No. 835,460. PATENTED NOV. 6, 1906.

C. A. NOBLE.

AUTOMATIC BACK STOP FOR VEHICLES.

APPLICATION FILED MAR. 24, 1906.

2 SHEETS—SHEET 1.

Fig. 1

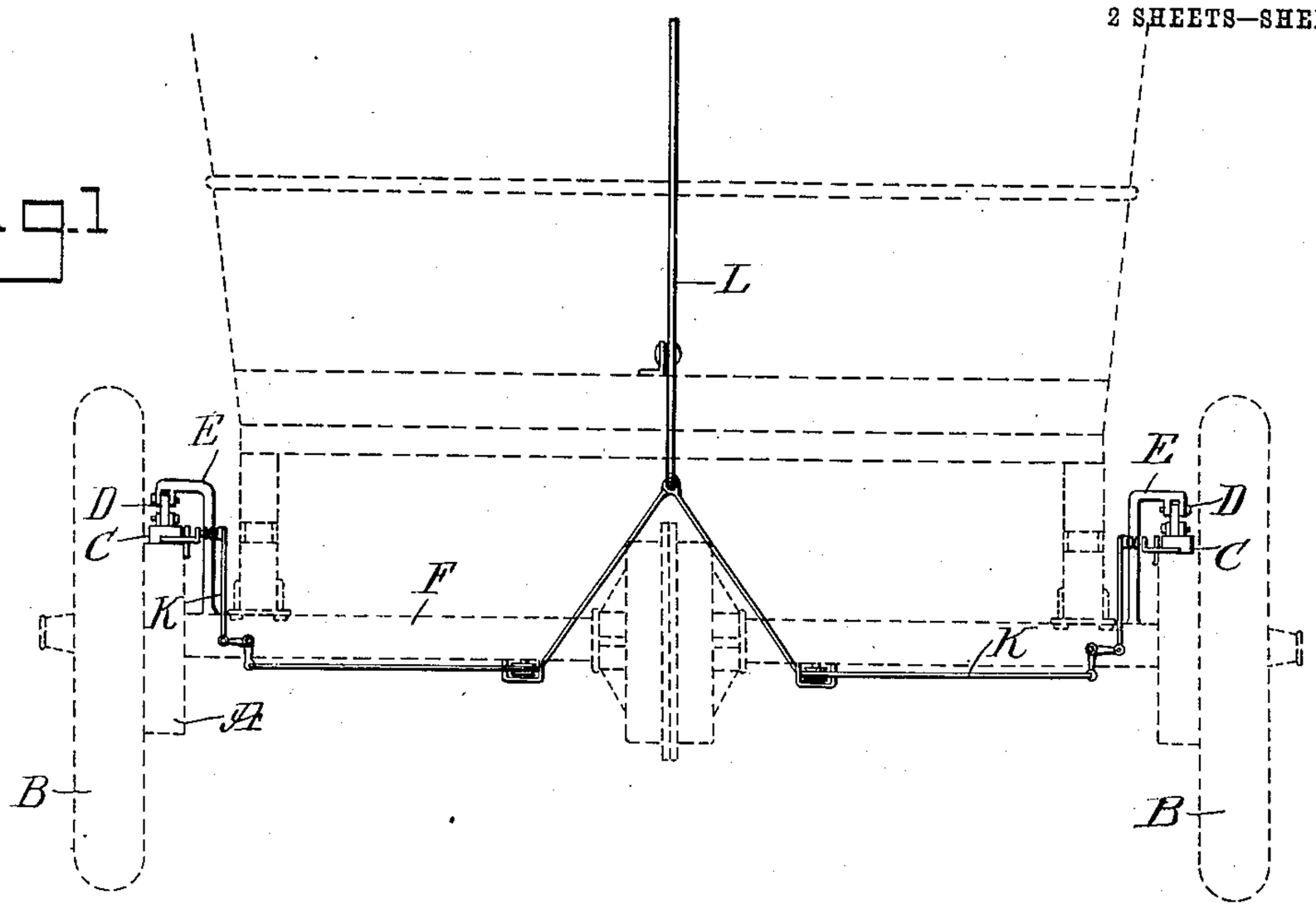


Fig. 2

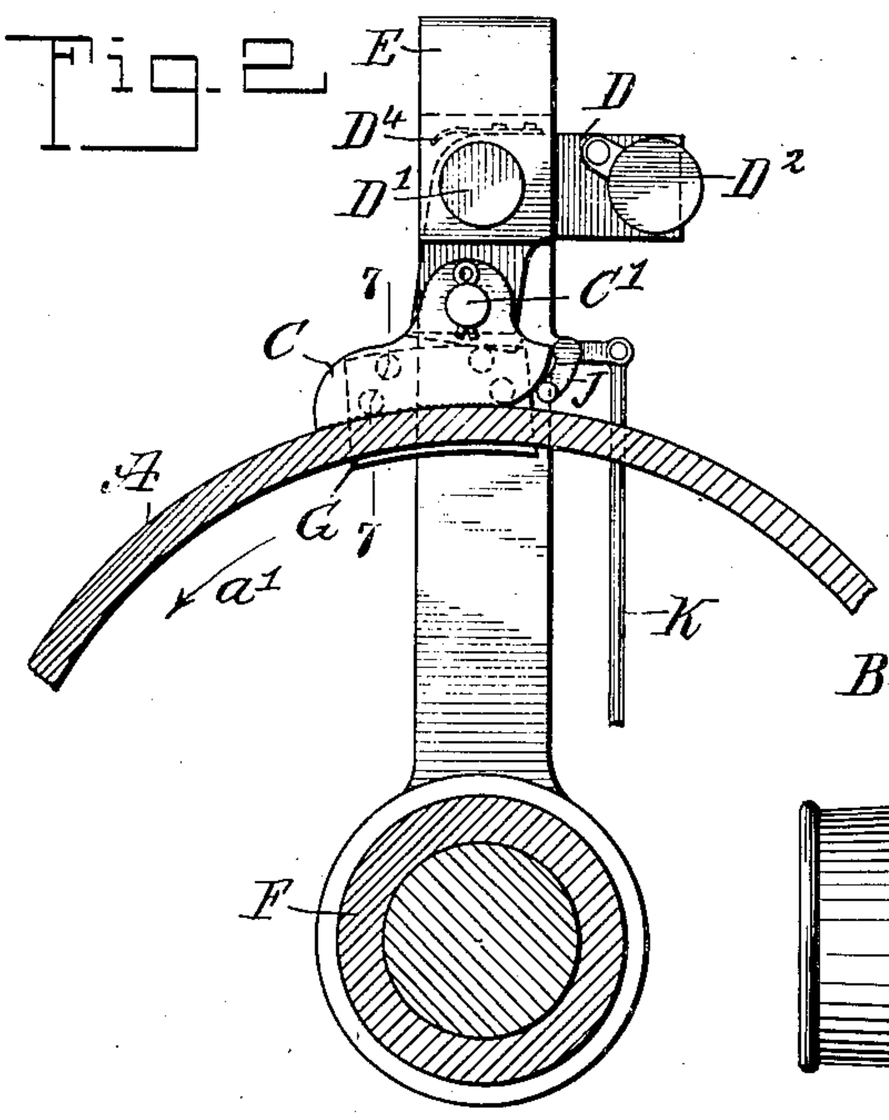
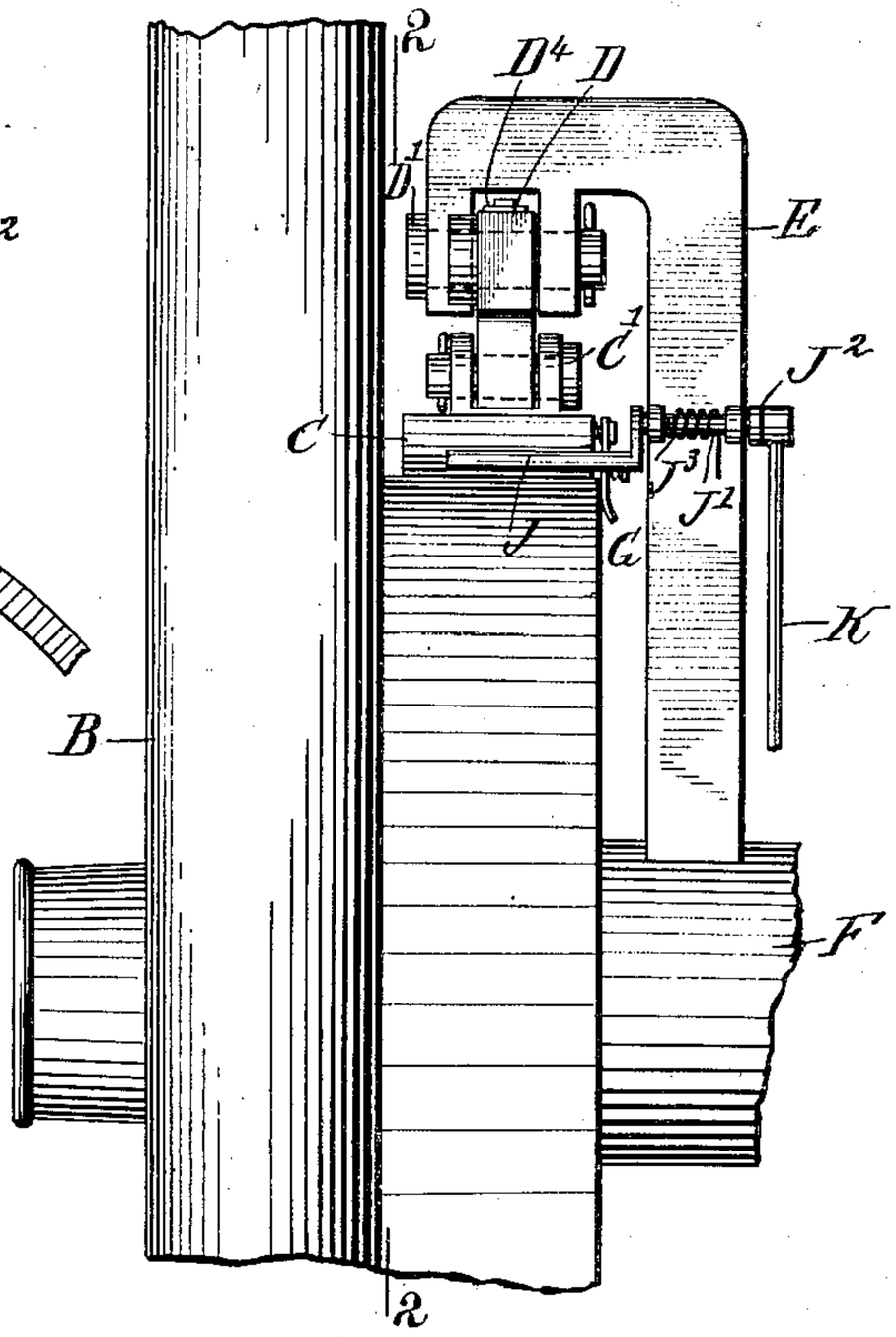


Fig. 3



WITNESSES

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Fig. 4

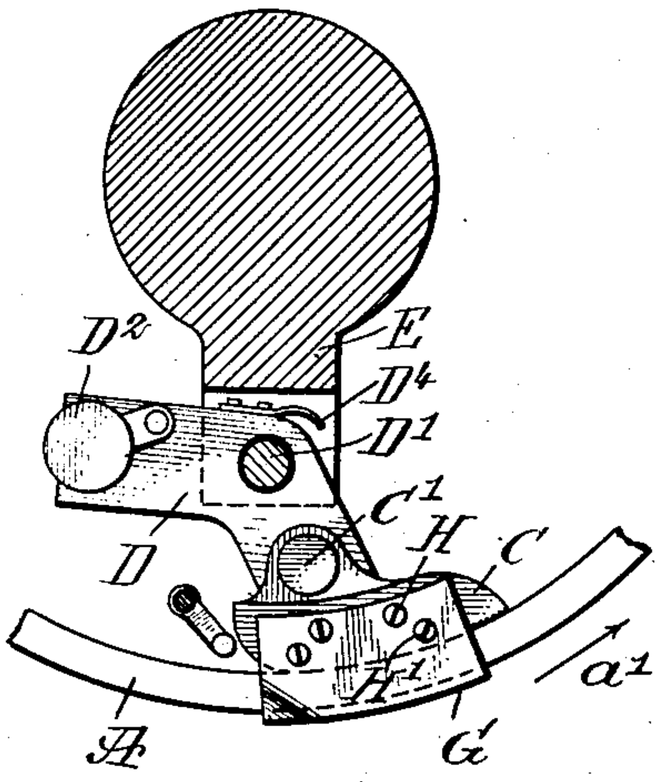


Fig. 5

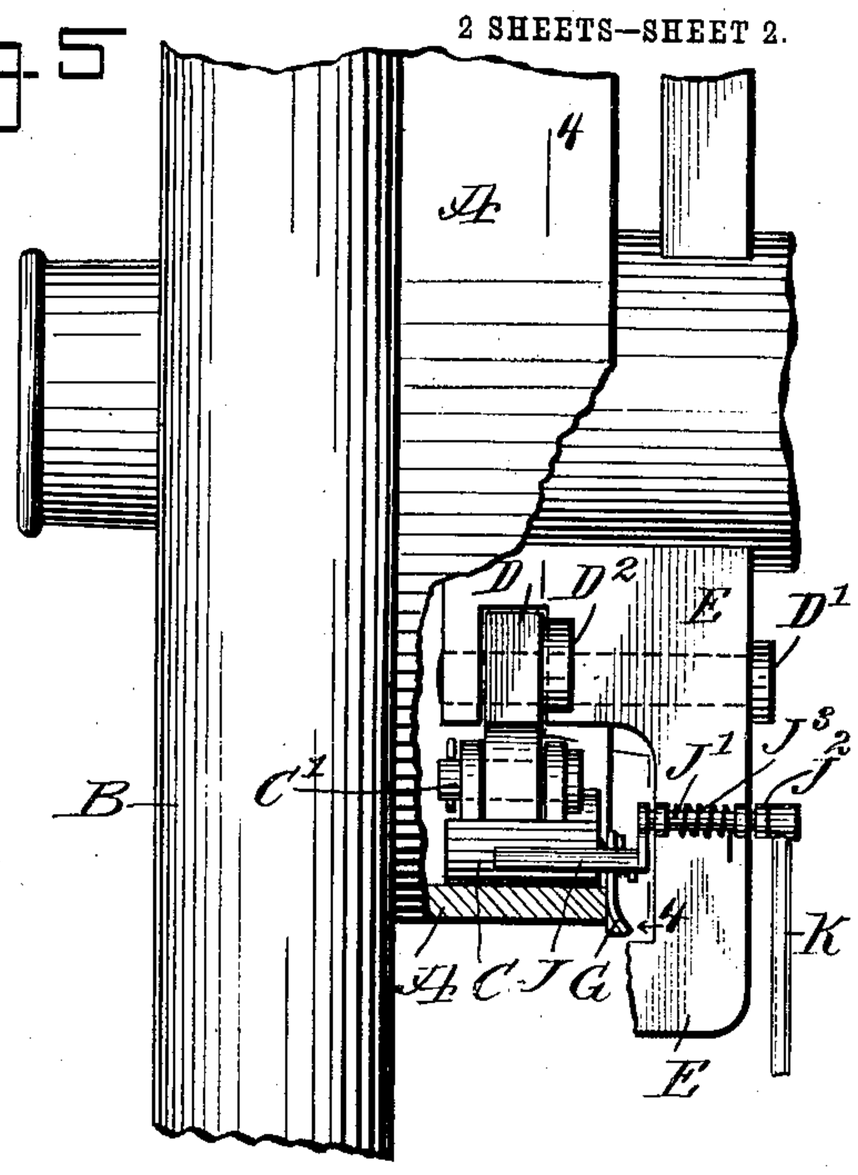


Fig. 6

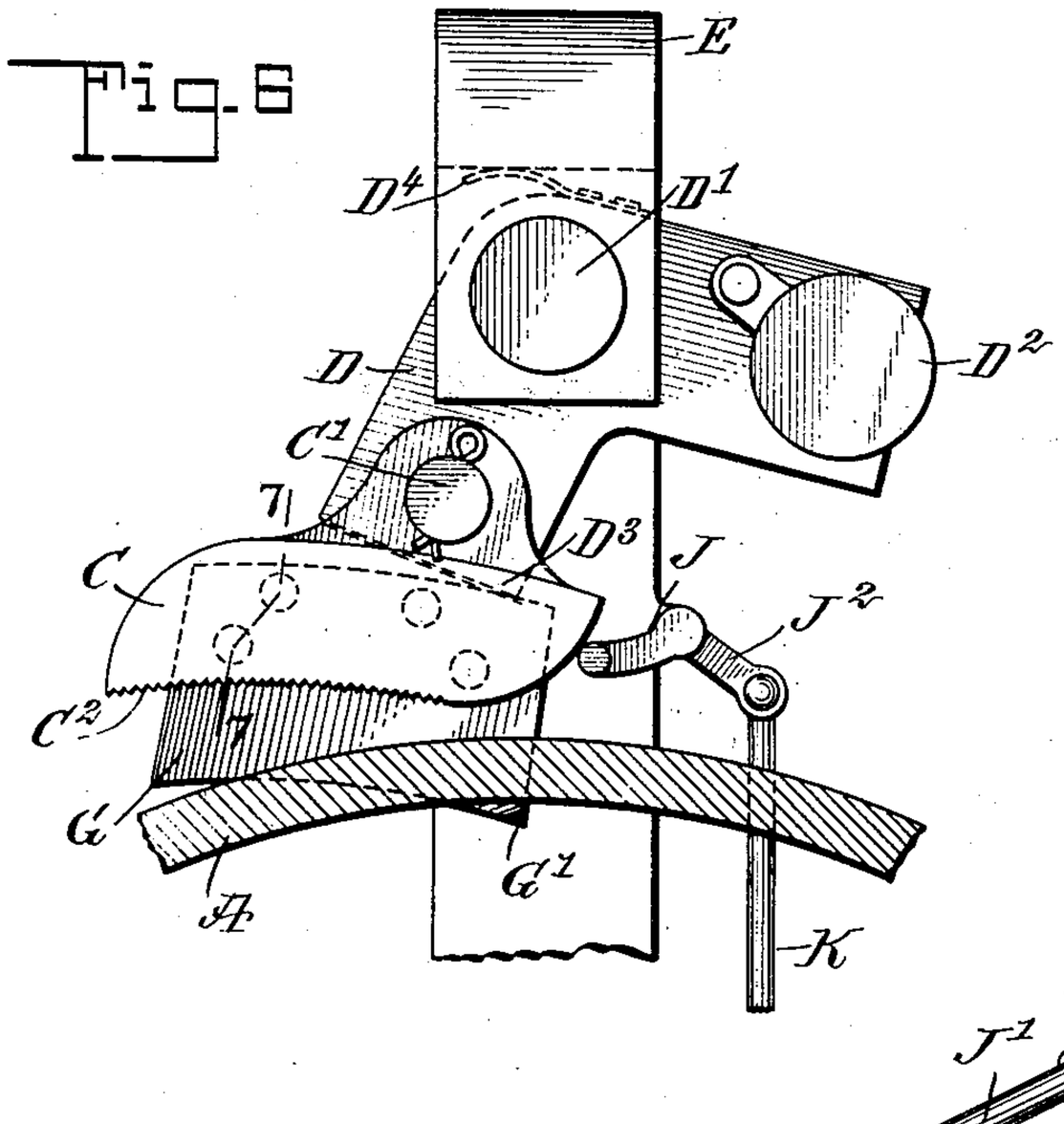
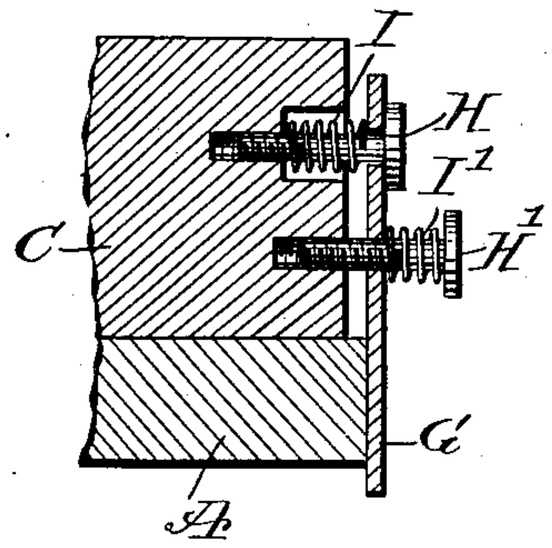


Fig. 7



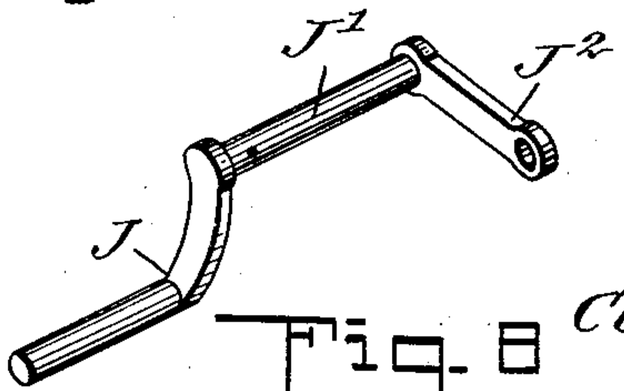


Fig. 8

WITNESSES

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UNITED STATES PATENT OFFICE.

CLARENCE ALEXANDER NOBLE, OF CATSKILL, NEW YORK.

AUTOMATIC BACK-STOP FOR VEHICLES.

No. 835,460. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed March 24, 1906. Serial No. 307,827.

To all whom it may concern:

Be it known that I, CLARENCE ALEXANDER NOBLE, a citizen of the United States, and a resident of Catskill, in the county of Greene and State of New York, have invented a new and Improved Automatic Back-Stop for Vehicles, of which the following is a full, clear, and exact description.

The invention relates to automobiles and other vehicles, and more particularly to the means employed for preventing the vehicle ascending a hill from running backward in case the power is shut off.

The object of the invention is to provide a new and improved automatic back-stop for vehicles arranged to automatically stop the vehicle on a slope to prevent it from running backward down the same and previous to the vehicle obtaining any momentum.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an end elevation of the improvement as applied. Fig. 2 is an enlarged sectional side elevation of the same on the line 2 2 of Fig. 3. Fig. 3 is an end view of the same. Fig. 4 is a partly-sectional side elevation of the improvement applied to a wheel using a band-brake, the section being on the line 4 4 of Fig. 5. Fig. 5 is an end view of the same, parts being broken out. Fig. 6 is an enlarged sectional side elevation of the improvement, showing the shoe in an inactive position. Fig. 7 is an enlarged transverse section of the same on the line 7 7 of Fig. 6, and Fig. 8 is a perspective view of the throw-off lever.

A band or a rim A is secured to the face of one of the rotated parts of the vehicle, preferably one of the vehicle-wheels B, as illustrated in the drawings, and the said rim A is adapted to be peripherally engaged either exteriorly or interiorly by a shoe C, hung on a pivot C′, carried on one end of a counterbalancing-lever D, fulcrumed on a pivot D′, carried by a bracket E, attached to a stationary part of the vehicle—such, for instance, as a stationary axle or a sleeve F thereof—as plainly indicated in the drawings. The arm D is provided with a counterbalancing adjustable weight D^2 to normally hold the shoe C out of contact with the rim A, so that the latter is free to rotate without hindrance by the shoe C.

On the outer face of the shoe C is yieldingly mounted a plate G in frictional contact with the edge or outer face of the rim A, so that the plate G tends to hold the shoe C out of contact with the rim A as long as the latter turns forwardly in the direction of the arrow *a′;* but as soon as the vehicle going up a hill comes to a stop and begins to start downward then the rotation of the rim A in the inverse direction of the arrow *a′* carries the plate G along, and in doing so the shoe C is moved into firm frictional contact with the rim A, so as to stop the rotation thereof, and consequently to prevent the vehicle from running backward down the hill and before the vehicle is capable of obtaining any dangerous momentum.

In order to yieldingly mount the plate G on the shoe C and to allow convenient adjustment of the plate G relative to the rim A, the following device is provided, special reference being had to Fig. 7. Two sets of screws or bolts H H′ extend through the plate G and screw in the shoe C, and on the said screws or bolts H H′ are coiled springs I and I′, of which the springs I press against the inner face of the plate G and in an outward direction thereon, while the springs I′ engage the outer face of the plate G and press in an inward direction thereon. Now by the operator adjusting the screws H H′ more or less tension can be given to the springs I I′, so as to bring the inner face of the plate G in proper relation with the outer edge or the face of the rim A. By the arrangement described the most minute adjustment can be given to the plate G, so that the latter is in contact with the rim A and with such force as not to impede the rotary motion of the rim A to any great extent, but at the same time to take action for throwing the shoe C in frictional contact with the rim A whenever the latter rotates, as above explained.

In order to insure a very good grip between the shoe C and the rim A, the under side C^2 of

the shoe C may be roughened, notched, or serrated, as will be readily understood by reference to Fig. 6.

When the operator desires to back the vehicle, it is preferable to throw the shoe C away from the rim A to allow free return movement of the rim A, and for this purpose a suitable mechanism may be employed under the control of the operator in charge of the vehicle. As shown in the drawings, such mechanism may consist in a crank-arm J, adapted to engage the rear end of the shoe C to swing the same forwardly away from the rim A, (see Fig. 6,) and this crank-arm J has its crank-shaft J′ journaled in suitable bearings carried by the bracket E, and on the crank-shaft J′ is secured an arm J^2, connected by a suitable mechanism K with a lever L, arranged on the body of the vehicle and in charge and within convenient reach of the operator seated in the vehicle. Thus when the operator imparts a swinging motion to the lever L then a turning motion is given to the crank-shaft J′, which, by the crank-arm J, swings the shoe C into a non-active position, as indicated in Fig. 6. A torsion-spring J^3, connected with the crank-shaft J′, serves to return the latter to its normal position as soon as the operator releases the lever L.

In order to limit the swinging motion of the shoe C on the arm D, the latter is provided with a heel D^3, adapted to engage the back of the shoe C, it being understood that when a swinging motion is given by the crank-arm J to the shoe C then the shoe finally engages the heel D^3, and on the further forward swinging motion of the shoe C a swinging motion is given to the arm D, and when the lever L is released, that is, the arm D and the shoe C readily return to their normal position.

A spring D^4, held on the arm D, bears against the bracket E to insure a quick return movement of the arm D after the lever L is released by the operator. The lower rearward corner G′ of the plate G is preferably curved outwardly to insure a ready return swinging of the shoe C, and the plate G, carried thereby, after the lever L is released, as above described.

As illustrated in Figs. 1, 2, 3, 6, and 7, the shoe C is adapted to operate in conjunction with the exterior surface of the rim A and, as illustrated in Figs. 4 and 5, the said shoe C operates in conjunction with the inner surface of the rim A, but in both cases the construction and action of the automatic back-stop is the same—that is, the shoe C is actuated by means of the plate G from the rim A whenever the latter turns in the inverse direction of the arrow *a′* and as long as the crank-arm J is in inactive position.

The automatic back-stop shown and described is very simple and durable in construction, composed of comparatively few parts, and not liable to get easily out of order.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An automatic back-stop for vehicles comprising a rim on one of the rotating parts of the vehicle, a shoe pivoted adjacent to the periphery of the said rim, and means on the shoe controlled by the edge of the rim to throw the shoe in engagement with the rim on the turning of the said vehicle part in the reverse direction.

2. An automatic back-stop for vehicles comprising a rim on one of the rotating parts of the vehicle, a shoe for peripheral engagement with the said rim, means on the shoe controlled by the edge of the rim to throw the shoe in engagement with the rim on the turning of the said vehicle part in the reverse direction, and manually-controlled means for throwing the shoe and holding it out of engagement with the said rim.

3. An automatic back-stop for vehicles comprising a rim on one of the rotating parts of the vehicle, a shoe for peripheral engagement with the said rim, and a spring-pressed plate secured to the side of the shoe and in engagement with the edge of the rim for controlling the engagement of the shoe with the rim.

4. An automatic back-stop for vehicles comprising a rim on one of the rotating parts of the vehicle, a shoe for peripheral engagement with the said rim, screws held on the said shoe, a plate mounted to slide transversely on the said screws, and springs held on the said screws and engaging the plate on opposite faces thereof.

5. An automatic back-stop for vehicles comprising a rim on one end of the vehicle-wheels, a pivoted arm, a shoe fulcrumed on one end of the said arm and adapted to engage the said rim peripherally, a counterbalancing-weight on the other end of the said arm, and a yieldingly-mounted plate on one side of the said shoe and engaging the face of the said rim.

6. An automatic back-stop for vehicles comprising a rim on one of the vehicle-wheels, a pivoted arm, a shoe fulcrumed on one end of the said arm and adapted to engage the said rim peripherally, a counterbalancing-weight on the other end of the said arm, a yieldingly-mounted plate on one side of the said shoe and engaging the face of the said rim, and a bell-crank lever under the control of the operator and adapted to engage the said shoe to throw the latter into an inoperative position.

7. An automatic back-stop for vehicles comprising a rim on one of the vehicle-wheels, a pivoted arm, a shoe fulcrumed on one end of the said arm and adapted to en-

gage the said rim peripherally, means on the said arm to limit the swinging motion of the said shoe, a counterbalancing-weight on the other end of the said arm, and a yieldingly-mounted plate on one side of the said shoe and engaging the face of the said rim.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLARENCE ALEXANDER NOBLE,

Witnesses:
PERCIVAL GOLDIN,
WILLIS P. GOLDIN.