

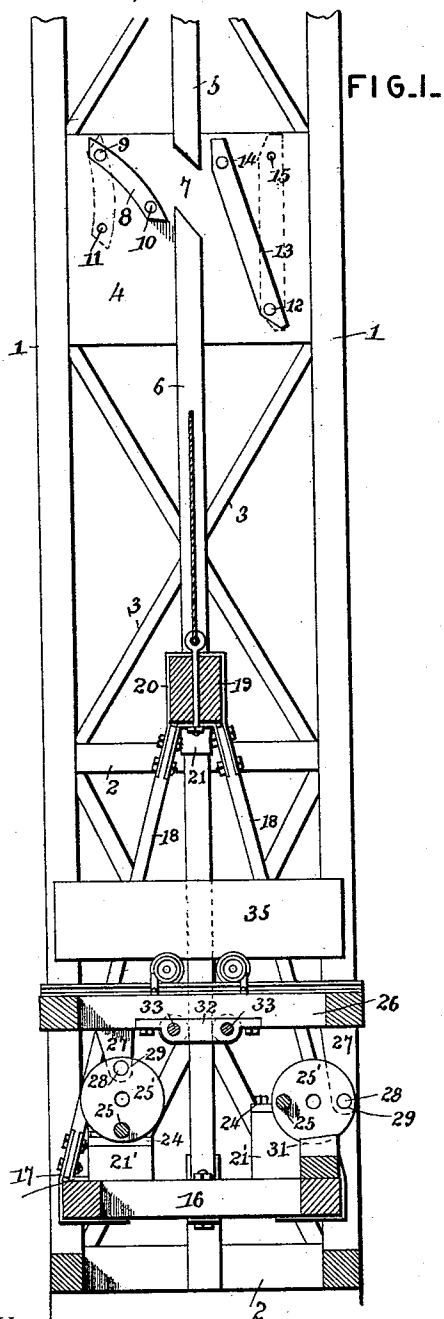
(No Model.)

2 Sheets—Sheet 1.

S. HAMILTON.
MINE ELEVATOR.

No. 478,595.

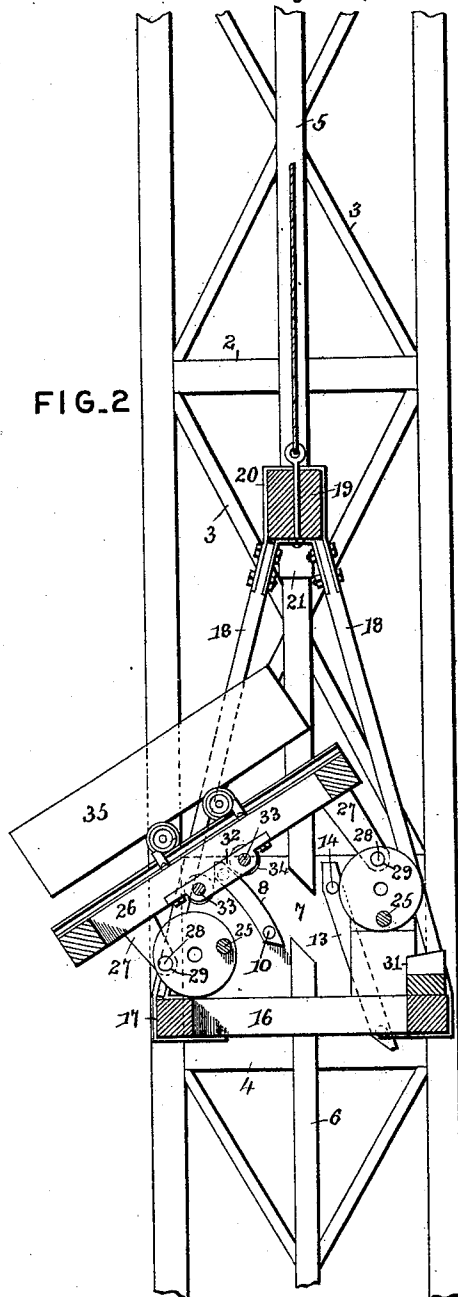
Patented July 12, 1892.



Witnesses

James K. McLaughlin
J. B. Figgers

FIG. 2



Inventor

Stewart Hamilton

By *his* Attorneys,

C. A. Snow & Co.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

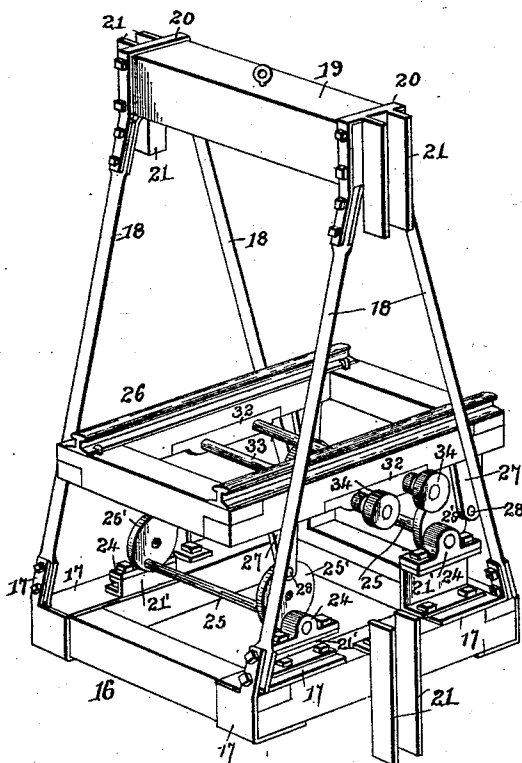


FIG. 4.

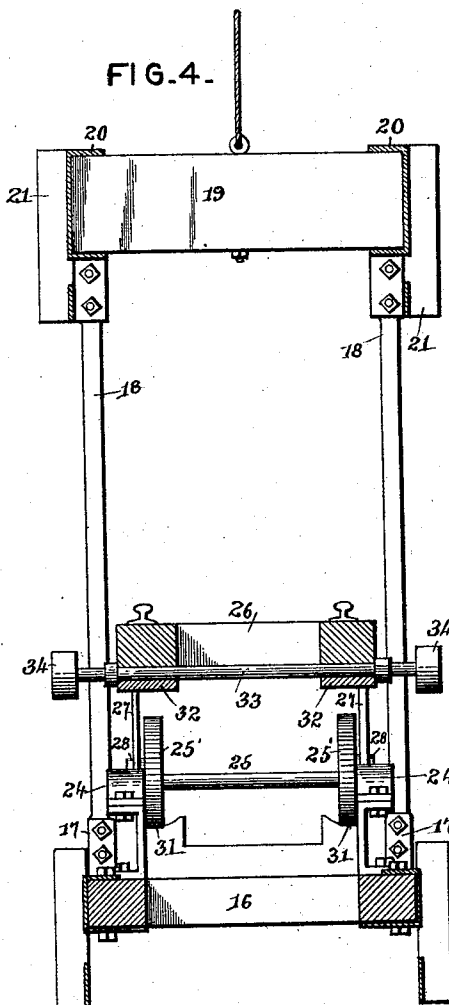
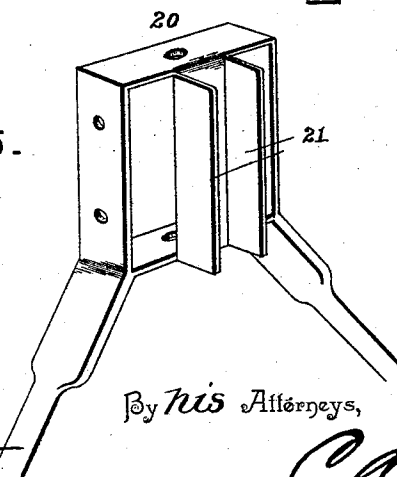


FIG. 5.



Witnesses

Jas. H. McLaughlin
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UNITED STATES PATENT OFFICE.

STEWART HAMILTON, OF WEIR, KANSAS.

MINE-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 478,595, dated July 12, 1892.

Application filed March 8, 1892. Serial No. 424,186. (No model.)

To all whom it may concern:

Be it known that I, STEWART HAMILTON, a citizen of the United States, residing at Weir, in the county of Cherokee and State of Kansas, have invented a new and useful Mine-Elevator, of which the following is a specification.

This invention relates to improvements in mine elevators or cages, the objects in view being to provide an elevator adapted for raising coal or raising and lowering workmen, and when used for raising coal to be capable of automatically dumping or delivering the same.

With these and various other objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical longitudinal section of a shaft, a cage constructed in accordance with my invention being mounted therein and located below the point of dumping. Fig. 2 is a similar view, the cage being in the act of dumping. Fig. 3 is a detail of the cage. Fig. 4 is a transverse section thereof. Fig. 5 is a detail in perspective of one of the combined guides and yokes.

Like numerals of reference indicate like parts in all the figures of the drawings.

The shaft is provided with the usual frame-work, consisting, as herein shown, of the vertical uprights or posts 1, connected at intervals by transverse bars 2, between which and the posts 1 oppositely-disposed inclined braces 3 are located. Opposite the top of the shaft side bars 4, wider than the bars 2, though corresponding therewith, are located, and from these side bars to the upper and lower ends of the frame-work vertical guide-sections 5 and 6 extend. The upper sections 5 and the lower sections 6 terminate short of each other at their adjacent ends, though, as shown, they are in vertical alignment, and each is but a continuation of the other. The adjacent ends of each vertical pair of sections 5 and 6 are beveled at opposite sides, so as to form an intervening space 7. From the lower sections 6 there extend upwardly and outwardly inclined track-sections 8, the inner ends of which are a slight distance from the upper ends of the sections 6. These track-sections

have their upper ends pivoted by bolts 9 to the side bars 4 and have their rear or lower ends removably secured by bolts 10, which pass through the track-sections and into the bars 4. If desired, these bolts 10 may be removed and the track-sections 8 swung to a vertical position or where they are inoperative, and locked in such position by entering the bolts 10 into suitable holes 11, formed in the bars 4 for this purpose.

In rear of the recesses 7 and having their lower ends pivoted by bolts 12 is a pair of declining tracks or sections 13, the same extending from a point in rear of the guides 5 up to within a short distance of the lower ends of the guides 4, but terminating short of the same, so as to leave an intervening space. The upper ends of the sections 13 are removably secured by bolts 14, passed through perforations in the sections and into openings formed in the bars 4. By removing the bolts and swinging the sections 13 rearwardly they may be locked in inoperative position by reinserting the bolts in suitable openings 15, located in rear of said sections and formed in the bars 4.

In constructing the frame-work of the cage I employ a strong rectangular base-frame 16, consisting of front and rear and opposite side bars, the ends of which are joined and securely bolted together. Metal straps 17 are bolted to the upper and lower sides of this base-frame and arranged in pairs, and bolted between each pair of metal straps is an inclined hanger-rod 18.

19 designates a superimposed suspension-beam, and the same has embracing saddles or straps 20, located near its ends, to which are securely bolted the upper ends of the suspension-rods just mentioned. The cables for raising and lowering the cage or elevator are secured to this transverse superimposed suspension-beam. Guide-shoes 21 are secured to the opposite ends of the beam 19 and centers of the opposite side bars of the base-frame of the cage. These shoes are U-shaped in cross-section and somewhat snugly embrace the guides 5 and 6, upon which they are adapted readily to move.

A pair of standards 21' rise from the front and rear ends of the base-frame, the latter standards being somewhat taller, preferably,

than the former, and each pair of standards constitute supports for transversely-opposite bearings 24. In these bearings 24 rock-shafts 25 are journaled, and the same pass through 5 eccentrics or eccentric-disks 25'.

26 designates a car-supporting frame, from the opposite sides of which, near the front and rear ends thereof, depend hangers 27. These hangers are connected by bearing-pins 28 10 with eccentrically-formed holes 29, formed in the eccentrics before mentioned, so that, as will be obvious, the frame 26 is capable of pivotal movement upon the eccentrics. Located between the rear pair of standards is a 15 stop-block or bolster, the same having rests 31 at its opposite ends, upon which the rear eccentrics normally rest. The rear eccentrics are connected at a relatively different point to the hangers to what the front eccentrics 20 are, so that as the front eccentrics move, so that their points of connection with the hangers are at the front of the same, the pivots of the rear eccentrics will be at the upper sides, and hence the frame 26 would be tipped or 25 tilted, so as to dump anything therefrom. In bearings 32, with which the opposite side bars of the frame 26 are provided, a pair of shafts 33 are journaled, the ends of which extend beyond the frame 26 and to opposite sides of 30 the vertical guides 5 and 6, where they are provided with loose rollers 34, adapted to rotate over the opposite sides of the said vertical guides.

As shown in detail in Fig. 5, the saddles or 35 straps and the guides at the opposite ends of the beam 19 may be formed integral.

In operation, if it is desired to raise coal from the pit, the sections 8 and 13 of the track are swung to their inclined positions, (heretofore described as their operative positions,) 40 and a car 35 is mounted upon the frame 26 and locked against movement thereon. As the elevator ascends the front pair of rollers passes under the tracks 8, while the rear pair come in contact with the rear tracks 13, are 45 deflected from their true course over and upon the tracks 8, the upper guides moving on the upper vertical guides 5 having passed through the recesses intervening between the tracks 8 and 13 and the guides 5 and 6. A continued 50 movement upon the part of the cage causes the front eccentrics to rotate, so as to lower the front end of the frame 15 and raise the rear end thereof, and thus the coal is discharged from the car into any waiting receptacle. 55 When the cage lowers, the wheels running over the track-sections 8 and 13 return the car and the frame 26 to their proper positions. From this it will be seen that coal may be loaded into the cars at the bottom of the pit or at any intermediate point and that the same may be automatically delivered as soon as the cage reaches the upper end of the shaft. 60 When it is desired to throw the tilting mechanism out of operation, the tracks 8 and 13 are swung to their inoperative positions and locked by the means heretofore described, 65

and it will thus be seen that the cage can pass up and down upon the guides 5 and 6 as if the latter were continuous, and is therefore 70 safe for the transportation of the miners and others from the mouth of the shaft to the bottom of the shaft or any intermediate portion, or from thence back to the mouth of the shaft.

Having described my invention, what I claim is— 75

1. The combination, with the opposite vertical guide-ribs 5 and 6, having the spaces 7 between their adjacent ends, the frame-work 80 for supporting the ribs, and the front and rear deflecting-ribs 8 and 13, respectively, the former leading from the upper ends of the lower ribs 6 and extending forward from the same away from the general line of the ribs and 85 the latter extending from a point near the lower ends of the upper ribs 5, disposed rearward therefrom and declining away from the general line of the ribs, of the cage, having U-shaped shoes for embracing the ribs 5 and 90 6, the rocking frame mounted upon the cage and adapted to support a car, and the pairs of opposite rollers projecting from the sides of the rocking frame, adapted to embrace the ribs 5 and 6 and be deflected by the deflect- 95 ing-ribs, and means for swinging the locking-ribs into and out of their described operative position, substantially as specified.

2. The combination, with the vertical guides and the frame-work for supporting the same, 100 of the main frame of the cage mounted for vertical movement therein, the superimposed rocking frame, intermediate eccentrics or disks pivoted to the main frame and eccentrically and differentially to the superimposed 105 rocking frame, and means for rocking said frame upon the disks, substantially as specified.

3. The combination, with the opposite guides 5 and 6, spaced apart, as at 7, of the frame for 110 supporting the guides, the inclined guides 8, leading from the upper ends of the guides 6, pivot-bolts passed through the upper ends of the inclined guide-sections, means for locking their lower ends out of position with relation to the guides 6, the rear guide-sections 115 13, pivoted at their lower ends to the frame-work and inclining from the lower ends of the guides 5, means for locking them adjacent to or away from the guides 5 of the main frame 120 of the cage, the rocking frame located thereon, shoes extending from the cage and adapted to pass between the guides 5 and 6 and the inclined sections, a pair of shafts located upon and extending from the rocking frame, and 125 loose rollers mounted on the shafts, embracing the guides 6 and adapted to embrace the guide-sections 8, substantially as specified.

4. The combination, with the vertically-opposite guides 5 and 6, having their adjacent 130 ends forming the intervening spaces 7 and beveled at opposite corners, of the curved guide-sections 8, pivoted at their upper ends to the frame-work, bolts passed through their lower

ends in a removable manner and adapted to engage holes adjacent to or removed from the guides 6, the guide-sections 13, located in rear of the recesses 7, bolts passed through their lower ends and removably through their upper ends, the latter bolts being removable and adapted to engage openings adjacent to or remote from the lower ends of the sections 5 of the main frame of the cage, the rocking frame located thereon, shoes extending from the cage and adapted to pass between the guides 5 and 6 and the inclined sections, a pair of shafts located upon and extending from the rocking frame, and loose rollers mounted on the shafts, embracing the guides 6 and adapted to embrace the guide-sections 8, substantially as specified.

5. The combination, with the opposite guides, the upper ends of which are inclined, as at 8, the superimposed guides 5, and the inclining guides 13, of the main frame provided with shoes engaging the lower guides, the transverse beam terminating in shoes, also engaging the guides, the hangers depending from the beam and connected to the main frame, front and rear standards, the latter being elevated above the former, mounted on the main frame, transverse rock-shafts mounted in the standards, disks eccentrically pivoted to the

rock-shafts, a superimposed frame, hangers depending therefrom and likewise eccentrically pivoted to the disks, the opposite transverse shafts secured to the superimposed frame and extending beyond the sides thereof, and the opposite pairs of rollers embracing the guides and mounted on the shafts, substantially as specified.

6. The combination, with the vertical guides 5 and 6, spaced apart, and the front and rear inclined guide-sections 8 and 13, of the main frame of the cage, the superimposed frame, intermediate eccentrics or disks pivoted to the main frame and to the superimposed frame, said superimposed frame being differentially pivoted to the disks with relation to its front and rear ends, means for raising and lowering the cage, and opposite loose guide-rollers extending from the superimposed frame and embracing the opposite vertical sides of the guides 6, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

STEWART HAMILTON.

Witnesses:

P. W. KENT,
THOS. MACKIE.