

(No Model.)

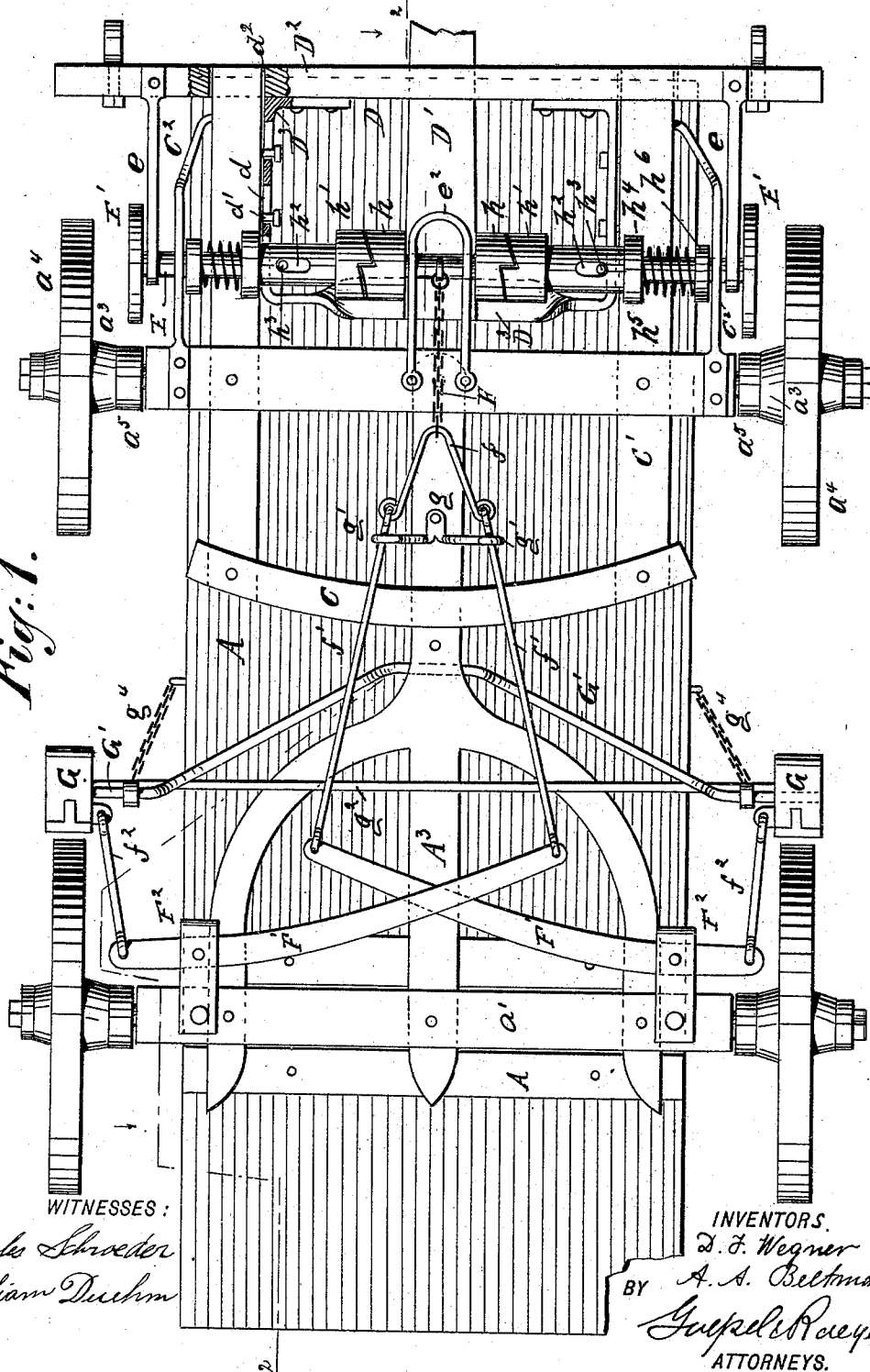
2 Sheets—Sheet 1.

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WAGON BRAKE.

No. 488,489.

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Fig. 1.



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WAGON-BRAKE.

SPECIFICATION forming part of Letters Patent No. 488,489, dated December 20, 1892.

Application filed July 19, 1892. Serial No. 440,492. (No model.)

To all whom it may concern:

Be it known that we, DÉTLEF F. WEGNER and ARNOLD A. BELTMAN, citizens of the United States, residing in Tower City, Cass county, North Dakota, have invented certain new and useful Improvements in Wagon-Brakes, of which the following is a specification.

This invention relates to an improved wagon-brake of that class in which the brake-action is produced when the wagon goes down hill, by the backing of the horses, so that the brake-shoes are applied automatically to the hind-wheels: and the invention consists of a wagon-brake in which the tongue is attached to a frame that is guided in side-pieces of the fifth wheel, the tongue-supporting frame being stiffened by suitable straps and provided with bracket-arms that carry a transverse shaft having disks at the ends, said disks forming frictional contact with the hubs of the front-wheels when the brake-action is to be produced. The central part of the shaft is guided in a suitable keeper of the front axle and connected by a chain with the connecting-rods applied to fulcrumed levers, the outer ends of which are connected by links with the brake-shoes, so that by the backing up of the horses and frictional contact of the disks with the hubs of the front-wheels the brake-shoes are applied automatically to the hind-wheels and produce thereby a powerful brake-action on the same.

In the accompanying drawings, Figure 1 represents a bottom-view of a wagon with our improved wagon-brake applied thereto. Fig. 2 is a vertical longitudinal section on line 2 2, Fig. 1. Fig. 3 is a vertical transverse-section of the same on line 3 3, Fig. 2.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a wagon-box which is supported on bolsters A' of the rear axle a' and which is connected by a king-bolt A² in the usual manner with the front-axle a^2 . A reach A³ connects the front and rear-axles, said reach being made long enough so as to permit the use of the same with longer wagon-bodies, such as are used for carrying hay and similar products. The side-pieces C' of the fifth wheel C are extended in forward direction, said side-pieces being supported by suitable straps C² at-

tached to the under side of the front-axle as shown clearly in Fig. 1.

On the front ends of the side-pieces of the fifth wheel C is guided a slide-frame D which is formed of a main cross-piece D² to which the tongue D' is applied and of a wrought-iron strap D³ which is attached at its front ends to the main piece D², and to its transverse portion the rear-end of the tongue D' is rigidly bolted. The parallel side-portions of the rod or strap D³ are provided with slots d that are guided on headed bolts d' in the side-pieces C' of the fifth wheel C, so that the slide-frame D has a certain play within which it can slide in forward or backward direction. The front ends of the side-pieces C' pass through slots d^2 of the main cross-piece D².

The slide-frame D is provided with backwardly-extending bracket-arms e which are provided with bearings for supporting a transverse shaft E, the middle portion of which is supported by a wrought-iron bracket-clip e^2 attached to the under side of the front-axle a^2 , as shown clearly in Fig. 1.

To the outer ends of the transverse shaft E are applied friction disks E' which can be moved into contact with the inner ends of the hubs a^3 of the front-wheels a^4 , said hubs being covered with leather bands a^5 so as to increase the friction with the disks E', when the same are placed in contact with the inner end of the hubs. To the middle portion of the shaft E is attached by means of an eye or otherwise a connecting-chain F which connects the shaft with the V-shaped bail f . Links f' are applied to the ends of the bail and connect the same with the levers F' that are fulcrumed to clips F² of the rear axle, the outer ends of the fulcrumed levers being connected by pivot-links f^2 with eyes attached to the sides of the brake-shoes G. The links f' that connect the V-shaped bail with the inner ends of the fulcrumed levers are guided in eyes g' at the ends of a bracket g that is attached to the reach, said eyes being adapted to be arranged at different points of the reach, so that the brake can be adapted to wagon-bodies of different lengths it being attached to a point nearer to the front axle when a shorter wagon-body and to a point farther away from the front axle when a wagon-body of greater length is used. The brake-shoes G are applied to the end of a

transverse rod G' the middle portion of which is supported in a bearing or sleeve G^2 attached to the reach and shoes are connected by a transverse rod g^2 that extends from brake-shoes to brake-shoe. The link f^2 by which the outer ends of the fulcrumed levers F' are connected with the brake-shoes are connected with eyes on the brake-shoes that are located above the connection of the shoes with the transverse rod G' , so that the shoes can be readily swung on the said rod and applied to the hind wheels when the brake is called into action. The rod G' is suspended from the wagon-box by means of chains g^4 , so that its relative position toward the hind-wheels is retained.

The brake-shoes are made of cast-metal blocks which are provided with curved concave faces and with a central groove into which the curved shoe or wood or other suitable material is inserted, whereby a greater brake-action is exerted as when metal is in frictional contact with metal. These brake-shoes can be readily driven into blocks and readily replaced when worn out.

To the transverse shaft E are applied two spring clutches one at each side of the central supporting bracket, which spring-clutches each consist of a fixed member h that is rigidly attached to the shaft and of a movable and spring-actuated member h' that is formed on the end of a sleeve which is guided by a longitudinal slot h^2 on the fixed pin h^3 of the shaft E . At the end of the movable member h' is arranged a collar h^4 between which and a fixed collar h^5 on the shaft E is interposed a helical spring h^5 , the tension of which holds the toothed faces of the clutch-members h and h' in mesh with each other. When by the backing of the horses the slide-frame D is moved in backward direction, so that the disks E' are applied to the hubs of the front-wheels, the shaft E is turned by the friction between the disks E' and the hubs in the direction shown by the arrow in Fig. 2. By the turning of the shaft the chain which connects the same with the system of brake-levers is wound up, so that the brake-levers apply the brake-shoes to the hind-wheels and produce thereby a powerful action of the brake. When the vehicle is backed the fixed parts are moved over the teeth of the movable members, or in other words, the movable clutch parts are pressed sidewise so as to permit the teeth of the fixed members to pass the teeth of the movable parts. As soon as the backward strain of the slide-frame D is relieved, so that the brake-action on the hind-wheels is to be removed, the slide-frame is moved in forward direction, so that the contact between the disks E' with the hubs of the front-wheels is interrupted. Simultaneously the unwinding of the chain takes place by the turning of the shaft E in opposite direction during which motion the members of the clutch are in mesh with each other.

Whenever the brake is to be applied to the hind wheels, this can be accomplished either by the backing of the horses by the drivers, so that the slide-frame is moved in backward direction, and produces the action of the transverse shaft and thereby the application of the brakes.

When the wagon is going down hill the brake-action is produced automatically, as the horses naturally commence to hold back against the wagon. If the road has a considerable grade, the horses are naturally held back still more, so that the brake is applied with considerable power and in a very reliable manner without necessitating any application of the brakes by the driver.

The applying and releasing of the brake shoes from the hind-wheels is accomplished in a perfect, easy and very reliable manner by the automatic action of the mechanism without requiring any special exertion by the driver.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:—

1. The combination, with a sliding-frame supported on the side-pieces of the fifth wheel, said sliding-frame supporting the wagon-tongue, of a shaft that is supported in brackets of the sliding-frame and provided with friction-disks forming contact with the hubs of the front-wheels, a chain applied to the transverse shaft, brake-shoes suspended near the hind-wheels, fulcrumed levers connected with the brake-shoes and by intermediate links with the chain attached to the transverse shaft, substantially as set forth.

2. The combination, with the side-pieces of a fifth wheel, of a sliding-frame to which the wagon-tongue is attached, said sliding-frame being guided on the side-pieces of the fifth wheel by means of a strap, to the rear part of which the tongue is attached, a transverse shaft supported in brackets of the sliding-frame and provided with friction-disks that form contact with the hubs of the front-wheels, a bracket attached to the front-axle and adapted to support the middle portion of the transverse shaft, spring-clutches arranged on the shaft, a chain connected to the transverse shaft, brake-shoes suspended near the hind-wheels, a brake lever mechanism and links by which the actuating chain is connected with the brake-levers, so as to apply the same when the slide-frame is moved in backward direction, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

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Witnesses:

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