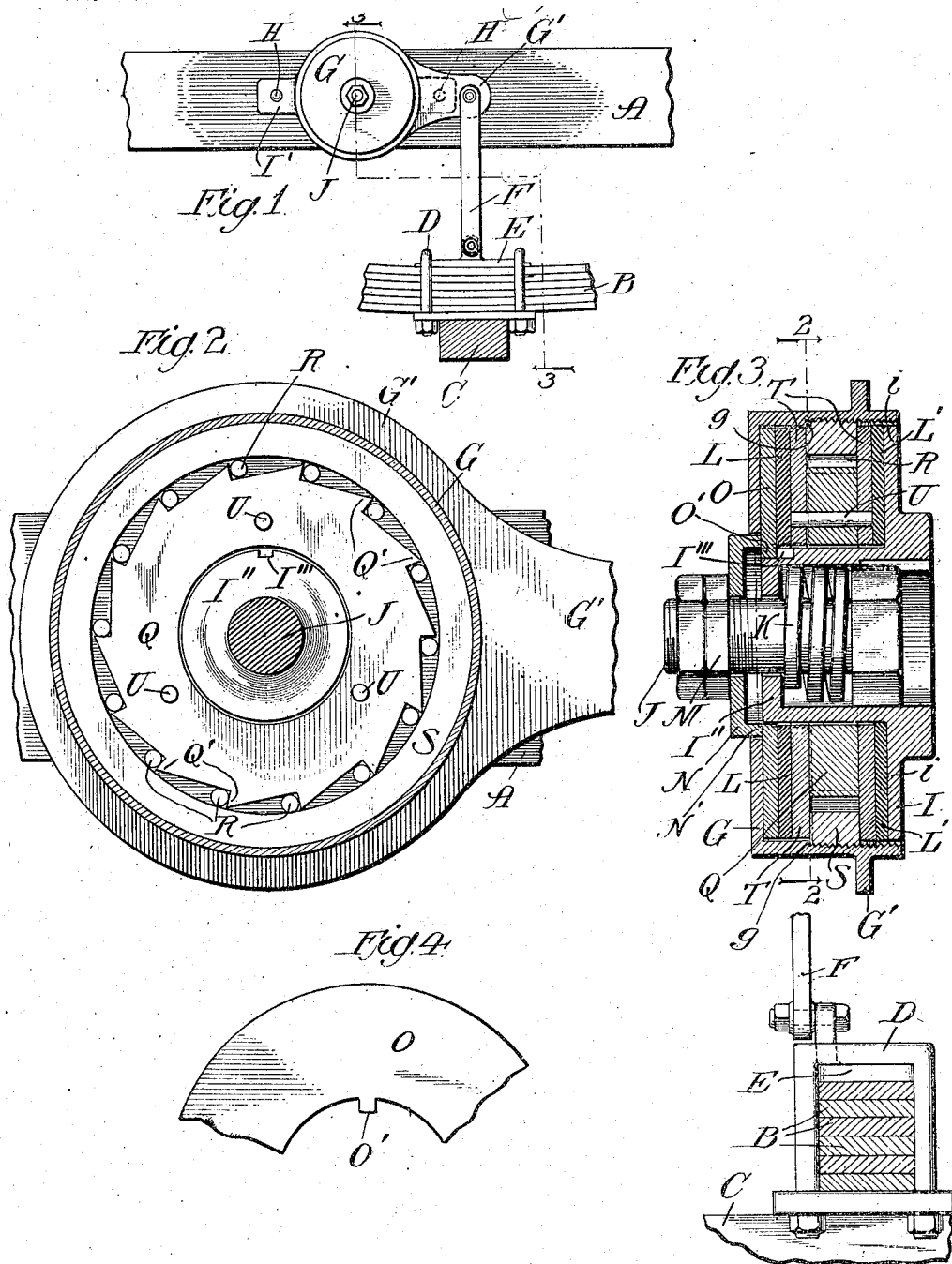


H. C. TURNER.
SHOCK ABSORBER.

APPLICATION FILED JAN. 23, 1906. RENEWED APR. 3, 1909.

941,594.

Patented Nov. 30, 1909.



Witnesses:

Edmund A. Strauss
Lester S. Alter

Inventor
Harry C. Turner

By Hazard & Sharp Law.
Attorneys.

UNITED STATES PATENT OFFICE.

HARRY C. TURNER, OF LOS ANGELES, CALIFORNIA.

SHOCK-ABSORBER.

941,594.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed January 23, 1906, Serial No. 297,457. Renewed April 3, 1909. Serial No. 487,767.

To all whom it may concern:

Be it known that I, HARRY COBURN TURNER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Shock-Absorbers, of which the following is a specification.

This invention is an improvement on my invention shown and described in my application for United States Letters Patent filed on the 31st day of August, 1905 bearing Serial Number 276,629; and the object thereof is to provide means whereby the wear on the friction leather rings in the ratchet mechanism may be taken up and also to substitute for the sprocket chain shown in said application a connecting bar in place thereof for connecting the running gear of the car with the ratchet mechanism mounted on the bed thereof. I accomplish these objects by means of the device herein described and shown in the accompanying drawing in which:—

Figure 1— is an elevation of my device in place on a car, a fragment only of the car and the supporting spring being shown. Fig. 2— is a vertical longitudinal section taken on the dotted line 2—2 in Fig. 3 looking in the direction indicated by the arrows placed thereon. Fig. 3— is a transverse central vertical section taken on dotted line 3—3 in Fig. 1 looking in the direction indicated by the arrows thereon. Fig. 4— is a fragmentary view of the annular metallic friction ring—showing the hub-engaging lug.

In the drawing A is the frame which supports the body of the car to which my device is secured and which rests upon the supporting spring B. The usual clips D secure the spring to the axle C and extend above and hold the plate E in rigid engagement with the spring. A swinging bar F is pivoted at its lower end to the plate E extending upwardly and is pivotally connected to the projecting arm G' integral with the ratchet shell G. In this device like the one referred to the main springs will permit the axle to be thrown rapidly upwardly in the direction of the body of the car when an obstruction is encountered in the road and at the same time will prevent the springs from exerting their normal strength to suddenly throw the body of the car upwardly

and away from the springs. I have in this instance provided a roller ratchet combined with an adjustable clutch which will permit the springs to retain their unlimited resiliency when the wheel is thrown up suddenly in the direction of the body of the car, but the clutch mechanism will prevent the springs from immediately exerting their full impulse upward on the body of the car, but will permit them to exert that impulse gradually and elevate the body of the car easily and thereby prevent the usual jar occasioned thereby when no clutch mechanism is provided to prevent the same.

The ratchet clutch mechanism contained in the shell G is detachably secured to the frame A of the car as shown in Fig. 1 by the bolts H extending through the flange I' on the frame I of the ratchet. A bolt J extends outwardly through the frame I and shell G and secures the ratchet mechanism thereto as shown in enlarged section in Fig. 3. Surrounding this bolt and lying between the head thereof and the hub I'' of the frame is mounted the spiral spring K. The object of this spring is to take up the wear that the annular leather clutch pads or washers L which extend around the hub I'' of the frame are subjected to and I accomplish it in this way: On the outwardly projecting screw threaded end of this bolt is a nut M which serves to hold the flange N' of the annular ring N in spring pressed engagement with the annular metallic friction ring O and crowd the same firmly against the leather clutch washer L lying next thereto. The ring O has a downwardly projecting lug O' which extends into the seat I''' in the hub of the frame I'' and prevents the ring from rotating on the hub, but permits a longitudinal movement thereon of the ring allowing the ring to move inwardly on the hub and always hold the clutch pads spring pressed no matter how much wear may be had on the leather pads.

The ratchet wheel Q, carrying ratchet teeth Q' on the periphery thereof, is loosely mounted on the hub and carries on the periphery thereof roller seats for the reception of the roller ratchets R. These ratchet rollers are disposed in the usual way around the ratchet wheel and in the roller seats provided therefor and are

thrown into or out of frictional engagement with a metallic track S in the usual well known manner. On each side of the ratchet wheel is an annular metallic friction ring T. These rings serve to hold the ratchet rollers in place between the ratchet wheel and the track S and are held in detachable engagement with the ratchet wheel by means of the ring-securing pins U and rotate therewith. The inner leather clutch washer L' has a frictional sliding engagement between the annular metallic ring T and the bearing face on the projecting flange i on the frame L.

- 15 Thus it will be seen that the spring K will always keep the leather clutch pads spring pressed against the annular friction rings T on the ratchet wheel. The necessary amount of friction is given by means of the
20 adjusting bolt J by turning the nut M thereon. The track S is removably but firmly held in place in the shell G by means of its left threaded engagement with the shell as shown in Fig. 3 resting firmly
25 against the annular shoulder g on the shell G. The track S will rotate freely with the shell carrying therewith the projecting arm G' when the spring B is thrown in the direction of the frame, permitting the spring
30 to have during this period its full resiliency, but will be held in frictional engagement with ratchet wheel when the frame of the car moves away from the main spring and thereby prevent the sudden movement up-
35 ward of the frame or body of the car, because of the frictional engagement as hereinbefore explained and thereby prevent the usual throw to the occupants of the car by the sudden upward movement of the body
40 thereof when no device of this character is provided to prevent it.

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

- 45 1. An anti-vibration device for vehicles, comprising a plurality of outer friction disks, a hub connecting said disks, means for rigidly attaching said hub to a part of the vehicle movable relatively to the other part,
50 an inner friction disk, friction material between the opposed faces of said outer disks and said inner disk and pivoted nonflexible means for connecting said inner disk to the other part of the vehicle, means whereby
55 said connecting means will be moved freely in one direction by the movement of its connected part of the vehicle and will cause said friction disks to operate when moved in the other direction.

- 60 2. An anti-vibration device for vehicles comprising a pair of oppositely disposed outer friction disks, a hub non-rotatably connecting said disks, and secured to a part of the vehicle movable relatively to the other, a

pair of inner friction disks mounted to re- 65 solve upon said hub, friction material between said outer and inner disks, a recessed annulus connecting said inner disks, a locking ring surrounding said annulus and friction 70 rollers in the recesses in said annulus whereby said locking ring may freely revolve in one direction, but will cause said friction disks to operate when moved in the opposite direction, means for adjusting the pressure of said outer and inner disks upon 75 said friction material, and compensating means for maintaining said pressure, a rigid arm fixed to said locking ring and pivotally attached to a second arm which is pivotally secured to the other part of the 80 vehicle.

2. In a shock absorber, the combination with a frame having a hub, a bolt having its head confined within the hub and its threaded end protruding therethrough, a 85 spring surrounding the bolt and housed within the hub, an outer shell, a ratchet wheel within said shell, a track secured to the shell, disks confined within the shell, a friction ring slidably connected with the 90 hub, a ring mounted on the bolt adapted to bear on the friction ring, and a nut on the bolt to be screwed against the ring whereby to regulate the frictional contact between the washers. 95

4. A shock absorber comprising a frame L, a shell G, an adjusting bolt J extending centrally through the hub I' of the frame and through the shell, a spiral spring encircling said bolt and adapted to bear 100 against the head of the bolt and the hub of the frame, an adjusting nut M on said bolt and adapted to adjust the pressure between the frame and the shell, a ratchet wheel Q revolvably mounted on the hub of the frame 105 and having on either side thereof leather clutch washers.

5. In a device to prevent the re-bound of a car, comprising a frame secured to the body of the car and carrying therein ratchet 110 mechanism workably connected with the running gear thereof, a shell covering said device and adapted to move toward or from the frame of the device, leather clutch pads mounted in said device and having a frictional 115 engagement on one side with the frame of the device and on the other side with a ratchet frame and means to hold the frame and the ratchet into adjustable frictional engagement comprising a bolt having 120 a head on one end and screw threaded on the other end, an adjusting nut on the screw threaded end thereof, a spiral spring disposed on said bolt between the head thereof and the frame of the device. 125

6. A shock absorber consisting of a frame having a hub, an outer shell, washers and ratchet mechanism confined between the hub

and the shell and means for applying frictional pressure to the elements confined between the hub and the shell.

5 7. In a shock absorber, the combination with a frame having a hub, a bolt in the hub, a spring surrounding the bolt, an outer shell, a ratchet wheel within said shell, and a friction ring connected to the ratchet wheel.

In witness that I claim the foregoing I have hereunto subscribed my name this 16 10 day of January, 1906.

HARRY C. TURNER.

Witnesses:

HENRY T. HAZARD,
G. E. HARPHAM.