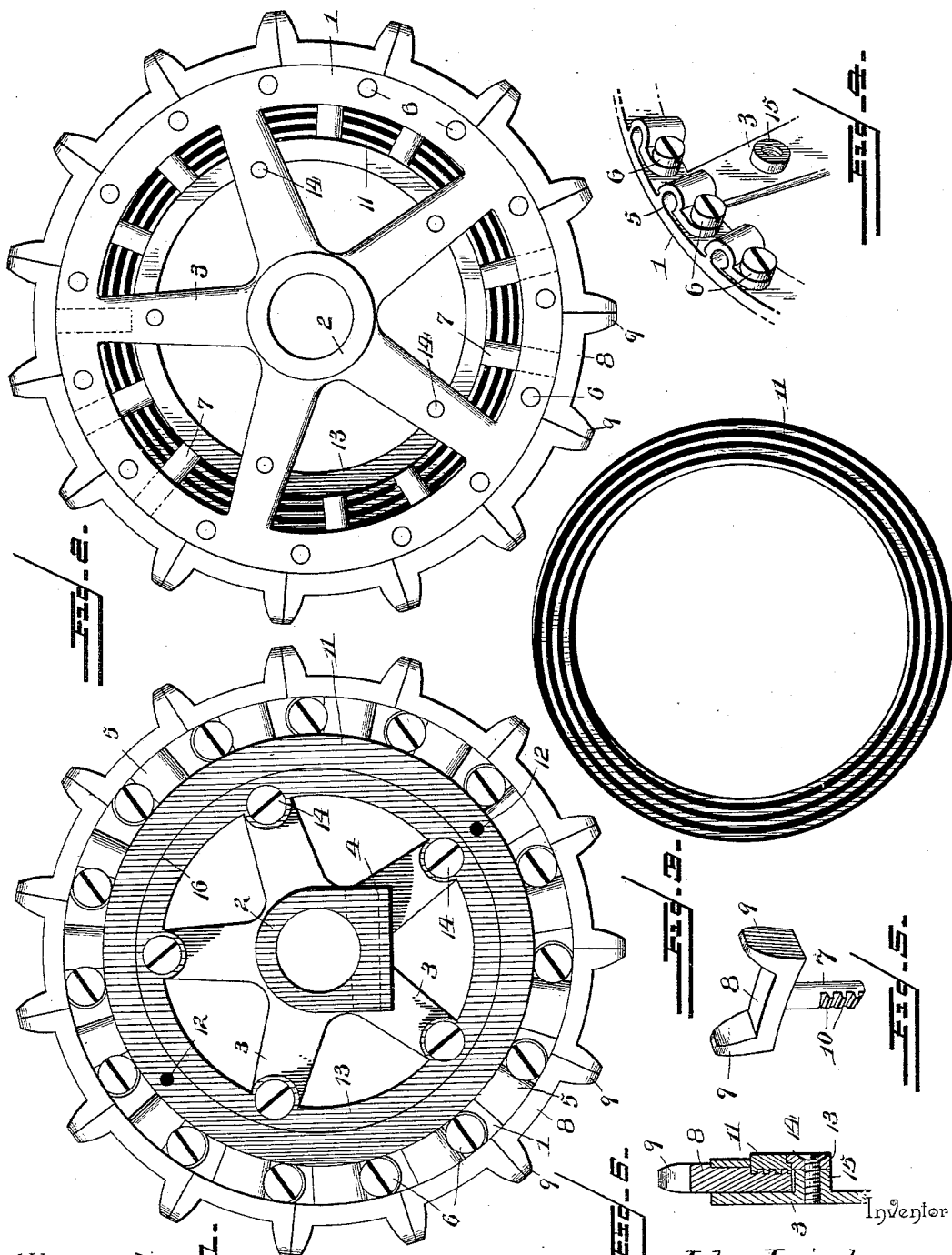


(No Model.)

J. LINDSAY.
SPROCKET WHEEL.

No. 569,216.

Patented Oct. 13, 1896.



Witnesses
Thos. W. Fitch
R. M. Smith

By *his* Attorneys,

John Lindsay.

Chas. H. Snow & Co.

UNITED STATES PATENT OFFICE.

JOHN LINDSAY, OF MILLBURY, MASSACHUSETTS.

SPROCKET-WHEEL.

SPECIFICATION forming part of Letters Patent No. 569,216, dated October 13, 1896.

Application filed September 26, 1895. Serial No. 563,729. (No model.)

To all whom it may concern:

Be it known that I, JOHN LINDSAY, a citizen of the United States, residing at Millbury, in the county of Worcester and State of Massachusetts, have invented a new and useful Sprocket-Wheel, of which the following is a specification.

This invention relates to an improvement in sprocket-wheels, and the object in view is to provide an expansive and contractible sprocket-wheel which is especially designed for use in connection with bicycles and other light-running vehicles.

The main object of the present invention is to provide simple and positive means whereby a sprocket-wheel rim composed of a number of toothed rim-segments may have all of such segments simultaneously and equally moved outward for the purpose of taking up slack in the drive-chain or compensating for wear on the sprocket-teeth, or moved inward for the purpose of accommodating a drive-chain of less length.

With the above objects in view the invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

In the accompanying drawings, Figure 1 is a face view of the improved sprocket-wheel constructed in accordance with this invention. Fig. 2 is a similar view taken from the opposite side. Fig. 3 is an inside face view of the scroll-ring. Fig. 4 is a detail perspective view of a portion of the main rim of the sprocket-wheel. Fig. 5 is a similar view of one of the toothed rim-segments and its threaded stem. Fig. 6 is a detail section through the main rim, scroll-plate, guide-ring, &c.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the accompanying drawings, 1 designates the main rim of the improved sprocket-wheel, the said rim being supported with relation to the wheel-hub 2 by means of a series of spokes 3 of any desired form. The hub 2 is provided with a keyway 4, which receives an ordinary tapering key, by means of which the sprocket-wheel may be secured to the crank-axle.

For the purpose of carrying out the present invention the main rim 1, which is preferably made of malleable metal, is provided with a plurality of eye-bearings 5, which are all arranged upon the same side of said rim and formed integrally therewith. Upon one side of the bore of each of said eye-bearings the latter is cut entirely through to said bore and also extended longitudinally and perforated to receive an adjusting-screw 6, which passes through the same and into a threaded perforation or socket in the main body of the rim, as shown.

Within each one of said eye-bearings is arranged the stem 7 of a radially-adjustable rim-segment 8, which is formed at its opposite ends with half sprocket-teeth 9. These half-teeth lie adjacent to the corresponding half-teeth of contiguous segments, and in this manner the sprocket-teeth of the wheel may be said to be divided radially or composed of equal circumferentially-alined sections. In other words, the teeth of the wheel are each divided between their bearing-faces and the sections or divided portions of the teeth are arranged in line with each other circumferentially. The inner extremities of the stems 7 of the rim-segments are slightly flattened upon correspondingsides and screw-threaded, as shown at 10, said threads being cut into only one side or face of each stem, and the bases of the grooved portions of the threads being left flat in order to form a bearing which, in connection with the scroll-plate hereinafter described, will prevent the tendency of said stems to turn within their eye-bearings, thus preserving the longitudinal alinement of the rim-segments and the teeth thereon.

11 designates a scroll-ring of a diameter adapting it to fit within the plane of the eye-bearings referred to and provided in its inner face with a spiral groove or thread fitting and meshing with the inner threaded ends of the stems of the rim-segments. By revolving the scroll-ring 11 the rim-segments will thus be equally and simultaneously moved inward or outward in a radial direction, and such rotation of the scroll-ring may easily be accomplished with the aid of a suitable wrench or spanner, which may be engaged with perforations or sockets 12 in said scroll-ring.

13 designates an inner bearing-ring, which is held in place by means of screws 14, which pass therethrough and into threaded bosses or sockets 15, formed on the spokes or other convenient part of the sprocket-wheel. This bearing-ring is formed at one edge with a circumferential flange 16, which enters and rests within a corresponding annular rabbet in the inner edge of the scroll-ring 11. The scroll-ring is thus supported at all points and is held in constant and positive engagement with the threaded stems of the rim-segments, so that it will be impossible for any slipping to occur, which would allow the displacement of one or more of the rim-segments. When, after adjusting the scroll-ring, the segments have been thrown outward or drawn inward to the desired extent, the stems of the rim-segments may be securely and firmly clamped within the eye-bearings in which they lie by tightening the adjusting-screws, which pass through the perforated extensions of said bearings into the main body of the rim, as above described, thus removing all strain from the threaded connection between the rim-segments and scroll-ring.

By means of the construction above described it will be seen that a simple and efficient sprocket-wheel is obtained, in which provision is made for adjusting the diameter thereof and at the same time for expanding and contracting the size of the several sprocket-teeth. This provides for taking up the slack in the drive-chain as the latter stretches, and also for expanding or increasing the width of each and every sprocket-tooth to compensate for the wearing away of the same. The improved sprocket-wheel is thus readily adaptable to chains of different lengths and of varying patterns.

While the teeth are shown as divided radially, it is of course within the spirit of this invention to otherwise divide the teeth, so long as the divided portions of the teeth are located in circumferential alinement with each other.

Changes in the form, proportion, and minor details of construction may be resorted to

without departing from the spirit or sacrificing any of the advantages of this invention. 50

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A sprocket-wheel having a tooth made in circumferentially-alined sections, and means for adjusting said sections, whereby the tooth may be expanded or contracted. 55

2. A sprocket-wheel having a radially-divided sprocket-tooth, and means for adjusting the divided portions of said tooth and thereby expanding or contracting the latter. 60

3. In a sprocket-wheel, the combination with a fixed rim, of an outer rim composed of a plurality of segments each of which is provided with a half sprocket-tooth, and means for simultaneously adjusting said rim-segments and expanding each tooth, for the purpose specified. 65

4. The herein-described wheel, comprising a main rim, a sectional rim arranged outside of and beyond the main rim and composed of a series of segments, means for equally and simultaneously adjusting all of said segments for increasing or diminishing the diameter of the wheel, and the contractible eye-bearings for clamping the rim-segments, substantially in the manner and for the purpose described. 75

5. In a wheel, a fixed rim, and a supplemental expansible rim comprising a series of rim-segments having inwardly-extending stems, in combination with a rotatable scroll-ring for simultaneously moving said rim-segments outward or inward for increasing or diminishing the diameter of the wheel, and a concentric bearing-ring arranged in the diametric plane of the scroll-ring and having a rabbeted engagement therewith, substantially as and for the purpose described. 85

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 90

JOHN LINDSAY.

Witnesses:

IRA N. GODDARD,

HARRY M. GODDARD.