No. 797,610. PATENTED AUG. 22, 1905.

J. V. SCHAEFER.

CAR HANDLING DEVICE.

APPLICATION FILED AUG. 25, 1902.

3 SHEETS—SHEET 1.

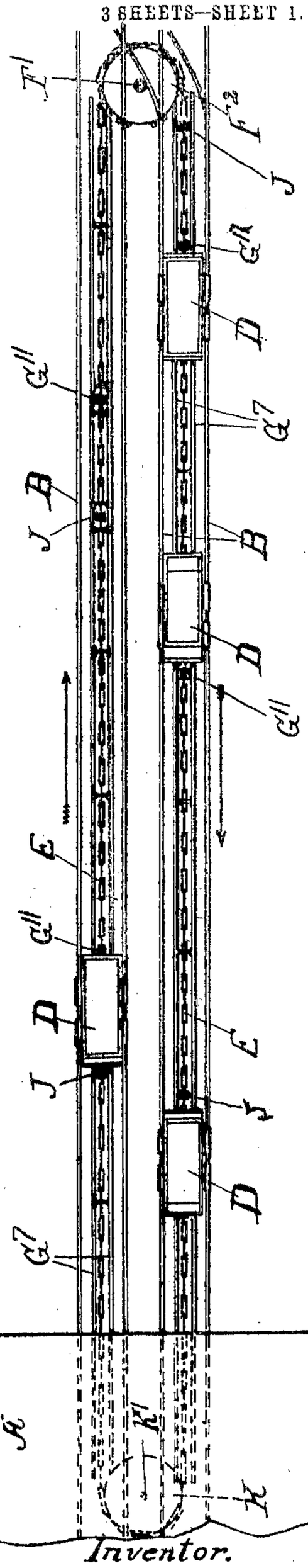

Fig. 1.

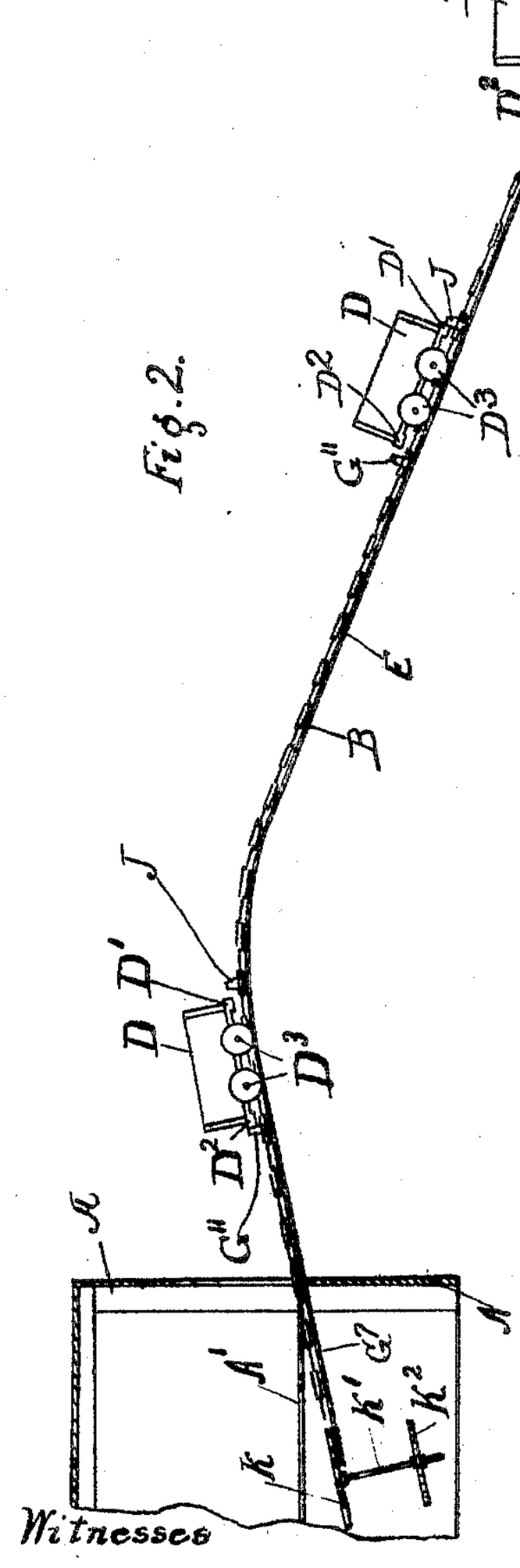

Fig. 2.

Witnesses

Edward F. Wray.

Homer L. Knight

Inventor.

John V. Schaefer.

By Parker & Coleman

Atty's.

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3 SHEETS—SHEET 2.

Fig. 3.

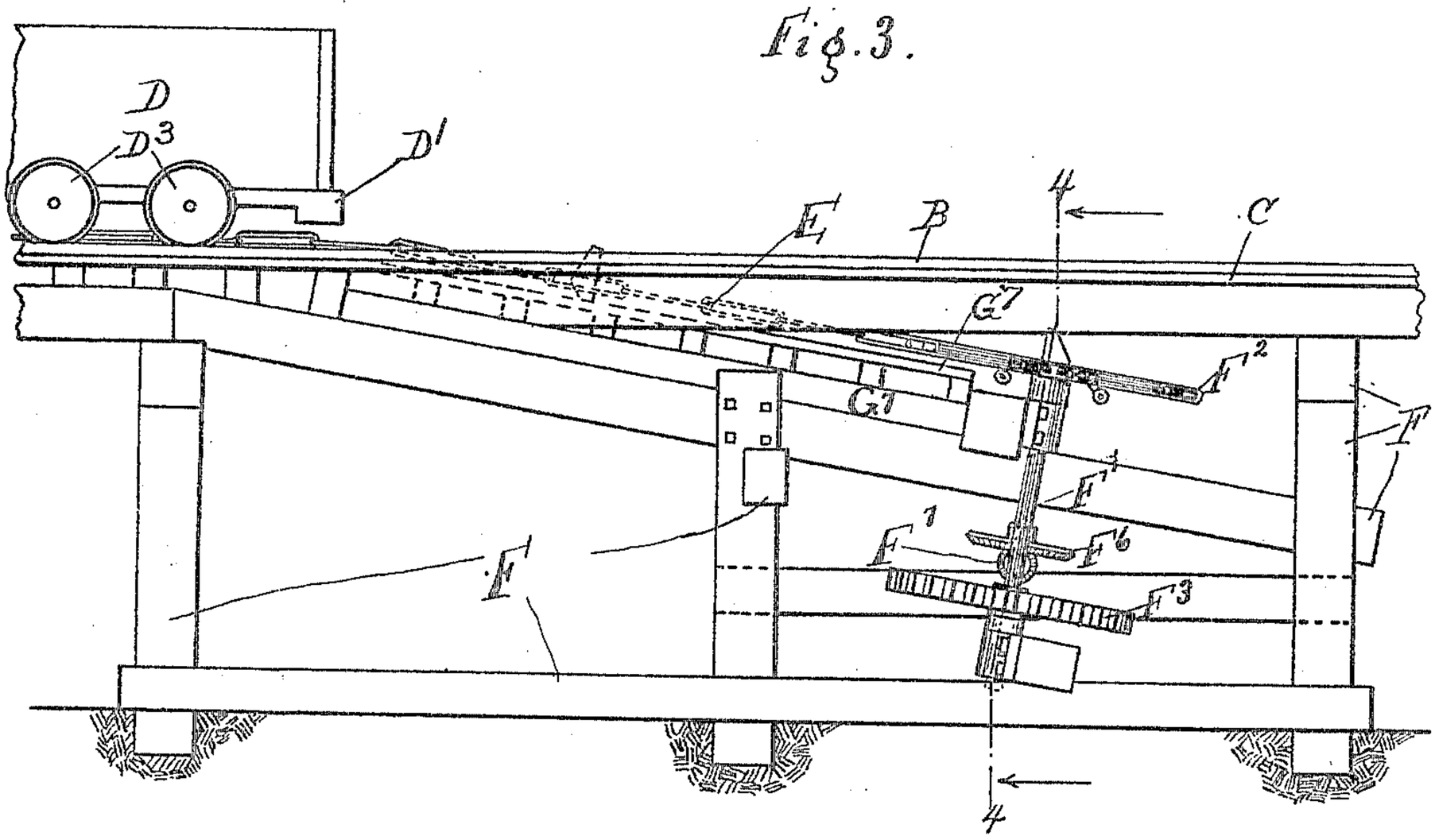
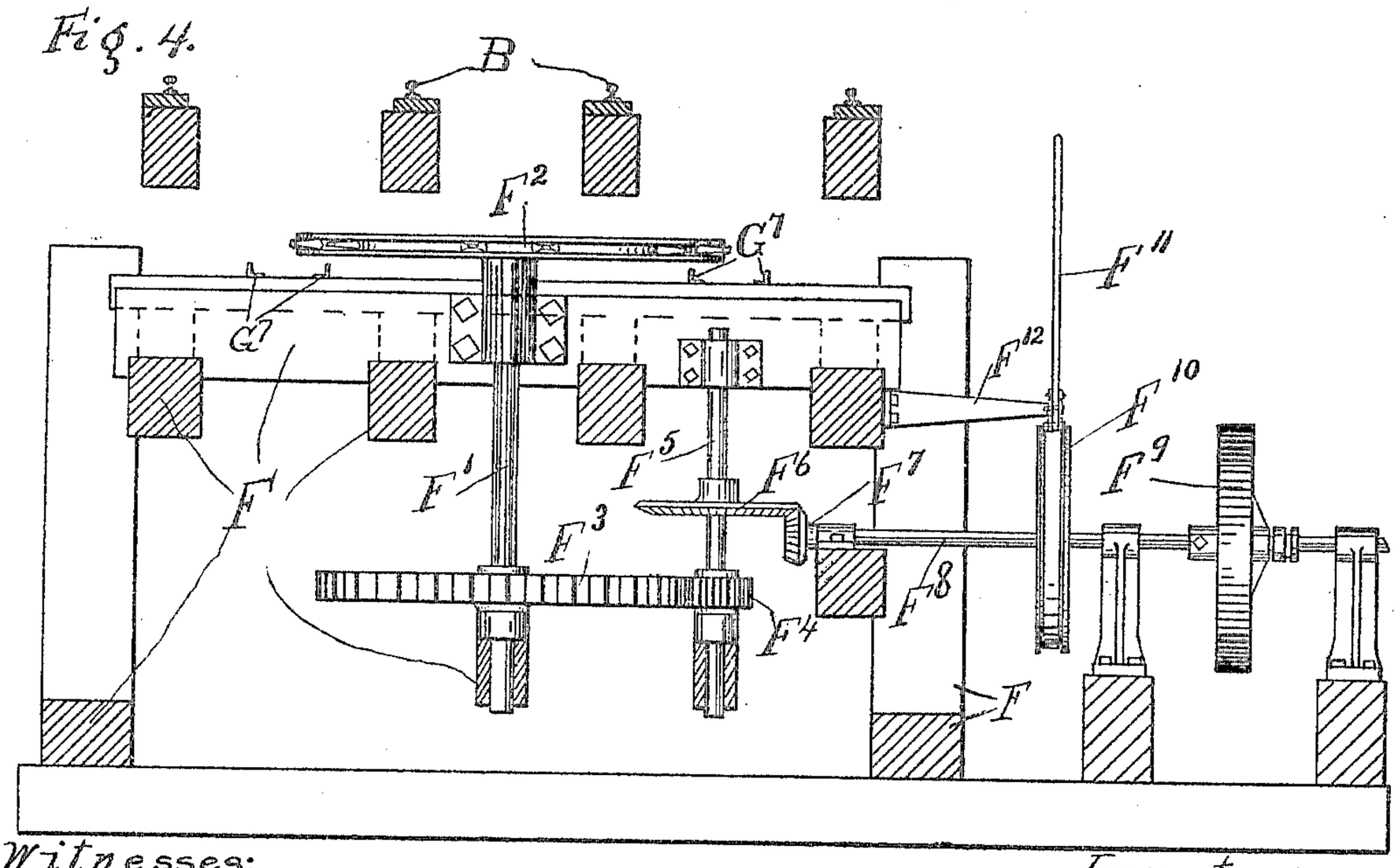


Fig. 4.



Witnesses:

Edward T. Wray

Howard Haugh

Inventor.

John V. Schaefer.

By Parker & Carter

Atty's.

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3 SHEETS—SHEET 3.

Fig. 5.

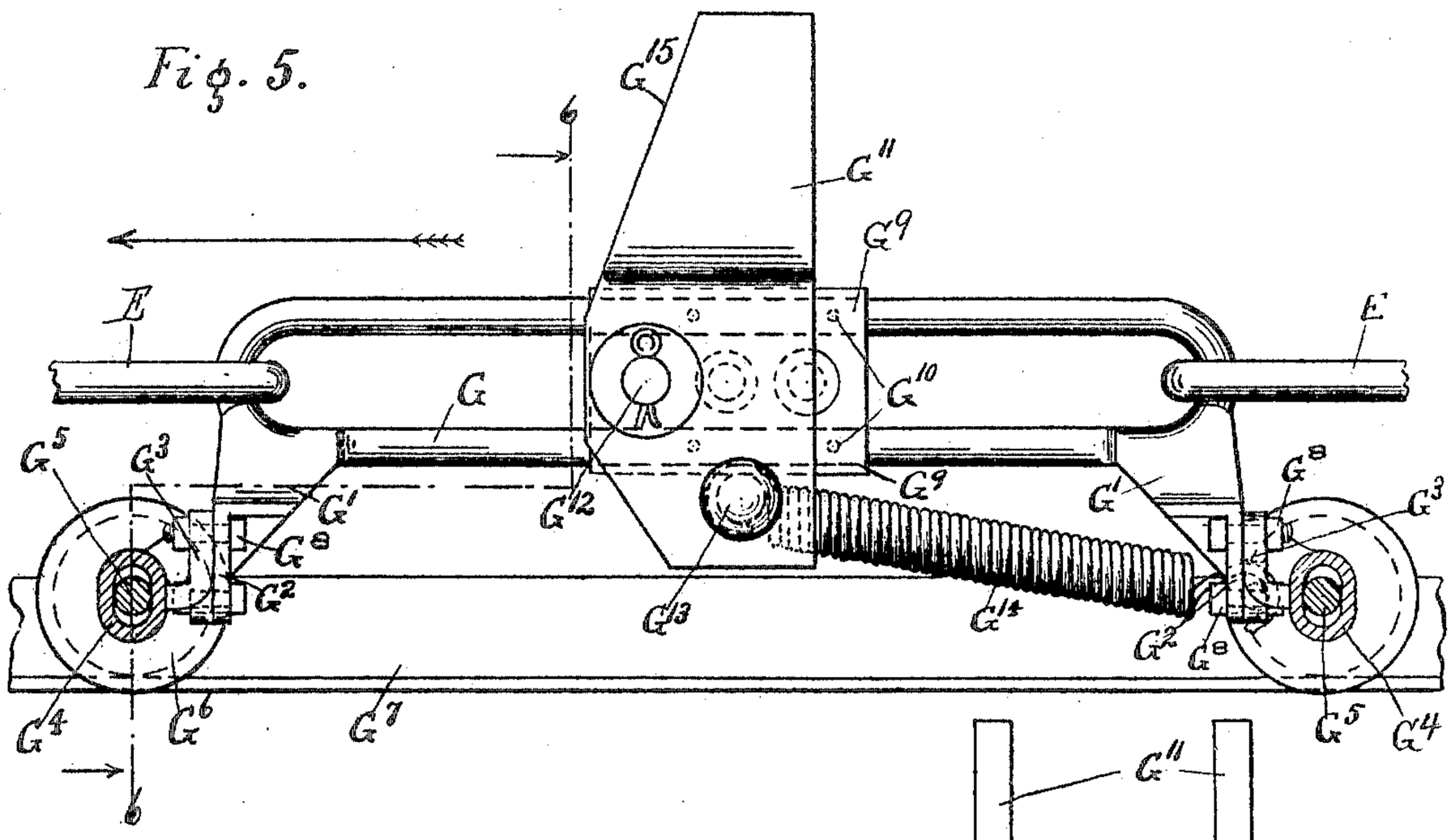


Fig. 6.

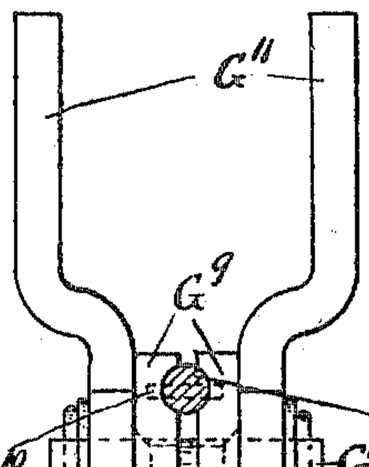
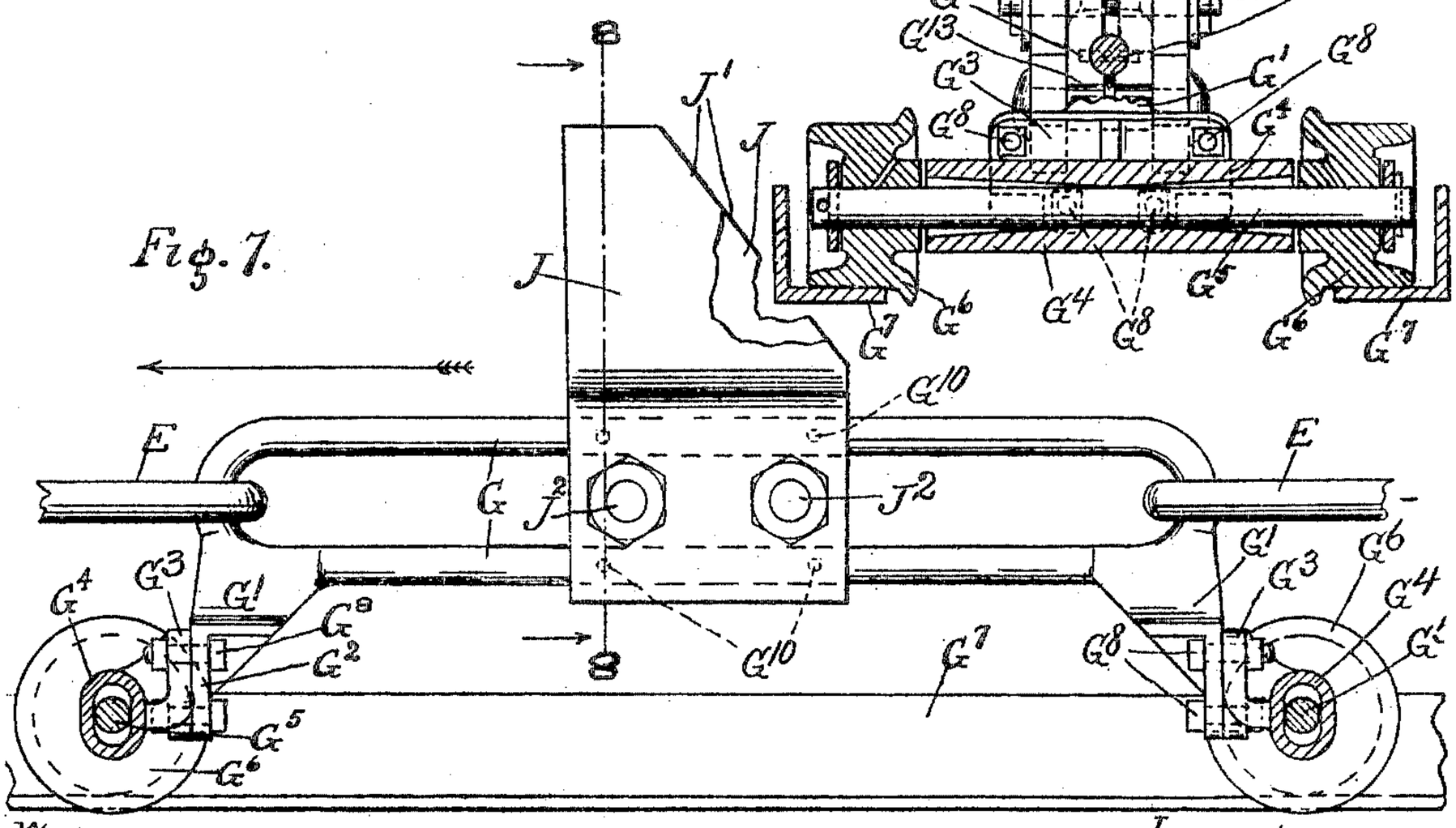


Fig. 7.



Witnesses:

Edward T. Wray.

Howard Knight

Inventor.

John V. Schaefer.

By Parker Carter & Co
Atty's.

UNITED STATES PATENT OFFICE.

JOHN V. SCHAEFER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE LINK BELT MACHINERY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CAR-HANDLING DEVICE.

No. 797,610. Specification of Letters Patent. Patented Aug. 22, 1905.

Application filed August 25, 1902. Serial No. 120,934.

To all whom it may concern:

Be it known that I, JOHN V. SCHAEFER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Car-Handling Devices, of which the following is a specification.

My invention relates to car-handling devices, and particularly such as are intended for conveniently handling cars where loaded and empty cars are to be carried over inclined surfaces.

I have shown in my drawings, somewhat diagrammatically, one form of device in which my invention is made use of.

Figure 1 is a diagrammatic plan view. Fig. 2 is a diagrammatic longitudinal section. Fig. 3 is a side elevation of a portion of the driving mechanism. Fig. 4 is a part cross-section and elevation view substantially on the line 4 4, Fig. 3. Fig. 5 is a side elevation of the trolley and spring-actuated pusher. Fig. 6 is a cross-section on the line 6 6 of Fig. 5. Fig. 7 is an elevation of the trolley-carrying and fixed pusher.

Like parts are indicated by the same letter in all the figures.

A is the shed, for example, at the top of a mine from which the loaded cars are had. A′ is the floor of such shed.

B B are the rails of the two tracks, which in this case side by side run up a slight incline way from the receiving-shed and down along the incline to the delivery-point.

C is the delivery-floor.

D D are the cars, in this case coal-cars.

E is an endless chain which passes through a suitable slot or between the rails down under the floors A′ and C.

Referring to Figs. 3 and 4, F F are suitable supporting-timbers, and mounted on them in a vertical position is the shaft F′, carrying the sprocket-wheel F^2, around which travels the chain E. On this shaft is the gear-wheel F^3, meshing with the gear-wheel F^4 on the shaft F^5, which carries the bevel-gear F^6, meshing with the gear F^7 on the shaft F^8, which shaft carries the driving-pulley F^9 or may be driven by any desired power. F^{10} is a brake-wheel on the shaft F^8, controlled by the lever-arm F^{11}, associated with the supporting-arm F^{12}. By means of these several parts the operation of the driving sprocket-wheel F^2 may be controlled so as to drive the chain, and thus move the cars in any desired manner or speed. The cars must be connected with the chain, and the mechanism for so doing is shown in Figs. 5, 6, and 7. G is a trolley-link inserted in the chain E and provided with downwardly-projecting parts G′ G′ at its ends. Each of these parts terminates in the piece G^2, which is placed in opposition to a similar piece G^3, on which latter piece is formed the bearing G^4 for the axle G^5, which carries the two trolley-wheels G^6 G^6, adapted to run in the angle-iron rails G^7 G^7. The bearing G^4 will be seen to be enlarged toward both its ends from the middle, so as to give the trolley-axle G^5 a certain amount of play. The parts G^2 and G^3 are held together by the bolts G^8 G^8. The trolley-link is inclosed by two blocks G^9 G^9, which are held in position by the pins G^{10} G^{10}, and on the outside of these blocks rise the stops composed of the two side blocks G^{11} G^{11}, which are held together and pivoted on the cross-bolt G^{12} and by the cross-bolt G^{13}. From this latter bolt proceeds the spiral spring G^{14}, its other end being connected to the pieces G^2 and G^3. The upper ends of the parts G^{11} are inclined, as indicated at G^{15}. The stop is therefore free to move at its upper end toward the right in opposition to the action of the spring G^{14} and is held from moving in the other direction by the engagement of the cross-pin G^{13} with the lower ends of the blocks G^9 G^9.

In Fig. 7 I have illustrated the fixed pushers. The several parts are the same as those illustrated in Fig. 5, except such as relate to the pushers themselves. Here I show attached to the link G pushers J J, similarly shaped as the stops G^{11} G^{11}, but set on the chain in such a way that the inclined faces J′ of each faces in the opposite direction from the inclined faces G^{15} G^{15} on the stops G^{11} G^{11}. The pushers J J are secured in position by the cross-bolts J^2 J^2.

The trolleys are placed along the chain alternately and are spaced so that there is approximately one car length between each pair.

The cars D D are provided with the end cross-beams D′ D^2 and are mounted on the wheels D^3 D^3, which run on the tracks B B.

At the head of the shaft or in the shed A is mounted horizontally a sprocket-wheel K and around which the chain E travels. This

sprocket-wheel is mounted on the shaft K′, which carries the pinion K², and there may be at this end of the line a duplicate of the driving mechanism at the other end of the line, or either end may have any desired mechanism, or one end may have the driving mechanism and the other simply an idler to give the chain its proper direction.

I have not shown the rails, switches, &c., which extend beyond the ends of the chain E, as of course any desired arrangement of these parts can be had.

I wish, as previously suggested, to have my drawings taken in the largest possible sense as diagrammatic, and I wish it understood that various figures of my device could be modified without departing from the spirit of my invention.

The use and operation of my invention are as follows: We will assume that the chain is traveling in the direction indicated in Fig. 1, that in Fig. 2 we are looking at the ascending side, and that the chain, with its trolley-pushers, is traveling as indicated by the arrows in Figs. 5 and 7. Obviously the stops G¹¹ G¹¹ will engage the first car pushed up onto the rails from the point where the chain with such pushers rise through the floor C. The stops, however, will present to the beam D′ the inclined faces G¹⁵ G¹⁵; but the weight of the car will prevent its motion, causing the spring G¹⁴ to yield and allow the stops to descend and pass under the beams of the car and again assume their upright position, as indicated in the several drawings. Since the distance between the stops and the pushers of each pair is approximately equal to the length of one of the cars, by the time this action has taken place the fixed pushers J J will have reached the car and will engage its rear beam D′. The further motion of the chain will carry the car up the incline, as indicated in Fig. 2, and when the car begins to descend the rear beam D′ will leave the pushers J J and the car will roll forward until the forward beam D² engages the stops G¹¹ G¹¹, and the car by reason of its weight is held against the stops and continues its motion until it passes off on the rails along the floor A′. In like manner when the loaded cars are standing, for example, in the shed A′ in proper position and the chain is returning the action will be repeated, but in this case the car will be carried up the short incline by the pusher and will be sustained by the stop as it passes down the long incline. It is quite obvious that any irregularity of the ground over which the cars are to travel can thus be compensated and the cars can be controlled regardless thereof. In ordinary practice the loaded car is pushed onto the track to a point just beyond where the chain and the trolleys come up to the floor and there the car stands. The first stop being hinged and held upright by the spring when it strikes the car is depressed and slips under the car and comes up in front of it. The pusher being rigid engages the car by striking against its rear end and pushing it along. On the downgrade the car runs forward against the stop and is held rigid. Thus the car is held between the pusher and the stop. When the lower end is reached, the forward stop passes down through the floor and the car runs off freely. I am enabled to bring about these results by the association of the stops and the pushers, the stops being hinged or spring-actuated. I am also enabled in this manner to use a single chain instead of using two chains with the fixed stops or pushers as heretofore.

I claim—

1. In a device for handling cars the combination of a movable hauling device with a series of car-controlling devices thereon, separated in pairs by a distance a little greater than the length of the car and two of them between each pair of cars.

2. In a device for handling cars the combination of a movable hauling device with a series of car-controlling devices thereon, separated in pairs by a distance a little greater than the length of the car, one of said car-controlling devices movable.

3. In a device for handling cars the combination of a movable hauling device with a series of car-controlling devices thereon, separated in pairs by a distance a little greater than the length of the car, one of said car-controlling devices movable and adapted to operatively engage the car only on one side.

4. In a device for handling cars the combination of a movable hauling device with a stop thereon, said stop consisting of a pivoted portion projecting into the path of the car, and a flexible portion to flexibly hold it in such position and a second fixed stop to hold the car from motion in the opposite direction.

5. In a device for handling cars the combination of a movable hauling device with a stop thereon, said stop consisting of a pivoted portion projecting into the path of the car, and a flexible portion to flexibly hold it in such position, and a rigid portion to rigidly hold it in such position when the pressure is applied on one side and a second fixed stop to hold the car from motion in the opposite direction.

6. In a device for handling cars, the combination of a movable hauling device, with a car-controlling device on such hauling device adapted to positively connect the cars with such hauling device, said controlling device mounted on the hauling device so as to have a lateral swinging or rocking motion.

7. In a device for handling cars the combination of a movable hauling device with two lines of track, the two runs of said hauling device associated each with one of said tracks, and car-controlling devices on such hauling device adapted to positively connect the cars

with such hauling device on either track, said controlling devices comprising two parts on the hauling device, separated by a distance a little greater than the length of the car and two of them between each pair of cars.

8. In a device for handling cars the combination of a movable hauling device with two lines of track, the two runs of said hauling device associated each with one of said tracks, and car-controlling devices on such hauling device adapted to positively connect the cars with such hauling device on either track, said controlling devices comprising two parts on the hauling device, separated by a distance a little greater than the length of the car, one of said parts a fixed pusher and the other a movable stop.

9. In a device for handling cars the combination of a movable hauling device with two lines of track, the two runs of said hauling device associated each with one of said tracks, and car-controlling devices on such hauling device adapted to positively connect the cars with such hauling device on either track, said controlling devices comprising two parts on the hauling device, separated by a distance a little greater than the length of the car, one of said parts a fixed pusher and the other a movable stop, such stop adapted to operatively hold the cars only when traveling in one direction.

10. In a device for handling cars, the combination of a movable hauling device, with a car-controlling device on such hauling device adapted to positively connect the cars with such hauling device, by means of a cross-shaft and a sleeve of increasing internal diameter toward its ends, so as to have a lateral swinging or rocking motion.

11. In a device for handling cars, the combination of a movable hauling device with two lines of track, the two runs of said hauling device associated each with one of said tracks, and car-controlling devices on such hauling device adapted to positively connect the cars with such hauling device on either track, said controlling devices comprising two parts on the hauling device, separated by a distance a little greater than the length of that part associated with the car which is to be engaged by such controlling devices and two of such devices between each pair of cars.

JOHN V. SCHAEFER.

Witnesses:

FANNY B. FAY,

HOMER L. KRAFT.