

(No Model.)

2 Sheets—Sheet 1.

H. A. HIBBARD.
AUTOMATIC WAGON BRAKE.

No. 586,969.

Patented July 27, 1897.

FIG. 1

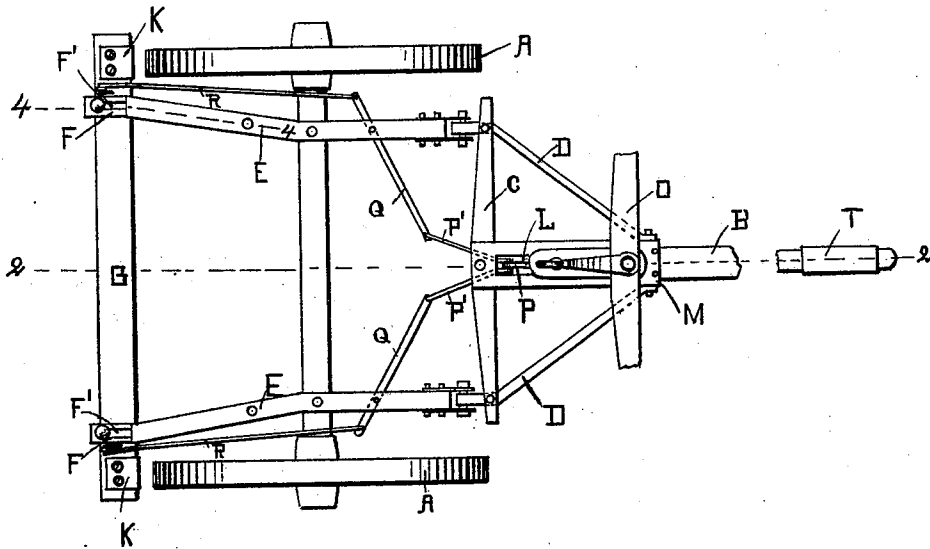
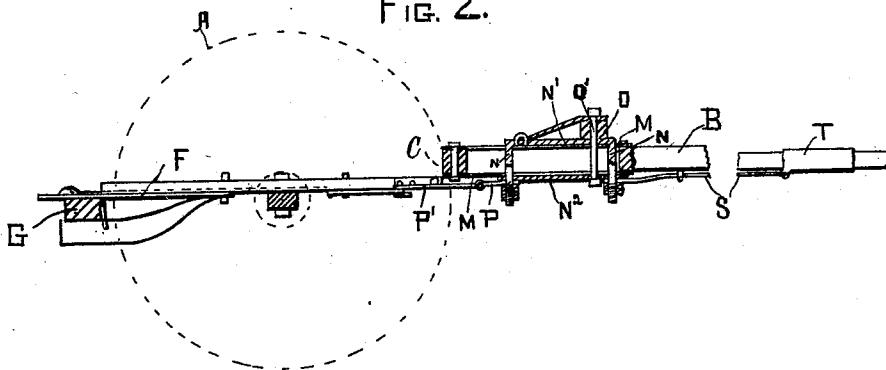


FIG. 2.



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FIG. 3

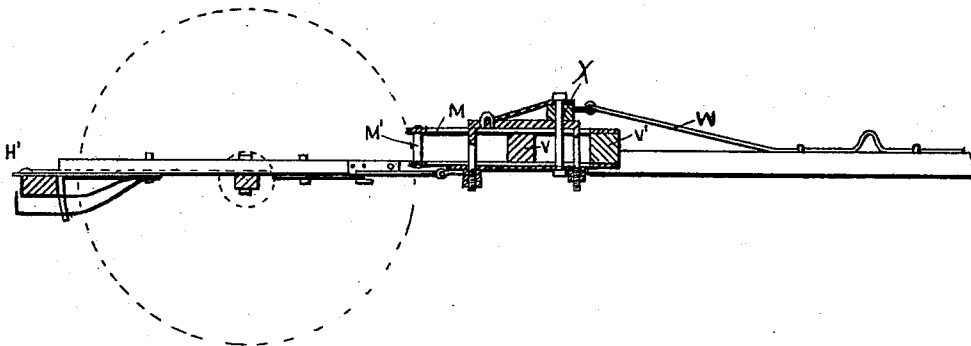


FIG. 4

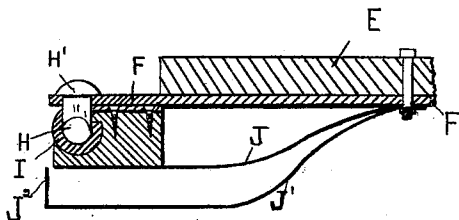
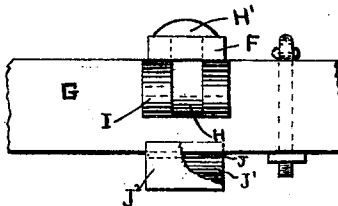


FIG. 5



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UNITED STATES PATENT OFFICE.

HENRY A. HIBBARD, OF EVERGREEN, PENNSYLVANIA.

AUTOMATIC WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 586,969, dated July 27, 1897.

Application filed March 17, 1897. Serial No. 627,997. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. HIBBARD, a citizen of the United States, residing at Evergreen, in the county of Bradford and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Wagon-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 appertains to make and use the same.

The object of this invention is to provide an automatic brake that may be thrown out of or into operative position, that may be used on a two-wheeled or a four-wheeled vehicle, and that shall offer no material hindrance to substituting on either vehicle a pole for thills, or vice versa.

A further object is to provide a brake that while automatically applied when needed shall not be so applied unless there is a considerable forward thrust of the wagon upon the horse or horses, that shall offer no material resistance to backing the vehicle, and that, still further, shall operate equally well whether or not the vehicle is moving in a straight line.

In the drawings, Figure 1 is a plan view showing my devices as applied to a vehicle adapted for two horses. Fig. 2 shows the same devices partly in side elevation and partly in section on the line 2 2, Fig. 1. Fig. 3 is a view similar to Fig. 2, showing the arrangement of the devices when the pole of Figs. 1 and 2 is replaced by thills. Fig. 4 is an enlarged rear section at 4 4, Fig. 1. Fig. 5 is an enlarged rear view of the brake-beam hinge.

In Figs. 1 and 2, A A represent what may be considered the front wheels of a four-wheeled vehicle, guided by a pole B, having the ordinary cross-bar C and braces D, by which the pole is detachably coupled to the forward ends of hounds E. From the rear ends of the latter project rigid bars F, provided with slots F', and immediately beneath there lies a transverse rectangular brake-beam G, supported from the bars F by hinge connections near its rear edge so arranged that the beam may swing rearwardly downward and may also slide bodily along the bars toward and away from the wheels, which are

normally a short distance in front of it. To permit these two movements, there is provided a flat bar H, sliding in the slot F' and supported by a head H' and having at its lower end a pintle which is grasped by a hinge-leaf I, fixed to the brake-beam in any convenient manner. The forward side of the beam is supported by the free rear ends of flat springs J, whose front ends are fixed to the hounds. Below this spring is a second similar spring J', having its rear end bent upward to form a stop J² for limiting the possible rotation of the brake-beam. The beam is provided with any suitable brake-shoes K, which may be renewed at pleasure. It is plain that if while the beam is held up by the spring it is forced backward the brake will act upon the wheels and that if while it is so acting the vehicle is backed the friction of the wheels will swing the beam downward and practically destroy the braking effect. It is also obvious that if the beam be swung away from the wheels until it meets the stop J² the springs J, pressing upon the flat edge of the beam, hold the beam out of position until it is forcibly swung again forward.

Just in front of the cross-bar C the pole is strengthened by plates M and provided with a central vertical slot L, extending through both plates. In this slot slide, in a front-to-rear direction, the arms N of a plate N', resting upon the upper surface of the pole, and below the pole is a second plate N², which is adjusted and held by nuts upon the arms N. Upon the upper plate rests the usual double-tree O, which is held in place by a bolt O', passing down through both plates N' N². The plates N' N² and arms N form a single whole through which all draft and holdback force is exerted. Below the tongue a link P is pivoted to the rear arm N, and rearwardly-divergent links P' are pivoted to the rear end of the link P in such manner as to allow the latter to swing vertically. The rear ends of the links P' are pivoted, respectively, to the inner ends of levers Q, themselves centrally pivoted to the hounds E, and at their other ends pivotally joined to rods R, whose rear ends are hinged to the brake-beam nearly in the axial line of the beam-hinges already described.

To the forward arm N is connected a rod S, which runs forward in suitable guides and is attached to a sleeve T, sliding upon the terminal portion of the pole and adapted to receive a neck-yoke U.

Now when tractional force is exerted upon the doubletree the plates N' N² slide forward until the arm N reaches the front end of the slot in which it moves, and so long as it remains at this limit the brake is held out of contact with the wheels by the rods R, whether or not the force of traction continues to act, since the springs resist slight displacing force; but as soon as there is any material forward thrust upon the horses the sleeve T slides rearward, and, acting through the rod S, pushes rearward the plates N' N², link P, and links P'. The inner ends of the levers Q are thus forced rearward, and the brake is forcibly drawn forward against the wheels by the rods R. The resistance offered by the animals thus acts directly as resistance to advance, and in addition, after being multiplied by the levers, acts also through the brake to prevent rotation of the wheels. It is to be noted that as the wagon moves forward the great friction of the wheels tends to swing the shoes upward, but this tendency is resisted by the bars F. Were the contrary rotation of the beam also prevented, backing would be impossible, but since the beam is hinged to swing downward the moment the wheels (while in contact with the shoes) begin to rotate rearwardly the beam swings and practically all braking force ceases. The parts are so proportioned that when the beam is swung to its rearward limit, or against the stop J², the brake cannot come in contact with the wheels even if the rear arm N is pressed back against the rear end of its slot in the pole, and hence at will the brake may be rendered inoperative instantly.

When the devices are to be applied to a vehicle having thills, the latter are connected by two cross-bars V V', Fig. 3, and the plates M (made heavier than before, if desired) are fixed centrally upon the cross-bars, the doubletree is replaced by a whiffletree X, and the sleeve T and rod S are replaced by hold-back-rods W, sliding in suitable guides upon the thills and connected to the corresponding ends of the whiffletree. In other respects the devices are unchanged, and it follows that thills and pole may be interchanged as readily as if no brake were used, except that it is

necessary to detach and reattach the forward end of the link P.

What I claim is—

1. The combination with a vehicle, of a brake-beam mounted to slide bodily toward and away from the wheels and hinged to swing from the wheels by contact with their rims but only when the latter are rotating rearwardly, a spring arranged to yieldingly resist such swinging, through a certain angle, and to yieldingly resist return movement when such angle is exceeded, and means for forcibly sliding the beam toward the wheels.

2. The combination with a vehicle, its axle and hounds rigidly connected to the latter, of a non-sliding tongue hinged to the front ends of the hounds, a draft and holdback device mounted to slide upon the tongue, a brake-beam mounted to slide bodily toward and away from the wheels and hinged to swing from the latter by friction of their rearwardly-rotating rims, and means whereby the sliding of said draft and holdback devices compels the brake-beam to slide in the opposite direction.

3. The combination with the wheels, the axle and the hounds rigidly fixed to the latter, of the slotted bars forming rearward extensions of the hounds, the non-circular brake-beam resting against the lower sides of said bars, the sliding hinge supporting the rear side of the beam, the springs supporting the front side of the beam and means for moving the beam bodily toward and away from the wheels.

4. The combination of the wheels, axle, hounds and slotted tongue hinged to the front ends of the hounds, of the hinged sliding brake-beam borne at the rear ends of the hounds, transverse levers centrally pivoted to the hounds, rods connected to the outer ends of said levers and hinged to the corresponding ends of the brake-beam, rods extending forward from the inner ends of said levers approximately to the pintle-line of the tongue-hinge, and a vertically-swinging link connecting the forward ends of the rods last named to sliding draft and holdback devices upon the tongue.

In testimony whereof I have affixed my signature in presence of two witnesses.

HENRY A. HIBBARD.

Witnesses:

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WARREN WATSON.