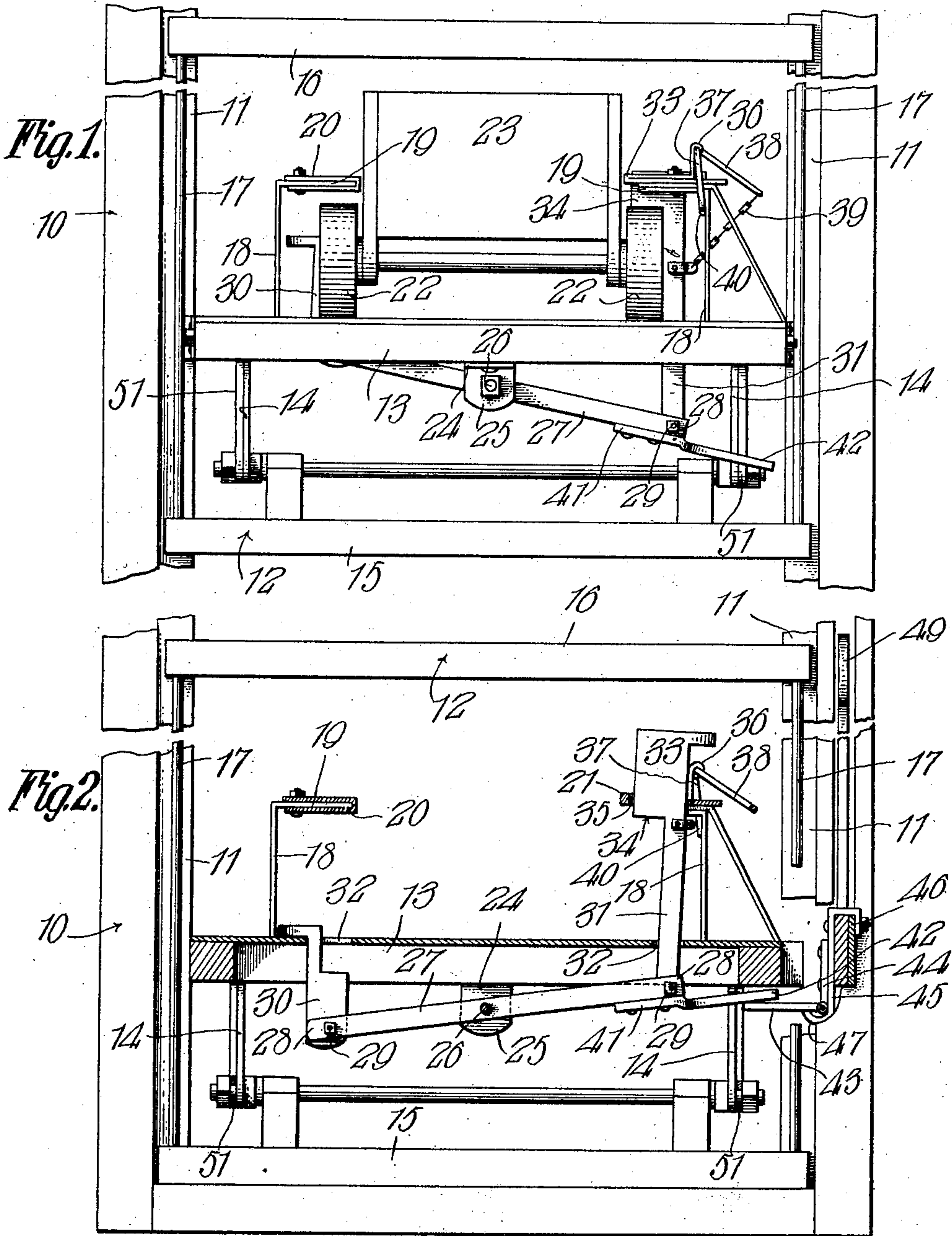


J. H. STROOPE.
 AUTOMATIC LOCKING AND RELEASING DEVICE FOR MINING CARS.
 APPLICATION FILED MAY 25, 1908.

925,247.

Patented June 15, 1909.

2 SHEETS—SHEET 1.



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Fig. 3.

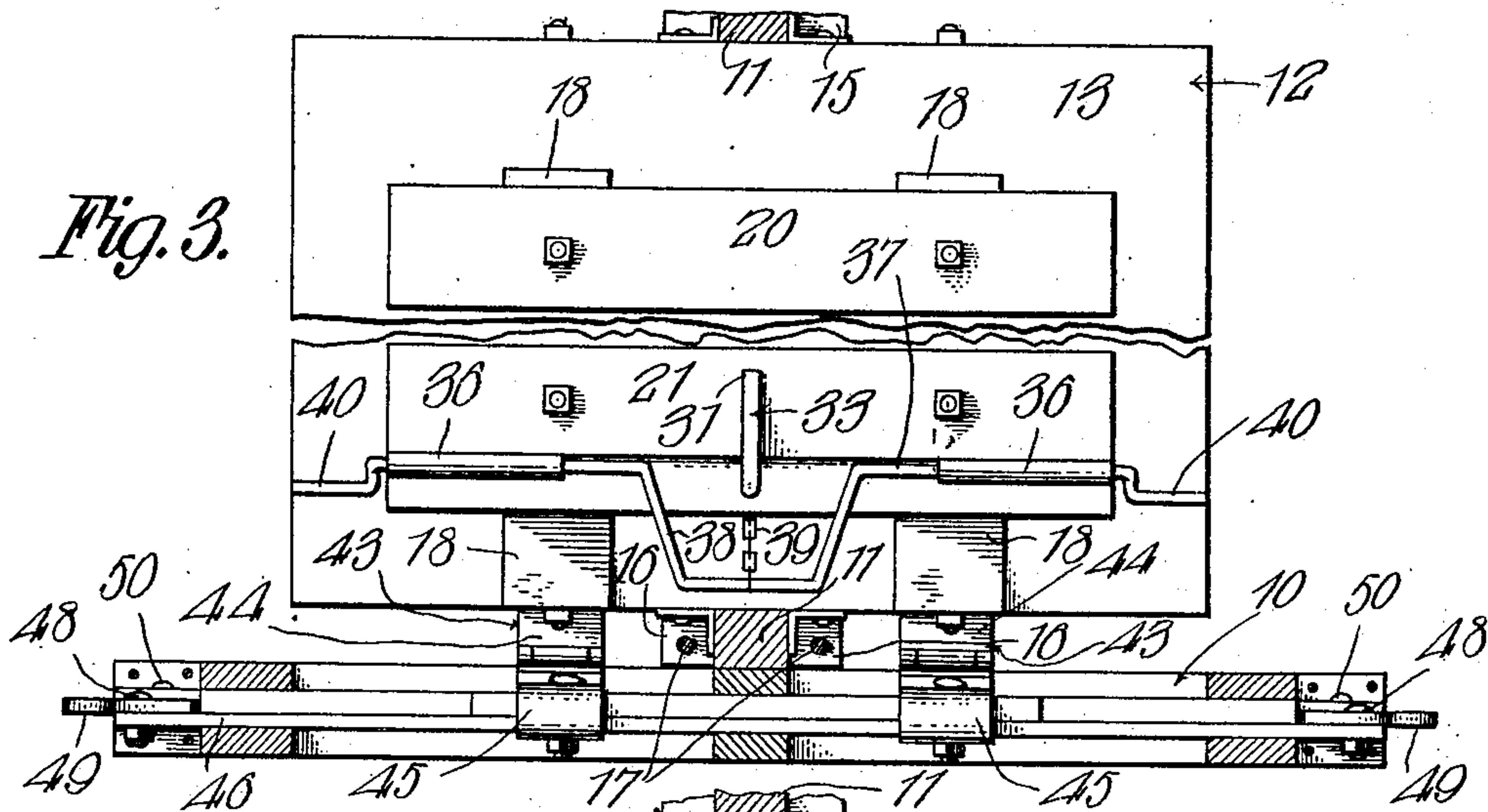
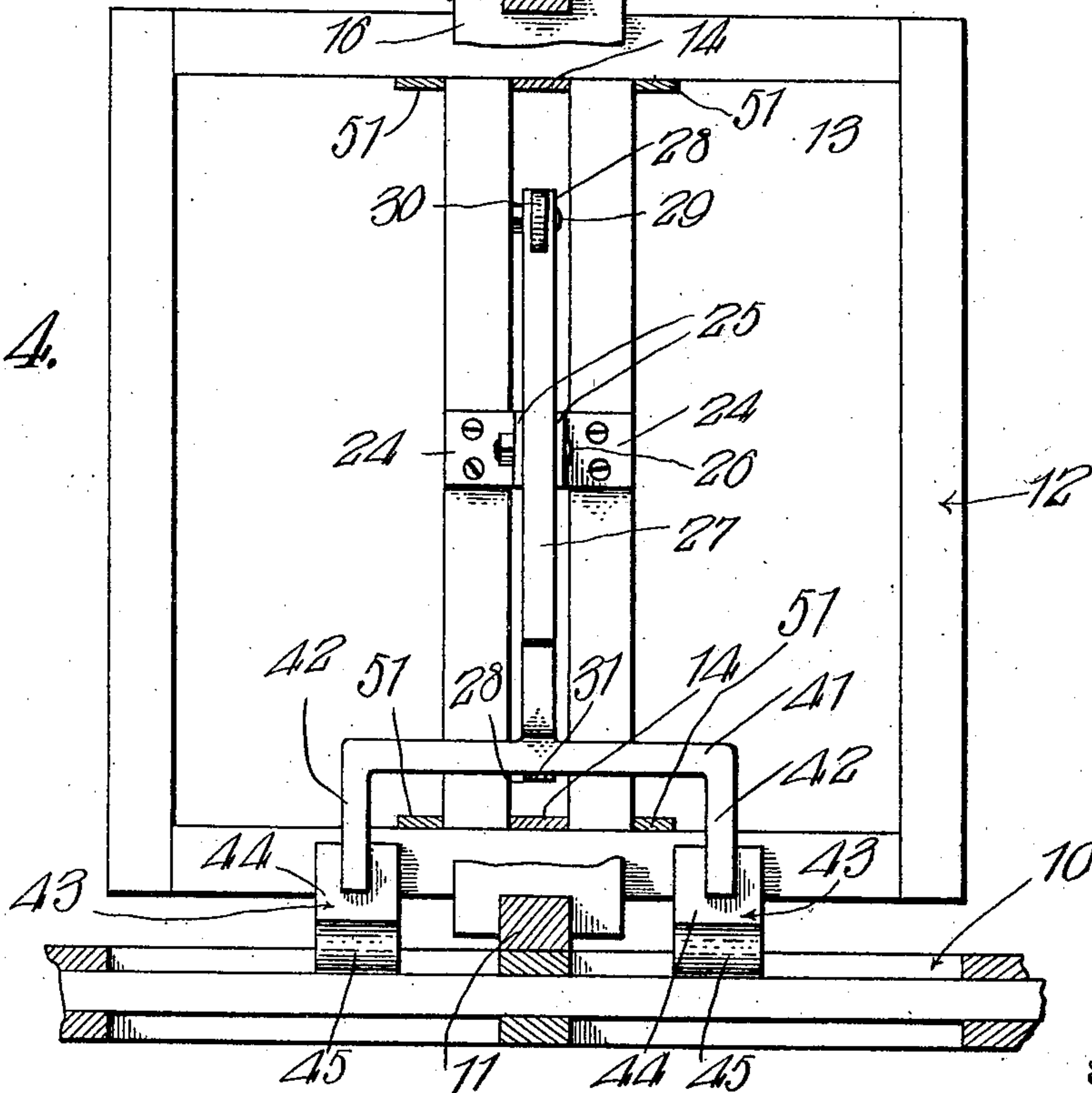


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH H. STROOPE, OF STRAWN, TEXAS.

AUTOMATIC LOCKING AND RELEASING DEVICE FOR MINING-CARS.

No. 925,247.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed May 25, 1908. Serial No. 434,826.

To all whom it may concern:

Be it known that I, JOSEPH H. STROOPE, a citizen of the United States, residing at Strawn, in the county of Palo Pinto, State of Texas, have invented certain new and useful Improvements in Automatic Locking and Releasing Devices for Mining-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.

The invention relates to automatic locking and releasing devices for mining cars and particularly adapted for use with hoisting cages to automatically release and lock a mining car upon the hoisting cage whereby said car may be released at the top and bottom of the shaft.

The primary object of the invention is the provision of an automatic locking and releasing device for use with mining cages for elevating mining cars and consists in mechanism for holding the said car in a locked position upon the platform of the mining cage when the latter is traveling in the shaft and said mechanism is adapted to automatically release the car when the cage reaches the lower extremity of the shaft in the mine.

In the drawings accompanying and forming part of this specification is illustrated one form of embodiment of the invention which, to enable those skilled in the art to practice the said invention will be set forth at length in the following description while the novelty of the invention will be included in the claims succeeding said description.

In the drawings—Figure 1 is an end elevation of a hoisting cage partly in section resting at the top of the mining shaft, a car thereon and the invention applied to said cage. Fig. 2 is an end elevation of the hoisting cage partly in section with the car removed and resting at the bottom of the mine shaft and with the automatic locking mechanism in its release position. Fig. 3 is a top plan view of the hoisting cage, partly broken away and in section. Fig. 4 is a bottom plan view thereof.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

In the drawings the numeral 10 designates a mine shaft of the usual construction and which forms no part of the invention. Therefore, it is merely shown for the sake of convenience and includes oppositely disposed and vertically arranged guide rails 11 upon which travels a hoisting cage 12 including a main platform 13 superposed upon and supported by standards 14 upon a bottom cross beam 15, the opposite ends of which engage and slide upon the guide rails 11. Above the main platform 13 a suitable distance, is a top cross beam 16 having its opposite ends in engagement with said guide rails 11 and which top cross beam 16 has connection with the said bottom cross beam 15 through the medium of tie rods 17 to form a rigid unitary cage structure. Upon the upper face of the platform 13 are secured brackets 18 arranged in spaced relation and in proximity to opposite side edges of the said platform and each having inwardly directed right-angular extensions 19 to which are secured guide bars 20 and 21 forming keepers for engagement with the wheels 22 of a mining car 23 when positioned upon the main platform of the hoisting cage. Upon the underface of the main platform 13 and secured thereto are plates 24 having right angularly disposed ears 25 forming bearings for a pivot 26 of a rock shaft 27 the latter having opposite bifurcated ends 28 in which are connected by pivots 29 locking dogs or members 30 and 31, respectively, which slide through openings 32 contained in the platform 13 directly above the bifurcated ends 28 of the rocking shaft. The locking member 31 is of a greater length than the locking member 30 and is provided with an enlarged head 33 forming an offset 34 to permit the passing of the wheels 22 of the mining car when the locking member 31 has been elevated while the locking member 30 has been lowered into the opening 32. To permit upward movement of the locking member 31 when elevated there is provided in the guide bar 21 a slot 35 through which the locking member 31 is adapted to pass.

On the guide bar 21 are bearings 36 receiving a crank shaft 37 and connected to its U-shaped crank 38 is a chain 39 which

also has connection with the locking member 31 whereby the rock shaft 27 may be actuated to bring the locking members 30 and 31 respectively into a released position
 5 by an operator manipulating a manually operable crank 40 carried by said crank shaft. This crank 40 is adapted to be manipulated upon arrival of the hoisting cage 12 at the top of the shaft 10 so as to release the locking members 30 and 31 whereby the car wheels 22 are freed so that the mining car 23 can be moved off of the platform 13 of the hoisting cage. The enlarged head 33 of the locking member 31 due to its weight
 15 automatically brings said locking member 31 and locking member 30 into position for locking the mining car 23 upon the platform 13 of the hoisting cage 12 by rocking the shaft 27 so that the members 30 and 31
 20 respectively will intersect the space between the wheels 23 of the mining car.

To the rocking shaft 27 at one end thereof is secured a forked member 41 having trip arms 42 which latter upon the descent of the hoisting cage 12 are adapted to contact with trip devices comprising plates 43 hinged plates 44 mounted upon depending extensions 45 secured to a shifting bar 46 slidably mounted in the shaft 10 near the
 25 bottom end thereof. The plates 43 are normally held at right angles to the extensions 45 by stops 47 so as to act upon the trip arms 42 when the cage reaches its limit of descent to release the car. Said plates due to their hinged connection are adapted to
 35 override the trip arms 42 upon the ascending of the hoisting cage 12 in event the said plates 43 are accidentally brought into the path of movement of said trip arms 42.

To the opposite extremities of the shifting bar 46 pivoted as at 48 are hand operable levers 49 having their lower ends pivoted as at 50 to the bottom of the shaft 10. The levers 49 are for the purpose of actuating
 45 the shifting bar 46 so as to disengage the hinged plates 44 from the trip arms 42 after the hoisting cage 12 has reached the bottom of the shaft 10 and the mining car 23 having been released by the locking members 30 and
 50 31 respectively so that the latter members are automatically brought to a locked position after the arrival of another mining car upon the platform 13 which car is to be elevated by the hoisting cage 12 to the top
 55 of the shaft.

At opposite sides of the standards 14 are angle brace members 51 to support the platform in a rigid manner and in substantially horizontal position above the top cross beam
 60 16 of the hoisting cage.

What is claimed is—

1. The combination with a hoisting cage and its platform, of a rock shaft mounted

upon the under face of the platform of said cage, locking members pivotally connected 65 to said rocking shaft for locking a mining car upon the platform, manually operable means mounted upon the platform of the cage to permit the release of the locking members when the cage reaches its limit of
 70 ascent, trip mechanism operative upon the rocking shaft to automatically release the locking members upon the descent of the cage, and manually shiftable means for moving the trip mechanism into and out of the
 75 path of movement of the rocking arm.

2. In combination with a hoisting cage and its platform, of a rocking shaft pivoted centrally to the under face of the platform of the cage, locking members pivotally connected at opposite extremities of the rocking shafts and adapted to be automatically brought into operative position for locking a car on the platform of a cage, trip arms fixed to the rocking shaft, trip devices arranged normally in the path of movement of the trip arms and adapted to automatically override the trip arms upon the ascending of the cage, means for shifting the trip devices into and out of the path of
 85 movement of the trip arms, and manually operable means upon the platform of the cage for releasing the locking members independently of the trip devices.

3. In combination with a hoisting cage 95 and its platform, of guide means mounted upon the platform to form keepers for the wheels of a mining car, a rocking shaft pivoted to the platform of the cage, locking members pivotally connected to the rocking shaft and movable above and below the guide means, trip arms carried by the shaft, trip mechanism operative upon said trip arms, means for shifting the trip mechanism into and out of the path of movement of the trip
 105 arms, and means upon the platform for bringing the locking members to a released position independently of the trip mechanism.

4. In combination with a hoisting cage 110 and its platform, of guide means mounted upon the platform to form keepers for the wheels of a mining car, automatic locking means carried by the platform for locking a mining car upon the platform, trip mechanism for automatically releasing the locking means upon the descent of the car, means for shifting the tripping mechanism from an operative to an inoperative position and manually operable means upon the platform
 120 for releasing the locking means independently of the tripping mechanism.

5. The combination with a hoisting cage and its platform, of automatic locking means carried by the platform for locking a mining 125 car upon the same, trip arms cooperative

with said locking means, a shifting bar, trip
devices carried by said shifting bar and nor-
mally in the path of movement of the trip
arms, means for shifting said shifting bar to
5 move the trip devices out of the path of
movement of the trip arm to permit auto-
matic resetting of the locking means, and
manually operable means upon the platform

for releasing the locking means independ-
ently of the tripping devices. 10

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

JOSEPH H. STROOPE.

Witnesses:

W. S. WARREN,
C. A. BRUNER.