

No. 719,258.

PATENTED JAN. 27, 1903.

F. A. RAY.
SELF DUMPING MINE CAGE.

APPLICATION FILED MAY 29, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

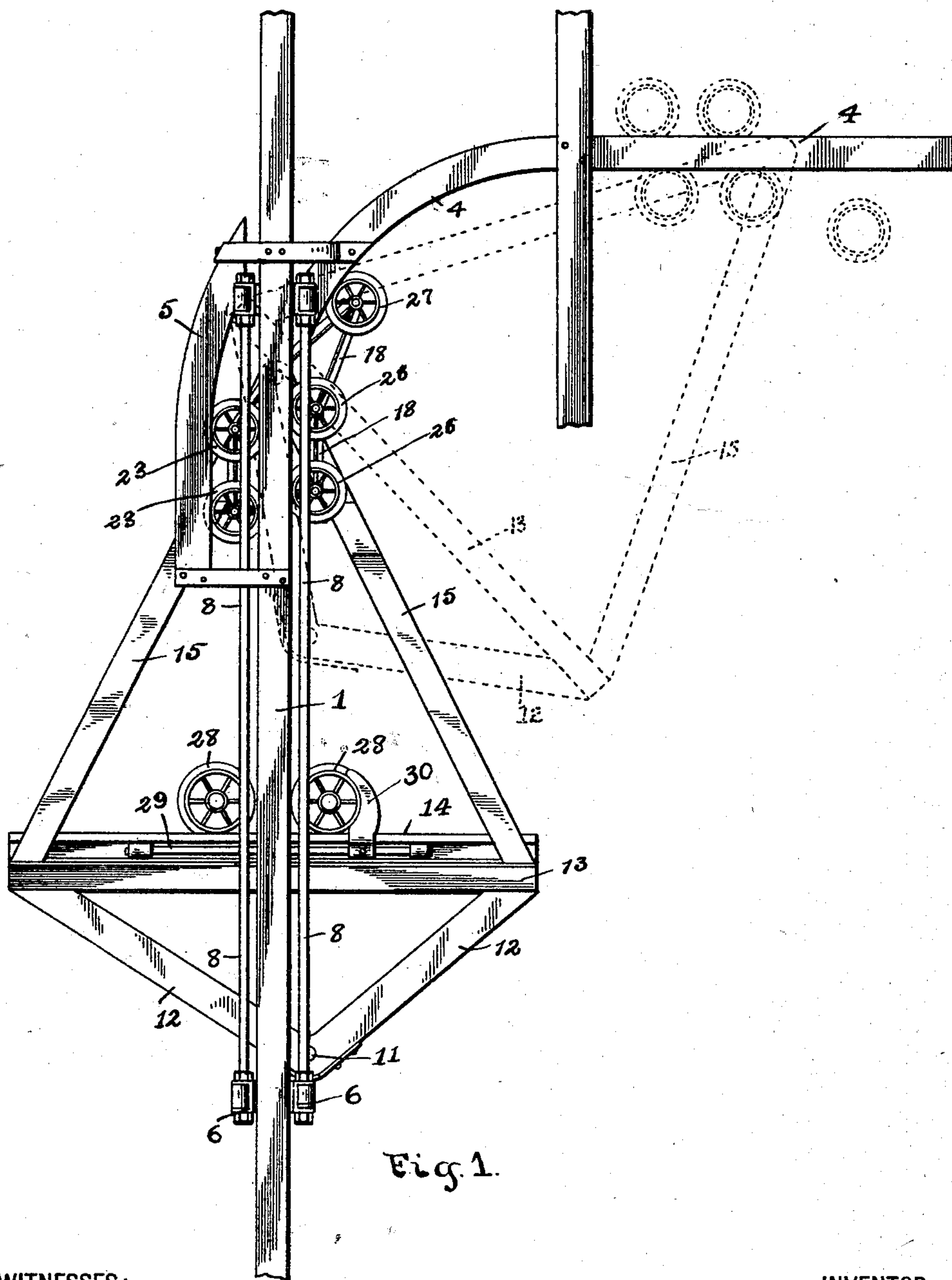


Fig. 1.

WITNESSES:

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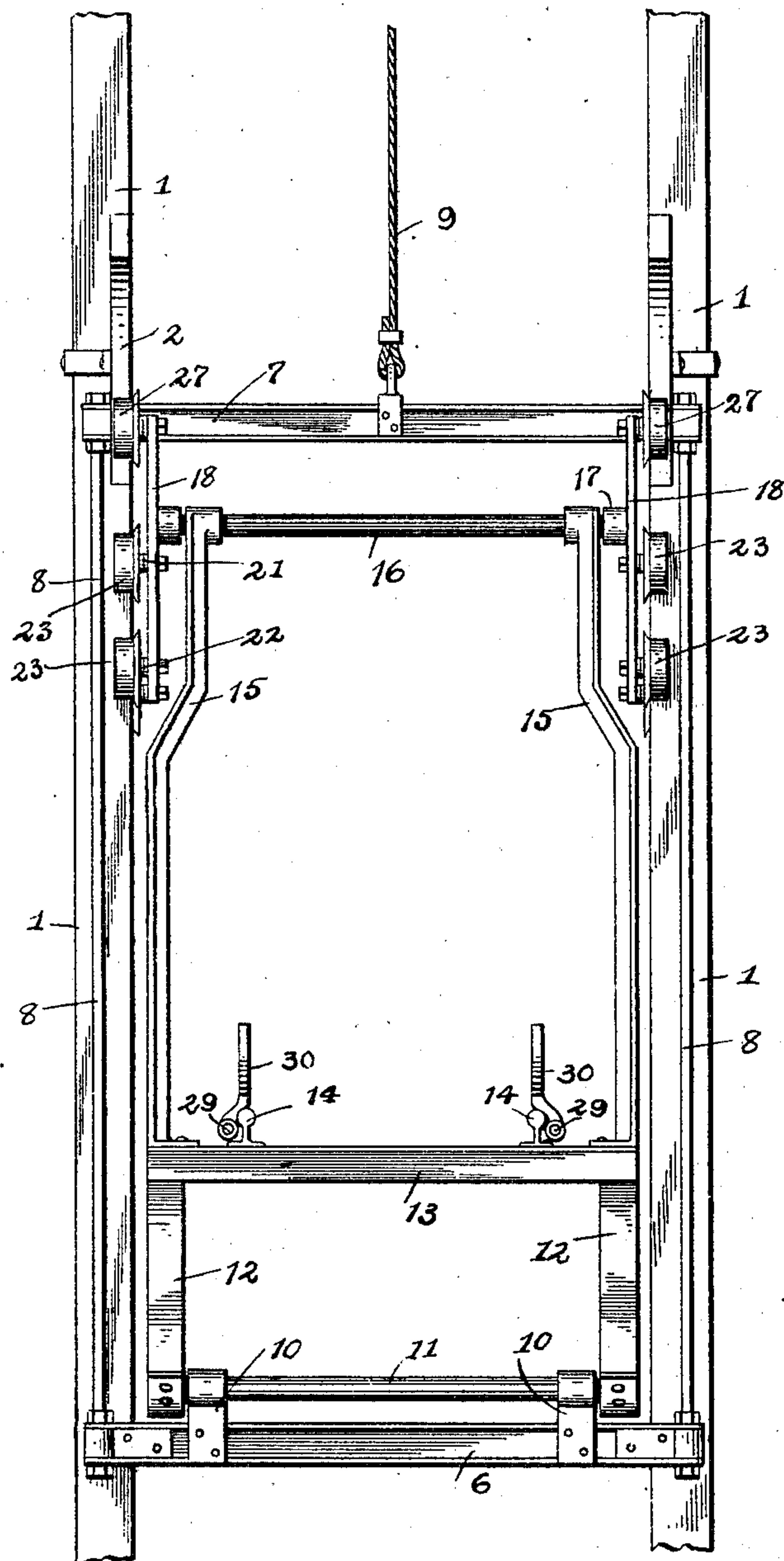


Fig. 2.

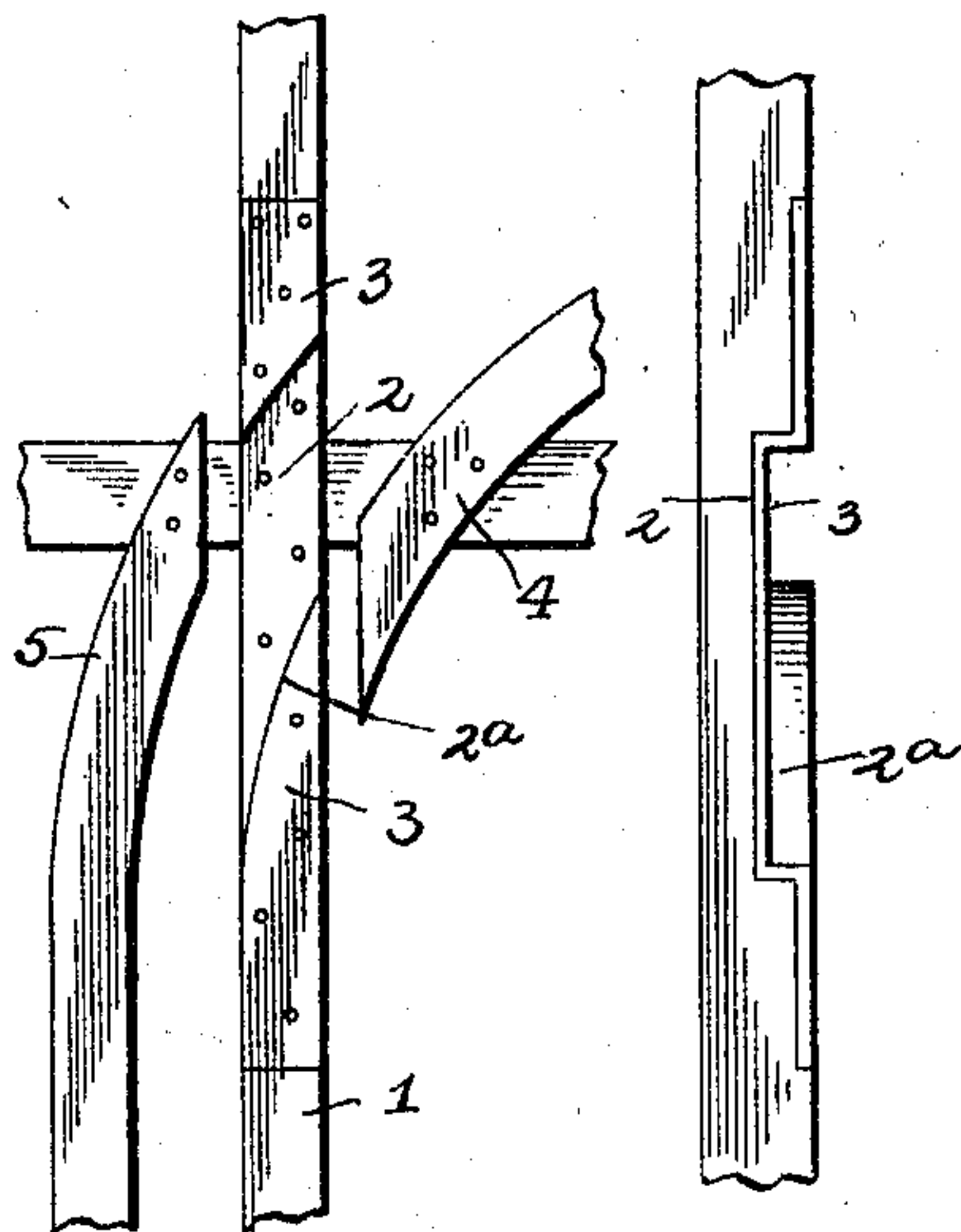


Fig. 3.

Fig. 4.

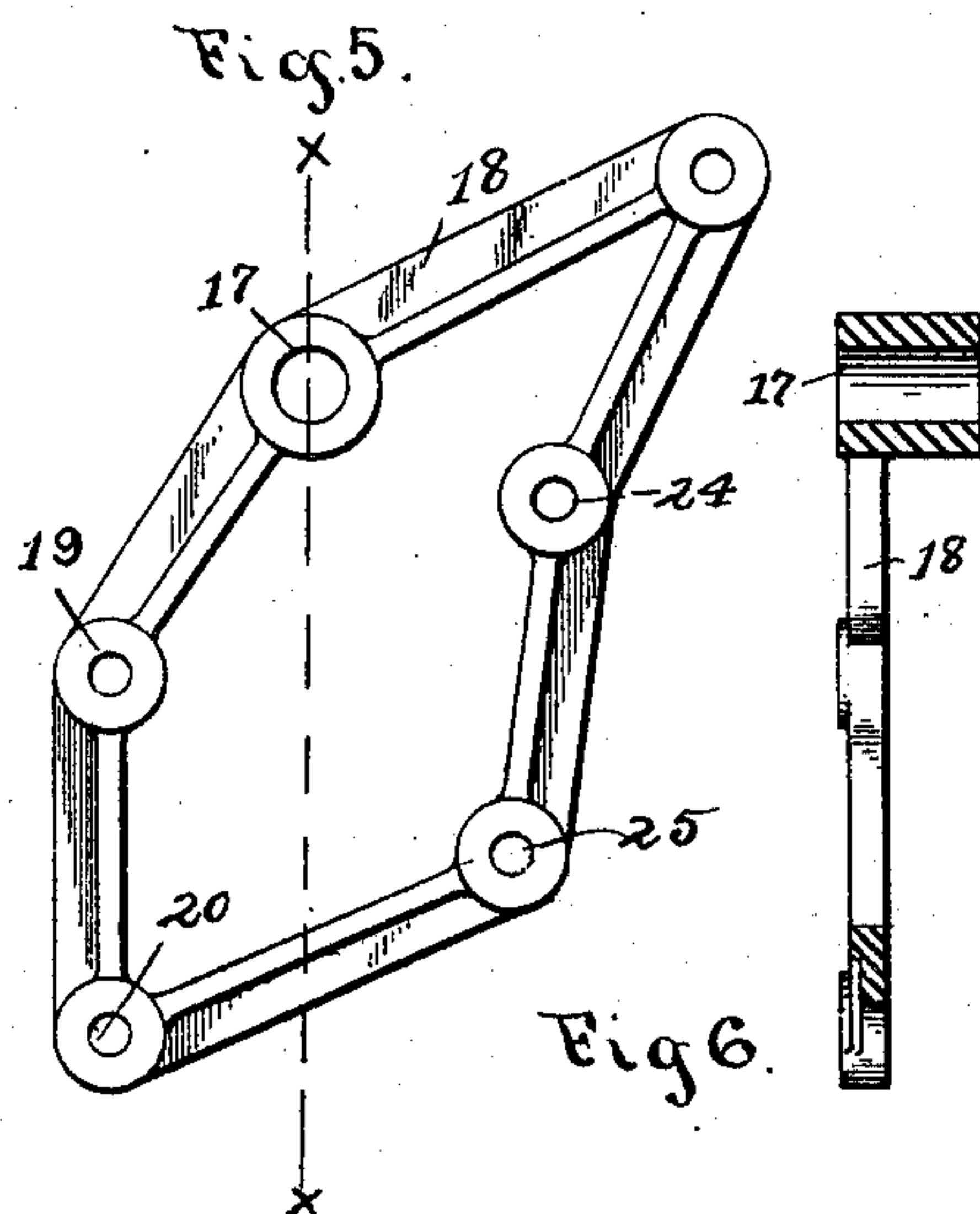


Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

FRANK A. RAY, OF COLUMBUS, OHIO.

SELF-DUMPING MINE-CAGE.

SPECIFICATION forming part of Letters Patent No. 719,258, dated January 27, 1903.

Application filed May 29, 1901. Serial No. 62,335. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. RAY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Self-Dumping Mine-Cages, of which the following is a specification.

My invention relates to the improvement of mine-car dumping-tipples; and the objects of my invention are to provide an improved dumping cage and tippie of superior construction and arrangements of parts which will insure the tilting of a mine-cage automatically to such position as to insure the discharge of the contents of the car carried on said cage, to provide improved means for guiding the cage in its vertical and tipping movement, and to produce other improvements, the details of construction of which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved cage and tippie, showing the wheels of a mine-car thereon. Fig. 2 is a front elevation. Fig. 3 is an inner side elevation of one of the guide-standards of the tippie. Fig. 4 is a view at right angles with that shown in Fig. 3. Fig. 5 is a detail view, in side elevation, of one of the guide-track frames; and Fig. 6 is a sectional view on line *x x* of Fig. 5.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I employ oppositely-located vertical and parallel tippie guide-standards 1, which in their upper portions or at desirable heights and on their inner sides are provided, as indicated more clearly in Figs. 2 and 3 of the drawings, with face-recesses 2, said recesses extending substantially diagonally across the inner faces of said guide-standards and the lower shoulder 2^a of each of said recesses having a curved incline, as shown. These recessed standard-faces, as well as the inner faces of the standards adjoining said recessed portions, are covered by correspondingly-shaped metallic plates 3. Leading outward from the lower portion of each of the recesses and having their upper sides substantially forming continuations of the curved shoulders 2^a of the

standards are the upwardly-curved inner end portions of outwardly-extending and suitably-supported track-bars 4. I also provide on the opposite side of each of the recesses 2 and adjacent to each of the standards a fixed guard-rail bar 5, the upper portion of which curves inward toward the standard.

In constructing the cage I employ a framework consisting of the lower cross-beams 6, which are arranged to extend in front and in rear of the standards 1, these cross-beams being connected at their ends with corresponding upper cross-beams 7 through the medium of vertical rods 8, arranged in oppositely-located pairs, the rods of each pair being arranged in front and in rear of said standards, respectively. With the upper beams 7 are connected in a suitable manner upwardly-extending hoisting ropes or chains 9, on which a vertical lifting power is adapted to be exerted in any desired or well-known manner. Rising from the lower cross-beams 6 of the lifting-frame thus provided are journal-brackets 10, within which is journaled a transverse hinge-shaft 11, which connects the lower ends of oppositely-located angular frames 12, which depend from the under side of the car-platform 13, which is located, as shown, between the standards 1. As indicated more clearly in Fig. 1 of the drawings, the depending platform-frames 12 are hinged or pivoted to the shaft 11 in front of the center of the car-platform. Upon the car-platform are arranged in the usual manner parallel track-rails 14. Rising from opposite sides of the car floor or platform 13 are standards 15, of inverted V-shapes, the latter having their upper portions bent to approach each other more closely than their lower portions. Journaled in the upper ends of these standards 15 is a transverse shaft 16. Each end of the shaft 16 on the outer side of the standard 15 has a pivotal support in a projecting bearing 17, which is formed on one side of an elongated and substantially oval frame 18. This frame has projecting therefrom, on the opposite side from the bearing 17 and below the latter, from spindle-openings 19 and 20, outwardly-extending spindles 21 and 22, on which are rotatably mounted guide-wheels 23. The opposite side of each of the frames 18 is also provided with spindle-openings 24 and 25,

from which project spindle-carrying guide-wheels 26, the wheels 26 being slightly above the plane of the wheels 23. In the upper end or apex of the frame 18 is likewise journaled
 5 a pilot bearing-wheel 27. Above the upper spindle-bearing 24 the frame 18 is inclined outward, so as to bring the pilot-wheel 27 out of vertical alinement with the wheels 26. As indicated in the drawings, the wheels 23 are
 10 adapted to bear and travel on what we will term the "forward" sides of the standards 1, while the wheels 26 and 26 bear on the opposite sides of said standards.

In Fig. 1 of the drawings I have shown the
 15 wheels 28 of a mine-car supported upon track-rail sections 14, which are arranged upon the floor 13 of the cage. On the outer sides of the rails 14 I provide suitably-supported horizontal rods 29, on each of which is mounted
 20 to slide and is adapted to be fixed by a set-screw a stop-arm 30, these stop-arms being adapted to engage the car-wheels on that side of the standards toward which the cage is adapted to tip in the manner hereinafter de-
 25 scribed.

In operation the lifting-frame, comprising the connected beams 6 and 7, is elevated vertically by power. This lifting action is continued until the pilot guide-wheels 27 come into
 30 contact with the under sides of the curved inner end portions of the rails 4. This contact of said pilot guide-wheel with these curved rail portions results in the wheels 26 following said pilot guide-wheel and bearing against the
 35 under sides of the rails 4, while the wheels 26, running through the recesses 2 of the standards and over the shoulders 2^a, are carried on to the upper sides of said rails 4. In this manner the truck-frames 18 are tipped and
 40 carried outward on the inner sides of said rails 4, resulting in the tilting or tipping of the cage on the shaft 11 until said cage is in the position indicated by the dotted lines in Fig. 1. The cage and car being thus tilted,
 45 it is obvious that the latter is supported against the stop-arm 30 in position for discharging its contents.

From the construction herein shown and described it will be seen that the operation of
 50 tilting the cage is facilitated by the construc-

tion of the truck-frames 18, whereby the pilot guide-wheels 27 are projected out of alinement with the wheels 23, so as to insure the engagement of said pilot-wheels with the rails 4 and the following of the wheels 23 and
 55 26 on said rails.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a self-dumping mine-cage, the combination of fixed guide-standards 1, a lifting-frame arranged therein and adapted to be elevated vertically, said guide-standards having inclined recesses 2 and inclined rails 4
 60 leading from the lower portions of said recesses, of a cage comprising a platform 13 and standards 15 and 12 mounted to swing in said lifting-frame, a shaft 16 on which the upper portion of said cage is journaled,
 65 elongated truck or wheel frames mounted on the ends of said shaft and wheels journaled in the opposing arms of said frame, said wheels adapted to embrace opposite sides of said standards 1 and a pilot guide-wheel journaled in the upper end of each of said frames,
 70 substantially as specified.

2. In a self-dumping mine-cage, the combination with vertical parallel standards 1 having opposite inclined recesses 2 and inclined rails 4 leading outward from points adjacent
 80 to said recesses, of a lifting-frame adapted to be elevated vertically, a cage comprising a platform 13 and standards 15 and 12, said cage having its lower portion journaled in said lifting-frame, wheel-bearing or truck
 85 frames 18 pivotally connected with the opposite sides of the upper portion of said cage-frame, pairs of guide-wheels journaled in opposite side arms of the frame 18 and a pilot guide-wheel journaled in the upper end por-
 90 tion of each of said frames, this upper pilot-wheel-carrying portion being inclined outwardly to bring said pilot-wheel out of vertical alinement with the guide-wheels on the corresponding side of the frame, substantially
 95 as specified.

FRANK A. RAY.

In presence of—

C. C. SHEPHERD,
 W. L. MORROW.