P. E. BARKER.

VEHICLE CUSHIONING DEVICE.

APPLICATION FILED AUG. 10, 1910.

993,287.

Patented May 23, 1911.

Fig. 1.

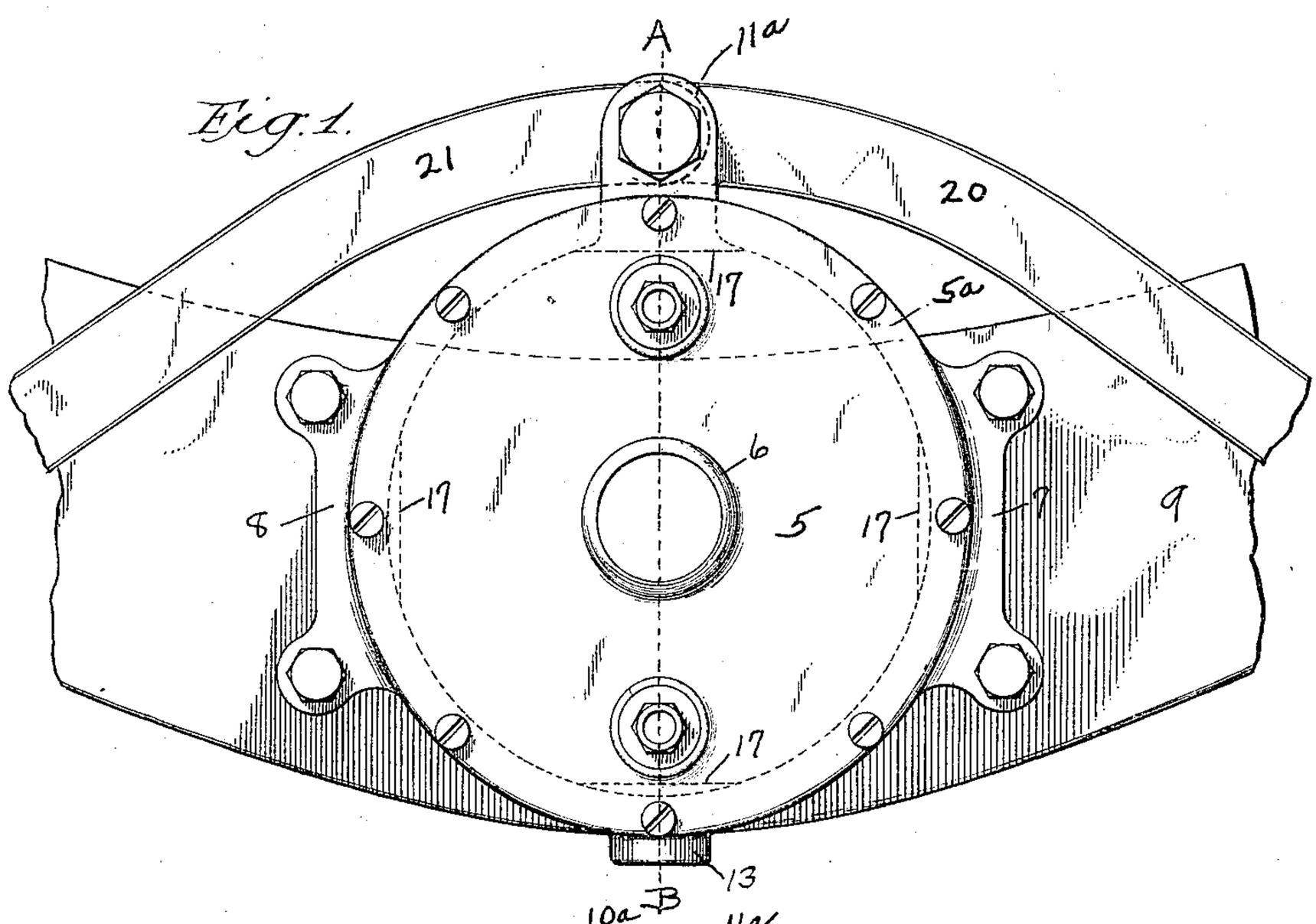


Fig. 2.

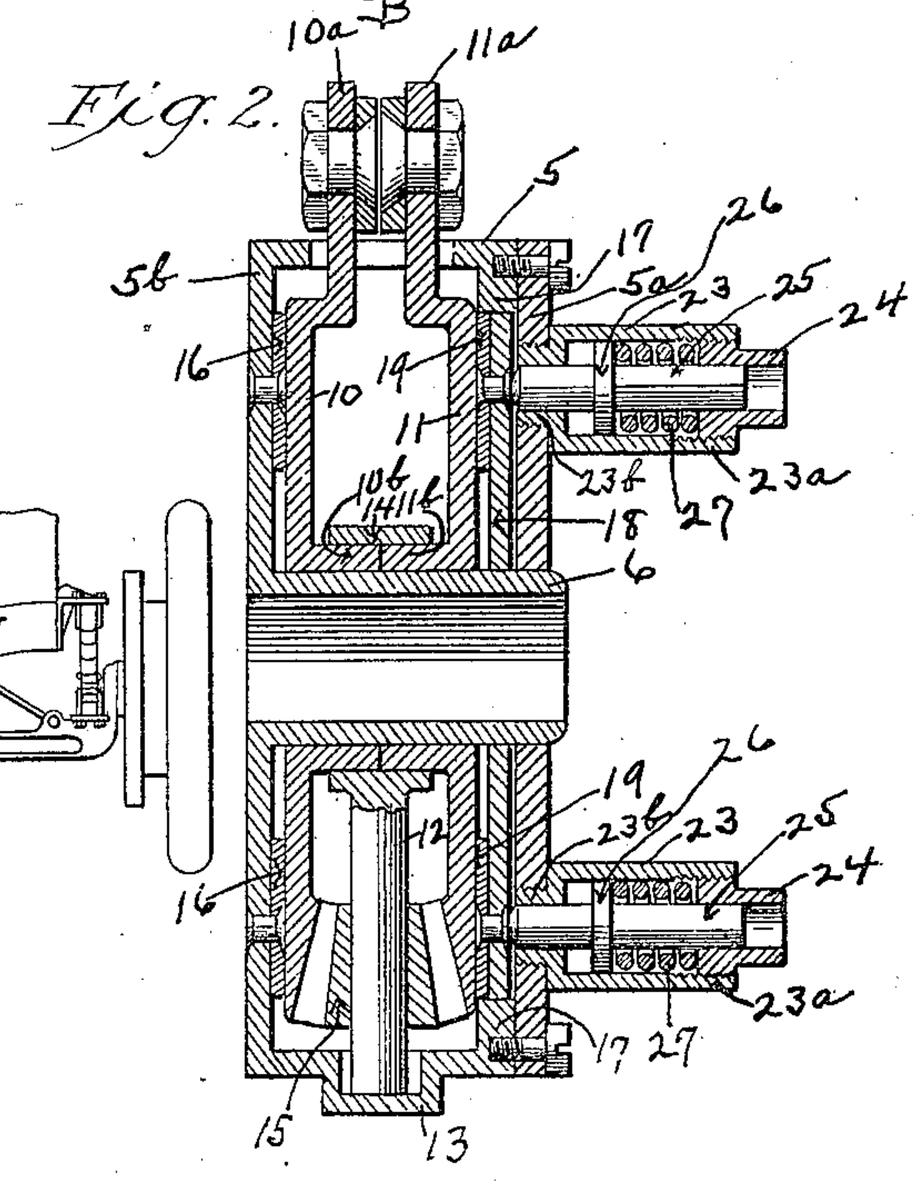
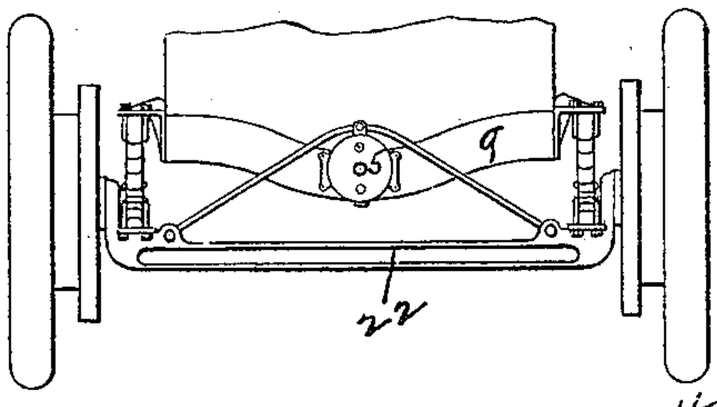


Fig. 3.



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VEHICLE CUSHIONING DEVICE.

993,287. Specification of Letters Patent. **Patented May 23, 1911.**

Application filed August 10, 1910. Serial No. 576,542.

To all whom it may concern:

Be it known that I, PERCY E. BARKER, a citizen of the United States of America, residing at Buffalo, county of Erie, and State of New York, have invented certain new and useful Improvements in Vehicle Cushioning Devices, of which the following is a full, clear, and exact description.

The general object of my invention has been to produce a device which, when connected with one of the axles of a vehicle, would relieve the vehicle frame and all of the parts carried by it from shocks and jolts caused by the vehicle passing over obstructions or other rough spots in its path of travel. In addition to this my device is so designed that it will prevent the side-swaying of the vehicle as it is driven over uneven parts of the road.

Many other advantages will result from the use of my invention as will be apparent to those skilled in the art.

Referring now to the accompanying drawings in which like letters of reference indicate corresponding parts in the several views and in which:

Figure 1 is a plan view of my device as applied to the vehicle frame. Fig. 2 is a sectional view taken on the line A—B of Fig. 1. Fig. 3 is a diagrammatic rear end view of a vehicle equipped with my device.

Preferably my invention is applied to the rear end of the vehicle frame in a vertical position as shown in the drawings but it will be understood that it can be advantageously employed in a position horizontal to the frame.

The casing 5 incloses the main working parts of my device and this is preferably made in two parts—a cover 5^a and a body portion 5^b. The body portion 5^b is preferably made integral with a hub 6 and the cover 5^a is preferably perforated or cut away, as shown, to allow the hub 6 to pass slightly beyond and through it. The body portion 5^b may be provided with side flanges 7 and 8 whereby the casing may be conveniently secured to the vehicle frame 9, but of course any other suitable means of attaching the casing to the frame may be employed if it is so desired.

Inclosed within the casing 5 are two gear segment disks 10 and 11 each of which is provided at its upper end with a lug 10^a and 11^a respectively. Each of the disks 10 and 11 is also provided with an inwardly extending flange collar 10^b and 11^b respectively. These flange collars 10^b and 11^b are carried by and surround the hub 6. One end of a shaft 12 rests in a shaft seat 13 provided in the body portion 5^b of the casing 5. The other end of the shaft 12 is made integral with or secured to a shaft collar 14 which is revoluble around the flange collars 10^b and 11^b. A bevel gear pinion 15 is rotatably mounted on the shaft 12 and this pinion meshes with each of the gear segment disks 10 and 11.

Friction disks 16, preferably made of brass, are suitably secured to the back or bottom of the body portion 5^b of the casing 5. The front or top of the body portion 5^b of the casing 5 is provided with two or more shoulders 17 (preferably four, as shown), and a friction plate 18 when placed as shown in Fig. 2, is held by said shoulders from rotation. Friction disks 19, similar to disks 16 and likewise preferably made of brass, are suitably secured to said friction plate 18. The upper ends of rods 20 and 21 are pivotally mounted on the lugs 10^a and 11^a respectively of the gear segment disks 10 and 11. The lower ends of said rods are pivotally mounted on the opposite ends of the rear axle 22 of the vehicle.

Tension devices 23 are suitably carried by the cover 5^a of the casing 5. Each tension device comprises a cylindrical casing 23^a open at each end and having at one end a reduced diameter 23^b which is externally screw-threaded so as to engage with the screw-threads of the cover 5^a of the casing 5. At its opposite end the casing 23^a is internally screw-threaded and an adjustable screw-threaded tension nut 24 engages with the internal threads of said casing 23^a.

One end of a pin 25 passes loosely through the open end 23^b of the casing 23^a and bears against the friction plate 18 and the other end of said pin 25 passes loosely through the tension nut 24. The pin 25 is provided with a collar 26 which is of a size to fit the internal diameter of the casing 23^a and therefore is capable of moving forwardly and backwardly within said casing. A tension spring 27 at one end bears against the collar 26 and at its other end bears against the tension nut 24. The normal tendency

of the spring 27 is to force the pin 25 against the friction plate 18. In the drawings I have shown two tension devices 23 but obviously more than two may be employed if it is so desired. The rods 20 and 21 may be curved in the manner shown in the drawings and thus, when actuated by the movements of the axle 22, be clear of the casing 5 or they may be offset in any suitable manner.

From the foregoing description it will be clear that when the body or frame of the vehicle, to which the casing is secured, tends to sway sidewise (whatever may be the cause of such tendency), the segment disks 10 and 11, to which the rods 20 and 21 are secured, will be prevented from relative rotation by the pinion 15. Furthermore, when the said vehicle body or frame tends to lower, the rods 20 and 21 will be pushed toward each other and, since under these conditions the pinion 15 will revolve, the extent of motion of one rod will be the same as that of the other no matter how great the movement may be. Thus the vehicle body will always be kept centrally over the rear axle. The functional purpose of the tension devices 23 is to frictionally hold the gear segment disks against rotation and thereby absorb all the shocks which might otherwise be conveyed from the axle to the vehicle body.

Clearly some modifications of the specific structure herein shown and described might be made without departing from the spirit of my invention and I do not wish it to be understood that I confine myself to the exact structure herein shown and described.

What I claim is:

1. The combination with a vehicle body and its axles of a cushioning device comprising gear segment disks rotatably mounted on said vehicle body, a gear pinion rotatably mounted between, and meshing with said disks, and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

2. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, a hub carried by said casing, gear segment disks rotatably mounted on said hub, a gear pinion rotatably mounted between and meshing with said disks, and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

3. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, a hub carried by said casing, gear segment disks provided with flange collars, rotatably mounted on said hub, a gear pinion rotatably mounted between and meshing with said disks, and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

4. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body and provided with a shaft seat, a shaft having one end mounted in said shaft seat, a hub carried by said casing, a shaft collar secured to said shaft and revolubly mounted around said hub, a bevel gear pinion rotatably mounted on said shaft, gear segment disks rotatably mounted on said hub and meshing with said gear pinion and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

5. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body and provided with a shaft seat, a shaft having one end mounted in said shaft seat, a hub carried by said casing, a shaft collar secured to said shaft and revolubly mounted around said hub, a bevel gear pinion rotatably mounted on said shaft, gear segment disks provided with flange collars, rotatably mounted on said hub and meshing with said gear pinion and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

6. The combination with a vehicle body and its axles of a cushioning device comprising gear segment disks provided with lugs rotatably mounted on said vehicle body, a gear pinion rotatably mounted between and meshing with said disks, and rods pivotally mounted at their upper ends on said lugs and at their lower ends on one of said vehicle axles.

7. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, a hub carried by said casing, gear segment disks rotatably mounted on said hub, frictional disks secured to said casing and in contact with one of said segment disks, a gear pinion rotatably mounted between and meshing with said segment disks and rods pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

8. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, a hub carried by said casing, gear segment disks rotatably mounted on said hub within said casing, a frictional plate non-rotatably carried within said casing, frictional disks secured to said casing and in contact with one of said segment disks, frictional disks secured to said frictional plate and in contact with the other of said segment disks, a gear pinion rotatably mounted between and meshing with said segment disks and rods

pivotally mounted at their upper ends on said disks and at their lower ends on one of said vehicle axles.

9. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body and provided with a shaft seat, a shaft having one end mounted in said shaft seat, a hub carried by said casing, a shaft collar secured to said shaft and revolubly mounted around said hub, a bevel gear pinion rotatably mounted on said shaft, gear segment disks rotatably mounted on said hub and meshing with said gear pinion, frictional disks secured to said casing and in contact with one of said segment disks, a frictional plate non-rotatably carried within said casing, frictional disks secured to said frictional plate and in contact with the other of said segment disks and rods pivotally mounted at their upper ends on said segment disks and at their lower ends on one of said vehicle axles.

10. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, gear segment disks rotatably mounted on said casing, a gear pinion rotatably mounted between and meshing with said disks, a frictional plate non-rotatably carried by said casing, frictional disks secured to said frictional plate and in contact with one of said segment disks and rods pivotally mounted at their upper ends on said segment disks and at their lower ends on one of said vehicle axles.

11. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, gear segment disks rotatably mounted on said casing, a gear pinion rotatably mounted between and meshing with said disks, a frictional plate non-rotatably carried by said casing, frictional disks secured to said frictional plate and in contact with one of said segment disks, means for frictionally holding said frictional disks against said segment disks and rods pivotally mounted at their upper ends on said segment disks and at their lower ends on one of said vehicle axles.

12. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, gear segment disks rotatably mounted on said casing, a gear pinion rotatably mounted between and meshing with said disks, a frictional plate non-rotatably carried by said casing, frictional disks secured to said frictional plate and in contact with one of said segment disks, spring tensioned means for frictionally holding said frictional disks against said segment disks and rods pivotally mounted at their upper ends on said segment disks and at their lower ends on one of said vehicle axles.

13. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body, a hub carried by said casing, gear segment disks rotatably mounted on said hub within said casing, a frictional plate non-rotatably carried within said casing, frictional disks secured to said casing and in contact with one of said segment disks, frictional disks secured to said frictional plate and in contact with the other of said segment disks, a gear pinion rotatably mounted between and meshing with said segment disks, means for frictionally holding said frictional disks secured to said frictional plate against one of said segment disks, and rods pivotally mounted at their upper ends on said segment disks and at their lower ends on one of said vehicle axles.

14. The combination with a vehicle body and its axles of a cushioning device comprising a casing secured to said vehicle body and provided with a shaft seat, a shaft having one end mounted in said shaft seat, a hub carried by said casing, a shaft collar secured to said shaft and revolubly mounted around said hub, a bevel gear pinion rotatably mounted on said shaft, gear segment disks rotatably mounted on said hub and meshing with said gear pinion, frictional disks secured to said casing and in contact with one of said segment disks, a frictional plate non-rotatably carried within said casing, frictional disks secured to said frictional plate and in contact with the other of said segment disks, means for frictionally holding said frictional disks secured to said frictional plate against one of said segment disks and rods pivotally mounted at their upper ends on said segment disks and at their lower ends on one of said vehicle axles.

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

PERCY E. BARKER.

Witnesses:
ETHEL A. KELLY,
F. W. KELLY.