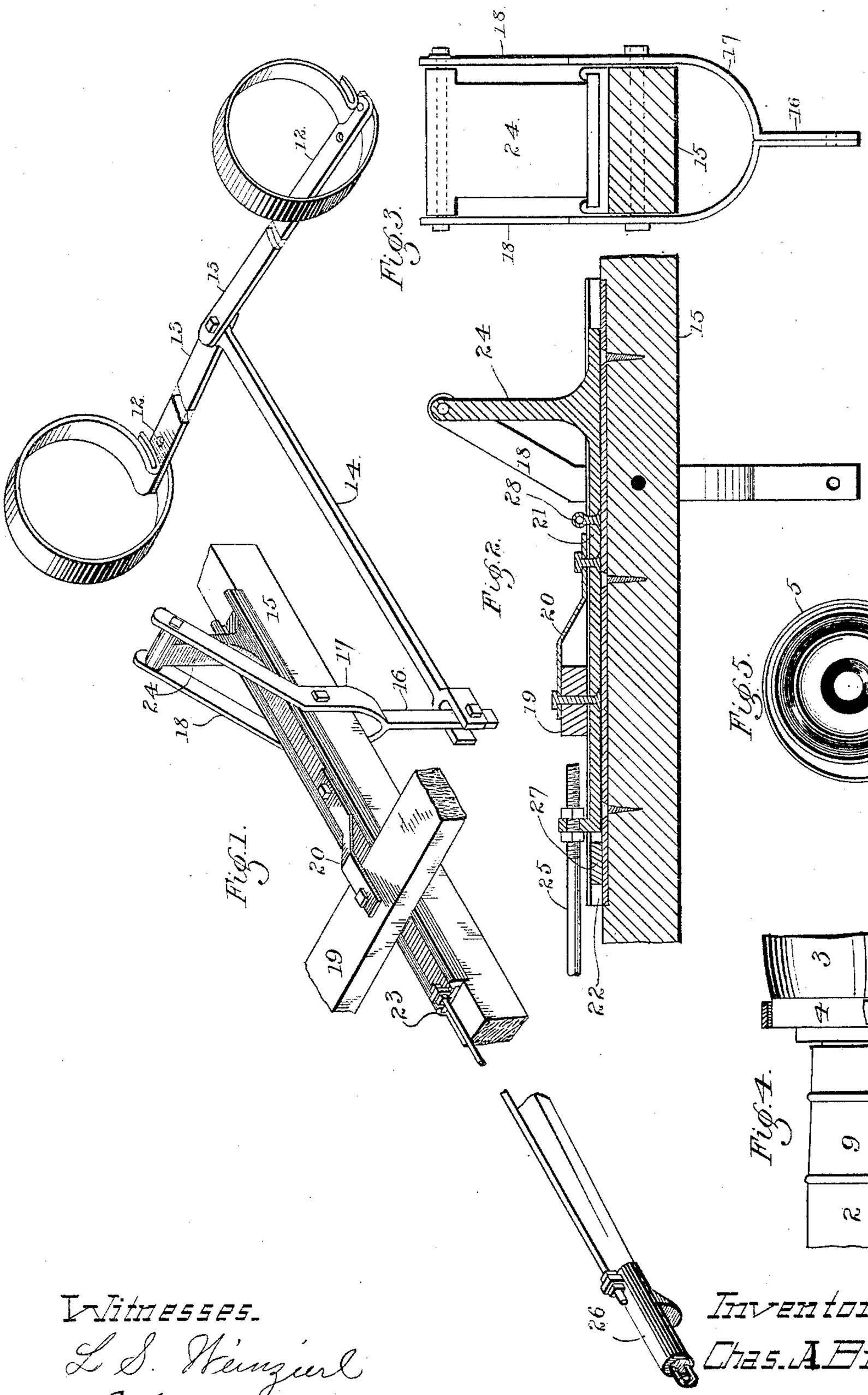
(No Model.)

C. A. BROST.

AUTOMATIC WAGON BRAKE.

No. 454,608. Patented June 23, 1891.



Witnesses.
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By Paul & Merwin Attys.

UNITED STATES PATENT OFFICE.

CHARLES A. BROST, OF LAKEVILLE, MINNESOTA, ASSIGNOR OF ONE-THIRD TO MALACHI J. LINEHAN, OF SAME PLACE.

AUTOMATIC WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 454,608, dated June 23, 1891.

Application filed September 2, 1890. Renewed May 28, 1891. Serial No. 394,441. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BROST, of Lakeville, Dakota county, Minnesota, have invented certain Improvements in Automatic Wagon-Brakes, of which the following is a specification.

My invention relates to improvements in brakes for ordinary road-wagons, which are adapted to be operated automatically by means of the forward thrust of the wagon itself in descending a hill; and it consists in an improved form of brake fitted to the hubs of the forward wheels and so connected with the neck-yoke of the team that when the pole is thrust forward against the neck-yoke the brakes are thereby applied, while with the opposite or drawing movement upon the wagon the brakes are loosened.

My invention further consists in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of my improved automatic brake, showing the manner of connecting the same to the pole of the wagon. Fig. 2 is a detail sectional side elevation of the sliding evener-carrying bar and its connections with the pole. Fig. 3 is a detail rear elevation of the same. Fig. 4 is a detail rear elevation and partial section of one of the brakes, showing the manner of applying the same to the wagon-hub; and Fig. 5 is a detail inner end elevation of the wagon hub and brake.

In the drawings, 2 represents the forward axle of the wagon; 3, one of the wagon-wheel hubs upon the same, the inner end of which is fitted with a broad band 4. Around this band is arranged a strap-brake 5, one end 6 of which is rigidly secured to the bar or arm 7, rigidly secured to or formed integral with the depending shoulder 8 of the axle-thimble 9. The other end 10 of the brake-strap is connected to the short arm 11 of the lever 12, which is pivoted at 13 to the shoulder 8. The long arm 13 of the lever 12 meets midway of the axle 2 and is pivoted to the common link 14, which extends forward under the wagon-pole 15 and is pivoted to the depending arm 16 of the yoke 17, which embraces and is pivoted to the pole with its members 18 extending above the same, and preferably behind the evener 19. The evener is pivotally supported and braced by the strap 20 in the ordinary manner upon the sliding bar 21, which is arranged in a guide 22 upon the top of the pole. This guide is preferably a bar of flat iron rigidly secured to the pole with its edges 23 overturned to engage the edges of the bar 21, and thus hold it in position. The bar 21 is provided with a vertical standard or arm 24, which is pivotally secured between the members 18 of the yoke 17. The bar 21 is rigidly secured by means of the rod 25 with the neck-yoke thimble 26, which thimble is adapted to slide upon the pole. It will thus be seen that with the forward movement of the evener 19, as the wagon is drawn forward by the team, the bar 21 and neck-yoke thimble 26 are drawn forward to their limit (which limit may be determined in any suitable way, as by the stop 27, rigidly secured upon the pole in front of the bar 21) and the link 14 is thrust backward by means of the yoke and its connections with the bar 21, thus carrying the short arms 11 of the levers 12 forward and expanding the brakes 5. When, however, the wagon, as carried forward by its own gravity in descending a hill, runs upon the team, the thimble 26, engaged by the neck-yoke, is thrust back upon the pole, together with bar 21 and its attachments, and by means of the yoke 17 carrying the link 14 forward, thus turning the short arms 11 of the levers 12 backward and contracting the brakes 5 upon the bands of the hubs. The grip of the brakes upon the hubs is thus practically proportioned to the forward thrust of the wagon, so that the brakes are applied more firmly the steeper the incline and the heavier the load, while by the first pull upon the evener of the wagon the brake mechanism is reversed and the brakes instantly released. The action of the brakes is therefore wholly automatic and determined by the incline of the road upon which the wagon is moved. In order that the mechanism may be set with the brakes off, so that the wagon may be backed by the team without the brakes being applied, any suitable means of holding the mechanism from moving may be employed—

as, for example, the pin 28 can be dropped into an opening 29 through the bars 21 and and 30 in the pole beneath, thus locking the bar 21 upon the pole and preventing the action of the brakes.

By carrying the brake-straps over and around the hub in the direction of the rotation of the hub with the forward movement of the wagon, so that the movement of the strap itself in gripping the hub-band is in the same direction, the brake is more efficiently applied, as the rotation of the hub assists in the gripping of the brake. If, however, the strap were oppositely wound the rotation of the hub would be in opposition to the motion of the brake in being applied and would render it less effective. This is an important and valuable feature in the construction and application of my invention.

I claim—

1. The combination, with the front wheel of a wagon, of a strap-brake encircling its hub and gripping the same in the direction of the forward movement of the wheel, a lever pivoted upon the axle and engaging said strap-brake, rigidly connected sliding evener and neck-yoke supports, and a pivoted lever linked at one end to said supports and at the other to said brake-lever, whereby the backward movement of the supports causes the brake to be applied and the forward movement causes it to be released, substantially as described.

2. The combination, with a wagon, of band-brakes engaging the hubs of the forward wheels, pivoted levers upon the axle operating said brakes, a longitudinally-sliding support for the evener linked to said levers, and a sliding neck-yoke thimble rigidly connected to said evener-support, whereby as said thimble slides upon the pole the brakes are operated, substantially as and for the purposes set forth.

3. In a wagon, the combination, with its forward wheels, of the brake-straps 5, encircling the wheel-hubs and having one end rigidly secured to the axle, the levers 12, pivoted to the axle and engaging the other end of said brakes, the sliding evener-carrying bar 21, arranged upon the pole and having the standard 24, the yoke 17, pivoted to the pole, engaging said standard and linked to the levers 12, and the sliding neck-yoke thimble 26, rigidly connected to said bar 21, substantially as and for the purposes set forth.

4. The combination, with the forward wheel of a wagon, of a brake-strap encircling the hub of the wheel, a horizontally-swinging lever pivoted to the axle engaging the loose end of said strap, adapted when operated to grip the brake upon the hub in the direction of the forward movement of the wheel, rigidly-connected sliding supports for the neck-yoke and evener upon the pole of the wagon, and mechanism connecting said supports with said lever, whereby the backward movement of the supports upon the pole, caused by the forward thrust of the wagon against the neck-yoke, causes the brake to be applied, and the forward movement of the supports upon the pole, caused by the pull of the team upon the wagon, serves to release the brake, substantially as and for the purposes set forth.

In testimony whereof I hereto set my hand this 22d day of August, 1890.

CHARLES A. BROST.

In presence of—
ELISHA BATTIN,
D. C. JOHNSON.