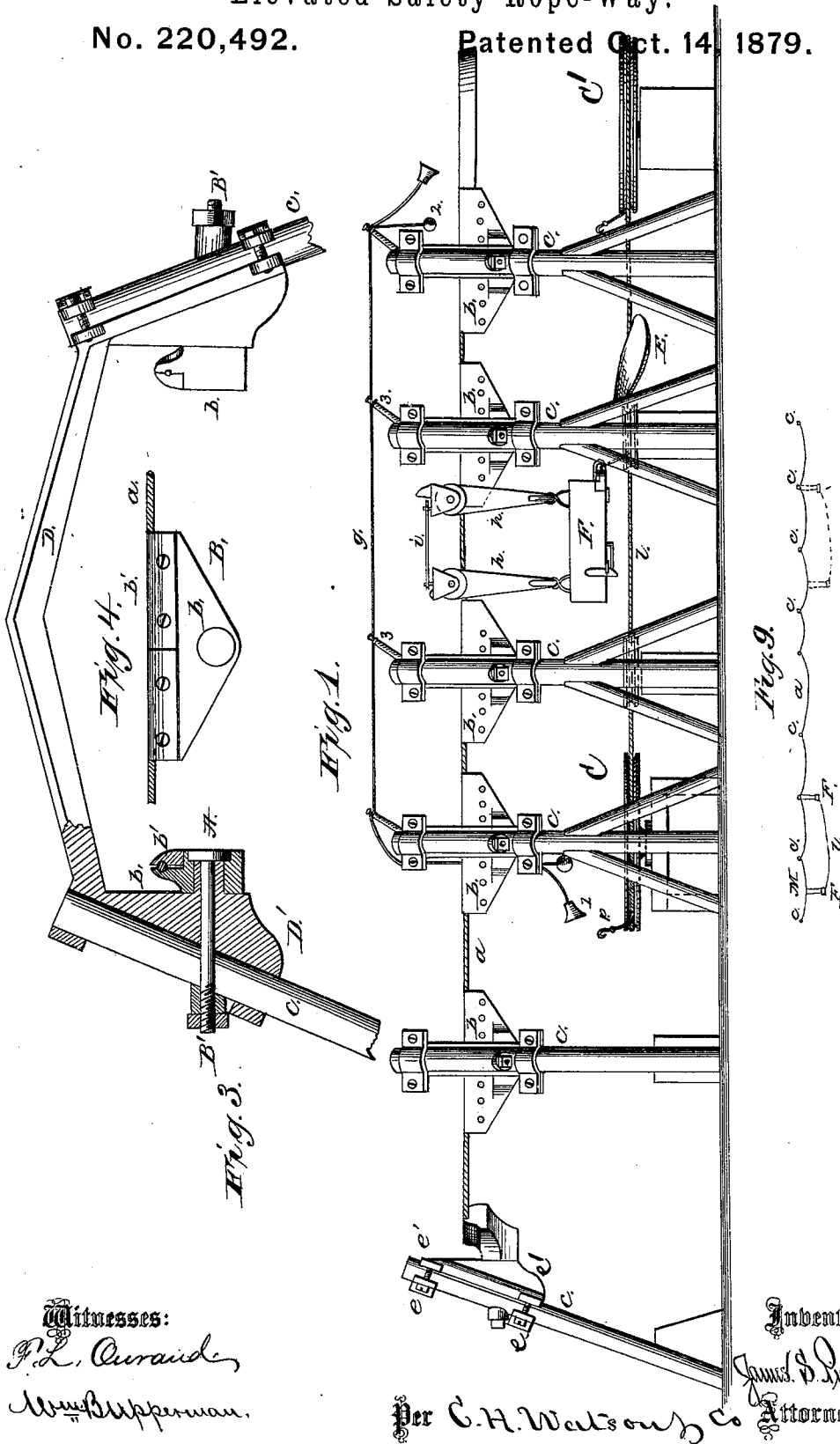


J. S. PIERSON.
Elevated Safety Rope-Way.
No. 220,492. Patented Oct. 14 1879.



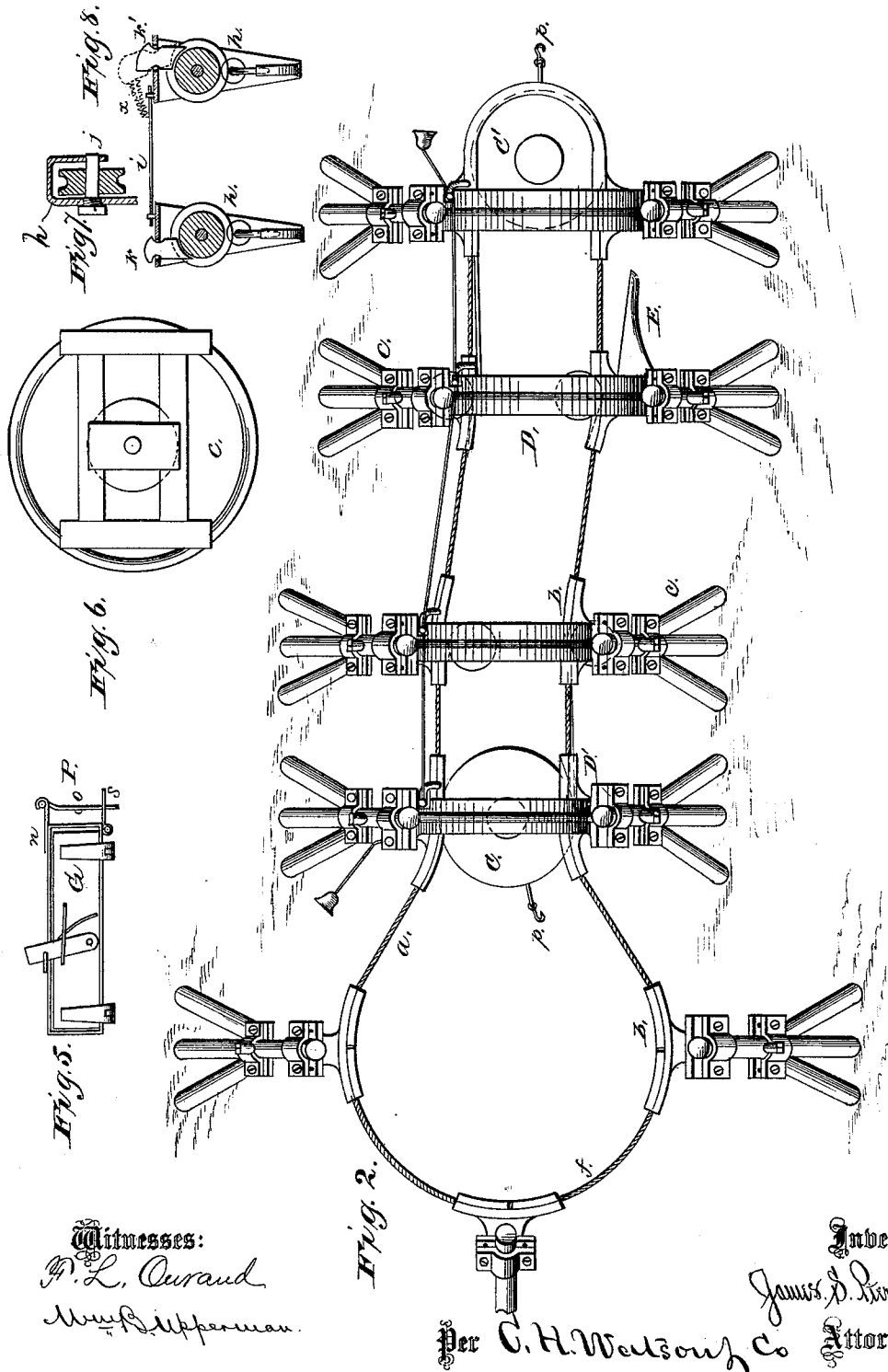
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UNITED STATES PATENT OFFICE.

JAMES S. PIERSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN ELEVATED SAFETY-ROPEWAYS.

Specification forming part of Letters Patent No. **220,492**, dated October 14, 1879; application filed February 5, 1879.

To all whom it may concern:

Be it known that I, JAMES S. PIERSON, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Elevated Safety-Ropeways; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side view; Fig. 2, a plan view; Fig. 3, a detail sectional view of one of the posts carrying a rocking clamp, and a cross-section of one set of posts. Fig. 4 is an enlarged side view of one of the track-rope clamps. Fig. 5 is a bottom view of car. Fig. 6 is a bottom view of the ordinary clutch-wheel used for controlling traction-ropes. Fig. 7 is a detail sectional view of a truck-wheel, showing my means of securing its pin or journal to one of the arms. Fig. 8 is a detail sectional view, showing my brakes as applied to the truck-wheels; Fig. 9, relative positions of succeeding cars.

c indicates the posts, which are set inclined, as shown, for supporting the track *a*, the lower ends of which may have suitable braces or other support. These posts are united at their upper ends by means of a tie-bar, *D*, made in one piece with the clamp *D'*, the latter being clamped to said posts by clamp-pieces *e* and bolts *e'*.

Formed on clamp-pieces *D'* is a journal, *A*, on which the rocking clamp *b b'* is held by a wrought-iron bolt, *B'*. The part *b* of the clamp is bored to fit loosely on journal *A*, and recessed to receive the broad head of the bolt *B'*, whereby it is held upon the journal, but permitted to turn. The parts *b'* of this clamp are secured to *b* by means of bolts or other suitable means.

The inner faces of the clamps *b b'* are grooved close to their upper edges, and near the central part, or where clamp *b'* is divided, the grooves are somewhat enlarged, for a purpose hereinafter set forth.

C C' indicate the usual wheels for driving

and guiding the traction-rope *l*. To the traction-rope *l* are secured at regular intervals short pieces of chain or wire rope *p*, each terminating in a spring-hook.

Pivoted to the tie-bar *D* are bent arms, carrying at their upper ends insulators, and connected together by a wire, *g*, which is used for working a telephone and for other purposes hereinafter referred to.

E is an inclined way or guide for automatically closing bottom of car.

F is the car, suspended by arms *h*, which latter are connected by a tie or ties, *i*. The arms *h* have each the usual wheels, and these wheels revolve on journal-pins *j*, having a broad head, and are threaded into the arms *h*, as clearly shown in Fig. 7. The upper portions of these arms are slotted, and in the forward end is a loosely-suspended brake, *k*, which hangs over and in front of forward wheel, as shown in Fig. 8; and also in the rear supporting-arm is another suspended brake, *k'*, over and in rear of the wheel in this arm, and held away from face of said wheel by a suitable spring, *x*.

The car-bottom *G* opens downward, and is hinged to one side, and is held shut by a latch which works into a catch upon side of car. This latch is held in catch by a suitable spring, and is released by a projecting arm or stop placed where the load is to be dropped or delivered.

Pivoted to the rear of the car, near the bottom, is situated my automatic releasing device. This consists of a strap, *n*, fastened to outside of the car, and pivoted to the outer end of which is a latch-bar, *o*, the opposite end of which takes into a slot in the end of the strap-hinge which is fastened to inner side of the car. The traction-rope is situated directly under the track-rope, and the short chains *p* hook into the bars *o* of the automatic releasing devices, and therefore draw upon them centrally.

The track-rope *a* is made in sections, divided midway of clamps, whereby the slack thereof can be taken up with facility when desired. The rope *a* being in sections enables me to insert rope of greater diameter when desired or found necessary, and also to partially turn the

rope when it becomes worn on one side. I also am enabled by means of my section-track and clamps to avoid all splicing of the track-rope, which is a great saving and desideratum in this class of inventions. There are also many other advantages in having a sectional rope, among which may be mentioned the facility with which it can be transported and erected.

I have shown my clamps pivoted or capable of turning upon their journals, the purpose of which is that the car may pass over them with a smooth and easy motion.

The door at the bottom of my car is opened by the latch striking a stop where the load is to be deposited, and the car in its return passes over the incline E, against which the door strikes and rides upward, which closes it. After the door of the car is closed it passes onto the upper end of way, being drawn by the short chain attached to traction-rope, which latter is operated by the loaded cars when worked on an incline, and by auxiliary power when worked on a level. When the car reaches the upper end of the traction-rope it becomes detached from the short chain *p*, by reason of the track extending farther than the traction-rope. Consequently the car passes on, and the short chain is drawn inward as the traction-rope passes around the wheel C, and by such movement pulls the strap-hinge from end of bar *o* and releases the end of short chain. It will, of course, be understood that when the car is reloaded the bar *o* is placed again in the slot in strap-hinge and reconnected to the short chain.

In order to prevent destruction of the track in case the traction-rope should break, whereby the cars would accumulate at the lower end of the way, where it is inclined, and by such excessive weight break the track down, I have provided a safety attachment. The brake *k*, it will be understood, from its position in relation to the wheel, would operate automatically and press against the wheel, and instantly stop the ascending cars from moving backward.

In order to stop the car in descending, it will be seen that I have placed my rear brake, *k'*, upon a supporting spring, so that by raising the upper weight the wire *g* will be drawn by the lower weight, 2, and thus turn the bent arms, which will bring their lower ends in contact with the brake *k'*, and thus press and wedge them against the wheels.

I have shown small wheels under the car-wheels, situated in standards that are pivoted to the car-supporting arms, which roll or press against the under side of the track to prevent the trucks from jumping the track.

In Fig. 7 I have shown that the journal-pin is threaded near its head into the arm *h*, and this has great and peculiar advantages, arranged in this way to accomplish its peculiar offices in this class of inventions.

By the pin being threaded into the car-sup-

porting arms, and having the broad head, it is secured rigidly thereto, the outer end simply resting in a hole in the short arm.

It will be seen that I depend wholly upon this manner of securing the pin to the arm for keeping the pin horizontal.

In Fig. 9 I have shown my car attached to the traction-rope *l* at such intervals as to bring the cars on the way so that when one is at the highest point, *n*, the following one will be about midway or at the lowest point, *m*.

The object of this arrangement is that the cars may be moved with much less power than when placed indiscriminately, as at present, for the reason that when the car at the highest point moves forward it begins to descend, and by its weight assists to raise the following one to the point *m*.

I make no claim in this application to the carrying-weights, trucks, and brakes, which may be applicable to any car, whether elevated or not; but

What I claim is—

1. The combination of the suspended car F, the traction-rope *l*, connected to the car by a short chain, *p*, and an automatic releasing device, for the purposes herein set forth.

2. The combination of suspended car F, traction-rope *l*, pulleys C C', short chain *p*, and automatic releasing device P.

3. The combination of a car, F, suspended upon an elevated way, the car having a hinged lower door and a latch and catch, in combination with an incline, E, traction-rope *l*, and short chains *p*.

4. In an elevated way, the clamp B, consisting, essentially, of grooved parts *b b'*, situated loosely upon supported journals A, as described.

5. In combination with the track-rope of an elevated railway, a pivoted clamp, B, holding said rope, as described.

6. Clamp B, pivoted upon journal A, in combination with broad-headed bolt B', the head of said bolt resting in a rabbet, as set forth.

7. The automatic releasing device P, consisting of parts *n o s*, attached to a suspended car of an elevated way, when said part *o* is connected to the operating means, whereby the car becomes disconnected automatically.

8. In an elevated ropeway, carrying-cars, in combination with a traction-rope, *l*, the latter carrying short chains *p*, so arranged in relation to each other thereon and to the posts that the cars shall stand so that when a car is at *n*, or elevated point, the following car shall be at *m*, or low point, as and for the purposes specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES S. PIERSON.

Witnesses:

CHAS. L. COOMBS,
FRANK H. DUFFY.