G. P. MERRILL & P. DOWLING.

Unloading Cars.

No. 202,182. Patented April 9, 1878.

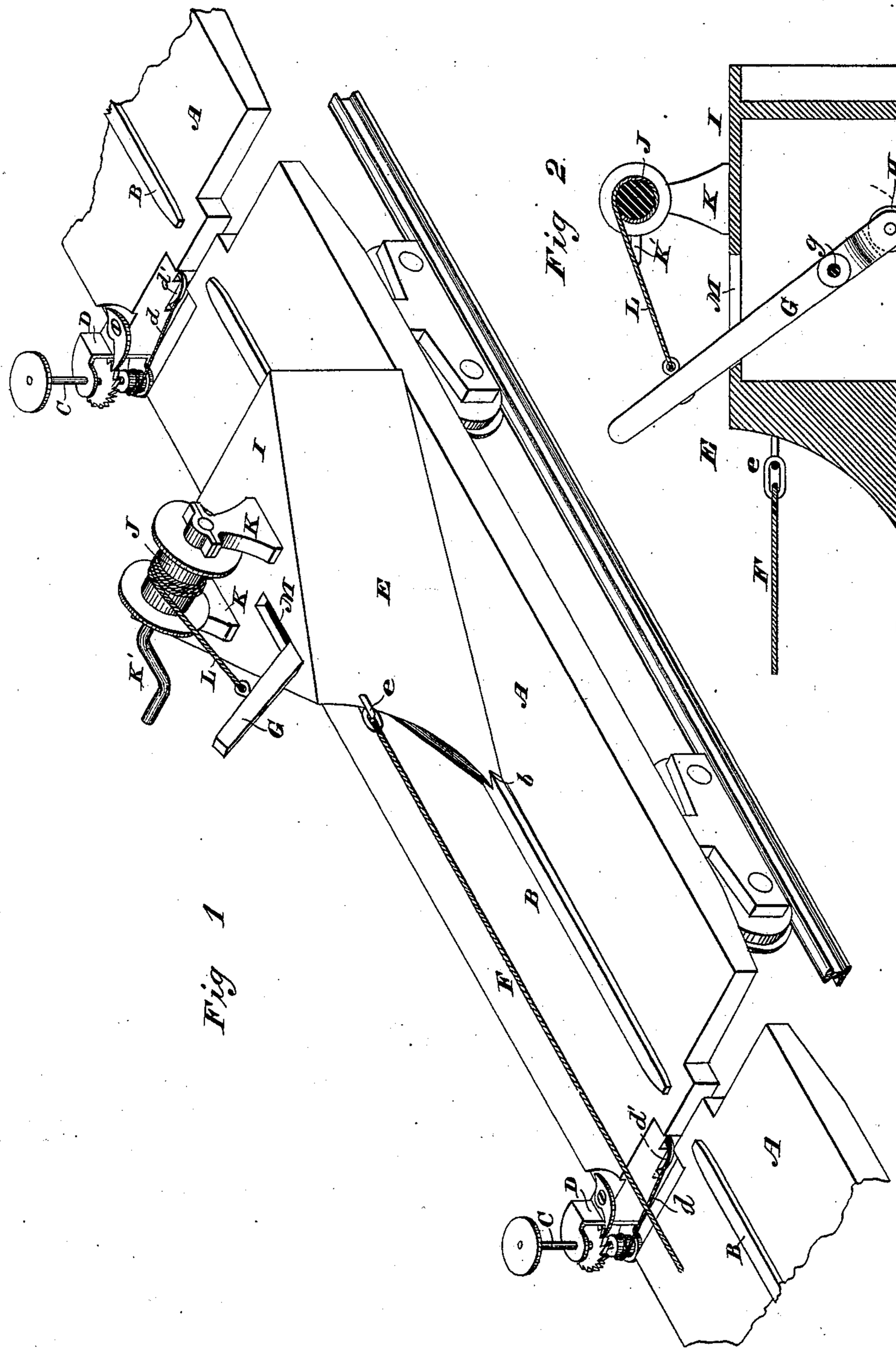

Fig 1

Fig 2.

WITNESSES

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GEORGE P. MERRILL AND PATRICK DOWLING, OF TOLEDO, OHIO.

IMPROVEMENT IN UNLOADING CARS.

Specification forming part of Letters Patent No. **202,182,** dated April 9, 1878; application filed January 22, 1878.

To all whom it may concern:

Be it known that we, GEORGE P. MERRILL and PATRICK DOWLING, both of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Unloading Cars, of which the following is a specification:

Our invention relates to that class of car-unloaders in which a plow or scraper is traversed over and upon the car from end to end and from one to another of the cars of a train by the power of the locomotive.

Our objects are to place the unloading apparatus under control of the attendant, so that it may readily be caused to properly pass from one car to another when the cars are on a curve or out of line; to improve the plow or scraper and its attachments; and to adapt the ordinary brakes of the cars, simply by changing their location, for use in connection with the unloading apparatus, while admitting of their re-adjustment to the old positions when the cars are no longer used with the unloading devices.

Our improvements consist in certain novel combinations and arrangements and peculiar constructions of parts, which will first be described, and then specifically designated by the claims.

In the accompanying drawings, Figure 1 is a view, in perspective, of a portion of a train of cars with our improvements applied; and Fig. 2 is a longitudinal vertical central section of the unloading-plow and its attachments.

Ordinary flat cars A, of any desired number to make up a train of the length and capacity wanted, are each provided with a longitudinal central rail, B, which may be of wood or metal, and of any desired and suitable form. We prefer to make these rails of two-by-four wood scantling, with rounded-off or beveled ends, to facilitate the adjustment of a grooved plow or scraper, hereinafter to be described. The rails may be temporarily secured to the cars by screws or spikes, so that they may be detached without injury to the cars, and leave them ready for other uses.

The ordinary brake-controlling rods or handles C and their attachments are removed from the platforms or positions in the longitudinal central lines of the cars, and secured by brackets D, projecting outward from the corners of the cars, as clearly shown by the drawings. The brake-chains *d* pass to the brakes beneath the cars by way of pulleys *d'*. By thus locating the brakes the cars are adapted for use in connection with the unloading-plow without any other alteration of the brake mechanism and controlling devices than specified.

The plow or scraper E is of a double mold-board form at its sides, as usual, and is provided with a front hook or clevis, *e*, for the attachment of a rope or chain, F, adapted to be connected at its opposite end to the locomotive or tender, as is customary, to draw the plow along and over the cars.

The plow has a guide-groove, *b*, in its under side, beneath its front end, and a short guiding-groove, *b'*, in the under surface of its rear end. These grooves fit over the rails B and control the movements of the plow. The rear groove *b'* is made short, and wide enough (or otherwise suitably shaped) to allow of the lateral swinging of the front of the plow when lifted to clear the groove *b* from the rail, so that the plow may be turned to the right or left upon its heel, to adjust its front groove to the position of the rail of the car next to that upon which the heel may be supported. The cars frequently stand upon a curve, so that the rails B are not all in line; hence the advantage of employing some device for lifting the front of the plow, to admit of its being adjusted to the rail of the car to which the plow is passing. A strong lever, G, fulcrumed inside the plow on a rod, *g*, mounted in the plow-sides, is provided with a roller, H, at its lower end, which, by rocking the lever, is caused to bear upon the track B and elevate the front end of the plow.

To enable an attendant readily to operate the lifting-lever to raise the heavy plow, we cover over the top of the plow, which is usually about four feet high, and thus provide a platform, I, for an attendant to stand upon within reach of the lever-operating device, which consists of a winch or windlass, J, supported in standards K K on the platform, and provided with a suitable crank, K'. One end of a rope, L, is made fast to the lever, and the other end

is connected to and wound upon the windlass-drum, so that the plow may be lifted by turning the crank. The lever projects through the platform I, which is slotted at M for the purpose.

We prefer to construct the plow with a cast-iron frame-work, to give it the desired strength and weight, and to face the mold-board-like sides and point with boiler-iron, secured in place by rivets, to give a smooth surface, but do not deem such construction essential to successful working.

In operation, the cars having been loaded with earth, gravel, &c., and the train moved to the place of deposit, and the brakes put on to stop and hold the train against the great strain exerted in drawing the plow over the cars, the locomotive is uncoupled, and the plow-rope F made fast to it. The engine is then started slowly, and the plow, which was previously placed upon the rear of the last car, is drawn first along the rearmost car of the train, and then over the rest in succession. In passing from one car to another, should they be slightly out of line, the plow may be deflected sidewise by operating the lifting device before the front groove in the plow-bottom passes to the rail of a new car, and while the rear groove is still running on the rail of the car from which the plow is about to pass. While the plow is thus elevated so as to rest upon its heel and the lever-roller, it may be pushed sidewise at its front by the aid of a crow-bar, if necessary, to bring its front groove over the rail of the next car, when it is lowered by relieving the strain on the lever and brought properly down upon the track. After the train has been unloaded the lever-rope L may be unwound and detached from the windlass, and the outer end of the drag-rope F secured to or passed around the windlass-drum after detachment from the engine, and wound up out of the way and ready for use again when required.

We generally employ an extra car for the plow, and keep this car upon a switch or siding while the train is being loaded. When loaded, the train is moved in position to have the extra car brought up in the rear of the train to allow the plow to operate. When unloaded, the train is run out and the last car unloaded run upon the siding, with the plow ready to be brought up to the rear of the next train.

We are aware that it is not new to unload cars by a plow moved upon and over them by the power of the locomotive, and guided by central or by side rails on the cars, and do not claim such method of unloading cars, nor, broadly, the combination of a plow with the cars; but

We claim as of our own invention—

1. The combination, substantially as hereinbefore set forth, of the plow, the rocking elevating-lever, and its roller, adapted to pass over and be caused to bear upon the central rails of the cars, to lift the front of the plow in passing from one car to another.

2. The combination, substantially as hereinbefore set forth, of the plow provided with a platform, the elevating-lever, and the lever-operating devices mounted on the plow-platform.

3. The combination of the central rails on the cars, the plow having a short heel-groove to admit of its being swung sidewise on the rail, and devices, substantially such as set forth, for elevating the front end of the plow, for the purpose specified.

In testimony whereof we have hereunto subscribed our names.

GEORGE P. MERRILL.
PATRICK DOWLING.

Witnesses:
GEORGE VE HAR,
JOHN MOTTER.