

TRIVELOX

3 SPEED GEAR



Speed with

Ease.

Compliments to

TRIVELOX

3-SPEED GEAR

PERTH

"The all round good performance of my Tri-Velox 3 speed gear has been the cause of quite a few other satisfied Tri-Velox users in this locality and I shall be more than ever pleased to recommend your product when and where I can."

LEITH

"I herewith acknowledge receipt of your letter of the 28th May. I received the jockey sprocket swivel arm and have duly fitted same and I wish to thank you for your promptness in replying to my query."

MANCHESTER

"I am returning one of the clips you sent me as I find the other quite suitable and am pleased to say have just had a try out; I am quite pleased and think it a wonderful improvement on your 1935 model which I have just finished with."

LEEK

"I received the parts on the 24th June and having tried them out find they run perfectly. Thanking you for sending them free and also for the prompt delivery."

SHREWSBURY

"What I particularly noticed was the easiness of the change of gear and the absence of any friction."

ROYSTON

"This is the first machine I have had with Derailleur Gear, but I have tried one with this type made by another well-known firm, and I find your Gear superior for ease of changing."

WITHAM

"I would like to say that my Gear is now working splendidly and in order to show how keen I am on this Gear I have just bought a tandem fitted with it."

LONDON

"With regard to the repairs you carried out on Saturday, 25th April, to Tri-Velox Gears on Dawes tandem, I would like to report that I have given them a thorough test and they are running with complete satisfaction in all three Gears."

THE BEST GEAR YET

SO SAYS C.S.M. OF LONDON IN A LETTER DATED 31st JULY, 1937

43,383 MILES IN 1 YEAR

by

Walter Greaves

Such is the remarkable record set up by Walter Greaves—a record that can never be beaten because as you know Walter has the decided disadvantage of **ONLY HAVING ONE ARM**. He came to us when preparing for his great ride and a **TriVelox** was fitted to his machine. During his wonderful ride when he encountered all sorts of weather conditions, only two chains were used and two sets of sprockets—says something for the **TriVelox** Gear, doesn't it? He used gears of 85-74-69. His greatest distance in one day was over 231 miles.



GEAR RATIO TABLE

The range of sprocket sizes available is included in the following gear ratio table:—

Sprockets			Chain Wheel 44T		Chain Wheel 46T		Chain Wheel 48T		Chain Wheel 52T	
High	Middle	Low	Tyres		Tyres		Tyres		Tyres	
			26"	28"	26"	28"	26"	28"	26"	28"
12			95.3	103.0	99.7	107.0	104.0	112.0	113.0	121.0
13			88.0	94.8	92.0	99.0	96.0	103.0	104.0	112.0
14			81.7	88.0	85.5	92.0	89.2	96.1	96.6	104.0
15			76.2	82.1	79.7	85.8	83.2	89.6	90.1	97.0
16			71.5	77.0	74.7	80.5	78.0	84.0	84.5	91.0
17	17		67.3	72.5	70.3	75.7	73.4	79.1	79.5	85.6
18	18		63.5	68.4	66.5	71.6	69.3	74.7	75.1	80.8
	19		60.2	64.8	63.0	67.8	65.7	70.8	71.2	76.6
	20	20	57.2	61.6	59.8	64.4	62.4	67.2	67.6	72.8
	21	21	54.5	58.6	57.0	61.3	59.4	64.0	64.4	69.3
		22	52.0	56.0	54.3	58.5	56.7	61.1	61.5	66.2
		23	49.7	53.5	52.0	56.0	54.2	58.4	58.8	63.3
		24	47.7	51.3	49.8	53.6	52.0	56.0	56.8	60.7
		25	45.7	49.2	47.8	51.5	49.9	53.7	54.1	58.2
		26	44.0	47.4	46.0	49.6	48.0	51.7	52.0	56.0
		28	40.8	44.0	42.7	46.0	44.6	48.0	48.3	52.0

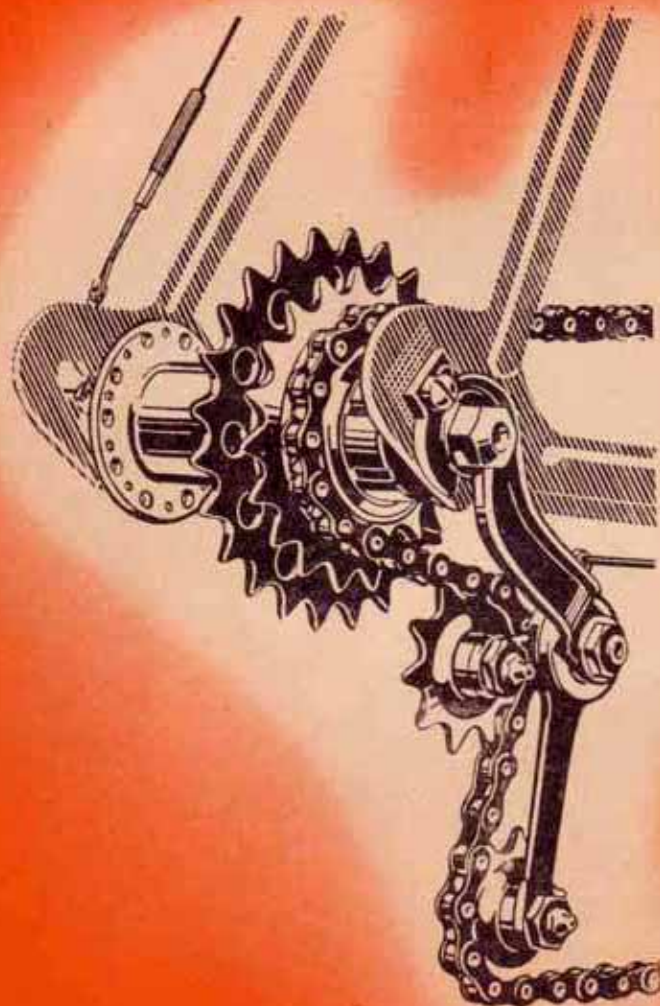
WHAT GEAR RATIO MEANS

If you have a 48 tooth chain wheel and a 16 tooth sprocket on a 26" rear wheel, you have 78.0 gear, which means that every time your chain wheel makes a complete revolution you cover as much ground as a wheel 78" in diameter would cover.

To find out what your gear is, divide the number of teeth in the chain wheel by the number of teeth in rear wheel sprocket and multiply the result by the diameter of the rear wheel, i.e., $48 \div 16 \times 26 = 78"$.

TRIVELOX

3-SPEED GEAR



Exactly the same gear as used by Walter Greaves on his record breaking ride. An ideal gear for use on all sporting and light tourist machines. When ordered with a new machine, may be fitted with our exclusive type of fork end, making a neat and compact job.

Sprocket sizes — see page 11.

SPECIAL NOTE.

Sprockets :—Each sprocket is removable and reversible. An outstanding **TriVelox** feature. You may, when a new chain is fitted, have the sprockets removed and reversed ; this allows the new chain to have a practically new pitch line to work on — we are proud to acknowledge the many letters of thanks from satisfied users on this particular feature.

MODEL A1 TRIVELOX

SOLO, LESS BRAKE

When fitted to an existing machine we prefer you have this done by an experienced cycle mechanic and we know then that you will be more than satisfied.

Complete Gear includes :—

- I Hub
- I Control Lever and Wire
- I Jockey Arm with Sprockets
- I Tension Spring.
- I Conversion Plate or Clip. (On Conversion Sets only).

Weight, including Hub and Controls : 2-lb. 14-oz.

Price **32/6**, or with complete Wheel **40/-**

All prices exclusive of fitting charges.



A special gear is supplied for tandem without Hub Brake fitted. This may be had with small or large flange.

Model A3 - 35/-, or with complete Wheel **42/6**

MODEL A 2 Solo with Hub Brake

As you will see from the illustration this model incorporates a fine internal expanding brake making a complete unit. This brake has proved successful over a long period and the gear side is exactly the same as in all other **TriVelox** "A" models. The illustration will at the same time give you a very clear impression of the gear control wire and we think you will agree that the whole assembly is very neat.

Complete Set includes :—

- | Hub and Brake combined
- | Brake Lever and Wire
- | Brake Clip for Chain Stay
- | Control Lever and Wire
- | Jockey Arm and Sprockets
- | Tension Spring
- | Conversion Plate or Clip (On Conversion models only).

Weight, including Hub and Brake Controls, 4-lb. 7-oz.

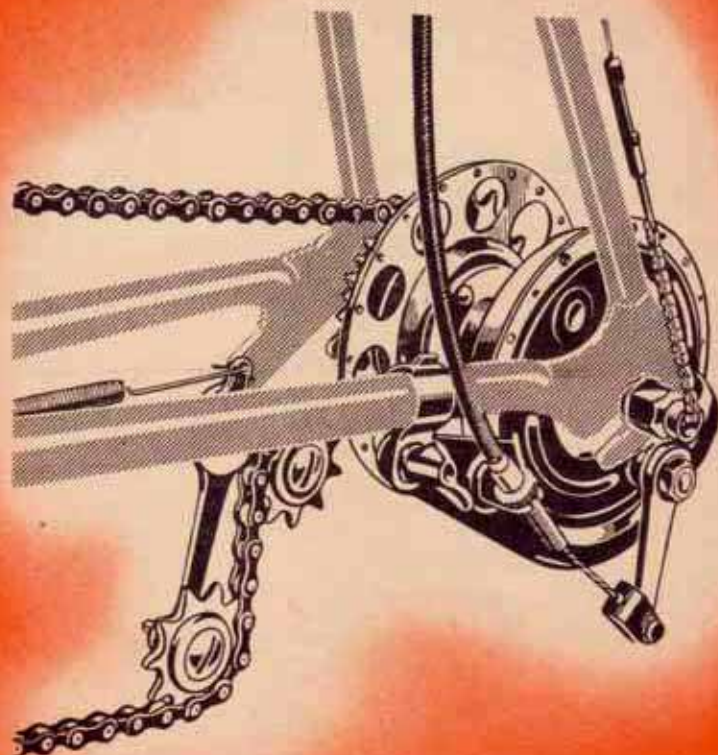
Price 43/-, or with complete Wheel 50/6

SPECIAL NOTES.

To remove **TriVelox** sprockets it is only necessary to hold the low gear sprockets with a chain cog remover and with another sprocket remover turn the top and middle gear sprockets in an anti clock-wise direction. The low gear sprocket is keyed on by a unique **TriVelox** method and will slip off quite easily. Well worth that little extra, isn't it?

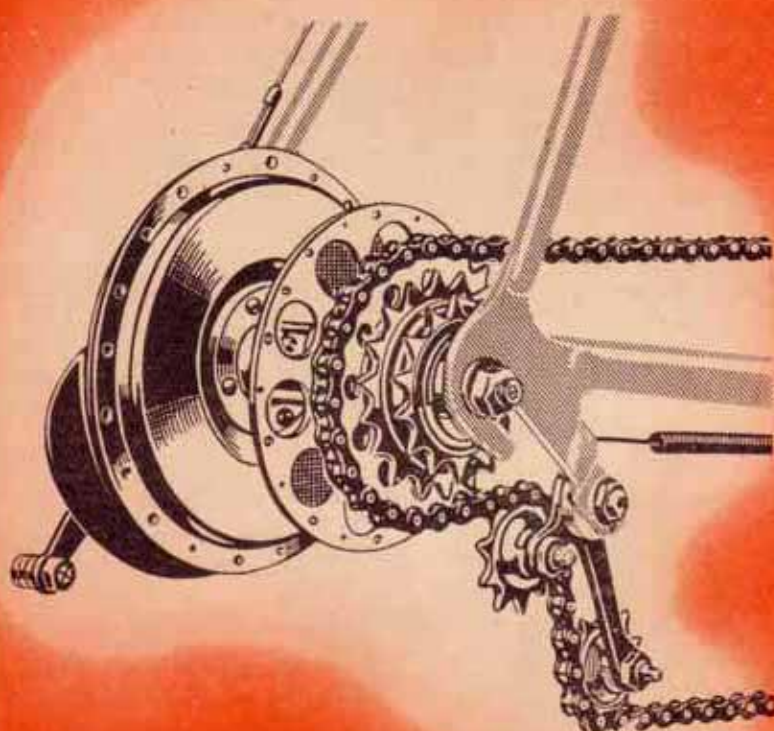


TRIVELOX — makes the
"going" easier.



TRIVELOX

3-SPEED GEAR



Probably the most popular of Gears fitted to tandems to-day — you will find it listed as standard on such machines made by Armstrong, B.S.A., Co-operative, Coventry-Eagle, J. Grose, Halford, James, Saxon, Sun, Sunbeam, Three Spires and Triumph. 90% of the finest cycle manufacturers can't be wrong, can they?

MODEL A 4

Notice the fine brake — ideal for the work called for on a two-seater — what a feeling of security. Again look at the illustration and we feel sure you will agree with the exclusive layout of the fork ends, exactly the same layout for solo or tandem. Notice too, the large flange on the Gear side as on Model A2, to give better wheel building balance.

Complete Set includes :—

- 1 Hub and Brake combined
- 1 Brake Lever, Rod and Cable
- 2 Brake Clips for rod and brake arm
- 1 Control Lever and Wire
- 1 Jockey Arm and Sprockets
- 1 Tension Spring
- 1 Conversion Plate or Clip (On conversion models only).

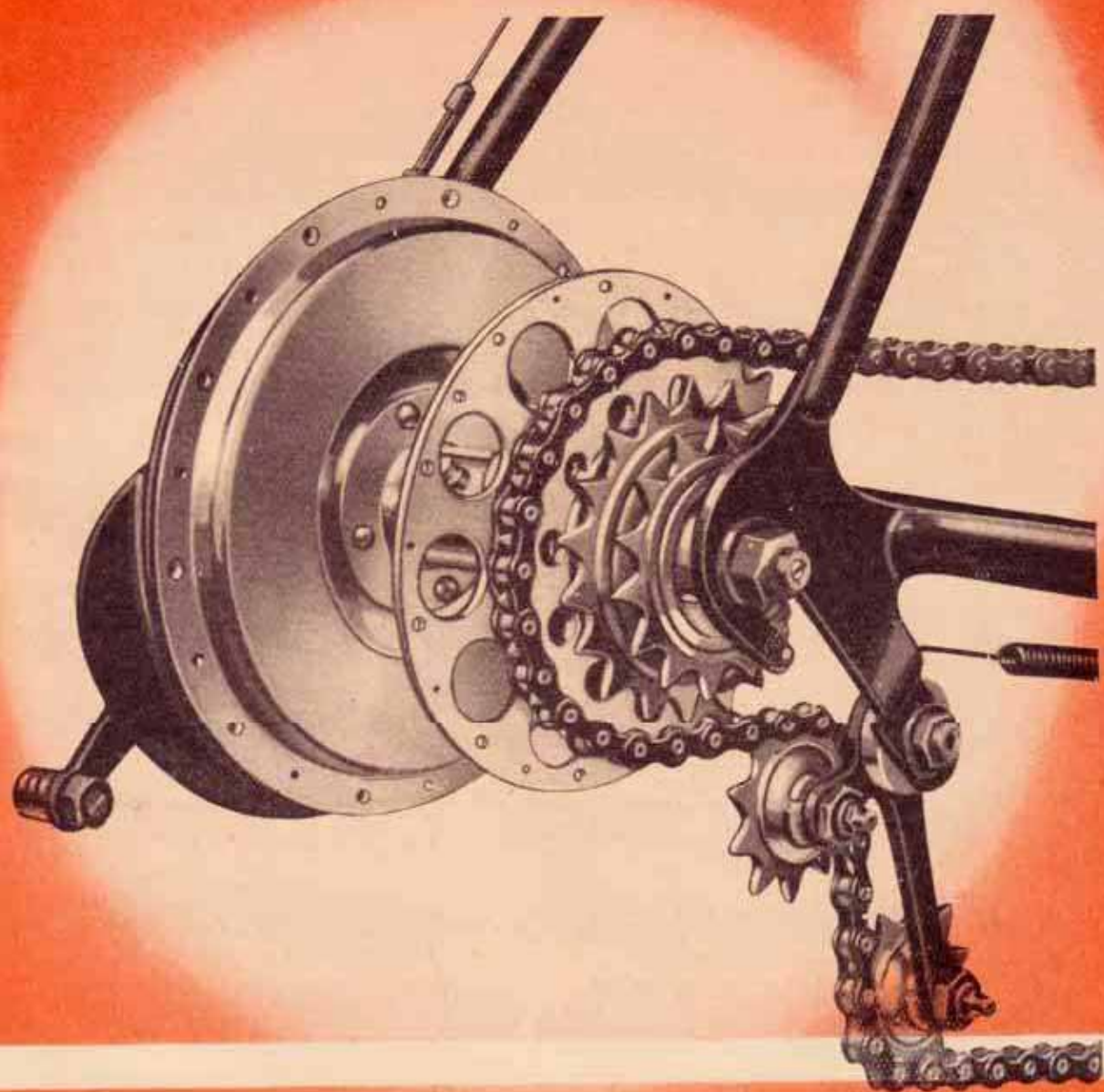
Weight, including Hub Brake, 5-lb. 8-oz.

Price 45/6, or with complete Wheel 53/-

**INSIST ON A TRIVELOX GEAR ON YOUR
NEXT SOLO OR TANDEM AND BE 'IN LINE'**

TRIVELOX

3 SPEED GEAR



The Sprockets Move

AN ENTIRELY NEW PRODUCTION



So many people have written to us, both dealers and actual users praising the TriVelox Gear and at the same time saying that in fairness to the TriVelox they thought that so many more people would like to be associated with the TriVelox products. Why couldn't we produce an ordinary Derailleur even if we sacrifice the TriVelox "always in line" principle—so we got to work—first the design—model after model was drawn and tried—months of testing and experimenting—and at last we were on the right track—the outcome of this is that we proudly present the TriVelox in two NEW forms—Model "B" and Model "C".

Model "B" is a complete hub and freewheel together with the control mechanism for changing gear, eminently suitable for fixing to a new machine with brazed on attachment or by means of conversion clips or plate to existing machines. Only two bearings are used in the hub, and bearings are right up to the end for strength and reliability. Sprockets follow the unique TriVelox practice of being easily detachable and interchangeable. The whole outfit weighs with hub complete 2-lb. 8-oz. — only 1-lb. 12-oz. in extra weight for a three speed gear. A multitude of sprockets available from 12–28 : what a range for you to choose from, as close as 12–13–14 for the racing lads or 16–21–28 for the mountaineers. The TriVelox "B" is controlled by a single wire and a quadrant with three definite stops to it, so that there is no feeling for gears. Just a flick of the lever and away you go.

SOME ADVANTAGES OF TRIVELOX B

A DEFINITE STOP FOR EVERY GEAR

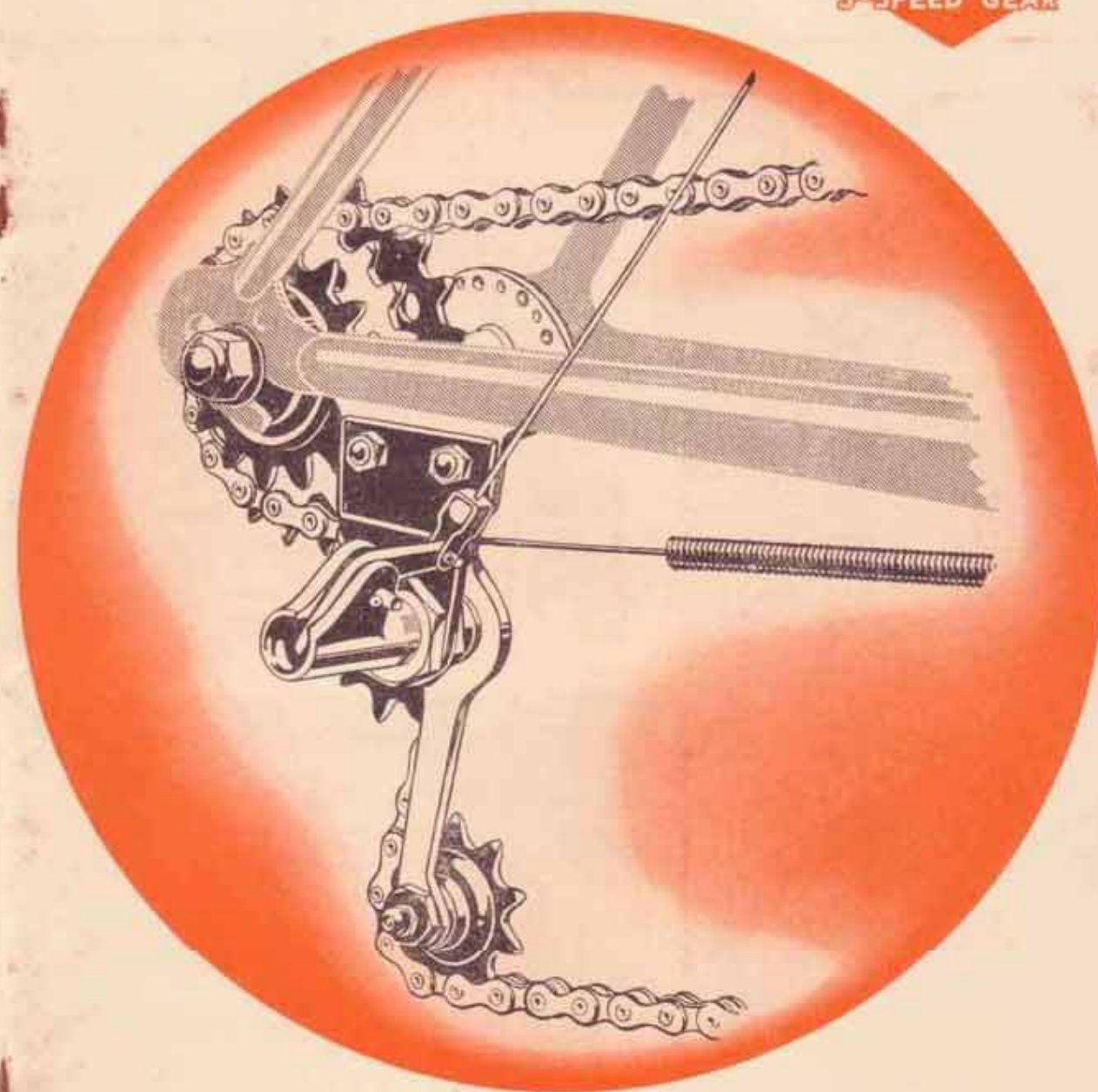
LIGHT IN WEIGHT

CLOSE OR WIDE RATIOS

QUICK AND EASILY CHANGED SPROCKETS

FORCED LUBRICATION TO ALL POINTS

DIRECT GEARS ON ALL RATIOS



Complete Set includes:—

- 1 Hub and Free Wheel combined.
- 1 Control System.
- 1 Control Quadrant and Wire.
- 1 Tension Spring.

Weight including Hub, 2 lb. 8 oz.

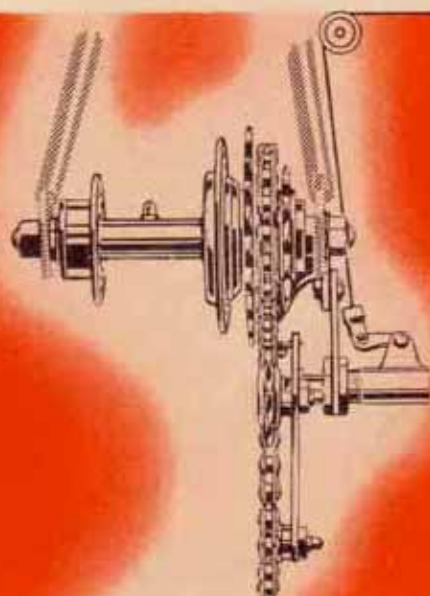
Price - - - **25/-**

With Hub Brake - **35/6**

Complete Wheels - **7/6 extra**

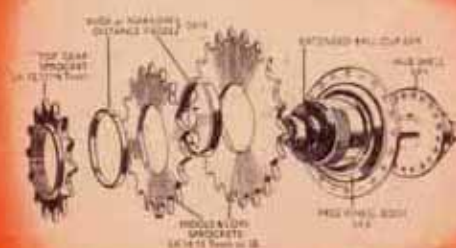
Any Rim supplied.

HOW IT OPERATES



The free wheel is built into the hub thus giving the designers the opportunity of offering a better free wheel with wider bearings and a range of sprockets from 12-16 Top and 13-28 middle and bottom. The gear changing mechanism is very simple. By means of a lever on the top tube through a celluloid covered cable running over a pulley the spring loaded jockey sprocket shaft is made to slide laterally by moving the bell crank through the Fulcrum, the correct movement being controlled by notches on the control quadrant.

Thus if the jockey system is upright when the lever is in the middle position, jockey sprockets should be in line with the middle gear sprocket on the hub. By moving the control lever backwards the shaft is moved by the pressure exerted and when the lever is moved forward the shaft is returned by spring pressure. No matter what pressure is on the pedals the gear should change quite easily.



IMPORTANT POINTS TO WATCH

1. Whole system is perfectly upright and parallel with the front chain wheel when in middle gear position.
2. Chain length. (See fitting instructions).
3. When changing from top to middle and middle to bottom, pull the lever a little further than the notch to be selected to get a quick and silent change. Provision is made on the control quadrant to ensure that this extra movement can be made.

TRIVELOX MODEL C

Exactly the same gear mechanism as Model "B" but supplied with a loose free wheel ready for screwing on to an existing hub. Has the advantage of detachable sprockets making it very easy to vary the ratios for different districts.

May be had for solo or tandem. When ordering state whether solo which is C1 or tandem C2, and size of sprockets.

Complete Set Includes :—

- I Free Wheel
- I Control System
- I Control Quadrant and Wire
- I Tension Spring

Please state whether conversion or brazed on pattern.

Price :	Model C1	22/6
	Model C2	25/-

Sprockets available on TriVelox Gears.

Model "A."

Top : 14, 15, 16, 17, 18.

Middle : 17, 18, 19, 20, 21.

Low : 19, 20, 21, 22, 23, 24, 25, 26.

Model "B."

Top : 12, 13, 14, 15, 16.

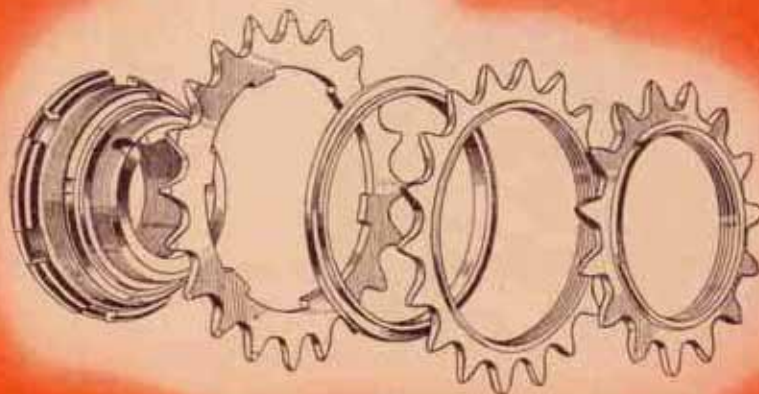
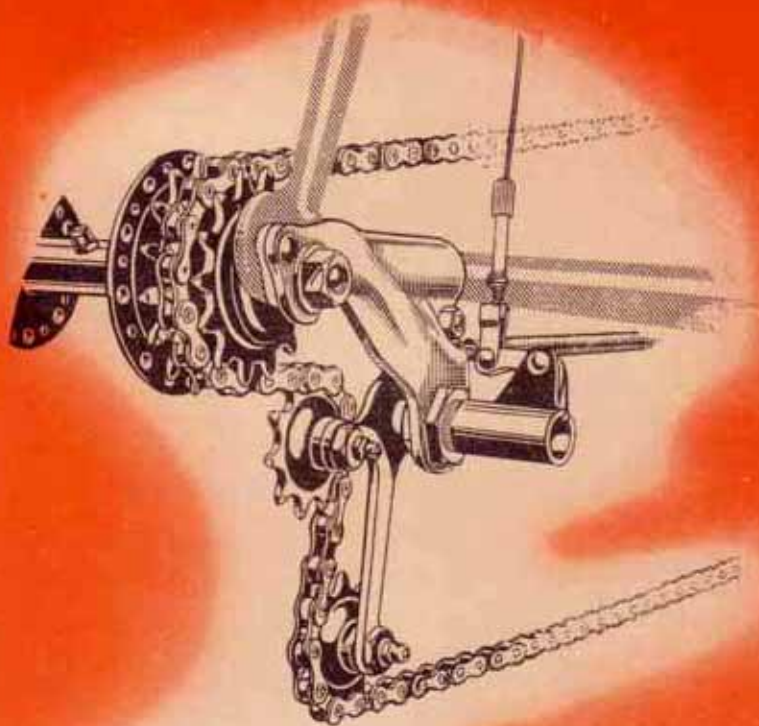
Middle and Bottom : 13, 14,

15, 16, 17, 18, 19, 20, 21,

22, 23, 24, 25, 26, 28.

Model "C."

All sprockets as Model "A."



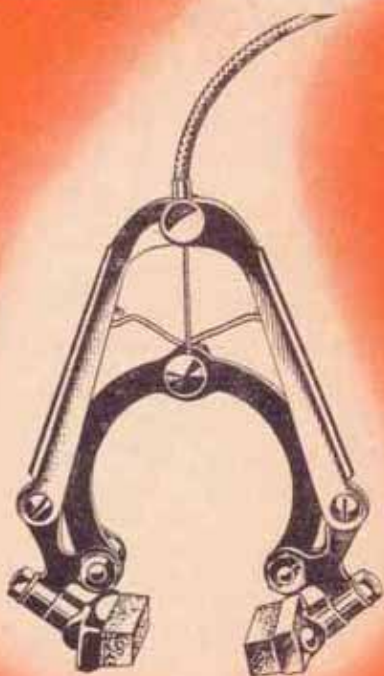
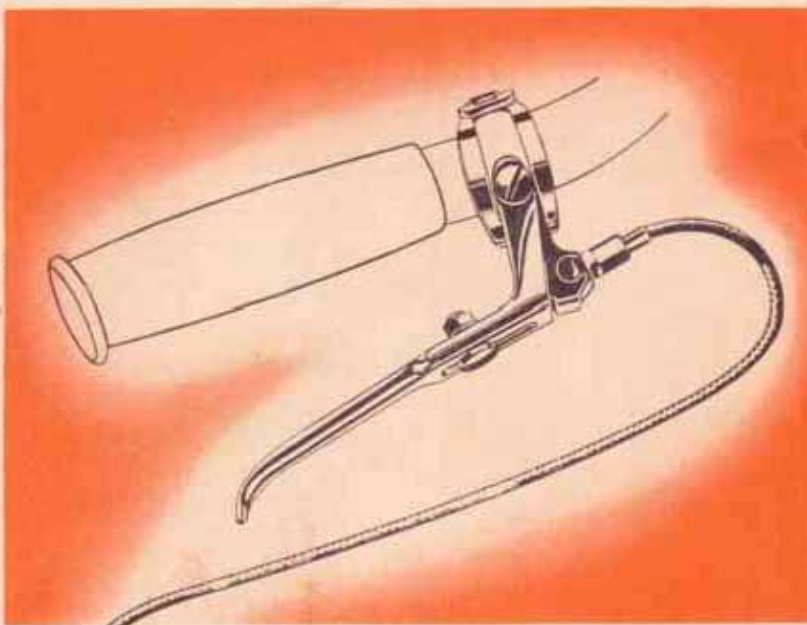
ANOTHER TRIVELOX PRODUCTION

THE “WHITMILL” BRAKE

Patent Nos. 435208, 412379, 412346.

The brake that is different—the Whitmill—brought into being by the insistent demands of the public—and a clever inventor—designed to give the maximum of leverage with the minimum of pressure—each brake shoe is adjusted independantly—fitting clips may be had to suit most size forks or seat stays and, there is no difficulty in fitting—the fitting clips being so designed to suit front forks or seat stays from 3" to 4" wide. No soldered nipples or rivetted joints are used in the manufacture—the whole assembly bristling with parts of first class design—and manufactured by a firm who

specialise in first class cycle productions. One more exclusive feature to convince you that this is the brake for you. The lever—covered by an independent patent enables you to adjust both the brake and the lever itself to the particular handlebar you use. Here then is the brake for you—you may have it fitted on your new machine or your dealer will supply you with them to suit your existing cycle.



WHEN ORDERING

state whether front or rear and what size front forks or chain stays.

Finish: Black gun metal with main parts chromium plated.

Price:

10/- Front or Rear.

FITTING INSTRUCTIONS

TRIVELOX MODEL A

1. Build the wheel with the hub and rim chosen. It is impossible to outline every size and type of rim available and size of spokes necessary but we give below specimen sizes ; other sizes can be worked out from these.

TRIVELOX SPOKE SIZES.

SOLO LESS BRAKE.

$1\frac{1}{2}$ " C.L.
13/15ga.
15/17ga. or 15ga. Plain.

26 x $1\frac{1}{4}$ " Rim.
 $11\frac{1}{4}$ " Gear Side x 4.
 $11\frac{1}{8}$ " Plain Side x 4.

SOLO WITH BRAKE.

$1\frac{1}{2}$ " C.L.
13/15ga.
13/15ga.

26 x $1\frac{1}{4}$ " Rim.
 $9\frac{7}{16}$ " Gear Side x 1.
 $10\frac{1}{8}$ " Brake Side x 3.

TANDEM LESS BRAKE.

$1\frac{3}{4}$ " C.L.
13/15ga.
15ga. Plain

26 x $1\frac{3}{8}$ " Rim.
 $11\frac{1}{8}$ " Gear Side x 4.
 $11\frac{1}{4}$ " Plain Side x 4.

TANDEM LESS BRAKE (Large Flange).

12 — 14g Single Butted.
14 — Plain.

26 x $1\frac{3}{8}$ " Rim.
 $9\frac{3}{8}$ " Gear Side x 1.
 $11\frac{1}{4}$ " Plain Side x 4.

TANDEM WITH BRAKE.

$1\frac{3}{4}$ " C.L.
12/14ga.
12/14ga.

26 x $1\frac{3}{8}$ " Rim.
 $9\frac{3}{8}$ " Gear Side x 1.
 $9\frac{3}{8}$ " Plain Side x 2.

Make sure that the rim is central over the cones and not flanges. This can be checked with the usual wheel builder's "wheel stick."

2. For conversion sets or new machines when fitted with standard fork ends. Remove the old wheel and set the frame to a width of $4\frac{1}{4}$ " for solo or $5\frac{3}{8}$ " for tandem. Make sure that in setting the frame that one side is not pulled more than the other and the fork ends are parallel and equidistant from the centre line of the machine.

3. Fit wheel to frame and then tighten the axle nut on the opposite side to the gear leaving the gear side nut off to have easy access with conversion plate.

4. Fit quadrant to top tube, fit buttress clip on seat stay and hook up wire to toggle chain extension (when single wire control is used fix pulley instead of buttress clip) and generally adjust wire so that the free wheel can be made to move laterally across the hub. To get correct position adjust wire so that when the quadrant lever is in the back notch the free wheel is just clearing the hub and spokes by about $\frac{1}{16}$ ". Test by pulling the lever to the back of the quadrant and notice the small movement of the free wheel towards the centre of the hub. By releasing the quadrant lever to each notch a movement of $\frac{1}{16}$ " should be made. In making sure that this movement is correct, the secret of fitting TriVelox "A" Model is ensured. You know that this movement is right and after fitting the jockey system correctly you will have no further trouble.

Continued overleaf

MODEL A, FITTING INSTRUCTIONS continued

5. Now fit the conversion plate and clamp it to the axle by means of the gear side axle nut, unscrew the nut in the centre of the jockey sprocket assembly and fasten to the plate, leaving the aluminium distance piece on the inside. The plate should be set to square it up and bring the jockey sprockets perfectly upright and parallel with the front chain wheel. The distance from the centre of the chain stay to centre of conversion plate hole (where the jockey sprocket pivot pin fastens) should be $1\frac{7}{8}"$. Lateral movement of this jockey system may be made by means of a washer behind the conversion plate and in front of the aluminium distance pieces.

6. Fit the **tension spring and clip**, this may need shortening according to length of chain stay used, and it must be shortened at the end that is clipped to the frame. Finally, fit the chain, which must be long enough to allow the Jockey Arm to be just behind the upright position when in Top gear, i.e., on the small sprocket. It is most essential that the **Guide Sprocket is as near to the top gear sprocket as possible and enough clearance maintained when the low gear sprocket is engaged**. This point is most important, because the ease of changing gears depends upon the Guide Sprocket being as close as possible to the main sprockets. **It is imperative that a new chain be used at the outset**. This will ensure correct meshing with sprocket teeth, easy and even running, and the longest possible life both of sprockets and chain.

Experience has shown that when a new chain is fitted it is sometimes apt to jump the sprockets when starting off. This is caused by undue stiffness of the rivetted joints. After a very short time in use the chain will gain sufficient slackness and the gear will operate perfectly even under a heavy load.

Check over the nuts and screws for tightness and finally adjust the cable so that the distance from the centre of the middle sprockets to the inside face of the fork end is $\frac{3}{4}"$ when the chain speed lever is in the middle position on the Quadrant.

Change gear only when pedalling in the direction of the drive. The pressure on the pedals should be momentarily relaxed and when this is done at the exact moment when the chain is taken up on the next cogs, and the drive taken up once again at just the right time, changing gear will be practically noiseless.

When changing from the high gear to middle on a small combination of sprockets, it may be necessary to let the lever go a little further than the notch, and after the gear has been selected, allow the lever to go back into the corresponding notch. This will help to make a quick and silent change.

Please note that **when the chain is on the low gear sprocket the control wire should be taut**, so that the main sprockets are not allowed to travel to the end of the Hub.

Finally, although these instructions have taken some time to read it need not be thought that the fitting of **TriVelox** Gears is a long and tedious job. Use a little patience and you will find it will amply repay you to have a gear that runs perfectly for long periods with the minimum of attention.

We strongly recommend that any of the well known Wakefield cycle oils are used to lubricate the chain, sprockets, hub and free wheel. **Under no circumstances should grease be used for the free wheel except for assembling after dismantling.**

FITTING INSTRUCTIONS MODEL B

Wheel Building :—Build the wheel with the Hub and Rim selected. We outline below two specimen wheels giving spoke sizes and gauges we recommend.

B1. Solo less brake.

26 x $1\frac{1}{4}$ " 11 $\frac{1}{4}$ " gear side, 11 $\frac{3}{8}$ " near side.

B2. Solo Hub Brake.

26 x $1\frac{1}{4}$ " 9 $\frac{7}{16}$ " gear side, 10 $\frac{3}{8}$ " brake side.

Be sure that the rim is central over the cones and not over flanges. This can be checked with the usual wheel builders' "wheel stick."

Remove old wheel and fit new Model "B" wheel into fork ends; next place conversion plate (new pattern which varies from one shown on page 11); this has elongated spindle hole so that it is adaptable to any angle of fork ends as well as rear pull out ends. See that when it is pressed up tightly against fork end that the support loop on forward end fits snugly against chain stay; this can be accomplished by increasing the offset as required. When conversion plate is properly fixed attach the jockey assembly by means of the two bolts supplied.

Assemble the control mechanism and fit wire to frame by means of control quadrant and pulley, and generally adjust wire until the correct tension is obtained. The wire should be just taut when the jockey sprockets are in the top gear position.

Now fit wheel into frame and get the correct alignment by means of the large hexagon nuts, always seeing that the whole of the jockey system is perfectly upright and parallel with the front chain wheel.

Make sure that the movement of the jockey system is correct by means of the quadrant lever and when this has been tried you may fit the chain and tension spring and with very slight adjustment the gear should run perfectly.

Chain Length :—It is important that it is long enough to allow the jockey arm to be well behind the upright position when in top gear, i.e., on the small sprocket.

It is most essential that the **Guide Sprocket is as near to the Top Gear Sprocket as possible and enough clearance maintained when the Low Gear Sprocket is engaged.** This point is most important, because the ease of changing Gears depends upon the Guide Sprocket being as close as possible to the main sprockets.

It is imperative that a new chain be used at the outset. This will ensure correct meshing with sprocket teeth, easy and even running, and the longest possible life both of sprockets and chain.

Experience has shown that when a new chain is fitted it is sometimes apt to jump the sprocket when starting off. This is caused by undue stiffness of the rivetted joints. After a very short time in use the chain will gain sufficient slackness and the gear will operate perfectly even under a heavy load.

When changing from the high gear to middle on a small combination of sprockets, it may be necessary to let the lever go a little further than the notch, and after the Gear has been selected, allow the lever to go back to the corresponding notch. This will help to make a quick and silent change.

We strongly recommend that any of the well known Wakefield cycle oils are used to lubricate the chain, sprockets, hub and free wheel. **Under no circumstances should grease be used for the free wheel except for assembling after dismantling.**

FITTING INSTRUCTIONS MODEL C

Instructions should be followed as outlined in **TriVelox Model "B"** except that instead of a new wheel the following notes should be followed:—

Remove the old wheel and dismantle the old free wheel or fixed cogs. Fit new free wheel with three sprockets on free wheel side of hub and if necessary fit longer spindle and cone to accommodate this to give sufficient clearance for chain when on top gear. We can supply a new spindle for 1/- complete with distance piece and lock nut. When this work is done continue to fit gear as outlined in Model "B."

GUARANTEE

TriVelox Gears Limited (hereinafter called "The Company") hereby guarantee that all precautions which are usual and reasonable have been taken to secure excellence of materials and workmanship in their products. This guarantee is applicable only to new products, and is to be in force for a period of twelve months only from the date when the goods were delivered new from the Company's Works.

The Company only holds itself responsible under this guarantee for the replacement or repair of any part or parts which may have proved defective. They will not be responsible for any expense which the purchaser may incur in removing or having removed, or in replacing or having replaced, any part or parts which may have proved defective, or in fitting or having fitted any new parts supplied in lieu thereof. The liability of the Company is limited to the replacement (free at the Company's Works) of any parts or parts found to be defective.

No guarantee is given in respect of alleged defects caused by wear and tear, accident, misuse or neglect.

The Company guarantee only products which are bought either direct from their Works, or from one of their Dealers.

CONDITIONS OF GUARANTEE

If a defective part should be found in our products, it should be sent to the Company, carriage paid and accompanied by an intimation from the sender that he requires to have it repaired or exchanged free of charge under our guarantee, and he must also furnish us at the same time with the name of the Dealer from whom he purchased, and the date of the purchase. Failing compliance with the above, no notice will be taken of anything which may arrive, but such article will lie here at the risk of the senders.

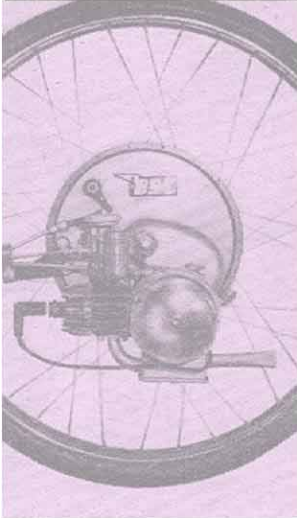
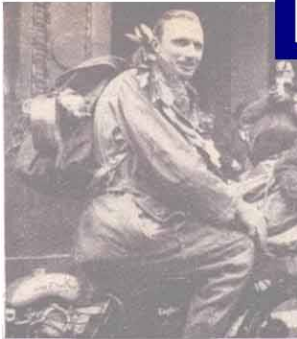
This guarantee is given in lieu and in exclusion of all other warranties, conditions and obligations imposed or implied by statute or otherwise, in respect of the Company's products, and no modification of the terms hereof is authorised, whether the purchaser at the time of purchase shall receive a copy of the Company's guarantee or not.

TRIVELOX GEARS LTD.
Priory Street - Coventry
Telephone 5730

London Address: 4, Highbury Place, Highbury Corner, London, N.5
Telephone No.: Cannonbury 2800

Liverpool Address: 2, Hardy Street, Great George Street, Liverpool, 1
Telephone No.: Royal 42

IceniCAM Information Service



www.icenicam.org.uk