P. SMITH.
Wagon-Brake.

No. 207,824. Patented Sept. 10, 1878.

Fig. 1

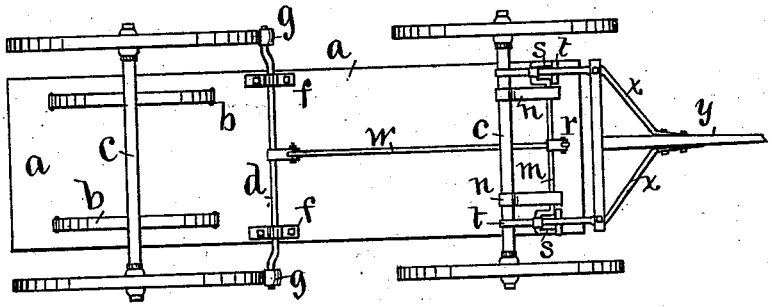
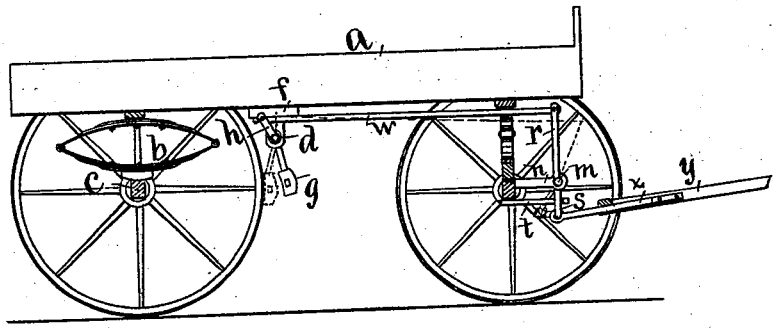


Fig. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

PHILLIP SMITH, OF PRAIRIE CITY, IOWA.

IMPROVEMENT IN WAGON-BRAKES.

Specification forming part of Letters Patent No. **207,824**, dated September 10, 1878; application filed July 8, 1878.

To all whom it may concern:

Be it known that I, PHILLIP SMITH, of Prairie City, in the county of Jasper and State of Iowa, have invented an Improved Wagon-Brake, of which the following is a specification:

My invention relates to that class of brakes designed to lock the hind wheels of a wagon on a down grade, and to be operated by the holdback force applied to the pole by the horses.

Heretofore brakes have been automatically applied to the hind wheels of a vehicle by means of sliding poles and yokes being connected with the brake, and to the front wheels by means of a link-connection between the pole, the front axle, and the brake-shoes.

My improvement consists in combining the pole, the front axle, and the brake at the hind wheels by means of a triple crank-shaft, as hereinafter fully set forth.

Figure 1 of my drawing is an inverted plan view of a wagon. Fig. 2 is a side elevation and sectional view of a wagon on a down grade. Together they illustrate the construction and operation of my invention.

Similar letters of reference are used to denote like parts shown in both figures.

a a represent a wagon-box rigidly fixed upon springs *b*, that are attached to the axles *c* in any suitable way. *d* is a rock-shaft supported by bearers *f*, depending from the box *a a* in front of the hind wheels. *g g* are the brake-shoes on the bent ends of the shaft *d*. *h* is a crank on the center of the shaft *d*. *m* is a triple-crank shaft, supported by bearers *n*, extending forward from the front axle, *c*. *r* is a crank extending upward from the center of the shaft *m*. *s s* are cranks on the ends of the shaft *m*, extending downward. *t t* are stay-bars, having T ends rigidly fixed to the front axle, *c*, to engage the cranks *s*, and thereby restrict the forward motion of the pole, and to apply the draft direct to the axle. *w* is a rod connecting the crank *r* of the shaft *m* with the crank *h* of the shaft *d*. *x x* are hounds or braces diverging from the rear end of the pole *y*, to be flexibly connected with the cranks *s* on the ends of the triple-crank shaft *m*, in place of the front axle, *c*, as is usually the case.

In the practical operation of my invention, when a forward draft is applied to the wagon by means of the pole *y*, the cranks *s* of the shaft *m* will be turned upward and forward, and the crank *r* on the center of the same shaft will be turned backward. This backward motion of the crank *r* will be communicated, by means of the rod *w*, to the crank *h* of the shaft *d*, and cause the brake-shoes *g* to be carried forward and away from the hind wheels, as shown in Fig. 1, and indicated by broken lines in Fig. 2; and when the wagon is descending a down grade and no forward draft is required, but a holding-back force is necessary, the weight and power of the horses will be automatically applied by means of the pole *y*, to reverse the positions of the cranks *s r h*, and to thereby turn the brake-shoes *g* backward and against the hind wheels, to arrest their rotary motion by friction, as required, to overcome the downward and forward pressure of the wagon and its load when going down a hill.

A simple, strong, and durable self-operating brake is thus provided, that will relieve horses from most of the strain occasioned by a loaded wagon on a down grade, and the dangers and accidents incident to driving downhill will be obviated.

I claim—

The front axle, *c*, the shaft *m*, having triple cranks *r s s*, the shaft *d*, having a central crank, *h*, and carrying brake-shoes *g g*, the rigid rod *w*, connecting the cranks *h* and *r*, and the pole *y x x*, when arranged and combined in a vehicle, substantially as shown and described, to be operated in the manner set forth.

PHILLIP SMITH.

Witnesses:

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