W. I. SPORE.

Improvement in Wagon-Brakes.

No. 115,130. Patented May 23, 1871.

Fig 1.

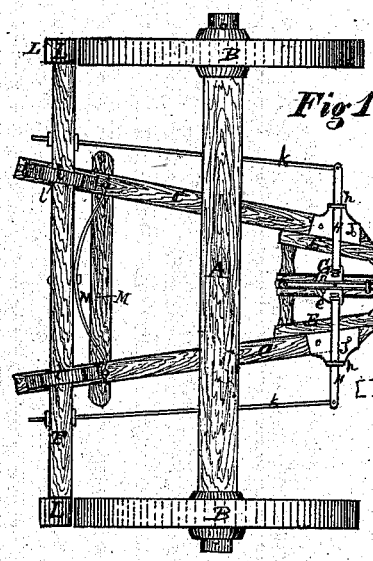

Fig 8.

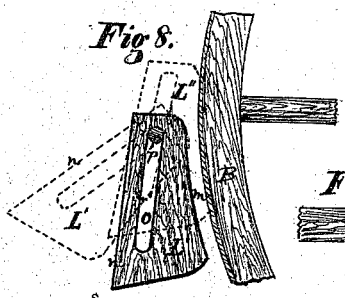

Fig C.



Fig 2.

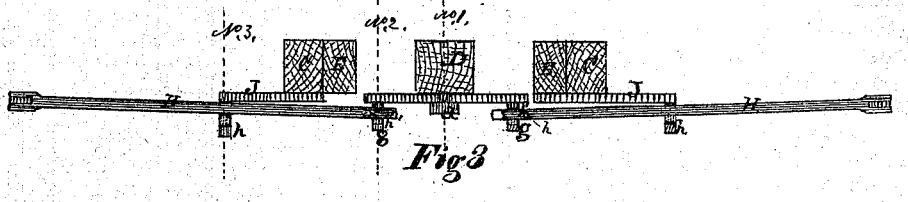

Fig 3

Fig 4.

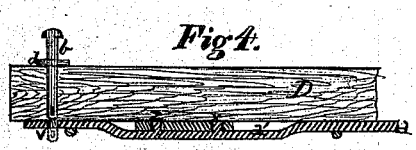

Fig 5.

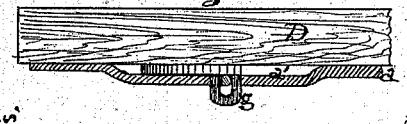

Fig 6.

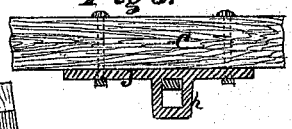



Fig 8.

Witnesses,

Alex. Selkirk

Chas. Selkirk.

Inventor

Wm I Spore

# UNITED STATES PATENT OFFICE.

WILLIAM I. SPORE, OF NEW SCOTLAND, NEW YORK.

## IMPROVEMENT IN WAGON-BRAKES.

Specification forming part of Letters Patent No. 115,130, dated May 23, 1871.

*To all whom it may concern:*

Be it known that I, WILLIAM I. SPORE, of the town of New Scotland, county of Albany, State of New York, have invented certain new and useful Improvements in "Wagon-Brakes;" and I do hereby declare that the following is a specification thereof, reference being had to the drawing, in which—

Figure 1 represents a vertical view from beneath of a front part of a wagon, illustrating the improvements in this invention. Fig. 2 is a vertical view (on an enlarged scale, as also the succeeding figures) from beneath of the improvements. Fig. 3 is a cross-section through the improved parts of the braking apparatus. Fig. 4 is a longitudinal section through line No. 1 in Fig. 3. Fig. 5 is a cross-section through line No. 2 in Fig. 3. Fig. 6 is a cross-section through line No. 3 in Fig. 3. Fig. 7 is a vertical view from beneath of equivalent device or modification of those shown in Fig. 2. Fig. 8 is a side view of the brake-block and a section of a wheel. Fig. 9 is a vertical view of the same.

The same letters of reference refer to similar parts.

In the drawing—

A represents the axle. B B are the wheels. C are the hounds. D is the pole. E E are fucthels of the pole. F is the brake-bar.

In my invention I place, on the lower side of the pole D, a backing-rod, *d*, which backing-rod extends from the front end of the said pole to the rear end of the same, and is held up in its place by any suitable staples. The rear end of the said rod *a* is made with an offset, *a'*, as shown in Figs. 4 and 5, and is furnished with pins *x* and *z*, Fig. 4, made solid with it, (or may be bolts.) Placed between the offset *a'* and the pole D is a semicircular plate, G, Figs. 1, 2, 3, 4, and 5. The said plate G, which I denominate the backing-plate, is furnished with a pivot-hole near its front edge to receive the pin or equivalent pivot *x*, Figs. 2, 3, and 4, made with or working through the backing-rod at the offset *a'*. The backing-plate G, being thus pivoted to the backing-rod, is free to swing on the same, as shown in Fig. 2. At a little distance from the rear edge of the said backing-plate G, I make a circular slot, *e*, Figs. 1 and 2, which slot receives the back pin *z* on the rod B, and is intended to limit the swing of the said plate G, as shown in Fig. 2. I also make in the end of the rod *a* a small hole, *v*, and also a corresponding hole in the rear end of the pole D, at a point which, when the backing-rod is not shoved back, will prevent the bolt *b* passing through the hole *v* in the rod *a*. The said bolt I make with two key-holes, one at its lower end and the other at a distance above its lower end equal to the thickness of the pole. I also furnish the said stop-bolt with a spring-key, *d*, which key *d* I insert in the upper key-hole, Fig. 4, when I wish the backing-rod *a* to act on the other part of the brake. When I desire to prevent the action of the said rod on the brake I withdraw the said key *d* from its place above the pole, and let the stop-bolt *b* drop down and through the hole *x*, and place the key *d* in the lower key-hole, which will prevent the said bolt being jumped out of place. The backing-plate G is furnished with loops *g g*, Figs. 2, 3, and 5, placed in a range with the central pin-hole *x*, which are intended to receive the neck of the levers H H and operate them. I also attach to the hounds G, by means of bolts or their equivalents, the fulcrum-arms J J, and furnish their outer ends with loops or staples *h h*, Figs. 2, 3, and 6, through which loops or staples the levers H pass, which loops *h* serve as fulcrums for the said levers. The said loops have a greater depth of opening than the thickness of the levers, and permit such vertical play of the said levers in the said loops as may be required when the pole D is thrown up, and thus prevent one binding on the other. The levers H are furnished with a neck or rounded part at their ends, which enter the loops *g g* on the backing-plate G, and are secured by a nut or a T-head, as shown in Figs. 2 and 3. The said rounded neck permits of the pole D being raised without causing the lever in its contact with the said loops to bind; but will permit them to roll within the same. The levers H H are passed through the loops or staples *h h*, and extend outward to a sufficient length, and connect with the draw-rods *k*, Figs. 1 and 2, which draw-rods connect with the brake-bar F that carries the brake-blocks L L, Figs. 1, 7, and 8. The brake-bar F I prefer to place beneath the hounds C, and support the same by the loops *l l*, a spring, M, acting in front of the brake-bar F and against any suitable stop on the hounds, and throwing the brake-bar back from action. The brake-blocks L, Figs. 1, 8, and 9, I construct of wood or metal, or both, and form one side, *m*, with a curved side to correspond with the curve

of the wheel W, while the other and opposite side *n* I make straight, and in such a manner that the said block L will be wedge-shaped, with its widest part below, as shown in Fig. 8. I also make in the said block L a slotted hole, *o*, which slotted hole runs parallel with the straight side *n* of the block. This block L I secure to the brake-bar F by means of a block-spindle, *p*, secured to the said brake-bar, on which spindle the brake-block L can swing, as shown by dotted lines L′, when the wagon is braked up, or upon which the said block can rise, as shown by dotted lines L″, when the block is thrown into action against the wheel W as the wheel is revolved forward.

The manner of the operation of the several parts of this brake is as follows:

In descending any declivity the animal hitched to the wagon will hold back on the same by means of the neck-yoke, with its ring pulling back on the hook *a*″, Fig. 1, attached to the backing-rod *a*, Fig. 1, which pulling back will cause the said rod *a* to carry with it the backing-plate G from dotted lines G′ to a distance required to throw the brake in effective action, suited to the declivity being descended; in throwing back the said backing-plate G the inner ends of the levers H will also be thrown back, while the said levers having their fulcrums in the loops *h* will have their outward ends thrown forward, and draw on the draw-rods *k*, and effect a forward movement of the brake-bar F to carry the blocks L in action against the wheels W. Should one of the wheels W be out of a true curve, or eccentric, as is often the case, by having their boxes set to one side in their hubs, or by being repaired with new fellies, (in which the shoulders of the spokes are cut down,) the slot *e*, Figs. 1 and 2, will permit the said backing-plate G to swing round to one side, as shown in Fig. 2, (exaggerated,) and affect unevenly the levers H H to cause the said levers to draw, by their rods *k* or the brake-bar F, to effect the desired contact of the brake-blocks L with the wheels W, as may be required by the true round or oval of the wheels, as the case may be. The pin *z* of the backing-rod *a* working in the slot *e* of the said backing-plate G is to give a limit to the swing of the said backing-plate. A curved slot, *e*′, made in the rear end of the backing-rod *a*, and a pin, *z*′, in the backing-plate G, as in Fig. 7, would act in substantially the same manner, and would be equivalent to the slot *e* in the plate G, and pin *z* in the backing-rod; or if the order of the backing-plate G should be reversed—that is to say, should the backing-plate be placed so that the curved slot *e* and pin *z*, Fig. 2, would be in front of the levers, or should the slot *e*′ in the backing-rod and the pin *z*′ be placed forward in the same manner—the result desired to be secured would be substantially the same as when the whole arrangements are those shown in Figs. 2 and 7.

It is well known that, when descending a declivity, the steeper the declivity the greater the tendency of the pole to be thrown up; and in most self-acting brakes, where the levers are operated by a backing-rod, the throw up of the pole causes the several parts to bind on each other, and prevents a ready action of the said several parts. When the pole is thus thrown up in this invention the said tendency to bind of the levers with the backing-plate is overcome by the rounded neck *h*′, on the levers H, working in the deep loops *g g*, as shown in Figs. 2 and 3, which will permit the pole D being raised without causing the said levers H to bind in the said loops *g*.

If desired, the rounded neck *h*′ of the levers H and loops *g* may be dispensed with, and angle-pieces *g*′ made with the levers and projecting from the same, and entering the oblong holes *g*″ *g*″ made in the plate G, (as shown by shading in Fig. 7,) may be substituted as equivalents to the said round neck *h*′ and loop *g*, which would operate in the same manner.

If desired, the loops *h h* acting as fulcrums for the levers H H, Fig. 2, may be dispensed with, and slots *h*″, made in the said levers and working round a pin or pivot from the arms J, would act as equivalents to the loops *g*, and in such a case I would use a staple, *q*, Fig. 7, to keep the said levers H up to the hounds.

When the brake-blocks L have been brought in action with the wheel W, the said blocks L, being free to have a vertical movement by reason of the slot *o*, will be carried up somewhat, as shown by dotted lines L″, by the forward rolling of the said wheels, and, being free to swing on their spindles, will adapt the curved side *m* to the curve of the wheel, while the wedge-form of the block will, by the action of the wheel, crowd or wedge tightly against the face of the tire; but should the wagon be backed out from under a shed or elsewhere, the braking contact of the blocks L would be destroyed, for in such case the said blocks L would be heeled up back by the back rolling of the wheel W, and assume a position somewhat like L′ in Fig. 8, because of the freedom of the said blocks to swing on their spindles, which differs materially from those blocks working on two pins, or an oblong pin, which two pins prevent such swing or heeling up.

What I claim, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the rod *a*, backing-plate G, and lever H, when constructed and operating as described.

2. The levers H H, when provided with longitudinal slots and pins to permit a limited end motion, as described.

WM. I. SPORE.

Witnesses:

ALEX. SELKIRK,

CHAS. SELKIRK.