

(No Model.)

S. E. FERGUSON.
AUTOMATIC WAGON BRAKE.

No. 347,872.

Patented Aug. 24, 1886.

Fig. 1.

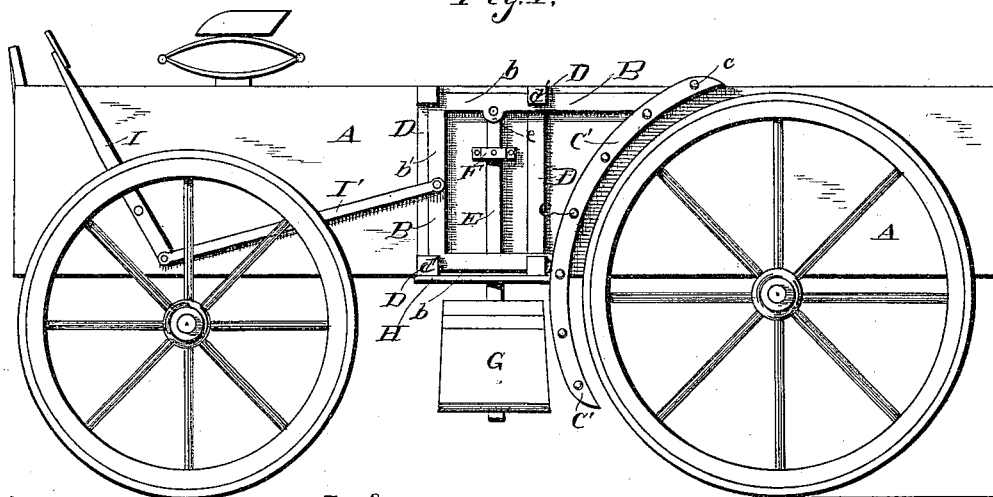


Fig. 2.

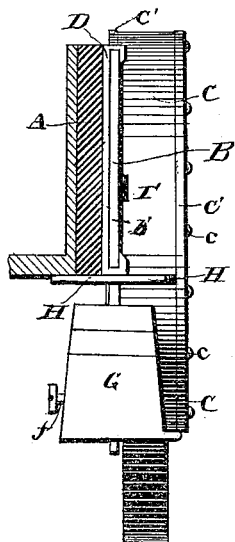


Fig. 4

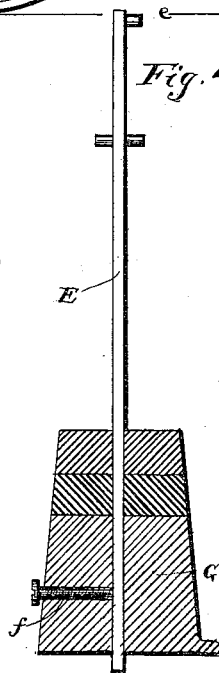


Fig. 3.

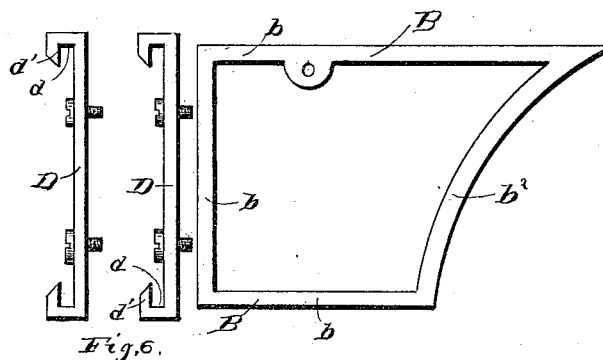
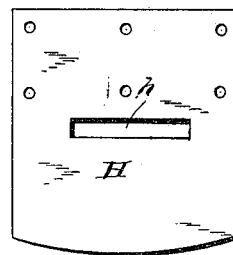


Fig. 5.



Witnesses

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SYLVESTER E. FERGUSON, OF EUREKA SPRINGS, ARKANSAS.

AUTOMATIC WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 347,672, dated August 24, 1886.

Application filed April 13, 1886. Serial No. 193,764. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER E. FERGUSON, a citizen of the United States, residing at Eureka Springs, in the county of Carroll and State of Arkansas, have invented certain new and useful Improvements in Automatic Wagon-Brakes, of which the following is a specification.

My invention relates to improvements in automatic wagon-brakes; and it consists of the peculiar combination and novel construction and arrangement of devices, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

The object of my invention is to provide an improved wagon-brake for automatically retarding the wheels of the vehicle when it is descending a hill or declivity, and likewise released therefrom when it descends a hill or travels on level ground; to provide lever mechanism connecting with the brake devices and arranged in close proximity to the seat, so that the driver can have full control over the brake; to provide improved means for regulating the power of the brake, which can be easily and readily adjusted and operated, and, finally, to improve the brake in minor details, so that the friction and wear on the parts will be reduced to a minimum and the apparatus be simple, strong, and durable in construction, efficient and reliable in operation, easily and readily applied to any kind of wagon, and cheap of manufacture.

In the accompanying drawings, which illustrate an automatic wagon-brake embodying my invention, Figure 1 is a side elevation applied to a wagon. Fig. 2 is a vertical sectional view through the wagon-body, on the line $x x$ thereof, showing my invention in end elevation. Fig. 3 is a detached perspective view of the sliding frame carrying the brake-shoe. Fig. 4 is a like view of the swinging lever for actuating the brake-shoe frame. Figs. 5 and 6 are detached detail views of parts of my improvements.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates a vehicle or wagon of any preferred form or class to which my improved automatic brake is applied.

B designates the sliding frame, carrying the shoes C of my improved automatic wagon-

brake, which is arranged on one of the sides and exterior to the body of the vehicle. This sliding frame B is cast or formed in a single piece of metal, as shown, and comprises the horizontal bars b , arranged parallel with each other and of unequal length, a bar b' , connecting one end of each of the bars b , and a curved bar, b^2 , connecting the opposite ends of the said unequal bars b , the bar b^2 being curved longitudinally to conform to the convex surface or periphery of the rear wheel of the vehicle. The brake-shoe C is likewise curved to conform to the shape of the wheel of the vehicle against which it is designed to bear to retard the rotation thereof.

The shoe C is secured to the curved bar b^2 of the sliding frame by means of the through-bolts c , and the ends of these shoes are extended beyond the bars b of the said frame for a considerable distance, so as to provide an extended bearing-surface, which acts upon the periphery of the wagon-wheel, the brake-shoe being re-enforced or strengthened by means of segmental plates C' , which bear against the sides thereof and are secured in place by the same bolts, c , which secure the shoe to the sliding frame B. This frame B is supported or held in place by means of the vertically-disposed brackets D, which are arranged a short distance from each other on one side of the wagon-body to which they are directly secured by screws or bolts, which pass through suitable openings therein, and each of these brackets is provided at each end with a horizontal flange, d , and a vertical flange, d' , at the outer free end of the horizontal flange. The horizontal bars b , of the shoe frame B, are fitted between and bear against these flanges d d' of the brackets, and is very securely retained in place thereby, while at the same time the frame is free to slide back and forth in the flanges of the brackets to release and apply the brake-shoes of the vehicle-wheel.

E designates the swinging lever for actuating and controlling the sliding frame to apply and release the brake-shoes when the vehicle ascends and descends a hill or declivity. This swinging lever is provided near its upper end with right-angled lugs or trunnions e , which are formed integral therewith, and which are fitted and journaled in suitable apertures or bearings in a bearing-plate, F, which is rigidly

affixed to the body by means of screws or bolts. The swinging lever is thus pivotally supported in the bearing-plate, and it is disposed in a vertical position, with its lower end extending beneath the vehicle-body and the sliding shoe-frame. The upper end of the said swinging and pivoted lever is pivotally connected with the upper bar, *b*, of the sliding frame, as at *e*, to move the frame back and forth in its brackets *D* in applying and releasing the brake-shoes, and to the lower free end of the swinging lever is affixed counter-weights *G*, which are controlled by gravity, and cause the lever to assume a vertical position at all times, whether ascending or descending a hill, &c. These weights are of varying degrees of heaviness and are detachably fitted on the lever, so that the power thereof can be varied to regulate the force or pressure which the brake-shoes exert on the vehicle-wheel, which is very important, as the vehicle sometimes travels in a very hilly or mountainous country, where it is necessary to use a brake of great power, owing to the steep and dangerous descents which frequently occur. The lower and heavier weight is provided with a transverse-threaded opening, in which works a binding-screw, *f*, to clamp the weight on the lower end of the swinging lever, and the lighter weights are arranged above and bear on the larger weight and upon one another. Thus to vary the power of the lever one or more of the weights are removed, as circumstances may require, by detaching the lower weight, and to increase the power of the lever the desired number of weights of suitable heaviness are added.

H designates a stop-plate, which is rigidly affixed to the body of the vehicle by screws or bolts, or in any other suitable manner, and this plate projects at one edge beneath the sliding frame and the brackets therefor, so that the longitudinal slot *h* therein lies in such a position to permit of the free passage and movement therethrough of the lower portion of the swinging lever, the said lever abutting against the ends of the slot in the plate, and thereby limited in its movements to and fro, to prevent it from exerting too great force in the sliding frame and of breaking or damaging its trunnions or other parts of the device.

I designates a hand-lever, which is pivoted at its lower end to the forward portion of the vehicle-body, as at *i*, so that its upper free end will be within convenient reach of the driver occupying the seat on the vehicle, and this hand-lever is connected by an intermediate rod or link, *I'*, with the sliding frame *C*, whereby the brake is under the direct or immediate control of the operator. By moving the free end of the lever forwardly the operator can prevent the swinging lever from forcing the sliding frame rearwardly and the brake-shoes in contact with the vehicle-wheel; or, if the said shoes are pressed against the vehicle-wheel, the lever can be operated by the driver to move the sliding frame forwardly and withdraw the brake-shoes from the wheel.

The stop-plate *H* extends or projects beyond the vehicle-body, to permit the occupant of a vehicle to place his foot thereon, and thereby assist him in alighting or getting in the vehicle.

The operation of my invention is as follows: When the vehicle is traveling over a level surface, the weighted swinging lever hangs perpendicular, and the sliding frame occupies a position where its brake-shoes are out of contact with the periphery of the vehicle-wheel. When the vehicle ascends a hill or acclivity, the lower weighted end of the swinging lever is moved forwardly, which is caused by the weights assuming a perpendicular position, thereby forcing the upper end of the swinging lever rearwardly, and likewise operating the sliding frame to force the shoes into contact with the vehicle-wheel to retard the latter, the force which the shoes exert on the wheel varying with the degree or length of movement of the free end of the swinging lever. When the vehicle descends a hill or travels again on level ground, the position of the swinging lever varies to move the sliding frame forward and withdraw the shoes from the wheel, both of these operations of applying and releasing the brake mechanism being accomplished automatically. The swinging lever is limited in its movements by the slotted stop-plate, and the brake can be easily released from or applied to the wheels by simply operating the hand-lever.

I do not intend to confine myself to the exact details of construction and form and proportion of parts herein shown and described as an embodiment of my invention, as I am aware that numerous changes therein can be made.

Having thus described my invention, I claim—

1. In an automatic wagon-brake, the combination of a sliding frame carrying the brake-shoe, and a swinging vertically-disposed lever carrying the weight at its lower end and connected with the frame near its upper end, to actuate the same, substantially as described, for the purpose set forth.

2. In an automatic wagon-brake, the combination of a sliding frame, a brake-shoe carried thereby, and a vertically-disposed weighted lever connected with the frame for moving it and the shoes back and forth, substantially as described.

3. In an automatic wagon-brake, the combination of a sliding frame, the brake-shoes carried thereby, the swinging vertical lever connected with the frame for controlling it, and the detachable weights fitted on the free end of the lever to vary the power thereof, substantially as described.

4. In an automatic wagon-brake, the combination of a sliding frame, the brake-shoe carried thereby, a swinging weighted lever connected to the frame for controlling and moving it, and a hand-lever also connected with the sliding frame to move it independ-

ently of the swinging lever, substantially as described.

5 5. In an automatic wagon-brake, the combination of a sliding frame, a swinging weighted lever connected to the frame for controlling and moving it, and a rigid stop-plate for limiting the play of the lever, substantially as described.

10 6. In an automatic wagon-brake, the combination of a sliding frame, the brackets affixed rigidly to the vehicle-body and supporting the frame, the brake-shoes carried by the frame, and the weighted swinging lever connected with the frame, substantially as described, for the purpose set forth.

15 7. In an automatic wagon-brake, the combination of the rigid brackets affixed to the vehicle-body and having the lugs *d d'*, a sliding frame fitted in the brackets and free to move therein, the segmental shoe secured to

and extended at its end beyond the frame, and having the re-enforcing-plates at its sides, and a fulcrumed swinging lever connected with the frame and carrying weights at its lower end, substantially as described.

25 8. The combination, in a wagon-brake, of a sliding frame carrying the brake-shoes, a swinging lever pivoted to the frame at its upper end, and having the trunnions *e*, a rigid support in which the trunnions of the lever are journaled, the detachable weights fitted on the lower end of the lever, and one having a binding-screw, and a slotted stop-plate in which the lever is free to move, substantially as described.

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Witnesses:

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