963,558.

O. HILL.

WAGON BRAKE.

APPLICATION FILED NOV. 4, 1909.

Patented July 5, 1910.

2 SHEETS—SHEET 1.

Fig. 9

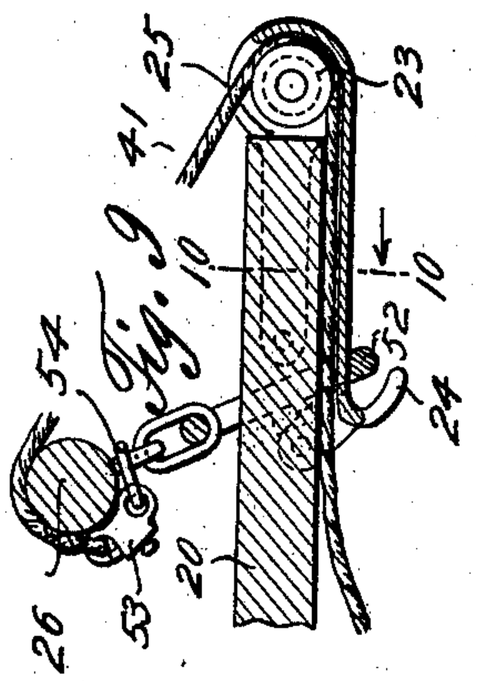


Fig. 1

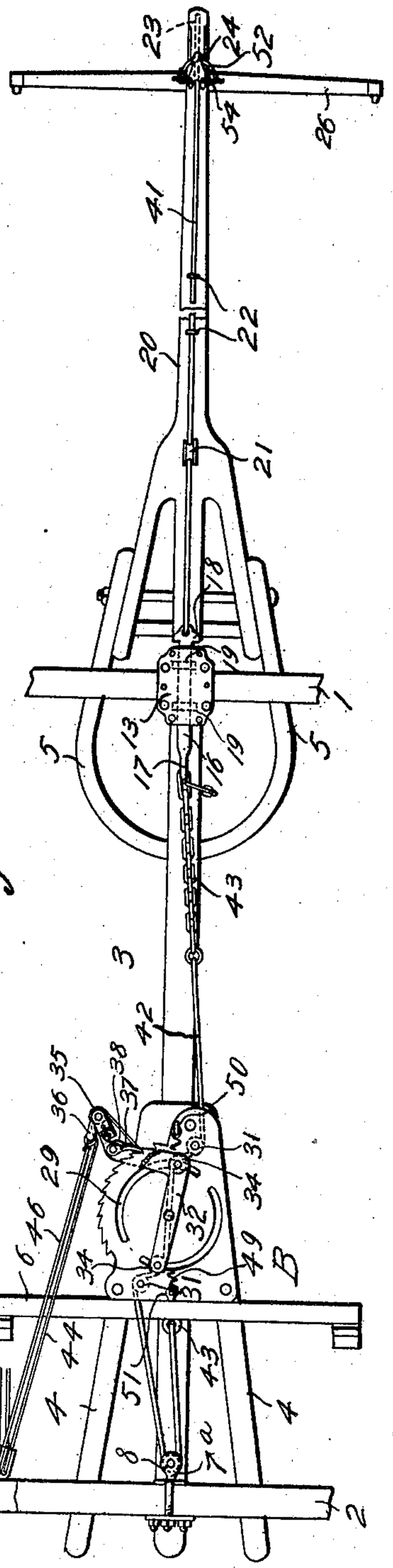


Fig. 4

Fig. 10

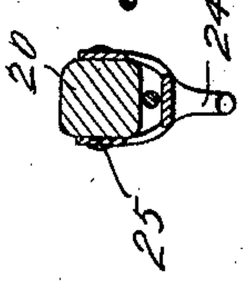
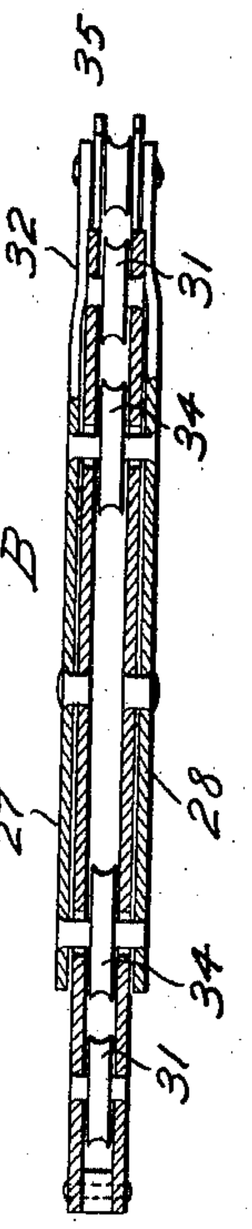


Fig. 3



Witnesses

E. Larson

Charles S. Wilson

Inventor

O. Hill,

By Peele & Cobb

Attorneys

O. HILL.

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2 SHEETS—SHEET 2.

Fig. 2

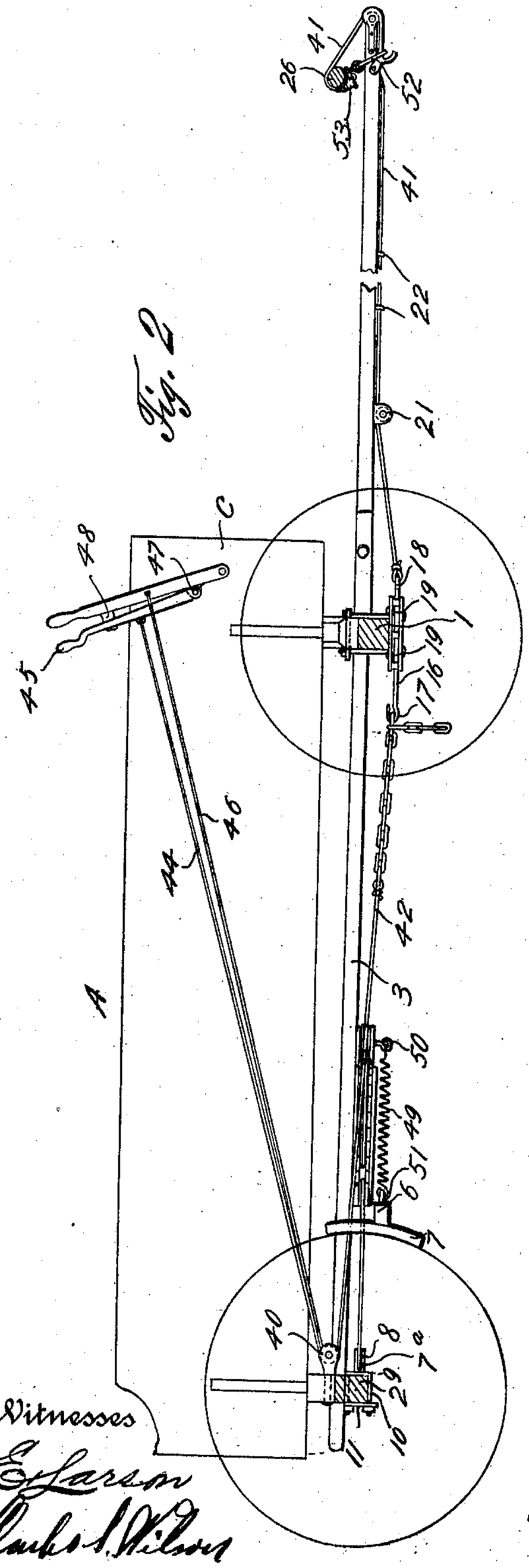


Fig. 7

Fig. 8

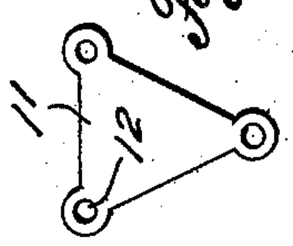


Fig. 5

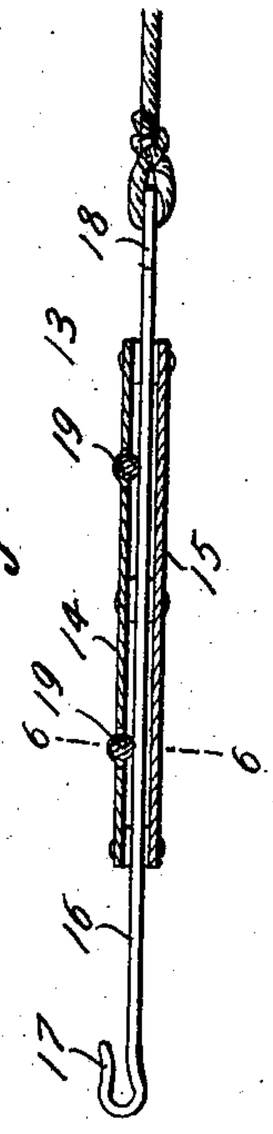
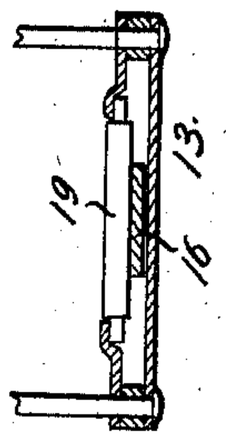


Fig. 6



Witnesses

E. Larson

Charles S. Wilson

Inventor

O. Hill,

By Beebe & Cobb

Attorneys

UNITED STATES PATENT OFFICE.

OLOF HILL, OF REVELSTOKE, BRITISH COLUMBIA, CANADA.

WAGON-BRAKE.

963,558. Specification of Letters Patent. **Patented July 5, 1910.**

Application filed November 4, 1909. Serial No. 526,316.

To all whom it may concern:

Be it known that I, OLOF HILL, a subject of the King of England, residing at Revelstoke, British Columbia, Canada, have invented certain new and useful Improvements in Wagon-Brakes, of which the following is a specification.

This invention relates to new and useful improvements in wagon brakes and is designed to provide a brake that will be automatically operated by the draft animals when the same lean back in going down a hill.

This invention contemplates the construction of a brake of this type and character which may not only be operated automatically by the animal but which may be controlled from the driver's seat.

Further, this invention provides for an adjustable brake which should the length of the body of the vehicle be altered, will adapt itself thereto, and further provides a substantial means whereby the adjustability thereof may be easily regulated.

With the above and further objects in view this invention consists in the construction, combination, and arrangement of parts all as hereinafter more fully described, specifically claimed, and illustrated in the accompanying drawings, wherein—

Figure 1 is a bottom plan view of a brake applied to a wagon in accordance with my invention; Fig. 2 is a longitudinal section of a wagon showing the application of the present invention; Fig. 3 is a longitudinal section of my regulator showing the respective position of the pulleys when the same are in approximately direct alinement; Fig. 4 is a side elevation of the operating arm of said regulator; Fig. 5 is a detail longitudinal sectional view of the anti-friction slide which coöperates with the regulator; Fig. 6 is a transverse section of Fig. 5 taken on the line 6—6 thereof; Fig. 7 is a perspective view of the swivel secured to the rear axle adjacent the reach; Fig. 8 is an elevation of the clamping plate thereof; Fig. 9 is a longitudinal section setting forth the detail construction of the tongue or pole of the vehicle; Fig. 10 is a transverse section of the same taken on the line 10—10 of Fig. 9.

Throughout the following detail description and on the several figures of the drawings similar parts are referred to by like reference characters.

Reference being had more particularly to the drawings A indicates in general a wagon body provided with a forward axle 1 and a rear axle 2 connected by the reach 3, said reach being provided with the rear hounds 4 and forward hounds 5. The brake bar 6 is mounted in the usual manner on the rear hounds 4 and is provided at each terminal with the brake shoes 7, the entire device being of the structure especially adapted to the vehicle to which the same is secured.

The swivel 7[a] specifically illustrated in Figs. 7 and 8 of the appended drawings comprises a pulley 8 swiveled on the plate 9, said plate having the rearwardly extending legs or arms 10. The arms 10 are adapted to engage the rear axle, one of said arms resting over the axle thereof while the remaining arms rest longitudinally on each side of the reach on the opposite side of said axle the rearward extremities of said arms being engaged by the plate 11 the latter provided with the orifices 12 wherein the arms are retained by nuts of any adaptable nature.

Secured on the under side of the forward axle 1 is the friction slide 13 specifically set forth in Figs. 5 and 6 of the drawings. This slide comprises a pair of plates 14 and 15 between which reciprocates the bar or slide 16 having a hook 17 at its rearward extremity and an eye 18 at its forward. To lessen the friction and facilitate ease with which said slide operates a series of rollers 19 are mounted in the upper plate and are adapted to provide a bearing surface for said slide upon its operation. This anti-friction slide is secured in any suitable and usual manner to the forward axle and is so constructed that it may be removed at any desired time for the repairing of the same.

The tongue 20 of the vehicle is provided along its under surface with a series of pulleys 21 and eyes 22 and has at its outer extremity the pulley or roller 23 which is so constructed that when the same is secured thereon it forms a bearing hook 24 for the yoke 26. The means whereby this pulley is secured to the terminal of the tongue comprises a series of three arms, the parallel ones 25 engaging the sides of the tongue 20 while the remaining one is secured to the under face thereof and has a hook 24 formed thereon as shown in detail in Fig. 9 of the drawings.

The regulator indicated in general as B is carried on the under face of the rear

hounds 4 and is retained partially thereby and partially by the reach 3. This regulator is set forth specifically in Figs. 1, 3, and 4, and comprises a pair of plates 27 and 28 of peculiar configuration, having the coinciding approximately semi-circular slots 29 formed therein and a series of ratchet teeth 30 on one side thereof. In the diametrically oppositely disposed corners of said plates, one of said corners being adjacent the ratchet teeth and the other oppositely disposed thereof, a pair of rollers 31 are interposed. An L-shaped arm 32 pivotally spans said regulator plates 27 and 28 and is formed of the plates 33 having the pulleys 34 interposed therebetween and operating in the slots 29. These pulleys are arranged at the inner terminal of the base of the L and at the bend thereof. A similar pulley 35 is carried at the opposite terminal of the arm and has secured thereon the eye 36. Interposed between the plates 33 of the arm and disposed directly beneath the eye 36 is a pawl 37 retained in constant engagement with the ratchet teeth 30 by the spring 38. A centrally disposed orifice 39 is formed in the pawl to provide a means whereby the release line hereinafter described may be secured thereto.

A double pulley 40 is carried on the rear axle 2 on the side thereof adjacent the arm 32 of the regulator and is adapted to provide a bearing for the releasing and controlled lines.

In operation the animal operated line 41 is secured in the eye 18 of the antifriction slide 13, passes through the pulley 21 and the eyes 22, and over the pulley 25 carried on the forward extremity of the tongue, after which it is secured by a loop to the snap hook 53 attached to the neck yoke 26. The neck yoke is removably attached to the tongue 20 by a ring 52 carried on the under side thereof adjacent said snap hook and connected thereto by links 54, said ring bearing against the hook 24. The direct control line 42 is secured to the hasp 43 on the brake bar, passing through the pulley 8 of the swivel 7, thence in a zigzag course engaging the pulleys 31 and 34 of the regulator and the arms 32 respectively after which it is secured to a chain 43′, and any link of which may be fastened to the hook 17 of the slide 16. The provision of this chain between the hooks 17 and the yoke rope 42 provides a means of adjusting the length of said control line 42 and in accordance with the length of the body of the vehicle or reach 3, thus supplying the feature which is very advantageous to the operation and application of the present invention.

From the foregoing description of the operation it will readily be seen that upon application of a pull by the yoke 26 a motion in the forward direction will be supplied the animal controlled lines 41 and 42 and through the instrumentality of the swivel and pulley 8 the brake bar will be moved in such a manner that the shoes will engage the wheel.

The release line 44 extends from the pawl around the pulley 35 at the extremity of the arm 32 and is fastened to the release lever 45 of the compound lever indicated in general as C. The control line 46 passes from the eye 36 around the pulley 40 and to the main body 47 of the compound levers C where it is fastened.

The lever C is composed of two parts 45 and 47 and the lever 45 being pivotally connected to the main body 47 and operating in the keeper 48.

In order to provide a means whereby the brake shoes may be entirely removed from engagement with the wheels, a spring 49 is interposed between the eye 50, carried on the under face of the regulator, and the similar member 51, secured to the brake bar. Thus it will be seen that when the lever 32 is released the spring will contract and disengage the brake shoes from the wheels.

The operation of the brake from the seat by the driver is as follows: A pressure is applied to the main body 47, thus supplying a motion to the lever or L arm 32 rotating the same in such a manner that a pull will be exerted by the pulleys 34 thereof on the line 42 thus causing the brakes to be set in a manner similar to that operated by the animals. When it is designed to release the same a pressure is applied the auxiliary lever 45 raising the pawl and due to the tautness of the line 42 which acts as a spring the lever arm 32 returns to its normal position as illustrated in Fig. 1 of the accompanying drawings. This operation is generally indicated in dotted lines in Fig. 1 of the drawings.

The advantages of this style of construction may be readily seen inasmuch as should the animal refuse to operate the brake automatically the driver may do the same, thus promoting the safety of the occupants of the vehicle and improving the general operation thereof.

Having thus fully described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. In a brake of the class described, the combination of a running gear, of a brake bar mounted on the reach thereof, means for operating said brake bar from the neck yoke comprising an anti-friction slide carried on the under face of the forward axle, said slide having on its rearward extremity a hook and on its forward extremity an eye, a control line secured to said eye and passing through a series of pulleys, and eyes carried on the under face of said tongue and operating around a pulley at the forward

extremity of said tongue and engaging the neck yoke, an adjustable chain secured to said hook and having a line secured thereto and forming a continuation thereof passing through a regulator carried on the under face of the rear hounds and around a swivel pulley, carried on the inside of the rear axle and thence to an eye on the brake bar, and means for controlling and releasing said brake from the wagon body, as and for the purpose set forth.

2. In a brake of the class described, the combination with a running gear, of a brake bar mounted on the reach thereof, means for operating and controlling said brake from the wagon body, comprising a regulator carried on the under face of the rear hounds adjacent said brake bar, said regulator consisting of two plates having a plurality of diagonally oppositely disposed pulleys interposed therebetween and said plates having semi-circular openings in which rotates about a central pivot, an L-shaped arm, said arm having pulleys carried in the extremities thereof and at the bend, a pawl at the outer extremity of said arm, said pawl having an eye formed thereon, forming a ratchet engagement between said arm and regulator plates, and means passing around the pulley adjacent said pawl for releasing said ratchet.

3. In a brake of the class described, the combination with a running gear, of a brake bar mounted on the reach thereof, a lever pivoted adjacent said brake bar, a brake operating line extending from the neck yoke and operating the brake bar, said lever being adapted to create a take-up in said line, and means comprising a mounting plate wherein the motion of said lever may be limited.

4. In a brake of the class described, the combination with a running gear, of a brake bar mounted on the reach thereof, an operating line extending from the neck yoke and operating said brake bar, an L-formed lever carried adjacent said brake bar provided with pulleys adapted to create a take-up in said operating line, and means whereby said lever may be retained in various positions.

5. In a brake of the class described, the combination with a running gear, of a brake bar mounted on the reach thereof, mounting plates secured adjacent said brake bar provided with substantially semi-circular openings, pulleys interposed between said openings, a lever centrally pivoted on said mounting plates provided with pulleys adjacent to said semi-circular openings, and a take-up line passing through said mounting plates and engaged by said pulleys carried by said lever, as and for the purpose set forth.

6. In a brake of the class described, the combination with a brake bar, of mounting plates carried adjacent said brake bar, an L-lever pivoted in said mounting plates, pulleys carried by said lever and plates, and an operating line passing through said mounting plates and engaged by said lever adapted to create a take-up in said line when operated from the wagon body.

7. In combination with a slidable brake bar, of a line extending from the neck yoke adapted to operate said brake bar, and means whereby said line may be retained at the extremity of the tongue comprising a bar having a bearing hook formed at the rear terminal thereof, and lugs at each side thereof adjacent to the forward terminal, a pulley pivoted between said lugs, said supporting bars extending rearwardly from said lugs, and ears adjacent said bearing hook adapted to secure the rear terminal of said bar to the tongue.

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

OLOF HILL.

Witnesses:
BENISCH AVEDA,
CHAS. M. FIELD.