider is concerned, he has nothing more to think about than usual."

We draw attention to the above, because in giving a little advice, we want the most timid to understand that with ordinary usage there is no fear of the gear getting out of order.

ADJUSTMENT.

(See illustration page 11.)

When the gears of Three-Speed Hub or Tricoaster are correctly adjusted the end of the indicator-spindle should be level with the end of hub axle as seen through the hole in the step when the change speed lever is in the **low gear notch**. If the indicator projects, slacken the locking nut at the end of the wire near the chain, and, with the thumb and forefinger, turn the milled adjusting nipple until the indicator is level with the end of the hub axle:

FIRST IN 1901, THE BEST EVER SINCE.

THE UNEQUALLED STURMEY-ARCHER 3-SPEED GEAR

then tighten the locking nut, and the adjustment is complete. From time to time verify the adjustment of the gear, as it is possible that the wire may stretch.

Another way to tighten the wire is by tapping the clip on the top tube towards the head of the machine; to slacken, reverse the operation and secure the clip again.

It must be remembered that should the back wheel be moved when adjusting the chain at any time, this would of course alter the tension of the wire.

See that the fulcrum clip which holds the wire to the cycle frame is firm, and that the nuts on both sides of the axle are perfectly tight.

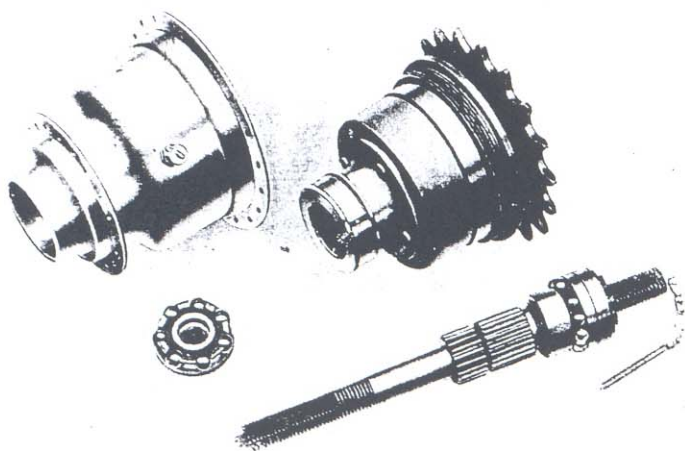
Adjustment of Bearings.—All bearings are adjusted simultaneously by turning the left-hand cone.

Indicator.—This is only to show when the hub is correctly adjusted, and it is not meant to make the adjustment with.

On no account should this be screwed up or touched in any way.

OILING.

Oil the Gear about every 100 miles by means of the lubricator, using only a few drops of good cycle oil.



THE STURMEY-ARCHER 3-SPEED GEAR PARTS.

There is nothing "just as good" as the SturmeY-ArchEr:

THE UNEQUALLED STURMEY & ZARCHER SPEED GEAR

Directions for Fitting.

It is not necessary to take any part of the hub to pieces when building the wheel, as the spokes on the driving side can be inserted without removing the sprocket. When built, the wheel should be set square in the back jaws and the bearings adjusted by means of the left-hand cone in the ordinary manner.

The right-hand cone is a fixture, and must on no account be meddled with. After adjusting, see that the axle nuts are both well tightened.

Fix the Bowden wire fulcrum clip to the top tube of the machine, leaving sufficient slack in the outer wire for the adjustment of the handle-bar. Attach the pulley wheel to the diagonal

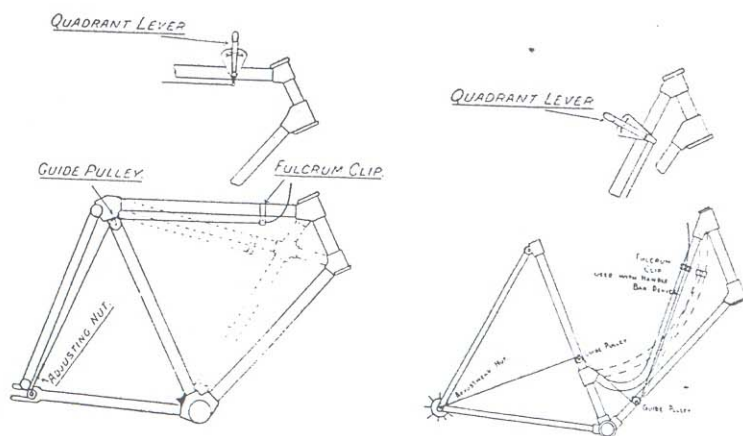


ILLUSTRATION SHOWING METHOD OF ATTACHING CLIPS, ETC.

tube of the machine and pass the actuating wire over it; screw the milled nipple on to the screw fixed on the end of the small chain. The mechanism is now ready for setting. (See page 13.)

FIRST IN 1901, THE BEST EVER SINCE.

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

Ladies' Machines and Spring Frames.—If the gear is intended for a lady's machine, the fulcrum clip should be screwed to the down tube with the wire running under the guide pulley clipped to the bottom tube.

In the case of a spring frame it is obvious that its movement will vary the adjustment of the gears, therefore it is necessary to fix the Bowden wire to some part of the frame where no movement takes place, such as the chain stays, to which the fulcrum clip should be fastened.

NOTE.

The Three-Speed Hub can be supplied for any width of back jaw down to $\frac{1}{4}$ inches. It is drilled for 40 spoke holes only, while the hub-ring has 9 and 10 teeth for 1-in. chains, 14 and 15 for $\frac{3}{8}$ -in., and 16, 18, 20 for $\frac{1}{2}$ -in., and is made for $\frac{1}{2}$, $\frac{3}{8}$, and $\frac{1}{4}$ -in. width, and for any chain line from $1\frac{3}{8}$ to 2-in. inclusive. The various chain lines are obtained by fitting different detachable sprockets, which are supplied to order.

WHEN ORDERING, be sure to give the particulars on order form, page 31.

When ordering parts for replacement or repair, it is most important that the number of hub be given.



There is nothing "just as good" as the SturmeY-Archer:

THE UNEQUALLED
STURMEY-ARCHER
SPEED **3** GEAR

Latest Triumph for the Sturmey-Archer "Tricoaster."

On July 30th, 1908, Mr. Harry Green, riding a bicycle fitted with the Sturmey-Archer "Tricoaster," broke the

END TO END RECORD

(Land's End to John O'Groats)

BY 2 HOURS 52 MINUTES



MR. H. GREEN.

Distance $837\frac{1}{2}$ miles in 2 days, 19 hours, 50 minutes. Average speed, including stops for sleep, etc., $12\frac{3}{10}$ ths miles per hour; this,

**THE MOST MARVELLOUS PERFORMANCE
EVER ACCOMPLISHED ON A BICYCLE,**

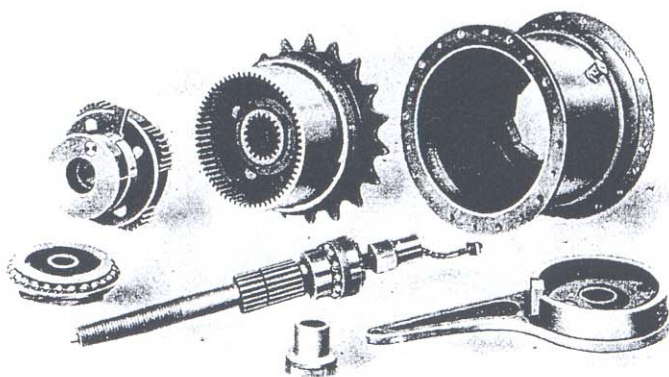
has proved beyond doubt the wonderful efficiency and reliability of the Sturmey-Archer Tricoaster.

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

A machine fitted with this hub can be wheeled backwards, and the whole mechanism weighs but little more than the ordinary three-speed hub, and dispenses with the usual rear rim brake.

RUNS ON BALL BEARINGS THROUGHOUT.

The "Tricoaster," like the ordinary S.-A. Three-Speed Hub, runs on ball bearings throughout, including the small planet pinions, each one of which runs on a double row of balls on our patented system, which we have adopted after many thousands of miles of testing. (See page 7.) Experts who have tried the Tricoaster have specially commented on its marked silky running.



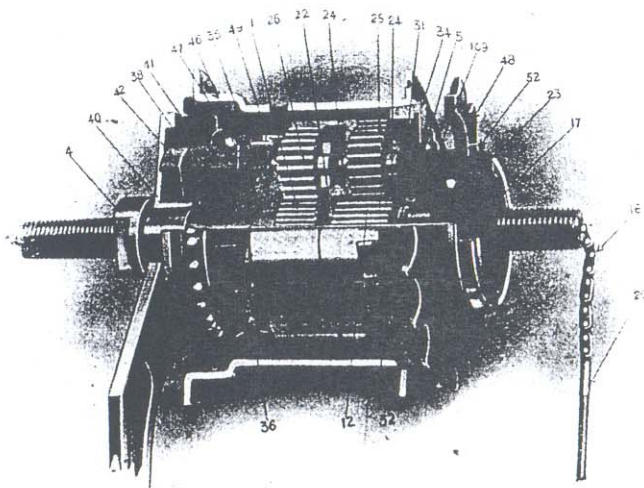
"TRICOASTER" PARTS.

It is extremely simple, can be taken to pieces and assembled in a few moments, has comparatively very few parts, is immensely strong, and will stand any amount of hard wear.

There is nothing "just as good" as the Sturmey-Archer:

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

It runs in oil. The gears are always in mesh, and can be changed whether pedalling, free-wheeling or standing still.



SECTIONAL VIEW OF THE STURMEY-ARCHER "TRICOASTER."

There are no drawbacks to its use. The cycle may be wheeled backwards, generally on any gear, and with certainty on the low. The brake may be applied at any point.

It is easily lubricated, will not get out of order, and will fit any bicycle.

NOTE.—The "TRI-COASTER" can be supplied for any width of back jaw down to 4 inches. It is drilled for 40 spoke-holes only, while the hub-ring has 9 and 10 teeth for 1-in. chains; 14 and 15 for $\frac{5}{8}$ -in.; 16, 18 and 20 for $\frac{1}{2}$ -in.; and is made for $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ -in. width, and for any chain line from $1\frac{3}{8}$ to 2-in. inclusive. The various chain lines are obtained by fitting different detachable sprocket wheels, which are supplied to order.

FIRST IN 1901, THE BEST EVER SINCE.



ACTION OF GEARS.

The change of gear is effected by sliding the sun pinion (12) along the axle. When the pinion is at the left end it engages the clutch teeth (22) of the driver, thus locking the planets (25) and gear-ring (31) to the driver. The pawls (32) in the gear-ring engaging the ratchet teeth on the ball-ring (34), thus drive the hub at the same speed as the sprocket, giving the **normal gear**.

When the sun pinion is at the extreme right it engages the clutch teeth (5) on the right-hand cone, and is locked to the axle. This causes the planet pinions (25) to revolve on their axles and impart an increased speed to the gear-ring (31), which in turn drives the hub, thus giving the **high gear**.

When the sun pinion is in a central position and free from both clutches (5 and 22), the second train of gears comes into operation, and the drive is then through the driver (22) to the cage planets (26) and fixed axle pinion to the rocking pawl (36), which then drives the hub through the ratchet teeth on left-hand ball cup (47), giving the **low gear**.

The brake is applied by reversing the direction of the gears. The rocking pawl (36) is then caused by the action of the trailer-ring (49) to engage and rotate the brake-cone (38), which operates the lever (42), thus expanding the brake-ring (41).

What others say about the "Tricoaster."

The *Daily News*, of April 18th, 1908: "The new Sturmey-Archer tricoaster, which combines the back-pedalling brake with the famous Sturmey-Archer three-speed gear, is already on the way to make as great a name for itself as its predecessor, the Sturmey-Archer gear. Its reliability is by no means its least prominent feature."

There is nothing "just as good" as the Sturmey-Archer:

THE UNEQUALLED STURMEY-ARCHER SPEED 3 GEAR

London-Dover and Back Record broken on the "Tricoaster."

147 Miles without a dismount.

The *Brighton Evening Argus*, October 14th, 1907, says: "Mr. J. ROBINS, of the Southern Cycling Club, yesterday lowered the London to Dover and back record without dismounting by 21 minutes 26 seconds. The time was taken by Mr. W. L. Woolridge, official timekeeper. Robins is a well-known London amateur cyclist, and holds the southern road twenty-four hour record. The new record was accomplished on a bicycle fitted with the new Sturmeley-Archer "tricoaster" combination three-speed gear and coaster hub. Robins attributes his success to this happy combination."

A well-known cycle agent writes concerning the Tricoaster: "I have fitted twelve or thirteen of your tricoaster hubs so far this season. Several have been tested on the Derbyshire hills, and not one of them has been returned for a single adjustment of any kind. My opinion is they are **absolutely perfect and "fool-proof."** I have taken several two- and three-speeds of other makes out of cycles to replace with the tricoaster to their owners' utmost satisfaction. I can honestly say Sturmeley-Archer gears save my temper, time and money."—(Signed), W. HAYWARD, Sheffield. March 30th, 1908.

"I obtained a wheel fitted with the new Tricoaster hub on December 12th. Since then it has done over 600 miles of riding over all kinds of roads, and every day, wet or fine, with a twelve stone rider. It has given complete satisfaction. The old Sturmeley-Archer gear which I have in regular use has done 18,000 miles altogether, it having been in four different singles and a tandem, and still shows no signs of wear."—J. R. A., Fairfax St., York. 15/1/08.

"The Tricoaster fitted last November I have ridden about 500 miles, and have not had the slightest trouble. Many hills about here are fairly steep, but have had no occasion to use any other brake than the one contained in the hub."—C. W. K., Hove, Sussex. April 27th, 1908.

We have received many other letters from delighted users of the Tricoaster, who, whilst enjoying the Sturmeley-Archer Three-Speed, also desired a back-peddalling brake in the hub. Our Tricoaster has fulfilled all their requirements.

Over the Alps.

A WONDERFUL HILL-CLIMBING TEST.

After months of notice to all the makers in the world, the Touring Club of France—the greatest of Clubs, having over 100,000 members—organised in August, 1905, the greatest moun-

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THE UNEQUALLED STURMEY-ARCHER SPEED 3-GEAR

tain Climbing Contest ever held, the cyclists competing having to ride every foot of 149 miles, half climbing, being four times over three mountains in the Alps near Chambéry, within 28½ hours. The total height climbed was 26,142 feet, or nearly five miles, the average gradient for 74½ miles uphill, being 1 in 15! and portions being 1 in 7!!! The highest award to an English machine was that given to the one fitted with our gear. The official report: The "Rapport Général" of the Touring Club de France, says: "Examination of the mechanism of the SturmeY-Archer Three-Speed Gear has not shown any signs of wear on the teeth. The changing arrangement on the handle-bar is very simple and very easy to manipulate." Surely there can be no greater test of a variable gear than the above. No other British three-speed gear has undergone such a hard test.



Silver Medal awarded to the SturmeY-Archer 3-Speed Gear by the Touring Club of France.

Riders tell their Experiences.

Every week we receive a number of letters, unsolicited, from enthusiastic riders who have realised the joys and benefits derived from using a SturmeY-Archer Three-Speed Gear. We can only reproduce a few of the most interesting and striking examples. They come from all parts of the country and from all sorts and conditions of riders, many of them famous expert cyclists. It will thus be seen that all our claims are fully substantiated.

There is nothing "just as good" as the SturmeY-Archer:

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45,000 MILES.

THE ROVER CO., LTD., to whom we have supplied many thousands of Sturmey-Archer gears, received the following letter from one of their customers: "I have ridden one of your "Royal" Rover cycles for years. For two years it had particularly hard wear, having been a mount in the 26th Middlesex V.R.C. It has covered 45,000 miles with no sign of wear. It is fitted with the Sturmey-Archer original speed gear, **which runs as well as when new** and has never given one moment's trouble. The bearings are a picture to look at."—Weybridge, February 8, 1908.

30,000 MILES.

DR. W. A. GRIFFITHS, M.R.C.S., writes: "I have ridden with your hub for the last four years, and I am pleased to say have never had a moment's trouble in some 30,000 miles."

25,000 MILES.

"I bought a three-speed machine three years ago. Since that time it has been ridden upwards of 25,000 miles, and I have not had to put a spanner to the three-speed hub, which runs as well to-day as when it was first used."—E. A. ROBERTS, Swansea.

20,000 MILES.

The Editor of *Bicycling News* says: "As riders of the Sturmey-Archer for four years, and after 20,000 miles on it over all sorts of roads, we have pleasure in saying that the gear has not only been extremely satisfactory as far as its mechanism is concerned, but that it is a luxury and a labour-saver in touring."

The following testimony to the excellent wearing properties of the Sturmey-Archer gear is interesting: "**Six years ago next Easter** I bought a bicycle fitted with the Sturmey-Archer three-speed gear. This was when it was first brought out, and I have never had a moment's trouble with it. I sold the machine quite recently, and the three-speed gear appears to be running as well as ever. I must have cycled at least 15,000 miles with it, and considering it was one of the first hubs (No. 598) I think it speaks volumes for the workmanship and quality of this wonderful gear.—(Signed), L. TURNER."

BARON ALVERSTONE, Lord Chief Justice of England, and formerly a famous University athlete, writes respecting our gear: "I have ridden it for nearly two years, and under all sorts of conditions, and find it thoroughly satisfactory in every way. Facility of **changing the gear instantaneously without removing the hand from the handle-bar** is a great advantage, and the power to change the gear adds materially to the speed and distance travelled, **increasing my pace at least two miles per hour**, and it seems to me that a better rider would gain still more."

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The REV. R. THOMAS, of Exmouth, writes: "I am now using it (the Sturmeley-Archer) with great pleasure. It is certainly the greatest boon ever given to cyclists."

A. W. RUMNEY, Esq., of Keswick, Tourist Editor of *Cycling*, and now Editor of the *C.T.C. Gazette*, has favourably referred to his experiences with our gear in a number of articles, from which the following is a short extract:

"I consider this valuable gear with its automatic free wheel the most important improvement in the tourist's cycle since the introduction of the free wheel: not merely in hilly districts is its advantage found, but whenever the wind blows."

F. T. BIDLAKE, Esq., the famous Cyclist and former Record-breaker, writes: "I am particularly impressed afresh with a Sturmeley-Archer Gear. It is a very marked advance on the two-speed, not only in respect of the wider range of choice, but in the smoothness of running and the easy transition from one gear to either of the others."

"Itinerant," in *Bicycling News*, says: "After some thousands of miles I still think the Sturmeley-Archer Three-Speed Gear to be the *beau ideal* for a touring cyclist."

"The Bear," of *Scottish Cyclist*, says: "A three-speed gear is a step further towards pleasure and physical economy than the two-speed, and experience on a three-speed gear like the Sturmeley-Archer puts you somewhat out of conceit with the duplex gear."

On February 22nd, replying to a correspondent, he adds:

"... as the situation stands, I am a three-speed merchant, if you haven't got a variable speed gear I would strongly urge you to get one."

MALCOLM R. MELDRUM, Esq., Brentwood, Lymm, writes: "I took the gear to pieces last week and found after twelve months' riding, and 7,000 miles, absolutely no sign of wear, and the whole thing is still as before, eminently satisfactory."

"The Owl," of *Cycling*, March 15th, 1905, states: "If there are any readers of *Cycling* who still think variable gears want trying a little longer before they adopt them, I should like to show them my Sturmeley-Archer hub. It runs as sweetly now as when, some twelve months ago, I purchased the machine fitted with this gear, and the 6,060 odd miles, or, in round figures, 5,000,000 revolutions, which the back wheel has completed, have apparently made less difference to its running than any single geared hub I

There is nothing "just as good" as the Sturmeley-Archer:

THE UNEQUALLED STURMEY-ARCHER SPEED GEAR

have used. I have not had the slightest trouble with it, contrary to the expectation of most cyclists who have never tried a variable gear. There is another point I wish to drive home—that of friction. I am particularly sensitive to any slight additional friction in a machine. I can tell at once, even if it is enclosed in a gear case, if I am riding a machine with a new chain, or one that has been used a few hundred miles, and thus properly bedded down on the chain wheels. And any noticeable degree of friction in gearing up or down would be apparent to me. My Sturmeley-Archer hub runs just as silently on low or high gear as on the normal, and the extra friction must be a negligible quantity. Yet that is one of the chief arguments brought by non-users of variable gears against their adoption. To pleasure riding, no invention, save the pneumatic tyre, has contributed so much, and riders and trade alike now view the fitting of a variable gear as they do the free-wheel, that is, as part of the proper equipment of a bicycle. Certainly no other device has added so much to the joys of the open road."

What a Record-breaker says :

Mr. W. J. ROBINS, the well-known rider of the Southern C.C., writes: "You may be interested to know that I used a Sturmeley-Archer Three-Speed Gear on my 24 hours ride for the S.R.R.A. record, accomplishing 341 miles, as against the previous best of 326½, and that on the same machine the previous week I made fastest time in the Southern C.C.'s open 100 miles time trial." 26/7/07.

Remarkable Testimony.

Appreciation from riders of some famous three-speed cycles fitted with the Sturmeley-Archer gear:

ON A PREMIER CYCLE:—

"I found the running of the machine quite remarkable, quite a revelation. The machine had been sent to Penzance, and I rode it out here in the teeth of an easterly gale, which had been blowing for three days. I anticipated a tiring grind for eight miles on the low gear (59½). To my surprise and delight, however, I found I was forging against the wind with unprecedented ease, quite unlike any previous experience over the last twenty years. I was able to use the 71½ gear up all the low hills, the pedals falling away with absurd ease and a delightful sense to the feet of softness and velvety springiness. With the option of throwing in a low gear one does not want to pull at the bars with all one's strength."—F. C. R.

ON A RUDGE-WHITWORTH CYCLE:—

"I have at last had the opportunity of giving the cycle a fair trial, and am pleased to say it is quite satisfactory, and after about seven years' cycling I do not hesitate to say it is the best machine I was ever on. It runs beautifully. The Sturmeley-Archer three-speed is also splendid, a great boon to cyclists."—H. T. BETTANEY.

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ON A TRIUMPH CYCLE:—

Mr. SAMUEL WOOD, of Hanley, writes: "Since riding the three-speed geared Triumph cycle it has seemed to give me a new lease of life. I have now been cycling continuously in all weathers, both winter and summer, for over twenty-five years, and was thinking of purchasing a motor cycle this season. I am now pleased that I did not run the risk, the pleasures of cycling being so exceedingly increased by the use of the Sturmey-Archer mechanism."

ON A SWIFT CYCLE:—

Mr. S. PALFREYMAN, Harpurhey, Manchester, writes, January 21st, 1908: "Last season I sold a good many of your three-speed gear hubs on the strength of their well tried qualities. In addition I rode a 'Swift' fitted with your gear, and in every case (including my customers') they gave undoubted satisfaction without a single complaint."

ON A HUMBER CYCLE.

"I have been so pleased with the two Sturmey-Archer three-speed gears on my two Beeston Humber that I am thinking of having a very old favourite of mine converted too. The two above machines have now run just 17,000 miles, and I have absolutely had no trouble at all with them."—H. FREEMAN, Lucerne. April 19th, 1908.

ON A SINGER CYCLE.

"I am very pleased to say that the Sturmey-Archer three-speed gear has given me entire satisfaction. It was fitted on my Singer machine over four years ago, and except for an occasional and easily corrected slackening of the wire, has always worked, and is still working, without a hitch."—(Signed) ROBERT A. WIGRAM, Paddington, W. May 2nd, 1908.

C.T.C. Testimony.

"In reply to Mr. J. E. Gower, the Sturmey-Archer Three-Speed Gear can be successfully fitted to a spring frame bicycle, and mine is a great success."—"TYKE," in *C.T.C. Gazette*, January, 1905.

Professor ARCHIBALD SHARP, B.Sc., Wh.Sc., A.M.I.C.E., etc., in his special article for the Cyclists' Touring Club *Gazette*, January, 1906, says: "The Sturmey-Archer still retains pride of place among the three-speed gears. It has been giving satisfaction to thousands of riders since its introduction."

There is nothing "just as good" as the Sturmey-Archer:

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"Last year I bought a cycle, and after riding about 1,000 miles had a SturmeY-ArchEr Three-Speed fitted, with the result that my score for the year was 4,714 miles. I rode from London to Grasmere without walking one hill in four days, with 15-lbs. of luggage. I found the gear quite satisfactory."

—BELLOWS-TO-MEND.

A great number of other letters from members of the C.T.C. have appeared in the Club's *Gazette*. The Secretary, Editor, and Assistant Secretary also ride it and have strongly recommended it in the Answers to Correspondents.

HAROLD FREEMAN, Esq., formerly a noted Oxford University athlete, has toured more than any cyclist during the last eleven years, covering 142,352 miles, as detailed in *Cycling* of January 24th, 1906, although he has spent all his winters from December to March skating, tobogganning, etc., in Switzerland. *Cycling* says:

"Mr. Freeman experimented with a SturmeY-ArchEr Three-Speed Gear last year, and he speaks in very high terms of its efficiency. 'I hardly like to say,' he writes us, 'that it has added one mile per hour to my pace, but it is pretty nearly that.'"

DR. W. C. WELLS, in *Cycling*, states: "It enables me to ride hills that I could not tackle before, go further afield, and travel faster without being fatigued. I find the changing the gears as easy as applying the brake. The free-wheel runs very easy, so much so that I am able to pass my friend who has an ordinary free wheel and hub."

"Starcher," in *Cycling*, says: "I should like to add my experience of change-speed gears to the others you are publishing. Three seasons ago I used a two-speed gear, but did not care for it much, it was either too high or too low. I am now using a machine with SturmeY-ArchEr Three-Speed Gear, and the difference the combination makes in ease and comfort in cycling is a revelation. My gears are 64, 81 and 101. I was very thankful to have the 64 and a 9-in. crank at times when shoving against the gale at Easter. The gear works admirably, and I use the changes frequently. The great thing is to keep up a steady rate of pedalling and not try to pedal faster when the pace falls through dropping a lower gear in."

REV. A. DACRES PATTERSON, Lymington, writes: "I have tried nearly all the speed gears on the market, but the SturmeY-ArchEr three-speed is far and away ahead of any of them for simplicity and comfort."

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ALFRED F. BIRD, Esq., of Tudor Grange, Solihull, Warwickshire, writes: "Your gear **has added quite a new pleasure** and sensation to cycling, and I think must ultimately become an indispensable adjunct to every bicycle."

H. A. PALEY, Esq., of Castle Park, Lancaster, writes: "I think the SturmeY-ArchEr Three-Speed Gear is excellent, as I ride about 15½ stone and have done certainly **over 7,000 miles** on it during the last two years."

We have received a very long interesting letter from a stranger to us—Mr. GEORGE R. BROADBENT, Official Handicapper of the League of Victoria Wheelmen, Melbourne, Australia, who writes to say that he has during the last 6½ years ridden all kinds of variable gears, but has **found nothing to equal the SturmeY-ArchEr**. His letter says:

"You will perhaps be interested to learn of the progress of the three-speed hub in this land, and **after nearly 5,000 miles of hard riding with one over our very rough Australian roads**, I can say it has given me unbounded satisfaction."

From a rider over 70 years of age.

"Three years ago I gave up cycling, but in March last year I was induced to invest in a — bicycle with the SturmeY-ArchEr Three-Speed Gear, and although I had never previously ridden a free wheel, I quickly mastered the machine, and within four days of my purchase started off for a long cycle tour in France, where, with my luggage, I covered 516 miles in eleven days, besides doing lots of sight-seeing each day on foot.

"Since then I have ridden a good deal in England and abroad, covering a total of seventeen hundred miles without having a moment's trouble (beyond a few punctures) with the machine or the gear. **The pleasure of cycling with such a combination has again given me the joys that I thought were for youth alone**, for I am no chicken, being in my seventy-first year and weighing 13½ stones.

"W. BRYAN.

"Fleet Engineer, R.N. (Retired)."

An up-to-date cycle agent writes:

Lower Clapton Rd., N.E.,

January 27th, 1908.

"We take this opportunity of informing you that during the last two years we have fitted and sold cycles fitted with your hub (SturmeY-ArchEr) to the amount of over 70, and have not had the slightest trouble with any of them.

"We write thus because it is more than can be said of many of the three-speed gears that are on the market."

There is nothing "just as good" as the SturmeY-ArchEr:



As Fitted to Tandems.

(NOTE.—This is precisely the same gear as fitted to Singles.)

F. G. BINNING, Esq., Southampton, writes: "The hub in my tandem has given the utmost satisfaction; in fact, the whole of last season it did not require the least adjustment or attention."

F. C. STONATE, Esq., of Stafford, writes: "With reference to the Sturmey-Archer Three-Speed on tandem, I am more than satisfied with it, and would never buy a cycle without it again; it is so simple, and always at hand, and although we have played with it, being a new toy so to speak, it is just as it left your works—perfect. We can do 50 to 60 with it, whereas 30 to 40 miles without it required as much work."

R. L. KNIPE, Esq., of Skerries Road, Liverpool, wrote to us: "You may have noticed the report in *Cycling* of our Tandem Record Edinburgh-York. This was done on the same three-speed gear which I have had in use for three seasons, and is acting now even better than at first."

The Editor of *The Cyclist* states: We had our trusty tandem fitted with the Sturmey-Archer Three-Speed Gear, and we are extremely pleased with the result. We were inclined to think before we tried it that it would not be a great advantage, because, etc., etc., but it turns out to be a very great acquisition, etc., etc."

"From the Editor's Chair" of the *Irish Cyclist*: "I had an object lesson on Saturday as to the advantages of a variable speed gear. We had struggled down to Gorey on a (Sturmey-Archer) Three-Speed Tandem in the teeth of a half gale, and in torrents of rain, but the low gear of 54 inches enabled us to climb the hills without undue effort, while the normal of 72 inches proved just right for the level and moderate inclines."

R. L. KNIPE, Esq., of the Anfield B.C., writes: "The three-speed gear came extremely well through a very severe test on Saturday last. The occasion was the Anfield B.C.'s Chester to Holyhead and back Handicap (192½ miles of extremely hilly road). Mr. Irving and I started from ten minutes behind scratch on my tandem fitted with the three-speed gear, and succeeded in doing the double journey in 13 hours 22 minutes, securing second place in the handicap, and taking 51 minutes out of the winner, in spite of heavy roads and a couple of bad spills in the grease. We found the gear of immense service to us in negotiating such an up and down course."

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TABLE OF GEARS (Approx.) 28-in Wheels.

No. of Teeth on Chain Wheel.		1-in. Pitch.			No. of Teeth on Gear Wheel.		1-in. Pitch.		
	on Cog.	Low.	Nor.	High.		on Cog.	Low.	Nor.	High.
40	16	53	70	91	32	14	49	64	84
40	18	47	62	81	32	15	46	60	79
40	20	42	56	73	...	...	...	...	...
42	16	56	73	96	34	14	52	68	89
42	18	49	65	85	34	15	48	63	82
42	20	44	58	77	...	...	...	...	...
44	16	58	77	101	36	14	54	72	94
44	18	52	68	90	36	15	51	67	88
44	20	47	61	80	...	...	...	...	...
46	16	61	80	105	38	14	58	76	100
46	18	54	71	94	38	15	54	71	94
46	20	49	64	84	...	...	...	...	...
48	16	64	84	110	40	14	61	80	105
48	18	56	74	98	40	15	57	74	98
48	20	51	67	88	...	...	...	...	...
50	16	66	87	114	42	14	64	84	110
50	18	59	77	102	42	15	59	78	103
50	20	53	70	91	...	...	...	...	...
52	16	69	91	119	44	14	67	88	115
52	18	61	81	106	44	15	62	82	107
52	20	55	73	95	...	...	...	...	...
56	16	74	98	128	46	14	70	92	121
56	18	66	87	114	46	15	65	86	113
56	20	59	78	103	...	...	...	...	...
60	16	80	105	138	48	14	73	96	126
60	18	71	93	122	48	15	68	89	116
60	20	64	84	110	...	...	...	...	...

26-in Wheel (18 Toothed Cog).

Teeth on Gear Wheel.	Low.	Med.	High.
40	44	57'8	75'8
42	46'2	60'6	79'5
44	48'4	63'5	83'3
46	50'6	66'4	87'1
48	52'8	69'3	90'9
50	54'9	72'1	94'7
52	57'2	75'1	98'5
54	59'4	78	102'3
56	61'6	80'8	106'0
60	66'0	86'8	113'6

There is nothing "just as good" as the SturmeY-Archer

ORDER FORM.

To
STURMEY-ARCHER GEARS,
LTD.,
FARADAY ROAD,
LENTON, NOTTINGHAM.

Please supplyhub to the following dimensions,
remittance..... enclosed.

(State whether ordinary 3-Speed or "Tricoaster.")

Chain Line

Pitch of Chain

Width of Chain

Size of Frame

Lady's or Gentleman's Machine

Diamond, Cross or Curved

Width between Back Forks

Total Width outside Back Forks

(including stays, etc.)

Size of Frame Top Tube carrying Fulcrum Clip

Diameter of Handle Bar

State whether changing Mechanism is required for
Handle Bar or Top Tube.

Date

Signature

Address



Christine Watts says (letter 25.2.38)
that "original owner dated as 1908"