W. J. NOBLE.

DEMOUNTABLE DRIVING WHEEL FOR MOTOR CYCLES.

APPLICATION FILED SEPT. 28, 1918.

1,301,160. Patented Apr. 22, 1919.

Fig. 1.

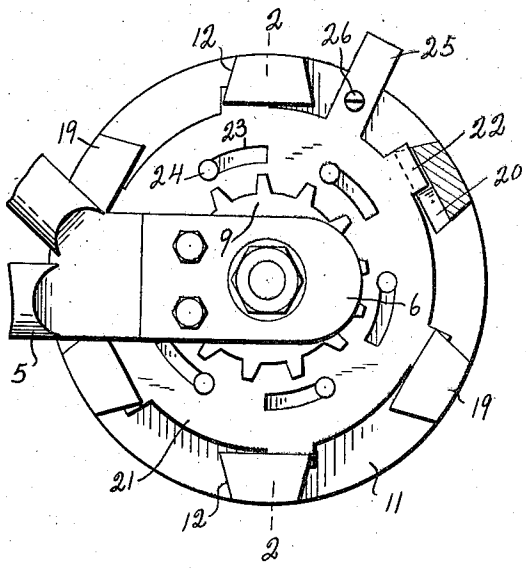


Fig. 3.

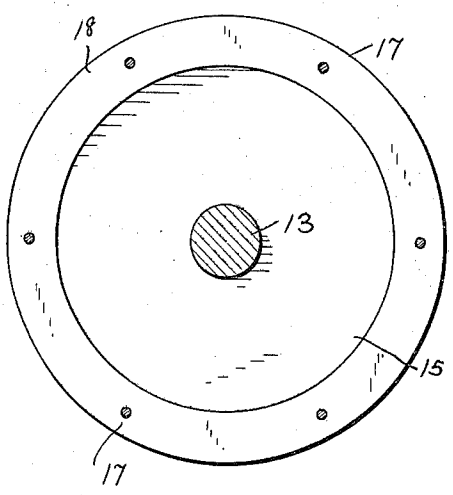


Fig. 2.

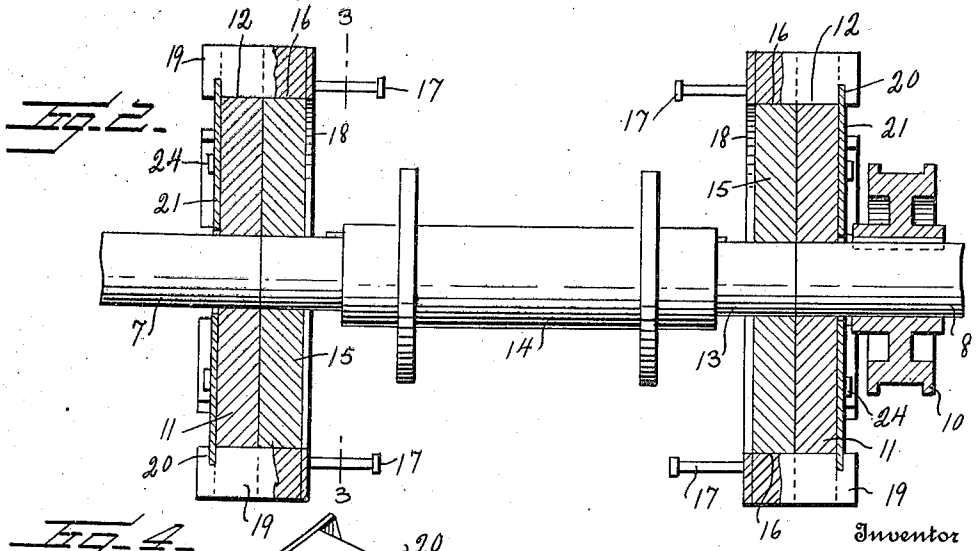
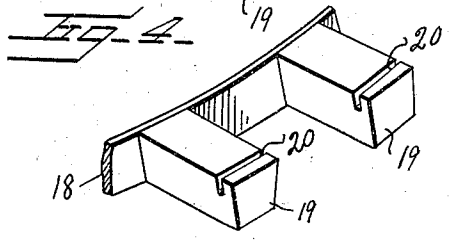


Fig. 4.



Inventor

W. J. Noble

By Watson E. Coleman

Attorney

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

UNITED STATES PATENT OFFICE.

WILLIAM J. NOBLE, OF KEARNEY, NEBRASKA.

DEMOUNTABLE DRIVING-WHEEL FOR MOTOR-CYCLES.

1,301,160. Specification of Letters Patent. Patented Apr. 22, 1919.

Application filed September 28, 1918. Serial No. 256,046.

To all whom it may concern:

Be it known that I, WILLIAM J. NOBLE, a citizen of the United States, residing at Kearney, in the county of Buffalo and State of Nebraska, have invented certain new and useful Improvements in Demountable Driving Wheels for Motor-Cycles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved demountable driving wheel for motor cycles, and has for its primary object to provide improved means for easily and quickly assembling the wheel in the machine frame and operatively connecting the same to the driving sprocket and the brake drum, or removing said wheel when necessary without disturbing the positions of the latter elements.

It is a more particular object of my invention to provide in a motor cycle, separate shafts upon which the wheel, the driving sprocket and the brake drum are mounted, and means for quickly coupling the wheel shaft to the sprocket and crank shafts, whereby the shafts are caused to rotate as a unit.

It is also a further object of my invention to provide a demountable wheel for motor cycles which is relatively simple in its construction, strong and durable, and can be manufactured at relatively small cost.

With the above and other objects in view, the invention consists in the improved construction, combination and relative arrangement of the several parts as will be hereinafter more fully described, subsequently claimed and illustrated in the accompanying drawing in which similar reference characters designate corresponding parts throughout the several views, and wherein:—

Figure 1 is an elevation illustrating the preferred embodiment of the invention;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 2; and

Fig. 4 is a fragmentary perspective view of one of the coupling members.

Referring in detail to the drawing, 5 designates the side frame bars of a motor cycle, to which the bearings 6 are bolted or otherwise rigidly secured. Short, inwardly projecting shafts 7 and 8 respectively are journaled in these bearings. Upon the shaft 7, the driving sprocket 9 is keyed, and upon the shaft 8 the brake drum 10 is similarly secured. Upon the inner end of each of the shafts 7 and 8, a disk 11 is fixed, and each of said disks is provided in its periphery at spaced points with the dove-tail mortises or recesses 12.

13 designates the drive wheel shaft, upon which the drive wheel 14 is keyed. To each end of this shaft, the disks 15 are fixed, said disks being complementary to the disks 11 and likewise each provided in its periphery with the spaced dove-tail recesses 16. The means for coupling the disks 11 and 15 together at each end of the wheel shaft 13 is identical, and therefore the detail description of one coupling means will suffice for both.

In the disk 15, suitably spaced, inwardly projecting guide pins 17 are fixed, upon which a metal ring or annulus 18 is loosely engaged for movement laterally toward or from the side face of the disk. To the coupling ring 18, the spaced outwardly projecting dove-tail lugs 19 are fixed. These lugs are adapted for engagement through the registering recesses 12 and 16 and the dove-tail lugs 19 are of such length that they project slightly beyond the outer side face of the disk 11. Preferably, these coupling lugs have a slight longitudinal taper to their outer ends so that they may be easily inserted through the registering recesses, the beveled side edges of the lugs having wedging engagement with the side edges of said recesses when the coupling ring 18 is closely engaged against the inner side face of the disk 15.

Each of the coupling lugs 19 is provided in spaced relation to its free end and in the inner face thereof with a groove or channel 20. These channels are adapted to receive the locking fingers or extensions 22, which project radially from a plate 21 mounted upon the outer side face of the disk 11. This plate is formed with a series of spaced arcuate slots 23, through which headed studs or pins 24, fixed in the disk, are engaged. These studs limit the rotative movement of the plate 21 with respect to the shaft or axis of the disk 11. The plate 21 is preferably formed with a suitable handle, indicated at 25, whereby it may be shifted. In the movement of said plate in one direction, the fingers 22 are engaged in the grooves or channels 20 in the ends of the lugs 19, the studs 24 limiting such movement. The cou-

pling lugs are, therefore, securely locked and held against longitudinal movement in the recesses of the coupled disks 11 and 15. The plate 21 is provided with an opening adapted to coincide with a threaded opening in the disk 11 to receive a screw 26, whereby the plate 21 is held in its locking position and the possibility of the release of the coupling members, owing to casual shifting movement of the locking plate, due to vibration, thereby prevented. In this manner, it will be seen that the shaft of the motor vehicle wheel may be easily, quickly and securely coupled to the shafts 7 and 8, upon which the driving sprocket and the brake drum are mounted so that all of said shafts will rotate as a unit. When it is desired to remove the wheel 14, it is only necessary to first remove the screws 26 and then shift the locking disks 21 so as to disengage the fingers 22 thereon from the grooves in the coupling lugs. The rings 18 are then forced inwardly upon the guide pins 17 and the lugs 19 disengaged from the recesses in the disks 11. The shaft 13 with the vehicle wheel 14 may then be bodily lifted and removed from the machine frame without disturbing the mounting or arrangement of the sprocket wheel and brake drum.

From the foregoing description, taken in connection with the accompanying drawing, it is believed that the construction, manner of use, and several advantages of my invention will be clearly and fully understood. The device provides means whereby the drive wheel of a motor cycle can be easily and quickly removed when repairs are necessary and as readily replaced in position and coupled to the sprocket wheel and drum shafts. The coupling means, as above described, is exceedingly strong and durable, and capable of withstanding the severe strains incident to the application of the brake, such coupling means effectually preventing any possibility of relative rotation of the shafts which would render the brake ineffective. The several parts of the device as herein described may be readily produced at small cost and easily and quickly assembled. It will be apparent that the disks 11 and 15 above referred to can be of any desired size and a greater or less number of the coupling lugs 19 provided than as herein indicated. The several other elements employed are likewise susceptible of many minor modifications in their form and relative proportions, and I accordingly reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:—

1. In a motor cycle, a drive wheel shaft, a drive wheel fixed thereon, separate sprocket wheel and brake drum shafts, and means for detachably coupling the drive wheel shaft to the sprocket wheel and brake drum shafts.

2. In a motor cycle, a drive wheel shaft, a drive wheel fixed thereon, disks secured upon each end of said shaft, additional sprocket wheel and brake drum shafts, a disk fixed upon one end of each of the latter shafts, and means for detachably coupling the disks on the drive wheel shaft to the respective last named disks.

3. In a motor cycle, a drive wheel shaft, a drive wheel fixed thereon, disks secured upon each end of said shaft, additional sprocket wheel and brake drum shafts, a disk fixed upon one end of each of the latter shafts, means for detachably coupling the disks on the drive wheel shaft to the respective last named disks, and means mounted upon the disks on the sprocket wheel and brake drum shafts for locking engagement with the coupling means.

4. In combination, a pair of shafts adapted to be arranged in axial alinement, a disk upon the end of each shaft, said disks having spaced recesses in their edges adapted to be disposed in registering relation, coupling means for said disks including a ring supported upon one of the disks and shiftable laterally with respect thereto, and spaced coupling lugs fixed to the ring for engagement through the coinciding recesses in said disks to connect the shafts for rotation as a unit.

5. In combination, a pair of shafts adapted to be arranged in axial alinement, a disk upon the end of each shaft, said disks having spaced recesses in their edges adapted to be disposed in registering relation, coupling means for said disks including a ring supported upon one of the disks and shiftable laterally with respect thereto, spaced coupling lugs fixed to the ring for engagement through the coinciding recesses in said disks to connect the shafts for rotation as a unit, and means mounted on the other disk to coact with the coupling lugs and lock the same in effective position.

6. In combination, a pair of shafts adapted to be arranged in axial alinement, a disk upon the end of each shaft, said disks having spaced recesses in their edges adapted to be disposed in registering relation, coupling means for said disks including a ring supported upon one of the disks and shiftable laterally with respect thereto, spaced coupling lugs fixed to the ring for engagement through the coinciding recesses in said disks to connect the shafts for rotation as a unit, each of said lugs having a groove therein, and a locking plate mounted upon the other disk and shiftable with respect thereto, said plate having spaced fingers for engagement in the grooves of the respective coupling lugs to lock the latter in their effective positions.

7. In combination, a pair of shafts adapted to be arranged in axial alinement, a disk upon the end of each shaft, said disks having spaced recesses in their edges adapted to be disposed in registering relation, coupling means for said disks including a ring supported upon one of the disks and shiftable laterally with respect thereto, spaced coupling lugs fixed to the ring for engagement through the coinciding recesses in said disks to connect the shafts for rotation as a unit, each of said lugs having a groove therein, a locking plate mounted upon the other disk and shiftable with respect thereto, said plate having spaced fingers for engagement in the grooves of the respective coupling lugs to lock the latter in their effective positions, and means for securing the locking plate against shifting movement relative to the disks.

8. The combination with axially alined shafts, of a pair of disks on the abutting ends of the shafts, the marginal edges of the disks having registering coupling means receiving recesses, arranged at spaced intervals, guides on one of the disks, and a device shiftable on said guides and having coupling means entering said spaced recesses for coupling the disks, and an element carried by one of the disks and being partially annularly rotatable and provided with parts to engage the coupling means to connect the shafts for rotation as a unit.

9. The combination with axially alined shafts, of a pair of disks on the abutting ends of the shafts, the marginal edges of the disks having registering coupling means receiving recesses, arranged at spaced intervals, guides on one of the disks, and a device shiftable on said guides and having coupling means entering said spaced recesses for coupling the disks, said coupling means having notches, and an element movably carried by one of the disks and being capable of adjustment partially rotatably and provided with parts to engage the notches, whereby the shafts are connected for rotation as a unit.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM J. NOBLE.

Witnesses:
ELDEN BALL,
GEORGE OXFORD.

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