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1st JANUARY, 1940.

NETT PRICE LIST •

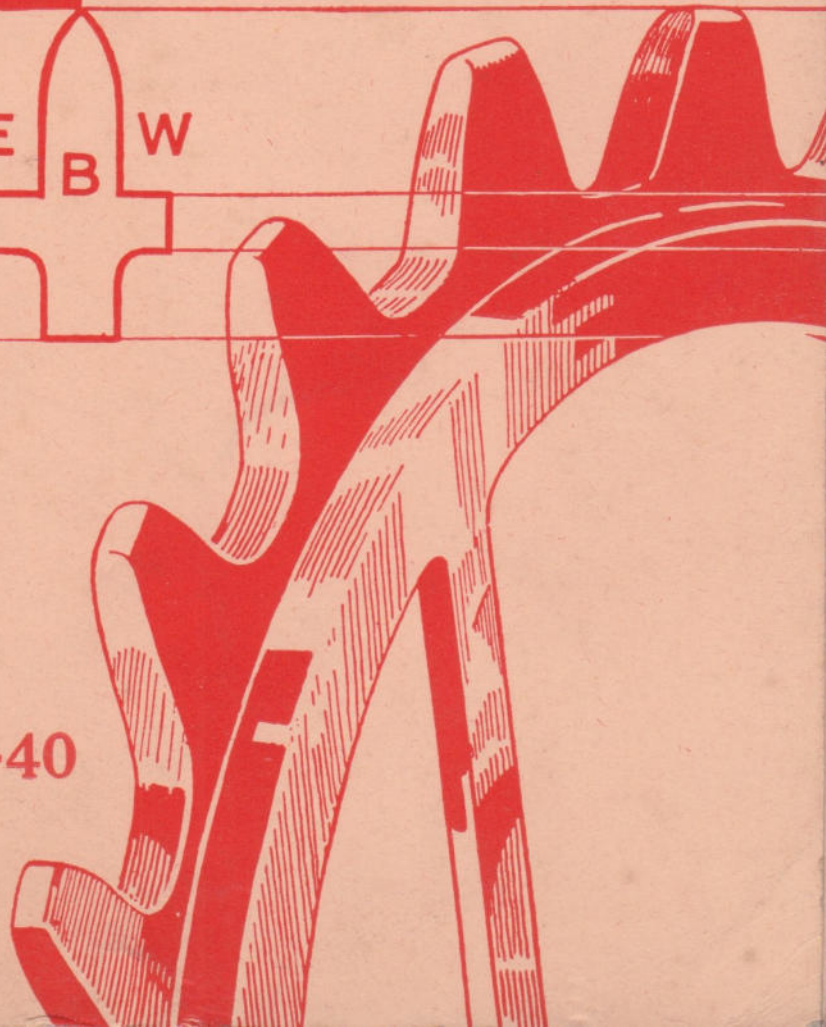
WILLIAMS

CHAIN WHEELS AND CRANKS

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E B W

SEASON 1939-40



ESTABLISHED 1840

Telegraphic Address—
"Sprockets, Birmingham."

Telephone—
1286 Smethwick (3 lines).

Codes—
A.B.C. (5th Edition), Tradergrams and Bentleys.

EDWARD WILLIAMS

Maker of
PATENT COLD FORGED STEEL CHAIN WHEELS,
CHAIN WHEELS and CRANKS,
TANDEM SETS.

WILLIAMS

Registered Trade Mark.



Registered Trade Mark.

BENSON WORKS,
Foundry Lane, BIRMINGHAM
ENGLAND.

ALL PRICES SHOWN IN THIS LIST ARE
SUBJECT TO :—

An Increase of $12\frac{1}{2}\%$

AND

An Increase of 1% on the Invoice value for every
1/- per week General District Rise in Male or Female
wages,

AND

For every **£1** (one pound) or part thereof National
Increase in the price of Steel an increase at the rate
of $\frac{3}{4}$ d. (three farthings) per set for all sizes up to 48T
 $\frac{1}{2}$ " pitch, and proportionally for larger sizes,

OR

Alteration without notice.

STANDARD CRANKS are reamed
.621in. dia. Axle Hole. .378in. dia.
Cotter Hole, and Pedal Hole .566in.
mean 20 thds. p. in 55° Angle.

When Ordering, please give the following particulars :

Number, Pitch and Width of Teeth.

Type of Fastening, i.e. F. (Fixed). B, (5-Pin).
C. (3-Pin).

Wheel Design Number.

Length of Cranks and if Gear Case Clearance or not.

TRADE TERMS.

Home Orders. Orders to the value of £10 lots and over
Carriage Paid.

Cases charged but credited if returned Carriage Paid
and in good condition.

Northern Ireland & Irish Free State.

Orders to the value of £10 lots and over
F.O.B. English Port. Cases extra.

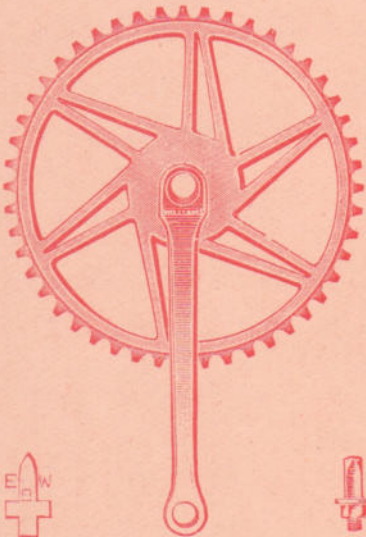
Export. Orders to the value of £10 lots and over F.O.B.
English Port. Cases extra.

Orders for Standard Sets sent with customer's labels to post
to their customers will be charged 15 per cent. extra on
standard prices plus postage.

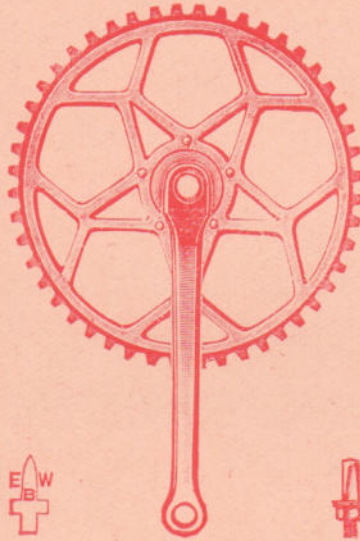
Cash Terms

For approved accounts, 2½% discount
if paid by the 10th of the month
following date of invoice.

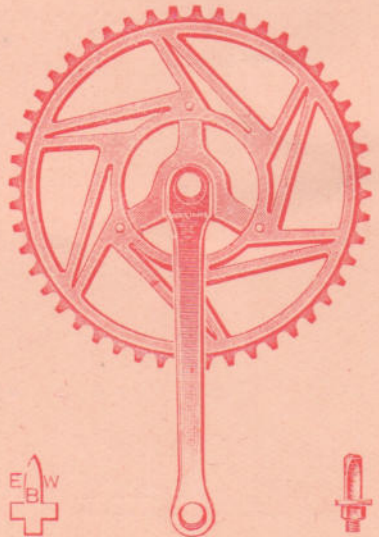
FLANGED SETS



F 27



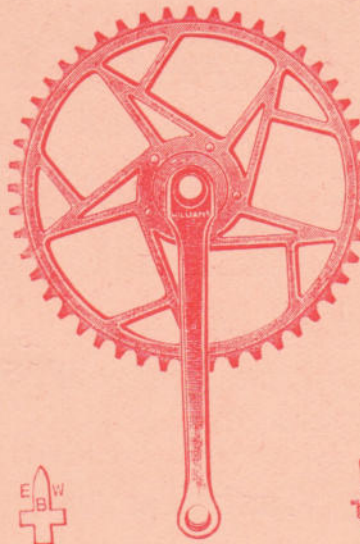
B 100



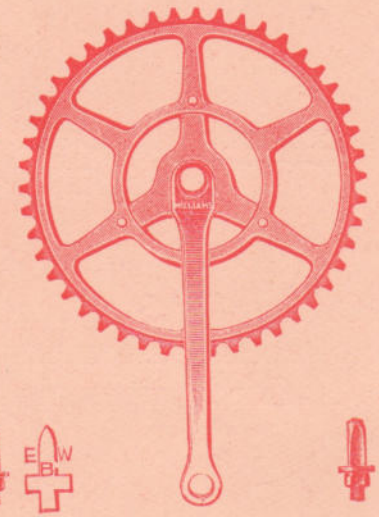
C 28



F 170



B 109



C 34

FLANGED SETS

A Standard **WILLIAMS** Flanged Set comprises a Patent Cold Forged Flanged Steel Chain Wheel, a pair of heat-treated Cranks with improved bevelled edges and two Cotters, polished, and well packed.

Standard Flanged Wheel Designs are F 27, F 170, B 100, B 109, C 28 and C 34. (See illustrations).

Standard Flanged Wheel Sizes are 44T, 46T, 48T and 52T, $\frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. or $\frac{3}{16}$ in. tooth.

Standard Crank Sizes are 6 $\frac{1}{2}$ in. and 7 in. Narrow (not gear case clearance) and 6 $\frac{1}{2}$ in. and 7 in. Wide (gear Case clearance).

Designs C28 and C34 are supplied without inside Flange.

Séries Type Courant
WILLIAMS, a rebord de
Chaîne.

Une Série Standard
WILLIAMS a reborde Chaîne
comprend une roue dentée en
acier à rebord de chaîne patentée
forgée à froid, une paire de
manivelles inflexibles à bords
bisautés, et deux calles, le
tout poli, nickelé et bien
emballé.

Les Modèles Type "Stan-
dard" à rebord sont, F 27,
F 170, B 100, B 109, C 28
et C 34.

Les Dimensions des roues
"Standard" à rebord sont,
44, 46, 48 et 52 dents, écarte-
ment des dents $\frac{1}{2}$ in., épaisseur
des dents $\frac{1}{8}$ in. ou $\frac{3}{16}$ in.

Les Dimensions des Mani-
velles Courantes sont, 6 $\frac{1}{2}$ in.
ou 7 in. de long Etroit (sans
écartement pour carter), 6 $\frac{1}{2}$ in.
ou 7 in. de long Déporté (avec
écartement pour carter).

WILLIAMS Standard

Garnituren mit Angewaltem
Rand.

Eine **WILLIAMS** Standard
Garnitur besteht aus einem
patentierten Stahlkettenrad mit
angewalztem Rand, einem Paar
gehaerteter Kurbeln mit
abgeschraegten Kanten und
zwei Kurbelkeilen, poliert,
vernickelt und gut verpackt.
Standard Dessins sind, F 27,
F 170, B 100, B 109, C 28
und C 34.

Standard Groessen, sind, 44,
46, 48 und 52 Zaehne, $\frac{1}{2}$ in.
Teilung \times $\frac{1}{8}$ in. oder $\frac{3}{16}$ in.
Zahndicke.

Standard Kurbelgroessen
sind 6 $\frac{1}{2}$ in. und 7 in. ohne
Spielraum fuer Kettenkasten,
und 6 $\frac{1}{2}$ in. und 7 in. mit
Spielraum fuer Kettenkasten.

Standard **WILLIAMS** Flanged

Modellen (Kettingweilen met
rand).

Een Standard **WILLIAMS**
Flanged Stel bestaat uit een
koud gesmeed stalen kettingwiel
met rand, een paar geharde
cranks met geslepen kanten en
twee crankspieën, gepolyst,
vernikkeld en goed verpakt.

Standard Flanged Modellen
zyn F 27, F 170, B 100, B 109,
C 28 en C 34.

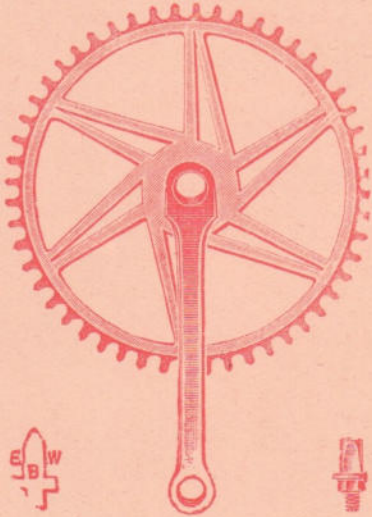
Standard Flanged Afme-
tingen zyn 44 T, 46 T, 48 T,
en 52 T, $\frac{1}{2}$ in. tanden, $\frac{1}{8}$ in.
of $\frac{3}{16}$ in. tanddikte.

Lengten van Standard
Cranks zyn 6 $\frac{1}{2}$ in. en 7 in.
(Zonder ruimte voor Ketting-
kast), 6 $\frac{1}{2}$ in. en 7 in. (Met
ruimte voor Kettingkast).

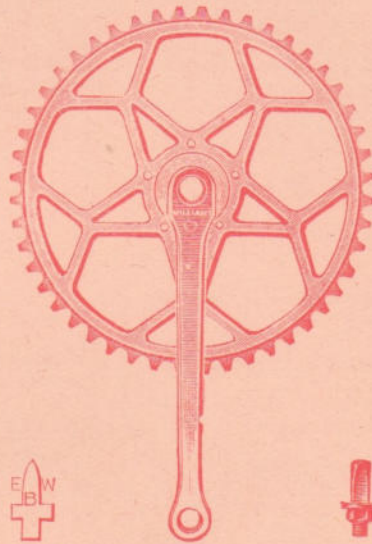
	Nickel Plated.	Black Enamelled.	Chromium Plated.
Fixed (F) Set complete ..	3/3	3/5	3/7
5-pin (B) Set complete ..	3/6	3/8	3/10
3-pin (C) Set complete ..	3/8	3/10	4/-
Fixed Wheel and R.H. Crank	2/-	2/2	2/4
5-pin " " "	2/4	2/6	2/8
3-pin " " "	2/9	2/11	3/1
Left Hand Cranks ..	1/2	1/3	1/4
5-pin Cranks ..	1/6	1/7	1/8
3-pin Cranks ..	1/10	1/11	2/-
Cotters, per gross ..	15/-	18/6	18/6
Screws, per gross ..	4/9	...	6/9
Extra per Fluted Crank ..	6d.	...	7d.

NOTE.—Double Fluted Cranks or Oval Cranks can be supplied if desired, but notice will be required for delivery.

CARRIER SETS



F 27



B 100

CARRIER SETS

A Standard **WILLIAMS** Carrier Set comprises a Patent Cold Forged Flanged Steel Chain Wheel, a pair of extra heavy Bevelled Edge Cranks and two Cotters.

Standard Carrier Wheel Designs are F27 B100. (See illustrations).

Standard Carrier Wheel Sizes are 40, 44 and 48 teeth, $\frac{1}{2}$ in. pitch, $\frac{3}{16}$ in. tooth.

Standard Carrier Crank Sizes are 6 $\frac{1}{2}$ in. and 7in. Narrow (not gear case clearance) and 6 $\frac{1}{2}$ in. and 7in. Wide (gear case clearance.)

Note : Carrier Cranks are 50% stronger than Standard Cycle Cranks.

Carrier Chain Wheels can also be supplied with $\frac{1}{4}$ in. thick teeth.

Séries Courantes **WILLIAMS** pour Cycles de livraison.

Une Série Courante **WILLIAMS** pour Bicyclette de Livraison comprend : Une roue dentée en acier à rebord de chaîne patentée forgée à froid, une paire de manivelles inflexibles à bords bisautés, et deux calles. Le tout poli, nickelé et bien emballé.

Les Modèles de Roues pour Bicyclettes de Livraison sont, F 27, B 100 (voir page ci-contre).

Les Dimensions des Roues sont, 40, 44 et 48 dents, écartés de $\frac{1}{2}$ " , épaisseur $\frac{3}{16}$ ".

Les Dimensions des Manivelles Courantes pour Cycles de Livraison sont, 6 $\frac{1}{2}$ " et 7" Etroit (sans écartement pour carter). 6 $\frac{1}{2}$ " et 7" Déporté (avec écartement pour carter).

N.B.—Les manivelles des garnitures pour cycles de livraison sont 50% plus fort que les manivelles des séries ordinaires.

WILLIAMS Standard Garnituren fuer Lastfahrraeder.

Eine Standard Garnitur fuer Lastfahrraeder besteht aus einem patentierten Stahlkettenrad mit angewalztem Rand, einem Paar extraschweren Kurbeln mit abgeschraegten Kanten, und zwei Kurbelkeilen, poliert, vernickelt und gut verpackt.

Standard Dessins sind, F 27, B 100 (siehe Abbildungen).

Standard Kettenradgroessen sind, 40, 44 und 48 Zaehne, $\frac{1}{2}$ " Teilung und $\frac{3}{16}$ " Zahn.

Standard Kurbelgroessen sind, 6 $\frac{1}{2}$ " und 7" ohne Spielraum fuer Kettenkasten und 6 $\frac{1}{2}$ " und 7" mit Spielraum fuer Kettenkasten.

Anmerkung.—Standard Kurbeln fuer Lastfahrraeder sind 50% staerker als diejenigen fuer gewoehnliche Fahrraeder.

Standard **WILLIAMS** Transport Modellen.

Een Standard **WILLIAMS** Transport Stel bestaat uit, een koud gesmeed stalen kettingwiel met rand, een paar extra zware cranks met geslepen rand en twee crankspeieën. Gepolyst, vernikkeld en goed verpakt.

Standard Transport Kettingwiel Modellen zyn, F 27, B 100 (zie nevenstaande bladz).

Standard Transport Kettingwiel Afmetingen zyn, 40 T, 44 T en 48 T, $\frac{1}{2}$ " tanden $\frac{3}{16}$ " tanddikte.

Lengten Standard Transport Cranks zyn, 6 $\frac{1}{2}$ " en 7" (Zonder Kettingkastruimte. 6 $\frac{1}{2}$ " en 7" (Met Kettingkastruimte).

Bemerking.—Standard Transport Cranks zyn 50% sterker dan standard rywiel cranks.

	Nickel Plated.	Black Enamelled.	Chromium Plated.
Fixed (F) Set complete ...	3/7	3/9	3/11
5-pin (B) Set complete ...	3/10	4/-	4/2
Fixed Wheel and R.H. Crank ...	2/2	2/4	2 6
5-pin Wheel and R.H. Crank ...	2/6	2/8	2/10
5-pin Right Hand Crank only ...	1/8	1/9	1/10
Left Hand Crank only ...	1/4	1/5	1/6
Carrier Cotters, per gross ...	16/-	19/6	19 6
Screws, per gross ...	4/9	...	6 9
Extra per Wheel or Set for $\frac{1}{4}$ in. width of tooth	1/-	...	1/-

WILLIAMS
E B W

WILLIAMS

WILLIAMS
E B W

JOGGLED SETS



F or B 85



WILLIAMS
E B W

WILLIAMS
E B W

JOGGLED SETS

A Standard **WILLIAMS Joggled Set** comprises "Joggled" Steel Chain Wheel, a pair of heat-treated Cranks with improved bevelled edges and two Cotters.

Standard Joggled Wheel Designs are F85 and B85 (see illustrations).

Standard Joggled Wheel Sizes 44T, 46T, 48T, and 52T, $\frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. tooth.

Standard Crank Sizes are $6\frac{1}{2}$ in. and 7in. Narrow (not gear case clearance) and $6\frac{1}{2}$ in. and 7in. Wide (gear case clearance.)

Séries WILLIAMS avec Roue. Embouties.

Une série Standard avec roue emboutie WILLIAMS comprend une roue dentée emboutie, une pair de manivelles inflexibles à bords bisautés, et deux calles, le tout poli, nickelé et bien emballé.

Les Modèles Type Standard à roue emboutie sont, F 85 et B 85 (Voir page opposée).

Les Dimensions des Roues Embouties sont, 44, 46, 48 et 52 dents. Ecartement des dents $\frac{1}{2}$ ". Epaisseur des dents $\frac{1}{8}$ ".

Les Dimensions des Manivelles Courantes sont : $6\frac{1}{2}$ " ou 7" de long Etroit (sans écartement pour carter). $6\frac{1}{2}$ " ou 7" de long Déporté (avec écartement pour carter).

Standard WILLIAMS Joggled Garnituren.

Eine Standard WILLIAMS Joggled Garnitur besteht aus einem "Joggled" Stahlkettenrad, einem Paar gehärteter Kurbeln mit abgeschraegten Kanten, und zwei Kurbelkeilen poliert, vernickelt und gut verpackt.

Standard Dessins sind, F 85 und B 85 (Siehe Abbildungen).

Standard Groessen sind, 44, 46, 48 und 52 Zaehne $\frac{1}{2}$ " Teilung, $\frac{1}{8}$ Zahndicke.

Standard Kurbelgroessen sind, $6\frac{1}{2}$ " und 7 ohn Spielraum fuer Kettenkasten und $6\frac{1}{2}$ " und 7" mit Spielraum fuer Kettenkasten.

Standard WILLIAMS Joggled Modellen.

Een WILLIAMS Joggled Stel bestaat uit, een "Joggled" (d.i. gebogen) kettingwiel, een paar geharde cranks met geslepen kanten, en twee crankspieën. Gepolyst, vernikkeld en goed verpakt.

Standard Joggled Modellen zyn, F 85 en B 85 (zie blad. hiernaast).

Standard Joggled Afmetingen zyn, 44 T, 46 T, 48 T en 52 T, $\frac{1}{2}$ " tanden, $\frac{1}{8}$ " tanddikte.

Langten der Cranks zyn, $6\frac{1}{2}$ " en 7" (Zonder ruimte voor Kettingkast). $6\frac{1}{2}$ " en 7" (Met ruimte voor Kettingkast).

	Nickel Plated	Black Enamelled	Chromium Plated
Fixed (F) Set complete	... 3/-	... 3/2	... 3/4
5-pin (B) Set complete	.. 3/3	... 3/5	... 3/7
Fixed Wheel and R.H. Crank	.. 1/10	... 2/-	... 2/2
5-pin Wheel and R.H. Crank	.. 2/1	... 2/3	... 2/5
5-pin Right Hand Crank	.. 1/6	... 1/7	... 1/8
Left Hand Crank	.. 1/2	... 1/3	... 1/4
Cotters, per gross	.. 15/-	... 18/6	... 18/6
Screws, per gross	.. 4/9	...	... 6/9

JUVENILE SETS



F 85

WILLIAMS
TOY SET



F 748

JUVENILE SETS

A Standard **WILLIAMS** Juvenile Set comprises a "Joggled" Steel Chain Wheel, a pair of Bevelled Edge Cranks and two Cotters.

The Standard Juvenile Wheel Design is F85 (see illustration).

Standard Juvenile Wheel Sizes are 36T and 40T, $\frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. tooth.

Standard Juvenile Crank Sizes are $4\frac{1}{2}$ in., 5in. and $5\frac{1}{2}$ in. Narrow (not gear case clearance), and $4\frac{1}{2}$ in., 5in. and $5\frac{1}{2}$ in. Wide (gear case clearance.)

Séries Courantes WILLIAMS pour Enfants.

Une Série Courante WILLIAMS pour Enfants comprend une roue dentée emboutie, une paire de manivelles inflexibles à bords bisautés, et deux calles, le tout poli, nickelé et bien emballé.

Le Modèle Courant pour Enfants est F 85 (voir page opposée).

Les Dimensions des Roues Embouties pour Enfants sont, 36 et 40 dents, écartement des dents $\frac{1}{2}$ " , épaisseur des dents $\frac{1}{8}$ ".

Les Dimensions des Manivelles Courantes pour Enfants, $4\frac{1}{2}$ " , 5" et $5\frac{1}{2}$ " Etroit (sans écartement pour carter) $4\frac{1}{2}$ " , 5" et $5\frac{1}{2}$ " Déporté (avec écartement pour carter).

WILLIAMS Standard Garnituren fuer Jugendfahrraeder.

Eine Standard Garnitur fuer Jugendfahrraeder, besteht aus einem "Joggled" Stahlkettenrad, einem Paar Kurbeln mit abgeschraegten Kanten, und zwei Kurbelkeilen, poliert, vernickelt und gut verpackt.

Das Standard Kettenrad-Dessin fuer Jugendfahrraeder ist F 85 (siehe Abbildung).

Die Standardgroessen sind 36 und 40 Zaehne, $\frac{1}{2}$ " Teilung und $\frac{1}{8}$ " Zahndicke.

Die Standard Kurbelgroessen sind, $4\frac{1}{2}$ " , 5" und $5\frac{1}{2}$ " ohne Spielraum fuer Kettenkasten und $4\frac{1}{2}$ " , 5" und $5\frac{1}{2}$ " mit Spielraum fuer Kettenkasten.

Standard WILLIAMS Kinder Modellen.

Een Standard WILLIAMS Kinder Stel bestaat uit een "Joggled" (d.i. gebogen) kettingwiel, een paar cranks met geslepen rand, en twee crankspieën. Gepolyst, vernikkeld en goed verpakt.

Het Standard Kinder Model is F 85 (zie bladz. hiernaast).

Afmeting Standard Kinder Kettingwiel, 36 T of 40 T $\frac{1}{2}$ " tandem, $\frac{1}{8}$ " tanddikte.

Afmeting Kinder Cranks, $4\frac{1}{2}$ " , 5" en $5\frac{1}{2}$ " (Zonder Kettingkastruimte). $4\frac{1}{2}$ " , 5" en $5\frac{1}{2}$ " (Met Kettingkastruimte).

Set complete Nickel Plated. Chromium Plated.
2/10 ... 3/2

WILLIAMS TOY SET

A Standard Toy Set comprises a Joggled Steel Chain Wheel, and a pair of Oval Cranks with rounded corners.

The Standard Toy Wheel Design F 748 (see illustration).

Standard Toy Wheel Sizes : 22T and 28T $\times \frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. tooth.

Non Standard Toy Wheel Size : 32T $\times \frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. tooth.

Standard Toy Cranks are : 4 in. long, narrow (not gearcase clearance) or wide (gearcase clearance).

Series Pour Jeux.

Une serie courante comprend une roue dentée emboutie, une paire de manivelles ovales avec angles ronds.

Dessin de Roue F 748 (voir illustration).

Largeur de Roue, 22 & 28 dents $\frac{1}{2}$ " $\times \frac{1}{8}$ ".

Longeur de Manivelles 4" sans ou avec écartement pour carter.

Spielgarnitur

Eine standard Spielgarnitur besteht aus ; Einem "Joggled" Stahlkettenrad und einem Paar ovalen Kurbeln mit abgeschragten Kanten.

Normales Dessin : F748 (siehe Abbildung).

Normale Kettenradgroesse 22 & 28 $Z \frac{1}{2}$ " Teilung $\frac{1}{8}$ " Zahndicke.

Normale Spielkurbeln sind 4" Zoll lang mit oder ohne Kettenkastenraum.

Stellen voor Kinderrijwielen.

Een standard stel bestaat uit een doorgezet stalen tandwiel en een paar ovale cranks met ronde hoeken.

Het standard profiel F 748 voor kindertandwiel (zie afbeelding).

Standard maat van het tandwiel : 22 & 28 T $\times \frac{1}{2}$ " $\times \frac{1}{8}$ " Standard cranks voor kindercranks zijn 4" lang (geen ruimte voor kettingkast).

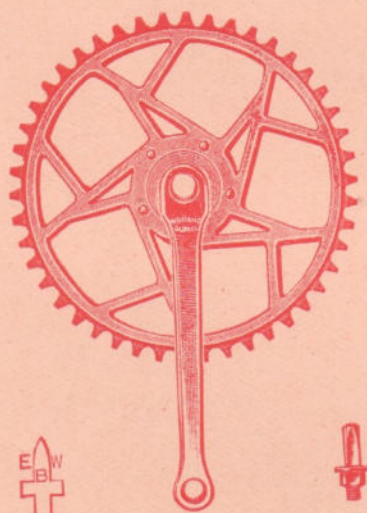
Prices on application

WILLIAMS
E.B.W.

WILLIAMS

WILLIAMS
E.B.W.

DUREEL SETS



B 109

WILLIAMS
E.B.W.

WILLIAMS
E.B.W.

DUREEL SETS

SUPER LIGHT RACER SET

A Standard **WILLIAMS Dureel Set** consists of a specially treated Duralumin 5 pin detachable chain wheel of suitable design.

A pair of extra light high tensile steel cranks $6\frac{1}{2}$ in. long, with cotters. Chromium plated.

Standard wheel sizes : 44, 46, 48t. $\frac{1}{2}$ in. pitch \times $\frac{1}{8}$ in. width of tooth.

Weight of 46t $\frac{1}{2}$ in. \times $\frac{1}{8}$ in. wheel with $6\frac{1}{2}$ in. cranks = 1 lb. 4 oz.

Extra Léger "Dureel" Serie de Cours.

Une Serie Courante **WILLIAMS Dureel** comprend: Une roue dentée en Duralumin traité par procédé special; du type avec 5 vis et dessin choisi. Une paire manivelles d'acier de grande tension très légère chromé, $6\frac{1}{2}$ " de longueur, avec calles.
Dimensions de Roues 44 46 et 48 dents $\frac{1}{2} \times \frac{1}{8}$ ".
Poids de 46T $\frac{1}{2} \times \frac{1}{8}$ roue avec $6\frac{1}{2}$ manivelles 567 gram.

Extra Leichte "Dureel" Garnitur fuer Renner.

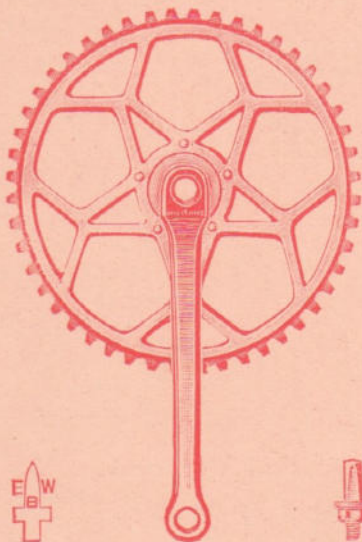
Eine normale **WILLIAMS Dureel Garnitur** besteht aus: Einem besonders bearbeitetem Duralumin Kettenrad geeignetes Dessins von 5 Schraubenbefestigungstypen; Einem Paar extra leichte hochwertige verchromte Stahlkurbeln, mit Keilen.
Kettenradgrosesse sind 44, 46 & 48 Zähne $\frac{1}{2}$ " Teilung $\frac{1}{8}$ " Zahndicke.
Kurbelgrosesse $6\frac{1}{2}$ " ohne Kettenkastenraum.
Gewicht einer 46T $\frac{1}{2} \times \frac{1}{8}$ " Dureelrad mit $6\frac{1}{2}$ Kurbeln 567 gram.

Super Light Dureel Race Stel.

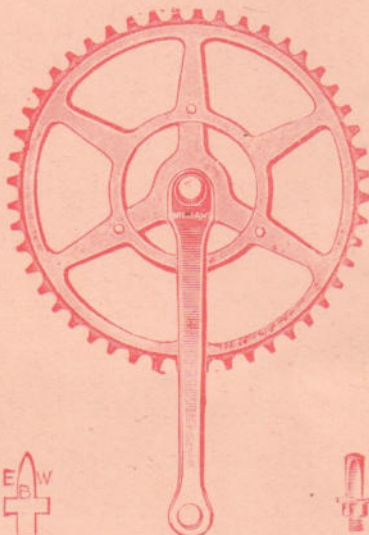
Een standaard **WILLIAMS Dureel stel** bestaat uit een speciaal behandeld afneembaar-Duralumin tandwiel van passend profiel, en bevestigd met vijf boutjes. Een paar bijzonder lichte cranks $6\frac{1}{2}$ " van groote trekvastheid met crankspicen — chroom vernikkeld.
Standaard wielmaten : 44, 46 v 48 T. $\frac{1}{2}$ " steek \times $\frac{1}{8}$ " tandbreedte.
Gewicht van een wiel 46 T. $\frac{1}{2} \times \frac{1}{8}$ met $6\frac{1}{2}$ " cranks 567 gram.

Complete Set	11/-
Chain Wheel only	8/9
Right Hand Crank only	2/6
Left Hand Crank only	2/-
Cotters, per pair	6d.
Screws	3d. per set.

CLUB RACER SETS

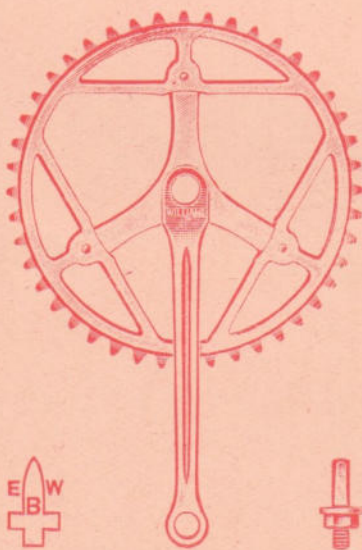


B 1100



C 1000

WILLIAMS
RACER SETS



C 1200



CLUB RACER SETS

A Standard **WILLIAMS Club Racer Set** consists of a Cold Forged Steel Chain Wheel of special light design, and without inside flange to suit narrow built machines.

A pair of specially treated light weight Cranks with Cotters.

Standard Wheel Sizes : 44, 46, or 48 teeth, $\frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. wide.

Non-Standard Wheel Sizes : 40 or 42 T.—3d. extra

Cranks : 6 $\frac{1}{2}$ in. or 7 in. long, without Gear case Clearance.

Weight of 46T $\frac{1}{2}$ in. \times $\frac{1}{8}$ in. 6 $\frac{1}{2}$ in. B1100 or C.1000, 1 lb. 11 oz.

Series de Cours Club WILLIAMS.

Une Serie courante de Cours Club comprend une roue dentée en acier à rebord de chaine, forgé à froid, de dessin léger et sans rebord a la cote gauche. Une paire de manivelles légère trempée avec calles.

Les Dimensions des Roues Courantes 44 46 et 48 Dents, $\frac{1}{2}$ " écartement, $\frac{1}{8}$ " épaisseur.

Les Dimensions des Manivelles 6 $\frac{1}{2}$ " ou 7" de long sans écartement pour carter.

Poids de 46 $\frac{1}{2} \times \frac{1}{8}$ 6 $\frac{1}{2}$ " B 1100 or C 1000 765 gram.

WILLIAMS Klub Renn Garnitur

Eine Standard **WILLIAMS Klub Renn Garnitur** besteht aus: Einem patentierten Stahlkettenrad in eigenartiger leichter Ausführung ohne Innenrand; Einem Pear spezialbearbeiteten leichten Kurbeln mit Keilen.

Normale Groessen sind 44, 46, od 48 Z $\frac{1}{2}$ " Teilung $\frac{1}{8}$ " Zahndicke.

Normale Kurbelgroessen sind 6 $\frac{1}{2}$ " und 7" ohne Kettenkastenraum.

Gewicht fuer 46 Z $\frac{1}{2} \times \frac{1}{8}$ 6 $\frac{1}{2}$ " B 1100 or C 1000 765 gram.

WILLIAMS Club Race-Stellen.

Een standaard **WILLIAMS Club Race Stel** bestaat uit een koud gesmeed stalen tandwiel van bijzonder licht profiel en zonder binnenrand, passend voor nauw gebouwde machines. Een paar speciaal behandelde cranks met crankspieen van licht gewicht.

Standaard wielmaten : 44, 46 of 48 T., $\frac{1}{2}$ " steek $\frac{1}{8}$ " tandwijdte.

Cranks 6 $\frac{1}{2}$ " of 7" lang, zonder ruimte voor kettingkast.

Gewicht van stel 46 T $\frac{1}{2} \times \frac{1}{8}$ 6 $\frac{1}{2}$ B 1100 or C 1000 765 gram.

	Nickel Plated		Chromium Plated	
	B1100	C1000	B1100	C1000
	Per Set		Per Set	
Complete Set	4/10	5/4	5/4	5/10
Chain Wheel only ..	2/-	2/-	2/2	2/2
Right Hand Crank only	2/-	2/4	2/2	2/6
Left Hand Crank only	1/8	1/8	1/10	1/10
Cotters, per pair ..	4d.	4d.	5d.	5d.
Screws, per set ..	1 $\frac{1}{2}$ d.	1d.	3d.	2d.

WILLIAMS RACER SETS

A Standard **WILLIAMS Racer Set** consists of a Cold Forged Steel Chain Wheel of special light design, and without inside flange to suit narrow built machines. The wheel is bored to 4" diameter and designed to give extreme strength with minimum weight. The wheel can be removed without dismantling the crank from the axle or pedal.

Standard Wheel Sizes : 44, 46, or 48 teeth $\frac{1}{2}$ in. pitch $\frac{1}{8}$ in. wide.

Non Standard Wheel Size : 50 T.—3d. extra.

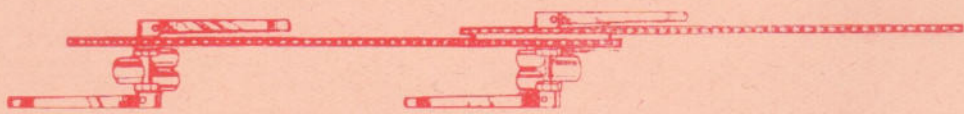
Cranks : 6 $\frac{3}{4}$ in. long without Gear case clearance.

Weight of 46 T $\frac{1}{2}$ in. \times $\frac{1}{8}$ in. 6 $\frac{3}{4}$ in. Cranks 1 lb. 9 oz.

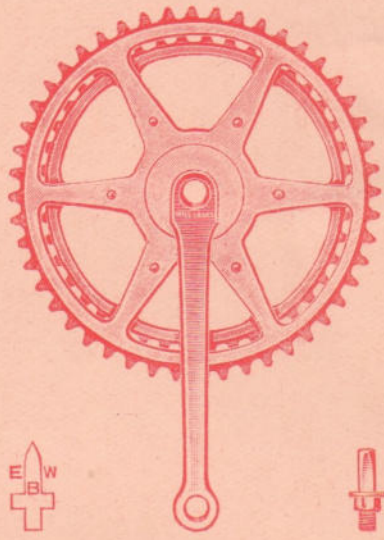
Complete Set	8/-
Chain Wheel only ..	3/-
Right Hand Crank only	3/6
Left Hand Crank only ..	2/6
Cotters, per pair ..	4d.
Screws	3d. per set



DIRECT DRIVE TANDEM SETS



D 34

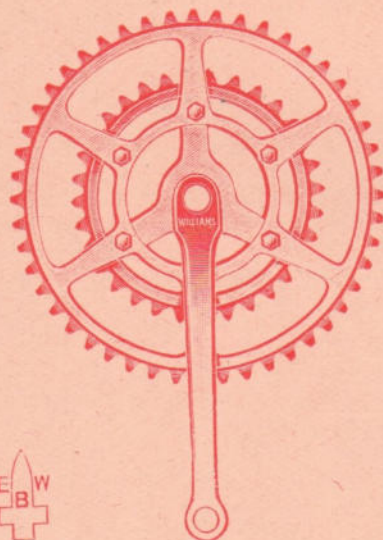


SD 31

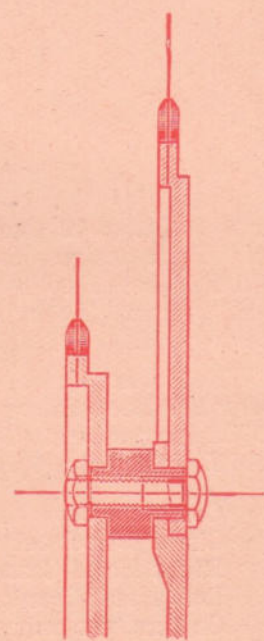


WILLIAMS

DETACHABLE TANDEM SETS



D 138



DIRECT DRIVE TANDEM SETS

Consist of The Front Drive and Combination Gear Sets.

The former is a 3-pin detachable Cold Forged Flanged Chain Wheel with improved Bevelled Edge Cranks, and the latter comprises a 6-pin detachable Cold Forged Steel (inside and outside) Combination gear, together with a pair of specially treated, Bevelled Edge Cranks complete with Cotters. All Chain Wheels are specially cut to ensure both pairs of Cranks being parallel or in line.

Standard Combinations : 42 :: 44, 46, 48, or 52 × ½ in. × ½ in. with 6½ in. or 7 in. cranks.
44 :: 46, 48, or 52 × ½ in. × ½ in. with 6½ in. or 7 in. cranks.

	Nickel Plated.	Chromium Plated. Black Enamelled
Complete Tandem Set	16/-	17/-6
Front Drive Set	5/3	6/-
Combination Set	11/6	12/6
Front Chain Wheel	1/9	2/-
Outside Combination Gear	3/3	3/7
Inside Combination Gear	4/6	4/10
Right Hand Crank	2/2	2/4
Left Hand Crank	1/5	1/7

WILLIAMS

Semi Detachable TANDEM SETS

Consist of the Front Drive and Combination Rear Set.

The former is a fixed type Cold Forged Flanged Chain Wheel with improved bevel edged cranks; the latter consists of a fixed type Cold Forged Flanged Inside Gear with Cranks and a 6 pin detachable Cold Forged Outside Gear which registers on the central boss of the inside gear to maintain true running.

The Chain Wheels are specially cut to ensure both pairs of Cranks being parallel or in line.

Cotters are included with complete sets.

Standard Combination : 42 or 48T × ½ in. × ½ in. with 6½ in. or 7 in. Cranks.

	Nickel Plated	Chromium Plated Black Enamelled
Complete Tandem Set	11/6	12/6

DETACHABLE TANDEM SETS

Consist of the Front Drive and Combination Rear Set

The former comprises a 3 pin detachable Cold Forged Chain Wheel with Bevelled Edge Cranks, and the latter 6 pin detachable Cold Forged Chain Wheels (inner and outer) Combination gear, together with a pair of specially treated Bevelled Edge Cranks.

The inner gear is attached to the outer by means of pins and spacer blocks, the blocks being screwed in such a manner that both wheels are rigidly gripped by both pins and spacers.

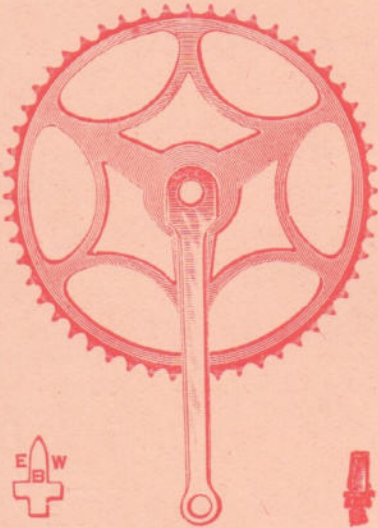
Standard Sizes : Front and Inner 32, 38, 40, 42 Teeth × ½ in. × ½ in.
Outer .. 44, 46, 48, 52 Teeth × ½ in × ½ in.
with 6½ in. or 7 in. Cranks.

	Nickel Plated	Chromium Plated
Complete Tandem Set	9/6	10/6
Front Chain Wheel	1/4	1/6
Inner Chain Wheel	1/4	1/6
Outer Chain Wheel	1/7	1/9
Right Hand Crank	1/10	1/11
Left Hand Crank	1/2	1/3
Spacer Blocks	2d each.	2½d, each
Pins and Nuts	2d. "	2½d. "

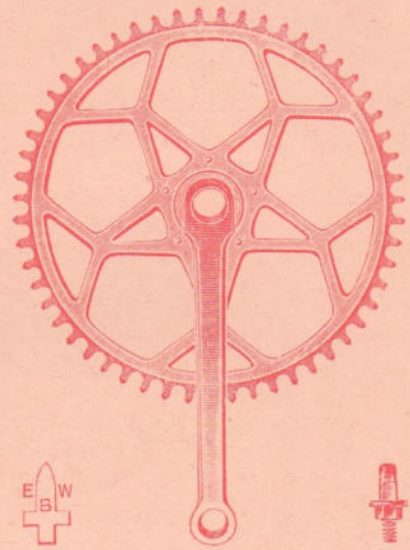
WILLIAMS

Cross-Over Drive Tandem Sets can also be supplied if desired.

NON-STANDARD SETS



F 60



B 100

NON-STANDARD SETS

The following list shows the various sizes we can supply, certain sizes of which we have in stock ; but, owing to the innumerable combinations of Length of Cranks, Thickness, number and pitch of Teeth, they cannot be made in quantities for Stock like Standard Sets. They can be supplied in F (fixed), B (5 pin), C (3 pin) fastenings with Flanged Steel Chain Wheels, toughened Bevelled Edge Cranks, 5½ in., 6½ in., or 7 in. long, complete with Cotter.

Other Designs, and Sizes not in stock, can be supplied for Minimum Orders of 36 of each size.

FLANGED SETS COMPLETE

1 in. pitch. ⅛ in. 3/16 in.	½ in. pitch. ⅛ in. 3/16 in.		FLANGED WHEEL. Nickel Plated.		Cranks F Pattern (Not Detachable.)		Cranks B Pattern (5-pin Fixing) (Detachable.)		Cranks C Pattern (3-pin Fixing) (Detachable.)
18/19	36/38	..	1/2	..	3/7	..	3/9	..	4/2
20	40	..	1/3	..	3/8	..	3/10	..	4/3
21	42	..	1/4	..	3/9	..	3/11	..	4/4
22	44	..	1/5	..	3/10	..	4/-	..	4/5
23	46	..	1/6	..	3/11	..	4/1	..	4/6
24	48	..	1/7	..	4/-	..	4/2	..	4/7
25	50	..	1/8	..	4/1	..	4/3	..	4/8
26	52	..	1/9	..	4/2	..	4/4	..	4/9
27	54	..	2/1	..	4/6	..	4/8	..	5/1
28	56	..	2/7	..	5/-	..	5/2	..	5/7
29	58	..	3/1	..	5/6	..	5/8	..	6/1
30	60	..	3/8	..	6/-	..	6/2	..	6/7
31	62	..	4/2	..	6/6	..	6/8	..	7/1
32	64	..	4/9	..	7/-	..	7/2	..	7/7

Extra for CHROMIUM PLATE : Up to 52 teeth or equivalent 4d. per set.
Over 52 teeth or equivalent 6d. per set.

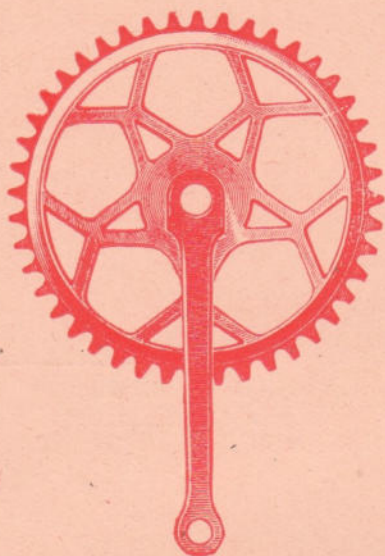
Carrier Sets (Cranks 50% stronger than Cycle Cranks).

Price 6d. extra per set to above Non-Standard

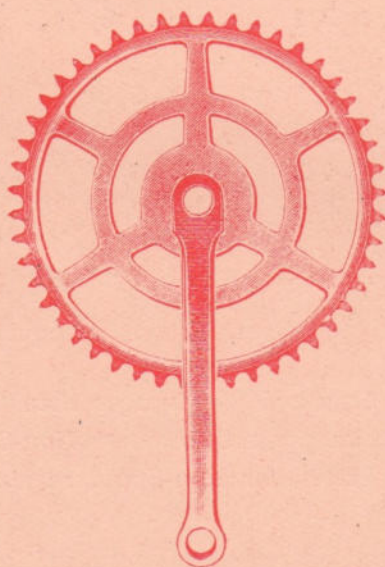
Prices, for Non-Standard sizes.

Special Prices will be quoted on request for quantities of Non-Standard sizes.

UTILITY
CHAIN WHEEL & CRANK SETS



F & B 100



F 170

UTILITY CHAIN WHEEL & CRANK SETS

Standard Wheel Designs : 100 and 170 as illustrated.

Standard Wheel Sizes : 44T, 46T, and 48T $\frac{1}{2}$ in. pitch, $\frac{1}{8}$ in. tooth.

Standard Crank Sizes : $6\frac{1}{2}$ in. and 7in. Narrow (not gearcase clearance) and $6\frac{1}{2}$ in. and 7in. Wide (gearcase clearance).

Standard Juvenile Wheel Sizes : 36T and 40T. Joggled, Fixed type.

Standard Juvenile Crank Size : $5\frac{1}{2}$ in. Narrow (Not gearcase clearance) and $5\frac{1}{2}$ in. Wide (gearcase clearance).

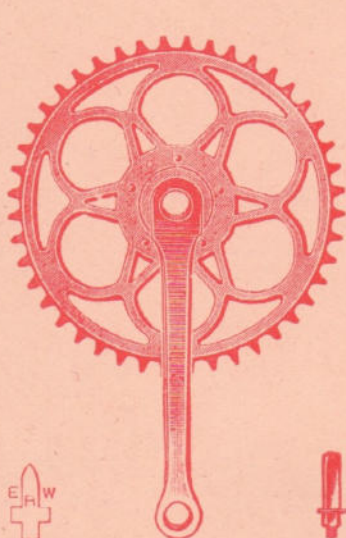
Prices on Application.

FLANGED CHAIN WHEELS AND CRANKS

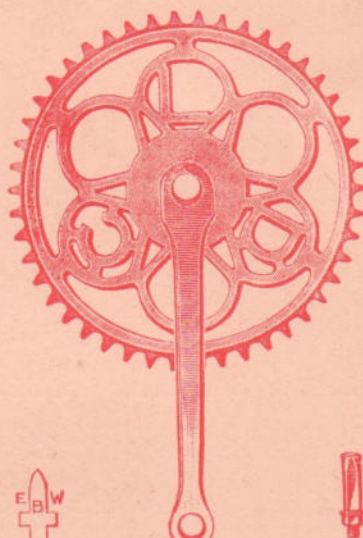
COMPLETE WITH COTTERS.

Letter Designs

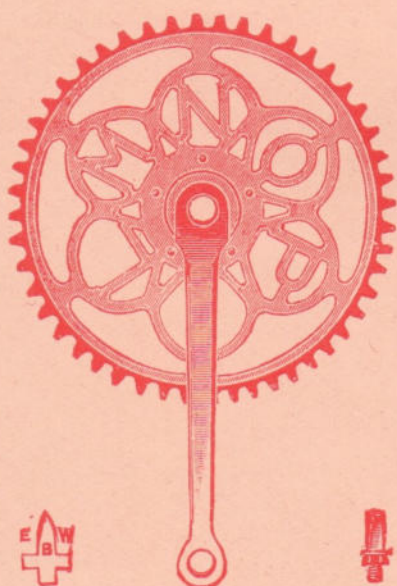
Made in Flanged type with Fixed or Five-pin Fastening only.



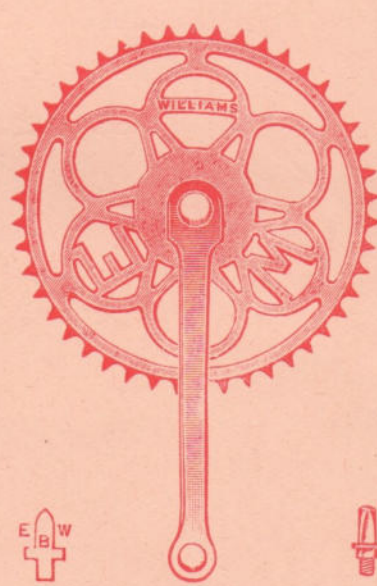
B 298



F 688



B 370



F 550



FLANGED CHAIN WHEELS AND CRANKS

Complete with Cotters.

LETTER DESIGNS

Designs similar to illustrations can be supplied free of tool charges, with any combination of letters up to six in number. If more than six letters are desired, the word can be produced similar to Design No. F550, shown opposite, in combination with any letters up to five in number.

Standard Prices are charged for these Sets when ordered in lots of not less than 100. (This quantity may be made up of not more than two Standard Sizes). The minimum quantity that can be accepted for making specially is 36 of one size, for which Non-Standard Prices will be charged.

**WILLIAMS Roues Dentées
à Rébord avec Manivelles
et Calles Dessins Portant
"Lettres."**

Fabriqué en Types Fixe (F)
et 5 Vis Detachable (B) seul.
Dessins du type indiqué sont
livrés sans frais supplémentaires
pour chaque combinaison de
lettres jusqu'à six. Si on veut
plus que six lettres le modèle
peut se faire semblable au
dessin illustré combine jusqu'à
cinq lettres.

Pour une commande de pas
moins de 100 séries le prix
courant est compté mais ce
nombre peut se faire en deux
dimensions normales.

La quantité minimum qui peut
être fabriquée est 36 d'une
dimension et pour cette quantité
prix Non-Courant seront
facturés.

**WILLIAMS Aufgewalzte
Kettenraeder Mit Kurbe
und Keilen**

Buchstaben Dessins.

Dessins wie oben abgebildet
werden ohne Extrakosten fuer
Stahzwerkzeuge geliefert, und
zwar in jeder Zusammensetzung
der Buchstaben bis zu sechs.
Falls Dessins welche mehr als
sechs Buchstaben enthalten,
verlangt werden, so lassen sich
dieselben in Ausfuhrung
ahnlich obiger Abbildung F 550
in Zusammensetzung von funf
Buchstaben anfertigen.

Fuer Auftraegen von 100
Garniture dieser Type werden
Normale Preise berechnet
(Dieses Quantum darf nicht
mehr als zwei Normale Groessen
enthalten).

Das Mindestquantum welches
fuer Spezialanfertigung ange-
nommen wird betraegt 36
einer Groesse, wofuer Nicht
Normalepreise berechnet
werden.

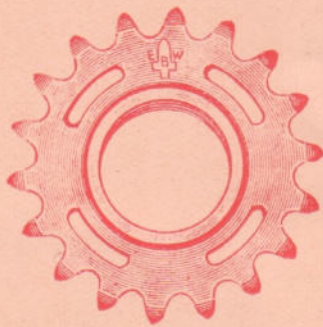
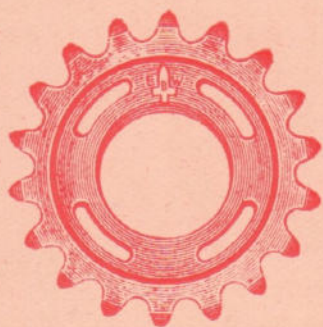
**WILLIAMS tandwielen met
rand en cranks, compleet
met crankspieën.**

**Profiel met letters of naam
wordt gemaakt in model
met rand, bevestiging
vastofmet vijf schroefjes.**
Profielen gelijksoortig aan het
bovenstaande, kunnen zonder
berekening van gereedschaps-
kosten worden geleverd met
elke lettercombinatie (niet meer
dan zes letters). Indien méér
dan zes letters worden verlangd,
kan het woord worden gemaakt
volgens profiel Nr. F. 550, als
boven aangegeven in elke
lettercombinatie, maar niet meer
dan vijf letters.

Wij berekenen standaard
prijzen voor deze stellen,
wanneer ze besteld worden in
hoeveelheid niet kleiner dan
100 stel. (Dit quantum mag
bestaan uit niet meer dan twee
standaardmaten). Het mini-
mum quantum, dat kan worden
geaccepteerd om speciaal aan
te maken, is 36 stel van één
bepaalde maat, waarvoor dan
niet-standaard prijzen moeten
worden Cerekend.



DUREEL HUB COGS



Dureel Hub Cogs are made from a special Aluminium Alloy, and are supplied either Central or Offset in the following sizes :—

$\frac{1}{2}$ in. pitch \times $\frac{1}{8}$ in. wide.

13, 14, 15, 16, 17, 18, 19, 20 teeth.

The difference in weight between an 18T Steel and Dureel Cog is $1\frac{1}{2}$ ozs.

Price :	13T-18T	..	..	..	1/6	each
	19T and 20T	..	..	..	1/9	..
	Lock Rings	..	..	..	1/-	..

PATENT FLUSH FITTING COTTERING

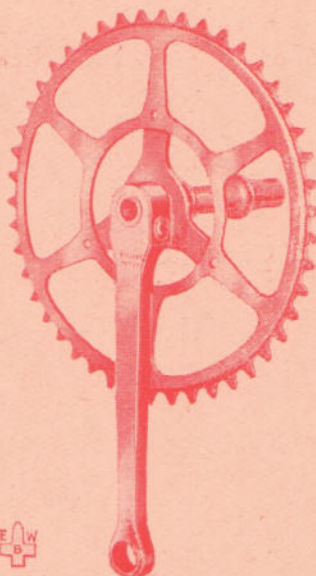


The illustration shows the general arrangement and details of construction of the **WILLIAMS** Patent Flush Fitting Cottering which can be supplied with all **WILLIAMS** sets.

Owing to the fine manufacturing limits and careful fitting required, sets delivered with this cottering will be supplied with correctly fitting axles, and arrangements have been made to supply axles made by the well known makers to the requisite limits.

Customers are requested to specify the make and type of axle they require when ordering.

Prices on Application.



CRANK COTTER CARDS



WILLIAMS' Crank Cotten are made from a high grade toughened steel, packed in transparent envelopes and mounted on an attractive coloured showcard.

Twelve packets are attached to each card and the cotten can be supplied Nickel or Chromium Plated. If desired equal quantities Nickel and Chromium Plated can also be supplied.

Price :	Nickel Plated	...	...	3/6	per card
	Chromium	...	...	4/3	..
	Nickel and Chromium	..	..	3/10	..



We are also Makers of—

CYCLE FREE WHEEL RINGS
AND CENTRE FORGINGS.

MOTOR CYCLE REAR HUB SPROCKETS.

MOTOR CYCLE CLUTCH SPROCKETS.

GENERAL PURPOSE CHAIN WHEELS.

GEAR CUTTING AND ENGINEERS' CUT GEARS.

LIGHT LOAD BALL BEARINGS.

MILLING CUTTER GUARDS.

GENERAL PRESS WORK, including

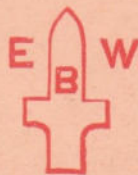
Drawing up to 12in. deep × 15in. square.

Coining up to 8in. square and 1,500 tons load.

GENERAL MACHINING.

We shall be pleased to have your enquiries
and to quote for your requirements.





Registered Trade Mark.

WILLIAMS

Registered Trade Mark.
