U. U. CARR.

AUTOMATIC MINE CAR STOP.

APPLICATION FILED OCT. 21, 1908.

917,540.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

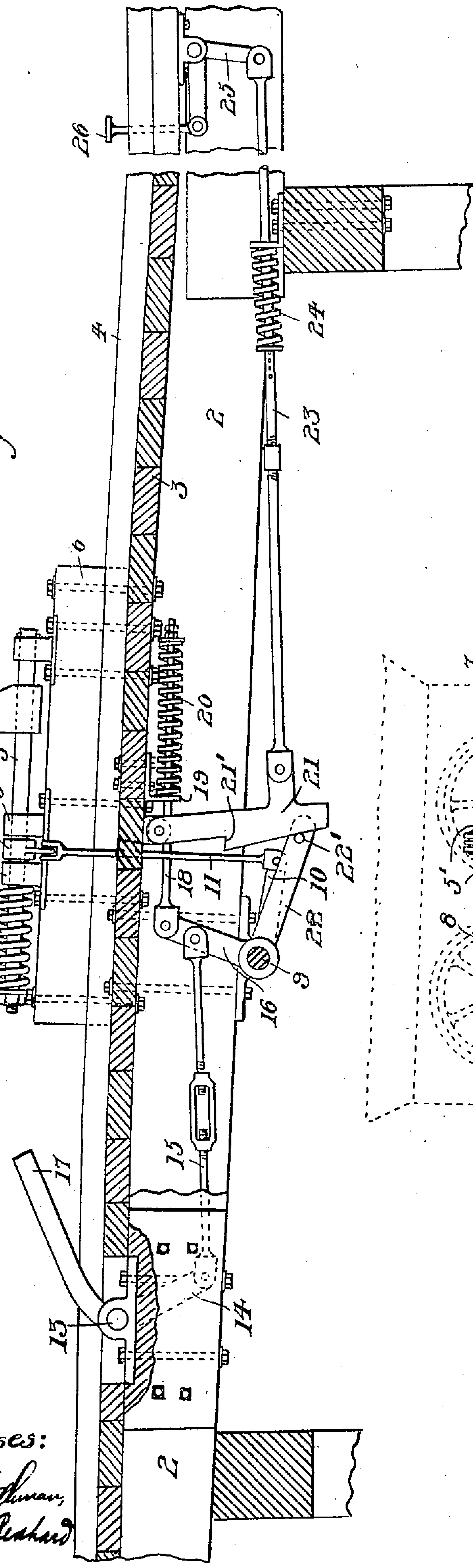
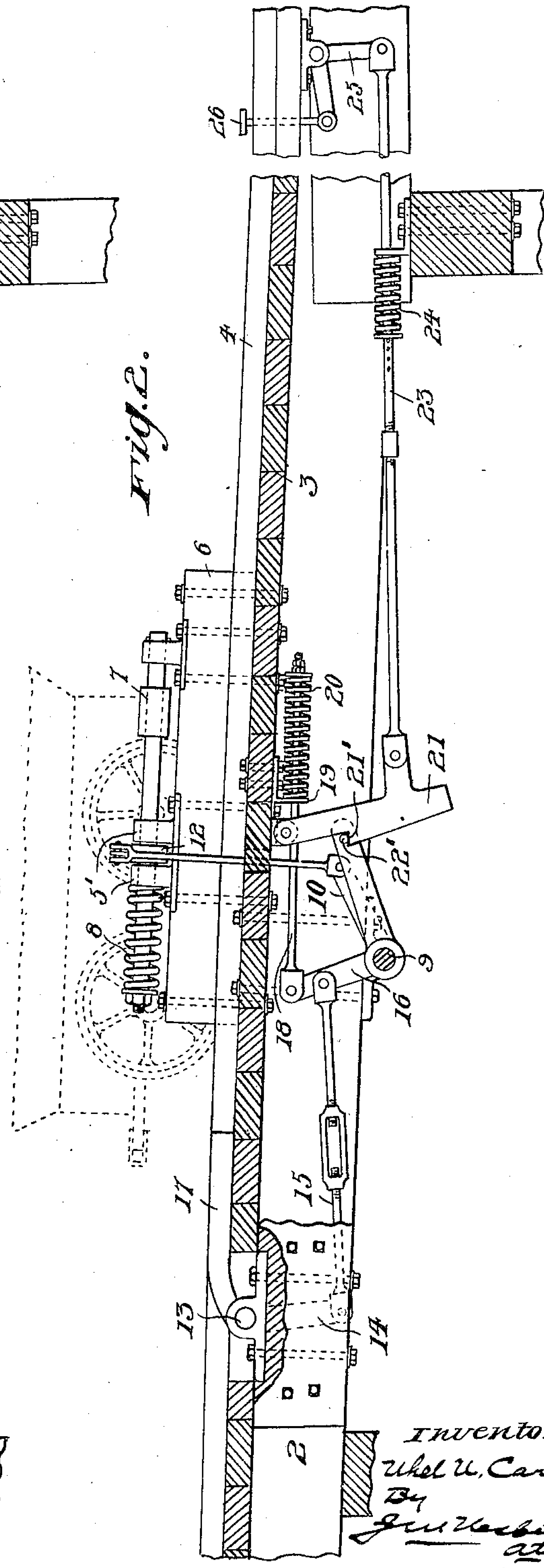


Fig. 2.



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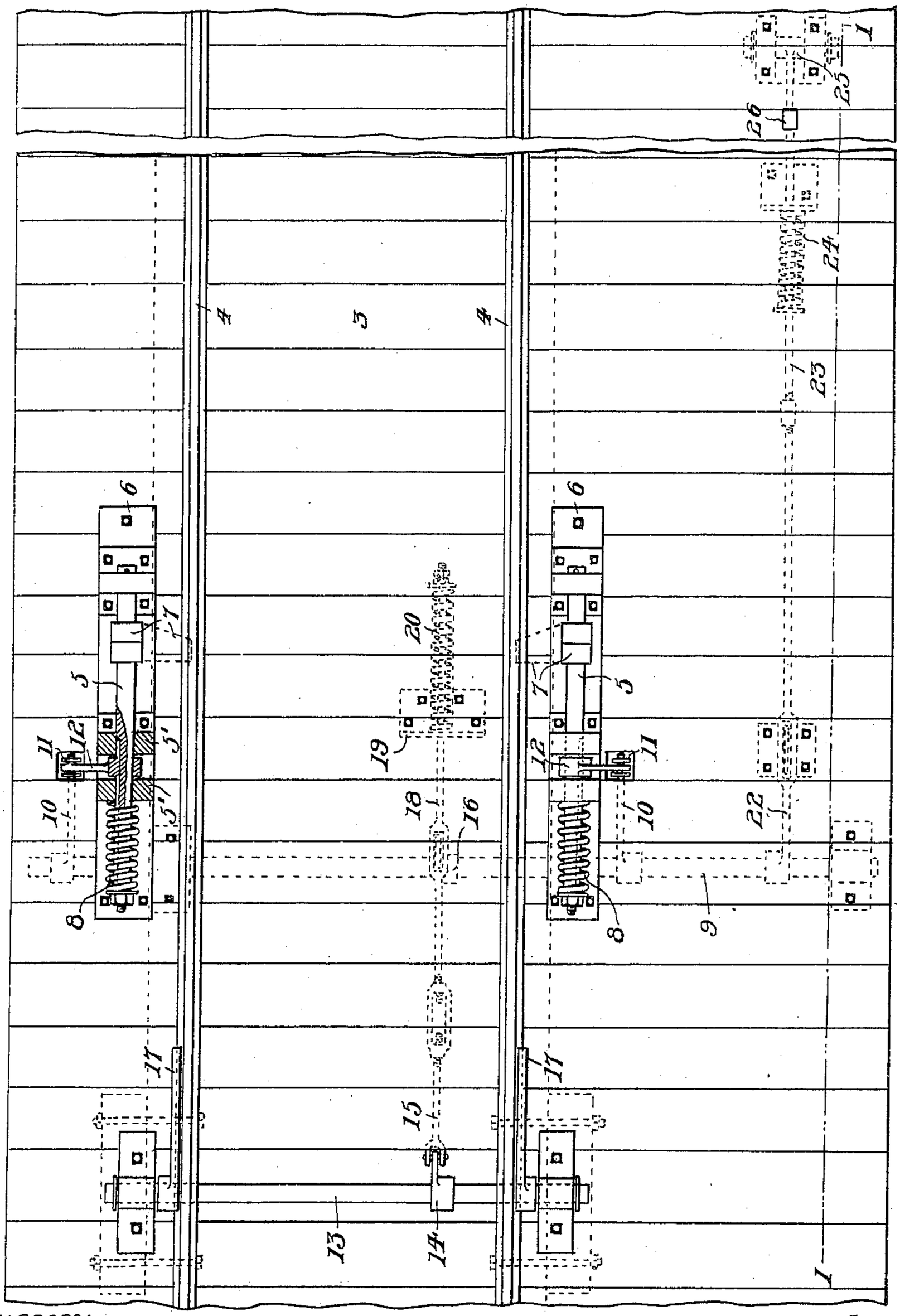

Fig. 3.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC MINE-CAR STOP.

No. 917,540. Specification of Letters Patent. Patented April 6, 1909.

Application filed October 21, 1908. Serial No. 458,851.

To all whom it may concern:

Be it known that I, UHEL U. CARR, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Mine-Car Stops, of which the following is a specification.

This invention relates to mechanism for automatically stopping and holding approaching cars so that they may be caused to advance at intervals, as to a dump or to a mine cage.

Usually, the cars pass to the dump or cage over a gravity approach, and the primary object is to provide for stopping and holding each car at a suitable distance, with means located within convenient access of the dump operator or cage tender for releasing each car and permitting it to advance with sufficient momentum, resulting from the inclination of the approach, to move the previously emptied car off the dump or cage and take its place. An automatically operating check or stop is thus provided, past which a car cannot move until released by the operator, so that the dump or cage is fully protected, and the not infrequent accidents resulting from the premature advance of the cars is avoided. Furthermore, the cars are caused to advance with mechanical accuracy and each time under momentum sufficient to insure its proper positioning on the dump or cage and the concurrent displacement of the emptied car ahead. Under the present practice, one or more men are required for controlling the advance of the cars. The improved apparatus dispenses with this manual service, thereby decreasing the operating expense and greatly increasing the efficiency with which the work is performed.

A characteristic of the invention is the maintaining of the car holding devices normally out of car engaging position, while the operating means is maintained normally in position to be engaged and operated by a car, with the result that the force—spring means in the present embodiment—which opposes movement of the holding devices into car engaging position operates to move said devices out of holding position and permit the held car to advance, such force also operating to maintain the actuating means normally in position to be operated. Hence it is characteristic of the invention that the stop means is moved to car holding position by the moving cars, in the adaptation here shown this being accomplished by each car as it approaches the same.

In the accompanying drawings, Figure 1, taken on line 1—1 of Fig. 3, is a view partly in side elevation and partly in vertical section of a portion of a tipple approach equipped with the improved mechanism, showing the latter in normal position. Fig. 2 is a similar view with the mechanism set in car-holding position. Fig. 3 is a view in top plan.

Referring to the drawings, 2 designates longitudinal timbers and 3 the floor of a tipple approach, on which the track rails 4 are laid. At opposite sides of the track and extending longitudinally thereof are the rock shafts 5, each mounted in suitable bearings 5′ on a timber 6, the latter supporting shaft 5 in about the plane of the car axles. Secured to each shaft is a projection or horn 7, held normally in upturned position but adapted to be turned inward to engage the wheel tread in about the plane of the wheel axle, as shown in Fig. 2. Each of shafts 5 has longitudinal play in its bearings and is equipped with a spring 8 for opposing movement of horns 7 with the car but permitting them to yield in that direction and thus compensate the shock resulting from a car engaging the horns, especially when under considerable momentum. Journaled on longitudinal timbers 2 is the transverse rock shaft 9 having arms 10 connected by links 11 to arms 12, one of the latter projecting from each of shafts 5. Arm 12 may be feathered on the shaft and arranged between two of the shaft bearings 5′ so that the shaft may have a longitudinal compensating movement above referred to.

Arranged transversely of the track is a second transverse rock shaft 13 having a depending arm 14, connected by an adjustable link 15 to arm 16 on shaft 9. Secured to shaft 13 are the inclined and depressible arms 17 which are in close proximity to rails 4 and are held normally raised and in inclined position, as in Fig. 1. A rod 18 extends from arm 16 through an abutment 19, with a coiled spring 20 confined on the extended part of the rod and bearing against the abutment, as shown. This spring operates to hold the parts normally in position shown in Fig. 1, with depressible arm 17 raised for engagement with the wheels of an approaching car, and with horns 7 elevated out of car holding position.

A depending latch 21, pivotally supported at its upper end, is notched at 21′ to engage a pin 22′ carried by arm 22 mounted on shaft 9. An operating rod 23 extends from the latch, and a spring 24 exerts pressure on the rod and causes the latch to bear against pin 22′, so that when the mechanism is oscillated by an approaching car in opposition to spring 20 which results in the raising of arm 22, pin 22′ is engaged by the latch notch 21′ and the mechanism is held in car retaining position, as in Fig. 2. Trip operating rod 23 may extend to any suitable point where it is desired to effect the release of the car. For feeding cars to a tipple, it may be operated through the medium of a bell-crank lever 25 to which may be secured the foot depressed stem or treadle 26, within convenient reach of the operator. Obviously, the release mechanism may be variously embodied.

In operation, the wheels of the approaching car depress arms 17 and oscillate rock shafts 13 and 9 and so turn shafts 5 as to project horns 7 into wheel-engaging position. At the same time the upward movement of arm 22 permits latch 21 to operate and hold the mechanism in set position in opposition to spring 20, compressed by the movements just described. The car is thus securely held, as shown in Fig. 2, until the operator is ready for it to advance, whereupon it is only necessary to depress treadle 26, thereby moving rod 23 in opposition to spring 24, and retracting latch 21, when the mechanism is free to respond to the force of spring 20 which moves the parts from locked position to that shown in Fig. 1, raising the horns 7 and permitting the car to drift onto the dump or cage, at the same time setting arms 17 in position to be operated by the next approaching car.

While I have here shown and described the invention in its preferred embodiment, and while it is designed primarily for controlling the passage of cars to a tipple, the apparatus may be variously constructed and used without departing from the spirit and scope of the appended claims.

I claim:—

1. The combination of car holding means normally out of car-holding position, and movable car actuated means operating when moved by an approaching car to place the holding means in car-holding position.

2. The combination of wheel-holding devices movable to and from wheel-engaging position, a wheel actuated device, and an operative connection between the wheel actuated device and the holding device, whereby when the former is engaged by the wheel of an approaching car the holding devices are moved into wheel-engaging position.

3. The combination of wheel-holding devices movable into and out of the path of car wheels, a wheel-depressed device, and an operative connection between the depressing device and the holding devices whereby when the former is depressed the latter are moved into wheel-engaging position.

4. The combination of car-holding means movable to and from car-engaging position, means for maintaining the holding means normally out of car-engaging position, and a movable actuating device normally in car engaging position.

5. The combination of wheel-holding devices movable laterally to and from wheel-engaging position, means for holding the devices normally out of wheel-engaging position, a movable device held normally in the path of an approaching car and operatively connected to the holding devices for moving them to wheel-engaging position on the approach of a car.

6. The combination of movable car holding means, means maintaining the same normally out of car holding position, car actuated means operating to move the holding means into holding position, and means for releasing the holding means from car holding position.

7. The combination of movable car holding means, car actuated means positioned to be operated by a car when approaching the holding means for placing the latter in car holding position, and means for releasing the same from holding position.

8. In mechanism for holding cars and feeding them in succession to a tipple or cage, the combination of holding means movable to and from car holding position, car actuated means for moving the same to holding position, and means operated independently of the tipple or cage for moving the holding means out of car holding position.

9. The combination of car-holding means movable to and from car-engaging position, means opposing movement thereof into car-holding position and operating normally to move and hold the same out of car-holding position, car-engaging means and connected thereto for moving the same into car-engaging position, a trip device operating to maintain the holding means in car-engaging position, and means for releasing the trip device to permit the holding means to assume its normal position out of engagement with the car.

10. The combination of car-engaging devices movable to and from car-holding position, spring means maintaining the devices normally out of car-engaging position, car actuated means and connected thereto and when engaged by a car operating to move the holding means into car-engaging position in opposition to the spring means, trip means operating to maintain the holding devices in car-engaging position, and means for releasing the trip means.

11. The combination of car-engaging devices movable to and from car-holding position, car actuated means connected to the holding devices and when engaged by an approaching car operating to move the holding devices into car-engaging position, and means located distant from the holding devices for causing the holding devices to move from car-engaging position.

12. In a mine car stop, the combination of a rock shaft, an arm thereon normally raised in the path of the mine car, car-holding means movable to and from car-engaging position, and a connection between the rock shaft and holding means for moving the latter into car-engaging position when the shaft is rocked by depression of the normally raised arm.

13. The combination of a rock shaft extending longitudinally of a car track, a car-engaging projection on the shaft, a movable device in the path of and adapted to be deflected by a car, an operative connection between said device and the rock shaft for oscillating the latter to place said projection in car-engaging position when said device is deflected, and spring means opposing deflection of said device and oscillation of the shaft.

14. The combination of a shaft extending longitudinally of the car track, a car-engaging device projecting from the shaft, an arm projecting from the shaft for oscillating the same, a transverse rock shaft having an arm connected to the arm of the first mentioned shaft, a spring opposing oscillation of the rock shaft, car deflected means connected to the transverse rock shaft for oscillating the same in opposition to the spring, a trip device for holding the parts in the position into which they are moved in opposition to the spring, and trip releasing means.

15. The combination of rock shafts outside of and above the plane of the track rails, a wheel-engaging projection on each shaft, a transverse rock shaft, arms on the rock shaft connected to said laterally projecting arms, a spring for opposing oscillation of the rock shaft, a second transverse rock shaft in advance of the first mentioned rock shaft with said shafts provided with connected arms, normally raised wheel-engaging arms on the second rock shaft and adapted to be depressed by the wheels of a car and thereby oscillate both rock shafts in opposition to said spring, a trip device holding the parts in the position in which they are thus oscillated with the said wheel-engaging devices projected to engage the car wheels, and trip releasing means extending along the track and adapted to be operated at a distance.

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

UHEL U. CARR.

Witnesses:
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C. W. CHANDLER.