(No Model.)

C. A. BROST.

AUTOMATIC WAGON BRAKE.

No. 492,490. Patented Feb. 28, 1893.

Fig. 1.

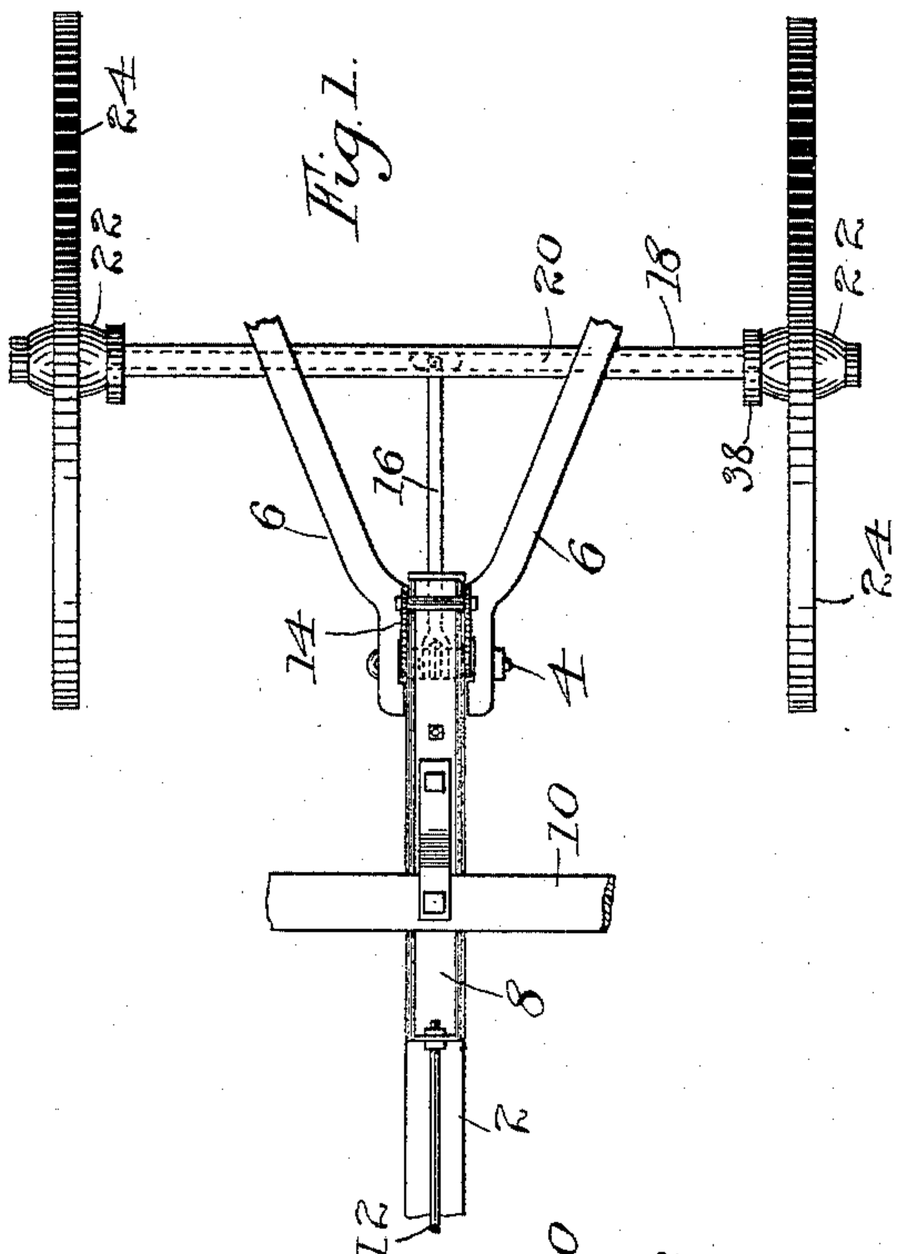


Fig. 2.

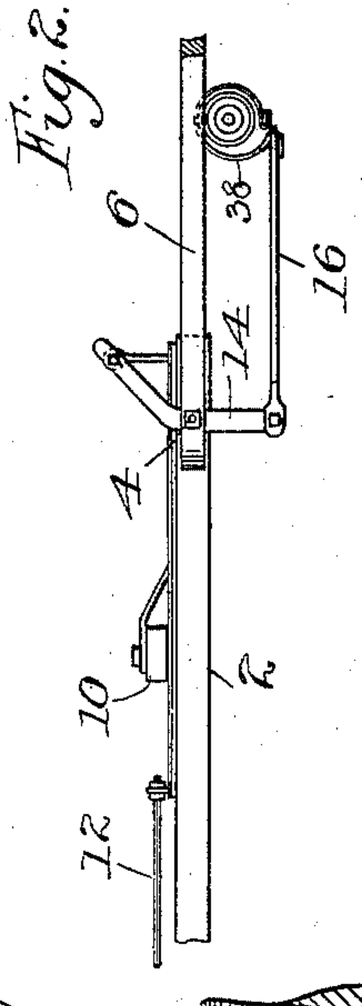


Fig. 4.

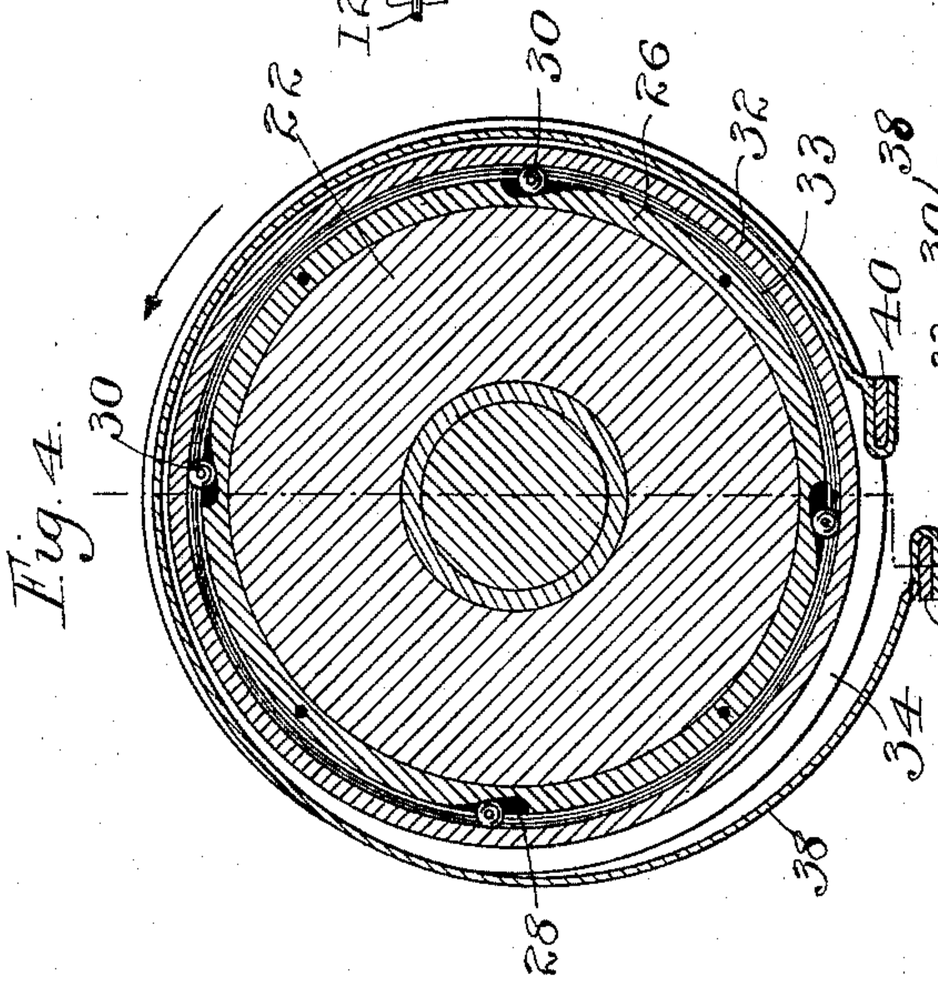
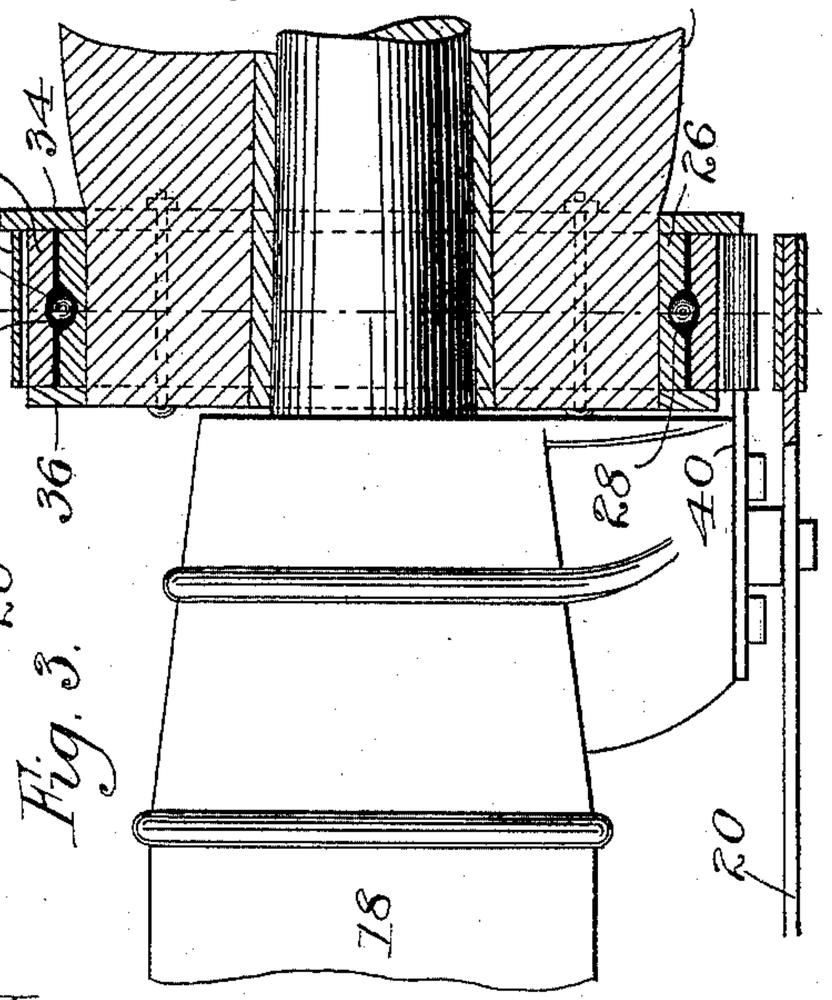


Fig. 3.



Witnesses:-
W. F. Caldwell.
H. S. Johnson.

Inventor:-
Charles A. Brost,
per Paul & Merwin
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES A. BROST, OF LAKEVILLE, MINNESOTA.

AUTOMATIC WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 492,490, dated February 28, 1893.

Application filed March 22, 1892. Serial No. 425,950. (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 that type of automatic wagon brakes, wherein the brakes are applied to the hubs of the wheels by means of suitable connections with the neck yoke of the team; its object being to provide means whereby the brakes are automatically thrown off the wheels when the wagon is backed" by the team. A serious practical difficulty exists in the use of ordinary automatic brakes, in preventing their operation when it is desired to back the wagon by the team, since the operation of the brake attachments are the same when the neck yoke is pulled backward on the tongue, without regard to the direction in which the wheels are turning. My invention obviates this difficulty, and consists in providing, in connection with the strap brake encircling the hub of the wheel, an intermediate band or bearing upon which the brake bears directly and in interposing a ratchet between it and the hub, by means of which the intermediate band is locked to the hub when the wheel is turning forward, but is released from it with the first backward movement of the wheel. By this means the brake checks or stops the wheel, as it moves forward of its own gravity against the team, but when the team backs the wagon, the wheel turns freely within the intermediate band, upon which the brake is clamped.

My invention further consists in the specific 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 partial plan view of the wagon gear, showing the sliding draft-evener supported upon the tongue, and the connections between the same and the brake operating levers. Fig. 2 is a detail side elevation of the tongue and the brake attachment. Fig. 3 is a detail, longitudinal section of the hub fitted with my improved attachment; and Fig. 4 is a cross-section of the same taken on line X—X of Fig. 3.

In the drawings 2 represents the tongue of the wagon turning on the pivot 4 between the hounds 6. Upon the top of it is arranged the sliding plate 8 to which the draft evener 10 is pivotally connected, the tongue also being connected by means of the rod 12 with the neck yoke or its support, (not shown.) Mounted also upon the pivot 4 are the levers 14, the upper ends of which are connected together and also connected to the plate 8. The lower ends of the levers are pivotally secured to the connecting rod 16, which extends back underneath the axle 18, where they are connected to the levers 20. These levers have pivotal support upon the end of the axle near the hub 22 of the wheel 24. The inner end of the hub is fitted with a band 26, in the periphery of which are the grooves or sockets 28, in each of which grooves is arranged a ball 30, as shown best in Fig. 4. Arranged loosely upon the band 26, is the band 32, forming a cylindrical bearing or idler wheel having the central inner groove 33 fitting over said balls, which is held in place preferably by means of the flanges 34 and 36. When the balls 30 are at the bottom or deepest part of the grooves, the band 32 will turn freely upon the hub, but when carried partially out of the grooves or sockets by the rotation of the wheel, the wedge between the band 26 and the groove of the band 32, thus locking them together. Upon the outside of the band 32 is arranged the strap or band brake 38, one end being connected to the bar or other fixed support 40 upon the axle, and the other being connected to the fulcrum end of the lever 20, as shown in Fig. 4.

Operation. When the wagon is drawn forward by the team pulling on the evener 10, the plate 8 is carried forward to the limit of its movement, swinging the fulcrum ends of the levers 20 forward, and throwing the brakes off the wheels, as indicated in Fig. 4. As the wheel turns forward in the direction indicated by the arrow in Fig. 4, the balls 30 tend to roll out of their sockets or grooved depressions, and are wedged between the hub band and the band 32, thus carrying the band 32 around with the wheel, and out of contact with the loosened strap brake 38. In descending a declivity as the wagon by force of its own gravity runs forward upon the team, the thrust of the neck yoke upon the rod 12 forces the plate

8 backward, which by means of the described connections operates the levers 20 and clamps the brake upon the band 32, which is held from turning by its ratchet connection with the hub, the wheel being thus checked or stopped in its movement. When the wagon is backed by means of the team, the operation of the described attachments causes the brake to be applied to the band 32, but this band is released from the hub band, because with the first backward movement of the wheel the ratchet balls 30 roll downward into the sockets or grooves, and out of contact with the band 32. The wheel thus turns freely, but with the first forward movement the band 32 is again clutched upon the hub and the brake released.

I claim—

1. In a device of the class described, the combination with the band provided with peripheral inclined grooves or sockets, of the balls arranged loosely in said sockets, the loose bearing band surrounding the same and adapted to be clutched thereon by said balls when moved partly out of the sockets, and the strap brake surrounding and adapted to engage said loose band, substantially as described.

2. In a device of the class described, the combination with the fixed band provided with peripheral inclined grooves or sockets, of the balls arranged loosely in said sockets, the loose band surrounding the same and adapted to make contact with said balls when the same are advanced partly out of the sockets, the strap brake encircling said loose band, and means for automatically clutching the same thereon, substantially as described.

3. In a device of the class described, the combination with a wagon wheel and its hub, of the band loosely surrounding the hub, the brake encircling the said band, and the ratchet connection between said band and the hub, whereby they are clutched together with the wheel moving in one direction, but disengaged with the opposite rotation of the wheel, substantially as described.

4. In a device of the class described, the combination with the hub band, of the band loosely inclosing the same, the flanges holding said loose band from lateral displacement, the ratchet connection between the said bands, the strap brake encircling said loose band, and means for automatically applying the same, substantially as described.

5. In an automatic wagon brake, the combination with the wagon wheel, of the strap brake surrounding the hub of the same, the connection between said brake and the neck yoke for applying the brake to the wheel with the backward thrust of the neck yoke upon the tongue of the wagon, and means for automatically disengaging said brake from said wheel with the backward rotation of the wheel, substantially as described.

6. In a device of the class described, the combination with the wagon wheel and its strap brake, of means interposed between said brake and wheel, whereby the wheel when moving in one direction is retarded by the brake as applied, but is free to turn in the opposite direction, substantially as described.

7. The combination of a wheel, a strap brake, means for automatically applying the brake as the wheel automatically moves forward, and means interposed between the brake and wheel for disengaging the same as the wheel turns in the opposite direction, substantially as described.

8. The combination with a wheel, of a strap brake therefor, a bearing for said brake independent of said wheel, and means for locking said bearing to said wheel, operated automatically by the forward movement of the wheel, and disengaged by its turning in the opposite direction, substantially as described.

9. The combination of the wheel, the brake, its rotatable friction bearing independent of said wheel, and the clutch interposed between said wheel and bearing adapted to be automatically operated by the forward movement of the wheel, and released by its backward movement, substantially as described.

10. The combination of the wagon wheel, the independent brake bearing, and the interposed clutch mechanism operated by said wheel when rotating in one direction, and released by its rotation in the opposite direction, substantially as described.

11. The combination of the wheel, the independent rotatable brake bearing, and the interposed clutch automatically operative as the wheel rotates in one direction, and inoperative as it rotates in the opposite direction, substantially as described.

12. The combination of the wagon wheel, the independent brake bearing, its brake, automatic means for applying said brake either by the forward thrust of the wagon upon the team or the backward thrust by the team upon the wagon, and a clutch mechanism interposed between said wagon wheel and brake bearing, operative only with the forward movement of the wheel, substantially as described.

In testimony whereof I have hereunto set my hand this 15th day of March, 1892.

CHARLES A. BROST.

In presence of—
T. D. MERWIN,
H. S. JOHNSON.