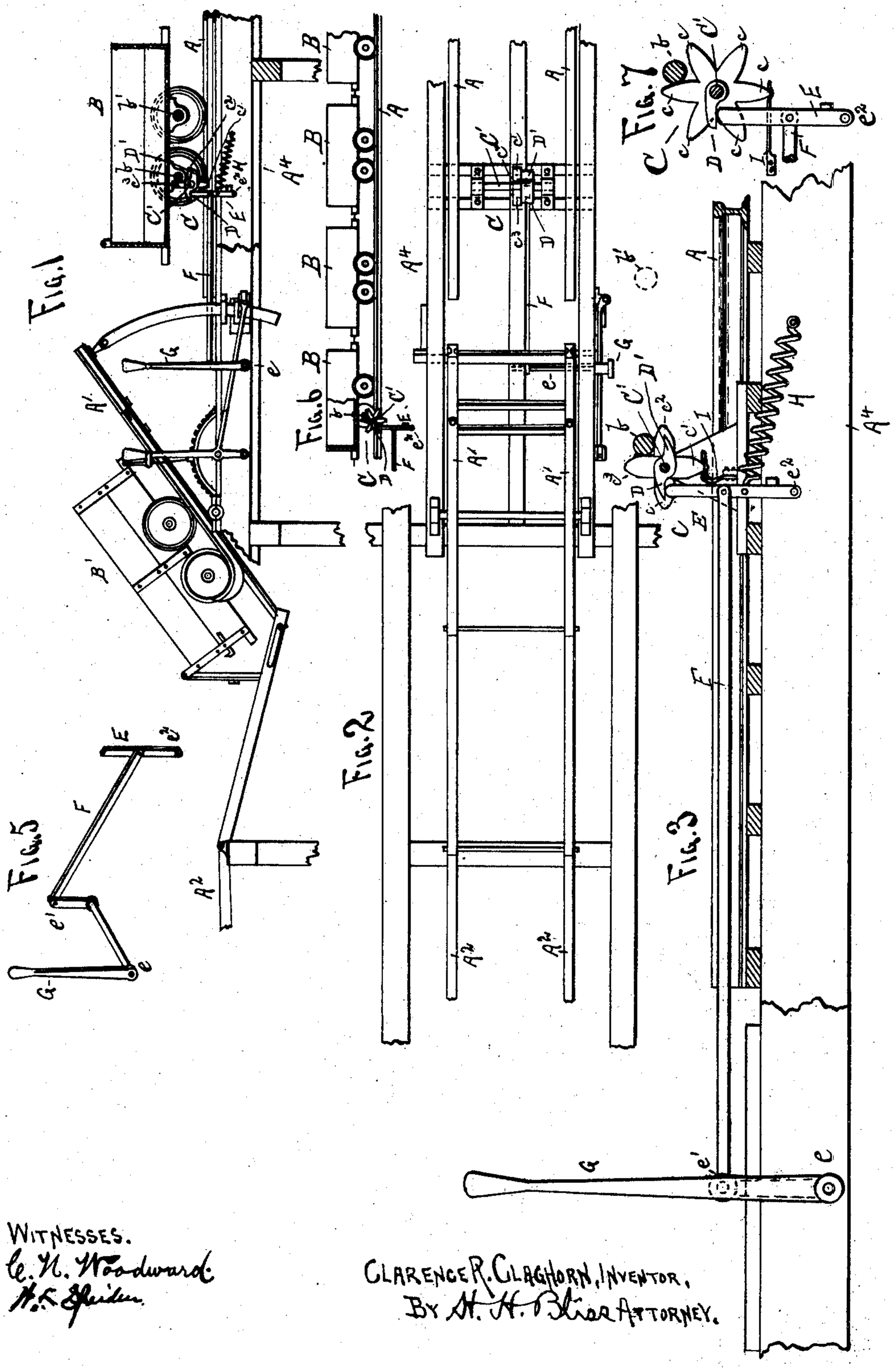
No. 736,818. PATENTED AUG. 18, 1903.

C. R. CLAGHORN.

CAR STOP.

APPLICATION FILED SEPT. 13, 1901.

NO MODEL. 2 SHEETS—SHEET 1.



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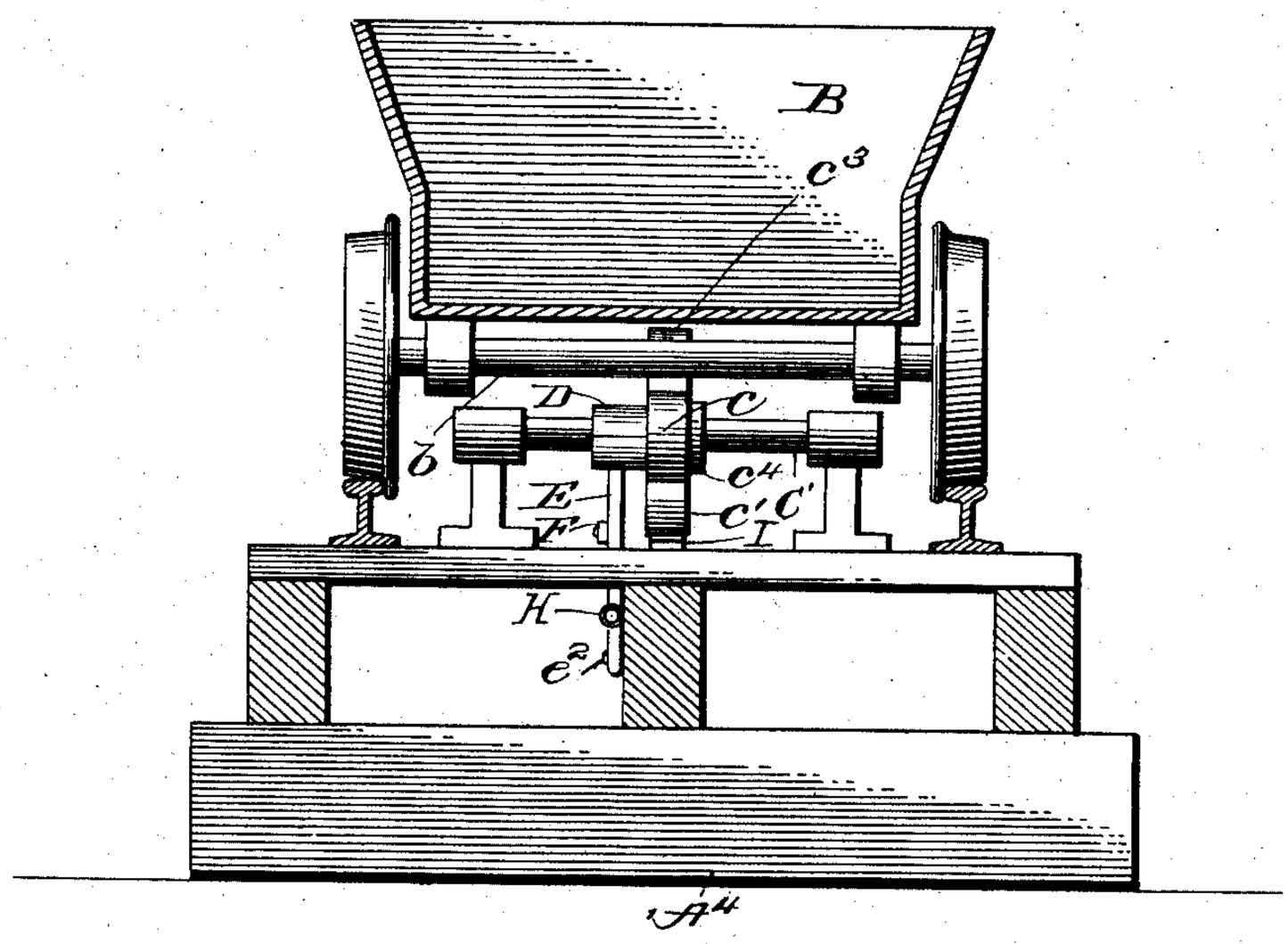
NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4



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No. 736,818. Patented August 18, 1903.

UNITED STATES PATENT OFFICE.

CLARENCE R. CLAGHORN, OF VINTONDALE, PENNSYLVANIA.

CAR-STOP.

SPECIFICATION forming part of Letters Patent No. 736,818, dated August 18, 1903.

Application filed September 13, 1901. Serial No. 75,297. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE R. CLAGHORN, a citizen of the United States, residing at Vintondale, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Car-Stops, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in the devices by which cars are controlled at points where they are stopped and started upon tracks—for instance, for controlling the stopping and the starting of mine-cars such as are used to bring coal or other material from the mines—the improved mechanism being used at points directly adjacent to the place where the cars are tilted, dumped, or emptied.

In the drawings, Figure 1 is a side elevation of a portion of a track system and cars thereon, illustrating the manner of applying my improvements. Fig. 2 is a plan view of the car-stopping device. Fig. 3 is a side elevation. Fig. 4 is a central vertical transverse section of Fig. 1. Fig. 5 is a perspective of the trip-lever mechanism. Fig. 6 is a view on a smaller scale illustrating an improved form of the stop. Fig. 7 is a view on a larger scale of the stop in Fig. 6.

In the drawings a part of the scaffolding or framework of a tipple structure is indicated by A^4, this being constructed and arranged in any suitable or preferred way. On this there is arranged a car-track having sections, (indicated by A A′ A^2.) The section at A is that which initially receives the cars either singly or in a train, thus being generally more or less inclined downward and forward, so that gravity shall act to constantly tend to advance the car or cars thereon. The section A′ is here shown more or less conventionally as similar to the tilting section of a tipple-track apparatus. The section A^2 is that which receives the cars after they have been emptied. The cars are successively advanced from the section A to section A′, and after being tilted and emptied while supported on the latter they are advanced to the section A^2, from which they are returned in any ordinary or preferred manner to the main track leading to and from the mine. The mechanism to which the present invention more particularly appertains is for stopping and releasing the loaded car on the track-section A which is to be next tilted and emptied, such car being shown at B, the car last previously standing in that position being indicated by B′, supported on the tilting section A′. To positively arrest the car B, use is made of one or more stops, each of which is indicated as a whole by C. Each stop C, when constructed as illustrated, is composed of four stop-arms c c' c^2 c^3, and these are preferably formed with a hub c^4, by which they can be secured to a shaft C′, suitably mounted on the proper line transversely to the track. Under some circumstances a single stop device C can be used at one side only of the car or relatively near the center thereof, and it will also be seen that the number of the stop-arms c c', &c., can be varied to meet different purposes. Upon each stop device there are also formed lugs D D′, these being preferably integral with the stop-arms and the hub. As shown, their operative surfaces are diametrically opposite. These lugs D D′ are adapted to engage with a movable stop device E, which, as shown, is pivoted at e^2 to a suitable support on the track or structure A^4. This swinging stop-bar E is connected by a link or pitman F with a hand-lever G, which is pivoted at points suitable for easy reach by the operator who is to control the cars, the lever being shown as pivoted at e to the track-supporting frame and at e' to the link or rod F. The parts D D′ and c c', &c., of each stop device are so related to each other and to the other parts that one of the stop-arms—as, for instance, as is shown at c^3—will be in a vertical position and directly in the path of the axle or equivalent projection or part of the car, this being at the time when one of the lugs D is resting upon the stop-bar E. At such time the loaded car B is, by reason of the inclination of the track-section A, under the influence of gravity, pressing forward against the stop with more or less force. When it is desired to release the car B and permit it to advance to the tilting-track section, the operator by lever G moves the stop-arm E out from under the lug D, whereupon the stop device is entirely free to rotate, and under the pressure of the load-

ed car B it is caused to rotate forward, permitting the car to advance without obstruction. The axle *b* carries the stop-arm c^3 to the horizontal position, bringing the stop-arm c^2 to the vertical. When the axle *b'* reaches the stop device, it impinges upon the stop-arm c^2 and rotates the stop another quarter of a revolution, and as the latter has under the actions of both the axles made one-half of a revolution the second lug D' has been brought around to the place where it can engage with the swinging stop-bar E. This stop-bar E has in the meantime been returned to its ordinary position by the operator's hand or by means of a spring H, so that the stop device is now again locked against rotation, so that when the axle of the next car reaches the arm *c'* it (the car) will be arrested during the time when the car B is being emptied on the tilting section A and until the operator again moves the lever G to release the lock E. Heretofore this stopping of cars for the above and similar purposes has been effected by what are generally known as "horns," they being elongated stop devices curved up to conform to a part of the circle of the car-wheels and adapted to move laterally on vertical axes, so that they can swing outward from and inward into the paths of the wheels; but for several reasons difficulties are incident to stopping and starting devices of that character. Among them is this, that after the cars have been in operation for a period the treads of the wheels become grooved, and when pressed forward against the stop-horns the latter seat themselves in the grooves and lateral disengagement is difficult and sometimes impossible; but with a stop mechanism operating upon the principle of that herein the holding device yields forward in contradistinction to being moved laterally out of the paths of the wheels, axles, or other parts of the car with which they engage, and it is immaterial whether there are any projections or obstructions against movement out and in on lines transversely of the track.

By having four stop-arms *c c'*, &c., for engagement with the car and two stop-lugs D D' for engagement with the track or track-frame or with some intermediate devices, like the swinging stop E, a two-axled car sets the stop properly for the next car when the axles or any parts connected therewith are depended upon as the stop elements carried by the car. If such stop element be reduced to one—as, for instance, if a special lug or projection be attached to the car, so that but one of the step-by-step movements is imparted to the stop—there could be four of the lugs D D', as will be readily understood; but in the construction and operation of these mine-cars it is a desideratum that the utmost simplicity should be attained, and the addition of special devices or parts is objectionable. Hence I use the parts ordinarily found for other purposes, such as the axles, one of which serves as the stop element on the car and the other of which acts to set the stop for the next car, the stop-arms *c*, &c., projecting vertically across the horizontal planes of the axles.

The pivot at *e* for the lever G is elongated, serving somewhat as a rock-shaft, (see Fig. 5,) and the pitman F is connected by means of a crank-arm *e'*, interposed between the pitman and the lever G.

At I there is shown a device for preventing the stop C from moving more than the required distance as each car-axle passes and for insuring that the stop shall be brought to the proper position at the end of each of its step-by-step movements, this device consisting of a spring-plate arranged to engage with the ends of the stop-lugs *c c'*, &c.

It will be seen that with a mechanism operating upon the principle of that which I have devised the operator merely effects the initial release of the stop D, for immediately thereafter he can permit the spring H to control the return of the part E to its operative position and thereafter disregard the stop device until it is necessary to accomplish the next releasing action—that is to say, the device can be regarded as having a car-stop and an automatically-acting lock, together with means whereby the lock can be opened at will and the stop released. It will be further seen that when the stop mechanism embodies the principle herein set out it can be utilized as an automatic "counter"—that is, a mechanism which upon opening its lock shall permit one car to pass, two, three, or more. Thus with the devices in Figs. 1 and 3 the cars (assuming each to have two axles and that these axles are utilized as the actuating means for the stop mechanism) will be passed one at a time, because the four-armed stop and trip, with the two lugs D D', will allow two axles to pass and lock the third, which under the assumption will be the first axle upon the next car; but if one of the stop-lugs D D' should be dispensed with it will be seen that two cars will pass, and the third one will be stopped, and after the next release two more will pass, and so on. If it is desired to allow three cars to pass, it can be accomplished by employing devices such as those in Figs. 6 and 7, the armed stop device here having six arms, with one lug D, and hence six axles can pass the stop, and the seventh will be arrested.

What I claim is—

1. A car-holding device consisting of a rotary stop element movable in the planes of advance of the car, a stop element on the car, and means supported independent of the car for locking the rotary stop element, substantially as set forth.

2. A car-holding device consisting of a rotary stop element mounted independently of the car to rotate in the planes of the path of the car and adapted to engage with the car or a part thereof, and a supplemental stop element mounted on the car-support for locking

the aforesaid rotary stop element, substantially as set forth.

3. A car-holding device consisting of a rotary stop element adapted to rotate in the planes of the advance of the car, a lock for holding the said rotary stop element, and means for intermittingly releasing the said lock, substantially as set forth.

4. A car-holding device having a rotary stop element mounted to rotate in the planes of advance of the car, means for intermittingly locking the stop element, two stop-engaging devices on the car, one adapted to move the stop element after it is unlocked, and the other adapted to set the stop element for the next car, substantially as set forth.

5. A car-holding device consisting of a rotary stop element for engaging with the car and having a series of several car-engaging stops and a secondary series of stop devices adapted to engage with a lock, the said secondary stop devices being of a number smaller than that of the car-engaging stop devices, substantially as set forth.

6. In a mechanism for stopping a series of cars, and for releasing, and permitting the passage of a predetermined number of two or more cars, the combination with the track and the cars having wheels fitted to the said track, of a positively-acting stop movable to and from its active or stopping position, and a series of stop elements of predetermined number movable by the car or cars of the train, and supplemental to and independent of the aforesaid car-wheels, and arranged to engage intermittently with the aforesaid stop, and positively arrest the advance of the remaining cars after the passage of two or more cars, substantially as set forth.

7. In a mechanism for stopping a train of cars, and thereafter releasing and permitting the passage of a predetermined number of cars, the combination with a normally stationary positively-acting stop movable to and from its stopping position, and a series of movable stop elements of predetermined number movable by the cars of the train, said stationary stop and movable stop element being located out of the line of travel of the car-wheel, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CLARENCE R. CLAGHORN.

Witnesses:

E. E. SMITH,

R. G. WARE.