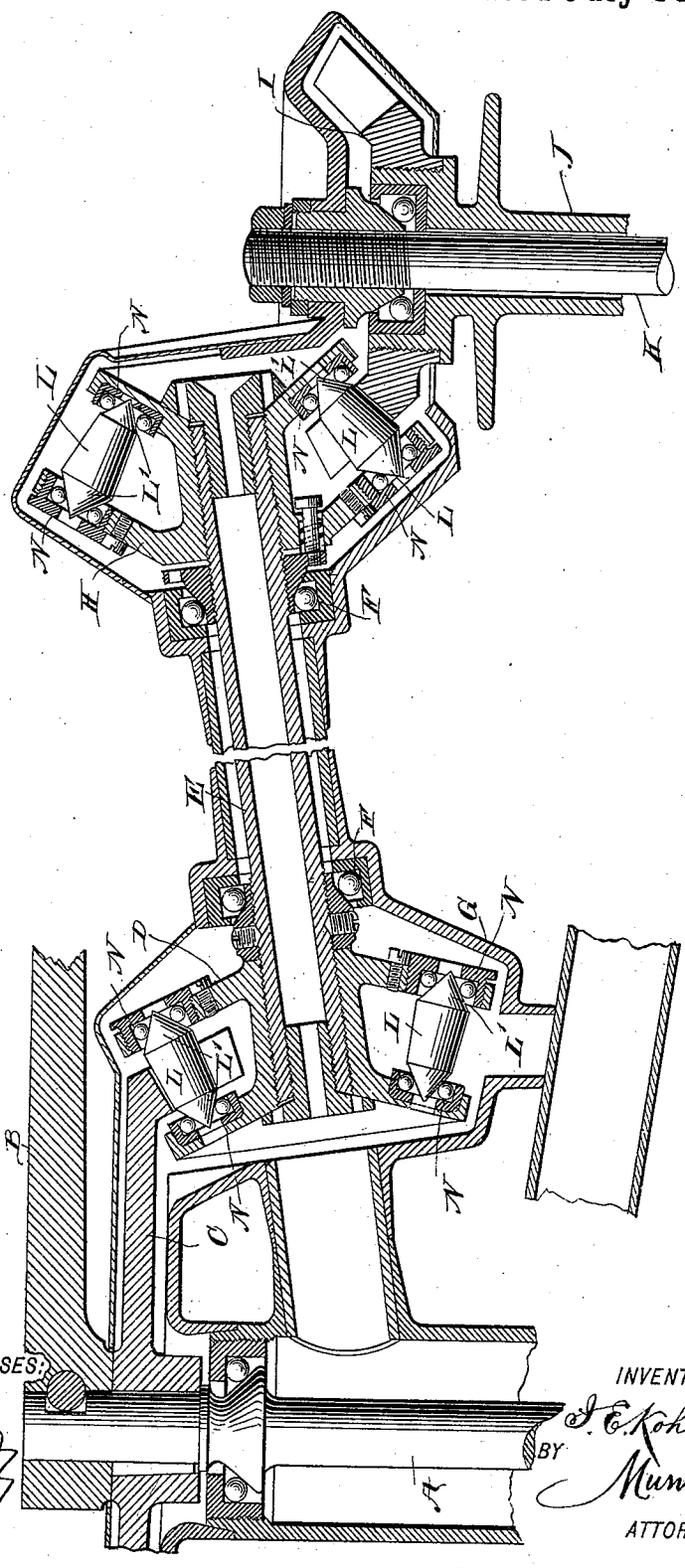
(No Model.)

I. E. KOHLMEYER.

DRIVING MECHANISM FOR CYCLES.

No. 563,971. Patented July 14, 1896.



WITNESSES:

Paul Sokal

Thos. J. Hoard Jr.

INVENTOR

I. E. Kohlmeyer

BY

Munn & Co

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

INGO E. KOHLMEYER, OF COPENHAGEN, DENMARK, ASSIGNOR TO GUSTAV LEO HALBERSTADT, OF SAME PLACE.

DRIVING MECHANISM FOR CYCLES.

SPECIFICATION forming part of Letters Patent No. 563,971, dated July 14, 1896.

Application filed May 14, 1894. Serial No. 511,225. (No model.) Patented in Germany November 28, 1891, No. 63,101; in England November 28, 1891, No. 20,764; in France December 7, 1891, No. 204,704, and in Denmark May 4, 1892, No. 24.

To all whom it may concern:

Be it known that I, INGO E. KOHLMEYER, manufacturer, of 5 Raadhus strade, Copenhagen, Denmark, have invented certain new and useful Improvements in Driving Mechanism for Cycles, of which the following is a specification, and for which Letters Patent were granted in Germany November 28, 1891, No. 63,101; in Great Britain November 28, 1891, No. 20,764; in France December 7, 1891, No. 204,704, and in Denmark May 4, 1892, No. 24, in the joint names of Cornelius Steffensen, Christian Woer, and Ingo Kohlmeyer.

The object of the invention is to provide a new and improved driving-gear for cycles which is simple and durable in construction and arranged to directly transmit the motion of the crank-shaft to the driving-wheel by means of gear-wheels instead of the endless sprocket-chain heretofore employed.

The invention consists principally in certain arrangements of shafts with which are used gears of peculiar construction, as described below.

The invention further consists in certain details of construction of said gears, which are below pointed out.

The invention also consists of certain parts and details, and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawing, in which the figure is a sectional plan view of the improvement.

The bicycle is provided with the usual crank-shaft A, carrying the cranks B, and also carrying a bevel gear-wheel C in mesh with a bevel gear-wheel D, secured on a shaft E, journaled in ball-bearings F, arranged in an auxiliary frame G, forming part of the main frame of the bicycle. The shaft E extends longitudinally and carries at its rear end a bevel gear-wheel H in mesh with a bevel gear-wheel I, secured on the hub J of the driving-wheel journaled on the axle K. Now, when the pedals are set in motion by the rider of the bicycle, a rotary motion is given to the crank-shaft A, and this motion is transmitted by the bevel gear-wheels C and D to the longitudinally-extending shaft E, which transmits this motion by the bevel gear-wheels H and I to the hub J of the driving-wheel, so that the bicycle is propelled forward.

The bevel gear-wheels D and H have their teeth, preferably made in the shape of rollers L, made conical, with the pointed ends L′ engaging ball-bearings N, arranged in the flanges of the gear-wheels D and H. By this arrangement the friction of the meshing gear-wheels is considerably reduced, it being understood that all the bevel gear-wheels may be constructed with such journaled rollers as their teeth, if desired.

By the arrangement described the rotary motion of the crank-shaft A is directly transmitted to the driving-wheel without the use of the endless sprocket-chain and sprocket-wheels now employed in bicycles.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with the drive and the driven shaft, of a counter-shaft geared thereto, the gears on the counter-shaft being formed with parallel flanges each having circularly-arranged series of opposed ball-bearings and roller-like teeth journaled at their ends in said ball-bearings, substantially as described.

2. The combination with the drive and the driven shaft, of a counter-shaft having an inclosing case provided with ball-bearings in which it turns, the gears on the counter-shaft being formed with parallel flanges provided with circularly-arranged series of ball-bearings and roller-like teeth having conical ends journaled in said ball-bearings, substantially as described.

3. The combination with the hub and parallel flanges having opposed recesses or sockets and openings respectively, of the ball-bearings N N′ held removably in said recesses and openings and the roller-like teeth journaled at their ends in the opposed ball-bearings, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

INGO E. KOHLMEYER.

Witnesses:
CHR. WOER,
L. HOFMAN BARY.