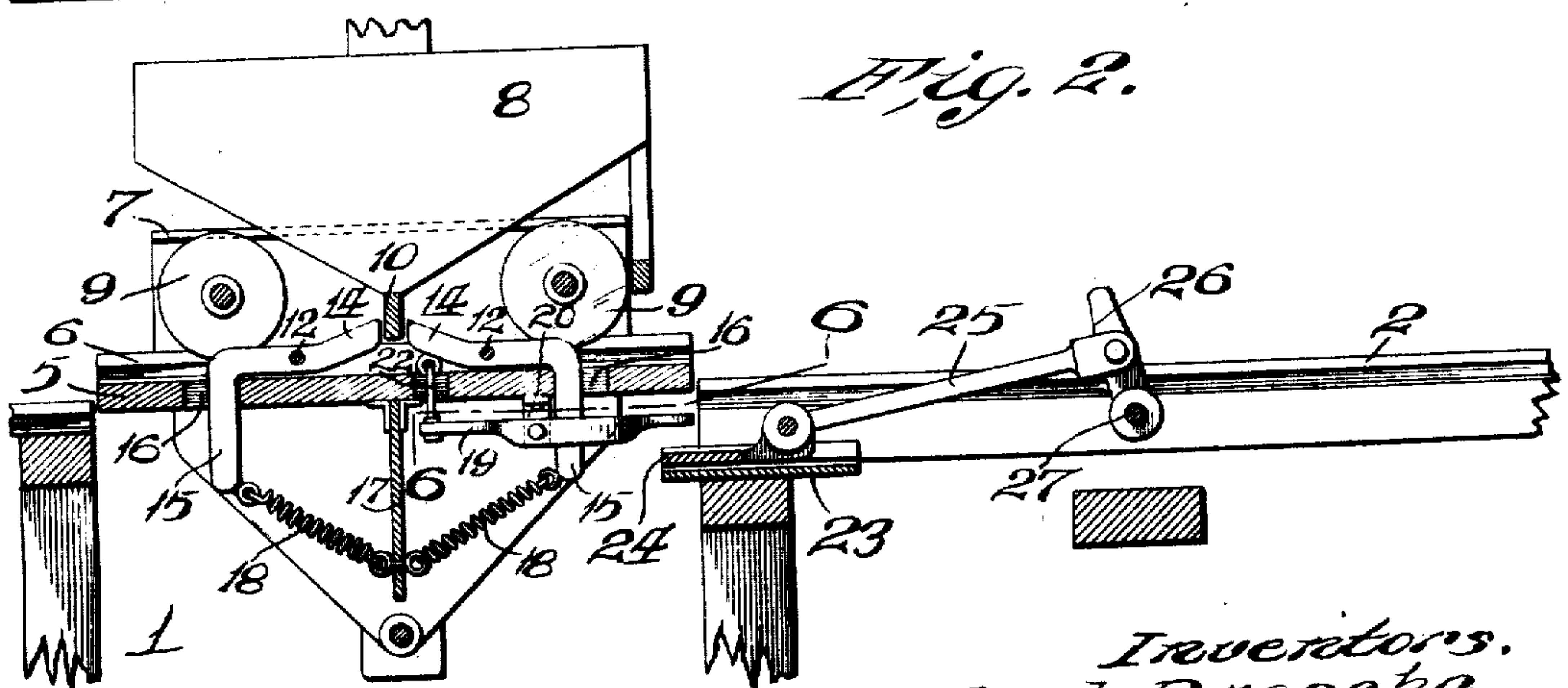
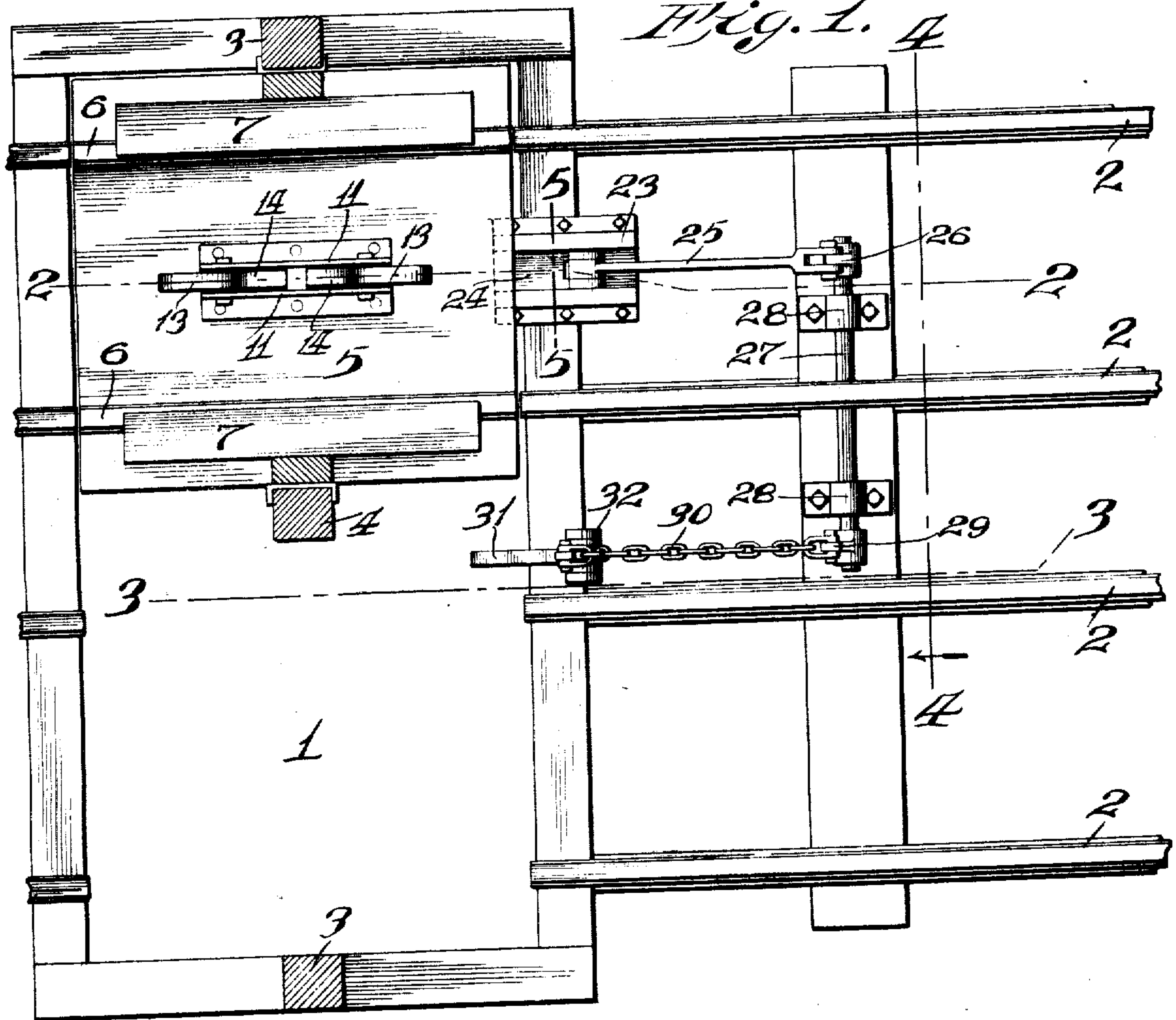


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 APPLICATION FILED OCT. 26, 1908.

929,751.

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 2 SHEETS—SHEET 1.



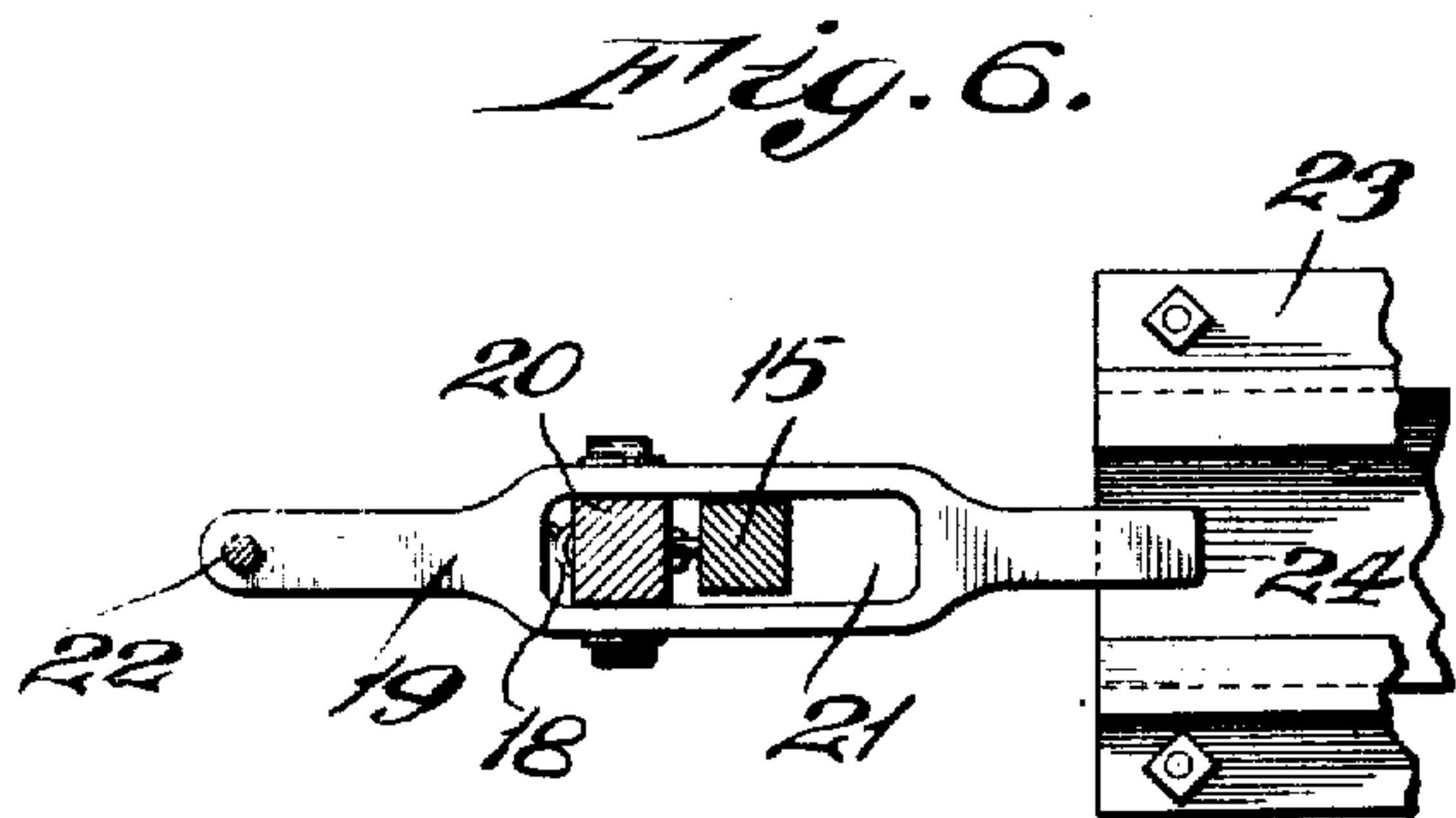
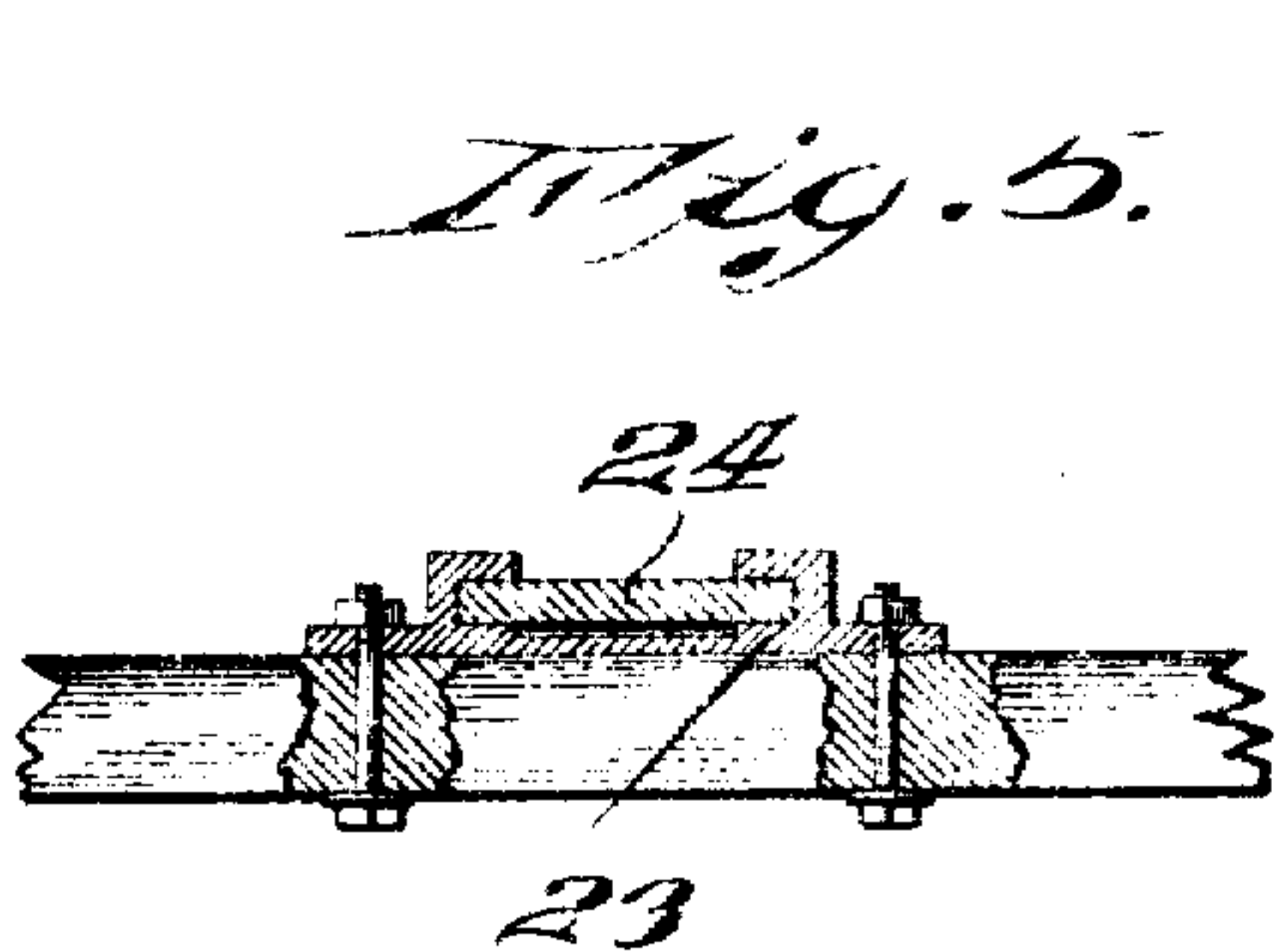
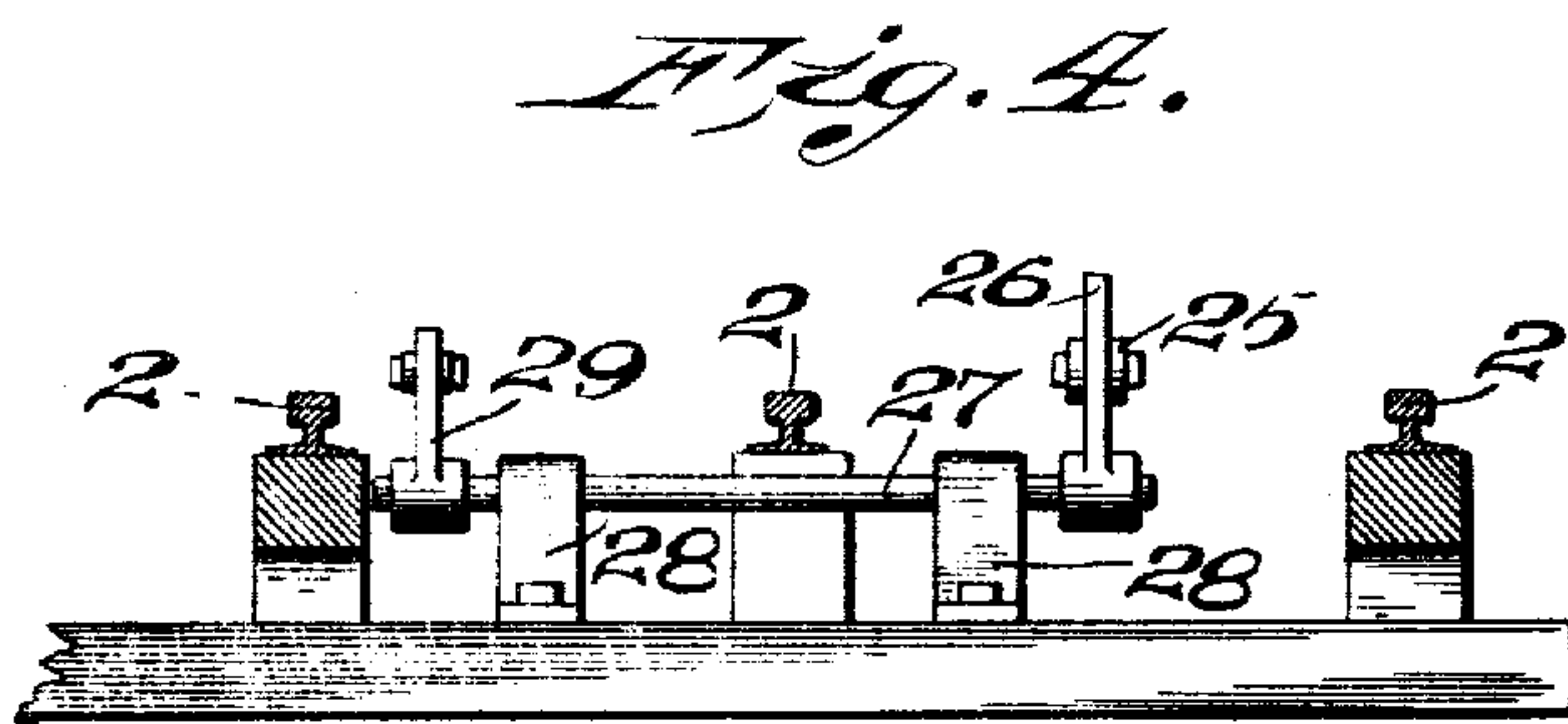
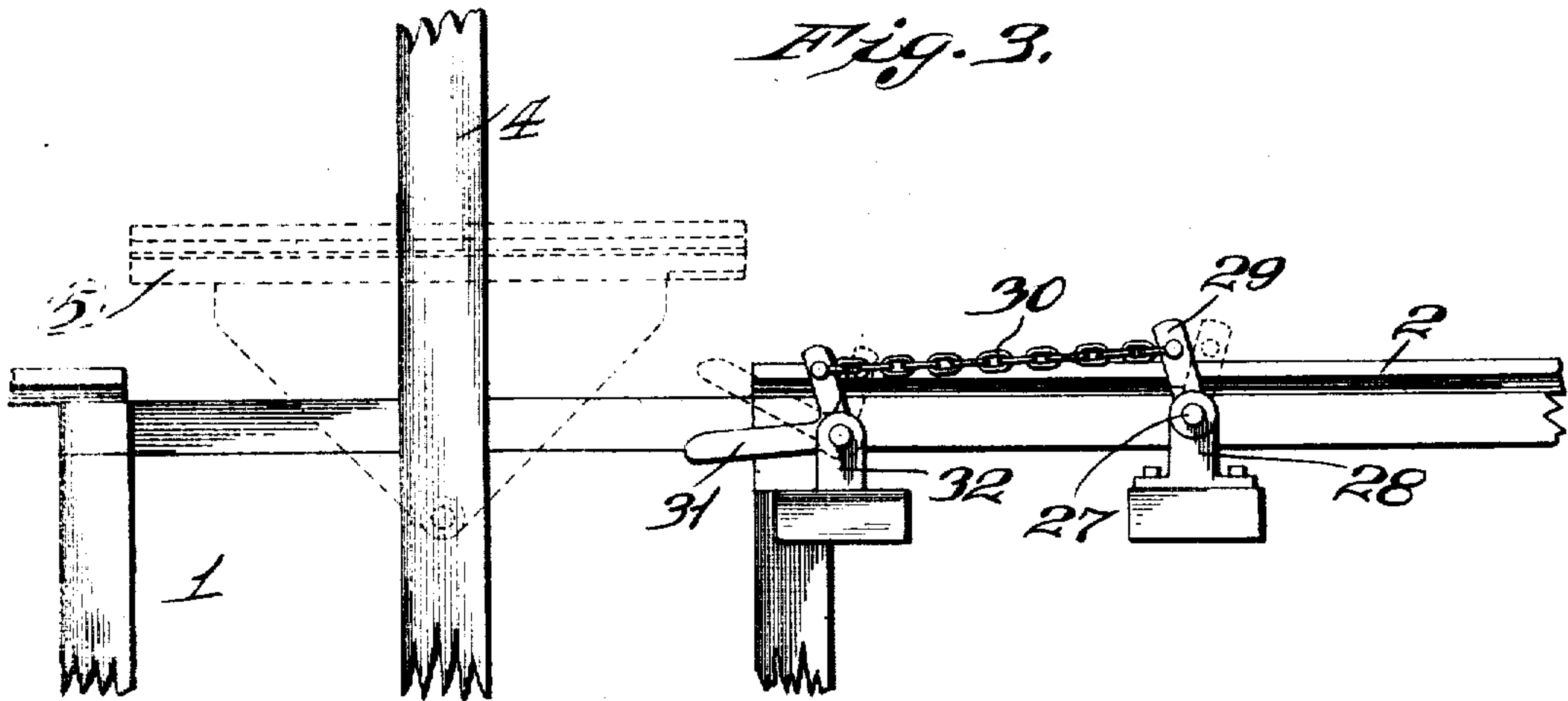
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UNITED STATES PATENT OFFICE.

FRED BRASCHE AND WILLIAM DOELZ, OF BENLD, ILLINOIS.

AUTOMATIC DEVICE FOR RELEASING EMPTY CARS FROM SELF-DUMPING MINING-CAGES.

No. 929,751.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed October 26, 1908. Serial No. 459,554.

To all whom it may concern:

Be it known that we, FRED BRASCHE and WILLIAM DOELZ, both citizens of the United States, and residents of Benld, Illinois, have
5 invented certain new and useful Improvements in Automatic Devices for Releasing Empty Cars from Self-Dumping Mining-Cages, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to an automatic device for releasing empty cars from self-dumping mining cages, the object of our
15 invention being to provide simple, inexpensive and automatically operating means for releasing catches or dogs which hold mining cars on self-dumping mine cages, when said cages reach the bottom of the
20 shaft, thus permitting the empty cars to be readily moved onto the car track in the tunnel or entry of the mine without necessitating any action on the part of the operator.

To the above purposes, our invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully set forth, pointed out
25 in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of the arrangement of tracks at the lower end of the mine shaft, and showing our improved apparatus in position adjacent the lower end of the
35 shaft, and also showing the self-dumping cage at one side of the shaft; Fig. 2 is a vertical section taken approximately on the line 2—2 of Fig. 1; Fig. 3 is a vertical section taken approximately on the line 3—3 of Fig. 1; Fig. 4 is a section taken approximately on the line 4—4 of Fig. 1; Fig. 5 is an enlarged detail section taken on the line 5—5 of Fig. 1; and Fig. 6 is an enlarged horizontal section taken on the line 6—6 of
45 Fig. 2.

Referring by numerals to the accompanying drawings: 1 designates the pit formed at the lower end of a line shaft, and leading to said pit are the tracks 2, which are
50 traversed by the mine cars, and arranged at the sides of the shaft above the pit are the vertically disposed guides 3, there being a centrally disposed guide 4 located between

the side guides in order that two of the self-dumping cages may operate in the shaft. 55

Each cage comprises a platform 5, provided on its top with a pair of rails 6, which are adapted to coincide with the track rails 2 when the cage is at its lowermost limit of movement, and fixed on top of the platform 60 5 and in position to engage over the wheels of the mine car are housings 7. The car used in connection with this cage comprises a body 8 in the form of a box, supported in any suitable manner on traction wheels 9, 65 which are adapted to travel on the track rails 2, and transversely disposed beneath the central portion of the body 8 is a rail 10.

Fixed on the center of the platform 5 is a pair of plates 11, and journaled on pins 12 70 passing therethrough is a pair of horizontally disposed dogs or catches 13, the adjacent ends of which are bent slightly upward, as designated by 14, in order to engage on opposite sides of the bar 10, and 75 the outer ends of these dogs or catches are bent vertically downward, as designated by 15, and project through openings 16 formed in the platform 5, and connecting the lower ends of these downwardly bent end portions 80 15 and centrally disposed brace 17 on the under side of the platform 5 are retractile coil springs 18.

19 designates a lever which is fulcrumed to a bracket 20 fixed on the under side of 85 the platform 5, and formed in said lever 19 is an opening 21, through which the downwardly bent end portion 15 of one of the dogs projects, and connecting the inner end of this lever 19 with the upturned end 14 90 of the corresponding dog is a link 22. The outer end of the lever 19 occupies a position immediately beneath the edge of the platform 5.

Fixed to the frame surrounding the pit 1 95 and corresponding to the side of the platform on which the lever 19 is carried is a plate 23, and held to slide thereon is a plate 24, the rear end of which is connected by a rod 25 to a lever 26 carried by a rock shaft 100 27 operating in bearings 28 fixed on one of the cross ties immediately adjacent the pit 1. Fixed on the end of this rock shaft 27 opposite the end carrying the lever 26 is an arm 29, to which is connected one end of a chain 105 30, the opposite end being connected to the

vertically disposed arm of a bell crank 31, which is journaled to a bracket 32 fixed on the frame surrounding the pit 1, and the horizontal arm of this bell crank extends
 5 over the pit in such a manner as to be engaged by the platform of the opposite cage when the same descends to its lower limit of movement.

When a mine car is positioned on the
 10 platform of the cage, the wheels 9 of the car engage beneath the housings 7 and the cross bar or rail 10 occupies a position between the up-turned ends 14 of the dogs 13, and thus the car is held on the platform while
 15 the cage is raised to the top of the shaft. After automatically dumping the contents of the car, the cage descends to the lower end of the shaft, and as said cage reaches its lower limit of movement or to a point
 20 where the rails 6 are in alinement with the track rails 2, the outer end of the lever 19 strikes against the plate 24, which action slightly tilts said lever 19 upon its pivot point, thus swinging the up-turned end of
 25 the dog 13 connected to said lever downward into such a position as to free the cross bar or rail 10, and the car is now free to be pushed off from the platform 5 onto the track rails 2. As the car is pushed away
 30 from the pit a part of the framework of the car strikes against the upper end of the lever 26, thus actuating the same, which movement rocks the shaft 27 and withdraws the plate 24 from beneath the end of the lever 19, and as a result said lever will resume
 35 its normal horizontal position, and the up-turned end of the dog connected to said lever will be elevated into position to be engaged by the cross bar or rail 10 of the succeeding
 40 car placed on the platform 5. The plate 24 is returned to its normal position by the action of the opposite cage engaging against the horizontal arm of the bell crank 31 and depressing the same, which movement, by
 45 reason of the connecting chain 30, rocks the shaft 27 in such a manner as to move the plate 24 forward into position to be struck by the end of the lever 19.

While we have shown the automatic releasing mechanism as applied to only one cage, and half the shaft, it will be readily understood that both cages and both sides of the shaft may be similarly equipped, and thus the automatic release is provided for
 55 the cars carried by both cages.

Our improved apparatus is simple, inexpensive, can be readily applied to all forms of self-dumping cages, and renders the operation of releasing or undogging the cars
 60 at the lower end of the shaft entirely automatic.

We claim:

1. In an apparatus of the class described, a car, a lug carried by said car and extending transversely of the car body, a mine cage,
 65

a pair of spring held dogs pivotally mounted on the platform of the cage and adapted to engage the lug carried by the car, a pivoted lever carried by the mine cage, one end of which lever is secured to one of
 70 said dogs, a moving plate located in the path of travel of the mine cage and in the vertical plane of one end of said lever, whereby on the descent of the cage said lever engages with said plate and releases the dog from
 75 the lug carried by the car.

2. In an apparatus of the class described, a car, a lug carried by said car and extending transversely of the car body, a mine cage, a pair of spring held dogs pivotally
 80 mounted on the platform of the cage and adapted to engage the lug carried by the car, a pivoted lever carried by the mine cage, one end of which lever is secured to one of said dogs, a moving plate located in
 85 the path of travel of the mine cage and in the vertical plane of one end of said lever, a rod pivoted to said plate, and a lever pivoted to the opposite end of said rod in the path of travel of the car over the track.
 90

3. In an apparatus of the class described, a car, a lug carried by said car and extending transversely of the car body, a mine cage, a pair of spring held dogs pivotally
 95 mounted on the platform of the cage and adapted to engage the lug carried by the car, a pivoted lever carried by the mine cage, one end of which lever is secured to one of said dogs, a moving plate located in the path of travel of the mine cage and in the vertical
 100 plane of one end of said lever, a rod pivoted to said plate, a rock shaft, and an arm secured to said rock shaft and pivoted to the opposite end of said rod.

4. In an apparatus of the class described, 105
 a car, a lug carried by said car and extending transversely of the car body, a mine cage, a pair of spring held dogs pivotally mounted on the platform of the cage and adapted to engage the lug carried by the
 110 car, a pivoted lever carried by the mine cage, one end of which lever is secured to one of said dogs, a moving plate located in the path of travel of the mine cage and in the vertical plane of one end of said lever, a
 115 rod pivoted to said plate, a rock shaft, an arm secured to said rock shaft and pivoted to the opposite end of said rod, a similar arm pivoted to the opposite end of said rock shaft, a bell crank lever mounted in the path
 120 of travel of an adjacent mine cage, and a chain for connecting said bell crank lever and the arm carried by the opposite end of said rock shaft together.

5. In an apparatus of the class described, 125
 a car body, a lug disposed beneath the body, a mine cage, a pair of spring held dogs pivotally mounted on said mine cage, a lever pivotally carried by said mine cage, one end of which is secured to the end of one of said
 130

dogs and the opposite end projects free beneath the platform of the cage, and a horizontally movable means arranged in the path of travel of the mine cage and adapted
5 to be engaged with the free end of said lever for automatically releasing said dog from the lug carried by the car, upon the descent of the cage.

In testimony whereof, we have signed our names to this specification, in presence of 10 two subscribing witnesses.

FRED BRASCHE.
WILLIAM DOELZ.

Witnesses:

T. ZIGMAM,
CHARLES PIEPER.