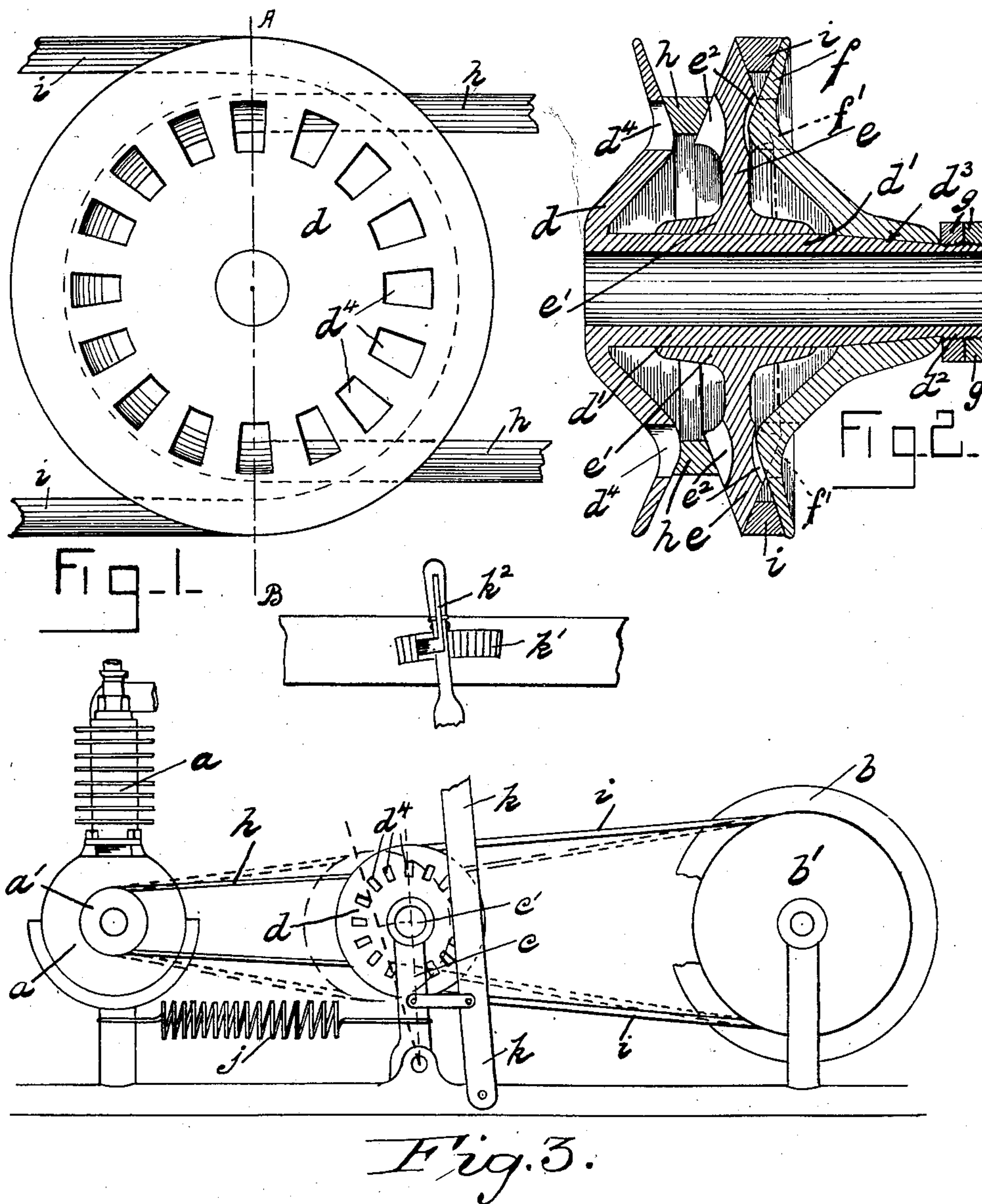


No. 814,060.

PATENTED MAR. 6, 1906.

C. F. G. LOW.
VARIABLE SPEED GEAR.
APPLICATION FILED AUG. 29, 1903.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES FREDERICK GEMLEY LOW, OF CHARLTON, ENGLAND.

VARIABLE-SPEED GEAR.

No. 814,060.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed August 29, 1903. Serial No. 171,241.

To all whom it may concern:

Be it known that I, CHARLES FREDERICK GEMLEY LOW, a subject of the King of Great Britain, residing at Charlton, in the county of Kent, England, have invented a new and useful Variable-Speed Gear for Motor-Vehicles and the Like, of which the following is a specification.

This invention relates to an improved variable gear, and has for its object the provision of a simple and convenient means of varying the ratio of the speed of the motor to the speed of the driven wheel to any degree between the limits of the mechanism.

In order that this my said invention may be the more readily understood and carried into practical effect, reference is hereby made to the accompanying sheet of illustrative drawings, wherein—

Figure 1 is a side elevational view of the essential feature of my invention, Fig. 2 being a sectional view thereof on line A B of Fig. 1, while Fig. 3 is a side elevational view showing the application of my invention.

Referring to the drawings, in which like letters of reference indicate corresponding parts wherever occurring, *a* represents a motor, and *b* the wheel which the motor is arranged to drive.

In a convenient position between the motor *a* and the driven wheel *b* a hinged or, if desirable, sliding bracket *c* is arranged. Upon the upper end of this bracket *c* a rigid spindle *c'* is carried, and upon the spindle *c'* a suitably-shaped disk *d*, formed integral with a barrel *d'*, is revolvably held. The end of the barrel *d'* remote from the disk *d* is reduced and screw-threaded, as at *d²*, while a portion of the barrel *d* adjacent to the screw-threaded end *d²* is tapered, as at *d³*.

Mounted upon the cylindrical portion of the barrel *d'* a second disk *e* of convenient construction and capable of lateral movement is mounted, the hub *e'* of the said disk *e* being extended to insure the disk maintaining its vertical position. A third disk *f*, having a tapered opening in its boss, is rigidly held upon the tapering portion of the barrel by means of lock-nuts *g*.

All the disks *d*, *e*, and *f* are provided with slots *d'*, *e'*, and *f'*, which are of the same diameter and are of a shape in section substantially as shown by the drawings, so that two belt-paths are provided by the three disks.

In one of the V-shaped belt-paths thus formed the belt *h* from the motor-pulley *a'* is

arranged, and in the other the driving-belt *i*, passing around the pulley *b'* of the driven wheel *b*, is arranged.

The variations in the speed of the driven wheel *b* are effected by the movement of the double pulley, formed by the disks *d*, *e*, and *f*, as before described, farther from or nearer to the motor.

If the hinged or sliding bracket *c* is moved so that the spindle *c'*, and consequently the double pulley, formed by the disks *d*, *e*, and *f*, is caused to move nearer to the motor, the driving-belt *i* will be tightened, and this, acting between the belt-face *e²* of the central disk *e* and the belt-face *f'* of the disk *f*, will cause the disk *e* to move laterally, thus decreasing the diameter of the driving-belt path.

The lateral movement of the disk *e* will at the same time correspondingly increase the diameter of the belt-path, around which the belt *h* from the motor passes, and consequently the gear will be lowered.

It will be readily understood that if the bracket *c* is moved in the opposite direction away from the motor the reverse action will take place and the gear will be raised. It is also obvious that the degree of variations will depend on the distance the double pulley is moved one way or the other.

This invention is mainly intended for use on motor-bicycles and light motor-cars, and various means may be employed for moving the double pulley and retaining it in any desired position. As an example, the hinged bracket *c* may be normally maintained by means of the spring *j* with the twin pulley in its position nearest to the motor, and the driven wheel *b* will revolve at its lowest speed. When it is desired to increase the speed of the wheel *b*, the position of the hinged bracket *c* is altered by means of the lever *k*, so that the twin pulley is carried, in opposition to the spring *j*, farther from the motor, when, as aforesaid, the motor-belt path will contract and the driving-belt path correspondingly expand, and consequently the gear of the machine will be raised.

Suitable means may be employed for retaining the lever *k* in any desired position—such, for instance, as a toothed rack *k'*, operating in conjunction with a spring-pawl *k²*, carried by the said lever *k*.

What I desire to secure by Letters Patent is—

In a variable-speed gear, the combination of a disk formed integral with one end of a

barrel revolubly mounted upon a spindle carried by a movable bracket, said disk having a belt-face, the barrel; the spindle; a second disk in rigid connection with the opposite end
5 of said barrel and having a belt-face; a third disk having two belt-faces and held to slide upon the said revolving barrel between the two said fixed end disks, the three disks forming two belt-paths, around one of which
10 passes the belt from the motor and around the other passes the belt to the driven wheel; with a movable bracket carrying the spindle on which is mounted the said revoluble barrel, whereby the position of the axis of the

pulley is altered in relation to the position of the motor; and the means for altering the position of the movable bracket; and the means for retaining same in any position within the limits of its movement, substantially as specified.
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In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES FREDERICK GEMLEY LOW.

Witnesses:

A. MONTAGUE BRADLEY,
HERBERT RUGLYS.