No. 825,928. PATENTED JULY 17, 1906.

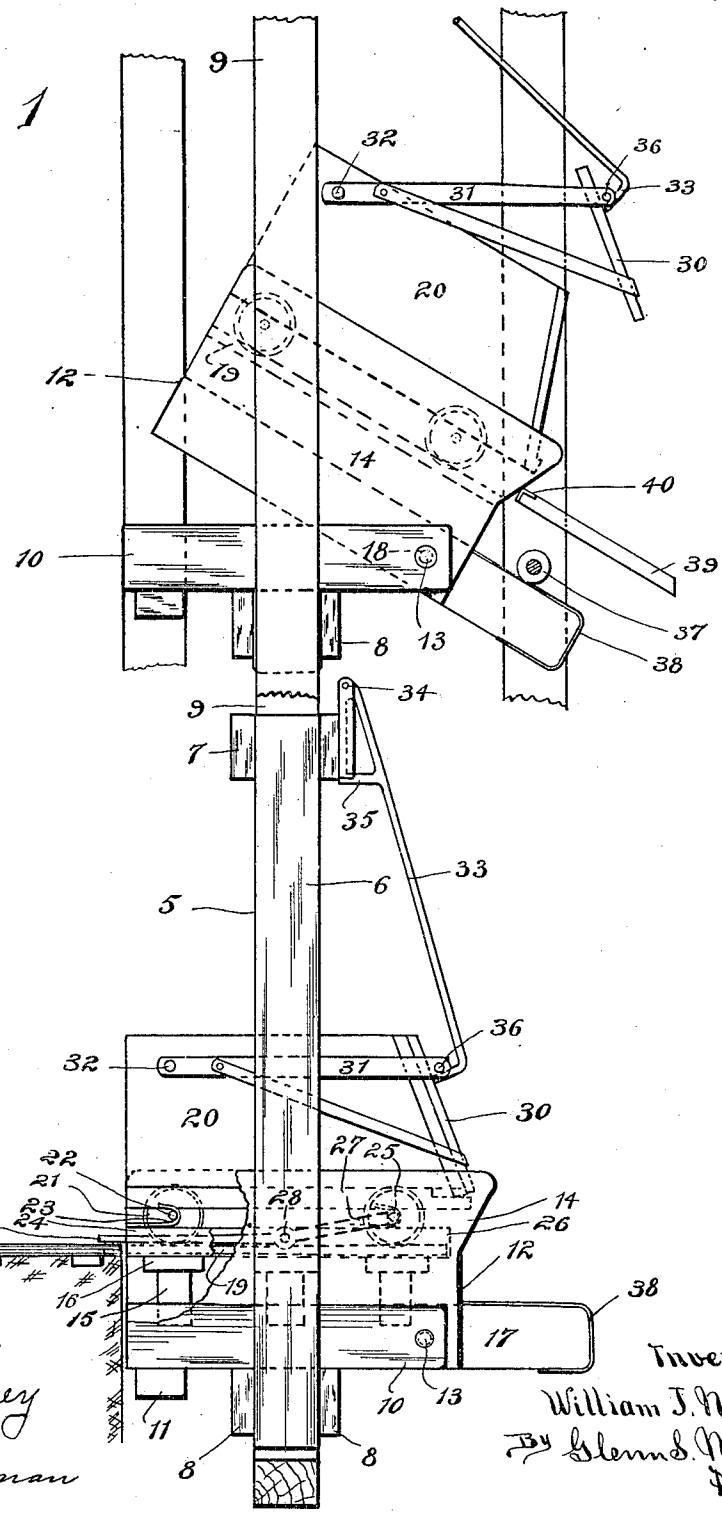
W. J. NEWMAN.

AUTOMATIC DUMPING ELEVATOR CAGE.

APPLICATION FILED JULY 19, 1905.

2 SHEETS—SHEET 1.

Fig. 1



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2 SHEETS—SHEET 2.

Fig. 2

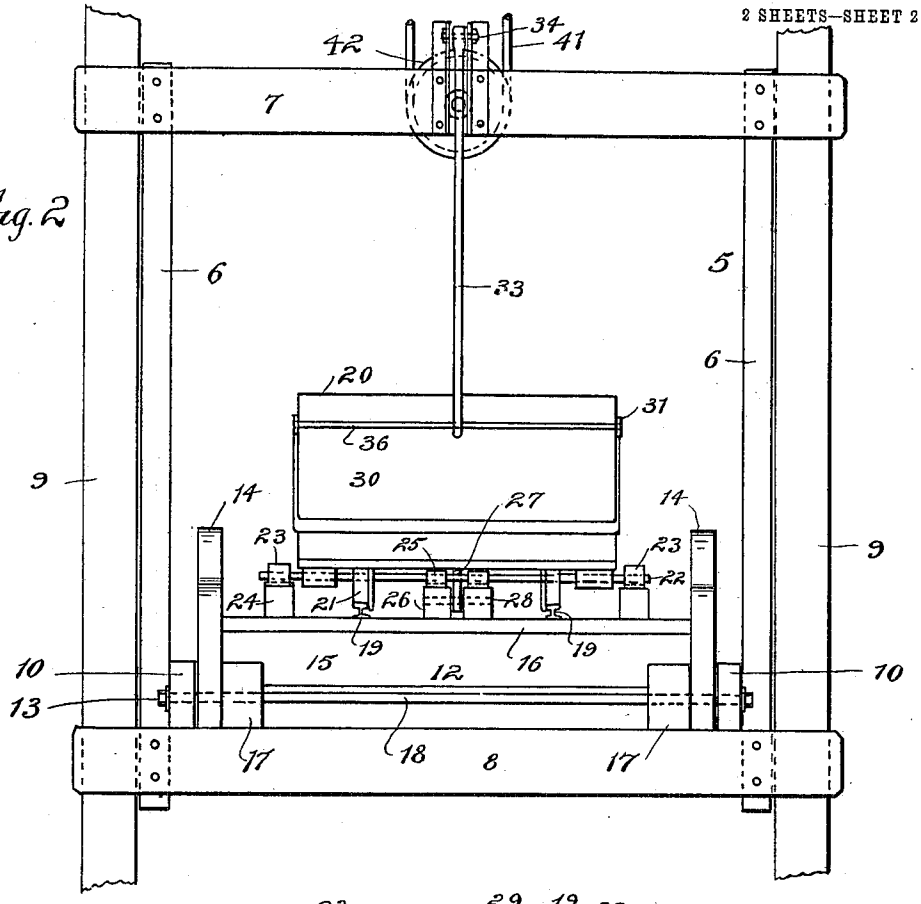
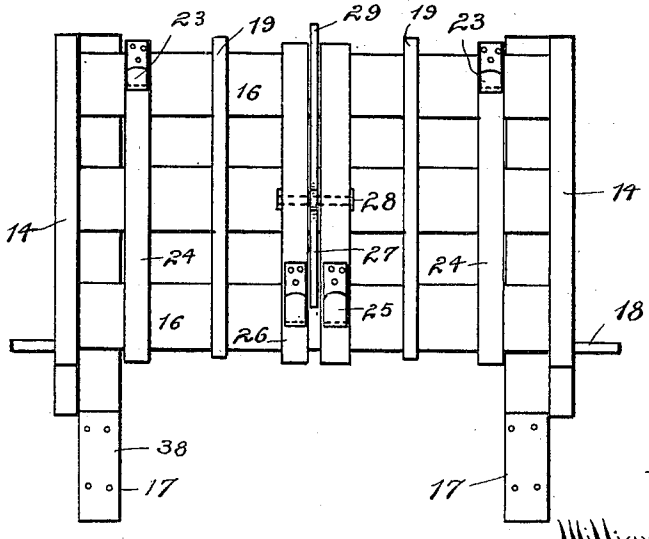


Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM J. NEWMAN, OF CHICAGO, ILLINOIS.

AUTOMATIC-DUMPING ELEVATOR-CAGE.

No. 825,928. Specification of Letters Patent. Patented July 17, 1906.

Application filed July 19, 1905. Serial No. 270,326.

To all whom it may concern:

Be it known that I, WILLIAM J. NEWMAN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic-Dumping Elevator-Cages, of which the following is a specification.

This invention relates more particularly to an automatic-dumping elevator-cage whereby a suitable car may be run onto the cage at the bottom of the well or shaft, and said cage or a portion thereof will be automatically tipped when it reaches a predetermined point at the top of the well, and simultaneously the car-door will be opened to discharge its contents.

A further novel feature of this invention is the means for automatically locking the car in position on the cage and the means for automatically opening the car-door.

Heretofore a number of such dumping cages have been invented and patented, but in general they have been too complicated or expensive for ordinary or rough usage.

It is one of the prime objects of this invention to simplify the construction and to provide an apparatus whereby dirt or other material may be rapidly and economically elevated and discharged from the cars.

The invention comprises the novel features and details of construction which will be described and claimed hereinafter and which are shown in the accompanying drawings, in which—

Figure 1 represents a side elevation of an apparatus embodying this invention, the cage being shown at the bottom of the well and again at the top thereof in dumping position. Fig. 2 is a front elevation of the cage proper with a car thereon, and Fig 3 is a top plan view of the dumping or tipping portion of the cage.

As shown in the drawings, 5 represents a cage of any ordinary or preferred form of construction having main upright side posts 6 and cross-beams 7 and 8, which are extended to form the guides and engage with upright guide-posts 9 in the usual manner. At the bottom of the cage is a stationary framework which consists of longitudinal beams 10 and cross-beam 11, said framework being rigidly secured to the main cross-beams 8. The tipping framework 12 is pivoted at 13 to the stationary or rigid frame and rests on the cross-beams 8 and 11 when in normal position. The tipping frame may be constructed in any suitable manner, and, as shown in the drawings, consists of side members 14 and cross-beams 15 and 16 and the projecting longitudinal beams 17, which are securely connected to the side pieces 14 and the cross-beams 15. The pivotal connection may be made in any desired manner, as by means of a shaft 18, which passes through the beams 17 and side pieces 14 and the stationary beams 10. The car-rails 19 rest on the cross-pieces 16 and are secured thereto.

The dump-car 20 runs on suitable wheels 21, having projecting axles 22, or at least the rear axle preferably projects slightly beyond the sides of the car. As the car is run onto the cage the ends of the rear axle engage with hooks 23, which are rigidly secured to the tipping frame and are carried by blocks or strips 24. At the same time the front axle engages with one or more hooks 25, preferably arranged in the center of the frame and also carried on blocks or strips 26. When the car has been stopped by the hooks, it is automatically locked in position by means of a catch or dog 27, which is pivoted at 28 to the strips 26. This catch is held in normal position by means of a rearwardly-projecting arm 29 and is so arranged that the front axle will depress the locking end as the car passes onto the cage, and as the axle engages with the hooks the end will be raised to engage with the axle and hold it firmly against the hooks. When the car is to be run off from the cage, the projecting arm 29 is raised to release the front axle, or, if desired, a block or stop could be arranged in the path of this arm so that it would be raised as the cage reaches its lowermost position.

The car is provided with a front gate 30, which is carried by suitable arms 31, pivoted at 32 to the sides of the car. When the car is tipped, this gate is opened by means of a swinging hook 33, which is pivoted at 34 to suitable bearings on the cross-beams 7, and said hook is provided with a shoulder 35 to prevent its swinging out of engaging position. The lower end of the hook engages with a cross-rod or other stop 36 on the gate 30.

It will be apparent that if the outer projecting ends of the arms 17 are stopped as the cage moves upward the pivoted framework will be turned or tipped on the pivot 13. In order to so tip the frame, I provide a roller or other suitable stop 37 at some predetermined point on the framework of the shaft, which is

adapted to engage with the ends of the arms 17, as shown in Fig. 1. In order to prevent too great wear where the beams engage with said roller, they are provided with reinforcing-plates 38. Immediately above the roller 37 is arranged a chute or spill-board 39, which is adapted to receive the material from the car 20. The upper corner of said board is preferably reinforced with an angle 40, which is adapted to engage with the ends of the side pieces 14 to prevent the cage from being tipped too far.

The operation of my improved dumping-cage is as follows: When the cage is raised, as by means of a cable 41, which passes around a sheave 42 at the top of the cage, the weight of the car and the main portion of the tipping frame will hold the latter in normal position; but when the cage reaches the dumping-point the outer end of the beams 17 will strike against the roller 37, thereby tipping up the frame with the car thereon. Simultaneously the hook 33 will open the gate 30 and allow the material in the car to be discharged onto the chute 39. As the cage reaches its maximum dumping position, the ends of the side pieces 14 will strike against the angle 40 and prevent further tipping of the cage. This striking action will also have the effect of loosening and throwing the material from the car. As the cage is lowered the tipping frame will again fall back to normal position and the door will close. The action of the locking device for the car has been sufficiently described to be readily understood.

Changes in the proportion and arrangement of the parts will readily suggest themselves as coming within the scope of my invention, and I do not wish to limit myself to the exact construction herein shown and described; but

What I claim, and desire to secure by Letters Patent, is—

1. The combination with an elevator-cage having a rigid base-frame of an auxiliary frame pivoted to said base and normally resting directly thereon, the arrangement being such that the weight of the auxiliary frame, and any load carried by the same, will be supported mainly by the cross-bars of the base-frame, and not by the pivot.

2. The combination of an elevator-cage having cross-beams and side beams of a frame pivoted to said side beams and having projecting arms for tipping the same.

3. The combination with an elevator-cage of a pivoted frame at the bottom of said cage, projecting arms for tipping said frame and a stop against which said arms are adapted to strike to tip said frame.

4. The combination of an elevator-cage, a pivoted frame in said cage, means for automatically locking a car on said frame, projecting arms on said frame and a roller arranged at a predetermined point and adapted to engage with said arms to tip the frame.

5. The combination with an elevator-cage adapted to receive a car, hooks on said cage for engaging the axles of said car and a pivoted catch adapted to engage with one of said axles to hold the car in position.

WILLIAM J. NEWMAN.

Witnesses:
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