

No. 712,543.

Patented Nov. 4, 1902.

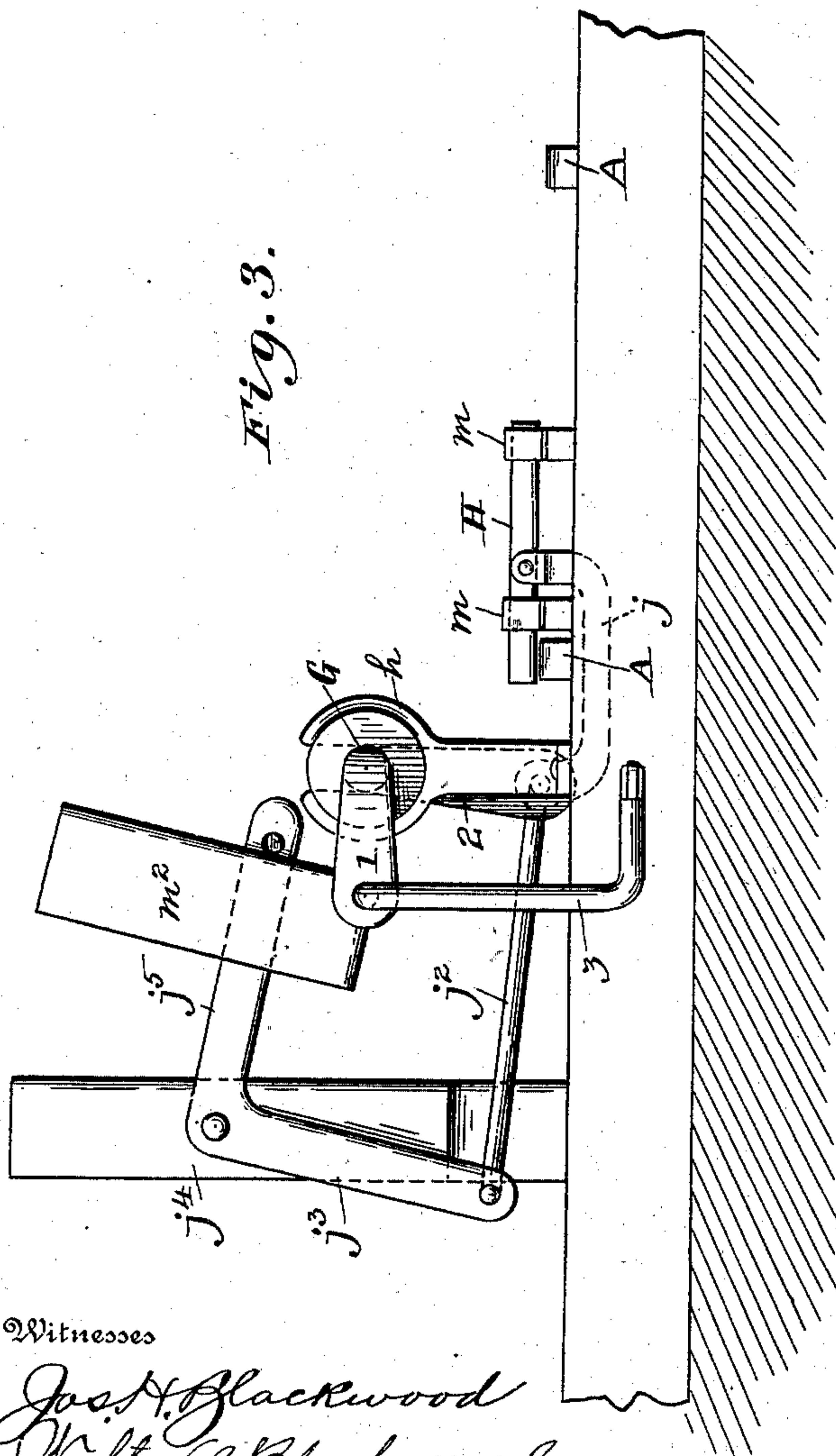
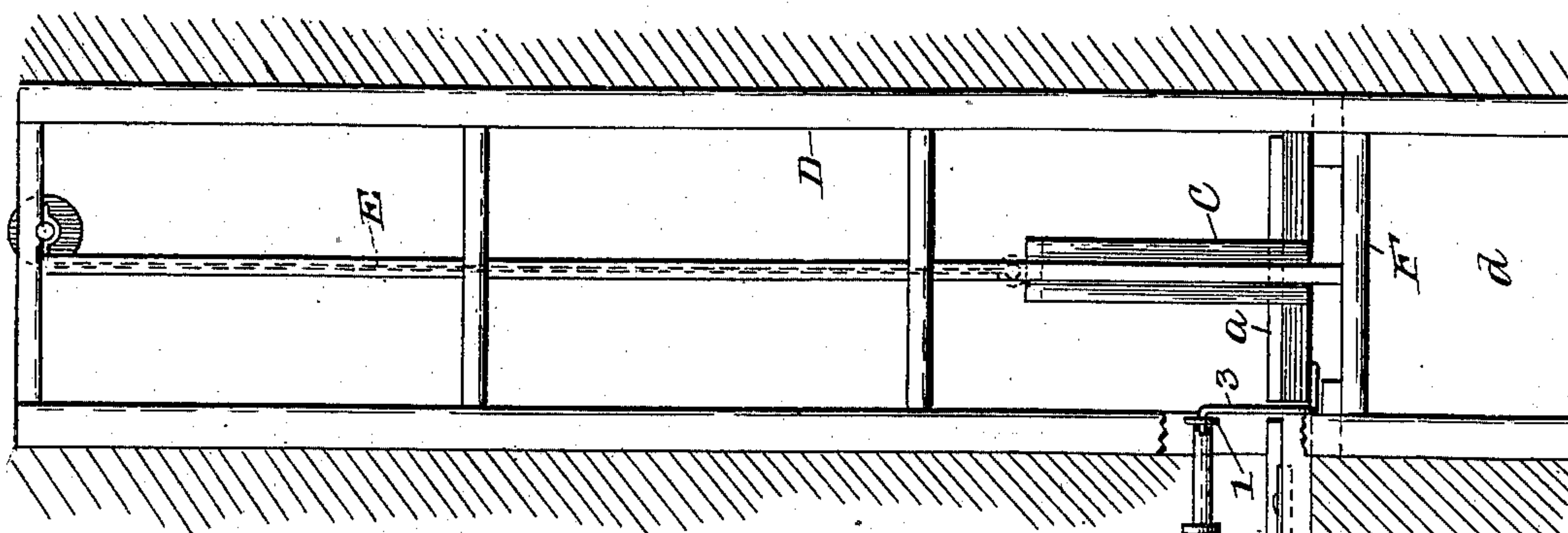
H. W. JENKINS.

AUTOMATIC SAFETY STOP FOR CARS.

(Application filed July 7, 1902.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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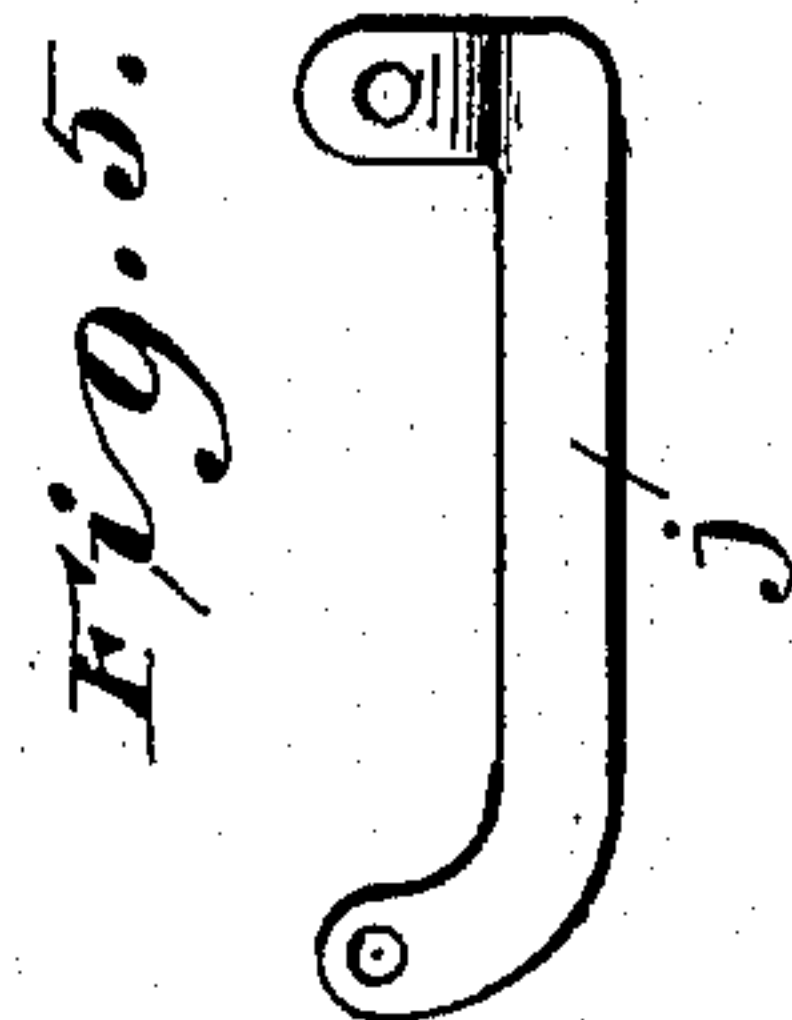
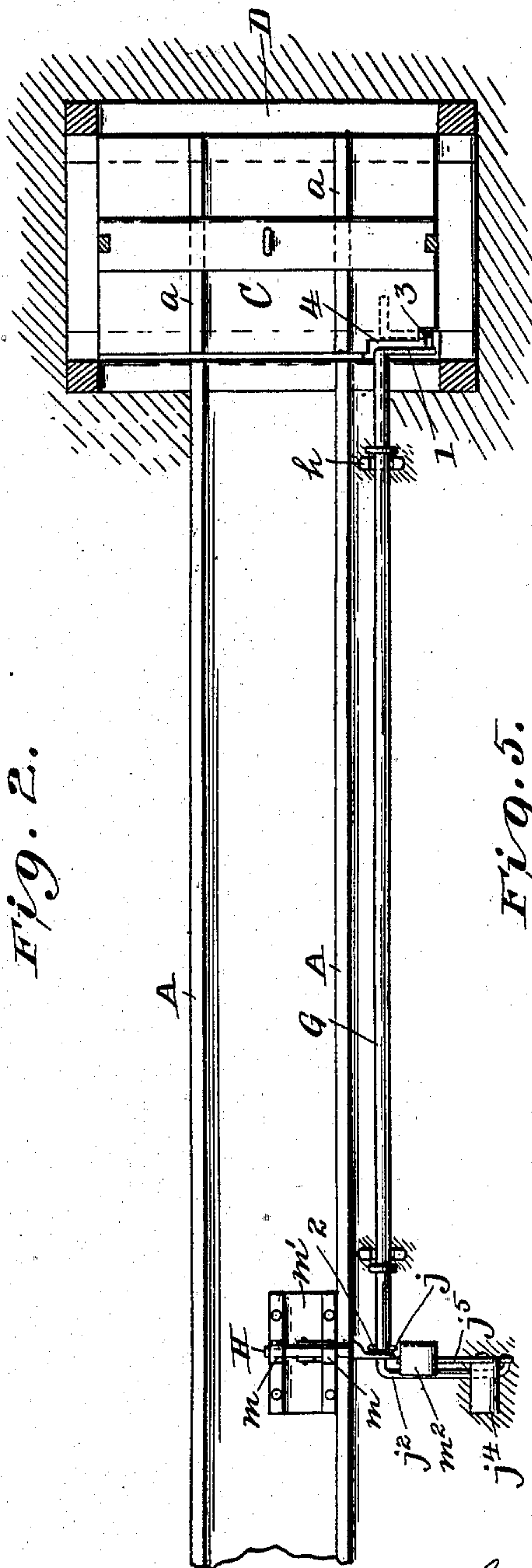
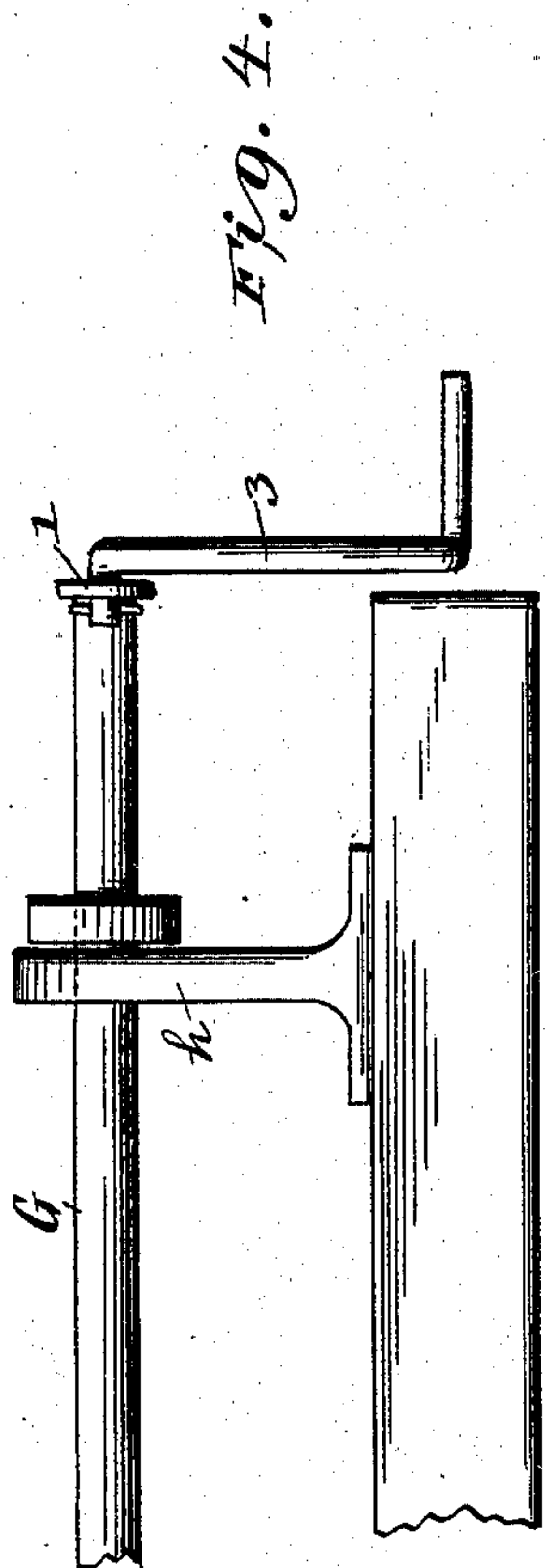
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 6.

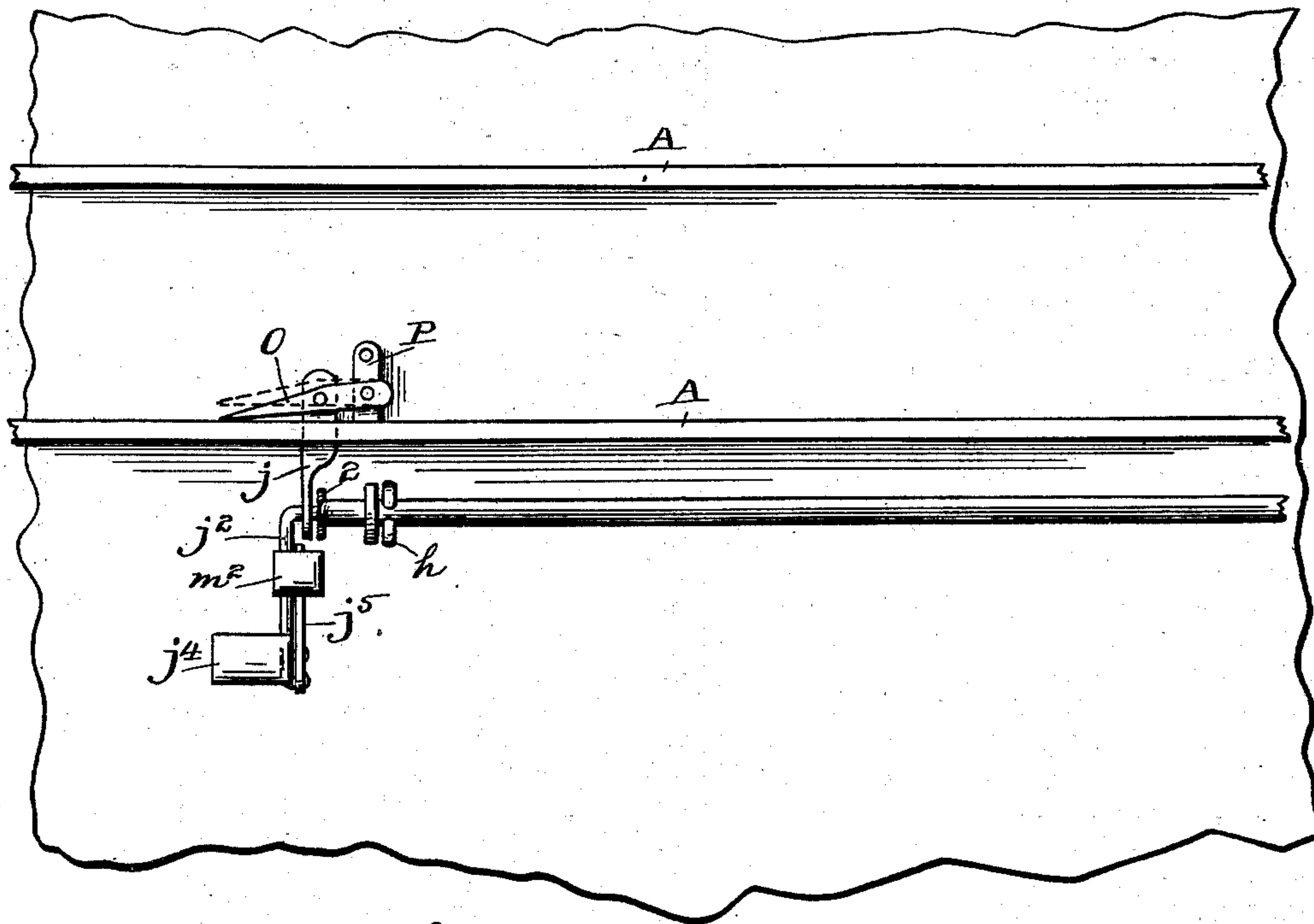


Fig. 7.

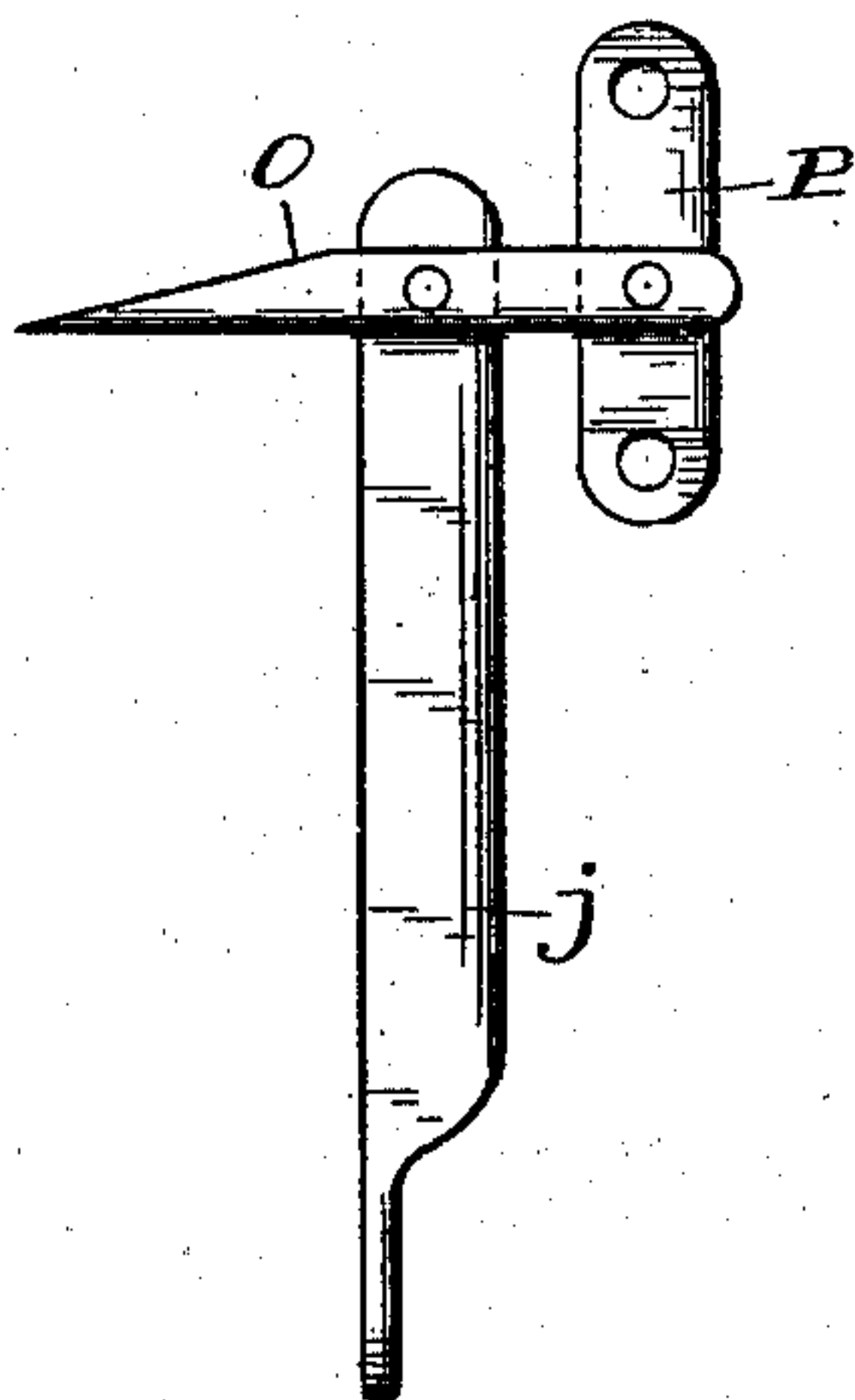


Fig. 8.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC SAFETY-STOP FOR CARS.

SPECIFICATION forming part of Letters Patent No. 712,543, dated November 4, 1902.

Application filed July 7, 1902. Serial No. 114,606. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. JENKINS, a citizen of the United States, residing at Brazil, in the county of Clay and State of Indiana, have invented certain new and useful Improvements in Automatic Safety-Stops for Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in automatic safety-stops for cars. It is designed principally for use in coal-mines and with coal-cars running on a track into an elevator-cage; and its object is to automatically control the advance of a car to the cage, so as to prevent accidents arising from the car running on or into the cage-frame when the cage is not in place to receive it.

In the mining of coal or other ore, or it may be in raising material of any kind by means of an elevator-cage, the material is loaded on a car at the bank. Such cars are known as "bank-cars." They run upon an ordinary D-track and are hauled to an elevator-cage, generally by mules. The cage is an open frame provided with a section of corresponding track of the same form of rails as the outside car-track, and the car-track is usually inclined to the cage. The cage is raised and lowered in the shaft on a strong frame provided with vertical guides. Near the bottom of the shaft is a seat for the cage, and beneath the seat is generally left an excavation. The cage ascends and descends at right angles to the car-track, and when the car is loaded thereon the cage and car are elevated by a steam or other motor. One difficulty experienced consists in the fact that often when the loaded car is being hauled to the cage-shaft the cage may not be in place to receive the car, as it may at that time be ascending or descending, and as the car is under considerable headway, whether drawn by mules or running by its own momentum, it may, before it can be stopped either by a brake or otherwise, run under the cage and fall into the excavation or collide with the timbers of the shaft, or it may strike a portion of the cage itself and damage both cage and car, and when mules are employed

for hauling such collisions often kill or seriously injure them.

To avoid such accidents, my invention consists of a stop or catch located upon the track at a convenient distance from the cage and in connection with the rail and automatically operated to arrest the progress of the car toward the cage and automatically tripped or released by the cage, whereby the car is permitted to run on the cage only when the latter is in place to receive it.

I have referred to a structure of car-track, cage, car, and stop when the cage moves vertically and at right angles to the path of the track, but it will be evident that the principle of my invention and the avoidance of the accidents referred to may be applied in connection with a track with a cage running across the track in other directions than vertically or at right angles thereto.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation; Fig. 2, a top plan; Fig. 3, an end view; Fig. 4, a detail of lever-arm; Fig. 5, a detail of the horizontal lever-arm; Figs. 6, 7, and 8, details of modifications.

Referring to the drawings, A designates the track, built upon the mine or earth bottom, composed of T-rails and on which a car is run to the cage.

C is the cage, placed in an open framework D, composed of the usual vertical posts and cross-beams and guide-slides on which the cage is moved in ascending or descending.

E designates a rope or chain by which the cage is raised or lowered; but of course other means and well-known attachments for this purpose may be employed. The cage has a door which is provided with a section of a track *a*, which when the cage rests upon its seat is in alinement with the main outside track A.

F is the cage-seat within the framework D. It is composed of removable timber-supports, which are fixed of course in such position within the framework as will bring the track-section within the cage on a line with the track outside of it. An excavation *d* is necessarily left beneath the cage-seat within the framework unless the seat can be placed di-

rectly at the bottom of the framework and the space beneath it filled in. One of the objects of my invention, as already stated, is to prevent the car from falling into such excavation when the cage is not in place.

The stop and block arrangement is composed of a long rod G, supported on yokes *h h* and provided at opposite ends with crank-arms 1 2. Crank 1 is at the cage end of this rod and is there provided with a short lever-arm 3, which is arranged to extend into the cage-frame seat through a mortise 4 and is there held at such an angle that when the cage descends to its seat it will first strike such arm, turn it down, and rest upon it. This will serve to rotate the rod G for the purpose hereinafter explained. The crank-arm 2 at the opposite end has connected with it a horizontal lever-arm *j*, which passes under or through one of the D-rails, is turned up at the end and terminates or is connected to a sliding bolt H, supported by and sliding in yokes *m* and which bolt is adapted to slide on top and across one of the rails. At the end of the crank-arm 2 and running in a direction opposite to arm *j* is a rod *j*², connected to a pivoted lever *j*³, swinging on a bolt connected to block *j*⁴, and which lever beyond the pivoted point has a horizontal arm *j*⁵, carrying a counterweight *m*². This counterweight is made sufficiently heavy to more than counterbalance the weight of the long rod G and hold it from turning. A spring might be used in place of the weight. In its normal position, with the weight down, the bolt H is held in position across and on top of one of the rails, and a car moving toward the cage on the track is stopped thereby at that point.

When the cage descends and rests upon lever-arm 3, it turns the lever-rod G against the counterweight, raising the counterweight, throwing it back, and which motion, communicated to the arm *j* and bolt H, serves to withdraw the latter from off the rail and permits the car to run forward on the balance of the track and on the track-section within the cage. On the raising of the cage or otherwise freeing it from engagement with the rod G the counterweight serves to rotate the latter and to throw the catch or bolt to its normal position on the rail.

In Figs. 6, 7, and 8 I have shown a modification of the stop. It consists of a wedge-shaped bar O, pivoted to a cross-plate P, which in turn is pivoted to the lever-arm *j*.

The thin or pointed end of the wedge extends to and along the side of the upper flange of the top rail, so as to be flush therewith, and as the car-wheel passes onto it the tendency of the wider extending part of the wedge is to draw sidewise the wheel, and thus wedge and bind the opposite car-wheels upon the track and to stop and hold the car.

The construction and operation of the invention it is believed will be understood without further description.

Having thus described my invention and the manner of its operation, what I claim, and desire to secure by Letters Patent, is as follows:

1. In combination with the rails of a car-track, a stop or latch held normally in engagement with a rail to stop a car, a cage adapted to receive the car and to engage said stop and release it from its engagement with the rail, said stop and its actuating mechanism comprising a sliding member and an actuating-lever connected with said member and adapted to contact with said cage, whereby the said sliding member is positively and automatically slid sidewise into or out of engagement with the rail upon contact or disconnection of said lever with said cage, substantially as described.

2. In combination with an outside car-track and elevator-shaft, an elevator cage and platform within said shaft, a stop mechanism on said outside track, said mechanism comprising a rotary shaft having crank-arms at its opposite ends, a crank at one end connected with a counterbalance-weight, and a sliding bar adapted to engage with the rail, the opposite crank having an arm adapted to extend within the shaft and engage with the elevator-cage, substantially as described.

3. In combination with a rail, a stop mechanism connected with said rail, and comprising a rotary lever-shaft having crank-arms at its opposite ends, a counterbalance-weight connected to one of said crank-arms, a sliding bar also connected, through intermediate pivoted arms, to said crank-arm, and adapted to engage with the rail as a stop, and pressure means adapted to rotate said shaft, substantially as described.

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

HARRY W. JENKINS.

Witnesses:

L. M. OVERTON,
S. E. COUCH.