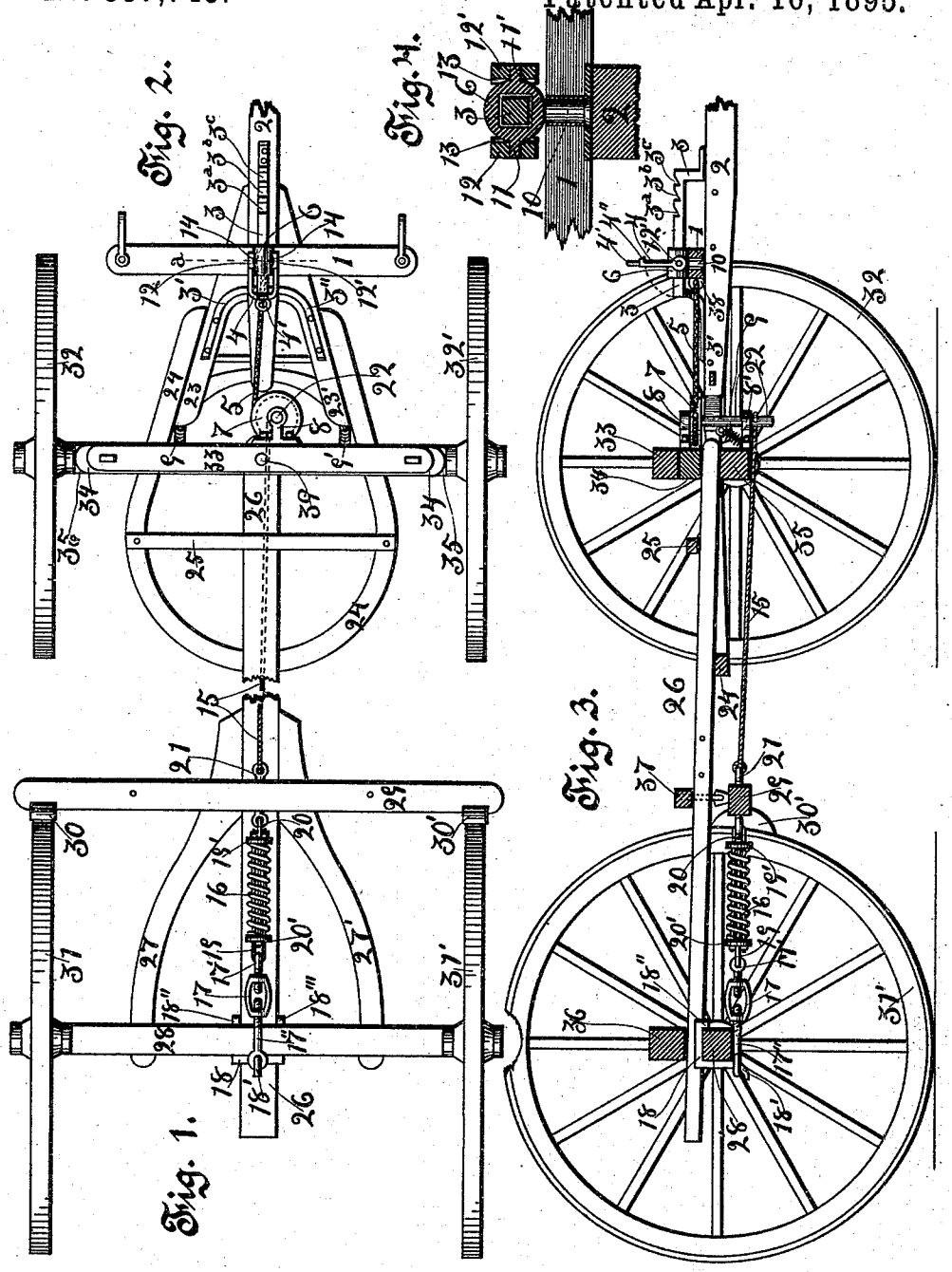
(No Model.)

G. BOWLER.

AUTOMATIC BRAKE FOR VEHICLES.

No. 537,745. Patented Apr. 16, 1895.



Witnesses
Will Wilkinson
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By his Attorney Lou. Vaughan.

UNITED STATES PATENT OFFICE.

GILES BOWLER, OF LAYTON, ASSIGNOR OF ONE-FOURTH TO JOHN DEWSNUP, OF DESERET, UTAH TERRITORY.

AUTOMATIC BRAKE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 537,745, dated April 16, 1895.

Application filed June 21, 1894. Serial No. 515,230. (No model.)

To all whom it may concern:

Be it known that I, GILES BOWLER, a citizen of the United States, residing at Layton, in the county of Davis and Territory of Utah, have invented a new and useful Automatic Brake, of which the following is a specification.

My invention relates to improvements in vehicle brakes wherein the brake shoes are drawn in contact with the wheels by the resilience of a spring and are drawn off the wheels by the draft of the team against the action of the spring, and the objects of my invention are, first, to provide such a contrivance that will not interfere with the use of dump-planks, or sectional dumping beds, or be broken or obstructed by loads dumped or dropped through the running-gear of the wagon; second, to provide a brake that can be readily and easily attached to wagons in use without injuriously cutting or boring the wagon frame or running-gear; third, to provide an automatic brake of the character stated, in which the lines, cables or chains connecting the team with the brake-beam are not bent or frictionally obstructed when the running-gear of the wagon is being turned around; fourth, to combine with the brake mechanism a pole support so as to compensate the strain on the king-bolt caused by the brake or pole support. I attain these objects through the medium of mechanism disclosed in the accompanying drawings of the running-gear of a wagon with the brake attached, in which—

Figure 1, is a view of the under side of the hind part. Fig. 2 is a top view of the fore part. Fig. 3 is a vertical section parallel with the reach 26; and Fig. 4 is a detail in section on the broken line "a" of Fig. 2, of the sliding connection of the draft tree 1, with the pole 2.

Similar numerals refer to similar parts throughout the several views.

The brake beam 29 is suspended below the reach 26 by being loosely connected by links to the bar 37 resting in the reach and fore ends of the hounds 27 and 27′ and has at its ends the usual shoes 30 and 30′ to bear on the peripheries of the hind wheels 30 and 31′.

16 is the spring which I prefer to use by compression rather than tension, by passing the U shaped loops 19 and 20 through the spring in opposite directions, the open ends of the loops provided with the washers 19′ and 20′ to bear against the ends of the spring; one of the loops being attached to the eye-bolt 21 at the center of the brake beam, the opposite one connected with the rear axle by the turn-buckle 17 having the terminal threaded eye-bars 17′ and 17″. The spring thus normally draws the shoes against the wheels and with a force that may be varied and adjusted to the load being drawn, by means of said turn-buckle.

To attach the turn-buckle to the axle, I use the yoke 18 consisting of a bifurcate portion embracing the top of the axle and astride the reach the terminals 18″ and 18‴ projecting downward on the front face of the axle. The branches lying parallel with and adjacent to the reach on top of the axle and converging downward across the rear face of the axle terminate below in the rearwardly and downwardly projecting hook 18′ adapted to engage the eye-bar 17″ of the turn-buckle. See Figs. 1 and 3. This yoke may be placed or displaced without in any manner cutting or disfiguring the axle, when the eye-bar is disengaged and is self fastening, requiring no screws, bolts or other like means to retain it in position.

The cable or chain 15 has its rear end attached to the eye-bolt 21 on the front of the brake beam, its forward end attached to and adapted to wind on the revoluble vertical shaft 22 which is pivoted at its upper end in the bracket 8 attached to the front of the sand board 34 by lag-screws or small bolts, and at its lower end in a like bracket 8′ fastened to the front face of the forward axle 35 at its lower edge, the lower end of the shaft projecting enough below the axle to receive the cable 15. Above on the shaft and revolving therewith is fixed the grooved wheel 7 adapted to carry and wind thereon the chain 5, which has its rear end attached in the groove of the wheel, and its forward end fastened to the center of the draft-tree 1, by the staple 38, so that forward draft on the draft-tree revolves the wheel and shaft winding up the cable and drawing the brake shoes from the wheels against the action of the spring.

The wheel 7 and shaft 22 are made as small

as consistent, and are located as near to the king-bolt 39 as possible, so as to reduce the eccentricity to the minimum, first, to keep the cable 15 directly under the reach, and, second, to reduce the variation of distance between the brake-beam and shaft caused by the revolving of the axle on the king-bolt in turning the wagon.

The draft-tree at its center is pivoted under and to the thimble 6, on the pivot 10 which is an integral part of the thimble. The thimble 6 is loosely fitted to slide on the square guide bar 3, which is attached to the top of and parallel with the pole 2, and which for convenience and strength has its rear end forked, forming the branches 3′ and 3″ agreeing with and attached to the hounds 23 and 23′ on the pole. By this means the draft-tree is retained in place and free to move backward or forward. The U shaped reversible detent 4 has at the ends of its prongs the bosses 12 and 12′ perforated to receive the pivots 11 and 11′ projecting centrally from opposite sides of the thimble 6, and on which pivots the detent swings forward and backward to engage either the forward end of the guide-bar to hold the brake off while backing, or when otherwise desirable, or to engage the rear end when it is desired to keep the brake continually on. The upper or outer end of the detent has the lip or hook 4″ to engage the forwardly hooked notches 3^a, 3^b and 3^c, to automatically catch and detain the brake off, by a slight start ahead of the team, when, for instance, the team and wagon were in a place where it was necessary to back out and the load was so light or the ground sloped forward so as to prevent draft enough on the draft-tree to close the latch over the forward end of the guide-bar. The U shaped part of the detent serves as a spring to press the bosses against the sides of the thimble, the bosses being concaved to fit the sides of the thimble, see 13, 13, and hold the detent parallel with the guide-bar or pressing down on the same, and having the transverse concavities 14 14 to hold the detent vertical as in Fig. 3. The detent has also the eye 4′ by which a chain or rod may be attached to manipulate it from the wagon bed or load.

By attaching the spiral springs 9 and 9′ at the rear ends of the pole hounds 23 and 23′ and connecting the opposite ends of the springs to the forward lower angle of the axle, I draw these ends of the hounds down and raise the pole at the tip, or forward end. The draft of these springs tends to revolve the under side of the axle forward, while the draft on the cable 15, and the chain 5, in reference to the axle, is in an opposite direction to that of the springs 9 and 9′. Hence they compensate or neutralize each other's action on the axle taking the strain off the king-bolt and other parts of the gear.

It will be observed that the principal parts of my contrivance are located directly under the reach where they are not injured by loads dumped down through the wagon gear.

It will also be seen that the hook 4″ will automatically move forward from one notch to another on the guide-bar without operating it by hand, the notches being so shaped as not to engage the hook in a forward movement. Hence any sudden starting of the team does not break the hook.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an automatic wagon brake of the character described the detachable self fastening yoke to connect the spring with the rear axle, consisting of a bifurcate part, the branches embracing the top of the axle astride the reach and terminating downward on the front face of the axle, the branches converging downward across the rear face of the axle and terminating below in a rearwardly projecting hook, substantially as described.

2. In an automatic wagon brake the combination of a reciprocating brake-beam, a spring to actuate the brake-beam toward the hind wheels, a turnbuckle to adjustably connect the spring with a detachable self-fastening yoke consisting of a bifurcate part, the branches embracing the top of the axle astride the reach and terminating downward on the front face of the axle, said branches converging downward across the rear face of the axle and terminating below in a rearwardly projecting hook to engage the eye-bar of the turnbuckle, a cable attached to the brake-beam and connected to a reciprocating draft-tree to draw the brake from the wheels substantially as described.

3. In an automatic wagon brake the combination of a reciprocating brake-beam acuated by a spring having a turnbuckle connection to a detachable self-fastening yoke consisting of a bifurcate part the branches embracing the top of the axle astride the reach and terminating downward on the front face of the axle, said branches converging downward across the rear face of the axle and terminating below in a rearwardly projecting hook to engage an eye-bar in the turnbuckle, the brake-beam connected to a draft-tree pivoted to a thimble to slide on a guide-bar parallelly attached to the wagon pole, a spring U shaped detent having bosses at the ends of its prongs that bear against the thimble pivoted between the bosses, concaves in the bosses to fit the thimble and hold the detent in different positions substantially as described.

4. In an automatic wagon brake of the character described, the combination of a draft-tree pivoted to a thimble to slide on a guide-bar parallelly attached to the wagon pole, a U shaped detent having bosses at the ends of its prongs and pivoted to the thimble between the bosses, the curved part of the detent serving as a spring to press the bosses against the thimble, concaves in the bosses to fit the thim-

ble and hold the detent in different positions or bearing on the guide-bar, substantially as described.

5. In an automatic wagon brake the combination of a reciprocating brake-beam actuated by a spring connected by a turnbuckle to a self-fastening yoke adapted to engage the rear axle, a wheel carried by a revoluble, vertical shaft journaled centrally to the front axle, a cable attached to the brake-beam to wind on the shaft, the wheel actuated by a cable connected to a draft-tree pivoted to a thimble loosely fitted to slide on a guide-bar parallel with the pole, a U shaped spring detent having bosses at the ends of its prongs to bear against the thimble pivoted between the bosses, concaves in the bosses to engage the thimble and hold the detent in different positions substantially as described.

6. In a combined automatic wagon brake and pole support the combination of a reciprocating brake-beam actuated toward the rear wheels by a spring, a vertical revoluble shaft pivoted on the fore axle and actuated by a reciprocating draft-tree connected therewith, the lower end of the shaft projecting below the axle to attach and wind thereon a cable connected to the brake-beam, spiral springs attached to the forward lower angle of the fore axle and to the rear ends of the hounds on the pole to draw down on the ends of the hounds and up and forward on the axle, substantially as described.

Signed at Blair, in the county of Washington and State of Nebraska, this 28th day of May, 1894.

GILES BOWLER.

Witnesses:
B. C. MAYNARD,
WILLIAM G. HIGLEY.

Corrections in Letters Patent No. 537,745.

It is hereby certified that in Letters Patent No. 537,745, granted April 16, 1895, upon the application of Giles Bowler, of Layton, Utah Territory, for an improvement in "Automatic Brakes for Vehicles," errors appear requiring correction as follows, viz: In line 7, of the grant and in the printed head of the specification, it is stated that said Bowler assigned "one-fourth" to John Dewsnup, whereas it should have been stated that he assigned *one-half;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 30th day of April, A. D. 1895.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,
Commissioner of Patents.