C. GLOVER.

COASTER BRAKE.

APPLICATION FILED DEC. 24, 1908.

961,225.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

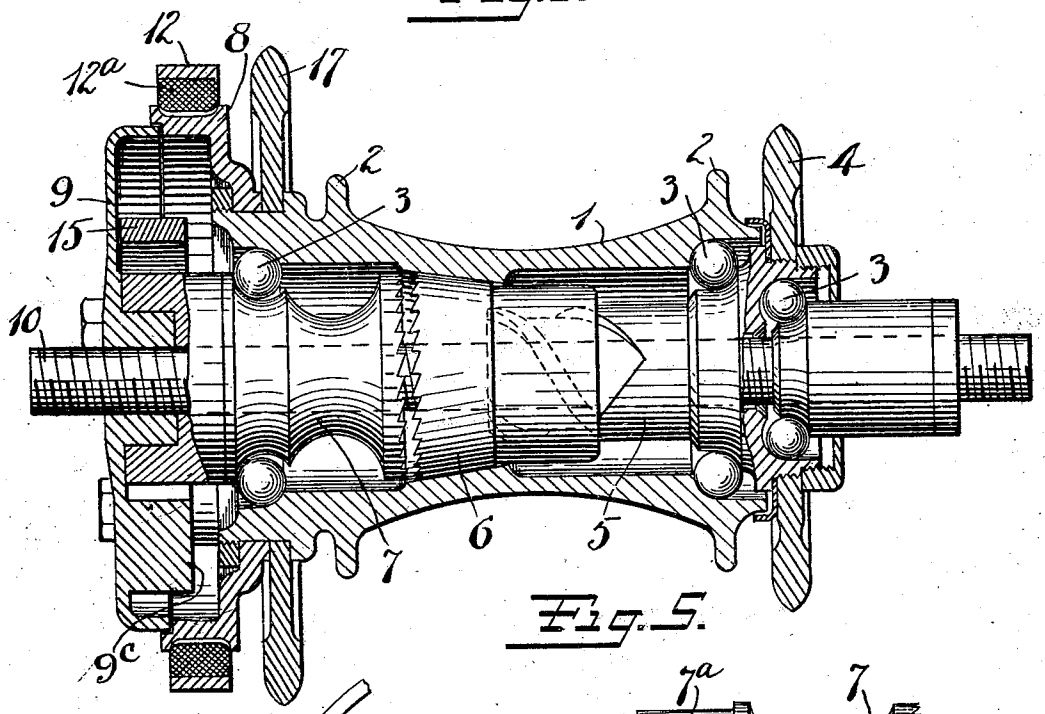
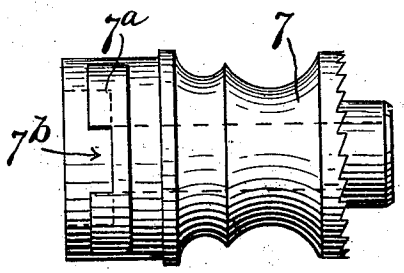


Fig. 5.



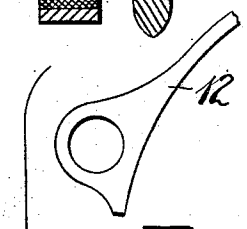
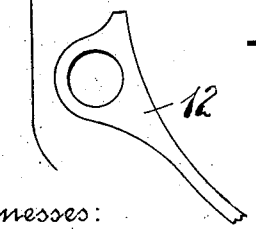
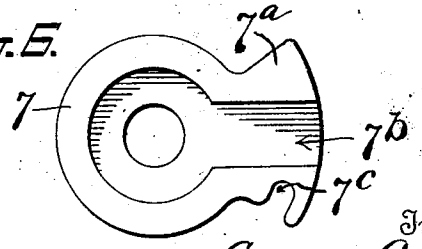


Fig. 4.

Fig. 6.





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2 SHEETS—SHEET 2.

Fig. 2.

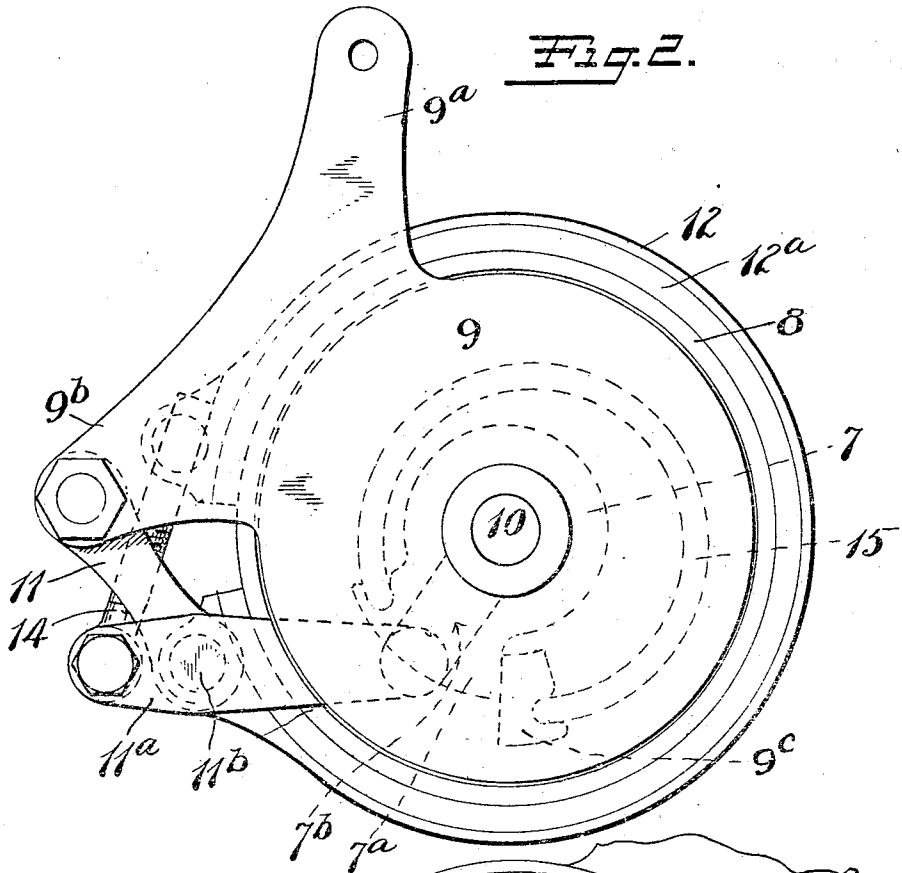
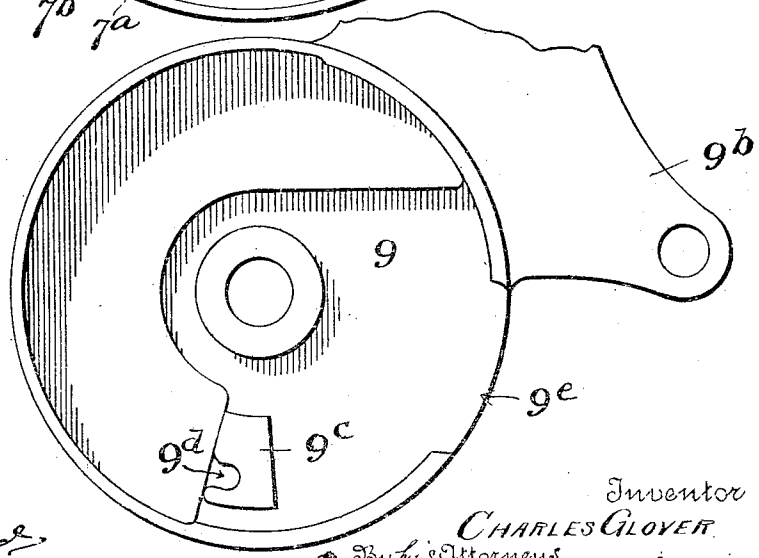


Fig. 3.



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UNITED STATES PATENT OFFICE.

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COASTER-BRAKE.

961,225. Specification of Letters Patent. **Patented June 14, 1910.**

Application filed December 24, 1908. Serial No. 469,087.

To all whom it may concern:

Be it known that I, CHARLES GLOVER, a citizen of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Coaster-Brakes, of which the following is a full, clear, and exact description.

My invention relates to improvements in coaster hub brakes of the type set forth in my former application Serial No. 468,125, filed December 18, 1908.

The main object of the present invention is to provide certain features of improvement in the brake construction, as will be seen from a reading of the following description.

In the drawings Figure 1 is a longitudinal sectional view of a coaster hub and brake, certain parts being shown in elevation. Fig. 2 is an end elevation thereof. Fig. 3 is a view of the inside of one of the members, partly broken away. Figs. 4, 5 and 6 are detail views.

1 is a hub.

2—2 are spoke flanges.

3 represents anti-friction bearings.

4 is a driver, in this instance in the form of a sprocket connected with a coupling-actuator 5, which latter operates upon a coupling member 6 through the medium of the well known helical connection indicated in solid and dotted lines in Fig. 1.

7 is a brake-actuator, the outer end of which is suitably constructed to operate the brake levers. An end view of said brake-actuator is shown in its preferred form in Fig. 6, and in this view the same will be seen to have a lateral offset portion 7^a slotted at 7^b and notched at 7^c for the purpose hereinafter described.

Fixed on the outer end of the wheel hub 1 is a brake drum 8.

9 is an abutment mounted upon a central arbor 10 which latter passes axially through the hub, so that by its ends the hub may be secured to the desired vehicle frame. The abutment 9 has two arms 9^a 9^b, the former furnishing a means for securing said abutment to a stationary part of the frame to hold it against displacement when in use, the latter furnishing a support for the brake levers. The abutment 9 operates also as a cover or cap to close in the otherwise open end of the brake drum 8, as best seen in Fig. 1. On the back of the cover plate is an abutment or projection 9^c notched at 9^d for the purpose hereinafter described. As shown in Fig. 1, the abutment or cover plate has an inturned flange at its edge, and in this flange is a side opening 9^e.

11 is a lever hinged at one end upon the arm 9^b. 11^a is another lever hinged at 11^b to the free end of lever 11. The inner end of lever 11^a passes through the opening 9^e, and enters the space underneath the cover 9 and engages the brake actuator. The lever 11^a has a laterally offset portion standing in the slot 7^b in the offset portion of actuator 7. The lever 11^a is also connected at 11^b to one end of a brake strap 12. The other end of this brake strap 12 is connected, through the medium of a link 14 (preferably adjustable), to the outer end of the lever 11^a.

12^a is a shoe or friction face (preferably removable for replacement) and carried by the brake band 12.

15 is a return spring, indicated in dotted lines Fig. 2. This spring is C-shaped, one end engaging in the notch 9^d, the other end engaging in the notch 7^c.

The adjacent ends of the coupling members 6 of the brake actuator 7 may be toothed, as shown in Fig. 1, so that when said parts are connected the movement of the coupling will be transmitted to the actuator 7.

17 is a second driver mounted on the hub 1 and adapted to receive power from a suitable generator or motor.

From the foregoing, the operation of the apparatus will be easily understood. Upon imparting a forward motion to the driver 4, the actuator 5 will be moved in a direction to cause (through the helical connection) the coupling 6 to engage the hub, at which time it is entirely free of the brake actuator 7. This coupling of the driver 4 with the hub 1 permits power to be transmitted from the former to the latter in a forward direction. When the rider ceases to apply power to the driver 4 (or when the speed of the hub is increased by driver 17), the hub 1 will over-run the coupling and move it down on the helical connection, shifting it to the left and out of driving engagement with the hub. Should the rider desire to apply the brake, he may apply power in a reversed direction through the driver 4. This, through the helical connection, will shift the coupling 6 into engagement with the brake actuator 7, whereby continued rearward rotation of

the driver 4 will impart a corresponding backward rotation to the brake-actuator 7. This movement will cause the lever 11^a to swing (see Fig. 2). The swinging of the lever 11^a upon fulcrum 11^b will cause the brake band 12 to be tightened upon the brake drum 8 through the medium of the links 11—14. As soon as rearward pressure is removed from the driver 4, the action of the spring 15 is such as to return the brake actuator to a position of rest, wherein the lateral offset 7^a engages the abutment 9^c within the cover 9, in which position said parts will remain under the influence of return spring 15 until it is desired to reapply the brake or drive the hub.

The particular arrangement, herein shown, of levers and links is so arranged that with very little effort an extremely powerful braking effect may be produced.

In the preferred form of my invention, the periphery of the drum 8 is circumferentially grooved, the brake shoe 12^a projecting slightly into said groove at all times, whereby lateral displacement of said parts relatively to each other is prevented. This affords one simple and effective means for accomplishing this end.

In order to provide proper clearance for the various parts, it will be observed that the C-shaped return spring 15 is arranged somewhat eccentric to the axis of shaft 10 (see Fig. 2).

It will be observed that the pull of each end of the brake band is in a direction tangential to the periphery of the brake drum. This is by reason of the offset arm 9^b. By this means the wear on the brake strap and drum is substantially uniform throughout the entire circumference of the former and the length of the latter.

From the foregoing, it is apparent that a very powerful brake application could be effected with slight effort because of the double toggle effect, there being in fact one toggle for each end of the band brake.

What I claim is:

1. A coaster brake including a drum, a constrictable band operating upon the periphery of said drum, a support outside of the circumference of said drum for supporting one end of said band, and a double toggle for operating said band, and means acting through the interior of said drum for operating said double toggle.

2. A coaster brake including a drum, a constrictable band arranged to operate on the periphery of said drum, a stationary support outside of the periphery of said drum, and means for connecting both ends of said band to said support, said means including two toggle levers, and means for operating said levers and thereby said band, said means acting through the interior of said drum.

3. A coaster brake including a drum having two laterally projecting arms, a constrictable band arranged to operate upon the periphery of said drum, a link for connecting one end of said band with one of said arms, a lever pivoted intermediate its length concentrically with the connection between said link and said band, a second link connecting one end of said lever with the other end of said band, a brake operating device concentric with said drum and coöperatively engaging the other end of the last mentioned lever, and means for operating said brake operating device through said hub.

4. A coaster brake including a drum having two laterally projecting arms, a constrictable band arranged to operate upon the periphery of the drum, a link connecting one end of said band with one of said arms, a lever hinged at a point intermediate its length to the same end of said band, and a link connecting the outer end of said lever with the opposite end of said band, with means operating through the interior of the drum for swinging said lever.

5. In a coaster brake, a hub, a drum carried thereby, a brake band mounted on said drum but normally free thereof, a support for said brake band arranged externally of said drum, a movable brake actuating device, means for operatively connecting said movable actuating device with both the ends of said band, including a lever extending partially outside of said drum and partially inside of said drum, and operative means of connection between the inner end of said lever and said brake actuating device.

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Witnesses:
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