

No. 646,501.

Patented Apr. 3, 1900.

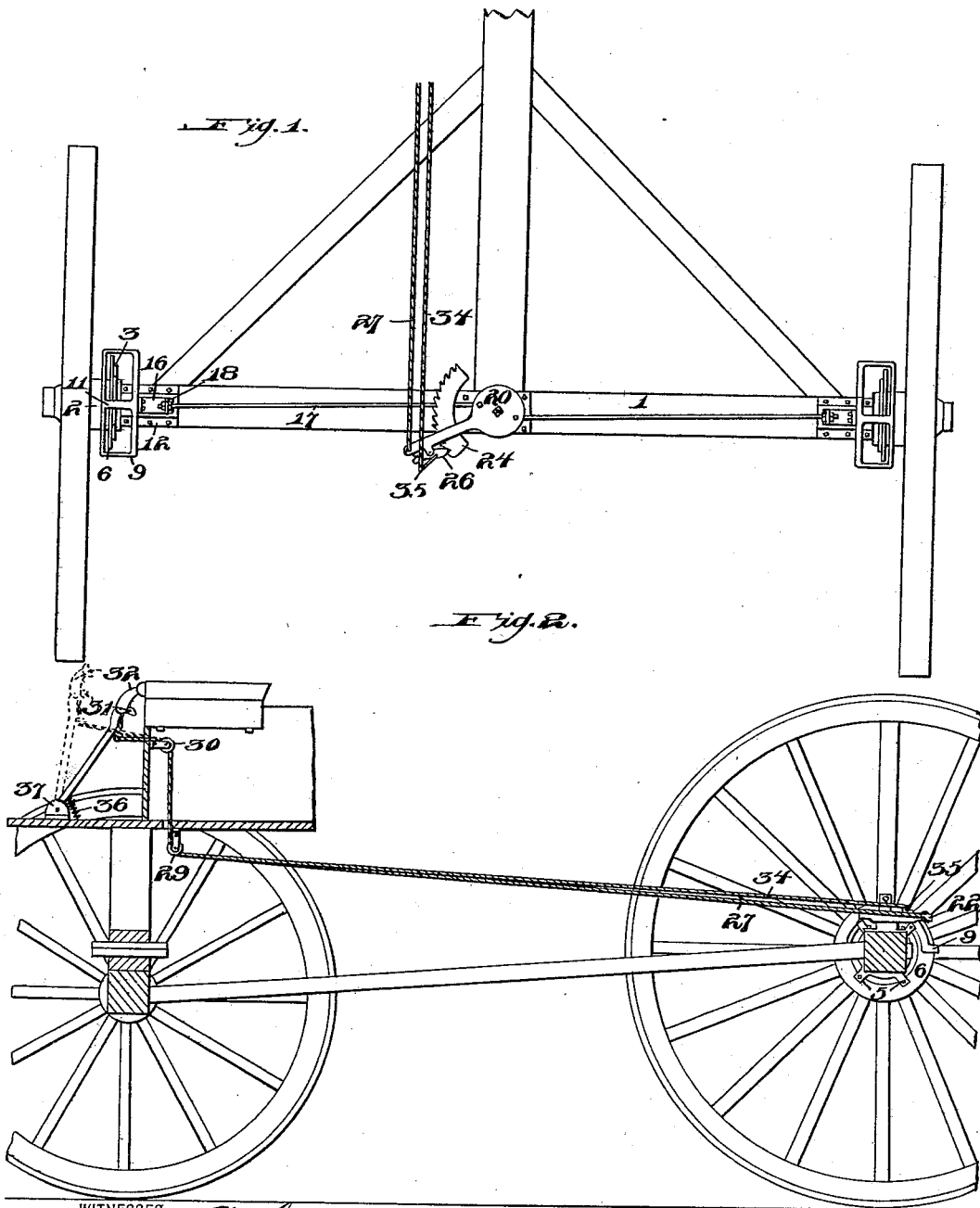
J. J. McLOUGHLIN & G. SCHMIDT.

CARRIAGE BRAKE.

(Application filed Sept. 8, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 3.

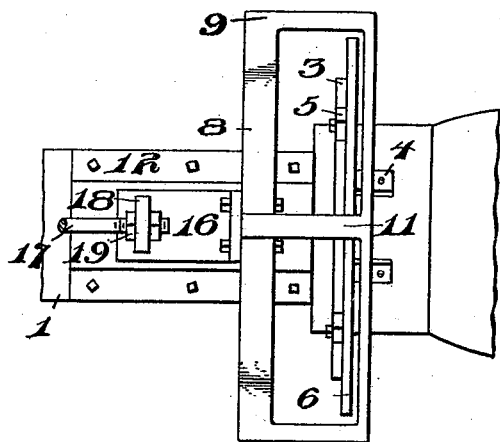


Fig. 4.

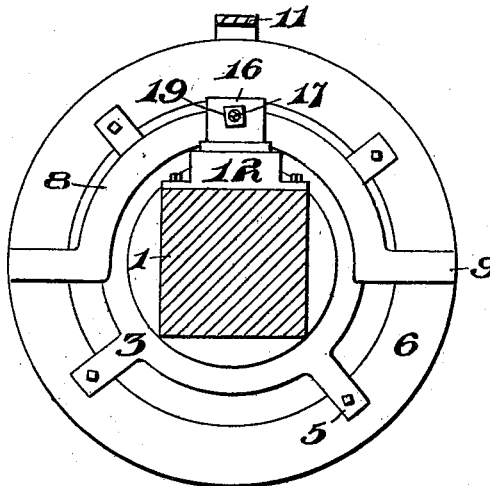


Fig. 5.

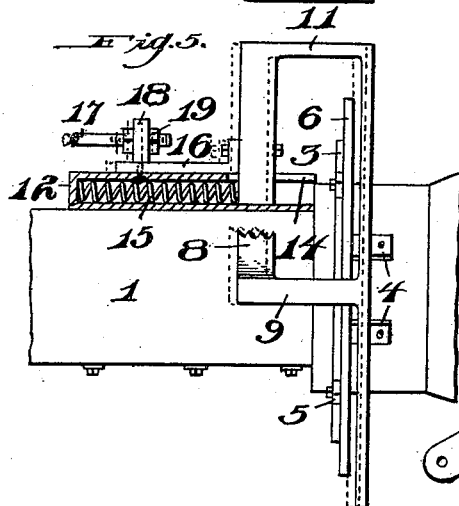


Fig. 6.

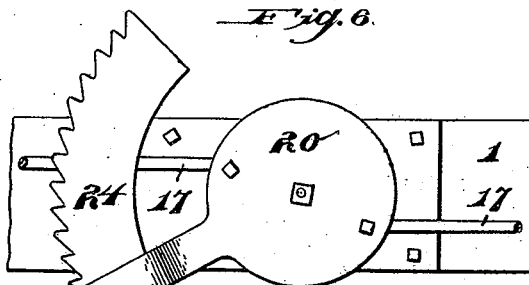
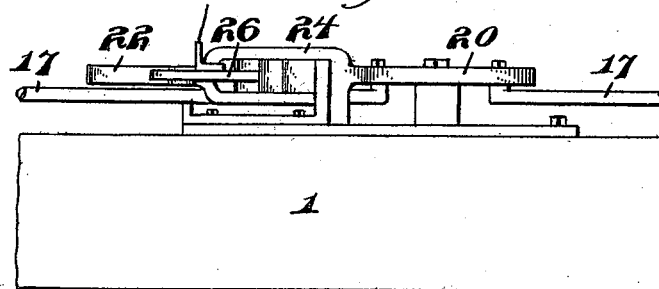


Fig. 7.



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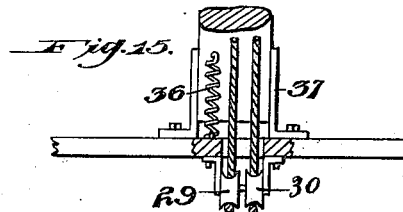
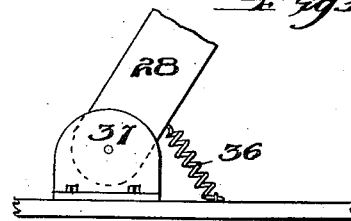
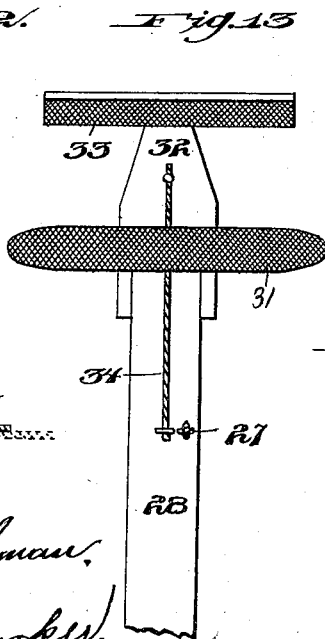
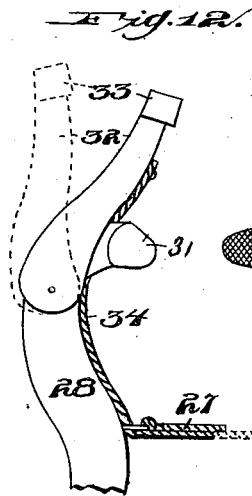
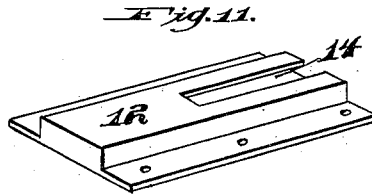
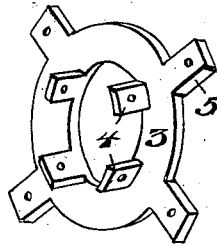
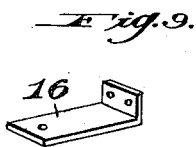
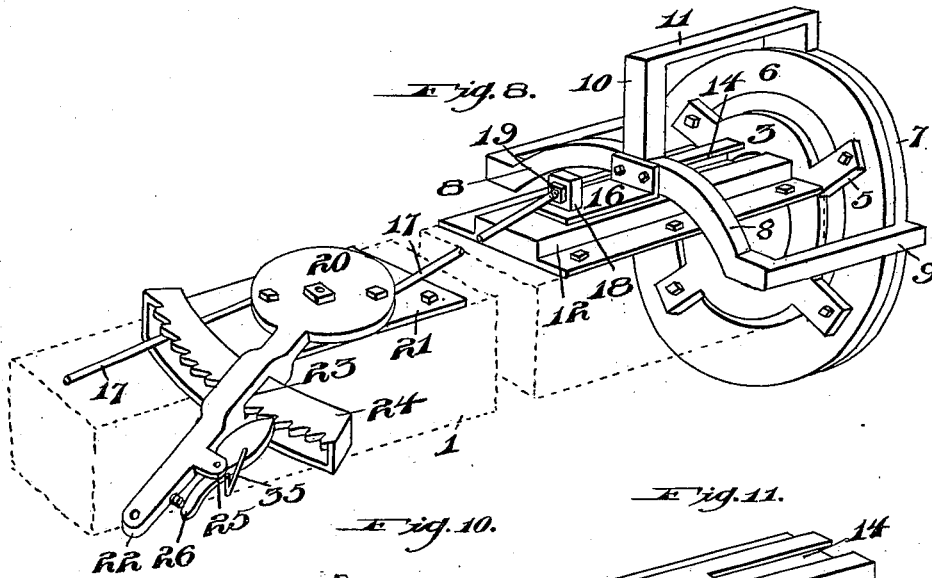
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UNITED STATES PATENT OFFICE.

JAMES J. McLOUGHLIN AND GEORGE SCHMIDT, OF PITTSBURG,
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CARRIAGE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 646,501, dated April 3, 1900.

Application filed September 8, 1899. Serial No. 729,811. (No model.)

To all whom it may concern:

Be it known that we, JAMES J. McLOUGHLIN and GEORGE SCHMIDT, citizens of the United States of America, residing at No. 2801 Liberty avenue, Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Carriage-Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in vehicle-brakes, and relates more particularly to that class of brakes adapted to be employed in connection with carriages and like vehicles.

The invention has for its object to construct a brake of this class in which the application of the brake-shoes will be made to an annular band which is mounted upon the hub of the rear wheels, and the ordinary brake-beam, together with the brake blocks or shoes carried thereby to engage the periphery of the wheels, will be dispensed with.

Briefly described, the invention consists of an annular band mounted upon the hubs of the rear wheels, with an annular brake-shoe suitably supported from the rear axle and operative longitudinally therewith to engage the annular band. This rear axle also has pivotally mounted thereon an operating-cam, with brake-rods connected thereto and to the brake-shoes, together with novel operating means for the cam, which are connected to the foot or hand lever (as may be employed) arranged in a convenient position for the driver. The brake-shoes are applied by this operating means, and when pressure upon the same is relieved the brake-shoes are automatically retracted by suitable springs arranged within casings provided therefor upon the axle at a point adjacent to the brake-shoes.

Novel features of construction enter into our invention, and these will be hereinafter more specifically described and then particularly pointed out in the appended claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corre-

sponding parts throughout the several views, and in which—

Figure 1 is a top plan view of a portion of a vehicle, showing our improved brake applied in position. Fig. 2 is a longitudinal sectional view of a portion of a vehicle with the brake in position. Fig. 3 is a top plan view of a part of the axle and hub, showing the brake in a relaxed or inoperative position. Fig. 4 is a cross-sectional view through the axle, showing the brake in position. Fig. 5 is a side view of a part of the axle and hub with the brake in position and the casing for the retracting-springs sectioned, showing the spring in position. Fig. 6 is a top plan view of a part of the axle, showing the operating-cam with the brake-rods connected thereto and the rack for holding the same. Fig. 7 is a side view of the axle, operating-cam, and rack as shown in Fig. 6. Fig. 8 is a perspective view of a part of the axle, showing the brake in position, together with the operating-cam and rack. Fig. 9 is a detail perspective view of the support to which the brake-rods are connected. Fig. 10 is a detail perspective view of the annular band which is attached to the hub of the vehicle. Fig. 11 is a detail perspective view of the casing secured upon the upper face of the axle and within which the retracting-springs operate. Fig. 12 is a side view of a part of the operating foot or hand lever. Fig. 13 is a front view of the same. Fig. 14 is a side view of a part of the lever, showing the same mounted on the footboard. Fig. 15 is a partial sectional view of the same.

Referring to the drawings by reference-numerals, 1 indicates the rear axle of a vehicle, and 2 the hub of the rear wheels, the latter having mounted thereon adjacent to their inner ends an annular band 3, which may be conveniently secured to the hub by providing the band with a series of integral lugs or ears 4, extending angularly to the band, and suitable apertures to receive fastening means engaging into the hub. This annular band is also provided with peripherally-arranged arms or lugs 5, to which is securely bolted, riveted, or otherwise secured an annular brake-band 6, with which the band forming

the brake-shoe is brought into frictional engagement to arrest the speed of the vehicle.

The brake-shoe 7 consists of an annular band engaging the outer face of the band 6 and supported in its position by a suitable frame or hanger consisting of a bar 8, segmental in form and extending transversely to the axle near its ends. This bar 8 has secured to its ends longitudinally-extending arms 9, the outer ends of which are connected to the brake-shoe 7, and it has centrally arranged upon the axle an upright 10, with an arm 11 connected thereto and to the brake-shoe 7 at its top. Arranged on the upper face of the rear axle, adjacent to the ends of the same, is a pair of casings 12, provided at their outer ends with oblong slots 14, the latter being adapted to receive and permit the operation within the casing of the lower end of the arm 10. Between this arm 10 and the closed end of the casing 12 is arranged retracting or releasing springs 15, the pressure of which exerted against the arms 10 serves to force the supporting-frame to the brake-shoe outwardly toward the wheel and releases the brake-shoe from engagement with the band 6 when the pressure upon the operating-lever has been relieved.

The cross-arm 8 has rigidly connected thereto a bracket 16, which is adapted to slide longitudinally upon the upper face of the casing 12 and has connected thereto the outer ends of the brake-rods 17. These brake-rods are preferably connected by I-bolts swiveled into the bracket 16 in order that the rods may move at the end thereof to permit the operation of the same when actuated by the operating-cam. They may be threaded into the I-bolts 18 and secured by nuts 19 upon the threaded ends of said rods, one nut on each side of the I-bolt 18. The inner ends of these rods are pivotally connected to an operating-cam 20, the cam being pivotally mounted upon a plate 21, rigidly secured to the rear axle at a point centrally thereof. This operating-cam carries an outwardly-extending lever-arm 22, which is provided with an opening 23 to receive a rack 24, mounted upon and secured to the plate 21 at the inner end thereof. The lever-arm 22 has formed integral with its inner face a pair of lugs 25, in which is pivotally mounted a spring-pressed pawl 26, adapted to normally engage in the teeth of the rack-bar 24 to hold the brake in position. The cam 20 and the lever-arm 22 are actuated to apply the brake by means of a cord, cable, or chain 27, connected to the outer end of said lever-arm 22 and carried forward to the footboard of the vehicle, where it is connected to the foot or hand lever 28. This cord, cable, or chain is preferably carried over the pulley 29, secured under the bed of the vehicle, and the pulley 30, arranged at the back of the riser-board to permit ease in the operation.

When the brake is applied by foot-pressure, the lever 28 is preferably provided with a

cross head or arm 31, which may be milled or roughened on its face to prevent the slipping of the foot. Pivotally mounted upon the upper end of this operating-lever 28 is an auxiliary lever 32, which is also provided with a cross head or arm 33, roughened or milled to prevent the slipping of the foot. The auxiliary foot-lever 32 has connected thereto a cord, cable, or chain 34, which is also carried over pulleys mounted upon the same shaft which carries the pulleys 29 and 30 and connected at its rear end to a link 35, attached to the pawl 26, for the purpose of holding the lever 28 normally retracted and permitting the springs 15 to exert against the brake-shoes. In order to hold the same out of engagement with the annular band 6, we attach to the said lever 28, near its lower end, a coiled spring 36, the other end of which may be conveniently connected to the footboard of the vehicle. This lever 28 is or may be pivotally supported in suitable standards or lugs 37, mounted upon the upper face of the footboard.

To apply the brake, the operator places his foot against the cross head or arm 33 of the auxiliary lever 32 and forces the same forwardly to the position shown in dotted lines in Fig. 2 of the drawings. This operation causes the cord or cable 34 to withdraw the pawl 26 from its engagement with the rack 24, so that the lever 28 may also be forced forwardly to the position shown in dotted lines in Fig. 2 of the drawings, thus actuating the operating-cam 20, and by reason of the rods 17 being eccentrically connected thereto causing these rods, through their connections with the annular brake-shoes, to draw the latter into frictional engagement with the annular band 6 to arrest the movement of the vehicle. In case it is desired to hold the brake-shoes in this frictional engagement, pressure upon the cross head or arm 33 is relieved, so that the spring-pawl will engage in the rack 24. Upon pressure being applied to the auxiliary lever 32, so as to actuate the cord 34 and withdraw the pawl from engagement with the rack, the springs 15, pressing against the ends of the arms 10, will force the brake-shoes 7 outwardly out of their engagement with the annular band 6 and allow the rotation of this band without frictional engagement with the brake-shoes.

While the construction as herein shown and described appears to embody the preferable form of our invention, we do not wish to limit ourselves to such construction, as it will be noted that various changes may be made in the details of construction without departing from the general spirit of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a brake of the class described, the combination with the annular bands mounted upon the hubs of the rear wheels, of the spring-actuated annular brake-shoes movable lon-

5 longitudinally of the vehicle-axle and adapted to engage the outer face of said bands, the open frames or hangers for supporting said annular brake-shoes, an operating-cam pivotally supported on the vehicle-axle, a lever-arm connected to said cam, an operating-lever pivotally supported on the footboard of the vehicle, and connections between said operating-lever and the lever-arm for actuating the cam to apply the annular brake-shoes to the annular bands, substantially as set forth.

10 2. In a brake of the class described, the combination with the annular bands mounted upon the rear wheels of the vehicle, of the annular brake-shoes movable longitudinally of the axle to engage the outer face of said annular bands, the movable hangers or supports to which said annular brake-shoes are connected, the cam pivotally connected centrally of the axle, the lever-arm connected thereto, the operating-lever pivotally mounted on the footboard, the connections between said lever and cam for moving the brake-shoes inwardly toward each other to engage the annular bands, and means for operating said hangers or supports for releasing said shoes from their engagement when the pressure on the operating-lever is released, substantially as set forth.

15 3. In a brake of the class described, the combination with the annular bands rigidly mounted on the hubs of the rear wheels, of the annular brake-shoes movable longitudinally of the axle toward each other to frictionally engage said annular bands, the operating-lever and connections between the latter and the brake-shoes, and the releasing-

springs arranged upon the axle for forcing said brake-shoes in opposite directions to disengage the same from the annular bands 40 when pressure upon the foot-lever is relieved, substantially as set forth.

4. In a brake of the class described, the combination with the annular bands, of the annular brake-shoes supported from and being movable longitudinally of the axle to engage the annular bands, the cam supported from the axle with the brake-rod eccentrically connected thereto and to the annular brake-shoes, the operating means connected to said cam for engaging the brake-shoes with the annular bands, and the releasing means for disengaging the brake-shoes from said bands, substantially as shown and described.

5. In a brake of the class described, the combination with the annular bands rigidly secured to the hubs of the rear wheels, of the annular brake-shoes supported from and being movable longitudinally of the rear axle, the cam supported from said axle, the brake-rods connecting said cam with the brake-shoes, the foot-lever pivotally supported on the footboard of the vehicle with an auxiliary lever pivotally connected thereto, and the cords or cables connecting said levers 65 with the cam for actuating the same, substantially as set forth.

In testimony whereof we affix our signatures in the presence of two witnesses.

JAMES J. McLOUGHLIN.

GEORGE SCHMIDT.

Witnesses:

JOHN NOLAND,

WILLIAM E. MINOR.