

N<sup>o</sup> 12,704



A.D. 1902

*Date of Application, 3rd June, 1902*

*Complete Specification Left, 3rd Mar., 1903—Accepted, 3rd June, 1903*

PROVISIONAL SPECIFICATION.

**“Improvements relating to Brakes and Clutches for Motor Road and other Vehicles.”**

I, LOUIS RENAULT, of 97 Rue St Lazare, Paris, in the Republic of France, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to an extensible segment applicable to motor road vehicles and to other vehicles. This segment permits of effecting either the braking or the engagement of the vehicle.

In the accompanying drawing Figs. 1, 2, 3 and 4 illustrate by way of example an application of my extensible segment to the brakes of a motor road vehicle.

Figs. 1 and 2 shew the invention applied to the wheel of a motor road vehicle in front elevation and in sectional elevation respectively.

Figs. 3 and 4 illustrate the application of the invention to the shaft of the driving pinion of the differential mechanism of a motor road vehicle in front elevation and in section respectively.

Figs. 5, 6 and 7 represent in section (Fig. 6) and in elevation (Figs. 6 and 7) the application of the extensible segment to the engaging mechanism of a motor road vehicle.

The extensible segment consists (Figs. 1 and 2) of the parts 1, 1 of cast iron, bronze or steel adapted to oscillate around the shaft 2 upon which they are mounted, and carrying two springs 3, 4 the extremities of which are respectively fixed to each of the parts 1, 1. The shaft 2 is invariably fixed to the axle 5 of the vehicle, this axle itself being fixed. A shaft 6 of flattened form and oscillating in the spring shoe 5 enters the space left between the two parts 1, 1 (Fig. 1). A lever 7 is rigid with the shaft 6, which it actuates. The wheel 8 of the vehicle carries a brake drum 9 in which are lodged the two parts 1, 1 of the segment. This drum 9 is connected in an invariable manner with the driving wheel which rotates around the axle 10.

Each of the driving wheels comprises an arrangement similar to that described above and the levers 7 of each of the devices are connected one with the other in such a manner that when the driver acts upon the connecting lever of the levers 7, 7 each of the brakes arranged upon each of the wheels is operated simultaneously. In these conditions the operation of the braking device is as follows

The springs 3, 4 tend to bring together the parts 1, 1 that is to say to cause them to oscillate around the shaft 2 and to cause their other extremity to bear against the flattened faces of the shaft, 6. In this position the wheel is free, as play is present between the parts 1, 1, and the brake drum 9. In order to effect braking, it is only necessary to act upon the lever 7 so as to rotate the shaft 6. The curved portions of this latter come into contact with the free extremities of the parts 1, 1 causing them to separate and consequently to come into contact with the inner surface of the drum 9, the friction between the said parts and the drum effecting the braking.

On releasing the common lever 7, the springs 3, 4 will bring back the parts 1, 1 which upon leaving the inner face of the drum will release the wheel 8.

In Figs. 3 and 4 the device is applied to the shaft of the driving pinion of the differential mechanism of the vehicle. The same figures of reference are employed

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to designate like parts. The brake drum 9 is fixed upon the shaft 11 which in this case replaces the axle 10. The operation is the same.

Figs. 5, 6 and 7 shew the application of the extensible segment to the clutch of a motor vehicle. The engaging drum *a* is rigidly fixed upon the shaft *b* of the motor. The extensible segment consists of two parts *c c* oscillating around the shaft *d* which is invariably connected with a sleeve *e* adapted to rotate around the shaft *b*. *f* and *g* are the connecting springs of the parts *c, c* and *h* is the shaft with flattened faces which is adapted to oscillate within the sleeve *e*. To this shaft *h* is rigidly attached a lever *i* which is provided with a screw *j*. The sleeve *e* is invariably connected with the shaft *k* which may be either rigidly connected with or released from the shaft *b*. A sheath *m* surrounds the sleeve *e* upon which it is adapted to slide, one of its extremities terminates in a groove and the other in a conico-spherical portion. The sheath *m* may be caused to slide upon the sleeve *e* by means of a lever *n* engaging in the groove of the part *m* and oscillating around a shaft *o* connected by the rod *p* to the disengaging pedal *q, s* pivoted upon the shaft *r* and which is acted upon by the foot at *s*.

The operation of the device is as follows: Assuming the drum *a* to be in movement and that the sheath *m* occupies the position represented in the drawing, the lever *i* and its screw *j* will bear upon that part of the sheath *m* which has the largest diameter. In this position the flattened shaft *h* is caused to rotate, thus separating the parts *c, c* of the segment and applying them against the inner face of the drum *a*. The friction thereby resulting causes the rotation of the sleeve *e* and consequently that of the shaft *k* with which it is rigidly connected.

Upon acting in the opposite direction, that is to say in the direction indicated by the arrow *t* (Fig. 6) the lever *i* and its screw *j* no longer bear upon the sheath *m*, but come into direct contact with the sleeve *e*; as a result the flattened shaft *h* is rotated in such a manner that the parts *c, c* of the segment are brought together and no longer make contact with the drum *a*, that is to say the motor is thrown out of gear. The screw *j* serves to regulate the tightening effort exerted upon the parts *c, c* of the segment and to take up wear.

Dated this 3rd day of June 1902.

HASELTINE LAKE & Co.  
45 Southampton Buildings, London, W.C. Agents for the Applicants.

## COMPLETE SPECIFICATION.

**"Improvements relating to Brakes and Clutches for Motor Road and other Vehicles".**

I, LOUIS RENAULT, of 96 Rue St. Lazare, Paris, in the Republic of France, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an extensible segment applicable to motor road vehicles and to other vehicles. This segment permits of effecting either the braking or the engagement of the vehicle.

In the drawings accompanying my Provisional Specification, Figures 1, 2, 3 and 4 illustrate by way of example an application of my extensible segment to the brakes of a motor road vehicle.

Figures 1 and 2 shew the invention applied to the wheel of a motor road vehicle in front elevation and in sectional elevation respectively.

Figures 3 and 4 illustrate the application of the invention to the shaft of the driving pinion of the differential mechanism of a motor road vehicle in front elevation and in section respectively.

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Figures 5, 6 and 7 represent in section (Figure 6) and in elevation (Figures 5 and 7) the application of the extensible segment to the engaging mechanism of a motor road vehicle.

The extensible segment consists (Figures 1 and 2) of the parts 1, 1 of cast iron, 5 bronze or steel adapted to oscillate around the shaft 2 upon which they are mounted, and carrying two springs 3, 4 the extremities of which are respectively fixed to each of the parts 1, 1. The shaft 2 is invariably fixed to the axle 5 of the vehicle this axle itself being fixed. A shaft 6 of flattened form and oscillating in the spring shoe 5 enters the space left between the two parts 1, 1, (Figure 1). A lever 7 is 10 rigid with the shaft 6, which it actuates. The wheel 8 of the vehicle carries a brake drum 9 in which are lodged the two parts 1, 1 of the segment. This drum 9 is connected in an invariable manner with the driving wheel which rotates around the axle 10.

Each of the driving wheels comprises an arrangement similar to that described 15 above and the levers 7 of each of the devices are connected one with the other in such a manner that when the driver acts upon the connecting lever of the levers 7; 7 each of the brakes arranged upon each of the wheels is operated simultaneously. In these conditions the operation of the braking device is as follows :

The springs 3, 4 tend to bring together the parts 1, 1, that is to say to cause them 20 to oscillate around the shaft 2 and to cause their other extremity to bear against the flattened faces of the shaft 6. In this position the wheel is free, as play is present between the parts 1, 1 and the brake drum 9. In order to effect braking, it is only necessary to act upon the lever 7 so as to rotate the shaft 6. The curved portions of this latter come into contact with the free extremities of the parts 1, 1 causing them 25 to separate and consequently to come into contact with the inner surface of the drum 9, the friction between the said parts and the drum effecting the braking.

On releasing the common lever 7, the springs 3, 4 will bring back the parts 1, 1 which upon leaving the inner face of the drum will release the wheel 8.

In Figures 3 and 4 the device is applied to the shaft of the driving pinion of the 30 differential mechanism of the vehicle. The same figures of reference are employed to designate like parts. The brake drum 9 is fixed upon the shaft 11 which in this case replaces the axle 10. The operation is the same.

Figures 5, 6 and 7 shew the application of the extensible segment to the clutch of a motor vehicle. The engaging drum *a* is rigidly fixed upon the shaft *b* of the 35 motor. The extensible segment consists of two parts *c, c* oscillating around the shaft *d* which is invariably connected with a sleeve *e* adapted to rotate around the shaft *b*. *f* and *g* are the connecting springs of the parts *c, c*, and *h* is the shaft with flattened faces which is adapted to oscillate within the sleeve *e*. To this shaft *h* is rigidly attached a lever *i* which is provided with a screw *j*. The sleeve *e* is 40 invariably connected with the shaft *k* which may be either rigidly connected with or released from the shaft *b*. A sheath *m* surrounds the sleeve *e* upon which it is adapted to slide, one of its extremities terminates in a groove and the other in a conico-spherical portion. The sheath *m* may be caused to slide upon the sleeve *e* by means of a lever *n* engaging in the groove of the part *m* and oscillating around a 45 shaft *o* connected by the rod *p* to the disengaging pedal *q, s* pivoted upon the shaft *r* and which is acted upon by the foot at *s*.

The operation of the device is as follows : Assuming the drum *a* to be in movement and that the sheath *m* occupies the position represented in the drawing, the lever *i* and its screw *j* will bear upon that part of the sheath *m*, which has the largest 50 diameter. In this position the flattened shaft *h* is caused to rotate, thus separating the parts *c, c* of the segment and applying them against the inner face of the drum *a*. The friction thereby resulting causes the rotation of the sleeve *e* and consequently that of the shaft *k* with which it is rigidly connected.

Upon acting in the opposite direction, that is to say in the direction indicated by 55 the arrow *t* (Figure 6), the lever *i* and its screw *j* no longer bear upon the sheath *m*, but come into direct contact with the sleeve *e*; as a result the flattened shaft *h* is rotated in such a manner that the parts *c, c* of the segment are brought together

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and no longer make contact with the drum *a*, that is to say the motor is thrown out of gear. The screw *j* serves to regulate the tightening effort exerted upon the parts *c, c* of the segment and to take up wear.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:— 5

An extensible segment applicable to the brakes and clutch mechanism of motor road vehicles, the said segment being composed of two parts adapted to oscillate around a fixed shaft on the one hand and on the other hand in contact with a flattened shaft diametrically opposite to the first and rotating in the same part upon which it is fixed, the said segment being lodged in a brake or clutch drum in such a manner that it is able, according to the rotation of the flattened shaft, to cause the adhesion or non-adhesion of the parts of the segment against the inner face of the drum, and thus produce braking or engagement, as the case may be, or the reverse. 10

Dated this 3rd day of March 1903.

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Fig 1

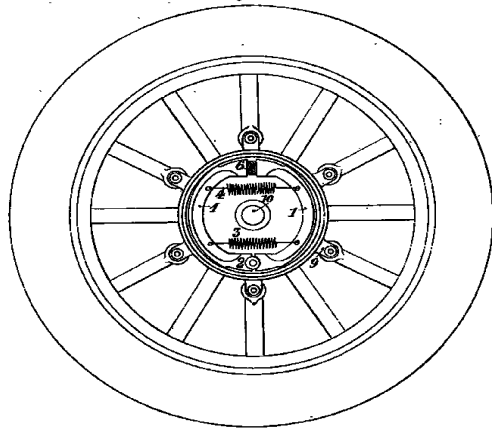


Fig 2

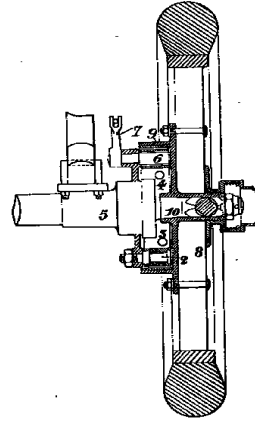


Fig 3

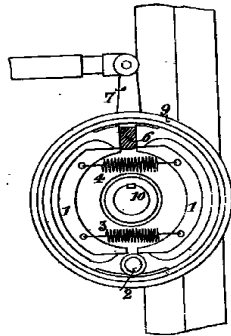
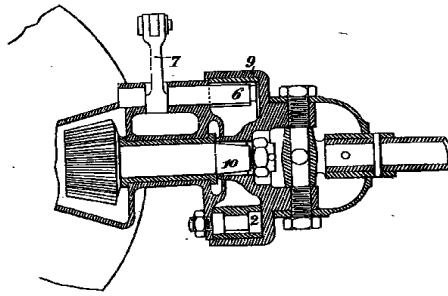


Fig 4



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Fig 1

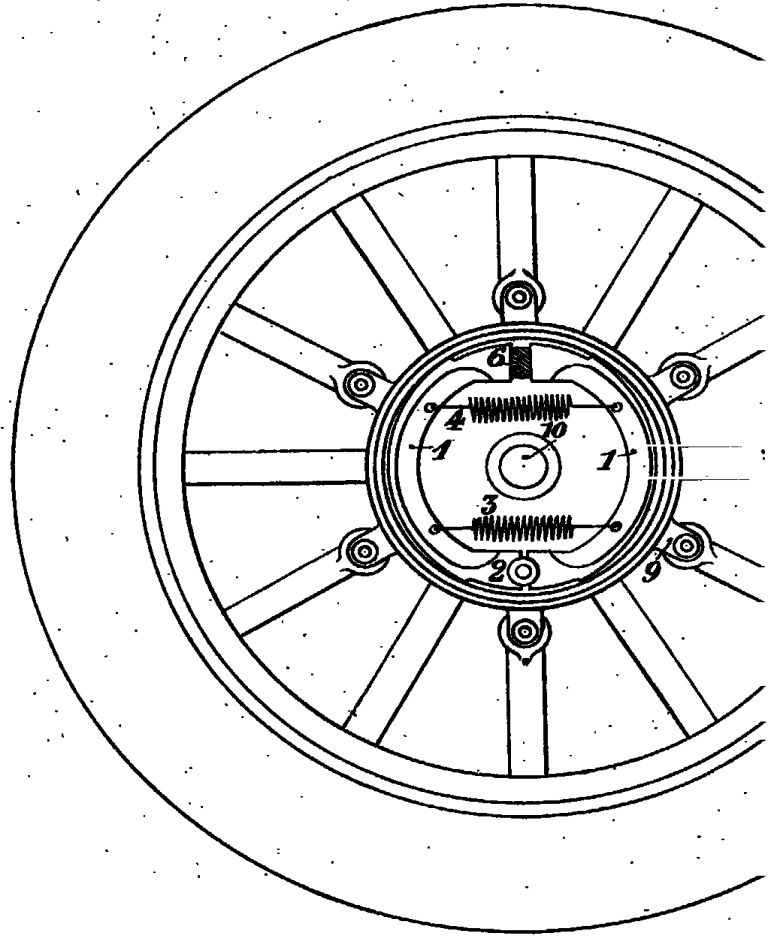


Fig 3

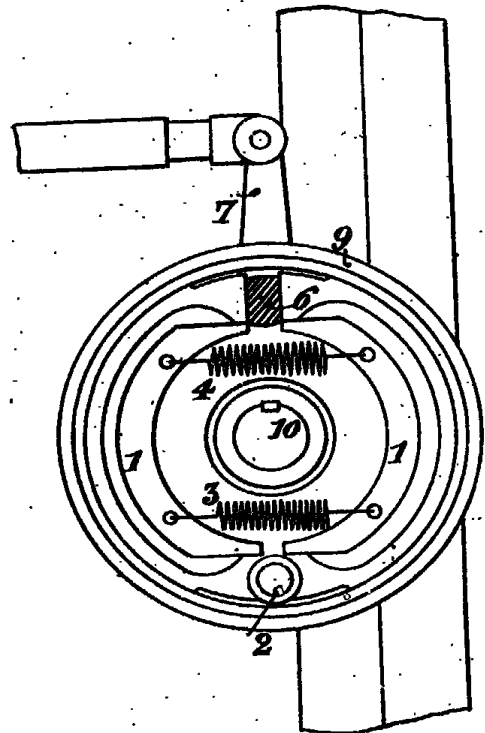
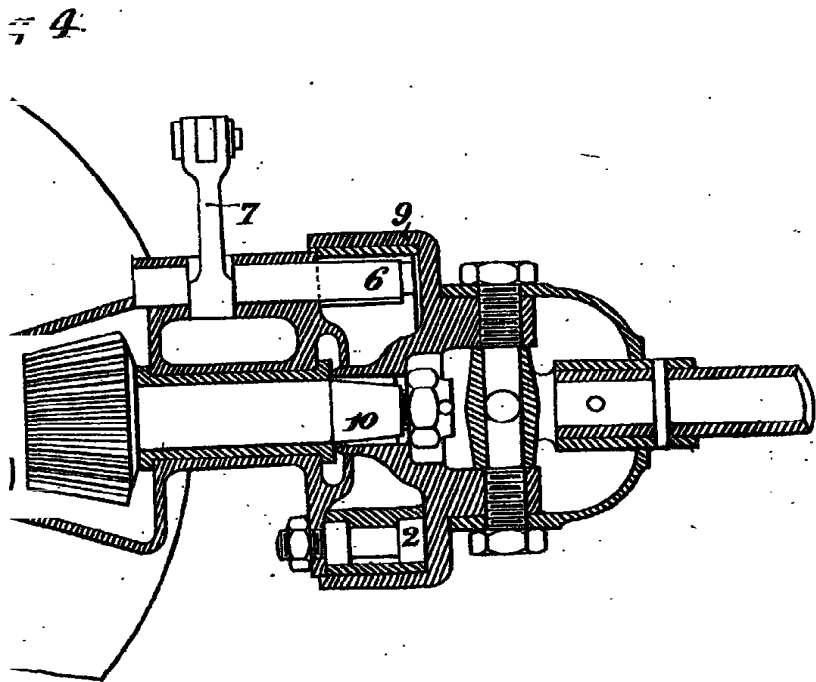
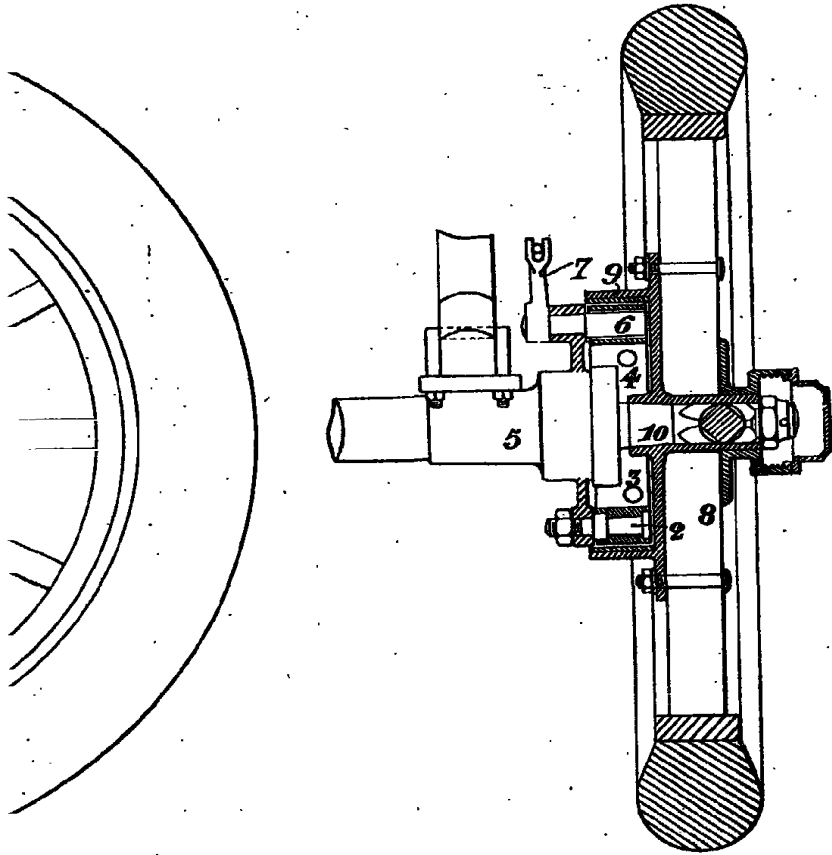
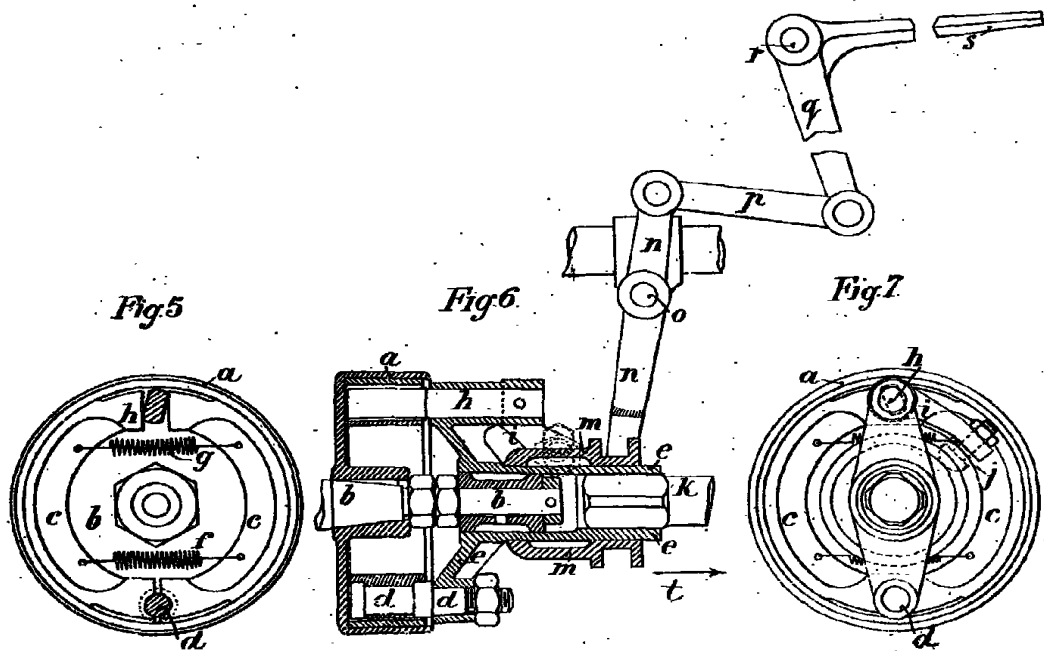


Fig. 2



This Drawing is a reproduction of the original of which we are not aware.





[This Drawing is a reproduction of the Original on a reduced scale.]