

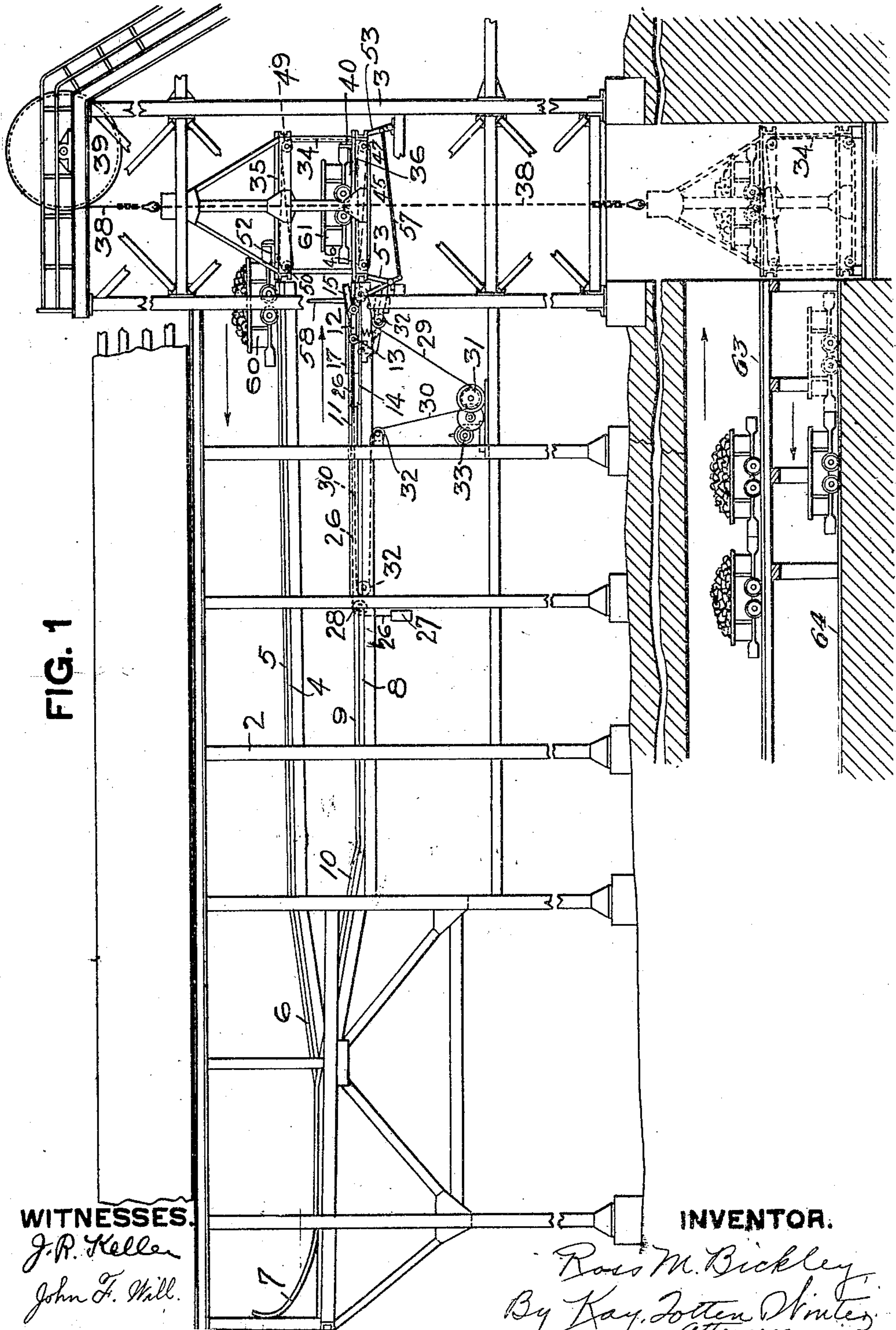
No. 891,760.

R. M. BICKLEY,
COAL TIPPLE.

PATENTED JUNE 23, 1908.

APPLICATION FILED SEPT. 3, 1907.

2 SHEETS—SHEET 1.



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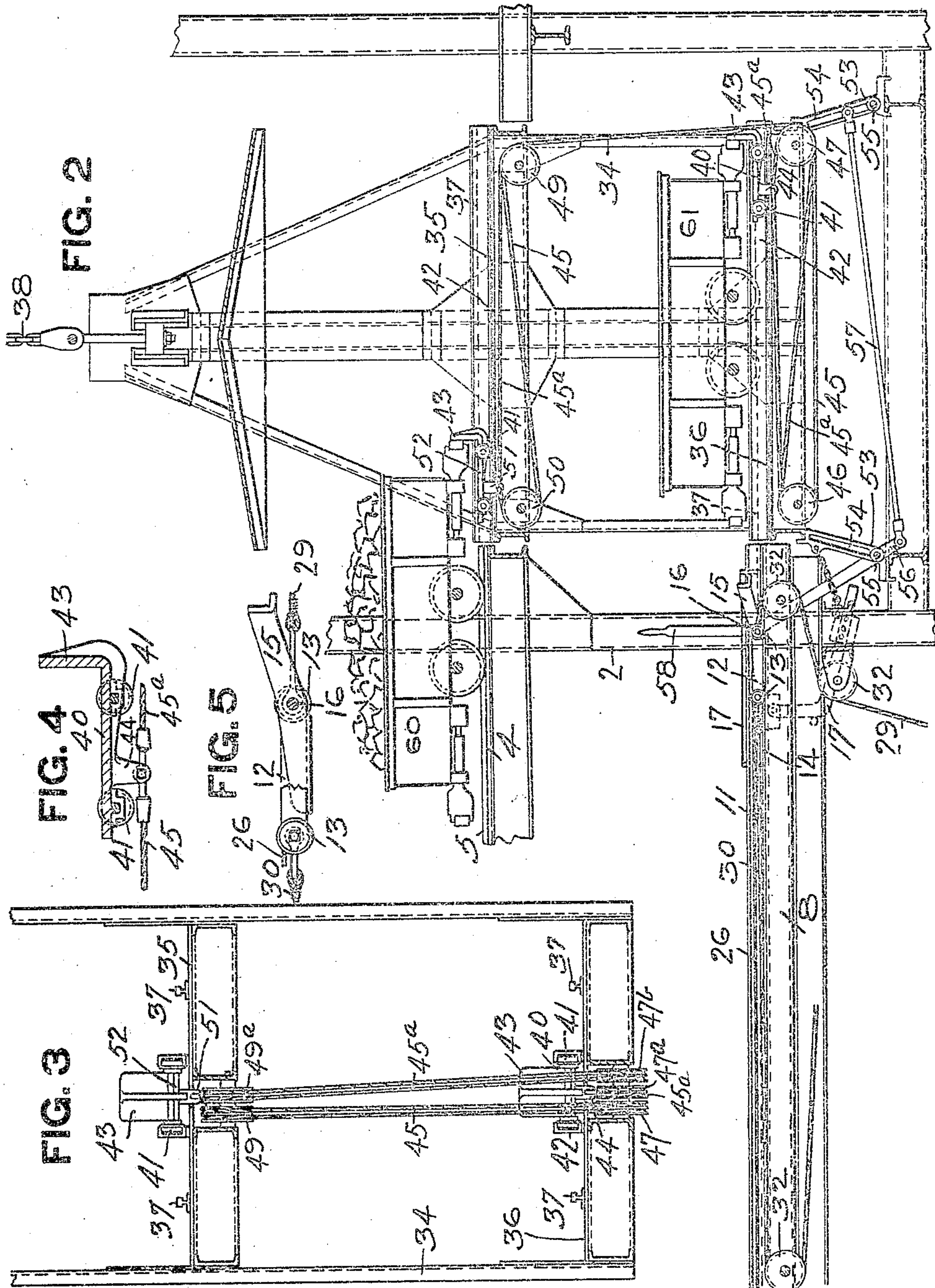
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WITNESSES.

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UNITED STATES PATENT OFFICE.

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COAL-TIPPLE.

No. 891,760.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed September 3, 1907. Serial No. 391,142.

To all whom it may concern:

Be it known that I, ROSS M. BICKLEY, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coal-Tipples; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to coal or like tipples, its object being to provide for the rapid and expeditious handling of loaded and empty cars where a shaft is employed leading from the bottom of the mine to the upper portion of the tippie where the cars are moved from and advanced onto the elevator or lift traveling in the shaft.

To these ends my invention comprises, generally stated, a tippie with a shaft arranged in connection therewith, a double deck cage traveling in said shaft and tracks arranged on different levels corresponding to the decks of said cage, whereby when said cage is brought to a standstill the decks are on a level with the said tracks so that the car may be pushed from one deck onto one of said tracks and a car moved from the other track onto the second deck at a different level.

My invention further comprises other novel features, all of which will be fully hereinafter set forth and claimed.

In the accompanying drawing Figure 1 is a side elevation of a tippie partly in section embodying my invention; Fig. 2 is an enlarged side elevation of a portion of the shaft and tippie giving in more detail the mechanism for shifting the cars to and from the decks of the elevator or cage; Fig. 3 is an end view of the cage, and Figs. 4 and 5 are details.

Referring to the drawings the numeral 2 designates the frame-work of a suitable coal tippie, at one end of which is located the shaft or hoist-way 3. In the tippie is constructed the platform 4 on which is laid the track 5, said track extending back and having the inclined portion 6 leading to the kick-back 7. At a lower level than the platform 4 is a like platform 8 on which the track 9 is laid, said platform communicating with the kick-back 7 by means of the inclined track 10.

Located in the track 9 of the lower platform 8 is the car pusher mechanism 11. The mechanism employed is that shown and

described in Letters Patent of the United States No. 765,902, granted July 26, 1904, to W. J. Patterson. This mechanism comprises a pusher carriage 12 provided with the wheels 13 traveling on the track 14. Pivoted to the carriage 12 is the pusher 15 which normally extends up in position to engage the mine car and push the same forward when said carriage is advanced. The pusher, however, is pivoted at 16 so that the said pusher will be depressed when the car passes over the same so as to permit of the car being brought into position to be advanced by the pusher. Just in advance of the pusher carriage 12 is the car checking device 17 which comprises the rails with curved ends operated from weighted levers, such as described in Patent No. 765,902. Connected to the pusher carriage 12 is the cable 26 to which the weight 27 is secured, said cable passing over the pulley 28. The weight 27 is adapted to return the pusher carriage 12 to its rear-most position. The mechanism for operating the pusher carriage comprises the cables 29 and 30 connected to the front and rear ends, respectively, of the pusher carriage 12, said cables passing around the drum 31 and thence around guide pulleys 32. The drum 31 is driven by the motor 33, suitable gearing connections being employed but as this portion of the mechanism forms no part of my invention I have not deemed it necessary to illustrate the same in detail.

Within the shaft or hoist-way 3 is the cage 34, said cage having the upper deck 35 and the lower deck 36 with the rails 37 laid thereon to support the mine car. Secured to the upper end of the cage 34 is the cable 38 by means of which the cage is elevated and lowered, said cable passing around a suitable sheave 39. Suitable mechanism is employed for raising and lowering said cage.

In order to provide for the moving of the car from one deck of the cage by the movement of the car onto the other deck, I provide the following mechanism: On the lower deck is the car pusher 40 mounted on wheels 41 traveling on the track 42. This pusher has the upwardly projecting portion 23 which is adapted to engage the car in the manner fully hereinafter set forth. Extending down from the pusher 40 is the lug 44 to which the cable 45 is secured. This cable 45 passes around the drum 46 and thence around the

sheave 47. This cable then passes up and over the sheave 49, thence around the sheave 50 and is secured to the lug 51 on a like car pusher 52. Another cable 45^a is also secured to the lug 44 and passes rearwardly over sheave 47^a thence forwardly over a sheave at the side of sheave 46, back again over sheave 47^b, thence up and over sheave 49^a and forwardly and is attached to lug 51. The arrangement of the car pushers 40 and 52 is such that when the pusher 40 is at one end of the cage the pusher 52 will be at the opposite end.

The shaft 3 is provided with suitable landing dogs 53 adapted to engage and support the cage when brought to a state of rest. These landing dogs comprise the supporting arms 54 pivoted at 55 with the arms 56 connected by the rod 57. A lever 58 is adapted to operate said dogs so as to throw them into and out of position.

It is apparent that the same arrangement of tracks at different levels may be employed down in the mine where the loaded cars are moved onto the cage and the empty cars moved therefrom, and accordingly in the mine I have shown the tracks 63 and 64, the cage being shown in dotted lines in position with reference to said tracks.

When my invention is in use the cage 34 carrying the loaded car 60 on its upper deck 35 is elevated until said deck 35 comes into proper alinement with the upper platform 4 whereupon the cage elevating mechanism is stopped and the lever 58 operated to throw the landing dogs into position to support the elevated cage. The empty car 61 on the track 9 having descended from the kick-back has passed over the pusher 15 and has been checked by the flanges of its wheels coming into frictional contact with the rails of the checking device and it is then in a position to be advanced by the car pusher 11 onto the lower deck 36 of the cage 34. Accordingly the car pusher mechanism is put into operation, whereupon the pusher carriage 12 is advanced and the empty car 61 is pushed from the platform 8 onto the lower deck 35 of the cage. As the empty car 61 advances onto the deck of the cage the forward end of the car or buffer comes into contact with the projecting portion 43 of the car pusher 40 and said pusher is forced back along the rails 42. As the car pusher is forced back in this manner the cable 45 connected therewith is moved in the same direction and through the arrangement of sheaves described the car pusher 52 is moved in the opposite direction from the pusher 40 and said pusher 52 acts to push the loaded car 60 from the upper deck 34 onto the tracks 5 of the platform 4. As soon as the empty car 61 has been pushed by the pusher 11 entirely onto the lower deck of the cage the loaded car 60 will have been pushed entirely off the upper deck and the loaded car is then advanced by gravity to

the point of unloading, whence it then passes onto the kick-back to be returned to the track 9 in position to be advanced onto the lower deck of the cage in its proper turn.

The empty car 61 having been advanced onto the cage in the above manner the landing dogs are then thrown out of the way and the cage lowered to the mine, the cage carrying the empty car is lowered to the bottom of the mine, where as above stated, a like arrangement is provided for moving the empty car from the lower deck by advancing a loaded car onto the upper deck.

It is apparent that the loaded car may be carried on the lower deck and the empty car on the upper deck without affecting the operation of my improved apparatus. In this manner the cars are quickly and expeditiously handled, the pusher mechanism for pushing the empty car onto the cage acting through the mechanism described to also move the loaded car from the upper deck of the cage, thereby dispensing with an additional pusher operating from the opposite side of the shaft to push off the loaded car, together with the additional structure and mechanism required for such an arrangement. By the use of a double deck cage it is not necessary to shift the cage from one platform to the other, and as a consequence the operation of the shaft is greatly simplified and the amount of time required for loading and unloading is greatly reduced.

What I claim is:—

1. The combination of a shaft, a double-deck cage therein, means for raising and lowering said cage, tracks at levels corresponding to the decks of said cage, and means for moving a car from one deck by the moving of a car onto the other deck of said cage.

2. The combination of a shaft; a double-deck cage therein, means for raising and lowering said cage, tracks at levels corresponding to the decks of said cage, car pushers on each of said decks, and connections between said car pushers whereby a car moving into contact with one of said car pushers moves the other in the opposite direction.

3. The combination of a shaft, a double-deck cage therein, means for raising and lowering said cage, tracks at levels corresponding to the decks of said cage, car pushers at opposite ends of said decks, and connections between said pushers whereby a car moving into contact with one of said car pushers moves the other in the opposite direction.

4. The combination of a shaft, a double-deck cage therein, means for raising and lowering said cage, tracks at levels corresponding to the decks of said cage, car pushers at opposite ends of said decks, and a cable connecting said pushers, whereby a car moving into contact with one of said car

pushers moves the other in the opposite direction.

5 5. The combination of a shaft, a double-deck cage therein, means for raising and lowering said cage, tracks at levels corresponding to the decks of said cage, car-
pushers at opposite ends of said decks, a
cable connecting said pushers, and sheaves
around which said cable passes, whereby a
10 car moving into contact with one of said car
pushers moves the other in the opposite direction.

6. The combination of a shaft, a double-

deck cage therein, means for raising and
lowering said cage, tracks at levels corresponding to the decks of said cage, pushing
mechanism for moving a car onto one of said
decks, and means for moving a car from the
other deck by the movement of said car
onto the first named deck.

In testimony whereof, I, the said Ross
M. BICKLEY have hereunto set my hand.

ROSS M. BICKLEY.

Witnesses:

F. W. WINTER,
HALLOCK C. SHERRARD.