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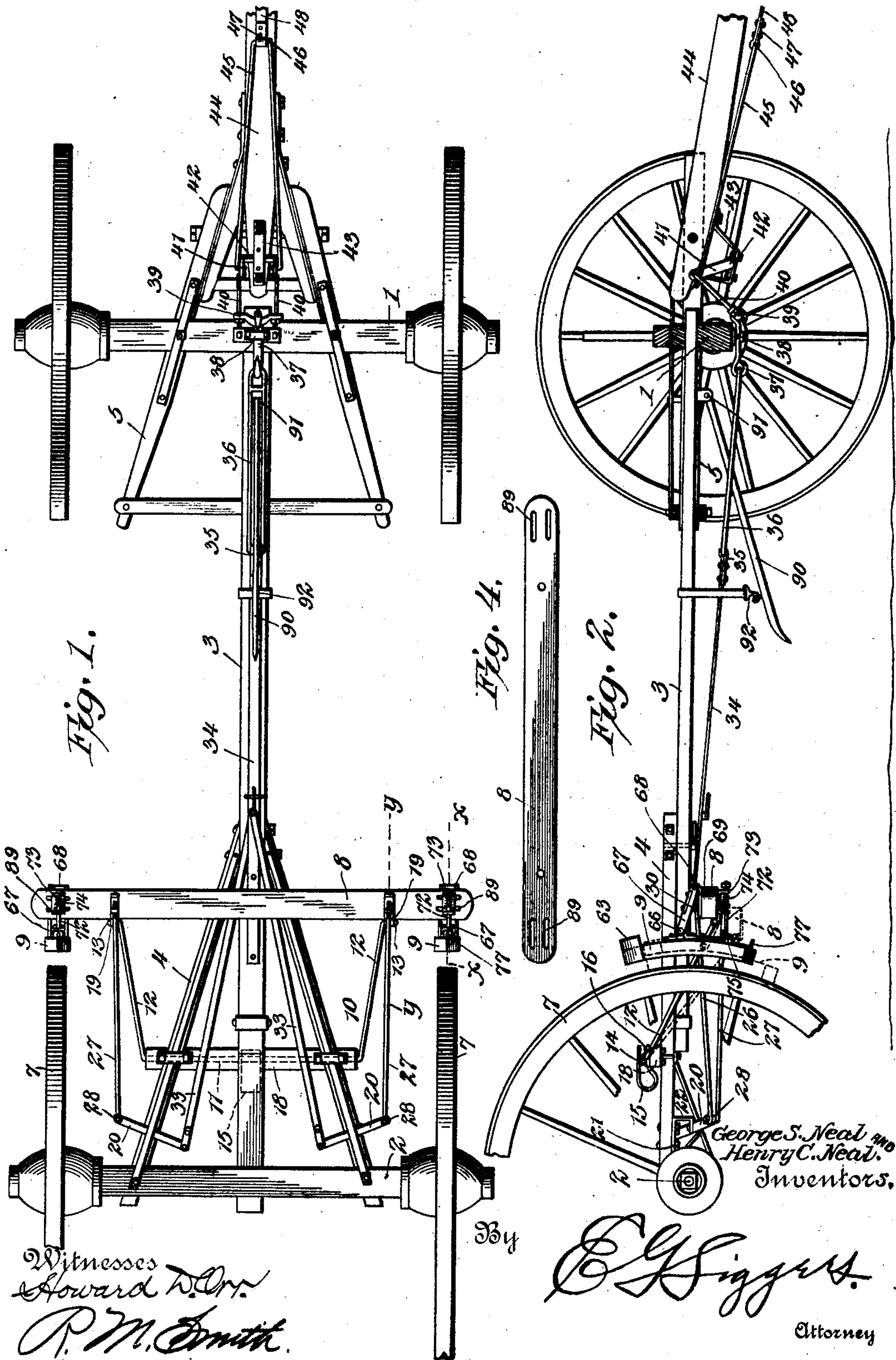
Patented Sept. 17, 1901.

G. S. & H. C. NEAL.  
AUTOMATIC WAGON BRAKE.

(Application filed Mar. 14, 1901.)

(No Model.)

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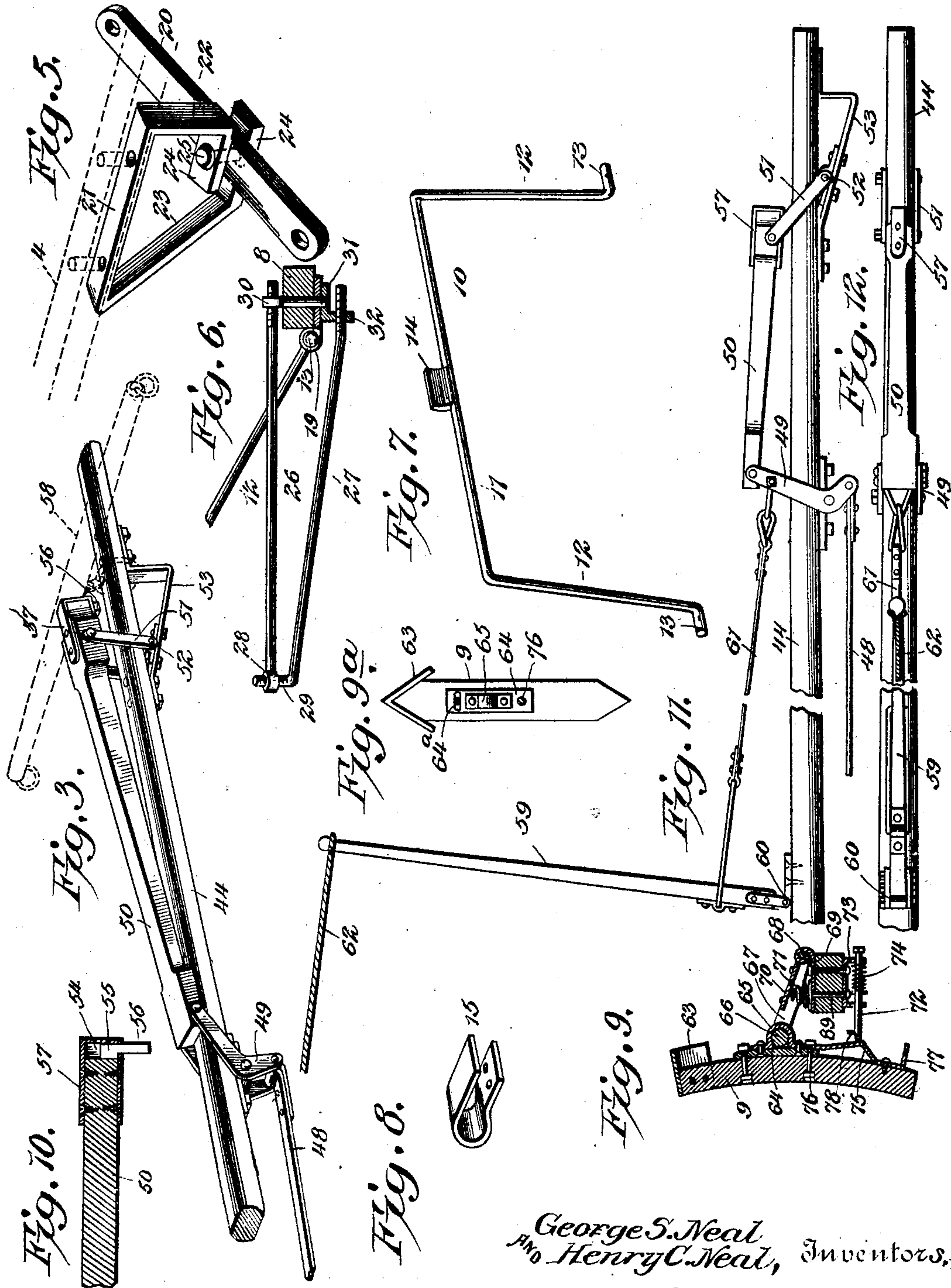
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Witnesses  
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R. M. Smith.

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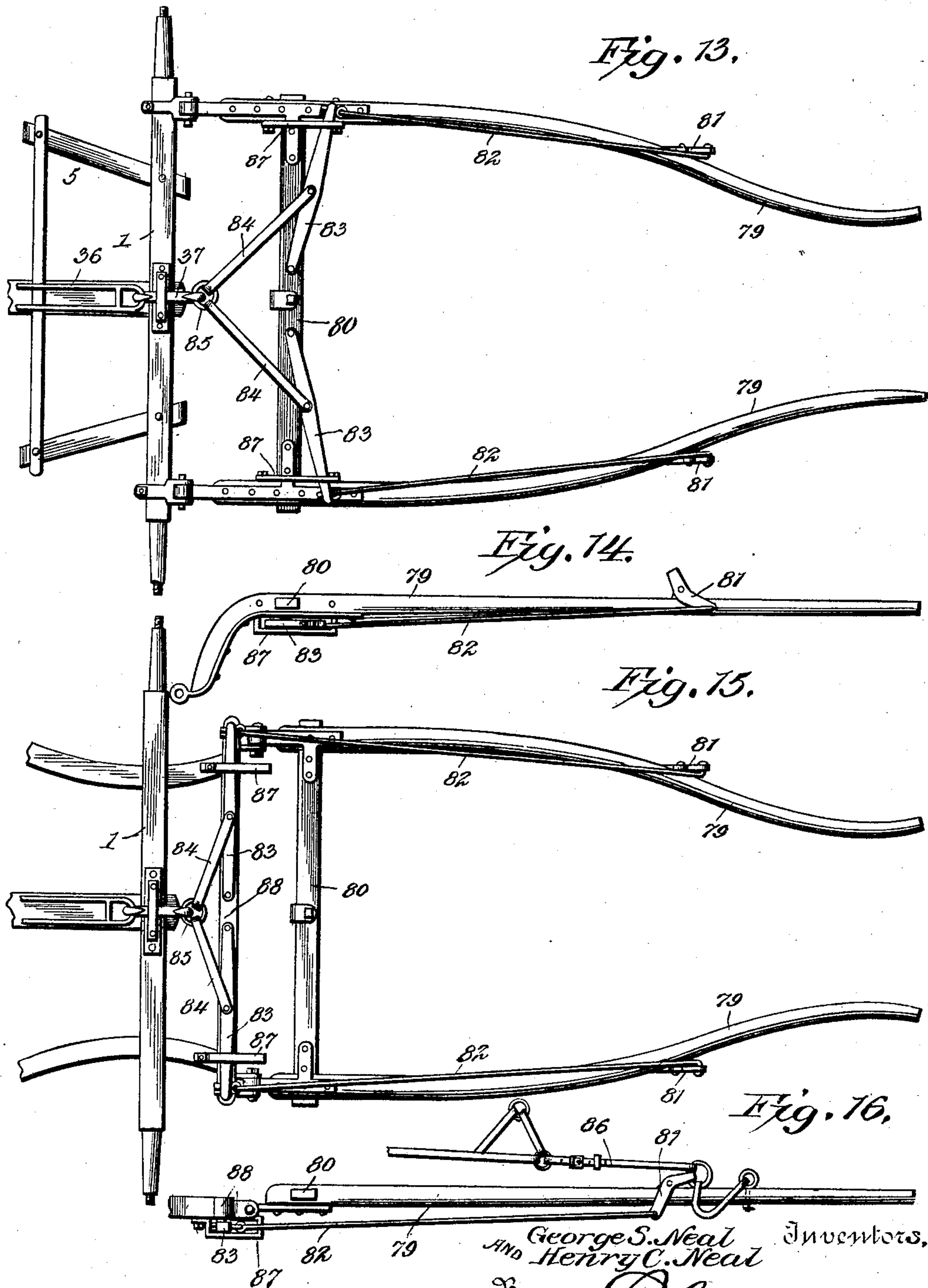
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# UNITED STATES PATENT OFFICE.

GEORGE S. NEAL AND HENRY C. NEAL, OF EDDYVILLE, NEW YORK.

## AUTOMATIC WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 682,881, dated September 17, 1901.

Application filed March 14, 1901. Serial No. 51,122. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE S. NEAL and HENRY C. NEAL, citizens of the United States, residing at Eddyville, in the county of Cattaraugus and State of New York, have invented a new and useful Automatic Wagon-Brake, of which the following is a specification.

This invention relates to automatic wagon-brakes, and has for its object to provide a brake which is operated automatically by the team in descending grades. The steeper the grade the greater the force with which the brake-shoes are applied to the wheels of the wagon or other vehicle with which the automatic brake mechanism may be associated.

One of the principal objects of the present invention is to provide a brake for a wagon or vehicle so constructed and related to the wheel-tires that after an initial application of the brake-shoes to the wheel-tires the friction resulting from the contact of said parts will throw the brakes against the wheels with greater effect and set the brakes with sufficient firmness to entirely stop the rotation of the wheels and bring the wagon or other vehicle to a standstill within a short distance.

A further object of the invention is to provide in connection with an automatic brake for vehicles means whereby the pressure of the brake-shoes against the wheels will be relieved in the operation of backing the wagon, so that the brake-shoes will be ineffective for checking the wheels during such movement.

A further object of the invention is to provide means for yieldingly pressing the brake-shoes toward the wheels and for adjusting the brake-shoes up and down with respect to the brake-beam by which they are carried.

Another object of the invention is to provide in connection with the automatic brake mechanism means capable of being operated by hand for setting the brakes in the event of the draft-animals becoming unmanageable or at other times when for any reason the brake mechanisms get out of order or fail to perform their functions.

The invention also has for its object to provide as the means for initially actuating the brake mechanism a thrust-bar which is susceptible of being thus actuated by the ordi-

nary yoke at the front end of the pole or tongue to which the animals are hitched; further, to provide said thrust-bar with a guard for preventing the yoke from becoming wedged between the thrust-bar and the pole or tongue.

Another object of the invention is to adapt the initial members of the brake connections to a pair of thills or shafts, so that the automatic brake mechanism will be thrown into operation by a single animal as well as a team.

With the above and other objects in view, which will more fully appear as the nature of the improvement is set forth, the invention consists in the novel construction, combination, and arrangement hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a bottom plan view of the running-gear of a wagon, showing the improved brake mechanism applied thereto. Fig. 2 is a side elevation thereof, partly in section. Fig. 3 is a detail perspective view of the portion of the tongue omitted in Figs. 1 and 2, showing the initial thrust-bar and contiguous members of the brake connections. Fig. 4 is a plan view of the brake-beam. Fig. 5 is a detail perspective view of one of the hangers for the brake-levers. Fig. 6 is a side elevation of one of the double brake-rods, showing the brake-beam in section and a portion of the brake-beam carrier, said view being taken on the line *yy* of Fig. 1. Fig. 7 is a detail perspective view of the brake-beam carrier. Fig. 8 is a similar view of the throw-off spring. Fig. 9 is a vertical sectional view on the line *xx* of Fig. 1, showing one of the brake-shoes and its connection with the brake-beam. Fig. 9<sup>a</sup> is an elevation of the brake-shoe and holder. Fig. 10 is a detail vertical longitudinal section through the front end of the thrust-bar, showing the gravity guard-pin. Fig. 11 is a side elevation of the pole or tongue, showing the safety or hand lever in its operative position. Fig. 12 is a plan view of the same, showing the hand-lever folded downward and lying upon the tongue. Fig. 13 is a plan view of a pair of thills or shafts, showing the initial members of the brake connections mounted thereon. Fig. 14 is a side elevation of the same. Fig. 15 is a plan view similar to Fig.



13, showing the brake connections applied to a different type of running-gear. Fig. 16 is a side elevation of the same.

Like numerals denote like parts in all the figures of the drawings.

In Figs. 1 and 2 of the drawings we have illustrated the running-gear of a wagon of ordinary construction, while in Fig. 3 we have illustrated the tongue, which is omitted from Figs. 1 and 2 in order to represent the parts of sufficient size to illustrate the details of construction employed in carrying out the present invention. In said figures, 1 and 2 designate the front and rear axles, respectively, which are connected by the reach 3, which is in turn connected with the axle by means of the usual hounds 4 at the rear and the hound-frame 5 at the front.

Extending transversely of the wagon-body and arranged in close proximity to the rear wheels 7 is a brake-beam 8, upon the opposite ends of which are mounted curved brake-shoes 9, adapted to be thrown into and out of contact with the wheel-tires by the mechanism hereinafter described. The brake-beam is supported by means of a brake-beam carrier 10, which comprises a shaft or journal portion 11, with terminal arms 12 extending forward and inclining downward therefrom and terminating in oppositely-projecting pintles 13, as best illustrated in Fig. 7. The carrier 10 is also provided centrally of its journal portion with an outwardly-extending lug or projection 14, adapted to be engaged by the free end of a C-shaped lift-spring 15. (Shown in detail in Fig. 8.) The brake-beam carrier is journaled in bearings 16, mounted at or near the opposite ends of a cross-beam 18, which is secured fixedly near its opposite ends to the hounds 4 and arranged in the relation thereto illustrated in Figs. 1 and 2. The lug or projection 14 is arranged between the lower attached end of the spring 15 and the upper free end thereof, said spring being secured by suitable fasteners to the central portion of the cross-beam 18, and the tension of said spring being exerted to normally lift the outer ends of the arms 12 of the carrier and also the brake-beam and its attachments supported by said arms. The brake-beam is provided with clips 19, having bearings for the pivotal reception of the pintles 13 of the carrier, which clip is best illustrated in Fig. 6 and is shown as bolted to the lower side of the brake-beam 8.

The mechanism for operating the brake-beam and moving the same toward the wheels, so as to set the brake-shoes against the same, consists primarily of a pair of brake-levers 20, which are fulcrumed intermediate of their ends in pendent hangers secured to the lower sides of the hounds. One of these hangers is illustrated in detail in Fig. 5, wherein it is shown to comprise a body portion 21, which fits against the bottom of one of the hounds and is bolted or otherwise secured thereto and provided with downwardly-projecting

terminal portions 22 and 23, which are in turn provided with inwardly-extending and overlapping parallel members 24, between which the brake-lever 20 is fulcrumed. The parts 24 are inclined transversely, as shown in Fig. 5, so as to give a corresponding inclination to the lever 20, whereby its outer end is arranged in a lower plane than its inner end, and both ends located in planes corresponding to the planes occupied by the parts to which the respective ends of the lever are connected by the means hereinafter described. The fulcrum of the lever by preference consists of a rivet 25, which passes through the lever and also through the parallel members 24 of the hanger. The outer end of the lever is connected with the brake-beam by means of a brake-rod comprising upper and lower members 26 and 27, respectively, the upper member being provided with a terminal eye 28, through which is inserted the upturned and outwardly-inclining extremity 29 of the lower rod 27, the said extremity 29 also passing through an opening in the outer end of the brake-lever, where it is secured by means of a nut or other suitable fastening. The upper member of the connecting-rod is received in the eye of an eyebolt 30, which passes through the brake-beam, as shown in Fig. 6, and also through the clip 19, above referred to, where it is held by means of a nut 31, having a pendent ear 32, which receives the threaded end of the lower member 27 of the brake-rod.

The opposite or inner ends of the brake-levers 20 are connected, by means of brake-links 33, with a centrally-arranged strap 34, extending lengthwise of and beneath the reach 3, as shown in Figs. 1 and 2, the said brake-links being pivotally connected with said strap, so that when the strap is drawn forward the brake-levers 20 will be rocked and caused, by means of the brake-rods, to draw the brake-beam 8 toward the rim of the wheels 7, and it will be understood from the foregoing description that as the brake-beam is drawn rearward the brake-beam carrier will be vibrated, and the brake-shoes 9 thereby moved downward until they come in frictional contact with the wheel-tires. The strap 34 has at its forward end a loop 35, which receives pivotally the rear cross-bar of an open link 36, connected at its opposite forward end to one end of a slide-hook 37, which is adapted to move longitudinally within a keeper or guide 38, fastened to the lower side of the front axle, as shown in Figs. 1 and 2. Connected to the front end of the slide-hook 37 is a yoke 39, to the oppositely-projecting arms of which are adjustably attached connecting-rods 40, which extend forward and connect with the arms 41 of a crank-shaft 42, which is journaled in a bearing on a drop-bracket 43, secured to the lower side of the wagon tongue or pole 44, as shown in Fig. 2. Another open link 45 has its connecting portion 46 received pivotally in a loop 47 at the rear



end of a forwardly-extending strap 48, extending beneath the pole or tongue 44, as shown in Figs. 1, 2, and 3, while the rear ends of the side bars of the link 45 are pivotally  
 5 connected to the oppositely-lying arms of the crank-shaft 41 in the manner illustrated in Figs. 1 and 2. At its forward end the strap 48 connects pivotally with the lower and shorter arm of a double bell-crank 49, the op-  
 10 posite arm of which is connected pivotally to the rear end of a longitudinally-extending thrust-bar 50, arranged over the tongue, as shown in Fig. 3. The bell-crank 49 is of double construction or comprises oppositely-  
 15 arranged parallel members, as shown in Fig. 3, in order to straddle the tongue and allow the upper and lower arms thereof to play, respectively, above and beneath the tongue. The rear end of the thrust-bar 50 finds its  
 20 rest upon the tongue, while the forward end of said thrust-bar is held slightly elevated by means of supporting-links 51, which connect pivotally with the thrust-bar, passing downward therefrom on opposite sides of the tongue  
 25 and connecting with a pin or shaft 52, mounted in a bearing upon a pendent bracket 53, secured to the lower side of the tongue and also forming a tongue-support when the latter is dropped. The forward extremity of the  
 30 thrust-bar 50 is provided with a vertically-extending groove or notch 54, in which is mounted the head 55 of a drop pin or guard 56, adapted to slide upward in said groove and held in place by means of a housing-strap  
 35 57, which passes around the end of the thrust-bar in the manner illustrated in Figs. 3 and 10. The object in providing the gravity guard-pin 56 is to prevent the usual yoke 58 from slipping backward beneath the thrust-bar and  
 40 becoming wedged between said bar and the tongue without operating the thrust-bar.

It will now be seen that as the draft-animals hold back in descending a steep grade the yoke 58 will push the thrust-bar 50 back-  
 45 ward, thereby vibrating the double bell-crank 49 and operating upon the several connections extending between said bell-crank and the brake-levers 20, with the result that the brake-shoes will be thrown against the tires  
 50 of the rear wheels 7, thus automatically applying the brakes and requiring no special attention on the part of the driver. In order to insure the application of the brake, we provide a supplemental safety or hand lever 59,  
 55 which is pivotally connected at 60 to the upper side of the tongue, as shown in Fig. 11, and adapted to fold downward flatwise against the tongue, as shown in Fig. 12, when not needed. Said lever 59 is operatively as-  
 60 sociated with the double bell-crank 49 by means of a flexible connection 61. The lever 59 may after being raised be operated directly by the hand or by means of an operating cord or rope 62, connected to the free end of the  
 65 lever and adapted to lift the same from off the tongue and carry the same to an upright position when needed in use. The hand or

safety lever 59 will be found very useful when for any reason the brake connections work hard or become caught or when it is desired  
 70 to set the brakes quickly and with greater force than that with which they would be ordinarily applied by the holding back of the animals.

Each of the brake-shoes 9 is curved to con-  
 75 form to the circumference of the wheel and has its upper and lower extremities beveled and a V-shaped mud and dirt scraper 63 secured to the upper end thereof, which acts automatically to clean the tires of the wheels  
 80 and prevents the mud and dirt from falling on the brake-beam and holder. Each brake-shoe 9 is supported by means of a holder 64, provided with a bolt-slot 64<sup>a</sup> and a bearing-  
 85 eye 65 for the reception of the journal-bar 66 of a double pivotal link 67, hingedly connected, as shown at 68, to an eye-plate 69, bolted or otherwise secured to the brake-  
 90 beam 8, as shown in Fig. 9. The side bars of the link 67 are connected by a cap-plate 70, and beneath said cap-plate is arranged a relief-spring 71, which rests upon the eye-  
 95 plate 69 on top of the brake-beam. The brake-shoe is thus yieldingly supported with respect to the brake-beam and is adapted to yield upward and downward for a purpose  
 hereinafter explained. In order to support the brake-shoe at a proper angle with respect  
 100 to the wheel, we provide a presser-rod 72, which is supported by a hanger 73, secured to the under side of the brake-beam, the said rod being encircled by a coiled spring 74, which holds the presser-rod toward the brake-  
 shoe, but allows it to yield in the opposite di-  
 105 rection. The outer end of the presser-rod 72 bears against an offset shoulder 75, formed by a bent plate having one end secured to the brake-shoe holder by means of a bolt or other suitable fastener 76 and its opposite or  
 110 lower end secured directly to the brake-shoe. Said brake is provided at its lower end with a downwardly-extending ear 77, provided with an opening by which it may be received in  
 115 engagement with an upwardly-projecting pin 78 near the extremity of the presser-rod 72 for the purpose of holding the brake-shoe in an elevated position with respect to the brake-beam.

From the foregoing it will be seen that when the brake connections are operated and  
 120 the shoes brought into frictional engagement with the back-wheel tires the tendency will be to carry the brake-shoes still lower, and thereby set the brakes with increasing force. As soon as the wheels are brought to a stand-  
 125 still the relief-spring 71 exerts its tension to vibrate the link 67 and lift or move the brake-shoe out of contact with the wheel. The relief-spring is, however, particularly useful in  
 130 backing the wagon, as it will serve to counteract the tendency of the connections to set the brakes by exerting its force to move the shoe away from the wheel. By reason of the particular form of the bail-shaped brake-shoe



carrier 10 said carrier is adapted to withstand the strain incident to the tendency for the wheels to carry the brake-shoes downward to an abnormal extent and cause them to bind firmly against the tires of the wheels, owing to the location of the pivotal point of the brake-shoe carrier between the brake-beam and the rear-wheel axle. As soon as the brake connections are released the main throw-off spring 15, acting upon the lug 14, serves to rock the brake-beam carrier, and thereby lift the brake-beam and shoes supported thereon, bringing the same to the full-line position indicated in Fig. 2.

In Fig. 13 we have shown the initial brake connections mounted upon a pair of thills or shafts (represented at 79) and connected by the usual cross-bar 80. Where thills are employed, a bell-crank 81 will be applied to each of the thills and connected by rods 82 or other suitable connections with twin levers 83, pivotally mounted at their inner ends on the cross-bar 80 and having connected thereto at intermediate points rearwardly-projecting links 84, which are joined by a ring 85, which connects with the forward end of the slide-hook 37. The bell-cranks 81 will have the usual breeching 86 connected thereto, so that said bell-crank levers may be operated by the holding back of the draft-animal in a manner that will be readily understood. Under the arrangement shown in Figs. 13 and 14 it is also desirable to employ suitable guides or keepers 87 for the levers 83, which keepers or guides are preferably secured to the under sides of the thills. In Figs. 15 and 16 we have illustrated initial brake connections constructed on the same principle, but applied to draft-rigging of a different type, in which running-gear is provided with a coupling-bar 88, arranged between the front axle and the cross-bar of the thills and to which the thill-couplings are applied. Where such type of draft-rigging is employed, the twin levers 83 may be mounted upon the coupling-bar 88 instead of the cross-bar 80 of the thills.

The brake hereinabove described is entirely automatic in action, and the brake-shoes are set by the animals in holding back while descending grades. At the same time means are provided for relieving the brake-shoes in backing the vehicle and for throwing said brake-shoes off the wheels after the draft-animals cease to hold back. It will also be apparent that by reason of the particular brake connections hereinabove set forth, and especially by providing the crank-shaft 42, the brake connections will not be effected either to the extent of applying or releasing the brakes when the wagon pole or tongue is raised or lowered and its angle changed with respect to the reach. In order to provide for the adjustment of the brake-shoes to the wheels, the brake-beam is provided at its opposite ends with longitudinal slots 89 to receive the bolts by which the shoes are con-

nected to the beam. If desired, also, a ground-brake in the form of a rearwardly-extending lever 90 may be pivotally connected to the running-gear, as at 91, and upheld by means of a hook 92, connected to the reach at a suitable point and adapted to engage an eye near the free end of such brake.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what we claim is—

1. In a wagon-brake, the combination with the running-gear and axle, of a brake-beam located transversely of the running-gear and having elements arranged to engage the wheels upon the axle, a brake-beam carrier pivotally connected to the running-gear between said axle and brake-beam, and means for lowering the brake-beam to move the elements into engagement with the wheels upon said axle, and a spring for raising said elements out of such engagement.

2. In a wagon-brake, the combination with the running-gear and axle, of a brake-beam having elements arranged to engage the wheels upon the axle, a brake-beam carrier, a cross-bar secured to the running-gear between the brake-beam and said axle and forming a pivotal support for the carrier, and means for lowering and raising the brake-beam to move the elements into and out of engagement with the wheels upon said axle.

3. In a wagon-brake, the combination with the running-gear and axle, of a brake-beam having elements arranged to engage the wheels upon the axle, a brake-beam carrier pivotally connected to the running-gear between the brake-beam and said axle, a cross-bar connected to the hounds and forming a support for the brake-carrier, and brake connections for raising and lowering the beam to move the elements carried thereby into and out of engagement with the wheels upon said axle.

4. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted on the running-gear between the brake-beam and axle, brake connections for swinging said carrier into operative relation with the wheels, and a throw-off spring engaging the said carrier to move the brake-beam out of operative relation.

5. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle and provided with a projecting lug, a throw-off spring in engagement with said lug, and brake connections for swinging said carrier.

6. An automatic wagon-brake comprising a



brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for swinging said carrier, brake-shoes carried by the brake-beam, and relief-springs acting on said shoes.

7. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake-shoes connected to the brake-beam by pivotal links, and relief-springs engaging said links, for the purpose specified.

8. A wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted on the running-gear and connected to the beam, means for moving the beam into operative relation with the wheels, and a throw-off spring engaging the carrier to move the brake-beam out of operative relation.

9. In a wagon-brake, a brake-beam, a brake-shoe located at one side of the beam, a link pivotally connecting the shoe and the rear portion of the beam, said link being located above said beam, and a coiled relief-spring interposed between the under face of the link and the upper face of the beam to yieldingly support the shoe.

10. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for swinging said carrier, and means for holding said shoes in an elevated position with respect to said brake-beam.

11. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for swinging said carrier, shoes pivotally connected to the brake-beam, and presser-rods for yieldingly supporting said shoes.

12. An automatic wagon-brake, comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, connections for swinging said carrier, brake-shoes, brake-shoe holders connected with the beam and provided with offset shoulders, and presser-rods engaging said shoulders for yieldingly supporting the brake-shoes.

13. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, connections for swinging said carrier, brake-shoes, brake-shoe holders connected to the beam and provided with ears having openings, and presser-rods mounted on the beam and provided with pins for engaging the openings in the ears.

14. An automatic wagon-brake, comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, and connections for swinging said carrier, including inclined brake-levers fulcrumed in hangers secured to the under side of the hounds and having their opposite ends, respectively, in the approximate horizontal planes of the brake-beam and the under side of the reach, operating means for the brake-

beam, and a connection between the operating means and the brake-levers, said connection having a portion located beneath the reach.

15. An automatic wagon-brake, comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, and brake connections for swinging said carrier, said connections including a pair of inclined brake-levers, and hangers therefor secured to the hounds and each comprising independent arms with overlapping extremities pitched at an angle to the horizontal and arranged in parallel relation to each other for the interposition of a brake-lever.

16. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, and brake connections for swinging said carrier, including inclined brake-levers, and brake-rods connecting said levers and brake-beam and comprising upper and lower members diverging forwardly and connected to opposite sides of the brake-beam and having their rear ends connected together and to the brake-levers, substantially as described.

17. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, means for moving the brake toward and away from the wagon-wheels, a thrust-bar mounted on the tongue and adapted to be actuated by the neck-yoke, one end of said bar being associated with the brake connections and the other end upheld by supporting-links.

18. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, brake connections for operating the brake-beam, a thrust-bar on the tongue for operating said connections, and a gravity guard-pin connected with said thrust-bar, for the purpose specified.

19. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, and means for operating the brake-beam comprising a bell-crank mounted on the tongue and having arms extending upward and downward, a flexible connection between the lower arm of the bell-crank and the brake-beam, a thrust-bar mounted on the tongue and connected with the upper arm of the bell-crank, and links pivotally connecting the forward portion of the thrust-bar and the tongue.

20. In a wagon-brake, the combination with a movable brake-beam carrying brake-shoes, of an intermediate lever pivoted upon the tongue, connections between the lever and the beam, operating means connected to the lever and located upon the vehicle-tongue, said means being adapted to be moved by an animal hitched to a vehicle, and a pivoted hand-lever also connected to the intermediate lever.

21. In a wagon-brake, the combination with a movable brake-beam carrying brake-shoes, of a lever pivoted intermediate its ends upon the tongue, connections between one end of the lever and the beam, a push-bar connected to the opposite end of the lever, and manual



operating means also connected to said opposite ends of the lever.

22. In a wagon-brake, the combination with a movable brake-beam carrying brake-shoes, of a lever pivoted intermediate its ends upon the tongue of the vehicle, connections between the lower end of the lever and the brake-beam, a push-rod located longitudinally of the tongue and connected to the upper end of the lever, a hand-lever pivoted upon the tongue, and a flexible connection between the hand-lever and the upper end of the intermediate lever.

23. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, and brake connections for operating the brake-beam comprising a thrust-bar mounted on the tongue, a slide-hook passing beneath the front axle, and operative connections between the slide-hook, thrust-bar and brake-beam.

24. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier, and brake connections for operating the brake-beam comprising a crank-shaft mounted on the tongue contiguous to the pivot thereof and having its arms connected with the brake-beam, and a thrust-bar on the tongue, said thrust-bar also having a connection with the arms of the crank-shaft.

25. An automatic wagon-brake comprising a brake-beam, a brake-beam carrier pivotally mounted between the brake-beam and axle, brake connections for operating the brake-beam, brake-shoes having pointed end portions, and V-shaped scrapers carried by the pointed end portions of the brake-shoes.

26. In a wagon-brake, the combination with a brake-beam and operating means therefor, said beam being provided with a longitudinally-disposed slot, of a brake-shoe, a brake-shoe holder connected to the brake-beam, and a bolt connecting the shoe-holder and the beam, said bolt passing through the slot of the beam, whereby the brake-shoe may be adjusted laterally to bring it into alignment with the wheel-tire.

27. In a wagon-brake, the combination with a movable beam secured to a vehicle, of a bracket fastened to the tongue of the vehicle below the pivot thereof, a crank-shaft pivoted upon the bracket and provided with a crank-arm, an adjustable connection between the crank-arm and the brake-beam, and a push-rod located upon the tongue and connected with said crank-arm.

28. In a wagon-brake, the combination with the brake-beam carrying shoes, of a hook slidably mounted upon the running-gear of the vehicle, connections between said hook and beam, a yoke having an engagement with the hook, a push-bar located upon the tongue, and a rod having a connection with the push-rod and adjustably secured to the yoke.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE S. NEAL.  
HENRY C. NEAL.

Witnesses:

ALEX HULTS,  
JOHN C. MAUS.