

(No Model.)

2 Sheets—Sheet 1.

B. WILCOX.
VEHICLE BRAKE.

No. 529,767.

Patented Nov. 27, 1894.

Fig. 1.

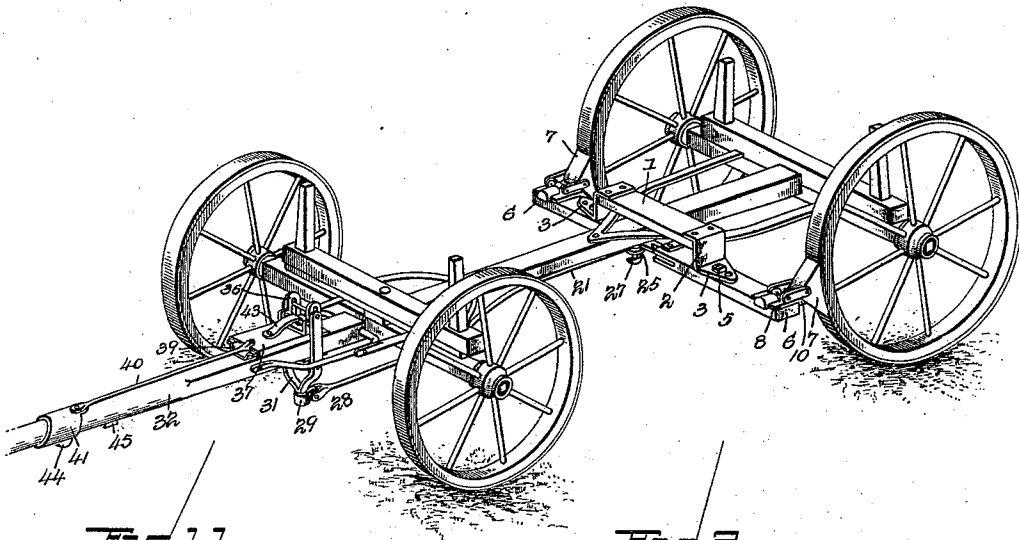


Fig. 11.

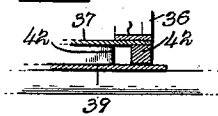


Fig. 2.

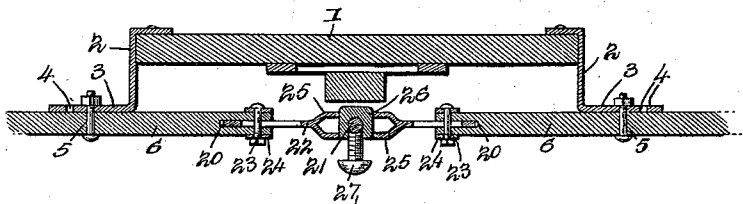
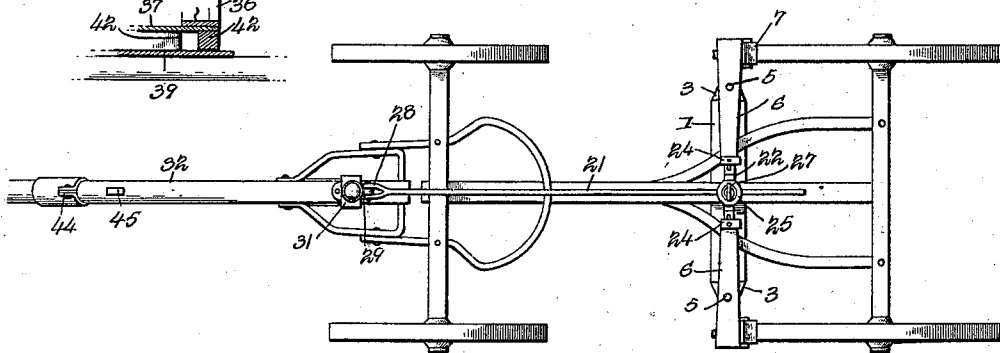


Fig. 10.

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Benajah Wilcox

Witnesses

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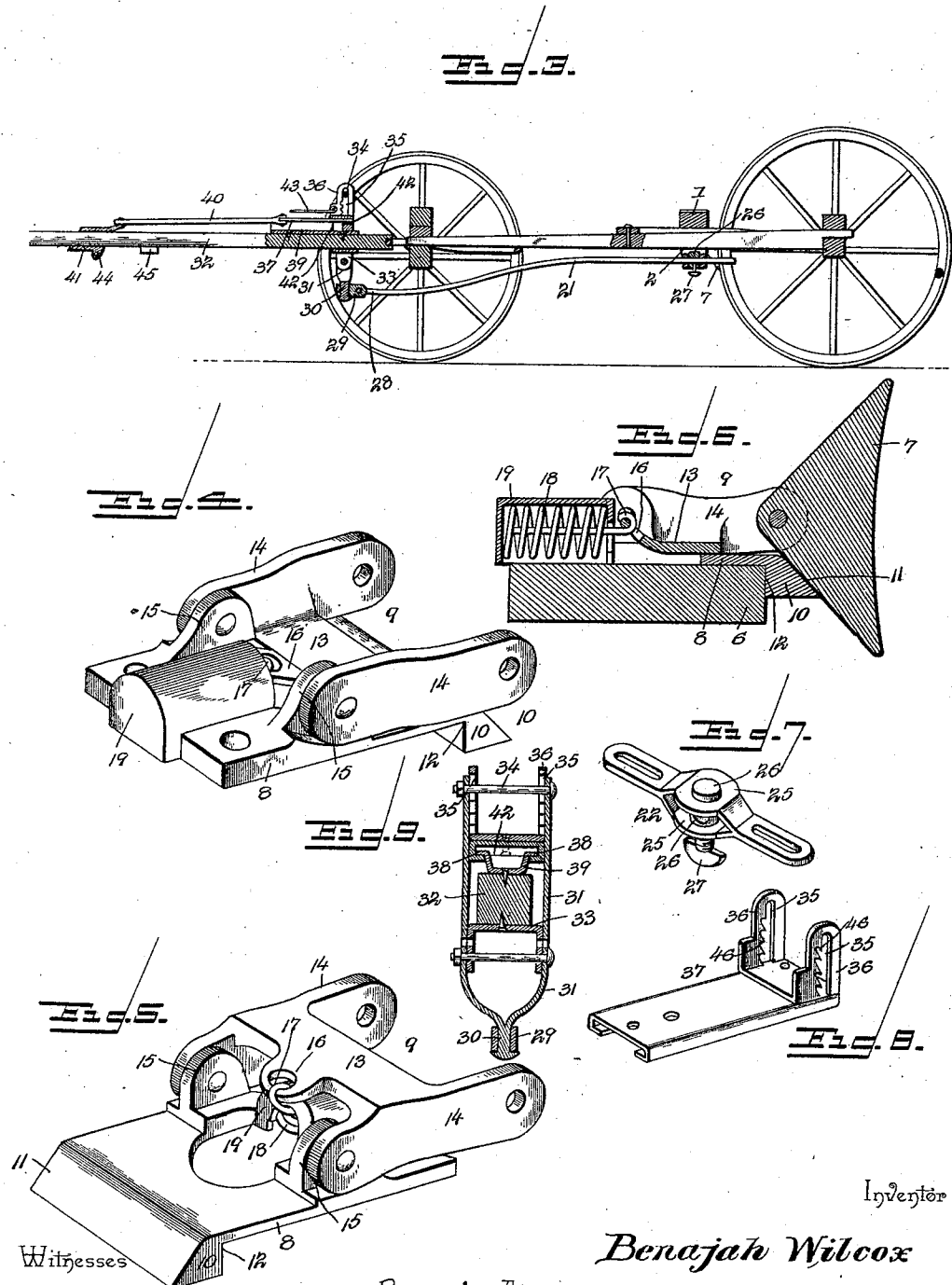
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

BENAJAH WILCOX, OF GIBSON, NEW YORK.

VEHICLE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 529,767, dated November 27, 1894.

Application filed September 4, 1894. Serial No. 522,112. (No model.)

To all whom it may concern:

Be it known that I, BENAJAH WILCOX, a citizen of the United States, residing at Gibson, in the county of Steuben and State of New York, have invented a new and useful Vehicle-Brake, of which the following is a specification.

The invention relates to improvements in vehicle brakes.

10 The object of the present invention is to improve the construction of automatic vehicle brakes, and to provide a simple and inexpensive one which may be readily constructed, separate from, and quickly applied to, the
15 ordinary construction of running-gear.

A further object of the invention is to provide a vehicle brake which, in backing, will be adapted to have its brake-shoes automatically thrown off the wheels, and also to enable the parts to be readily adjusted to suit
20 the size of a running-gear and to permit an extension thereof when desired.

The invention consists in the construction and novel combination and arrangement of
25 parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings: Figure 1 is a perspective view of a running-gear constructed in accordance with this invention and provided with my improved automatic brake mechanism. Fig. 2 is a reverse plan view of the same. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a detail perspective view of the
35 brake-shoe support, showing the hinged frame arranged in operative position. Fig. 5 is a similar view, the swinging frame being swung forward for holding the brake-shoes out of engagement with the wheels. Fig. 6 is a longitudinal sectional view of a brake shoe and
40 its support. Fig. 7 is a detail perspective view illustrating the construction of the connection between the inner terminals of the brake levers. Fig. 8 is an enlarged detail
45 perspective view of the slide. Fig. 9 is a transverse sectional view of the tongue, illustrating the connection between the vertically-disposed lever and the slide. Fig. 10 is a transverse sectional view, section being taken
50 through the brake levers. Fig. 11 is a detail sectional view illustrating the construction of the guide and the slide.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates a transverse bar, mounted upon
55 the rear portion of the running-gear and bolted, or similarly secured, to the upper faces of the rear hounds, and provided at its terminals with depending drop-brackets 2. The depending drop-brackets are provided
60 with horizontally-disposed portions 3, which are provided with perforations 4, adapted to receive pivot-bolts 5, for fulcruming brake-levers 6 on the lower faces of the horizontal
65 portions of the drop-brackets, whereby the brake-levers are arranged to swing horizontally, clear of the parts of the running-gear, and the adjacent connections. This construction enables the transverse bar and the
70 brake-lever to be constructed separately from a running-gear and to be quickly applied thereto; and the perforations 4 permit an adjustment of the levers.

The outer terminal of each brake-lever carries a hingedly-mounted brake-shoe 7, which
75 has a curved engaging face and angularly-disposed upper and lower faces, whereby the brake-shoe is approximately triangular. Each brake-shoe is mounted in a support which is composed of an attachment plate 8, and a
80 swinging frame 9, and the former is bolted to the upper face of the brake-lever and is adapted to be readily arranged opposite the adjacent hind wheel, and to be secured at that point to bring the brake-shoe in proper
85 position for engaging the wheel. The attachment plate is provided at its rear edge with a depending transversely-disposed flange 10, having an inclined outer or rear face 11, and forming a shoulder 12 at its front side to
90 bear against the rear edge of the brake-lever, whereby the support is firmly secured in position and cannot become accidentally displaced. The swinging frame 9 consists of a
95 transverse portion 13, and opposite sides 14, extending in front and in rear of the transverse portion and forming rearward-extending arms and forward-projecting ears, which are pivoted to upward-extending ears 15, formed integral with the attachment plate and located
100 at opposite sides thereof. The brake-shoe is hinged at its apex between the rearward-extending arms or projecting portions of the sides of the swinging frame, and its lower

face is arranged at an inclination and rests upon the inclined face of the depending flange of the attachment plate, whereby, when a vehicle is backed, the upward movement of the front portion of the adjacent wheel will swing the hinged frame and the brake-shoe upward to relieve the said wheel automatically of the brake. A forward movement of the running-gear causes the front portion of the hind wheel to move downward, which will prevent any upward swinging of the hinged frame and the brake-shoe, whereby the latter will be squarely applied to the wheel with great force automatically, by means herein-after described. The transverse portion of the swinging frame is provided with a forward extension 16, having an opening and engaged by a hooked rod 17, of a spring 18, which is located in a semi-cylindrical housing 19, formed integral with the attachment plate. The housing is open at the bottom. It has a closed front and is provided, at its rear end, with an opening through which projects the rod of the spring; and the application of the attachment plate to the brake-lever securely retains the spring in the housing. The spring is of spiral form, and the front terminal of the material thereof is extended through the spring, rearward, and bent to form a hook or eye for engaging the opening of the extension of the swinging frame.

The swinging frame is adapted to be swung forward, as illustrated in Fig. 5 of the accompanying drawings, for the purpose of retaining the brake-shoe out of engagement with the wheel, and the arrangement of the spring, together with the forward-extending tongue, serves to retain the swinging frame in either position.

The inner terminals of the brake-levers are bifurcated, at 20, and are connected with a longitudinally-disposed rod 21, by a swinging bar 22, having slotted ends fitting in the bifurcations of the brake-levers and receiving pivot-bolts 23, which also serve as means for securing straps or clips 24, to the rear sides of the brake-levers for limiting the swing of the latter. The transverse bar is provided with a central opening formed by upper and lower parallel disk-shaped portions 25, which are provided with central openings receiving a collar 26. The collar 26 is journaled in the openings of the upper and lower portions of the transverse connecting bar. It is provided with an opening to receive the connecting rod 21; and the latter is adjustably secured to the collar by means of a clamping-screw 27, arranged in a threaded perforation at the bottom of the collar. The opening between the upper and lower portions of the transverse connecting bars permits the connecting rod to swing during the cramping of the vehicle without affecting the brake-levers, and without liability of accidentally loosening the clamping-screw, which is fixed when set with relation to the connecting rod 21. The clamp-

ing-screw permits the connecting rod to be adjusted to accommodate the brake mechanism to a running-gear, and to permit the latter to be increased or diminished in length as desired.

The front terminal 28 of the longitudinally-disposed connecting rod is bifurcated, and has pivoted between its sides, formed by the bifurcation, a link 29, which is provided with a perforation receiving a stem or shank 30, of a substantially U-shaped vertically-disposed lever 31, which embraces the rear portion of the tongue 32, and which has its sides pivoted below the tongue to a depending bracket 33 thereof. The sides of the approximately vertically-disposed lever 31 extend above the tongue, and are connected by a transverse pin 34, which is arranged in substantially vertical slots 35, of upward-extending ears 36, of a slide 37. The slide 37 is provided with depending inwardly-extending flanges, which are interlocked with upward-extending flanges 38, of a guide-plate 39, which is secured to the upper face of the tongue. The front end of the slide is connected by a tongue-rod 40, with a sleeve 41, designed to be connected with the neck-yoke center of harness, or the like. The rear ends of the upward-extending flanges 38 of the guide-plate 39 terminate short of the rear end of the latter, and form stop-shoulders which are engaged by a depending solid portion 42 of the rear end of the slide to limit the forward movement of the latter. The whiffletrees (not shown) are connected with the slide by a pin and a strap 43, and in drawing the vehicle the strain is received by the depending solid portion of the slide, and the shoulders of the guide-plate, thereby obviating the necessity of employing stay-chains for limiting the forward movement of the slide and the adjacent connections.

The sleeve 41 is provided with a depending lug 44, and the tongue has a depending stop 45 to limit the inward movement of the sleeve; and it will be apparent that in descending a hill, when the vehicle moves forward on the horses, the sleeve 41 will slide rearward on the tongue, moving the upper ends of the sides of the vertical-disposed lever rearward and applying the brake; and as the team moves forward the vehicle will be automatically relieved of the brake.

The rearward movement of the slide causes the front portions of the slotted ears to engage the connecting pin of the vertically-disposed lever, and in order to relieve the draft-animals of strain in descending a hill, the said slotted ears have their front portions provided with a series of notches 46, shouldered at the top and adapted to engage the transverse connecting pin of the lever when the slide is moved rearward, whereby the pin is held against upward movement and the brake-shoes retained in engagement with the wheels. Any forward movement of the sleeve and the slide instantly releases the transverse con-

necting pin of the lever, as the said pin is carried against the rear portions of the slotted ears. By adjusting the longitudinally-disposed connecting rod, the pressure of the brake-shoes, and their degree of application through the medium of the shouldered notches of the slotted ears, may be readily regulated.

It will be seen that the brake is simple and comparatively inexpensive in construction, that it is adapted to be readily manufactured separate from a running-gear, and be afterward applied thereto without inconvenience and with precision, and that it is capable of automatic application and of readily and automatically relieving the hind wheels while backing. It will also be apparent that the brake-shoes may be swung forward and retained out of engagement with the wheels when desired.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. In a brake, a brake-shoe support comprising an attachment plate provided with upward-extending ears, a swinging frame hinged to the ears and provided with rearward-extending arms adapted to receive between them a brake-shoe, and a spring connected with the swinging frame and arranged to hold the same in operative position and also when swung forward, substantially as described.

2. In a brake, a brake-shoe support comprising an attachment plate having a depending flange provided with an inclined rear face, a swinging frame arranged on the upper face of the attachment plate and terminating above the said inclined face of the flange and arranged to swing forward to rest upon the front portion of the attachment plate, a spring connecting the swinging frame with the attachment plate and arranged to hold the former in either of its positions, combined with a brake-shoe pivotally connected to the swinging frame and having an inclined front face resting upon the inclined face of the flange, substantially as and for the purpose described.

3. In a brake, a brake-shoe support comprising an attachment plate provided at its rear end with a depending flange, and having at its front a longitudinally-disposed housing and provided at opposite sides with upward-extending ears, a swinging frame consisting of a transverse portion having a forward-projecting tongue and opposite sides projecting in advance and in rear of the transverse portion and forming forward-extending ears and rearward-extending arms, said forward-extending ears being pivoted to those of the attachment plate, and a spring arranged in the housing of the attachment plate and connected with the tongue of the swinging frame, combined with a brake-shoe pivoted between

the rearward-extending arms of the swinging frame, substantially as described.

4. In a brake, the combination with the running-gear, of a transverse bar mounted upon the rear portion thereof and located above the rear hounds, depending drop-brackets mounted on the ends of the transverse bar and having horizontal portions at their bottoms, brake-levers fulcrumed on the lower faces of the horizontal portions of the brackets, brake-shoes mounted on the brake-levers, and means for automatically operating the brake-levers, substantially as described.

5. In a brake, the combination with a running-gear, of brake-levers fulcrumed thereon and carrying brake-shoes, a longitudinally-disposed connecting rod, a transverse connecting bar pivotally attached to the ends of the brake-levers and provided with a horizontal opening and receiving the connecting rod, and a collar journaled on the transverse connecting bar and provided with a clamping screw and receiving the connecting rod, substantially as and for the purpose described.

6. In a brake, the combination with a running-gear, of brake-levers fulcrumed thereon and having their inner ends bifurcated, brake-shoes mounted on the outer ends of the levers, a transverse connecting bar having slotted ends pivoted in the bifurcations of the levers, said connecting bar having a horizontal opening and provided with upper and lower portions forming the same, a longitudinal connecting rod passing through the horizontal opening of the connecting bar, a collar journaled on the upper and lower portions of the connecting bar and receiving the connecting rod, and a clamping screw mounted on the collar and engaging the connecting rod, substantially as described.

7. In a brake, the combination with a running-gear, of brake-levers fulcrumed thereon, a slide mounted on the tongue and provided with upward-extending slotted ears, an approximately vertically-disposed lever having opposite sides fulcrumed on the tongue and extending above the same and provided with a transverse connecting pin arranged in the slots of said ears, connections between the vertically-disposed lever and the brake-levers, and means for operating the slide, substantially as described.

8. In a brake, the combination with a running-gear, of brake-levers fulcrumed thereon, a lever fulcrumed on the tongue and having opposite sides extended above the tongue and provided with a transverse connecting pin, connections between said levers, a slide mounted on the tongue and provided with upward-extending slotted ears receiving the transverse connecting pin and provided with shouldered notches for engaging the same, and means for operating the slide, substantially as described.

9. In a brake, the combination with a running-gear, of brake-levers fulcrumed thereon, an upward-extending lever fulcrumed on the

tongue and having opposite sides extending above the same, connections between said levers, a guide mounted on the tongue and having flanges forming rear shoulders, a slide arranged on the guide and having a rear depending portion for engaging said shoulders, slotted ears projecting upward from the slide, a pin connecting the sides of the upward-extending lever and arranged in the slots of said ears, and means for operating the slide, substantially as described.

10. The combination with a brake shoe, of a brake-shoe support comprising an attachment plate adapted to be secured to any ordinary brake-bar or lever and having a housing,

a swinging frame connecting the brake-shoe with the attachment plate, and a spring mounted in the housing and connected with the swinging frame, and adapted to hold the latter in operative position, and also when the same is swung forward for maintaining the brake-shoe out of engagement, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENAJAH WILCOX.

Witnesses:

E. G. SIGGERS,

J. H. SIGGERS.