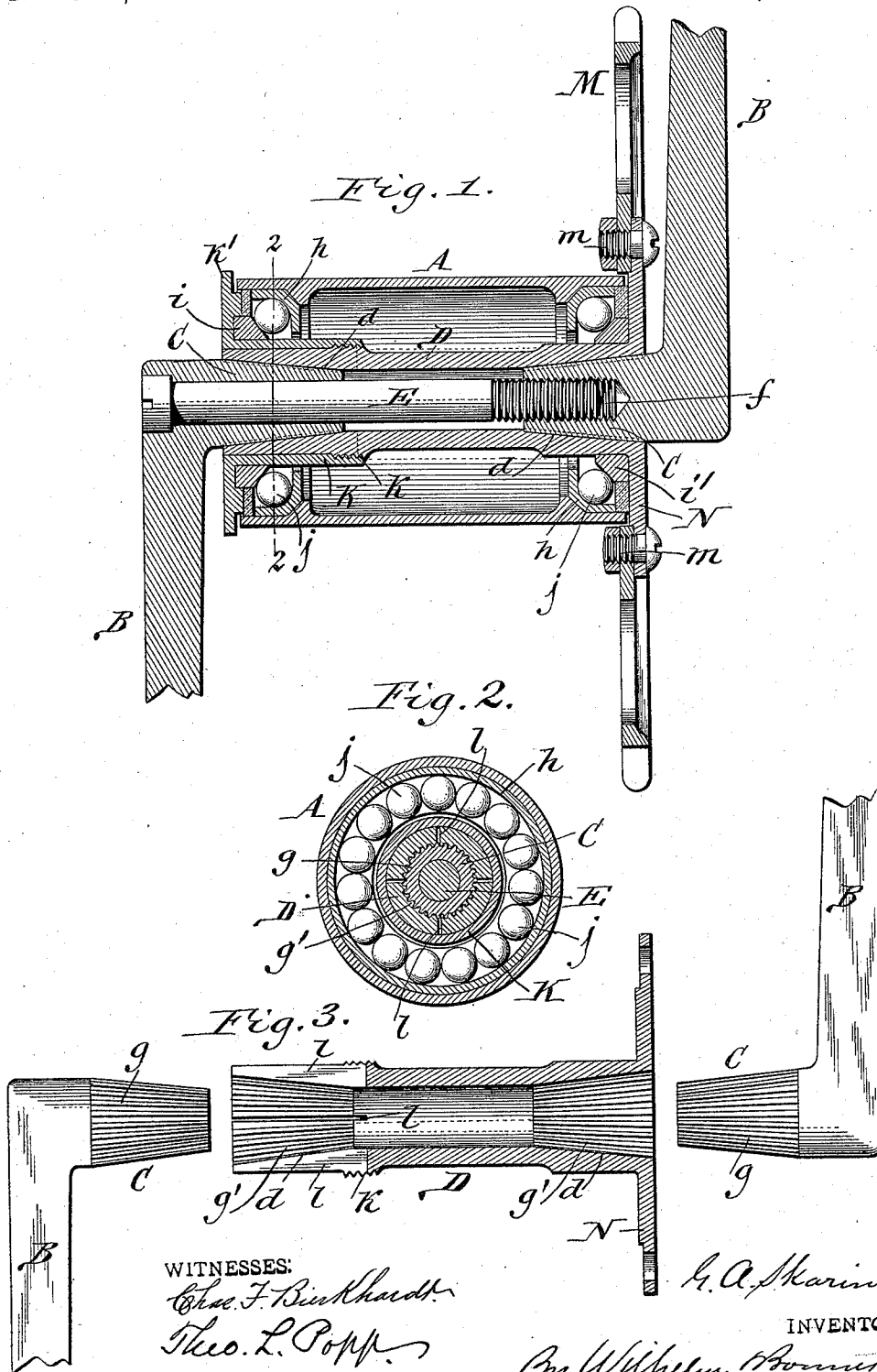


(No Model.)

G. A. SKARIN.
VELOCIPEDE.

No. 579,307.

Patented Mar. 23, 1897.



WITNESSES:

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VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 579,307, dated March 23, 1897.

Application filed June 10, 1896. Serial No. 594,945. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF A. SKARIN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Velocipedes, of which the following is a specification.

This invention relates to that class of velocipede-cranks in which each crank is formed with an integral shaft-section or shank and in which such shaft-sections or shanks are connected by a coupling-sleeve supported in the hanger or bracket of the machine by ball-bearings.

My invention has for its objects to provide the cranks with reliable and inexpensive means for securing the same in the coupling-sleeve and to reliably retain the adjusting-cone of the ball-bearing in position without the use of external lock-nuts or other projecting parts liable to catch the rider's clothing.

In the accompanying drawings, Figure 1 is a sectional elevation of the hanger and the crank-shaft. Fig. 2 is a cross-section in line 2 2, Fig. 1. Fig. 3 is a sectional elevation of the cranks and the coupling-sleeve, showing the parts separated.

Like letters of reference refer to like parts in the several figures.

A is the crank-shaft hanger or bracket, which may be of the ordinary cylindrical form.

B represents the cranks, and C the shaft-sections or shanks, which are preferably formed integrally with the cranks, respectively, as shown.

D is the supporting or coupling sleeve which connects the shanks or shaft-sections of the cranks and which is journaled in the hanger or bracket. The shanks of the cranks are conical or tapered inwardly and fit into similarly-shaped seats or sockets *d*, formed in the ends of the coupling-sleeve.

E is a tie rod or bolt whereby the shanks of the cranks are drawn into the coupling-sleeve and confined therein. This tie-bolt passes through an axial opening formed in the shank of one of the cranks, preferably the left-hand crank, and its screw-threaded inner end engages in an internally-screw-threaded opening or socket *f*, formed in the shank of the other crank. The head of the tie-bolt is preferably countersunk in the ad-

jacent crank, as shown in Fig. 1, so as to leave the outer face of the crank free from projecting parts on which the rider's clothing is apt to catch.

In order to firmly hold the shanks of the cranks against turning in the conical seats of the coupling-sleeve, the same are provided with longitudinal ribs or corrugations *g*, which extend around the entire circumference thereof, and the seats in the sleeve are formed with corresponding ribs or corrugations *g'*, which interlock with the corrugations of the crank-shanks. Upon tightening the tie-bolt E the tapering shanks of the cranks are firmly drawn into the seats of the coupling-sleeve and the corrugations of these parts are at the same time interlocked, thus securely retaining the shanks within the sleeve and reliably holding the same against turning therein.

h represents the bearing-cups, arranged in the ends of the hanger in a well-known manner. *i i'* are the bearing-cones, and *j* the balls interposed between the cups and the cones. One of these cones, preferably the right-hand cone *i'*, is secured to the coupling-sleeve D by pressing the same thereon or otherwise, while the opposite cone *i* is rigidly secured to or formed integrally with an adjusting sleeve or collar K, mounted on the adjacent end of the coupling-sleeve. This collar is made adjustable on the coupling-sleeve by a screw-thread *k*, as shown, or by any other suitable means, so that the movable cone *i* is moved toward or from the opposing bearing-cup by turning the adjusting collar accordingly, the collar being provided at its outer end with an outwardly-extending annular flange *k'* for operating it.

The portion of the coupling-sleeve D inclosed by the adjusting-collar K is split lengthwise, as shown at *l* in Figs. 2 and 3, so that in tightening the cranks by drawing up the tie-bolt E the conical shank of the left-hand crank spreads or expands the split end portion of the coupling-sleeve into the bore of the adjusting-collar K, and thereby clamps the collar tightly upon the sleeve. When it is desired to adjust the bearing, the tie-bolt E is loosened and the shank of the left-hand crank is withdrawn or driven outward sufficiently to release the adjusting-

collar, when the latter can be turned to properly adjust the bearings, and after making the adjustment the tie-bolt is again tightened for securing the collar in position. By the
5 employment of this locking device no separate locking means for the adjusting-cone is required, thus simplifying and cheapening the construction correspondingly, and the
10 use of lock-nuts, keys, or other projecting parts liable to catch the rider's clothing is at the same time avoided.

M is the usual sprocket or driving wheel, which is preferably hubless and has its arms secured by bolts *m* to a flange N, formed on
15 the adjacent end of the coupling-sleeve.

I claim as my invention—

1. The combination with a hanger or bracket, of a supporting-sleeve journaled in
20 said hanger and having a split end portion provided with a tapering bore or seat, a bearing-cone mounted adjustably on said split portion, and a crank having a tapering shank fitted in the tapering seat of said supporting-

sleeve, whereby the split portion of the sleeve is expanded into the adjustable cone and
25 caused to clamp the same upon forcing said tapering shank into the sleeve, substantially as set forth.

2. The combination with a hanger or bracket, of a coupling-sleeve journaled in
30 said hanger and provided with a split end portion having a conical bore, cranks having shanks seated in the ends of said sleeve, one of said shanks being conical and fitted in the
35 conical bore of the sleeve, a collar mounted adjustably on the split portion of the coupling-sleeve and carrying a bearing-cone, and a tie-bolt whereby the shanks of the cranks are connected and drawn into the coupling-
40 sleeve, substantially as set forth.

Witness my hand this 3d day of June, 1896.

GUSTAF A. SKARIN.

Witnesses:

CARL F. GEYER,

ELLA R. DEAN.