

No. 748,558.

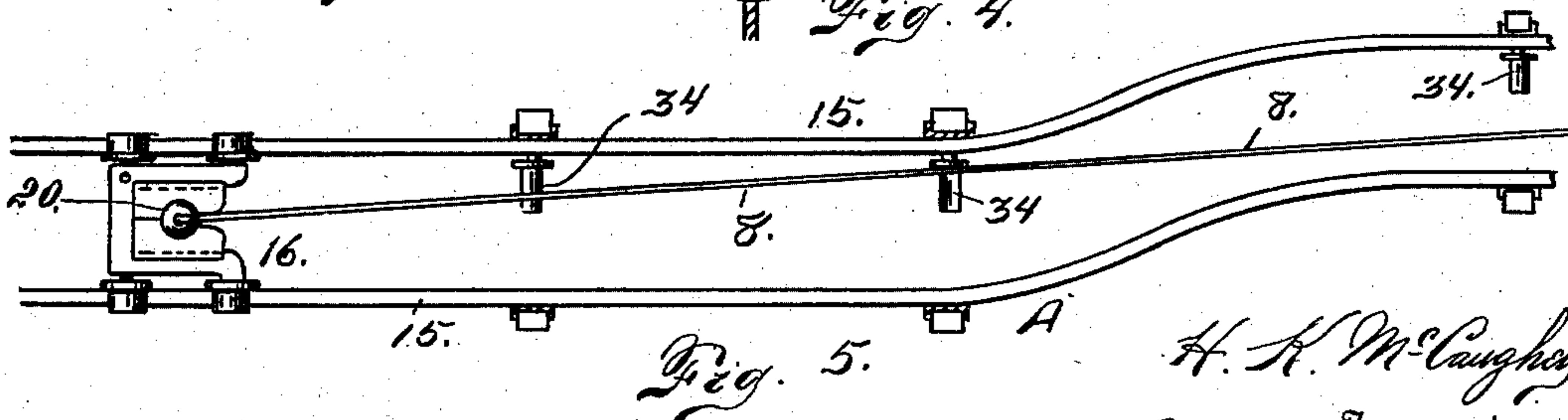
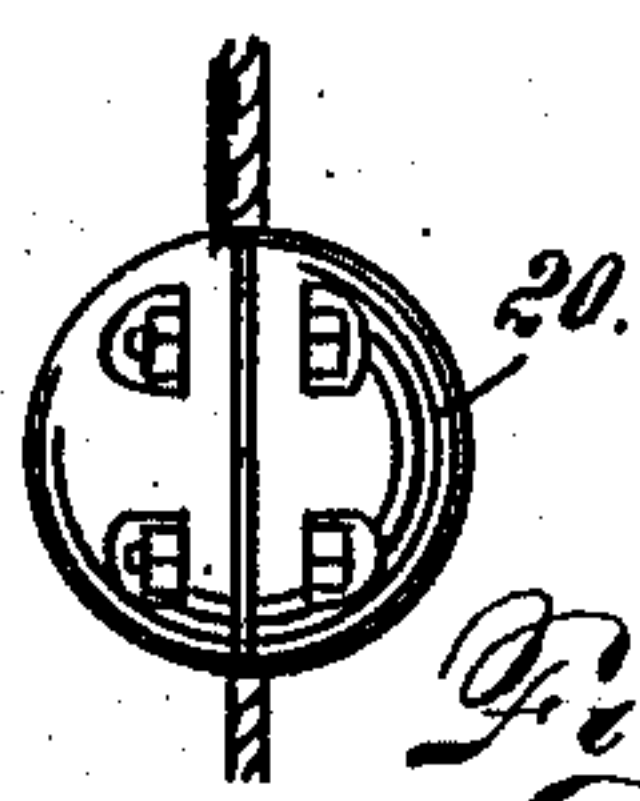
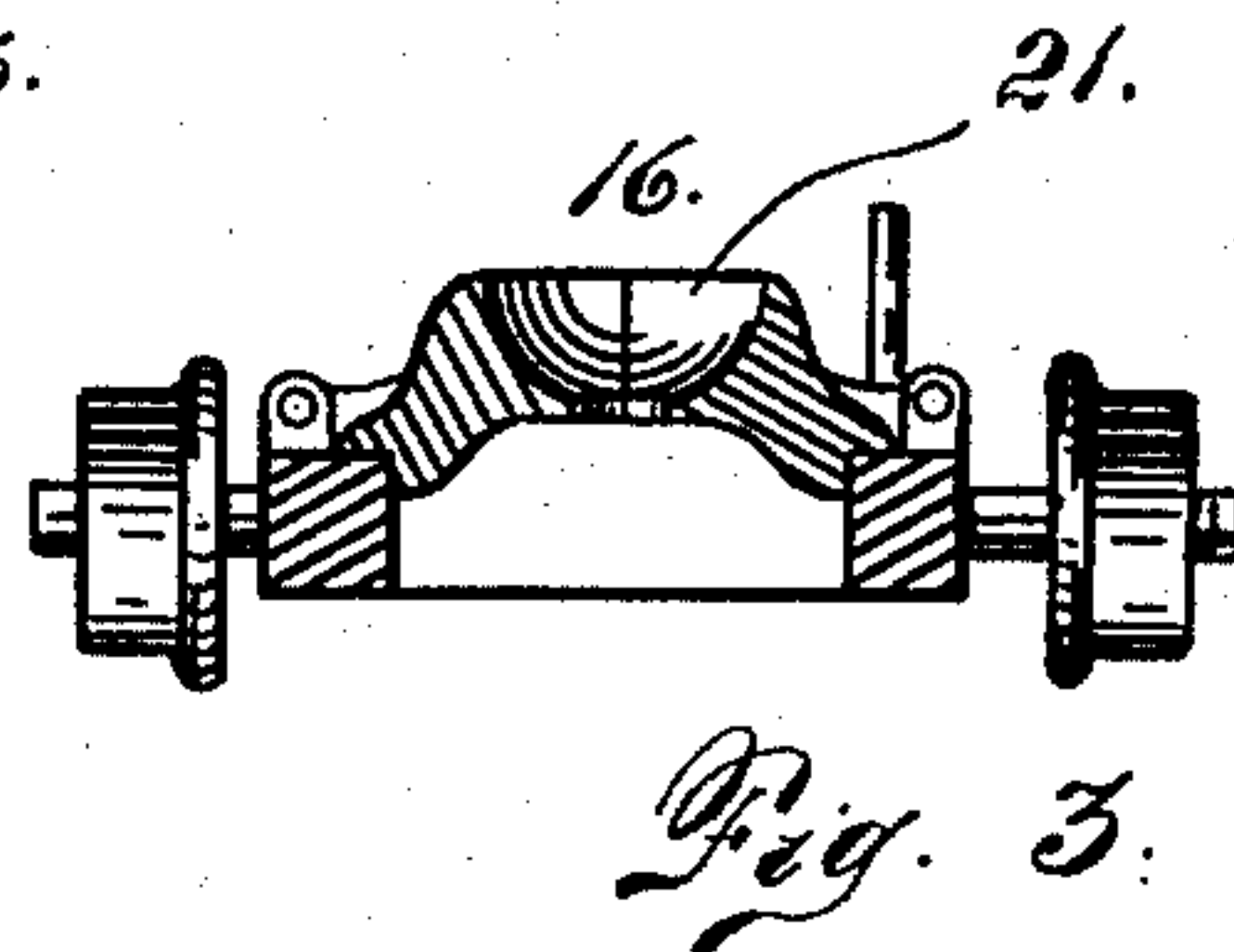
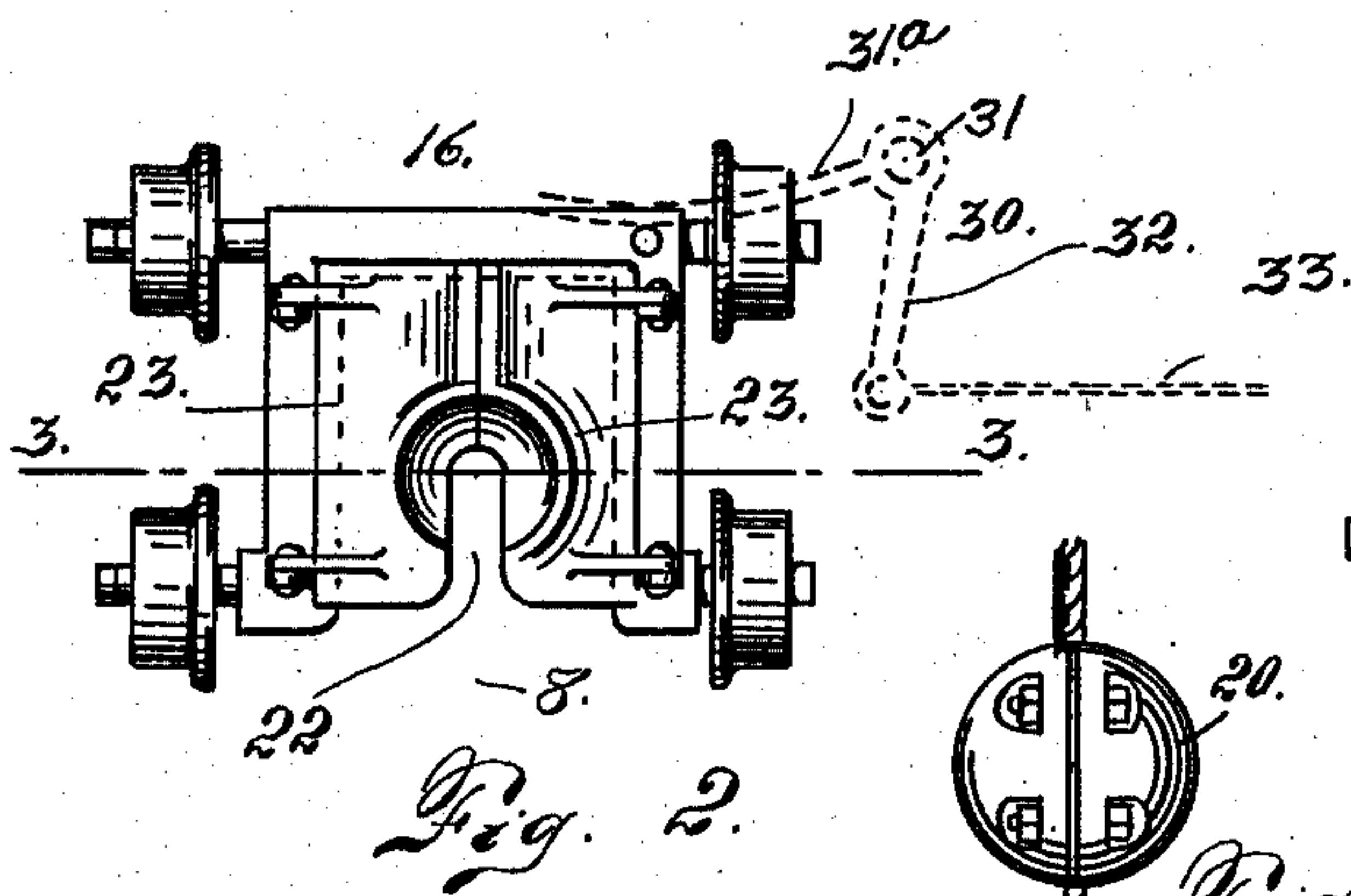
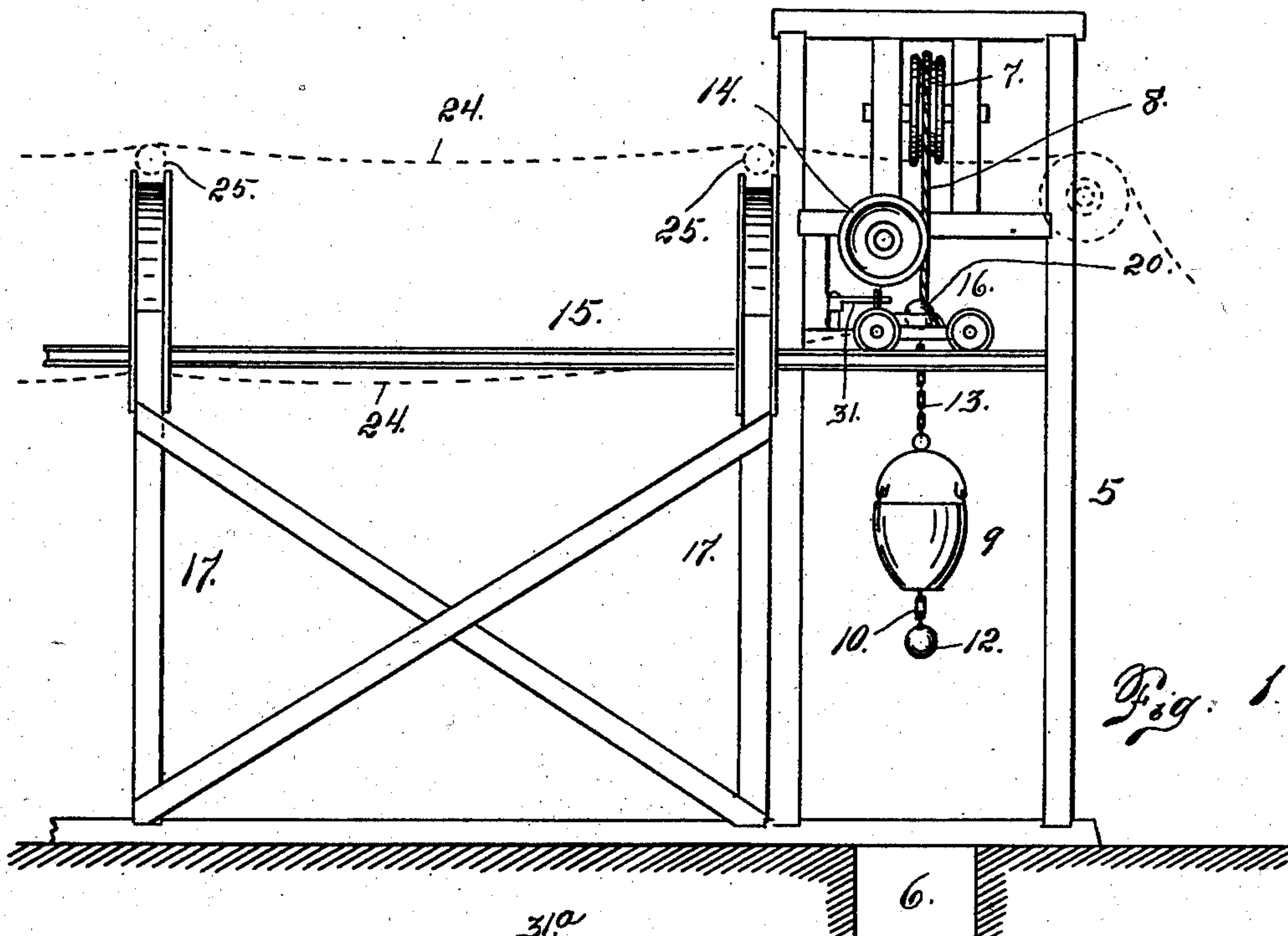
PATENTED DEC. 29, 1903

H. K. McCAUGHEY.
BUCKET DUMPING APPARATUS.

APPLICATION FILED JULY 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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By *[Signature]*
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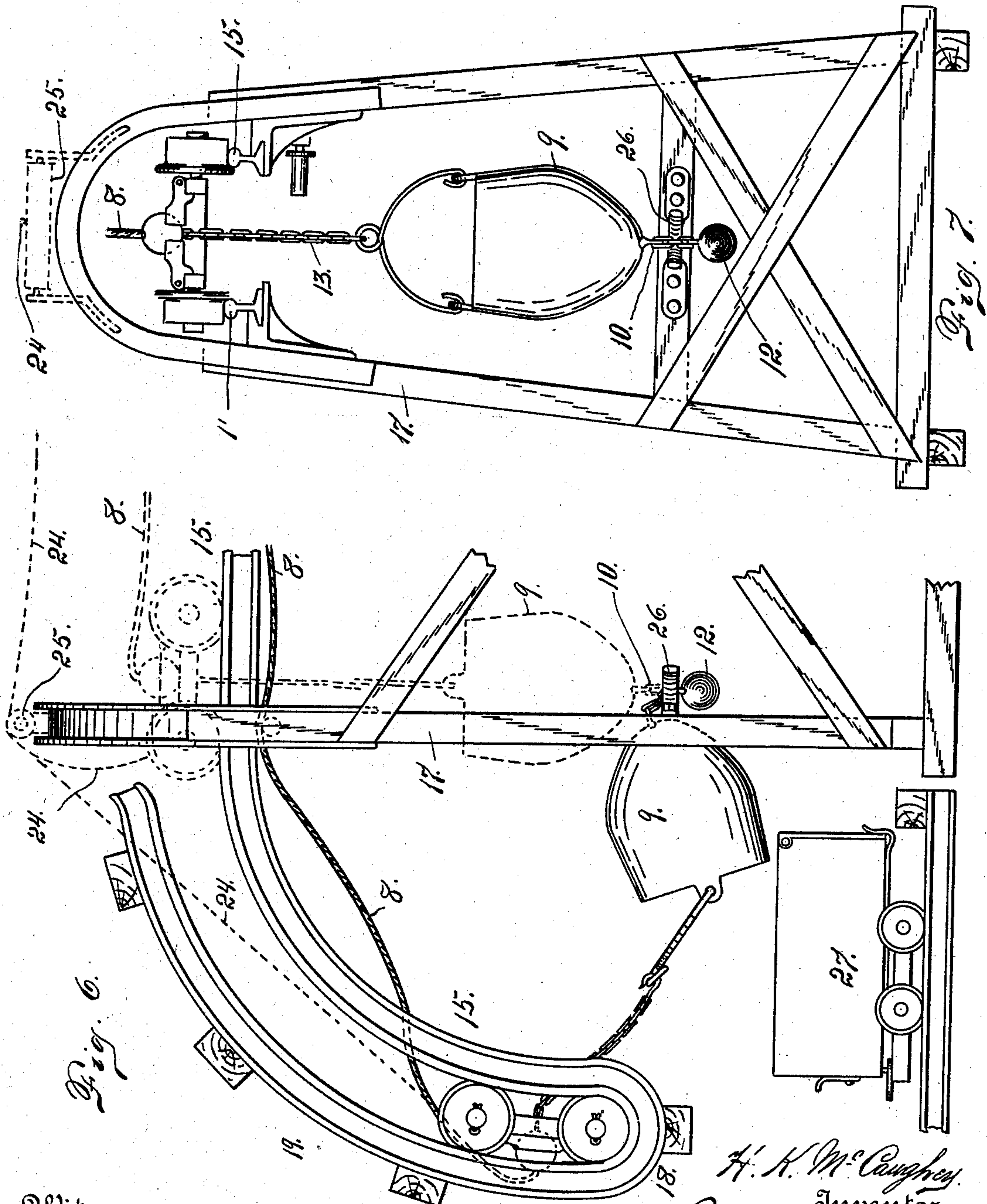
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UNITED STATES PATENT OFFICE.

HOMER K. McCAUGHEY, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF
TO GEORGE F. EMMERT, OF DENVER, COLORADO.

BUCKET-DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 748,558, dated December 29, 1903.

Application filed July 27, 1903. Serial No. 167,230. (No model.)

To all whom it may concern:

Be it known that I, HOMER K. McCAUGHEY, a citizen of the United States of America, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Bucket-Dumping Apparatus; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in bucket-dumping apparatus, and is more especially intended for use in dumping ore-buckets after they are drawn out of the mine-shaft.

My object is to provide a mechanism of this class which shall be comparatively simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side view of my improved apparatus, the looped end of the track being broken away. Fig. 2 is the top or plan view of the bucket, carriage, car, or truck employed in connection with the looped track. Fig. 3 is a section taken on the line 3 3, Fig. 2. Fig. 4 is a detail view of the ball clamped to the cable. Fig. 5 is a plan view of the track, illustrating its curved feature, whereby the slackened cable is made to engage the supporting-rollers arranged along the track on one side. Fig. 6 is a side view, on a larger scale, illustrating the looped end of the track and a part of the track-supporting frame, the truck or carriage being shown in two positions, one in full lines and the other in dotted lines. Fig. 7 is an end elevation of the apparatus.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a gallows-frame erected above the mouth of the shaft 6. Journaled in the upper part of this frame is a

grooved pulley or sheave-wheel 7, over which the cable 8, connected with the bucket 9, passes. This bucket is an ordinary ore-bucket, except that it has a short depending chain 10, provided with a ball 12, attached to its bottom. As shown in the drawings, a short piece of chain 13 is attached to the bail of the bucket at one extremity, while its opposite extremity is connected with the cable proper. The gallows-frame, as shown in the drawings, is provided with another sheave 14, located below the sheave 7 and occupying a plane at right angles to the plane of the sheave 7. The sheave 14 occupies a position directly above the center of the track 15, upon which the truck, car, or carriage 16 is mounted. One end of this track is supported upon the gallows-frame, while the extension of the track beyond the shaft is supported by two arched frame members 17, suitably supported and connected. The track 15 may extend in either direction from the gallows-frame. This track is curved downwardly beyond the arched frame 17, farther to the left. (See Fig. 6.) The lower extremity of this curved track part is bent at 18 and turned upwardly, forming the track member 19, occupying a position parallel with the curved track member 15. This track-loop, composed of the two curved parallel track members, is arranged to engage the wheels of the truck or car at two diametrically opposite points, whereby the carriage fits into the loop and moves downwardly to the end thereof, which end forms a stop for the carriage when the bucket is in the dumping position.

At a suitable distance from the bail of the bucket a ball 20, composed of two semi-spherical parts bolted together, is clamped to the cable. The platform of the car is provided with a central recess 21, in which the ball 20 rests or is seated as the bucket is carried to the dump by the car 16. An open slot 22 extends from the front of the platform to the recess 21 and allows the cable to enter as the car is run to the proper position after the bucket has been raised to bring the ball 20 above the plane of the platform. Then as the cable is slackened the ball seats itself in the recess of the platform and the bucket is supported in a position hanging a suitable distance below the car or truck.

To allow the ball to engage the recess of the platform in suitable operative position when the car is directly above the shaft, as shown in Fig. 1, the platform is composed of two parts 23, adapted to open upwardly when engaged by the ball from below as the bucket is drawn up out of the mine and to the proper height above the ground. As soon as the ball has been raised from the twin platform members the latter move downwardly to their normal position, engaging the side bars of the truck or car, which side bars prevent the engaging platform members from passing below the horizontal position. (See Fig. 3.) Then as the cable is slackened the ball seats itself in the recess 21 and the car may pass outwardly on the track and downwardly, throwing the bucket to the dumping position.

If the track is downwardly-inclined from the gallows-frame, the car will of course pass downwardly by gravitation as soon as it is free to do so. If the track is horizontal, as shown in Fig. 1, from the gallows-frame to the upper extremity of the loop, an auxiliary cable 24 is attached to the front end of the platform and extends upwardly over a roller 25, attached to the top of the frame member farther in front and thence rearwardly over a similar roller 25, attached to the rear frame member 17, and thence to a suitable drum or windless. (Not shown.) By means of the cable 24 the car may be drawn from the gallows-frame to the upper end of the loop. Then as this cable is slackened the car will descend by gravity to the closed end of the loop. Just as the car reaches the upper end of the loop the chain 10, hanging from the lower end of the bucket, catches in a slotted bracket 26, which stops any forward movement of the bottom of the bucket. Then as the car moves downwardly into the loop, carrying with it the top of the bucket, the latter is tilted to the dumping position and its contents are discharged into an ore-car 27, upon a dump, or into any suitable receptacle. Then if the auxiliary cable 24 is employed the bucket-carrying car 16 may be drawn upwardly to the upper end of the loop, or to the position shown by dotted line in Fig. 6, by the auxiliary cable, after which the last-named cable is slackened and the car 16 is drawn rearwardly to the gallows-frame by the bucket-cable 8. The car 16 should be moved rearwardly far enough to release the cable from the platform-slot 22. The bucket is then free to descend into the shaft as the cable is slackened.

Where the track from the gallows-frame is not inclined, suitable propelling means may be employed to move the car forward on the track to the upper extremity of the loop. As shown in the drawings, (see Fig. 2,) a device 30, having the shape of a bell-crank lever, is employed. This device is fulcrumed at 31 and located in suitable proximity to the car, whereby a spring-arm 31^a is adapted to en-

gage the rear extremity of the car. Connected with the other arm 32 is a pull rope or cable 33. It is evident that by pulling on this cable a forward impetus may be given to the car of sufficient force to cause it to move over the horizontal section of track to the loop. If desired, the track may be laterally curved, whereby the car is made to change its direction after leaving the gallows-frame for the purpose of causing the slackened cable 8 to engage supports arranged along one side of the track. These supports consist of rollers suitably mounted and are designated 34 in the drawings. They extend laterally inwardly toward the center of the space between the two track-rails, but not far enough to interfere with the depending bucket-supporting chain. As the car moves outwardly from the gallows-frame and passes the bend or curve A in the track, the cable, being pulled by the car in a straight line from the sheave 14, will rest upon the rollers 34, whereby it is prevented from sagging.

Having thus described my invention, what I claim is—

1. In a bucket-dumping apparatus, the combination with the bucket-carrying car of a track having a curved downwardly-extending loop located at one end, the loop members being parallel and adapted to engage the car-wheels at two diametrically opposite points, a bucket connected with the car and provided with a depending part, and means located in the rear of the track-loop for catching the said depending part and holding the same during the bucket-dumping act.

2. The combination of a car, a bucket carried thereby and provided with a depending part connected with its lower extremity, a bracket for catching and holding said depending part, and a car-track provided with a downwardly-curved loop located forward of the said bracket.

3. In bucket-dumping apparatus the combination with a supporting-frame and a track mounted thereon of a car having a platform composed of two hinged parts adapted to open upwardly, and provided with a slot open in front, a bucket, a cable connected therewith, and a stop on the cable adapted to engage and open the hinged platform as the bucket is drawn upwardly.

4. A car having a platform composed of two hinged parts adapted to open upwardly and provided with a slot open in front for the purpose set forth.

5. A car having a platform centrally divided to form two members which are hinged to open upwardly, provided with a central recess and an open slot leading forwardly from said recess.

6. The combination of a bucket, a cable connected therewith and provided with a ball fastened thereto at a suitable distance above the bucket, a car provided with a platform having a slot open in front and closed at the

rear, the platform also having a recess in line with the slot and forming a seat for the ball of the cable whereby the bucket is supported by the car when the cable is slackened.

5 7. The combination of a track having a downwardly-curved loop at one extremity, a car adapted to run on said track and whose wheels fit into the loop, a bracket suitably connected with the car and means located in
10 the rear of the lower extremity of the loop for stopping the bottom of the bucket as the car enters the loop whereby, as the car moves downwardly, the bucket is thrown to the dumping position.

15 8. The combination of a bucket, a bucket-carrier and a track having a downwardly-curved loop at one extremity, said loop being open to receive and hold the bucket-carrier, and means for catching the lower extremity
20 of the bucket before the carrier reaches the lower end of the loop whereby the bucket is tipped to the dumping position.

9. The combination with a suitable sup-

porting-frame, of a track mounted thereon and provided with a downwardly-curved loop 25 at one extremity, a car adapted to engage the loop and having a hinged platform adapted to open upwardly and provided with a slot open in front, a bucket, a cable connected with the bucket, said cable being provided 30 with a stop located a suitable distance from the bucket and adapted to engage the platform from above and support the bucket, an auxiliary cable connected with the car and engaging the frame above the track whereby 35 the car may be drawn forwardly from the gallows-frame to the upper extremity of the loop and from the lower extremity of the loop to the upper extremity thereof, substantially as described. 40

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

HOMER K. McCAUGHEY.

Witnesses:

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DENA NELSON.