

Sturmey-Archer Trigger Shifters 1938-1960 by Martin Hanczyc
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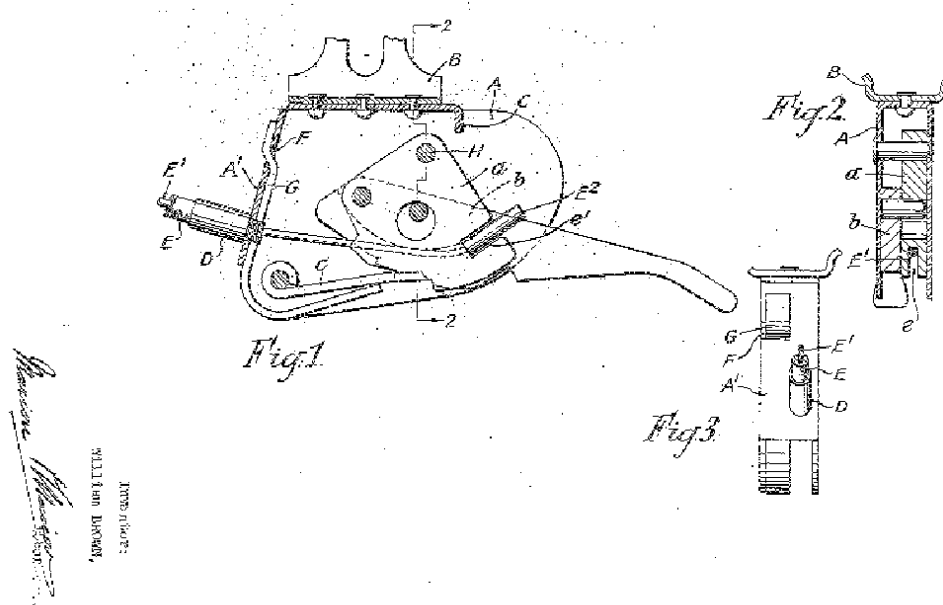


Illustration from CA 491915 Patent by William Brown for Sturmey-Archer Gears Limited 1953

Purpose:

My 1950 Maclean Featherweight with a Sturmey-Archer FM hub came with an incorrect trigger. I wanted to install a period-correct trigger and so this investigation began. I present my results as a chronological and descriptive listing of Sturmey-Archer triggers for those who might find this information useful. Even though I rejected any information without documentation and I cite my sources, I do not claim the information is all correct or complete. I welcome any comments, information or contributions. The list covers the period from 1938 to 1960 with an addendum of post-1960 examples.

Indexed Shifting:

Sturmey-Archer trigger shifters represent an early embodiment of indexed shifting. Shifting was effected with one finger, and with proper adjustment the correct gear was found instantly, every time. The essential design of these triggers remained constant over many decades. Therefore they can be interchanged for use with many models of Sturmey-Archer hubs (with the exception of the ASC), and also with hubs from different eras. As a consequence newer triggers sometimes can be found on older bikes, as replacements were needed. Here is an attempt to properly designate the years for which a certain style of trigger was produced. Many of these triggers from my workshop are well used and the illustrations may be replaced as I come across cleaner examples.

This article can be found on my website at:

<http://genetics.mgh.harvard.edu/hanczyc/>

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Acknowledgements:

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Sources:

Raleigh The All-Steel Bicycle catalogue, 1947.

The Sturmey-Archer service manual, 1948, 1951 and 1956.

Rudge Bicycles catalogue, 1949.

Luxury Cycling by Raleigh catalogue, 1951.

Raleigh The All-Steel Bicycle for Luxury Cycling catalogue, 1951.

Raleigh The All-Steel Bicycle USA catalogue, 1954.

Humber Bicycles catalogue, 1955

Spare Parts List for Sturmey-Archer Gear Hubs, Brake Hubs and Dynohubs, 1956.

The Sturmey Archer Story by Tony Hadland, Pinkerton Press. 1987



A precursor to the trigger shifter is the quadrant shifter (GC1). This typically was used for the Sturmey-Archer K series hubs (1921-38). It had three positions Low, N (Normal) and High. It was mounted on the top tube (see picture, left).



There was also a bar mounted lever used for K series hubs (above).



Pictured above is an early Sturme-Archer bar mounted lever for the X series hub (1910-14)



Models GC3 and GC4. The first trigger. 1938-48.



The triggers GC3 and GC4 were designed for with 3 and 4 speed Sturme-Archer hubs respectively during the years 1938-48. The medallions display the original patent number 498820, and the triggers have long levers. The triggers were designed for below the handle bar mounting with the print facing away from the rider. Photos courtesy of...

The Model GC2 - used with three and four-speed Sturme-Archer hubs from 1948-1953. Although the design on the medallion (face plate) of the triggers changed over time, they all were designated GC2 as they had the same internal parts. This style looks like the 'improved design' described in patent number 649009 filed in 1948, however early examples display only the original patent number 498820. It was not until 1953 that the new patent number began to appear on the medallion. Later examples of the GC2 listed

below have a window in the medallion. Interestingly, although the print on the medallion indicates below the bar mounting, the gear designation in the window is the opposite – for above the bar viewing. Model GC2A is for ASC hubs only as indicated on the medallion.



Model GC2.

Introduced 1948-9 for 3 or 4 speed hubs with original patent number 498820.



Model GC2.

1948-9. Same as above except with different font and finish on the medallion.



Model GC2A – for ASC hubs only. The three-speed fixed gear hubs required a different trigger with a different throw distance for a proper gear change. Photo courtesy of...



Model GC2.

1950-3 Trigger for 3 or 4 speed, with window showing the gear - B (base), L (low), N (normal), or H (high) - and original patent number 498820. "Pat N°." switched to "PAT G.B."

STURMEY ARCHER in red lettering.



Model GC2.

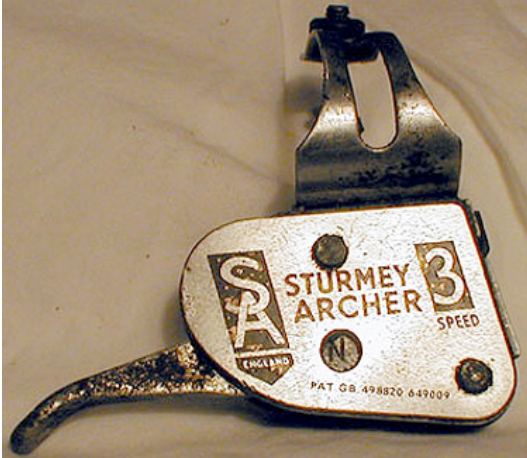
1950-3. Variant of the above with STURMEY ARCHER in black lettering. Note that the writing on the medallion specifies below the handle bar mounting, but the letter in the gear window (L) is inverted for viewing above the bar.



Model GC2A.

1950-3. Another version of the GC2 designed specifically for the ASC hub gear with window in the medallion. This particular trigger came with a hub dated 1950. Photo courtesy of...

In 1953, triggers were redesigned for either three speed hubs or four speed hubs (not both as above) and were designated model GC3A or GC4A respectively. These now carry the improved design patent number 649009.



Model GC3A.

1953-56. Designed for a 3-speed with original patent number 498820 and improved design patent number 649009.



Model GC3A.

1953-56. An interesting variant that has the internals for four speeds (note the trigger is shown in base gear), but the medallion specifies three speed meaning low, normal and high. Perhaps this is a transition trigger from GC2 to GC3A or made with stock parts from the GC4A (below). *Courtesy of C. Barbour*



Model GC3A.

1953-56. 3-speed trigger with window as above but with different coloration and font size. Larger font as pictured in the 1954 Raleigh and 1955 Humber catalogues.



Model GC3A.

1953-56. Yet another variant. This one has the fixing bolt through a smaller body as found on my 1956 Raleigh Sports with SW hub. This trigger displays features of both model GC3A and its successor, model GC3B.



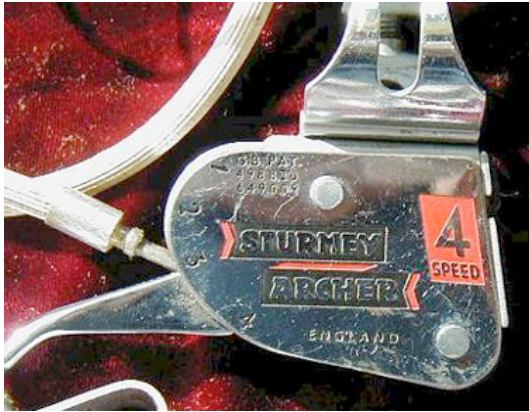
Model GC4A.

1953-56. Designed for a 4-speed with both patent numbers as illustrated in Tony Hadland's book, The Sturmev-Archer Story.



Model GC3B.

1956 - ? was designed for three-speed hubs without a window in the medallion. Note fixing bolt goes through medallion as on later models with plastic cover. Both patent numbers included.



Model GC4B.
1956 - ? Designed for four-speed hubs
without a window in the medallion.

Post-1960 Addendum.

The information pertaining to trigger design in the Raleigh literature becomes scarce after 1960. Included are a few examples of the evolution of the Sturmey-Archer trigger; the years of manufacture are estimated from the catalogues and some period correct examples of cycles. At some point in the 1960's the below-the-bar orientation of the trigger was inverted for above the bar usage as in all the examples below. In addition the patent numbers were no longer included on the trigger medallion. Later triggers were introduced with plastic parts as some examples below illustrate.

Sources:

Raleigh goes places in 1962 catalogue

Raleigh lightweight bicycles 1974 catalogue

Raleigh lightweight bicycles 1976 catalogue



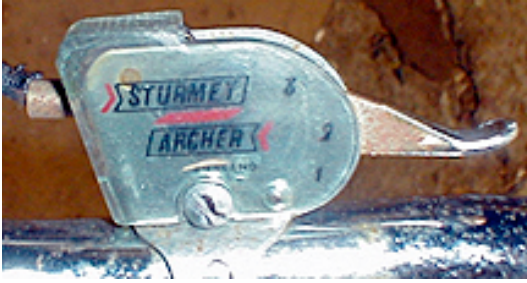
A common three speed trigger for above the bar mounting and fixing screw through body; in use until around 1966.



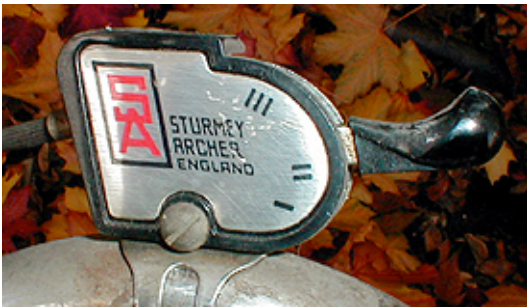
A four-speed trigger for above the bar mounting similar to the trigger above without the fixing screw through body design.



Trigger with plastic cover. The design is similar to the triggers above but the print is located on the plastic cover and not the medallion. Fixing screw through body. Introduced after 1966.



A version with plastic cover but without the large red 3 speed label was in use from approximately 1971 until the mid-1970s.



Another trigger with more plastic parts. Fixing screw through body. Introduced in the early 1970s.



Yet another trigger with more plastic parts. Fixing screw through body. Introduced in 1976.



Postscript: During the 1950's Hercules hubs were produced which were Sturmev-Archer AW clones. Here is an example of a Her-cu-matic gear control made for three-speed Hercules hubs circa 1958. Note that it displays the same Sturmev-Archer patent numbers.

Model number	Number of speeds	Pat. 498820	Pat 649009	Years produced	Window	
GC1	3	Yes			No	Top Tube mounting Long lever
GC3	3	Yes		1938-48	No	
GC4	4	Yes		1938-48	No	
GC2	3 or 4	Yes		1948-49	No	
GC2	3 or 4	Yes		1950-53	Yes	
GC3A	3	Yes	Yes	1953-56	Yes	
GC4A	4	Yes	Yes	1953-56	Yes	
GC3B	3	Yes	Yes	1956-?	No	
GC4B	4	Yes	Yes	1956-?	No	

Notes: 1959: metal 3sp no plastic under bar

1962 metal 3sp no plastic above bar

1968 metal 4sp no plastic above bar