

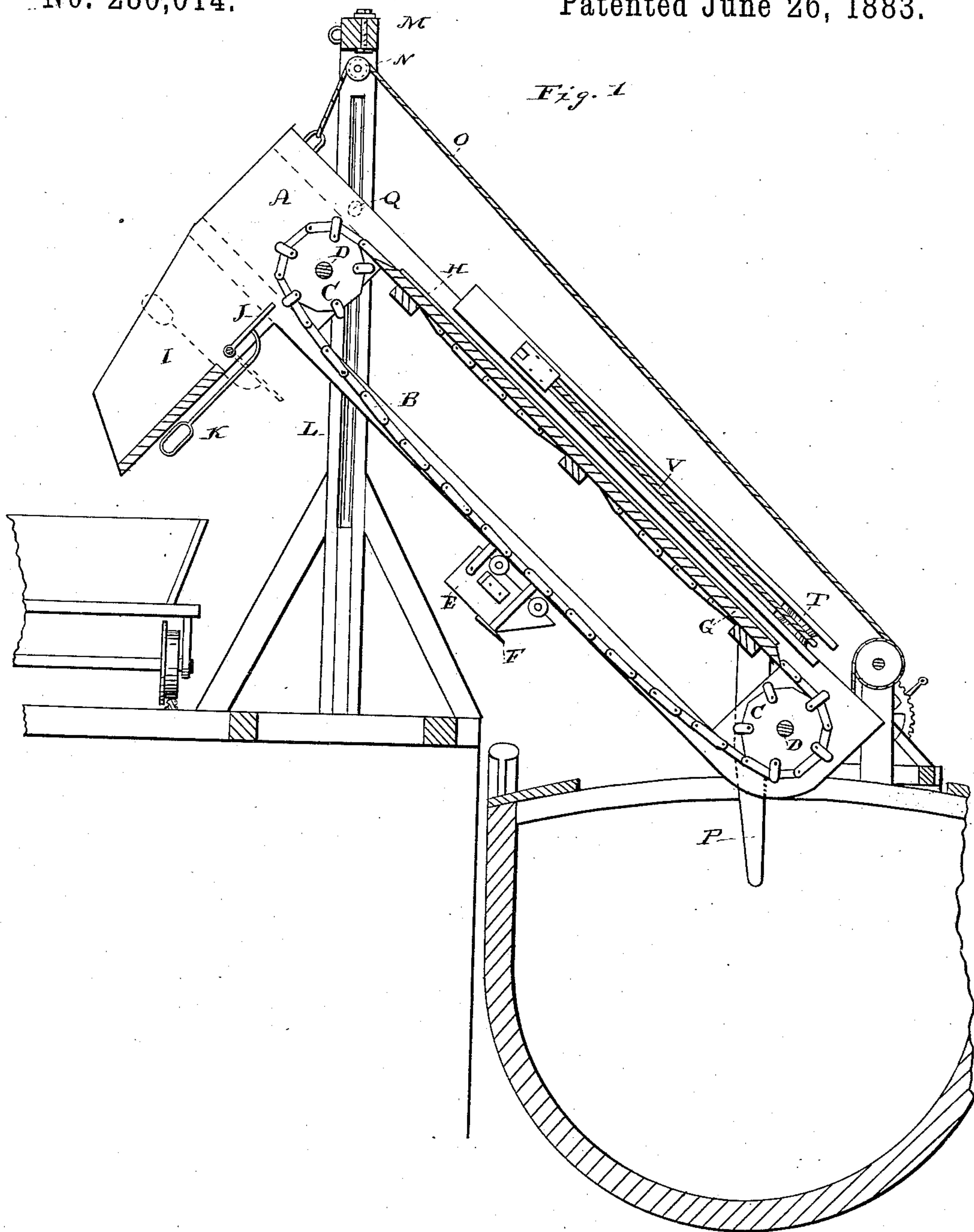
(No Model.)

2 Sheets—Sheet 1.

S. V. COOK.  
COAL ELEVATOR.

No. 280,014.

Patented June 26, 1883.



Attest:  
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Inventor.  
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By *Thos. H. Sprague*

*att.*

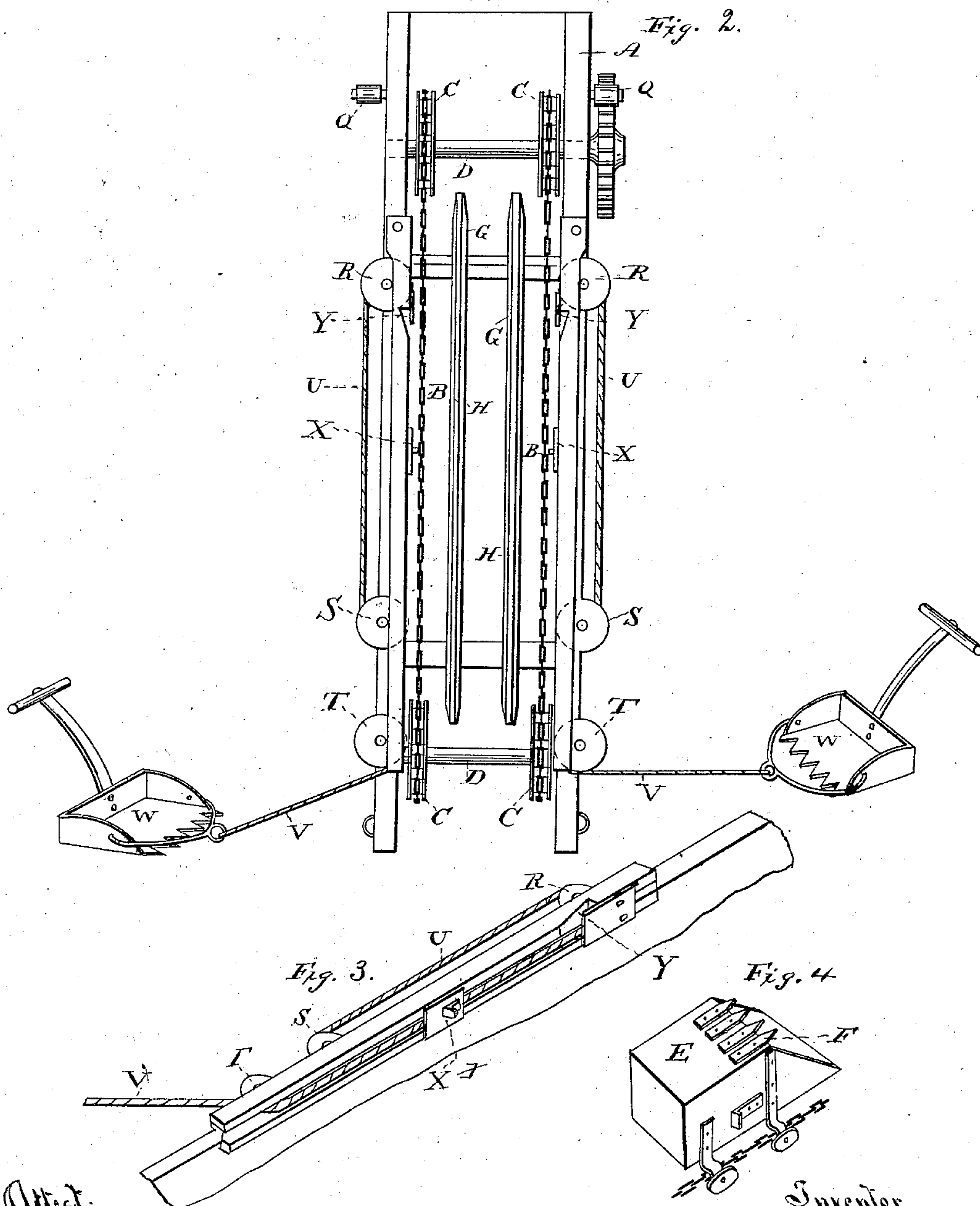
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Attest:  
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Inventor  
Stephen V. Cook.

By W. A. Maynard  
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# UNITED STATES PATENT OFFICE.

STEPHEN V. COOK, OF TOLEDO, OHIO.

## COAL-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 280,014, dated June 26, 1883.

Application filed April 19, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN V. COOK, of Toledo, in the county of Lucas and State of Ohio, have invented new and useful Improvements in Coal-Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to coal-elevators, and it is especially designed for unloading coal from board vessels or barges, and transferring it to cars or sheds on the dock; and the invention consists in the construction and arrangement of the different parts, all as more fully hereinafter set forth.

In the drawings which accompany this specification, Figure 1 is a vertical central section, showing the elevator in position for transferring coal from a barge. Fig. 2 is a plan view of the carrier. Fig. 3 is a detached perspective view of the device used for actuating the scrapers, and Fig. 4 is a detached perspective view of the coal-bucket.

A is a suitable frame, between the sides of which the two endless chains B B, passing over the sprocket-wheels C C, journaled upon shafts D D, across the bottom and top of the elevator-frame, actuate the bucket E in the usual manner. The bucket E is attached to the endless chains B in any convenient manner. The bucket is, upon the edge which is designed to take up the coal, provided with a series of tines, F, and to support it in its upward travel between the elevator-frame tracks G, carrying rails H, are laid between the sides of the frame A.

I is the discharge-trough, secured to the upper end of the elevator-frame, either permanently or adjustably. J is a trap-door journaled in the upper end of the bottom of the discharge-spout. It is held in the position shown in Fig. 1 by a counter-balance, K.

In practice the device is substantially arranged as shown in Fig. 1, wherein L are grooved uprights secured to the side of the coal-shed, or firmly held in position by braces or guy-ropes. These uprights are connected on top by a cross-piece, M, and carry the pulleys N. A rope, O, is secured to the upper end of the elevator-frame, and, passing over the pulleys N, allows the raising and lowering

of the upper end of the elevator-frame. In the drawings this rope is carried down to a windlass on board the coal-barge. Another rope secured to the lower end of the elevator-frame may likewise pass over that windlass, so that by winding or unwinding the whole device may be simultaneously raised or lowered, so as to bring the lower end through the hatchway of the barge in close proximity to the coal.

To steady the lower end of the device, and also to prevent it from dropping too far, supports P are secured to the lower ends of the frame A. If power is applied to the shaft D of the upper sprocket-wheels, the bucket will be forced to scrape up the coal and elevate the same, dropping it at the upper end of the elevator-frame into the spout. The counter-balance K is heavy enough to prevent the trap-door J from opening by any coal dropping thereon; but in the further travel of the bucket E the trap-bar will be mechanically opened to allow the passage of the bucket, and automatically close as soon as this is done. To steady the upper end of the elevator-frame the rollers or guides Q upon the outside of the frame are made to enter the grooves in the uprights L.

An important point in elevating coal through the hatchway of the barge is the necessity of drawing up all the coal toward the lower end of the elevating device. This I accomplish in a mechanical way by the following devices: On top of the sides A of the elevator-frame I journal three grooved rollers or sheaves, R, S, and T. An endless rope, U, is passed around the two rollers R S, and secured to this is another rope, V, which passes around the lower sheave, T, and is attached at its lower end to a scraper, W. X is a plate provided with a projecting lug, and Y is a detent secured in a stationary position near the upper sheave, R.

In the operation of elevating coal the lugs upon the sides of the bucket are engaged with the lug upon the plate X, and carry the same forcibly up until the detent Y disengages them again. The connection of the rope V with the endless rope U and the scraper W will necessarily draw the scraper toward the lower end of the elevator.

The parts are so arranged and constructed that the distance between the sheaves R and S is sufficiently long to allow the men guiding the scrapers W to pass to the farthest end of



the coal-barge. After the scrapers have drawn their load toward the bottom of the elevator the men guiding the same have to draw them back to the spot from which they want to scrape the coal, when, in the recurring motion of the bucket, they will be drawn again toward the foot of the elevator and gather or scrape up as much coal as the men in charge will allow them.

10 What I claim as my invention is—

1. The combination, with the elevator-bucket and the frame having a discharge-spout, of a pivoted trap-door having a counterpoise of sufficient gravity to deflect the coal into the spout, and adapted to be tilted by the elevator-bucket after the coal has been so deflected, as set forth.

2. In combination with the sprockets C C, chains B B, bucket E, and the frame A, having spout I, and pivoted trap-door J, having counterpoise K, and arranged in the line of the bucket's path, and adapted to close the passage therefor and be moved to leave room for the bucket to pass through, substantially as described.

3. In combination with the standards L, having vertical slots, and the elevator-frame A, having spout I, supports P, and guide-rollers Q, the rope O, pulley N, and windlass, as and for the purposes set forth.

4. In a machine substantially as described, and in combination with the elevator-bucket, two scoops having endless ropes leading from each to endless ropes, and means, substantially as described, for engaging said endless ropes and elevator-bucket, whereby the scoops are loaded and propelled to the base of the elevator and automatically released with each traverse of the bucket, as set forth.

5. In combination with the elevator-bucket E, having side lug, as shown, combined with the endless ropes U and ropes V, the lug X, detent Y, and scoops W, as and for the purposes set forth.

STEPHEN V. COOK.

Witnesses:

H. S. SPRAGUE,  
E. W. ANDREWS.