(No Model.) 3 Sheets—Sheet 1.

A. MEYERS.

STEAM SHOVELING DEVICE.

No. 383,584. Patented May 29, 1888.

Fig. 1.

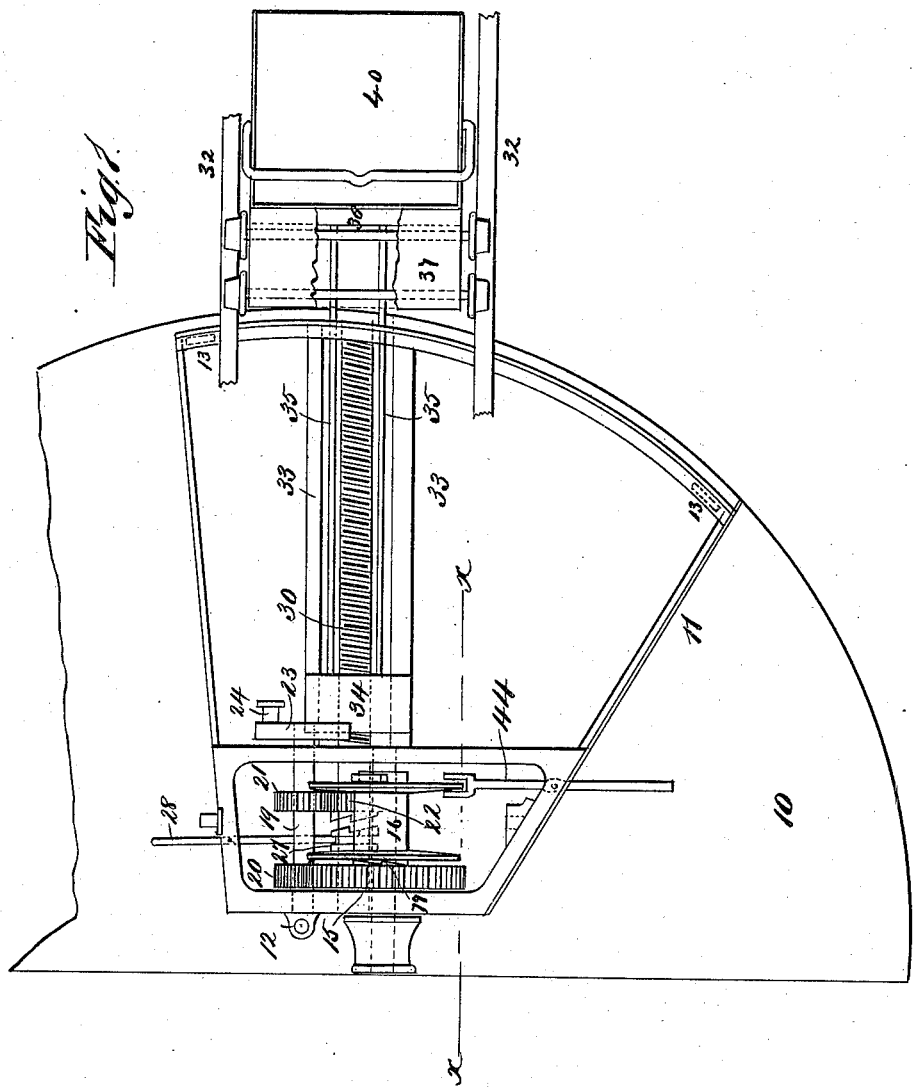

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Fig. 3.

Fig. 2.

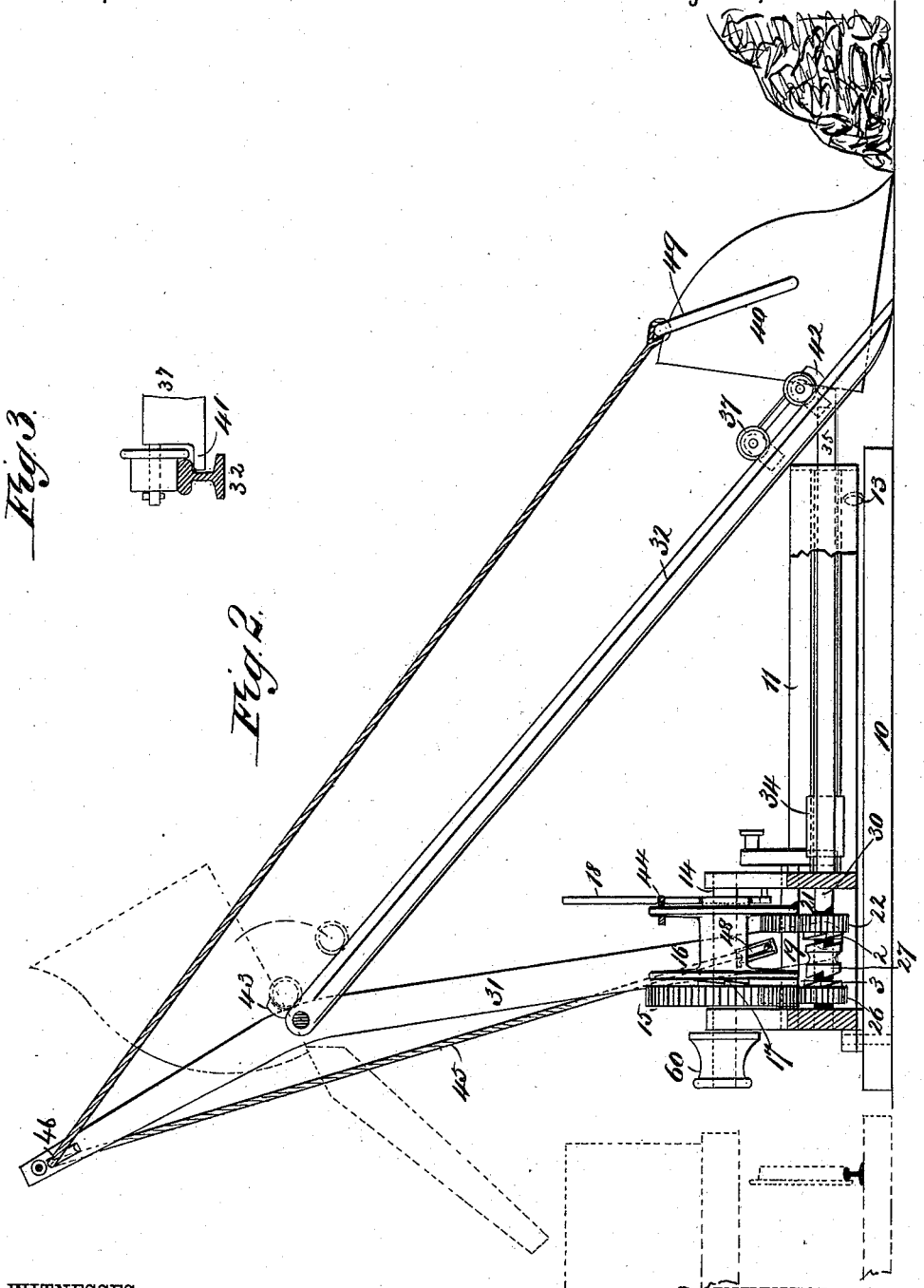

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Fig. 5.

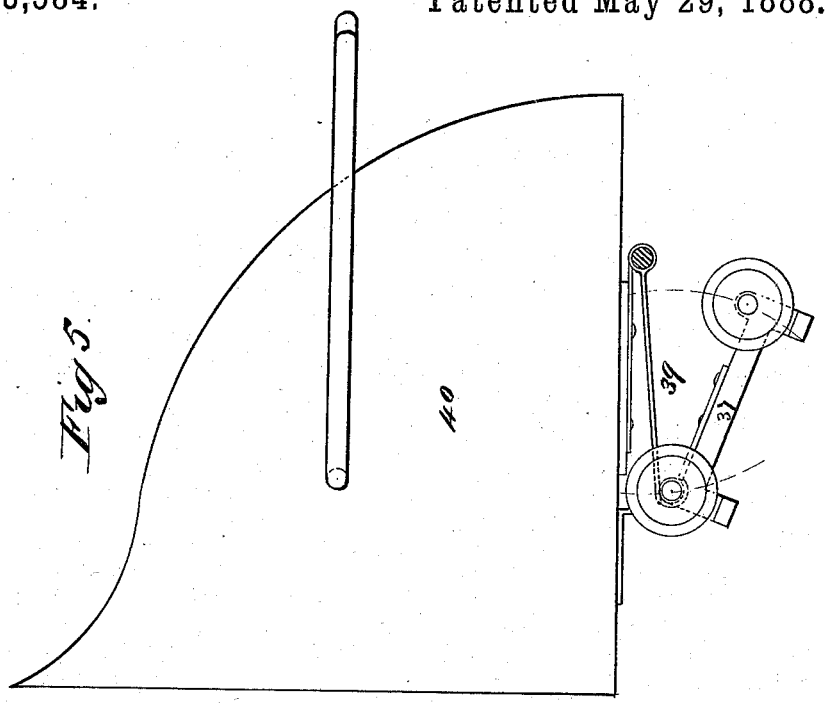
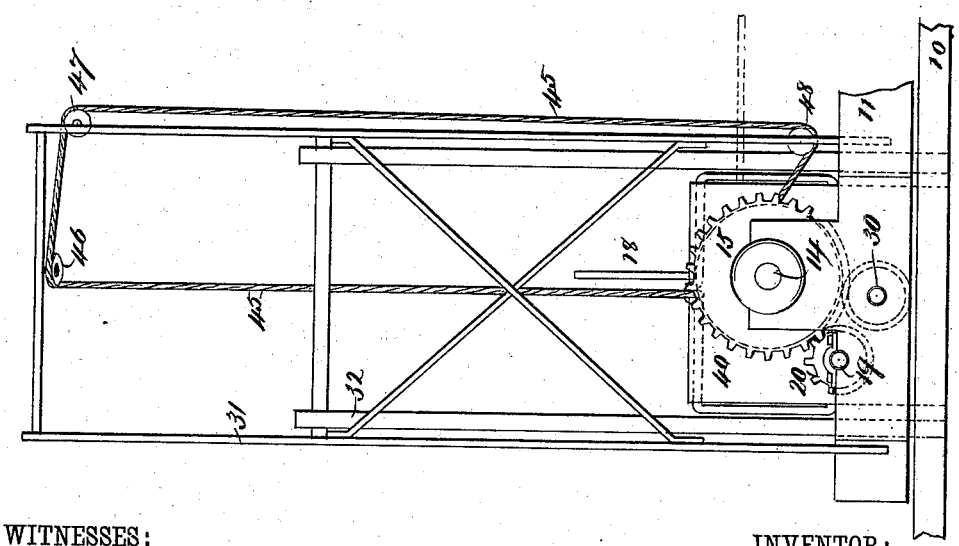


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW MEYERS, OF PORT ARTHUR, ONTARIO, CANADA.

STEAM SHOVELING DEVICE.

SPECIFICATION forming part of Letters Patent No. 383,584, dated May 29, 1888.

Application filed September 22, 1887. Serial No. 250,408. (No model.)

To all whom it may concern:

Be it known that I, ANDREW MEYERS, of Port Arthur, in the Province of Ontario and Dominion of Canada, have invented a new and Improved Steam Shoveling Device, of which the following is a full, clear, and exact description.

The object of this invention is to provide a machine whereby coal may be speedily and economically handled; and to this end the invention consists of a shovel or scoop, a means for advancing said shovel or scoop for the purpose of filling the same, and a means for hoisting and dumping the loaded shovel, all as will be hereinafter more fully explained, and specifically pointed out in the claims.

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

Figure 1 is a plan view of my improved steam coal-shovel, the uprights and a portion of the inclined way being removed and a portion of the shovel being broken away to disclose the parts beneath said shovel. Fig. 2 is a sectional view taken on line *x x* of Fig. 1. Fig. 3 is a detail view of a portion of the shovel truck or car. Fig. 4 is a view of the rear end of the machine, and Fig. 5 is an enlarged view of the shovel and its truck.

In constructing the apparatus illustrated in the drawings above referred to I provide a semicircular bed, 10, upon which there is mounted a quadrant-like frame, 11, said frame being connected to the bed by a bolt or post, 12, upon which the frame is free to turn, the forward circular edge of the frame being provided with rollers 13, which travel upon the bed.

At the rear end of the frame I mount a supporting frame-work, in which there is journaled a shaft, 14, which carries a fixed gear, 15, and loosely-mounted drum, 16, a clutch, 17, being arranged in connection with the drum and the gear, the drum being thrown into and out of engagement with the gear by means of a lever, 18. At one side of the drum I arrange a shaft, 19, which carries a gear, 20, that engages with the gear 15, and a second gear, 21, which engages with a gear, 22, that is loosely mounted on a screw-shaft, 30, the shaft 19 being provided with a crank arm or disk, 23, that is provided with a wrist-pin, 24, by which connection may be established with an engine that is carried by the frame 11, the engine being located at any suitable position upon said frame.

In addition to the gear 21, the threaded screw-shaft 30 carries a second loosely-mounted gear, 26, which is engaged by the gear 15, and between the gears 22 and 26, which are formed with clutch sections 2 and 3, respectively, I mount a double clutch-section, 27, that is operated by a lever, 28, and this clutch-section is mounted upon a feather formed upon the shaft 30, or any other arrangement by which the clutch-section could slide upon but would turn with the shaft could be adopted. By this arrangement it follows that if the clutch-section 27 be thrown into engagement with the gear 22 the shaft 30 will revolve in one direction; but if the clutch-section is thrown into engagement with the gear 26 a reverse motion will be imparted to the shaft 30. The gear 22 receives its motion directly from the gear 21, while the gear 26 receives its motion from the gear 15, which gear in turn is driven directly by the gear 20.

An upright frame, 31, is pivotally connected to the frame which supports the gearing above described, and to this frame 31 there is pivotally connected a forwardly and downwardly extending way, 32, the sides of which are formed of tracks or rails, preferably of the ordinary T form.

Upon either side of the shaft 30 I arrange slides 33, upon which slides I mount a nut, 34, that is engaged by the threaded portion of the shaft 30, and to this nut I connect two forwardly-extending bars, 35, which carry a head-block, 36, that is connected to the inclined way 32. Upon this inclined way 32 I mount a truck, 37, to the upper face of which there is hinged a shovel, 40, any form of hinge or connection being employed which will permit the tilting of the shovel either downward from or upward over the truck; but in practice I prefer to employ a triple-leaved hinge, 39, the outer levers of said hinge being connected, respectively, to the shovel and to the truck.

In order to prevent the displacement of the truck, I form the cross timbers or beams thereof

with outwardly-extending lugs 41, which fit beneath the tread of the rails forming the way 32, as is best shown in Fig. 3, and at a point near the bottom of the way I arrange stops 42, other stops, 43, being placed at the upper ends of the rails.

A brake strap or lever, 44, is arranged in connection with the drum, and to the drum there is connected a cord, 45, which leads outward and upward therefrom over and about sheaves 46, 47, and 48, the rope or chain being carried from the sheave 46 downward to be connected to the bail 49 of the shovel 40.

Such being the general construction of the shovel, the operation is as follows: The shovel is run down to the position in which it is shown in Fig. 2, and the clutch section 27 is thrown to a position so that the nut 34 of the shaft 30 will be advanced and thereby force forward the lower end of the way 32, the shovel resting at this time against the cross-head 36. After the shovel has been filled the drum is started to wind up the cord or chain 45, thereby tilting the shovel backward to a position so that the coal will not spill therefrom, and immediately after this tilting of the shovel has been brought about a reverse motion is imparted to the shaft 30, which motion will draw the nut 34 inward and return the inclined way and the supports arranged in connection therewith to the position in which they are shown in Fig. 2, the shovel being finally drawn by the action of the drum to the position in which it is shown in dotted lines—that is, so that the wheels of the truck will bear against the upper stops, 43, after which any continued winding of the chain or rope 45 will tilt the shovel and cause it to discharge its contents, such contents being received, preferably, by a chute located as indicated in dotted lines in Fig. 2, the chute delivering the coal to cars placed as indicated. In returning the shovel to the position in which it is shown in full lines in Fig. 2 the drum is thrown from engagement with the gear 15 and the brake lever or strap applied so as to regulate the descent of the shovel.

If desired, a windlass, 60, may be secured to the end of the shaft 14, which said windlass will be found to be exceedingly useful in moving the hoisting apparatus from place to place or in moving the cars to position beneath the chute.

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

1. The combination of a pivoted inclined way, a hinged shovel mounted thereon, a hoisting apparatus connected to the shovel, and a slide connected to the lower end of the inclined way and operated from the hoisting apparatus, substantially as herein shown and described.

2. The combination of a pivoted inclined way, a truck mounted thereon, a shovel hinged to the truck, a hoisting apparatus connected to the shovel, and a sliding cross-head connected to the lower end of the inclined way, substantially as and for the purpose set forth.

3. The combination, with a bed-plate, a horizontal frame pivotally mounted thereon, and a supporting-frame pivotally connected to the horizontal frame, of an inclined way pivoted to the supporting-frame, a threaded shaft, a nut carried by the shaft, a cross-head connected to the nut and to the lower end of the inclined way, a truck mounted upon the way, a shovel connected to the truck, a drum, a cord extending from the drum to the shovel, and means for operating the said drum and shaft, substantially as herein shown and described.

4. In a hoisting apparatus, the combination, with a main shaft, of fixed gears carried thereby, a threaded shaft, two gears loosely mounted thereon, one of which is engaged by one of the gears of the main shaft, a gear interposed between the other gear of the main shaft and the other loosely-mounted gear of the threaded shaft, clutch-sections formed upon the gears of the threaded shaft, a double clutch-section mounted between said gears, and an operating-lever, substantially as described.

5. The combination, with an inclined way provided with stops in its upper and lower ends, of a truck mounted upon said way, a shovel, and a triple-leaved hinge connected to the shovel and to the truck, substantially as described.

ANDREW MEYERS.

Witnesses:
W. BISHOP,
H. A. WILEY.