





# UNITED STATES PATENT OFFICE.

CHARLES C. KEYSER, OF NEWPORT NEWS, VIRGINIA.

## CLUTCH.

No. 814,545.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, CHARLES C. KEYSER, a citizen of the United States, residing at Newport News, in the county of Warwick and State of Virginia, have invented certain new and useful Improvements in Clutches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to clutches of that character designed to be attached to the rear coaster-brake hub of chain-driven motor-cycles; and one of the principal objects of the same is to provide simple and efficient means for connecting and disconnecting the running-gear to and from the motor in order that the motor may be permitted to run without turning the rear wheel.

Another object is to provide a device of this character which shall be comparatively simple in construction, of few parts, and which may be quickly operated to connect and disconnect the running-gear from the power.

These objects are attained by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of a coaster-brake hub having my improved throw-off device connected thereto. Fig. 2 is a plan view of a tooth-disk. Fig. 3 is a similar view of a movable tooth-disk. Fig. 4 is a plan view of the sprocket-wheel. Fig. 5 is a plan view of the friction-disk, and Fig. 6 is a detail sectional view of a portion of the same.

Referring to the drawings for a better description of my invention, the numeral 1 designates a friction-disk having an inclined periphery 2 and comprises the outer member and the inner member 3, said two members being fitted together and the member 3 provided with a screw-threaded hub 4. The two members of the disk are at suitable intervals provided with cut-away portions to accommodate springs 5, and the ends 6 and 7 of the two members are extended laterally to form abutments for the ends of the springs. A headed bolt 8 serves to hold the two members together. The purpose of the springs is to take up or absorb the shock caused by the sudden movement of the clutch-disk against its friction-surface, which causes jerking of the chain, and each explosion of the motor is absorbed by the springs instead of the fric-

tion-faces slipping and causing undue wear on these parts. A series of balls 9 may be utilized as a bearing between the two members of the friction-disk, as shown. This friction-disk is attached in place of the motor side sprocket, and the hub of the friction-disk is screwed in place, and the lock-nut 10 is provided for holding the same rigidly in place. The sprocket-wheel 11 is provided with a friction-surface 12, which conforms with the periphery of the friction-disk, and upon the opposite side said sprocket-wheel is provided with a ball-raceway 13, in which are steel balls to reduce friction to a minimum. A movable tooth-disk, which forms a wedge between the sprocket-wheel and the rigidly-secured wedge-disk, is provided with a registering ball-raceway 14 and a projecting lug or periphery rim which fits against the outer side of the sprocket-wheel and may have a washer 40, of felt or other suitable material, to exclude dust, dirt, &c. The teeth or wedges 16, any suitable number of which may be used, have inclined faces, and at the upper portion of this disk an arm *a* is secured to or formed on the wedge-disk. This arm is connected by a suitable lever or handle which extends to within the reach of the driver. The wedge-disk 17, which is provided with oppositely-arranged teeth 18, is designed to be rigidly attached, by means of the arm 19, to any suitable portion of the frame of the cycle.

The operation of my invention may be described as follows: When it is desired to connect the running-gear to the motor without stopping the motor, the lever connected to the arm *a* is operated to turn the wedge-disk, and thus move the sprocket-wheel inward until the inclined friction-faces come into contact, at which time the springs 5 are compressed to relieve the parts of sudden strain or jars. An opposite movement of the lever of course disconnects the sprocket-wheel from the friction-disk.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a friction throw-off for motor-cycles, a friction-disk adapted to be secured to the rear hub of the vehicle and comprising a rigid disk and a movable disk, said two disks



being connected by a series of cushion-springs, a ball-bearing between said disks, a sprocket-wheel having a recess to receive the friction-disk and a friction-surface, a movable wedge-disk, ball-bearings between the sprocket-wheel and the wedge-disk and a rigid wedge-disk secured to the frame of the vehicle, substantially as described.

2. The herein-described friction device  
10 comprising the two members 1, 3, one member being secured rigidly to a hub and the other member adapted to move thereon, intermediate curved springs between the two members, the ends of the springs bearing

against lugs on the members, ball-bearings 15 between the members, a sprocket-wheel provided with a recess to accommodate the friction-disk and a friction-surface, a rigid wedge-disk, and a movable wedge-disk between the sprocket-wheel and the movable wedge-disk, 20 substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES C. KEYSER.

Witnesses:

C. A. LINDGORE,  
S. BLANTON.