No. 841,698. PATENTED JAN. 22, 1907.

J. N. LAWRENCE.

AUTOMATIC BRAKE.

APPLICATION FILED JUNE 19, 1906.

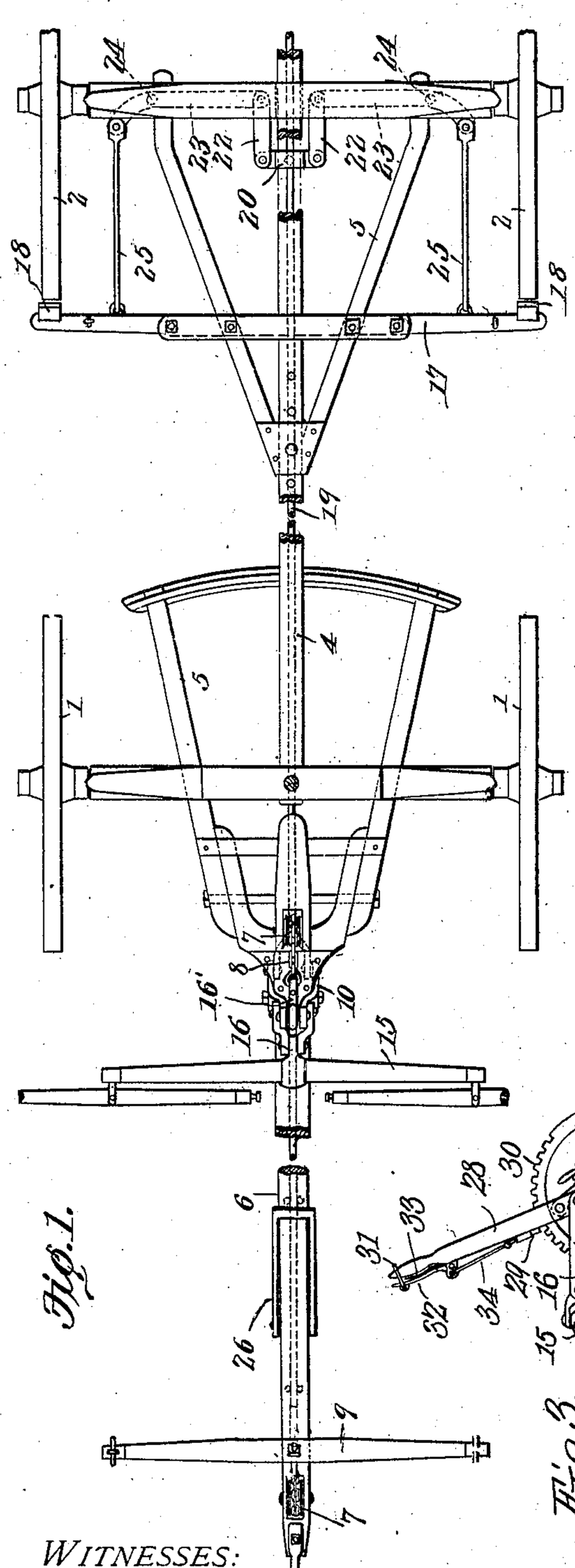

Fig. 1.

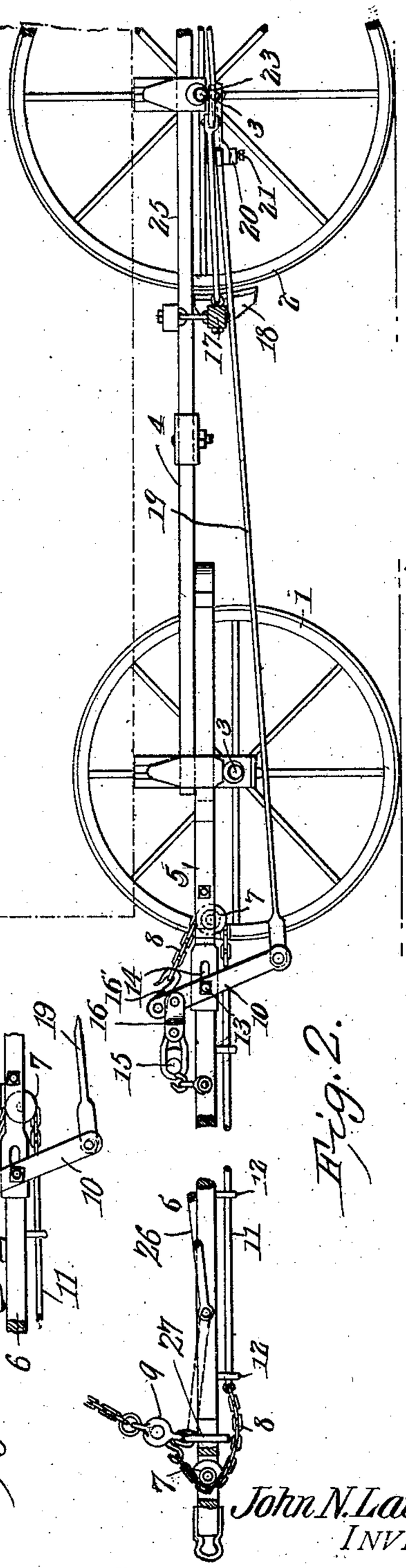

Fig. 2.

Fig. 3.

WITNESSES:

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AUTOMATIC BRAKE.

No. 841,698. Specification of Letters Patent. Patented Jan. 22, 1907.

Application filed June 19, 1906. Serial No. 322,455.

To all whom it may concern:

Be it known that I, JOHN N. LAWRENCE, a citizen of the United States, residing at Nevada, in the county of Vernon and State of Missouri, have invented a new and useful Automatic Brake for Vehicles, of which the following is a specification.

This invention relates to vehicle-brakes, and more particularly to brakes of that class which are automatically set by the back pull exerted by the horses or by the combined effect of the back pull and the weight of the wagon, tending to cause the latter to move in opposition—as, for example, when traveling downgrade.

One of the objects of the invention is to provide a simple and effective brake device of this character by which the brake-shoes can be set with a minimum of power required for the purpose.

A further object is to employ improved means for readily disengaging the brake-shoes by a forward pull of the horses.

Another object is to provide a simple device for rendering the brake mechanism inoperative when it is desired to back the vehicle.

With these objects in view and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, as will be hereinafter fully described, and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a plan view of a vehicle equipped with the brake mechanism. Fig. 2 is a side elevation thereof with the wheels nearest the observer removed. Fig. 3 is a side elevation of a modified form of mechanism for throwing the brake out of commission.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, the running-gears of a farm-wagon of the extension type is shown, the same comprising front and rear road-wheels 1 and 2, axles 3, a coupling-pole 4, hounds 5, and tongue 6. The wagon is of ordinary construction, since the invention is not limited by the same.

At the ends of the tongue 6 are mounted in vertically-extending slots or openings sheaves 7, arranged to rotate on horizontal axes. Around the sheaves pass cables or chains 8, one of which connects with the neck-yoke 9 and the other with a substantially vertically extending forked lever 10 at the rear of the tongue. The chains or cables are connected together by a rod 11, disposed under the tongue and supported thereon by staples or other devices 12. The forked lever is fulcrumed on a pivot 13, extending through a slot 14 in the tongue. The upper end of the lever carries a rearwardly-extending hook, to which the rear chain 8 is connected. Located in front of the lever 10 and at the upper side of the tongue is the doubletree or other draft device 15, that is connected to the upper end of the lever by a suitable means, such as indicated at 16. By this arrangement when a forward pull is exerted by the horses on the draft device 15 the lever 10 is tilted at its upper end toward the front. Also when the pull is exerted on the neck-yoke in a backward direction the lever is tilted in the opposite direction through the chains 8 and rod 11, connected to the lever by the hook 16′.

The tilting of the lever 10 is made use of for setting and releasing the brake-shoes. The brake-shoes may be arranged to operate on the front wheels of the vehicle. In the present illustration they are adapted to operate on the rear wheels, and they are of that type designed to engage the tires thereof. Suitably supported on the the running-gears at a point in front of the rear wheels is a transversely-extending brake-beam 17, on the ends of which are brake-shoes 18. The brake-beam is actuated for setting or releasing the brake-shoes by means of a longitudinally-extending rod 19, that is forked at its front end and pivotally connected to the lower forked end of the lever 10. The rod 19 is disposed under the coupling-pole 4 of the wagon and is supported at its front end by the lever 10 and at its rear end by an adjustable block 20. This block is provided with a central opening through which the rod extends and is held in place therein by the set-screw or bolt 21. The opposite ends of the block have pivoted thereto the links 22, which are themselves connected each to a lever 23, disposed under and pivoted adjacent their outer ends, as indicated at 24, to the rear axle. These levers are of the first order, and their outer ends are linked or flexi-

bly connected to the brake-beam 17 by the links 25. By this arrangement when the horses pull forward the actuating-rod 19 is moved rearwardly, thereby causing the brake-beam to be moved away from the wheels, so as to release the brake-shoes. When, however, a rearward pull is brought to bear upon the neck-yoke, the actuating-rod 19 is moved in a forward direction, thereby setting the brakes. It has been found that in actual practice a pull of comparatively little power on either the doubletree or neck-yoke is sufficient to positively set and release the brakes. In a brake mechanism of this character provision is necessary for enabling the horses to back the vehicle on occasions without causing the brake-shoes to become set. One method for doing this is to employ a U-shaped lever 26, pivoted on the tongue at a point located at the rear of the neck-yoke 9. Normally the lever is in the position shown in Figs. 1 and 2, and when it is desired to throw the brake out of commission the lever is swung to the position in dotted lines, Fig. 2, so that the free end of the lever will lie at the rear of and engage the ring 27, that holds the neck-yoke on the tongue. The draft on the neck-yoke incident to backing the vehicle is prevented from setting the brake-shoes, since the neck-yoke is held from moving back on the tongue.

Referring to Fig. 3, a modified means is shown for rendering the brake mechanism inoperative. This comprises a toothed sector 30, arranged on the rear of the tongue, along which a lever 28, which is preferably an extension of the forked lever 10, is adapted to move. This lever is provided with a latch mechanism, the dog 29 of which is normally held out of engagement with the teeth of the sector by means of a retaining-loop 31 on the grip member 32 of the latch mechanism. The loop 31 engages around the handle of the lever and holds the latch-string 33 compressed and the dog 29 raised by means of the link 34. By this arrangement the brake-shoes can be automatically set and released upon descending a hill and reaching the level again without the latch mechanism interfering. When it is desired to back the vehicle, the loop 31 of the latch mechanism is released, so that the dog 29 will be caused to engage the toothed sector, thereby preventing the draft on the neck-yoke from setting the brakes. It will be noticed that the lever is within reach of the driver, so that it will be unnecessary to dismount to throw the brake out of commission for backing the vehicle.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that various changes in design and modifications may be made when desired as are within the scope of the invention.

What is claimed is—

1. The combination with the running-gear of a vehicle, and a draft device comprising a tongue, a neck-yoke, and a doubletree, of a brake mechanism for the vehicle comprising brake-shoes, a lever mounted on the tongue, means carried by the tongue for actuating the lever by the neck-yoke, a pivotal connection between the lever and doubletree for permitting the latter to move up and down independently of the lever and tongue, and a connection between the lever and brake-shoes for setting and releasing the latter.

2. A draft device for a vehicle comprising a tongue, a neck-yoke, and a doubletree, in combination with a brake mechanism comprising a lever on the tongue to which the doubletree is attached, a fulcrum for the doubletree-supporting lever movably mounted on the tongue, a flexible connection extending from the neck-yoke to the lever, sheaves on the tongue for the flexible connection, brake-shoes adapted to engage the wheels of the vehicle, and a connection between the lever and the brake-shoes.

3. A draft device for a vehicle comprising a tongue, a neck-yoke, and a doubletree, in combination with a brake mechanism comprising a lever, means for supporting the doubletree on the lever at one side of its fulcrum and arranged to permit the doubletree to move up and down independently of the tongue, a connection between the neck-yoke and the lever on the same side of its fulcrum and comprising a rod guided on the tongue and flexible elements connecting the ends of the rod to the neck-yoke and doubletree, brake-shoes, and a connection between the brake-shoes and the lever on the side of its fulcrum opposite from the doubletree.

4. The combination with a running-gear of a vehicle, brake-shoes, and a draft device comprising a tongue, a neck-yoke, and a doubletree, of a mechanism for actuating the brakes, said mechanism comprising a rod, staples for movably mounting the rod on the under side of the tongue, sheaves mounted on the ends of the tongue, flexible elements between the ends of the rod and passing over the sheaves, hook connections between the flexible elements and the yoke and doubletree, a lever on the tongue, means for supporting the doubletree on the lever, a sector-rack on the tongue, a latch mechanism on the lever for holding the lever in fixed position with respect to the rack, and means for holding the latch mechanism out of engagement with the said rack to permit the lever to move freely.

5. A draft device for a vehicle comprising a tongue, a neck-yoke, and a doubletree, in combination with a brake mechanism com-

prising a forked lever straddling and pivoted on the tongue, sheaves arranged one on each side of the lever, a flexible connection extending between the neck-yoke and lever and passing over the sheaves, hooks on the neck-yoke and lever for attachment with the flexible connection, means for hanging the doubletree on the lever and permitting the former to move up and down independently of the tongue, brake-shoes, and means for connecting the brake-shoes with the lever.

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

JOHN N. LAWRENCE.

Witnesses:

P. L. SWEARINGEN,

JAS. RUSSELL.