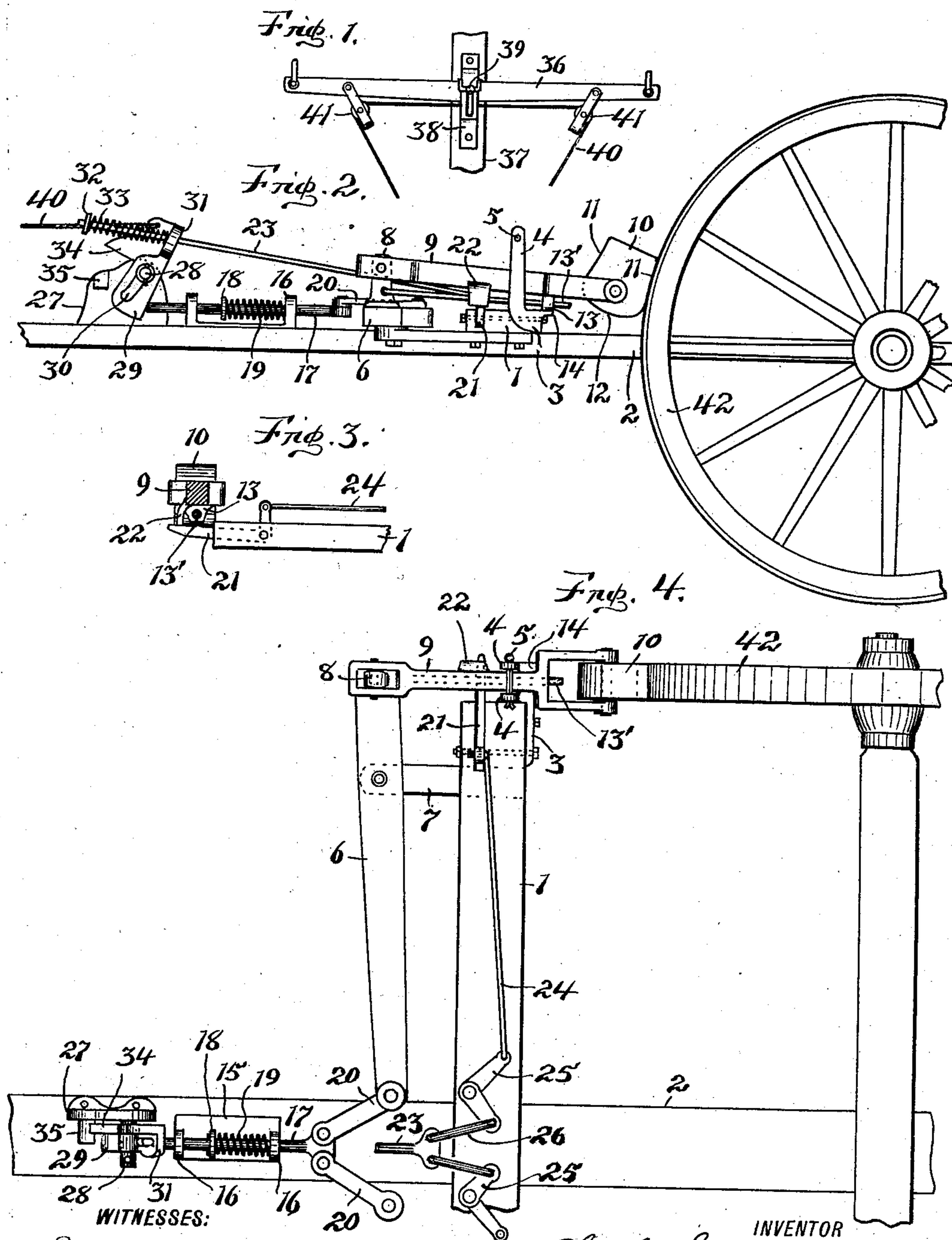


No. 889,451.

PATENTED JUNE 2, 1908.

C. GARVER.  
AUTOMATIC WAGON BRAKE.  
APPLICATION FILED MAR. 15, 1906.



WITNESSES:  
M. Mittler  
M. C. Robinson

INVENTOR  
Charles Garver  
BY  
A. G. Burns  
ATTORNEY



# UNITED STATES PATENT OFFICE.

CHARLES GARVER, OF FORT WAYNE, INDIANA.

## AUTOMATIC WAGON-BRAKE.

No. 889,451.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed March 15, 1906. Serial No. 306,112.

*To all whom it may concern:*

Be it known that I, CHARLES GARVER, a citizen of the United States of America, and resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Automatic Wagon-Brakes, of which the following is a specification.

This invention relates to improvements in automatic wagon brakes, and the object thereof is to afford simple mechanism which will operate automatically as an up-hill brake as well as for down hill. This object is accomplished by the construction illustrated in the accompanying drawings in which

Figure 1 is a detail plan view showing the connection of the double-tree and actuating cable; Fig. 2 is a side elevation of the brake mechanism in position on the wagon gear; Fig. 3 is a detail of one end of the brake supporting beam showing engagement of one bell-crank with the brake arm; and Fig. 4 is a partial plan view of the brake mechanism, with bell-crank actuating rod omitted.

Similar numerals of reference indicate corresponding parts throughout the several views, and referring now to the same:

1 is a brake-beam fixed transversely in rigid connection with the coupling pole 2 of the wagon gear, and 3 are guide castings fixed at the respective outer ends of the beam, said castings each having upwardly projecting arms 4 with a pin 5 extending through their ends.

6 are brake levers, each being fulcrumed near its outer end to a corresponding supporting plate 7 which projects forwardly from the adjacent end of the beam. Each lever has an upwardly projecting post 8 at its outer end, and a corresponding vertical swinging arm 9 is pivoted at its forward end to said post. The shank of each arm extends between the arms 4 of the corresponding casting 3 and is limited in upward movement by the pin 5. The rear ends of the arms 9 are each bifurcated and have pivoted therein a corresponding brake shoe 10. These shoes are of particular form having oppositely disposed faces 11 which are joined at one end of the shoe by a curved face 12. A depending lug 13 projects from each of the arms coincident with the bifurcated end thereof and is adapted to strike against a lug 14 on the corresponding casting 3 when the arm is in lowermost position. A lock bolt 13' projects loosely through the lug 13 and

its other end is pivotally attached to the post 8 at a point thereon beneath the pivotal connection of the arm 9 therewith, so that when the arm is raised the bolt will move forwardly in the lug 13 so as not to interfere with the turning of the shoe 10, but when the arm is in lowermost position the rear end of the bolt extends sufficiently to engage the long end of the shoe and prevent the same from turning.

Upon the coupling pole is fixed a casting 15 having upwardly projecting lugs 16 and in said lugs is mounted a sliding shaft 17 having a collar 18 fixed thereon at a point between said lugs, and a compression spring 19 is mounted upon said shaft and interposed between said collar and the rearmost lug 16, the spring acting to hold the shaft in forward position. The rear end of the shaft 17 has respective connections with the brake levers 6 by means of corresponding links 20, and said bolt is adapted to actuate said levers to move the corresponding arms 9 rearwardly.

At each end of the beam 1 is pivoted a bell crank 21, one end of which extends horizontally and engages the lower end of a lug 22 which depends from the outer edge of the shank of the corresponding arm 9, and when the bell cranks are actuated the arms 9 are adapted to be raised thereby. The bell cranks have actuating connection with an operating rod 23 by means of intermediate corresponding connecting rods 24, angle levers 25 and links 26, so that when the operating rod is moved forward the arms 9 will be raised accordingly.

Upon the coupling pole 2, at a point thereon forward of the casting 15 is mounted a bracket 27 having a lateral stud 28 projecting therefrom, and a tumbling block 29 is mounted upon said stud, the latter extending through a curved slot 30 in the former. A lug 31 projects from the side of the block 29 at the upper end thereof and the forward end of the operating rod 23 extends through said lug, and a collar 32 is fixed upon the rod 23 and a spring 33 is mounted on said rod between said lug and collar. The block 29 has a forwardly projecting jaw 34 which is adapted to act against a stop 35 which projects laterally from the bracket 27.

The block 29 has actuating relation with a doubletree 36, the latter being of the usual type but coupled with the tongue 37 of the wagon so as to have limited movement relative thereto lengthwise respecting the tongue.



This is accomplished by securing a slotted strap 38 upon the tongue and securing the doubletree by means of a coupling pin 39 through the slotted strap. The connection  
 5 between the doubletree and block 29 is made by means of a cable 40 which is attached to the block at the upper end thereof and to the doubletree by means of swiveled pulleys 41 which are attached to the doubletree respec-  
 10 tively at points near the outer ends thereof.

In the operation of this invention, when the doubletree is pulled forward by the draft of the team, the tumbling block 29 acts against the end of the shaft 17 which com-  
 15 presses the spring 19 and actuates the levers 6 so that the arms 9 are moved forwardly; and the lug 31 on the tumbling block acts against the spring 33 which tends to draw the rod 23 forwardly, and consequently the outer  
 20 ends of the bellcranks 21 exert lifting force against the lugs 22 of the corresponding arms 9.

The backward movement of the shaft 17 has the effect of withdrawing the shoes 10 from frictional contact with the wagon-  
 25 wheels 42, and the forward movement of the rod 23 has the effect of lifting the arms 9 to their uppermost position, so that it will appear that the shoes will then be held from contact with the respective wagon-wheels.

In descending a grade, the cable 40 will then be slack because the draft of the team will have ceased, and the tumbling block 29 will be free to be moved by the shaft 17 and spring 33. When the conditions are thus,  
 30 the spring 19 will move the shaft 17 forwardly, and the arms 9 having relation therewith will consequently be moved rearwardly and the shoes 10 will be moved into contact with the wheels. As the wheels 42 rotate  
 40 forwardly the corresponding shoes 10 will turn upon their bearings until their curved faces 11 rest against the faces of the wheels, and because of the frictional engagement and forward rotation of the wheels, the arms 9  
 45 will swing downward until stopped by their lugs 13 coming into contact with the lugs 14 respectively. The pressure of the shoes against the wheels will be relieved sufficiently to allow the wagon to gravitate down-grade  
 50 when the spring 19 is sufficiently compressed by the action of the tumbling block against the end of the shaft 17. Thus the movement of the wagon forward will require slight draft of the team sufficient to hold the brakes from  
 55 acting against the wheels. It will be noted that the faces 11 of each shoe are farther distant from the pivotal axis thereof than the curved face 12, so that when the shoe 10 rotates to the position shown in Fig. 2, the arm  
 60 9 will have been moved forwardly and consequently the spring 19 on the shaft 17 will have become compressed thereby. When the brake is no longer required the shoes are removed from the wheels when the tension  
 65 again occurs respecting the cable 40 and the

tumbling block 29 is thereby operated as before described.

This apparatus also serves as an uphill brake: In ascending a hill, assuming the faces 12 of the shoes to be uppermost, the  
 70 tumbling block is turned upon the stud because of the tension of the cable, and the jaw 34 on the block will thereby be drawn into contact with the stop 35, and because of the slot 30 and the action against the stop 35, the  
 75 lower end of the block will move upwardly and become disengaged entirely from the shaft 17, so that the latter will move forward under the action of the spring 19. When this occurs the action of the block against the  
 80 spring 33 tends to move the rod 23 forwardly and consequently the arms 9 are held in their uppermost position and at the same time move rearwardly because of the action of the shaft 17. While the arms 9 are thus elevated  
 85 the bolts 13' are moved forward so as not to prevent the shoes from turning. Thus should the wagon retract and the wheels 42 rotate backwardly the shoes will turn over until their opposite curved faces 11 come into  
 90 contact with the wheels respectively, when, because of the length of the shoes, they can revolve no further. The wagon is then held from retracting further. When the wagon is again started forward the friction of the  
 95 wheels against the shoes will cause the latter to turn until their faces 12 meet the wheels, when, because the faces 12 are closer to the pivotal supports of the shoes than are the faces 11 the pressure of the shoes against the  
 100 wheels is relieved.

Another feature in the operation of this invention is that the brake will be ineffective when the team backs the vehicle: In this in-  
 105 stance the cable 40 is slack and the tumbling block is consequently idle, so that the shaft 17 moves forward and the tumbling block allows the rod 23 sufficient slack so that the arms 9 gravitate to their lower position. Thus the rear ends of the bolts 13' project  
 110 and interfere with the turning of the shoes, and consequently when the curved face 12 of each shoe comes against the rim of the corresponding wheel, and the latter moves upwardly when the vehicle is backed, the con-  
 115 sequent friction will cause the corresponding arm 9 to be carried upward so that the braking action of the shoe is ineffective.

Having described my invention what I claim as new and desire to secure by Letters  
 120 Patent is:

1. In apparatus of the class described, a supporting beam having a vertical guide at each of its ends, oppositely disposed brake  
 125 levers in pivotal connection at the respective outer ends of the beam, each lever having a vertical post at its outer end; a swinging arm in connection with each of said posts, the shanks of the arm extending in the corresponding guide; a brake shoe having a  
 130



curved end and oppositely disposed friction faces, pivoted in connection with the corresponding arm; a shaft having actuating relation with the inner ends of the levers, and having also a spring in connection therewith acting to hold the shaft in forward position; a bellcrank pivoted at each end of the beam, adapted to engage and lift the corresponding arm; an operating rod having actuating relation with the bellcranks; a tumbling block in pivotal relation with the coupling pole, having actuating relation with the operating rod and shaft to move the former forward and the latter backward; and a doubletree in movable connection with the tongue of the wagon and having actuating connection with the tumbling block.

2. In apparatus of the class described, two oppositely disposed brake levers, each pivoted near its outer end and having an arm in connection therewith; a brake shoe in connection with the arm; a shaft in actuating relation with said levers and having a spring in connection therewith to hold the same in forward position; and a tumbling block pivotally mounted, having actuating connection with the draft rig of the vehicle and being adapted to engage said shaft and actuate the same.

3. In an automatic wagon brake two oppositely disposed pivoted levers having vertically swinging arms in pivotal connection therewith respectively; a brake-shoe in connection with said arms adapted to engage

the corresponding wheel of the wagon; pivoted bellcranks suitably supported and adapted to respectively engage and lift said arms; a shaft having actuating relation with the levers and having a spring in connection therewith to hold the same in forward position; an operating rod in actuating relation with the bellcranks; and a tumbling block in connection with the draft rig of the wagon to be actuated thereby, the said tumbling block being adapted to actuate the shaft and rod.

4. In an automatic wagon brake a pivoted lever having a vertical post at its outer end; a vertical swinging arm pivoted near the top of the post, and having a depending lug near its opposite end; a locking bolt pivoted to the post at a point beneath the pivotal connection of the arm therewith, the forward end of the bolt extending loosely through the depending lug; and a brake shoe having a curved end and oppositely disposed friction faces, the said shoe being pivoted in connection with the arm, and adapted to become engaged by said bolt when the arm is in lowermost position; and means to actuate the lever.

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

CHARLES GARVER.

Witnesses:

W. G. BURNS,  
M. METTLER.