

No. 610,426.

Patented Sept. 6, 1898.

H. W. ALBRIGHT.  
BRAKE.

(Application filed May 14, 1896.)

(No Model.)

Fig. 1.

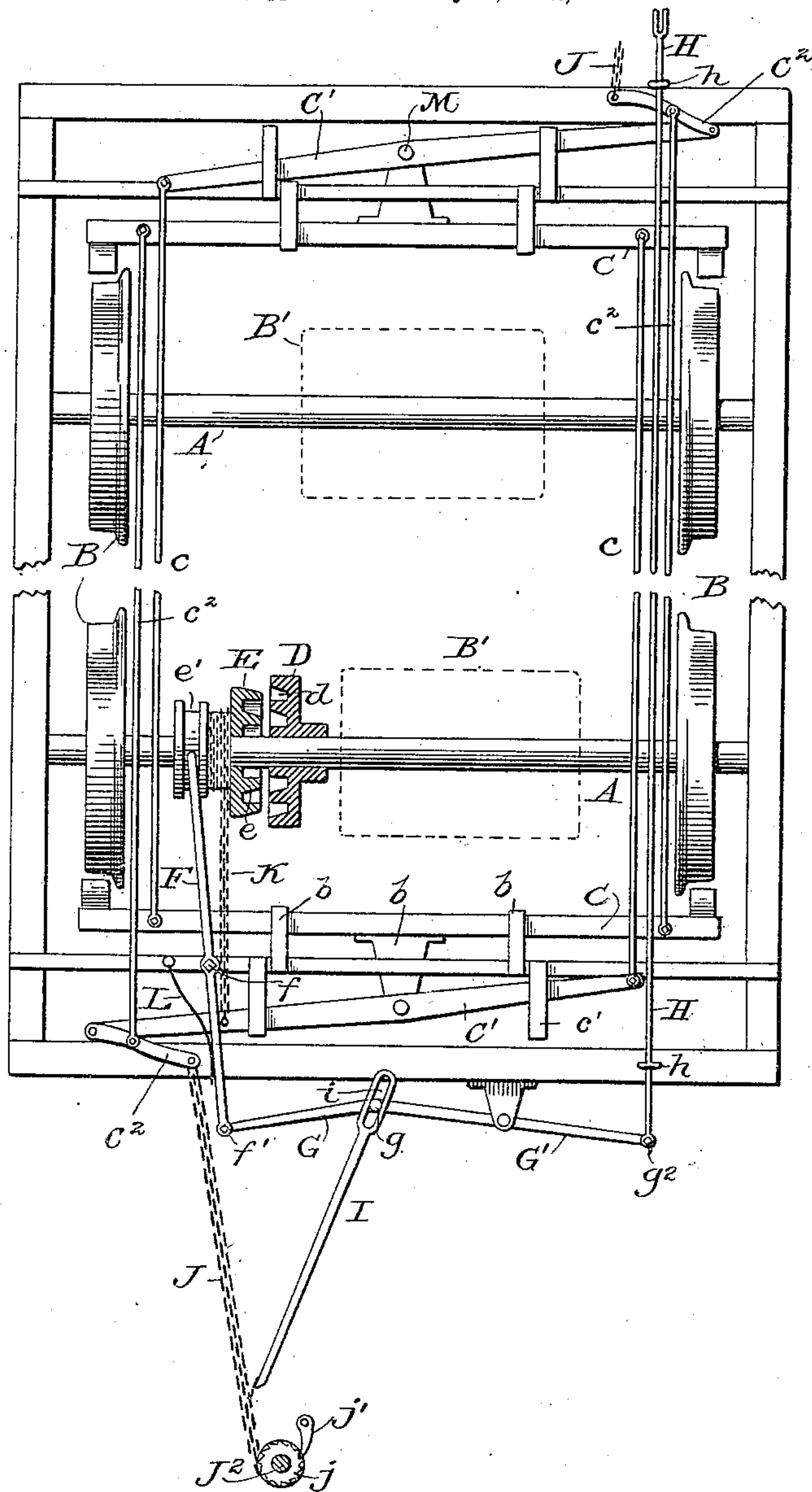
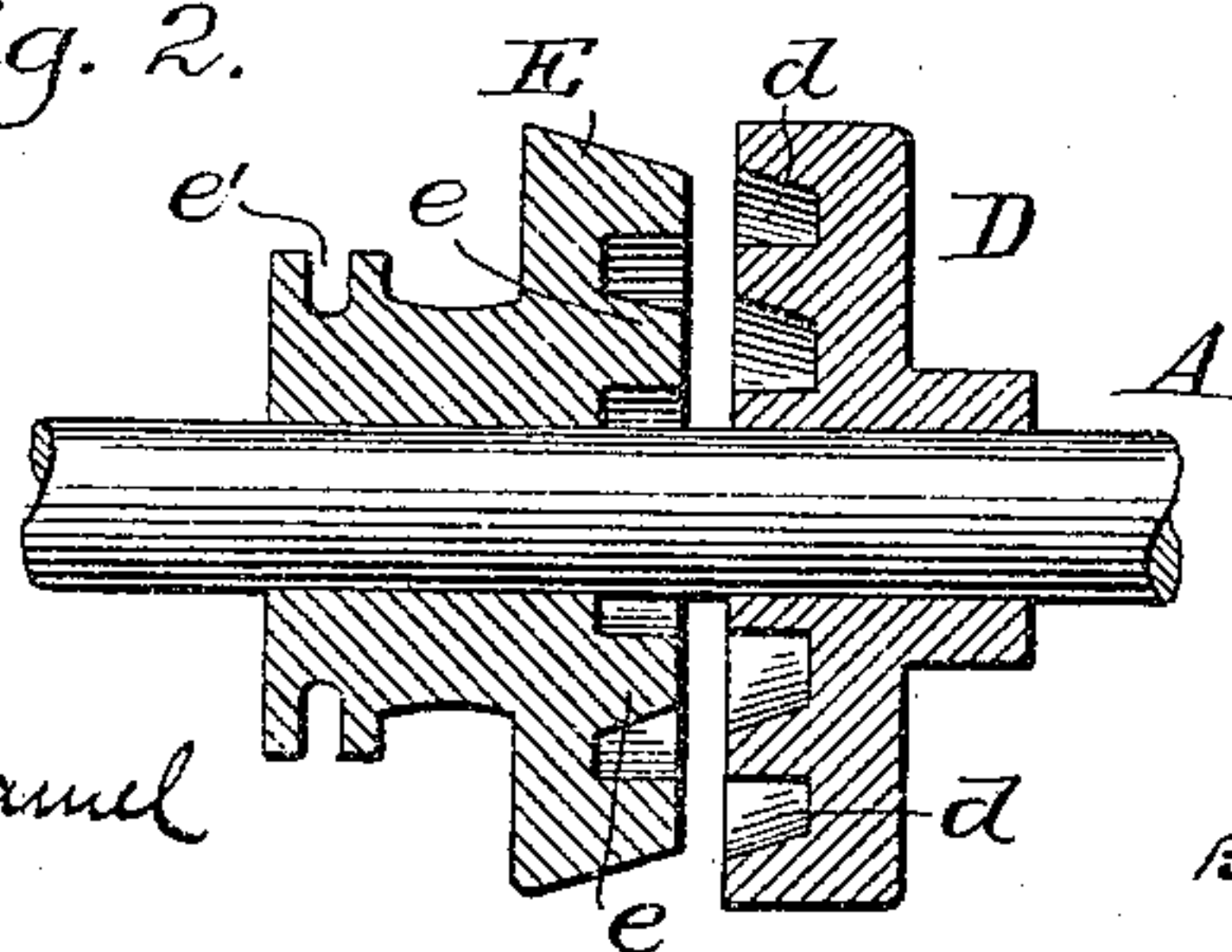


Fig. 2.



WITNESSES

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HARRY W. ALBRIGHT, OF YORK, PENNSYLVANIA, ASSIGNOR OF ONE-HALF  
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## BRAKE.

SPECIFICATION forming part of Letters Patent No. 610,426, dated September 6, 1898.

Application filed May 14, 1896. Serial No. 591,537. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY W. ALBRIGHT, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-  
10 pertains to make and use the same.

This invention relates to car-brakes, and has for its object, among others, to provide a simple, cheap, and improved construction of brake which shall not depend upon an  
15 electric current for its energy nor require an extra and costly lot of mechanism and which shall be positive and reliable in its operation and not likely to get out of order.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part  
25 of this specification, and in which—

Figure 1 is a plan view showing the improved brake mechanism partly in section and a sufficient portion of a truck to illustrate the application of the mechanism. Fig.  
30 2 is a detail sectional view of the clutch.

Like letters of reference denote like parts in the two views.

Referring to the drawings, A designates the  
35 axles, B the wheels, and B' the motor or motors, (in dotted lines,) of any well-known or approved construction. As the present invention, however, does not relate to the construction of the motors, a description and further illustration thereof will not be necessary.

C represents a pair of ordinary brake-beams which are movable bodily toward and away from the wheels and are mounted in hangers  
45 b. Each of the brake-beams C is equipped with brake-shoes at each end and is provided centrally with a bracket b, to which is pivotally connected a brake-lever C', said lever being pivoted to the bracket b at a point intermediate the ends of the lever. Connected  
50 to one end of each lever C' is a rod c, which

extends along the truck and is connected at its opposite end to the opposite brake-beam C. Each of the brake-levers C' is also mounted in guiding brackets or hangers c' and is what may be termed a "floating" lever. Connected  
55 pivotally to the opposite end of the lever C' is a shorter lever C<sup>2</sup>, which extends back toward the center of the truck, the lever C<sup>2</sup> having attached to its opposite end a chain J or other suitable connection extending  
60 to a brake-shaft or windlass J<sup>2</sup>, equipped with a ratchet-wheel j and a pawl or detent j'. Connected pivotally to the lever C<sup>2</sup> at an intermediate point is another rod c<sup>2</sup>, which extends longitudinally of the truck and is con-  
65 nected at its opposite end to the brake-beam C at the opposite end of the truck.

It will be understood that the mechanism just above described is duplicated at each  
70 end of the truck.

Mounted fast upon one of the axles A is a friction-disk D, provided with annular  
75 grooves d upon its active face, each groove having its outer surface beveled or oblique for giving increased frictional action. Opposite the disk D is a second friction disk or clutch  
80 E, provided upon that face adjacent to the disk D with annular flanges e, having oblique or beveled outer surfaces adapted to frictionally engage the oblique surfaces of the grooves  
85 d. The friction clutch or disk E is loose on the axle A, but adapted to slide longitudinally thereof into and out of engagement with the disk D. The disk or clutch E is further pro-  
90 vided with a flanged hub comprising an annular groove e', in which is received the forked end of a shipping-lever F, fulcrumed at f upon the truck-frame. Connected to the  
95 hub of the clutch E is a chain K, which at its opposite end is connected to the floating brake-lever C' upon the same side of the fulcrum of said lever as the lever C<sup>2</sup>.

L designates a leaf-spring which is connected to the truck-frame and which bears  
100 against the outer end of the lever F, the tension of said spring being exerted to throw the friction-clutch out of operation. At one end of the truck is mounted a lever G', fulcrumed intermediate its ends on a suitable bracket and having connected to one end thereof at



$g^2$  a rod H, which extends to the opposite end of the truck, where it is adapted to receive a chain or suitable connection extending to the brake-shaft at that end of the truck. Connected to the opposite end of the lever  $G'$  is a toggle arm or lever G, the levers G and  $G'$  being pivotally connected and provided at their point of junction with a stud  $g$ , which enters a longitudinal slot  $i$  in a bar or rod I, which is connected at its outer end to the chain J, so as to be drawn upon when the chain J is wound around the brake-staff  $J^2$ . The lever or arm G is pivotally connected at its outer end at  $f'$  to the outer end of the shipping-lever F, so that as the rod or bar I is drawn outward the stud  $g$  is also moved outward, which serves to thrust the pivotal point  $f'$  toward the side of the truck, thus vibrating the shipping-lever F and throwing the clutch into frictional engagement with the disk D.

From the foregoing description the operation of the brake will be readily understood. When the brake-staff  $J^2$  is operated, the chain J is drawn upon, and this serves to vibrate the lever  $C^2$ . As the lever  $C^2$  is vibrated the rod  $c^2$  at that side of the truck is drawn longitudinally until the brake-shoes at the opposite end of the truck are moved into contact with their respective wheels. The connection of the rod  $c^2$  and lever  $C^2$  now becomes the fulcrum, and the adjacent end of the lever  $C'$  is thrust toward the center of the truck, which vibrates the opposite end of the lever  $C'$  in the opposite direction, thus drawing upon the rod  $c$ , which also serves to draw the brake-shoes of the opposite brake-beam against the wheels. As this operation is going on the adjacent brake-beam is thrust toward the center of the truck and the brake-shoes thereof are brought to bear against their wheels. Thus all of the brake-shoes are simultaneously thrown into engagement with the several wheels of the truck. Upon a further winding of the chain J upon the shaft  $J^2$  the rod or bar I is drawn upon and the levers G  $G'$  vibrated, which in turn effects the vibration of the lever F, thus throwing the friction-clutch E against the disk D. Thereupon the chain K is wound about the hub or drum of the friction-clutch E, thus causing the chain to draw forward on the lever  $C'$ , which causes the brake-shoes to be applied with increased pressure to their respective wheels.

It will be understood that the limited play or loose connection between the several levers and rods, as shown, is of great importance, as by the operation of the hand-lever or brake-shaft the brakes are partially set, so as to impede the progress of the car, and upon a further winding up of the chain the clutch mechanism is thrown into operation, thus enabling the momentum of the car, in connection with the rotating axles, to apply the

brakes with considerably-increased force. It makes no difference in which direction the car is moving the brakes will be applied with equal effect, the only difference being that the chain will be wound in different directions around the hub or drum of the friction-clutch E, according to the direction in which the car is moving.

It will of course be understood that various modifications in details may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. The combination with a brake-staff, of a friction-clutch on one of the axles, brake levers and beams, and connections between said brake-staff, friction-clutch and brake-beams, whereby the manipulation of the brake-staff first actuates the brake-beams, and a further movement thereof throws the friction-clutch into action, causing the latter to react and apply the brakes with greater force, substantially as described.

2. The combination with an ordinary hand-brake, of a friction-clutch mounted upon one of the axles, a system of levers for simultaneously operating the clutch and brakes, toggle-levers arranged to actuate the clutch, and brake-rods having a loose connection and a limited play with respect to the operating-levers and toggle-levers, whereby the hand-brakes may be applied independently of the friction-clutch, substantially as described.

3. The combination with an ordinary hand-brake and a friction-clutch on one of the axles, of a system of levers for operating the clutch and brakes, a connection between the point of application of power and the brakes, a connection between said point and the clutch-operating levers, the latter connection having a limited play with respect to the clutch-operating levers and a loose connection therewith, and a chain connected to one of said levers and also to the movable part of the friction-clutch, substantially as described.

4. The combination with an ordinary hand-brake, of a friction-clutch on one of the axles, a system of levers for operating both the clutch and brakes, a connection between the brake-staff and one of the levers having a limited play and being loosely attached to said lever, a chain connected to one of said levers and to the movable part of the friction-clutch, a second chain connecting the brake-staff and one of said levers, and pawl-and-ratchet mechanism for holding the chain taut, substantially as described.

5. The combination with an ordinary hand-brake for cars, of a friction-clutch on one of the axles, comprising fixed and movable members, a system of levers for operating both the clutch and brakes, a rod having a loose connection and a limited play with respect to one



of the levers, a chain connected to one of the  
levers and to the movable part of the fric-  
tion-clutch, a second chain connecting the  
brake-staff and one of said levers, a pawl-and-  
5 ratchet mechanism for holding the chain taut,  
and a spring for holding the friction-clutch  
normally out of operation, substantially as  
described.

In testimony whereof I have signed this  
specification in the presence of two subscrib- 10  
ing witnesses.

HARRY W. ALBRIGHT.

Witnesses:

JAS. C. SPYKER,

JOHN W. ALBRIGHT.