(No Model.)

B. K. PRATER.

ELEVATING AND DUMPING APPARATUS.

No. 306,860. Patented Oct. 21, 1884.

Fig. 1.

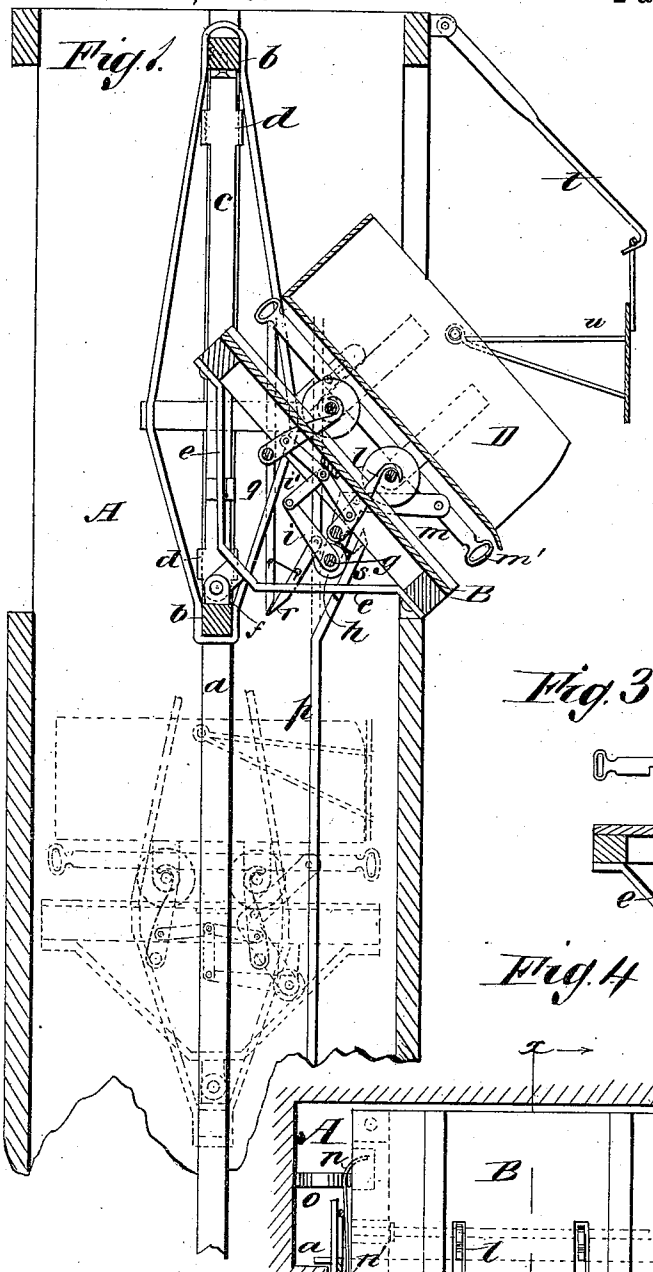

Fig. 2.

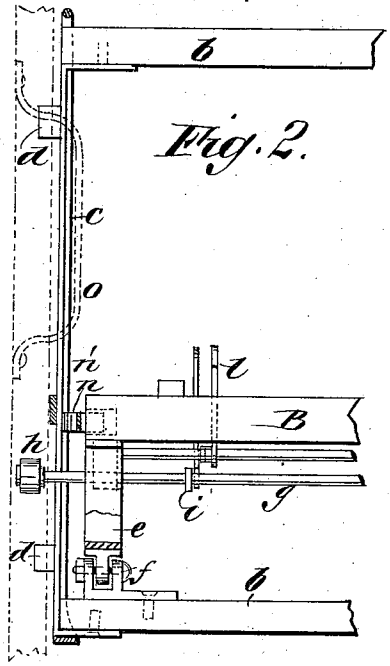

Fig. 3

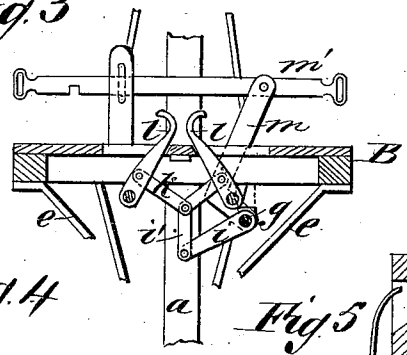

Fig. 4

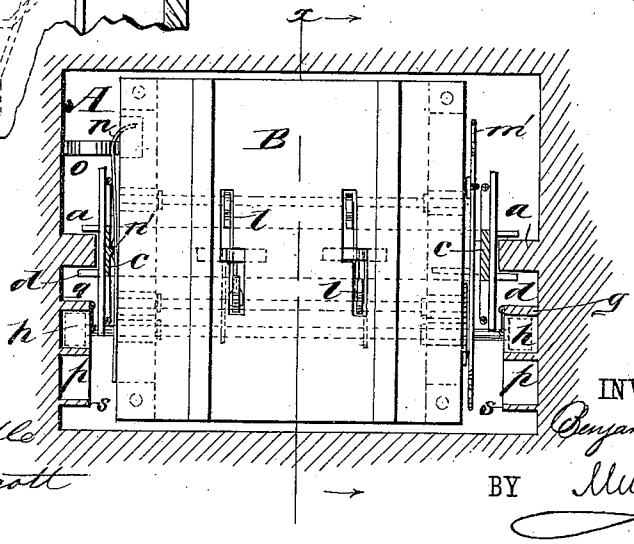

Fig. 5

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BENJAMIN KING PRATER, OF MOUNT OLIVE, ILLINOIS.

ELEVATING AND DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 306,860, dated October 21, 1884.

Application filed September 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN K. PRATER, of Mount Olive, in the county of Macoupin and State of Illinois, have invented a new and Improved Elevating and Dumping Apparatus, of which the following is a full, clear, and exact description.

My apparatus is intended especially for use at mining-shafts for elevating and discharging coal and other materials, the object being to save the necessity of transferring the coal at the bottom of the shaft. The elevator-platform is constructed to be raised and lowered, and is also hung so that it may be swung to one side at the top of the shaft. Devices are provided for holding the car or box on the platform, so that when the latter is tipped the load will be emptied. These operations are effected automatically, and the parts are so arranged that the platform can also be raised without being tipped when it is desired to use it in that manner, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section representing my improved elevating apparatus as applied to a mining-shaft. Fig. 2 is a partial side view of the elevator at right angles to Fig. 1. Fig. 3 is a detail section showing the gripping mechanism. Fig. 4 is a horizontal section, and Fig. 5 is a detail section of the latch.

A represents the mining-shaft, fitted with vertical guide-timbers *a* at opposite sides, on which the elevator or platform moves. The frame of the elevator is formed by top and bottom cross-timbers, *b*, connected by side standards, *c*, which are provided with guide-flanges *d*, taking upon the timbers *a*. The platform B is hung on the lower cross-timber *b* of the frame by means of arms or braces *e*, which are jointed to brackets *f*, so that the arms with the platform can be swung to either side. Upon hangers beneath the platform is hung a cross-shaft, *g*, carrying at its ends rollers *h h*, and provided in its middle portion with arms *i i*, which connect by links *i'* to toggle-bars *k*, that are jointed to the vibrating hooks *l*, hung on cross-rods beneath the platform. There are two pairs of hooks *l*, projecting upward through the platform, for engaging with the axles of the car or box D, so as to hold the car securely in place upon the platform. The shaft *g* is rocked and the hooks *l* thus engaged with or disengaged from the axles by means of a sliding rod, *m'*, connected to an arm, *m*, on the shaft *g*, as shown most clearly in Fig. 3. The rod *m'* is above the platform, in a convenient position for being operated from either side. At one side of the platform is fitted a spring-latch, *n*, which in its outer position engages with a projection, *n'*, upon the side standard, *c*, of the frame, whereby the platform is held in the horizontal position. At *o* is a fixed plate or piece upon the side of the shaft, in position for moving the latch *n* inward and disengaging it when the platform reaches the position for dumping. As an additional precaution to prevent tipping of the platform while being raised, there is fitted upon the side of the shaft A a timber or stringer, *p*, along which the wheel or roller *h* on the shaft *g* moves. At the upper end of the shaft a similar stringer, *q*, is fitted parallel to the stringer *p*, so as to form a guideway for the rollers *h* when it is desired to raise the platform without tipping. The stringer *p* is provided with a hinged gate portion, *r*, and is also made with an inclined prolongation, which, when the gate is swung back against the stringer *q*, forms a guideway for the roller *h*, inclining to one side for effecting the tipping of the platform. These devices are the same at each side of the shaft in connection with each roller *h*, and the gates *r* are provided with hooks, whereby they can be held in either position, as desired.

The operation of the apparatus is as follows: The platform B being lowered to the bottom of the shaft, a car or box, D, is run upon it, and the slide-rod *m'* is moved to lock the hooks *l* with the car-axles. The platform is then hoisted to the top of the shaft. On reaching the gate *r* the rollers *h* are caused to move to one side, thus swinging the platform, and with it the car, into position for dumping the load. At the moment the car is tipped the hook *t*, hung in position above the car, engages a loop

on the pivoted tail-board *u* of the car, so that as the platform turns the board *u* is held up to allow the coal or other material to run out. When the elevator is used for raising men and material, the gate *r* is turned down to its vertical position, and the rollers *h* will then pass between the guides *p q*, and the platform will not be tipped.

It is to be understood that two platforms will be used, suspended by means of a rope passing over a wheel at the top of the shaft, so as to balance each other, and each platform will be constructed for operation in the manner described above.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an elevating apparatus, the combination, with a suspended frame, of a platform hung on the frame so as to be tilted, substantially as described.

2. The combination, with the tilting platform B and its supporting-frame, of the hooks or grippers *l*, fitted for operation by means of a rock-shaft and levers, for gripping the axles of a car upon the platform, substantially as described.

3. The combination of the rock-shaft *g*, links *i'*, toggles *k*, and hook-ended arms *l* with the tilting platform B, substantially as described.

4. The combination, with the tilting platform B, of the shaft *g*, rollers *h*, guides *p q*, and gate *r*, substantially as described, for operation in the manner specified.

5. The latch *n*, plate *o*, and projection *n'*, combined with the tilting platform B and its supporting-frame, as and for the purpose specified.

6. The combination, with the well or shaft A, of the suspended frame *b c*, the platform B, hung by arms *c*, and mechanism, substantially as described, for releasing and tilting the platform when it reaches the top of the shaft, as set forth.

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