L. J. HARVEY.

SAFETY BRAKE FOR AUTOMOBILES AND OTHER VEHICLES.

APPLICATION FILED FEB. 8, 1916.

1,272,337.

Patented July 9, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

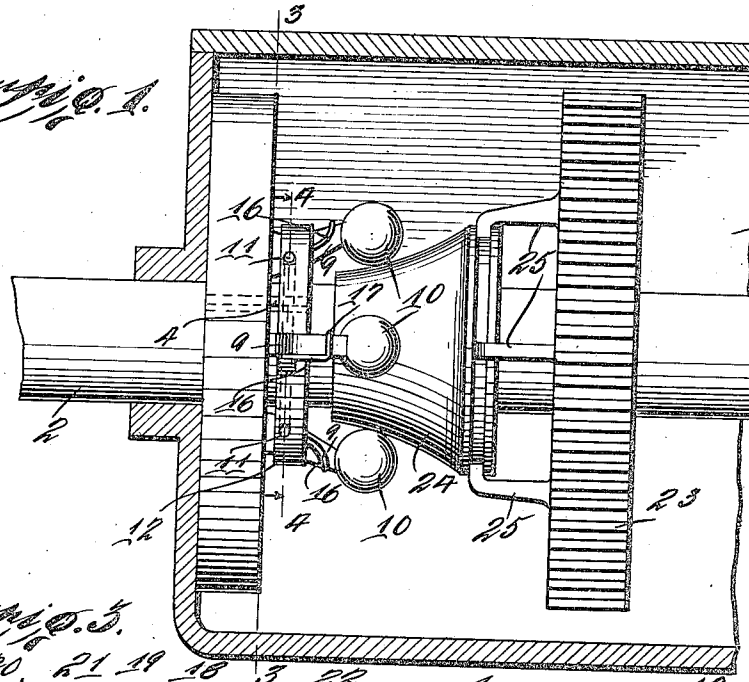


Fig. 5.

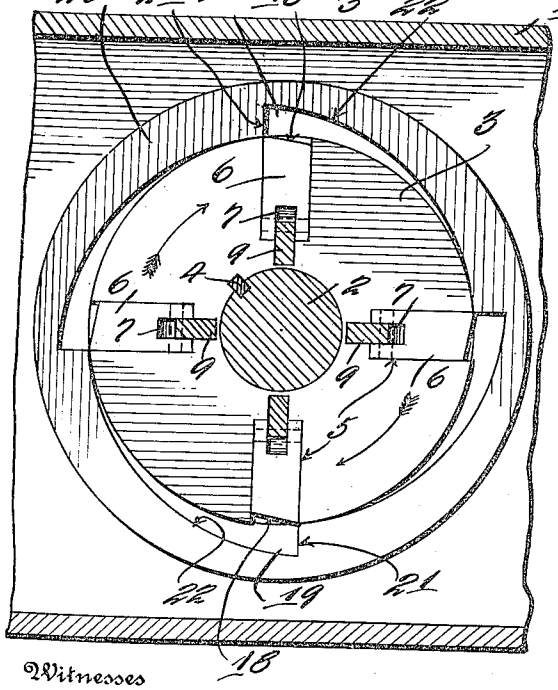


Fig. 6.

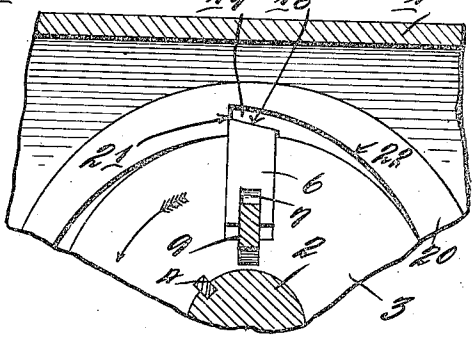
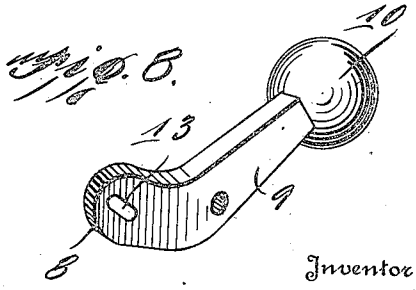


Fig. 8.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

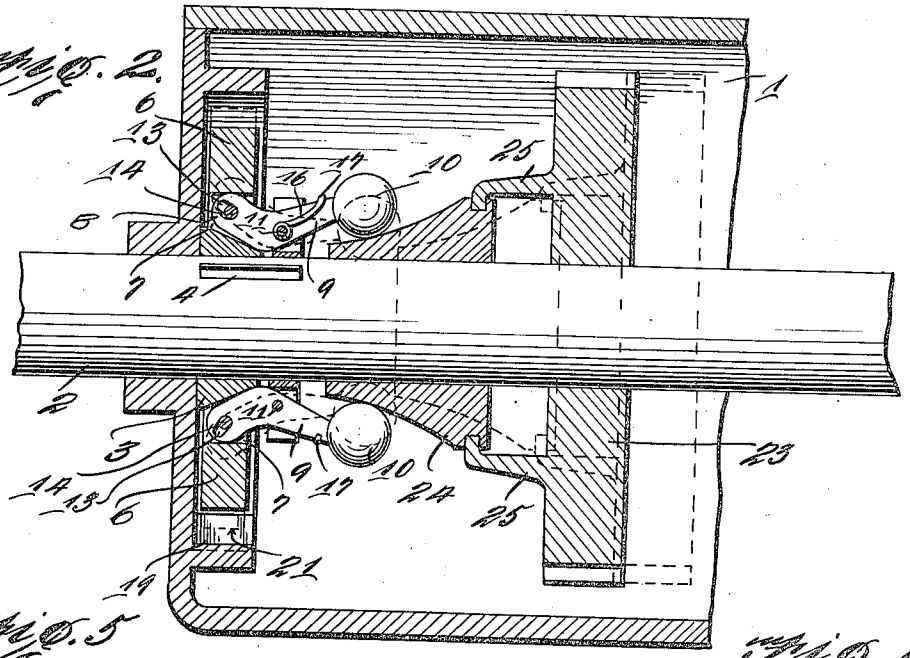


Fig. 5.

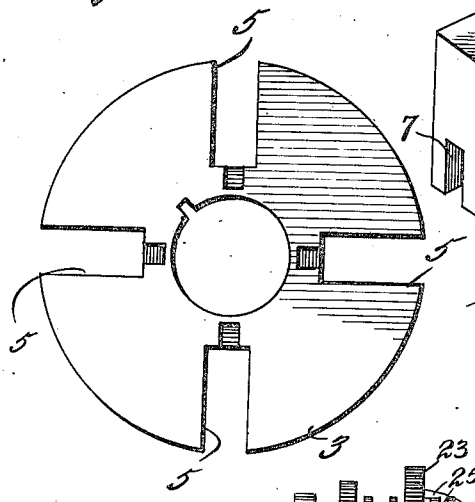
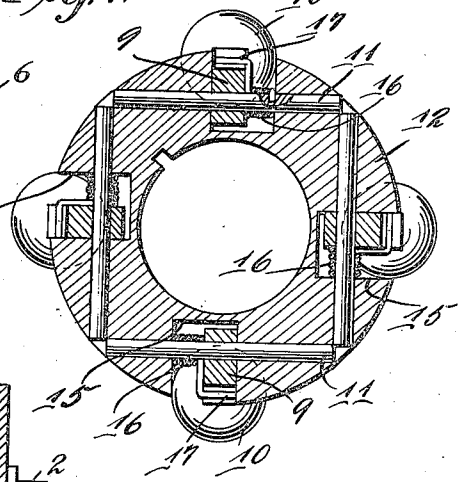


Fig. 7.

Fig. 4.



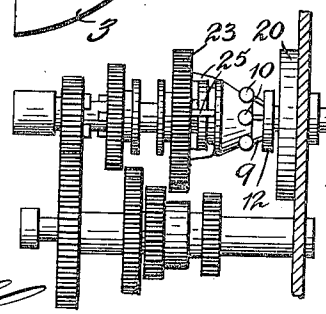


Fig. 9.

Witnesses

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SAFETY-BRAKE FOR AUTOMOBILES AND OTHER VEHICLES.

1,272,337. Specification of Letters Patent. Patented July 9, 1918.

Application filed February 8, 1916. Serial No. 77,027.

To all whom it may concern:

Be it known that I, LEONARD J. HARVEY, a citizen of the United States of America, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Safety-Brakes for Automobiles and other Vehicles, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an automatic lock for preventing an automobile or other vehicle from accidentally backing down grade, as for instance when said vehicle stalls when going up a hill.

Another object of this invention is the production of a simple and efficient means for causing the driving shaft to be automatically locked against reverse rotation except when the reverse mechanism is in mesh.

With these and other objects in view this invention consists of certain novel combinations, constructions, and arrangements of parts as will be hereinafter fully described and claimed.

In the accompanying drawings:—

Figure 1 is a vertical section through a portion of the transmission casing showing the automatic locking device in side elevation.

Fig. 2 is a view similar to Fig. 1, the locking mechanism being shown in section.

Fig. 3 is a section taken on line 3—3, of Fig. 1.

Fig. 4 is a section taken on line 4—4, of Fig. 1.

Fig. 5 is a front elevation of the disk which is adapted to carry the governor arms.

Fig. 6 is a fragmentary view similar to Fig. 3, showing the dogs in a locked position.

Fig. 7 is a detail perspective of one of the locking dogs.

Fig. 8 is a detail perspective of one of the governor arms.

By referring to the drawings it will be seen that 1 designates the transmission casing, through which transmission casing passes a driving shaft 2. This driving shaft 2 has a disk 3 keyed or splined thereon by means of a locking key 4. The disk 3 is provided with a plurality of radiating notches 5, within which notches are adapted to slide the slidably mounted dogs 6. These dogs 6 are provided with bifurcated lower ends 7, between which lower ends 7 are placed the projecting ends 8 of the governor arms 9. These arms 9 carry enlarged weighted balls 10 upon the outer ends thereof, and are pivotally mounted upon the pivot pins 11 of the governor arm carrying disk 12. The forward end 8 of each arm 9 is provided with an elongated notch 13, through which a pin 14 passes for connecting the sliding dogs 6 to the arms 9.

By carefully considering Fig. 4 it will be seen that the governor arm carrying disk 12 is provided with a plurality of notches 15, within which notches are seated the governor arms 9, and coil springs 16 are wound around the pins 11, and these springs 16 are provided with overhanging ends 17, the overhanging ends 17 fitting over the outer edges of the governor arms 9 as illustrated clearly in Fig. 2 for normally urging the inner ends of the arms 9 inwardly toward the driving shaft 2. It should be understood that this disk 12 is keyed to the shaft 2.

The dogs 6 are provided with beveled outer faces 18, which dogs 6 are adapted to fit in the notches 19 formed in the collar 20, carried by the transmission casing 1. These notches 19 are provided with straight abutment faces 21, and are also provided with inclined faces 22 to facilitate the forcing of the dogs 6 inwardly when the disk 3 is rotated in the direction of the arrow indicated in Fig. 3 of the drawings. The rotation of the disk 3 in the opposite direction when the dogs 6 are moved outwardly, will be limited owing to the fact that the dogs 6 will engage the straight abutment faces 21 of the notches 19 and prevent the disk 3 from rotating in the direction of the arrow indicated in Fig. 6 of the drawings.

A reverse gear 23 is carried by the shaft 2 and is adapted to be operated in the usual manner for the purpose usually employed in a transmission casing, and a sliding cone 24 is connected to this gear 23 by means of the arms 25. This cone 24 is adapted to engage the ball heads 10 of the governor arms 9, and as the reverse gear 23 is drawn to the position shown in dotted lines, the springs 16 will cause the balls 10 to be thrown inwardly to the position shown in dotted lines in Fig. 2. When the governor arms 19 assume this position shown in dotted lines, the

dogs 6 will be thrown out into engagement with the notches 19, thereby locking the disk 3 and the shaft 2 against rotation in one direction. It should be understood, however, that the disk may be rotated in the opposite direction owing to the construction of the dogs 6 and the inclined faces 22 of the notches 19. It should be understood, further, that these governor arms 9 may be swung outwardly to the position shown in full lines by merely moving the reverse gear 23 inwardly to the position shown in full lines in Fig. 2, thereby causing the dogs 6 to be retracted or drawn within the notches 5 formed in the disk 3.

From the foregoing description it will be seen that a very simple and efficient mechanism has been produced, whereby the operating shaft will be automatically locked against rotation in one direction for preventing a motor car from backing when the reverse gear is thrown to an inactive position.

Having thus described the invention what is claimed, as new, is:—

1. A device of the class described comprising a driving shaft, a casing, a collar formed upon said casing and provided with a plurality of notches, a disk carried by said driving shaft, and sliding dogs carried by said disk and engaging said notches for locking said shaft against rotation in one direction.

2. A device of the class described comprising a driving shaft, a casing, a collar formed upon said casing and provided with a plurality of notches, a disk carried by said driving shaft, sliding dogs carried by said disk and engaging said notches for locking said shaft against rotation in one direction, and governor arms engaging said dogs for controlling the sliding movement of said dogs upon said disk.

3. A device of the class described comprising a driving shaft, a casing, a collar formed upon said casing and provided with a plurality of notches, a disk carried by said driving shaft, sliding dogs carried by said disk and engaging said notches for locking said shaft against rotation in one direction, governor arms engaging said dogs for controlling the sliding movement of said dogs upon said disk, a governor arm supporting disk keyed to said shaft, and yieldable means for normally urging the outer ends of said arms inwardly toward said shaft thereby normally urging said dogs to a locked position.

4. A device of the class described comprising a driving shaft, a casing, a collar formed upon said casing and provided with a plurality of notches, a disk carried by said driving shaft, sliding dogs carried by said disk and engaging said notches for locking said shaft against rotation in one direction, governor arms engaging said dogs for controlling the sliding movement of said dogs upon said disk, a governor arm supporting disk keyed to said shaft, yieldable means for normally urging the outer ends of said arms inwardly toward said shaft thereby normally urging said dogs to a locked position, a reverse gear carried by said driving shaft, and an operating cone on said driving shaft and connected to said reverse gear and adapted to engage the outer ends of said governor arms for swinging said arms and controlling the sliding movement of said dogs upon said disk.

5. A device of the class described comprising a driving shaft, a casing, locking means carried by said driving shaft, and adapted to move outwardly with respect to said shaft and into engagement with said casing, and means engaging said locking means at their inner ends for forcing said locking means to a locked position and thereby holding said shaft against rotation in one direction.

In testimony whereof I hereunto affix my signature.

LEONARD J. HARVEY.