No. 839,979. PATENTED JAN. 1, 1907.

W. BOOS.

DRIVING GEAR FOR CYCLES.

APPLICATION FILED APR. 21, 1905.

Fig. 1.

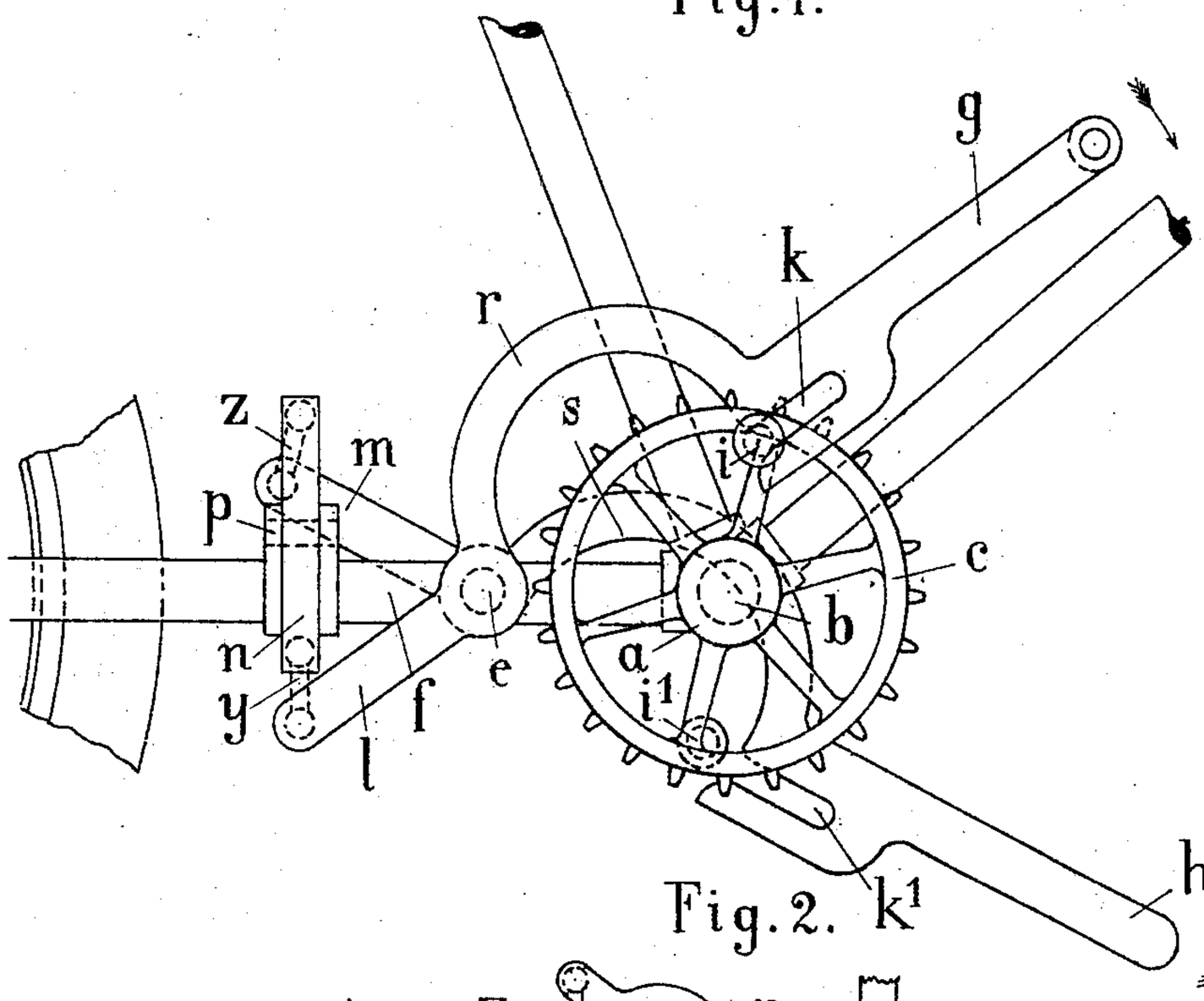


Fig. 2.

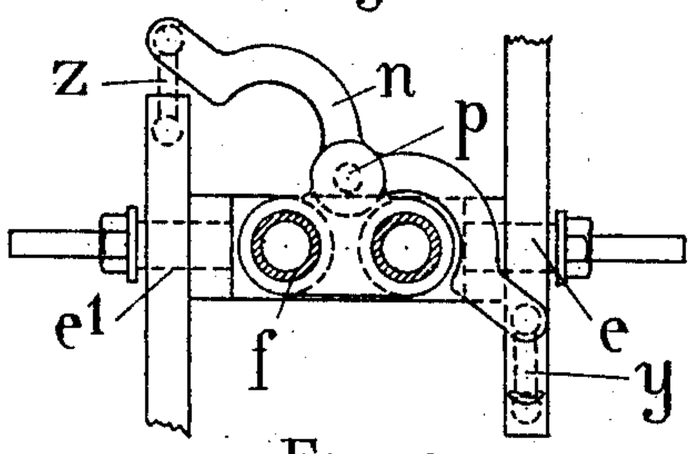
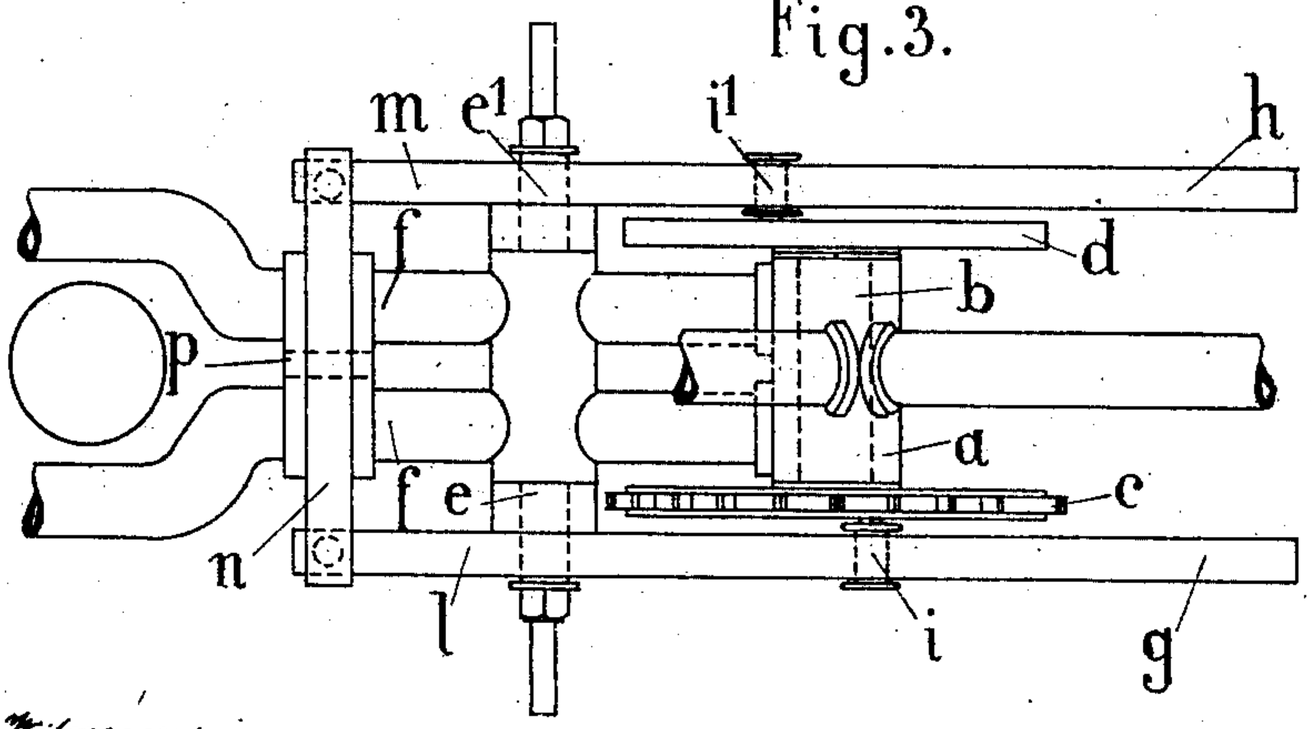


Fig. 3.



Witnesses:
Georg Loth
M. Fleischmann

Inventor:
Wilhelm Boos

UNITED STATES PATENT OFFICE.

WILHELM BOOS, OF ERLANGEN, GERMANY.

DRIVING-GEAR FOR CYCLES.

No. 839,979. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed April 21, 1905. Serial No. 256,746.

To all whom it may concern:

Be it known that I, WILHELM BOOS, a subject of the German Emperor, and a resident of Erlangen, in the Kingdom of Bavaria, German Empire, have invented new and useful Improvements in Driving-Gear for Cycles, of which the following is a specification.

Cycle driving-gears are already well known in which the one limb of each double-armed pedal-lever serves to give positive guidance to the two levers relatively to each other, while the other limb serves for the transmission of power, this latter limb being only in engagement during the actual period of transmission. In this manner uniform up-and-down motion of the pedals is insured.

My invention relates to this class of gears. The pedal-levers are connected positively with each other in well-known manner, and their front ends are provided with guideways adapted to receive crank-pins on the sprocket-wheel, whereby the latter is rotated.

The essential feature of the invention is that the guideways of the pedal-levers are so formed at their ends which lie nearest to the fulcrum that on one of the levers rising the corresponding crank-pin is released for the distance of one hundred and eighty degrees.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the driving-gear; Fig. 2, a cross-section through the same, and Fig. 3 a plan thereof.

The frame *f* of the cycle has a bearing *a*, in which is mounted the shaft *b*. To one of the ends of this shaft is rigidly secured the sprocket-wheel *c* and to the other end a driving-wheel *d*. The wheels *c d* are each provided near the periphery with a pin provided with a roller *i i'*, respectively, the two pins lying at an angle of one hundred and eighty degrees to each other.

e is an axis mounted in the frame *f* and carrying the pedal-levers *g h*, which in descending bear against the rollers *i i'* and in this manner serve to effect rotation of the sprocket-wheel *c* and driving-wheel *d*. In order to afford the rollers *i i'* guidance during the period that they act to rotate the driving-wheels, each pedal is provided on the lower side with a slot *k* of sufficient width to receive the rollers *i i'*, respectively.

If now the pedal-lever *g* is depressed, the roller *i* will advance into the slot *k* of this lever, and at the same time will be moved downwardly, whereby the sprocket-wheel *c*, and thus also the driving-wheel *d*, will be rotated. During the time in which the lever *g* has moved from its highest to its lowest position the other lever *h*, with the roller *i'*, will have ascended from its lowest into its highest position. In this position the upper dead-point has been passed.

In order to raise the pedal-levers, the rearwardly-prolonged ends *l m* are positively connected by links *y z* with a cross-bar or yoke *n*, turning at *p*. On descent of the lever *g*, therefore, the lever end *l* will be moved upward, whereby the yoke is so inclined that the lever end *m* is now moved downward and the lever *h* upward. The links *y z* may have ball ends working in sockets in the connected parts, as shown.

In order to enable the pedal-levers to be raised with positive motion from the bottom into the top position, the levers must be so formed that they release the rollers *i i'* in their lowest position—that is to say, when the lower lever releases the corresponding roller the upper lever must have already engaged its roller. Thus at the same moment in which the lower lever releases its roller the upper lever again comes into operation. For this purpose those parts of the levers which would come in question as points of engagement in the dead-point positions are upwardly bent or bowed, as shown at *r* and *s*. In this manner the lower roller after having passed its lowest position releases the corresponding lever, which is guided upward owing to the descent of the upper lever, which now comes into engagement—that is to say, owing to the positive connection existing between the two levers.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

A driving-gear for cycles, comprising in combination, a shaft mounted in the frame, a sprocket-wheel and a driving-wheel rigidly mounted at the ends thereof, a pin projecting laterally from each of the said wheels, the two pins being located at an angle of one hundred and eighty degrees to each other, an axis mounted in the frame, double-armed pedal-levers mounted thereon, and a yoke pivoted

to the frame and linked to the tail ends of each of the pedal-levers, the other arms of the levers having open guide-slots adapted to receive the crank-pins of the said wheels, in such manner that when one lever engages one pin, the other lever releases the other pin, substantially as described.

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

WILHELM BOOS.

Witnesses:
OSCAR BOCK,
HANS MAETER.