

P. BRIX.

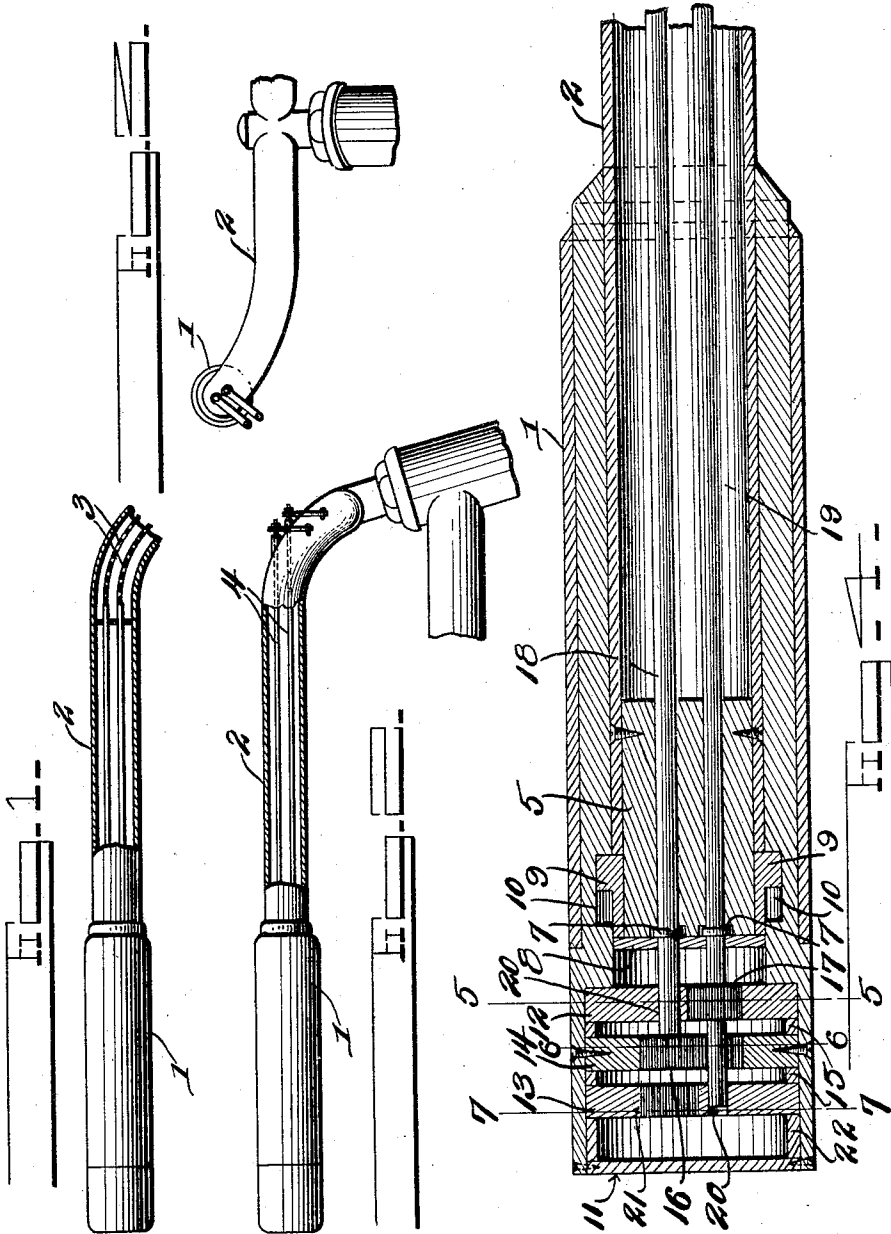
HAND GRIP CONTROL FOR MOTOR CYCLES.

APPLICATION FILED APR. 21, 1914.

Patented Oct. 20, 1914.

2 SHEETS—SHEET 1.

1,114,441.



Witnesses
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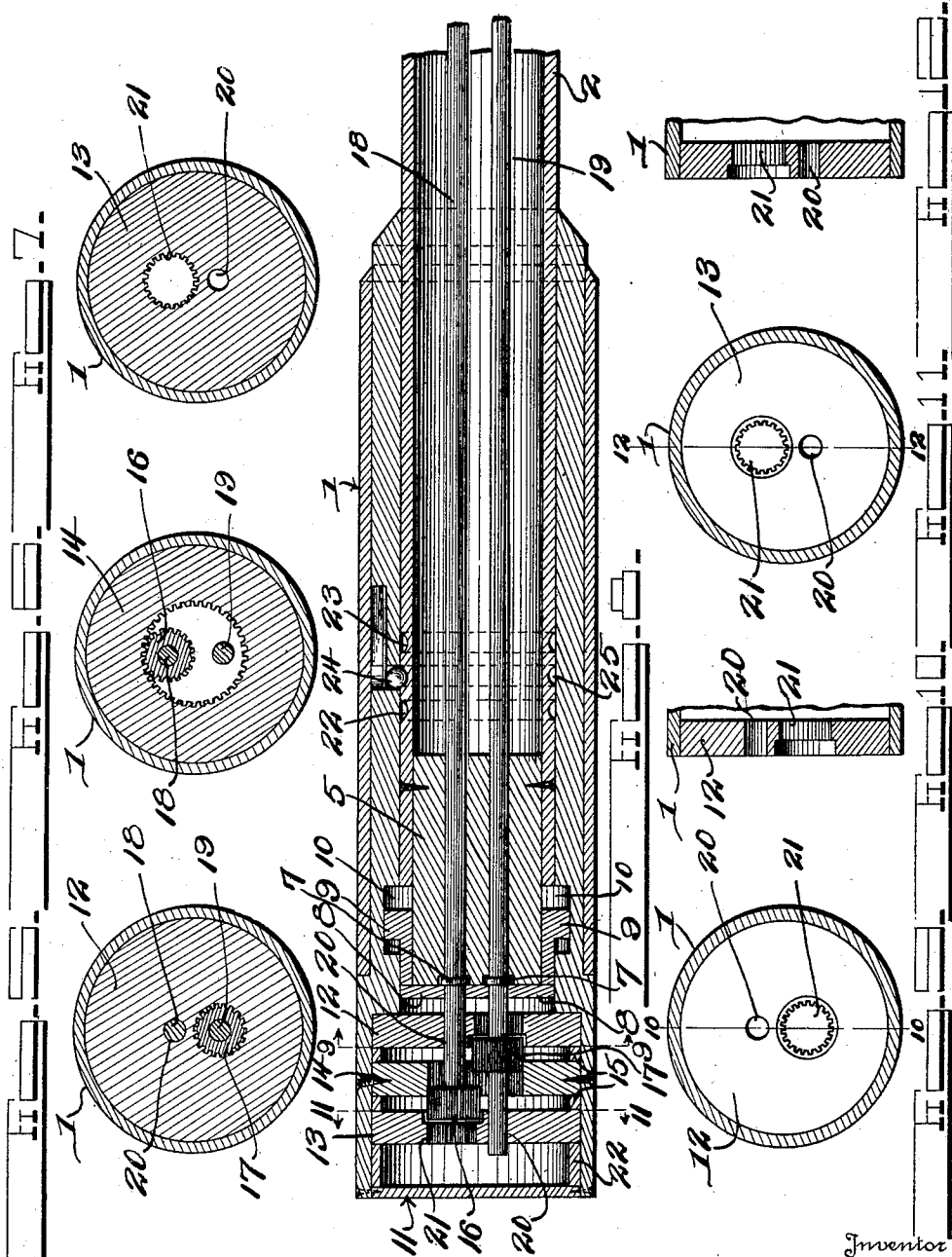
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PEDER BRIX, OF OMAHA, NEBRASKA.

HAND-GRIP CONTROL FOR MOTOR-CYCLES.

1,114,441.

Specification of Letters Patent.

Patented Oct. 20, 1914.

Application filed April 21, 1914. Serial No. 833,367.

To all whom it may concern:

Be it known that I, PEDER BRIX, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented new and useful Improvements in Hand-Grip Control for Motor-Cycles, of which the following is a specification.

This invention relates to improvements in motorcycles, and more particularly to a hand grip control for a motorcycle.

The object of this invention is to provide a motorcycle with a hand grip control by which the rider may control the spark, throttle, muffler and clutch without removing his hands from the handle bars.

While the preferred forms of this invention are illustrated upon the accompanying sheets of drawing, yet it is to be understood that minor changes may be made without departing from the scope thereof.

Figure 1 is a view in side elevation of a handle bar grip embodying this invention, with parts broken away, illustrating a rotatable flexible connection within the handle bar leading from the grip to the parts to be controlled thereby. Fig. 2 is a similar view illustrating the application of rotatable rod connected with the grip and passing through the handle bar for connection to the parts to be operated thereof. Fig. 3 is a view in front elevation of Fig. 2 with one handle bar broken away. Fig. 4 is an enlarged view in longitudinal vertical central section through this improved hand grip illustrating the control shafts and gears carried thereby in full lines. Fig. 5 is a detail view in sections taken on the line 5—5 of Fig. 4. Fig. 6 is a similar view taken on the line 6—6 of Fig. 4. Fig. 7 is a similar view taken on the line 7—7 of Fig. 4. Fig. 8 is an enlarged similar view to Fig. 4 illustrating a modification. Fig. 9 is a detail view in section taken on the line 9—9 of Fig. 8, with the shaft gear removed. Fig. 10 is a transverse section view taken on the line 10—10 of Fig. 9. Fig. 11 is a detail view in section taken on the line 11—11 of Fig. 8, with the shaft gear removed. Fig. 12 is a transverse section view taken on the line 12—12 of Fig. 11.

In order that the rider of a motorcycle may control the spark, throttle, muffler and clutch without removing his hands from the handle bar each hand grip is provided with a means for operating any two of the devices and, as the operation and construction of the connection in each hand grip is the same, it will be necessary to describe but one construction.

In carrying out this invention the hand grip 1 is mounted to have a rotary and a limited sliding movement upon the handle bar 2 and is so arranged that at one end of the sliding movement the hand grip will be connected with one of the controls and at the other end of the movement the hand grip will be in connection with the other control, the controls being so constructed that upon rotation of the hand grip in either position the connected control will be rotated therewith and the rotary movement will be transmitted either through a flexible connection 3 within the handle bar leading to one of the devices or by a rotatable rod 4 extending through the handle bar and provided at its exterior end with a connection to the device to be operated.

In the form illustrated in Fig. 4, a block 5 is rigidly secured within the end of the handle bar 2 with a portion extending therebeyond and is provided with longitudinal bearings within which the control shafts are mounted to rotate. The exterior end of the bearings are recessed to receive shoulders 7 upon the control shafts which are held therein by a closure plate 8 secured to the block preventing longitudinal movement of the control shafts in the bearings. The exterior portion of the block between the closure plate and termination of the handle bar is provided with a shoulder sleeve 9 with the shoulder preferably abutting against the handle bar. The hand grip 1 surrounds the handle bar, extends beyond the end thereof, and is provided with an interior groove 10 adapted to receive the shoulder of the sleeve at the end of the handle bar which groove is of sufficient width to allow a limited sliding movement of the grip upon the handle bar and at the same time allowing the free rotation of the grip

thereon. The exterior of the handle grip is preferably provided with the customary rubber gripping surface.

The rear end of the hand grip is enlarged to provide a cylindrical chamber for the operating parts with the outer end closed in any desired manner, such as a plate 11 screw-threaded therein or secured by screws, as illustrated. The operating mechanism comprises two locking disks 12 and 13 and an intermediate operating disk 14 equally spaced apart by cylindrical spacing members 15 upon the interior walls of the hand grip chamber. The locking disks are loosely mounted within the chamber while the intermediate operating disk is rigidly secured to the chamber wall, as by screws passing through the walls into the disk. The operating disk 14 is in the form of a ring provided with internal gear teeth adapted to mesh with gears 16 and 17 carried upon the control shafts 18 and 19. Each locking disk is provided with a bearing 20 through which one control shaft passes and with a circular aperture 21 provided with internal teeth within the gear upon the other control rod may be received with its teeth meshing with the teeth of the aperture. As shown in Fig. 4, the hand grip is at the end of its rearward movement with the upper control shaft 18 passing through the bearing 20 in the forward locking disk 12 and the gear 16 carried thereby fixed to the end of the shaft so that in this position the shaft gear will be in mesh with the gear teeth upon the operating disk 14. In this position the gear 17 upon the lower control shaft 19 is so arranged that it will be received within the circular aperture 21 in the forward locking disk 12 with its teeth in mesh with the teeth of this aperture and the control shaft extending beyond the gear to be received within the bearing 20 in the rear locking disk 13. It is readily seen that with the parts in this position a rotation of the hand grip in either direction will transmit the motion through the operation disk 14 secured thereto to the gear 16 upon the upper control shaft 18 and the lower control shaft 19 will be in locked position as its gear 17 is in mesh with the teeth in aperture 21 in the forward locking disk 12, this aperture being eccentric to the center of the disk and the upper control shaft 18 passing through the bearing 20 in this disk with the lower control shaft passing through the bearing 20 in the rear disk 13, as both disks are loosely mounted within the chamber in the hand grip they will remain relatively stationary irrespective of the rotation of the hand grip.

Upon movement of the hand grip to the forward limit of its travel the upper gear 16 will be received within the circular aper-

ture 21 in the rear locking disk 13 with its teeth in mesh with the teeth of the aperture and the toothed operating disk 14 will be moved forward into engagement with the lower gear 17 and the forward locking disk 12 simultaneously moved out of engagement with the lower gear. The rear locking disk 13 is spaced apart a sufficient distance from the rear closure plate 11 by a spacing member 22 to allow of the forward travel of the rear locking disk over the lower control shaft. In the forward position of the hand grip the upper control shaft will be locked while the lower control shaft through its gear 17 and the operating disk 14 engaged thereby will be in connection with the hand grip, so that upon rotation in either direction the lower control shaft will be rotated while the upper one will remain in the locking position.

It may be desirable to provide a means for detachably securing the hand grip at either end of its travel and to accomplish this two exterior grooves 22 and 23 may be provided in the exterior of the handle bar within the hand grip, as illustrated in Fig. 8, and a spring-pressed ball 24 mounted within the hand grip adapted to engage one groove at one end of the travel and the other groove at the other end of the travel. It may also be desirable to provide an intermediate position of the hand grip in which both operating shafts may be rotated and to detachably secure the hand grip in this position an intermediate groove 25 is provided for engagement with the spring-pressed ball. In order to provide for this intermediate position a slight change must be made in the locking disks. Where it is desired to connect both gears 16 and 17 upon the control shafts 18 and 19 with the operating disk 14, the gears must be arranged sufficiently close to each other so that when the hand grip is in intermediate position both gears will engage with the teeth upon the operating disk 14 and in order that the teeth of these gears will be out of engagement with the locking disks 12 and 13 the teeth upon the locking disks upon the sides adjacent the operating disk are cut away, as illustrated in Fig. 8. In this construction while the gear wheels are partially inclosed in the aperture 21 in the locking disks yet they may rotate independently thereof. If it is desired that in this intermediate position both operating shafts be locked, it is only necessary to construct the locking disks with the teeth in the aperture 21 extending throughout then the teeth upon the gears on the control shafts will be in engagement with both the teeth upon the operating disk and the teeth within the apertures of the locking disks. The same result could be accomplished by taking the

hand grip apart and reversing the locking disks so that the toothed portions would be adjacent the shaft gears.

What I claim is:

5 1. A hand grip control for motorcycles, comprising a hand grip on the handle bar, two rotatable control shafts mounted in each arm of the handle bar, and means for operatively connecting and disconnecting the
10 hand grip to the respective shafts in its arm of the handle bar.

2. A hand grip control for motorcycles, comprising a hand grip on the handle bar, two rotatable control shafts mounted in each
15 arm of the handle bar, and means for operatively connecting and disconnecting the hand grip to the respective shafts in its arm of the handle bar, and means for locking the disconnected control shaft.

20 3. A hand grip control for motorcycles, comprising a rotatable hand grip on the handle bar, two rotatable control shafts mounted in the arm of the handle bar, gear wheels upon each shaft within the hand
25 grip, and means to operatively connect one gear wheel with the hand grip.

4. A hand grip control for motorcycles, comprising a rotatable hand grip on the handle bar, two rotatable control shafts
30 mounted in each arm of the handle bar, gear wheels upon each shaft within the hand grip, and means to operatively connect one gear wheel with the hand grip, and means to lock the other gear wheel.

35 5. A hand grip control for motorcycles, comprising a slidable and rotatable hand grip on the handle bar, two rotatable control shafts mounted on each handle bar extending within the hand grip, gear wheels upon
40 the shafts within the hand grip, an internally toothed operating disk carried upon the hand grip adapted at one end of the travel of the hand grip to mesh with one shaft gear and at the other end of travel of
45 the hand grip to mesh with the other shaft gear.

6. A hand grip control for motorcycles, comprising a slidable and rotatable hand grip on the handle bar, two rotatable control shafts mounted on each handle bar extending within the hand grip, gear wheels
50 upon the shafts within the hand grip, an internally toothed operating disk carried upon the hand grip adapted at one end of travel of the hand grip to mesh with one shaft gear and at the other end of travel of the
55 hand grip to mesh with the other shaft gear, and locking disks within the hand grip adapted to engage and lock the disengaged shaft gear.
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7. A hand grip control for motorcycles, comprising a slidable and rotatable hand grip on the handle bar, two rotatable control shafts mounted in each handle bar with-

in the hand grip, gear wheels mounted upon 65 the shafts within the hand grip, an internal toothed operating disk carried within the hand grip adapted at one end of travel of the hand grip to mesh with one shaft gear and at the other end of travel of the grip 70 to mesh with the other shaft gear, loosely mounted locking disks on each side of the operating disk having a bearing for a control shaft and toothed aperture adapted to receive and lock the shaft gear out of mesh 75 with the operating gear.

8. A hand grip control for motorcycles, comprising a slidable and rotatable hand grip on the handle bar, means to limit the travel of the hand grip in both directions, 80 means for detachably securing the hand grip at the end of travel in both directions irrespective of rotation, two rotatable control shafts within the handle bar, a bearing for the shafts carried in the handle bar to retain the shafts from longitudinal movement, 85 gears carried upon the shafts within the hand grip mounted in different planes, an internally toothed operating disk rigidly carried upon the interior of the hand grip 90 adapted to mesh with one of the shaft gears at one end of travel of the hand grip and with the other shaft gear at the other end of travel of the hand grip, loosely mounted disks within the handle grip having eccentrically internally toothed apertures corresponding to the shaft gears adapted to engage and lock the shaft gear out of mesh 95 with the operating gear.

9. A hand grip control for motorcycles, 100 comprising a slidable and rotatable hand grip on the handle bar, means to limit the travel of the hand grip in both directions, means to detachably secure the hand grip at the end of the travel in both directions 105 and intermediate the ends of travel irrespective of its rotation, two rotatable control shafts mounted in each handle bar extending within the hand grip, means to operatively connect the respective control shafts 110 to the hand grip at the respective ends of travel of the hand grip, and means to operatively connect both shafts to the hand grip at the intermediate point.

10. A hand grip control for motorcycles, 115 comprising a slidable and rotatable hand grip on the handle bar, means to limit the travel of the handle bar in both directions, means to detachably secure the hand grip at the end of travel in both directions and 120 intermediate the ends of travel irrespective of its rotation, two rotatable control shafts mounted in each handle bar, gear wheels carried upon the shaft within the hand grip mounted in different planes, an internal 125 toothed operating disk rigidly carried upon the interior of the hand grip adapted to mesh with the respective shaft gears at the

respective ends of travel of the hand grip and mesh with both shaft gears at the intermediate point of travel, loosely mounted locking disks mounted in the hand grip on
5 each side of the operating disk, each locking disk having an eccentric aperture adapted to rotatably receive the adjacent shaft gear when the hand grip is in the intermediate position and the farther sides of the apertures provided with teeth adapted to 10 mesh with the gear adjacent thereto and lock the gear against rotation when the hand grip is at the end of travel in that direction.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."