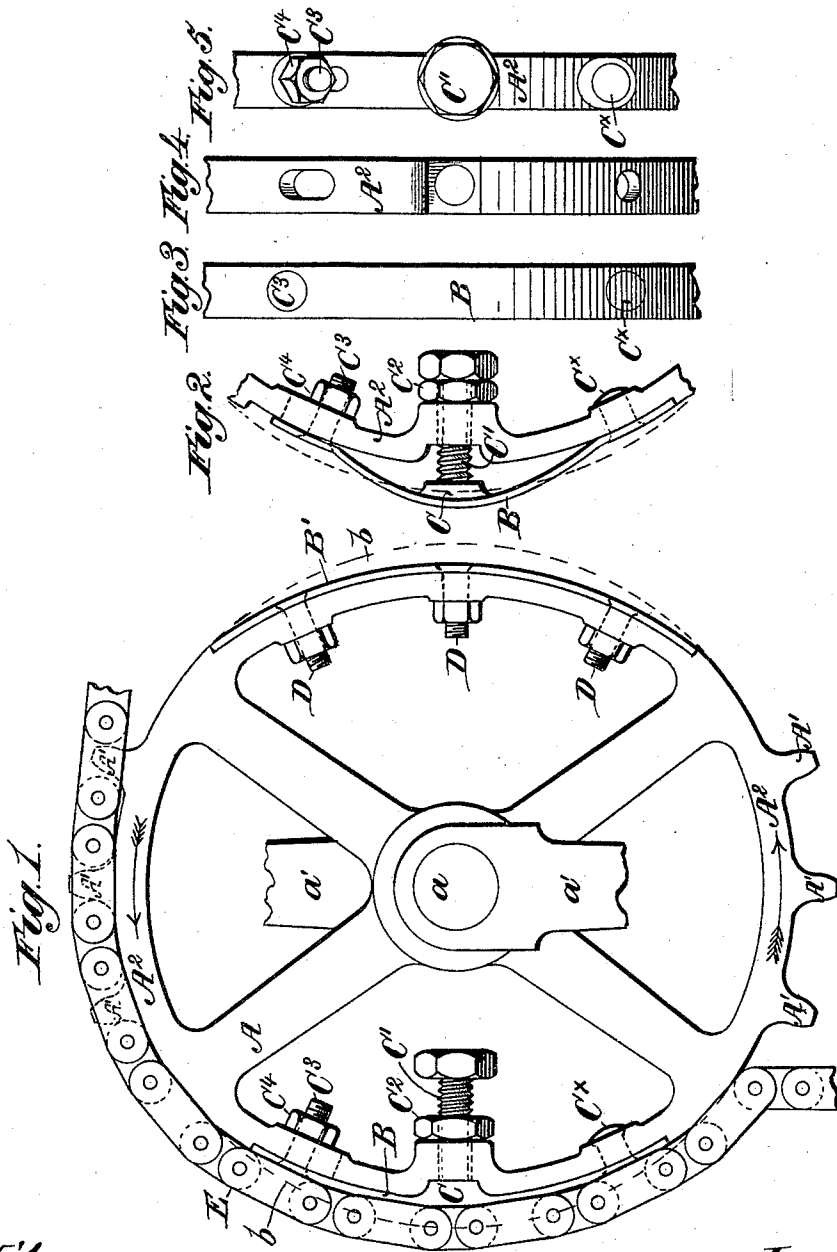


(No Model.)

J. A. WALKER.
SPROCKET WHEEL FOR CHAIN GEARING.

No. 584,250.

Patented June 8, 1897.



Witnesses.
Robert G. Smith,
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UNITED STATES PATENT OFFICE.

JAMES A. WALKER, OF FOLKESTONE, NEW SOUTH WALES.

SPROCKET-WHEEL FOR CHAIN-GEARING.

SPECIFICATION forming part of Letters Patent No. 584,250, dated June 8, 1897.

Application filed December 23, 1896. Serial No. 616,768. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALEXANDER WALKER, a subject of the Queen of Great Britain, residing at Folkestone, Lavender Bay, North Sydney, in the Colony of New South Wales, have invented certain new and useful Improvements in Chain-Wheels for Cycles, of which the following is a full, clear, and exact specification.

This invention has for its object to provide a new and improved chain-wheel particularly designed for chain-gearing used in bicycles and other wheeled vehicles whereby the friction of the working parts of the wheel and chain and their wear and tear are measurably reduced and it is possible to compensate for the wear of the chain and the extension of its length.

The object of my invention is accomplished in the manner and by the means hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of an improved sprocket-wheel for chain-gearing specially useful for cycles constructed according to this invention and having two groups of three sprockets, each diametrically opposite one another, arranged so as to engage the chain when the operating cranks or levers are at their neutral points or on their dead-centers and having compensators (shown in their initial positions) midway in its circumference between said groups of sprockets, two constructions of such compensators being illustrated, though in practice both compensators would be of the same construction. Fig. 2 is a side elevation of the left-hand part of said wheel, showing the compensator in its most extended position. Figs. 3 and 4 are face or edge views, respectively, of right-hand part of the wheel, looking upon it with the compensator in place and with the compensator removed; and Fig. 5 is a partial face or edge view of the internal periphery of the wheel.

The wheel A on the spindle a, having cranks or pedals a', is constructed as ordinarily except as to the peculiarities of this invention. Instead of having sprockets or teeth all round its circumference it has two groups of three teeth A', as shown, situated diametrically op-

posite one another, and the rest of the circumference is bare of sprockets and teeth. The peripheral pieces or compensators B and B' are inserted in the face of the rim A² midway between the groups of teeth and fastened and adjusted as hereinafter explained. In order to allow of increased adjustment, the rim A² is ovaled or undercut or made of less diameter at this part, as clearly shown in Figs. 1 and 2, where the circumferential continuation of the rim is indicated by the dotted lines b. The peripheral pieces or compensators take into a recess in the rim of the wheel and their outer face forms part of the periphery of said wheel upon which the chain travels between the sprockets or teeth A'. This peripheral part may by adjustment be extended outwardly to increase the length of the path between the teeth A', as when the peripheral pieces or compensators B are made of elastic or flexible material, such as steel or the like, or for the same purpose sets of rigid pieces B' may be used, each one of the set having a different peripheral length, increasing gradually from the smallest.

The elastic or flexible peripheral piece or compensator B is fastened or riveted at one end, as at C^x, to the rim of the wheel and has a boss or face C, on which bears a set-screw C', having a jam-nut C², and at the other end has a countersunk bolt C³, taking through a slotted hole in the rim on which the nut C⁴ firmly fastens it. To adjust or compensate for increased length of the chain E, owing to wear and stretching or other causes, the nuts C⁴ and C² are loosened and the set-screw C' screwed to force the compensator B outwardly (see Fig. 2) to the desired extent, when nuts C² and C⁴ are again tightened. The rigid peripheral piece or compensator B' fits also in a recess in the rim of the wheel and is fastened to the rim by three countersunk bolts D, which are tightened up to hold it in place. To adjust or compensate in this case, the nuts of the bolts D are removed and a larger-sized compensator B' of the set put in the recess in the rim in place of the smaller one removed, when, the bolts D being inserted, the nuts are tightened up and the compensation is effected.

The groups of sprockets or teeth A' are so arranged on the wheel that they will gear with

the chain when the cranks α' are at or near the dead-center, as shown in Fig. 1.

It is to be understood that though I have shown but two groups of three sprockets or teeth A' there may be more sprockets or teeth in each group and there may be more groups than two, in which latter case there would be compensators between each group. It is also to be understood that though the compensators B and B' are shown with plain faces they may have flanges or shrouds for their full lengths or partially, or may have other devices, if necessary, for retaining the chain upon their peripheries.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, what I claim is—

1. A chain-wheel having groups of sprockets or teeth on its circumference, and provided with an adjustable compensator composed of an elastic or flexible peripheral piece constructed to be bowed outwardly, combined

with means for bowing said compensator, substantially as and for the purposes described. 25

2. A chain-wheel having peripheral sprockets or teeth, and a compensator composed of an elastic section constructed to be bowed outwardly, and a device carried by the wheel and acting upon said compensator for pressing it outwardly into bow shape, substantially as and for the purposes described. 30

3. A chain-wheel having sprockets or teeth arranged in groups on its periphery, and provided between two of the groups with an elastic compensator constructed to be bent into bow shape, and a screw carried by the wheel and acting upon the compensator to bend it into bow shape, substantially as and for the purposes described. 35

Dated this 23d day of November, 1896.

JAMES A. WALKER.

Witnesses:

FRED WALSH,
PERCY NEWELL.