

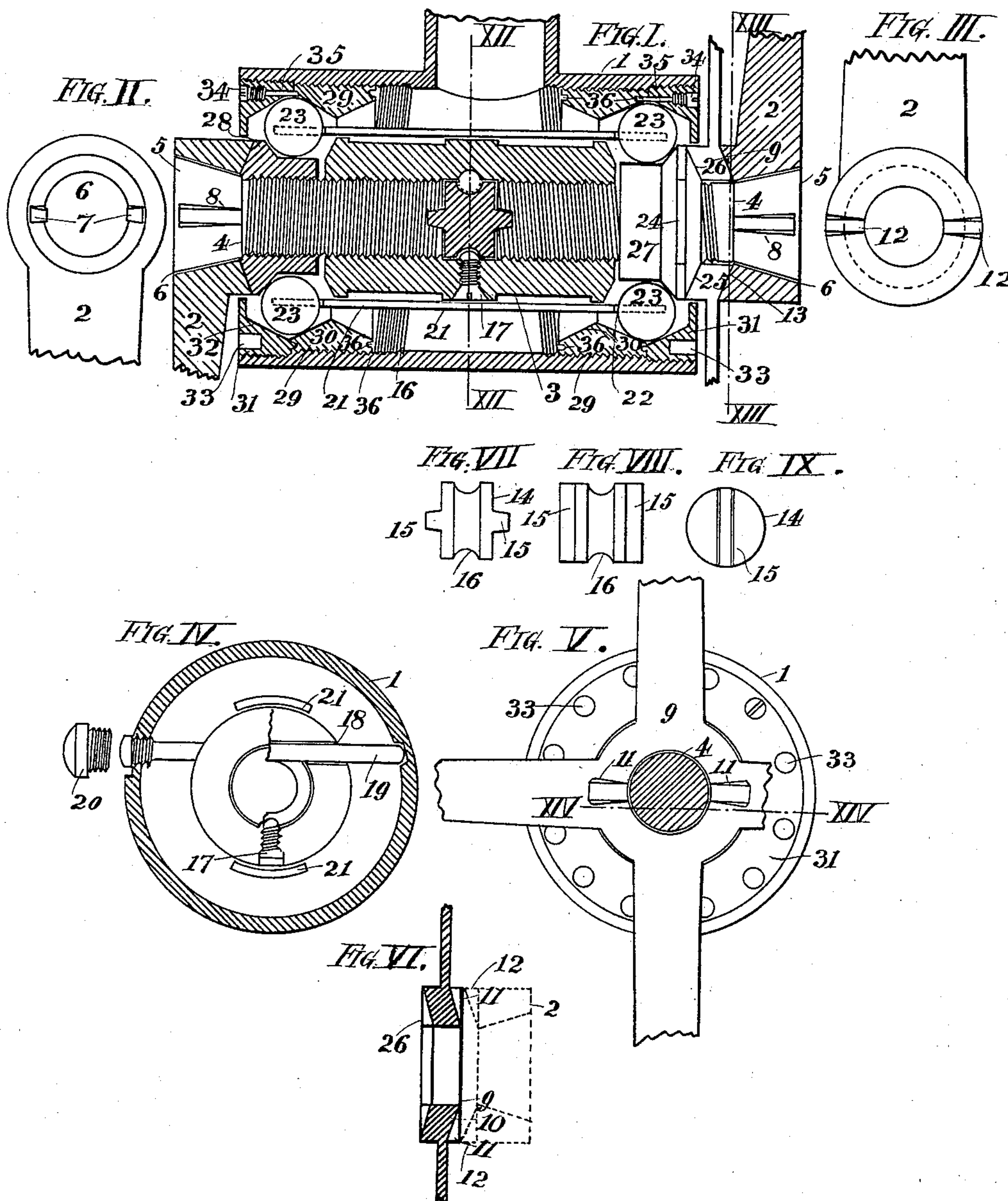
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Patented July 19, 1898.

J. BAKER.
BICYCLE HUB AND BEARING.

(Application filed Apr. 14, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

JOHN BAKER, OF PASADENA, CALIFORNIA.

BICYCLE HUB AND BEARING.

SPECIFICATION forming part of Letters Patent No. 607,727, dated July 19, 1898.

Application filed April 14, 1897. Serial No. 632,100. (No model.)

To all whom it may concern:

Be it known that I, JOHN BAKER, a citizen of the United States, residing at Pasadena, in the county of Los Angeles, State of California, have invented certain new and useful Improvements in Bicycle Hubs and Bearings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in hubs for bicycles and kindred wheels; and my invention consists in features of novelty hereinafter described and claimed.

Figure I represents a longitudinal section of the crank-hub, showing the divided crank-axle secured therein. Fig. II represents a side elevation in detail of one of the cranks, showing lugs thereon which engage in grooves in the axle. Fig. III is a detail view showing the inner face of one of the cranks and the grooves therein in which lugs on the sprocket-wheels engage for forming a connection between the sprocket-wheel and the crank. Fig. IV is a transverse section of the crank-hub, taken on line XII XII, Fig. I. Fig. V is a section taken on line XIII XIII, Fig. I, showing sprocket. Fig. VI is a section through sprocket, taken on line XIV XIV, Fig. V. Fig. VII represents a side elevation of the grooved locking-key placed in the center of the crank-hub. Fig. VIII is a similar view showing different position of the locking-key. Fig. IX represents an end elevation of the locking-key.

Referring to the drawings, 1 represents a hub in which the crank 2 operates.

3 represents a sleeve in the center of the hub, said sleeve being threaded on its inner face.

4 represents a divided axle having its inner ends threaded to engage the sleeve 3 and having cone-shaped sections 5 on its outer end, said cone-shaped sections fitting into similar shaped openings 6 in the cranks in order to hold the cranks in position, there being lugs 7 in the beveled openings 6 of the cranks which engage slots 8 in the axles, thus interlocking the cranks with the axles and causing them to rotate together.

9 represents a sprocket-wheel having its

outer face beveled at 10 and having lugs 11, which fit into recesses 12 in the inner face of the cranks adjacent to the sprocket-wheel, by which means the cranks and sprocket-wheel are interlocked, causing them to rotate together, the inner face of the crank where it is joined by the sprocket-wheel being beveled, as shown at 13, to correspond with the beveled portion of the sprocket-wheel.

14 represents an annular locking-key placed in the center of the sleeve 3, said key having projections or lugs 15 on its ends, said lugs engaging in slots 16 in the inner ends of the axle 4, thus interlocking the two sections of the axle and causing them to rotate together.

16 represents an annular groove surrounding the locking-key 14, in which engages the inner end of a screw 17, said screw extending through a sleeve 3, the object of said screw being to prevent endwise movement of the locking-key. The groove 16, however, being somewhat greater in diameter than the inner end of the screw, permits a slight movement in an endwise direction of the locking-key in order to accommodate itself to the axle. In order to provide means for taking the axle apart when necessary, I provide an orifice 18 in the hub and sleeve, into which may be inserted a pin 19, extending into the groove 16 of the locking-key, to prevent its movement endwise and permitting the divided axle to be unscrewed from the sleeve 3. When the wheel is in use, the pin 19 may be withdrawn and the orifice in which it is inserted closed by means of a screw-cap 20.

21 represents a spacer surrounding the sleeve 3, said spacer having pockets 22 in its end, into which the bearing-balls 23 extend, the object of the spacer being to keep the bearing-balls in their proper relative position to each other.

24 represents a nut placed on the axle 4, having an outer beveled face 25 engaging an inner beveled face 26 of the sprocket-wheel, by which means the sprocket-wheel is forced into contact with the crank 2, the lugs 11 on the sprocket-wheel being forced into the slots 12 on the crank. The inner face of the nut 24 is provided with a bearing-surface 27, on which the bearing-balls rotate, the opposite end of the axle having a nut 28 thereon, also forming a bearing for the balls 23.

29 represents the bearing-cups, threaded on their outer face and screwed into the hub 1, said cups having a double-beveled face 30, by which means they are made reversible, said beveled face forming the outer bearing for the bearing-balls 23.

31 represents the dust-cap, screwed into the hub 1 near its outer ends, said caps having beveled faces 32. The dust-caps are provided with recesses 33, in which may be placed a screw 34, said screw having a pin 35 on its inner end, said pin extending into a hole 36 in the cup 29, thus forming a connection between the dust-cap and the cup in order to adjust the cup to regulate the bearings, the cap 31 having a series of openings 33, in which a tool may be inserted to tighten up the bearings. The lugs for locking the axle to the cranks and the lugs for connecting the sprocket-wheel with the cranks are beveled, and the sockets into which they extend are also beveled in order to form a complete connection between the parts.

The threads on the different ends of the hubs into which the cups 29 are screwed are right and left hand threads and the threads at the ends thereof into which the dust-caps are screwed run in the opposite direction, so that in screwing the dust-caps into position the cups are drawn toward the dust-caps, thus compensating for any wear. By reversing the movement on the dust-caps after the pin has been removed they may be detached without affecting the position of the cups. The rear and front hubs are of somewhat different construction peculiar to their functions.

I claim as my invention—

1. In a crank-hub for bicycles the combination of the hub proper, suitable bearings therein, a sleeve within the hub, a locking-key within the sleeve, said locking-key hav-

ing a central annular groove, lugs on the locking-key, and recesses on the inner ends of the crank-axle which engage said lugs, and means for engaging the annular groove substantially as set forth.

2. In a crank-hub for bicycles the combination of the hub proper having suitable bearings, a sleeve having an internal right and left screw-thread, a key within the sleeve having a peripheral groove and lugs on its faces, a divided axle having recesses into which the lugs extend, a hole extending into the hub and through the sleeve whereby a pin may be inserted to hold the locking-key from moving endwise, substantially as set forth.

3. In a crank-hub for bicycles, the combination with a divided axle, having cone-shaped sections on its outer ends facing toward the center of the axle, a locking-key, a sleeve having an internal right and left screw-thread and a crank having a tapering opening through it in which the cone-sections on the outer ends of the axle are adapted to be seated, means for clamping the crank on said cone-section, substantially as described.

4. In a bicycle-hub, the combination with a divided axle, cone-shaped sections integral with the outer ends of the same, facing toward the center of the axle, diametrically opposite beveled recesses in said cone-sections, a locking-key for the axle, of a crank having a tapering opening throughout it, and diametrically opposite beveled lugs in said tapering openings adapted to engage the recesses in said cone-sections and the cone-nuts 27 substantially as described.

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