

No. 685,240.

Patented Oct. 29, 1901.

G. V. ALLEN & J. E. SCHUMACHER.
BRAKE FOR ROAD VEHICLES.

(Application filed Aug. 23, 1901.)

(No Model.)

4 Sheets—Sheet I.

Fig. 1.

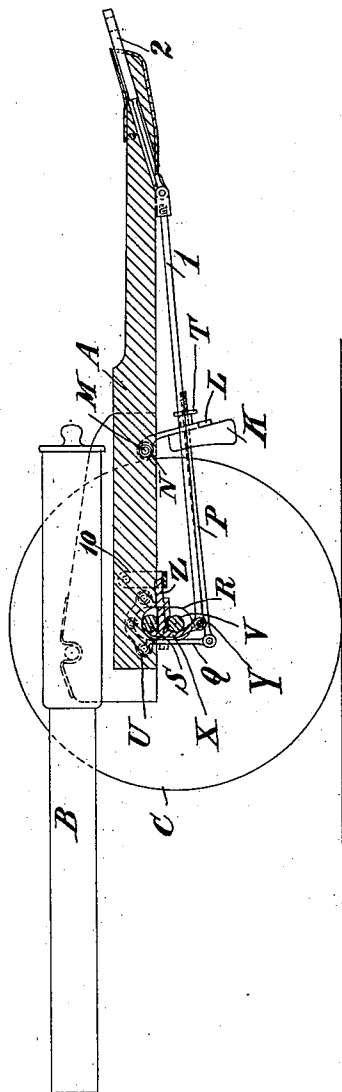
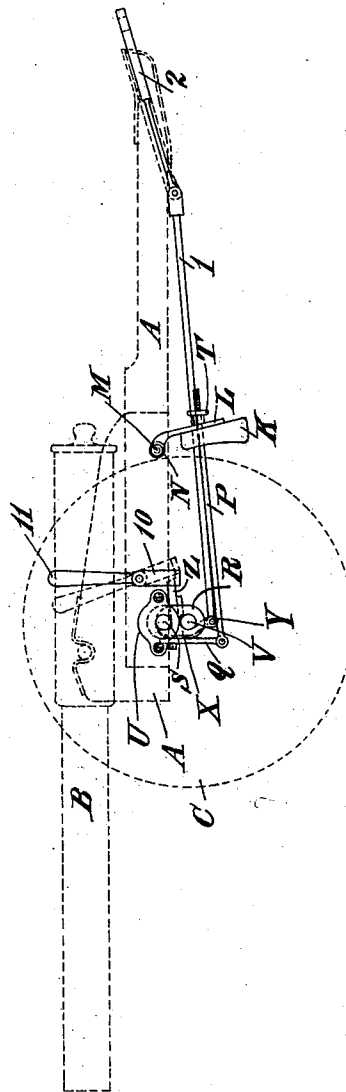


Fig. 2.



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Fig. 4.

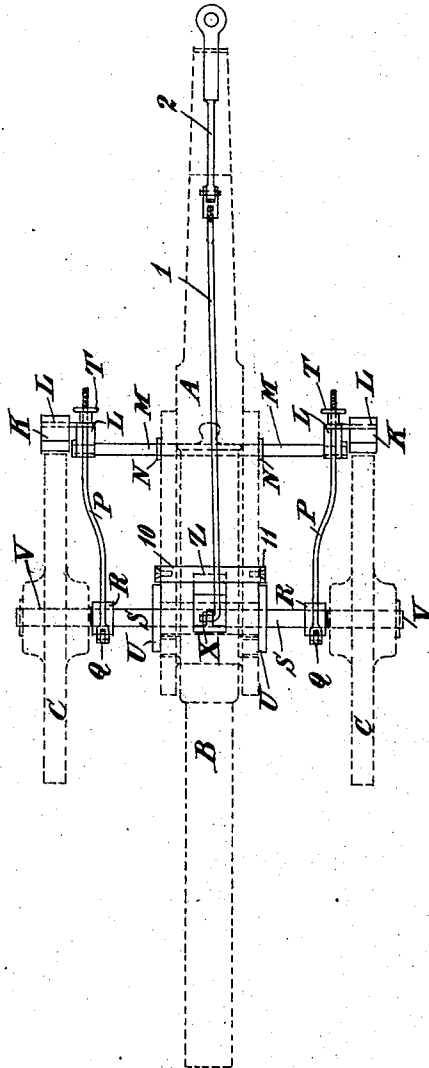


Fig. 5.

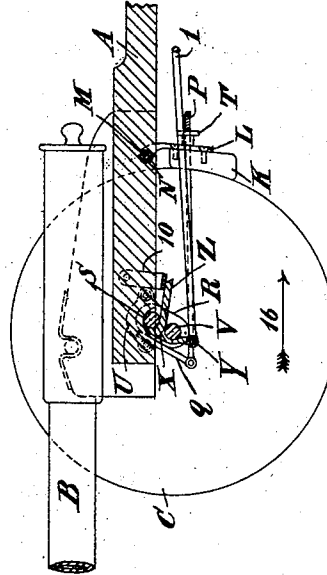
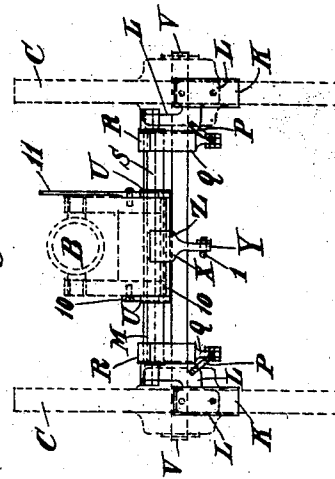


Fig. 3.



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4 Sheets—Sheet 3.

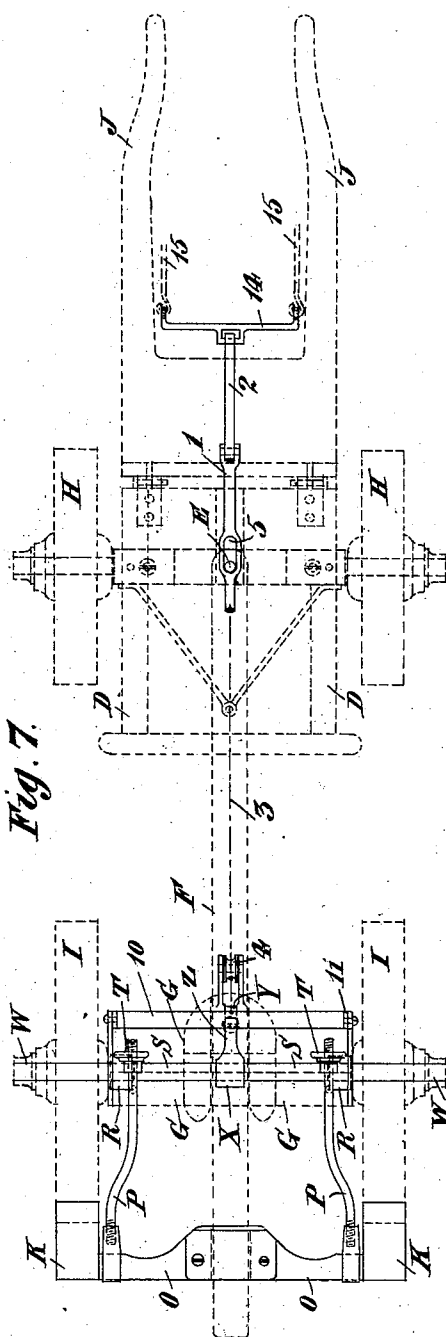
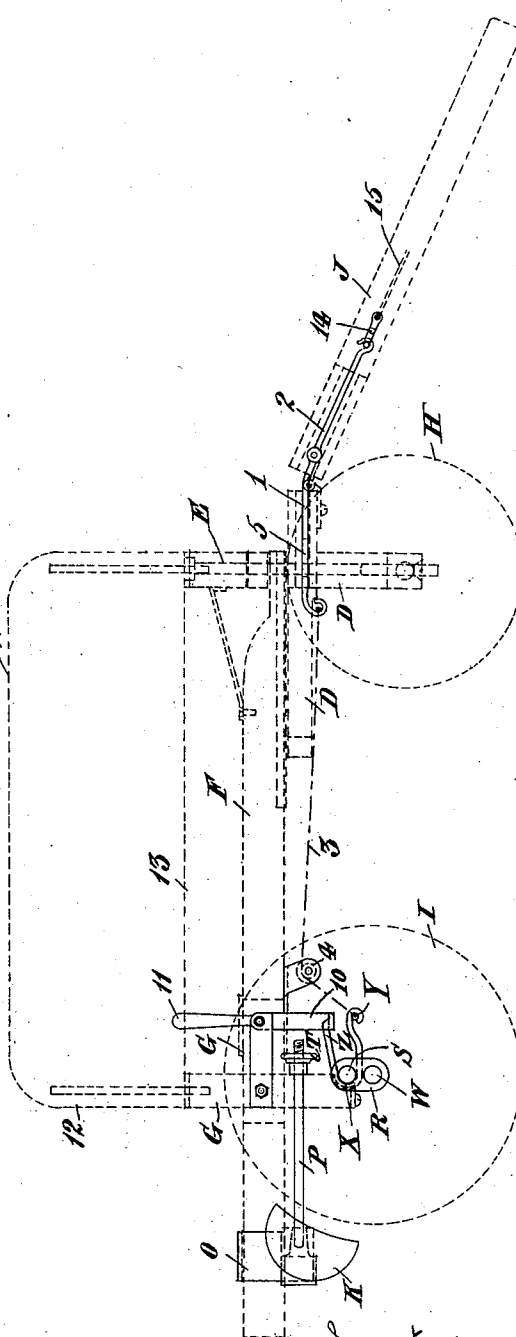


Fig. 7.

Fig. 6



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4 Sheets—Sheet 4.

Fig. 8

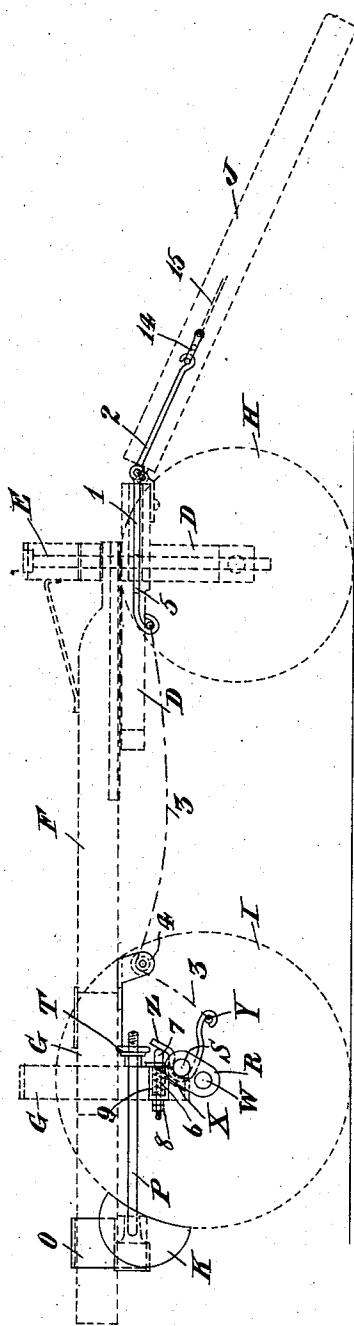
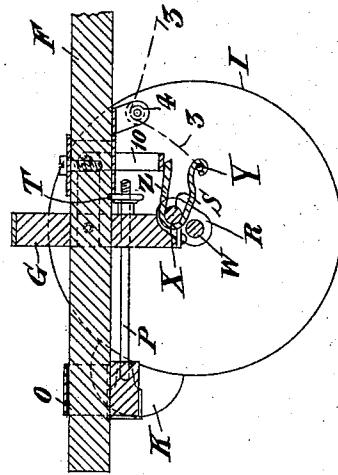


Fig. 9



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UNITED STATES PATENT OFFICE.

GEORGE VERNON ALLEN AND JAMES EDWARD SCHUMACHER, OF YORK,
ENGLAND.

BRAKE FOR ROAD-VEHICLES.

SPECIFICATION forming part of Letters Patent No. 685,240, dated October 29, 1901.

Application filed August 23, 1901. Serial No. 73,088. (No model.)

To all whom it may concern:

Be it known that we, GEORGE VERNON ALLEN, a subject of the King of Great Britain and Ireland, and JAMES EDWARD SCHUMACHER, a subject of the King of Prussia, Emperor of Germany, both residing at York, in the county of York, England, (and whose post-office addresses are respectively 7 Southlands road and 67 Union Terrace, York, England,) have invented new and useful Improvements in or Relating to Brakes for Road-Vehicles, Gun-Carriages, Railway Rolling-Stock, and the Like, of which the following is a specification.

This invention has reference to improvements in brakes adapted for use on all classes of road-vehicles—such as, for example, carriages, gigs, carts, wagons, and timber-wagons, frequently called “wood-cuts,” as well as for gun-carriages, ammunition-wagons, ambulance-vans, railway rolling-stock, and the like, all of which are hereinafter termed and included in the term “carriage,” whether such carriage is drawn by horse or other motive power.

The object of this invention is to so construct a self-acting brake that when the power employed for drawing the carriage is applied the brake is immediately withdrawn from the wheel or wheels, but as soon as the power is withdrawn it immediately returns to its normal position—that is, onto the periphery of the wheel or wheels. We attain this object by mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a gun-carriage with our invention applied; Fig. 2, a side elevation of same; Fig. 3, a front elevation of same; Fig. 4, a plan looking at the under side; Fig. 5, a part-sectional elevation showing the brake in action; Fig. 6, a side elevation of method of applying the brake to timber-cuts; Fig. 7, a plan of same looking at the top; Fig. 8, a side elevation showing the brake in action; Fig. 9, a part-sectional elevation of same.

Similar characters refer to similar parts throughout the several views.

A is the gun-carriage; B, the gun, armed with trunnions; C, the wheels upon which the carriage is mounted, as hereinafter described.

D is the swiveling carriage at the front of the timber-cuts, made in two portions connected together by the center pin E.

F is the horizontal center pole or beam; G, the rear carriage, capable of adjustment on the center pole F.

H and I are the wheels upon which the carriages D and G are mounted, as hereinafter described; J, the shafts attached to the swiveling carriage D.

All the above-described parts, with the exception of the method of attaching the wheels C and I to their respective carriages A and G, are of ordinary and well-known construction.

K represents the brake-blocks, which are mounted either above or below the center of the wheels C or I. At Fig. 1 the brake-blocks K are shown pivotally attached to the carriage A by the levers L, mounted upon the shaft M, carried in suitable bearings N, by which it is attached to said carriage. At Fig. 6 they (the brake-blocks) are shown fixed to the cross-piece O, adjustably mounted upon the center pole F.

P represents rods for adjusting the position of the brake-blocks with regard to the wheels C or I. One end of each rod P is jointed to a lever Q, fixed to the connecting-link R, mounted upon the shaft S, to be presently described, while the opposite end of each rod P has a screw-thread formed thereon and is made at Fig. 5 to pass through each lever L; but at Fig. 9 it passes through the rear carriage G. On the screw-threaded portion of each rod P a winged or other nut T is mounted and made to work against the said lever or carriage. By adjustably connecting the brake-blocks as described to the links R not only are they connected rigidly thereto, but as the carriage A or D is slightly lowered when the brakes are applied the latter are simultaneously drawn at Fig. 5 by the rods P and lever Q toward the wheels C or I or against the fixed blocks K at Fig. 9.

The shaft S is mounted in bearings U, fixed to the carriage A or D. On the ends of the shaft S the links R are mounted and fixed. At a suitable distance from and, say, below the shafts S is, as at Fig. 1, a second shaft V,

or, as at Fig. 6, an axle W, upon which the wheels C or I are respectively mounted and retained thereon by ordinary means.

X is a bracket, which is fixed to the shaft S, say, at or about its center. This bracket is made to partially embrace either both the shafts S and V, as at Fig. 5, or only the shaft S, as at Fig. 9, and it is provided with a pendent end Y and a horizontal arm Z. At Fig. 5 the pendent end Y is made to pass partially around the shaft V and to extend below the last-named shaft; but at Fig. 9 it is bent forward immediately after passing partially around the shaft S. The horizontal arm Z at Fig. 5 passes between the shafts S and V; but at Fig. 9 it is turned upward above the shaft S to form a stop for regulating the movement of the links R. To the end of the pendent end Y is attached the draw-rod 1, which is jointed to the draw-bar 2, which is carried in suitable bearings in the front end of the carriage A or D. At Fig. 9 a chain 3 is shown to take the place of the draw-rod 1, and the chain is arranged to pass over a pulley 4, suitably attached to, say, the center pole F or under carriage. At Figs. 6 and 7 the draw-bar 2 is shown slotted at 5 to permit of the central pin E passing through it. In these views the draw-bar 2 is shown connected to a trace-bar 14, to which the traces 15 are attached in the usual manner.

When preferred, though not absolutely necessary, a spring 6 and piston 7, armed with lock-nuts 8 for adjusting purposes and inclosed in a fixing-casing 9, may be employed, as shown at Fig. 8, and arranged to act upon the arm Z for insuring the brake being quickly brought into action on the draft being slackened or the carriage overrun.

When it is required to lock the brake in or out of action, a fixing-loop 10, jointed to the carriage A, may be employed. The fixing-loop is provided with a handle 11 for actuating purposes. The loop 10 is made to embrace the horizontal arm Z when it is required to keep the brake-blocks K off the wheels, say C; but when it is required to keep them in action then the under side of the loop 10 is made to act upon the upper surface of the horizontal arm Z, thereby preventing the carriage A rising the required distance to bring the brakes out of action.

It will readily be understood that the herein-described brake may be readily adapted to other purposes than those herein described—as, for example, say, road-vehicles, such as carriages, gigs, carts, wagons, ammunition-wagons, ambulance-vans, as well as railway and tramway rolling-stock, or the like. Also when the weight of or that applied to the carriage is increased the power of the brakes will thereby be simultaneously increased. Further, the timber-cuts could be readily converted into a covered conveyance for transport purposes by providing it with a covering or awning 12 and a floor 13, both of which are shown in dotted lines at Fig. 6.

The action of the brake is as follows: In its normal position the carriage to which the brake is applied is in a slightly lower position than when the brake is out of action. This is achieved by mounting the wheels C or I on a separate shaft V, Fig. 5, or axle W, Fig. 9, to that by which they are attached to the carriage. When the power employed for drawing the carriage is applied, the said carriage is slightly raised, owing to its being attached to the shaft S and the wheels C (or I) being mounted upon the shaft V, (or axle W,) the latter forming a fixed center or pivot upon which the carriage moves. This arrangement permits of the wheels to be drawn forward in direction of arrow 16 from the position shown at Fig. 5 by the draw-bar 2, draw-rod 1, and pendent end Y of bracket X into the position shown at Fig. 1—that is, until the shaft S is immediately under the shaft R, thereby raising the carriage. Simultaneous with this raising of the carriage the brake-blocks K will also be automatically moved clear of the wheels by the rods P and their connection with the links R and levers Q, attached thereto. So long as the tension on the draw-bar 2 and rod 1 is retained the shafts S and V will be kept in the position shown at Fig. 1; but when fixed blocks K are employed, as at Fig. 6, a similar movement then on the draft being applied to the trace-bar 14 the pendent end Y of bracket X is raised by the draw-bar 2 and chain 3 from the position shown at Fig. 9 until the shaft S is over the axle W, as at Fig. 6, thus moving the wheels clear of the brake-blocks, and so long as the chain 3 remains taut they will continue in this position. As soon as the draft slackens or the carriage commences to overrun, say, the horses in going down a hill, thus releasing the tension on the draw-bar 2 and rod 1 or chain 3, the shaft V or axle W will immediately commence to fall to the rear of the shaft S until it has reached the positions shown, respectively, at Figs. 5 or 9, when the carriage will have been lowered and the brakes applied by the blocks K being forced or brought into contact with the peripheries of the wheels, as shown in the last-named figures. It will thus be readily seen that the action is the same by each of the described arrangements, whether the brake-blocks have a slight movement imparted to them or are made a fixture. In each case the wheels are forced into and out of contact with the brake-blocks by the raising and lowering of the carriage. The two arrangements shown and described may therefore be taken as examples of a variety of means that could readily be applied for carrying the invention into practice.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In brake mechanism the combination of a carriage moving about the axis of its supporting-wheels, a shaft mounted in bearings fixed to the carriage, links mounted upon the

ends of said shaft, a second shaft carried in bearings in said links, wheels mounted upon the ends of said second shaft, a lever connected to and moving with said first-named shaft, said lever being provided with a pendent end and a horizontal arm, a draw-bar, a connection between the said pendent arm and draw-bar, a loop jointed to the carriage adapted to engage with the said horizontal arm, and a lever for operating said loop, as set forth.

2. The combination of a carriage moving about the axis of its supporting-wheels, a shaft mounted in bearings fixed to the carriage, links mounted upon the ends of said shaft, a second shaft carried in bearings in said links, wheels mounted upon the ends of said second shaft, a lever connected to and moving with said first-named shaft, said lever being provided with a pendent end and a horizontal arm, a draw-bar, a connection between the said pendent arm and draw-bar, a loop jointed to the carriage adapted to engage with the said horizontal arm, a lever for operating said loop, a shaft mounted in bearings fixed to the carriage at a distance from the first-named shaft, levers mounted upon the ends of the said shaft, brake-blocks fixed to said levers, levers fixed to said links, and adjustable connections between the last-named levers and brake-block levers, as and for the purposes set forth.

3. The combination of a swiveling carriage, made in two parts, a central pin connecting said two parts together, axles fixed to the

lower part of said carriage, wheels mounted upon said axles, a shaft attached to said swiveling carriage, a trace-bar, a slotted draw-bar attached to said trace-bar, a center pole connected to said swiveling carriage, an adjustable rear carriage mounted upon said center pole and capable of moving about the axis of its supporting-wheels, a cross-bar mounted on the center pole at the rear of the last-named carriage, adjustable connections for rigidly attaching the cross-piece to the last-named carriage, brake-blocks fixed to the ends of said cross-piece, a shaft mounted in bearings on the rear carriage, links mounted upon the ends of said shaft, a second shaft carried in bearings in said links, wheels mounted upon the ends of said second shaft, a lever connected to and moving with said first-named shaft, said lever being provided with a pendent end and a horizontal arm, a draw-bar, a chain connection between the said pendent arm and draw-bar, a loop jointed to the carriage adapted to engage with the said horizontal arm, a lever for operating said loop, a pulley fixed to said center pole over which the connecting-chain passes, as and for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE VERNON ALLEN.

JAMES EDWARD SCHUMACHER.

Witnesses:

GEORGE WILLIAM CURRY,
JOHN WILLIAM HOBSON.