

(No Model.)

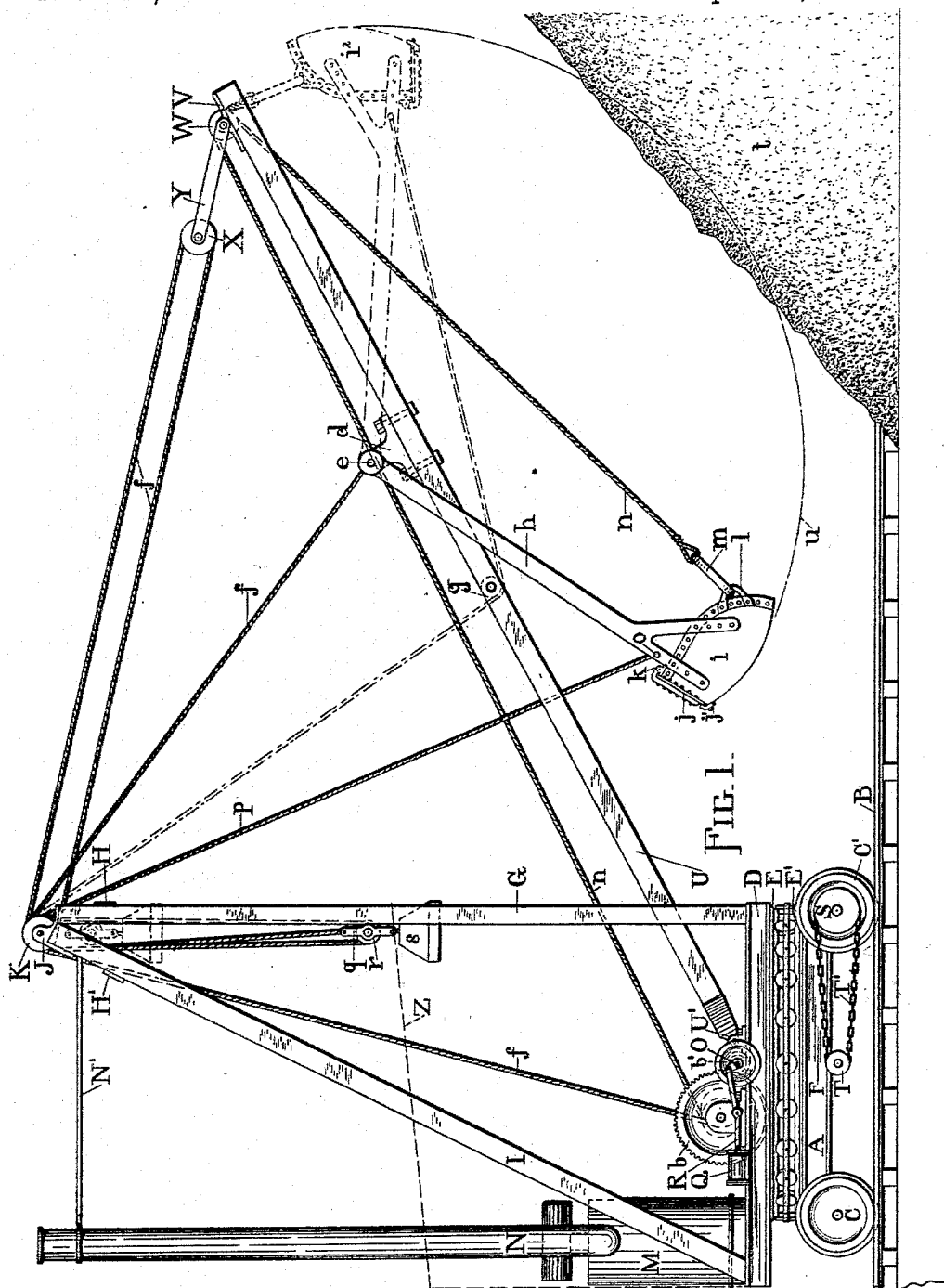
3 Sheets—Sheet 1.

G. H. HULETT.

MACHINE FOR HANDLING COAL, ORE, &c.

No. 495,040.

Patented Apr. 11, 1893.



WITNESSES:

W. A. Biddle

W. A. Biddle
Henry Ford

INVENTOR:

G. H. Hulett

By W. A. Burridge atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

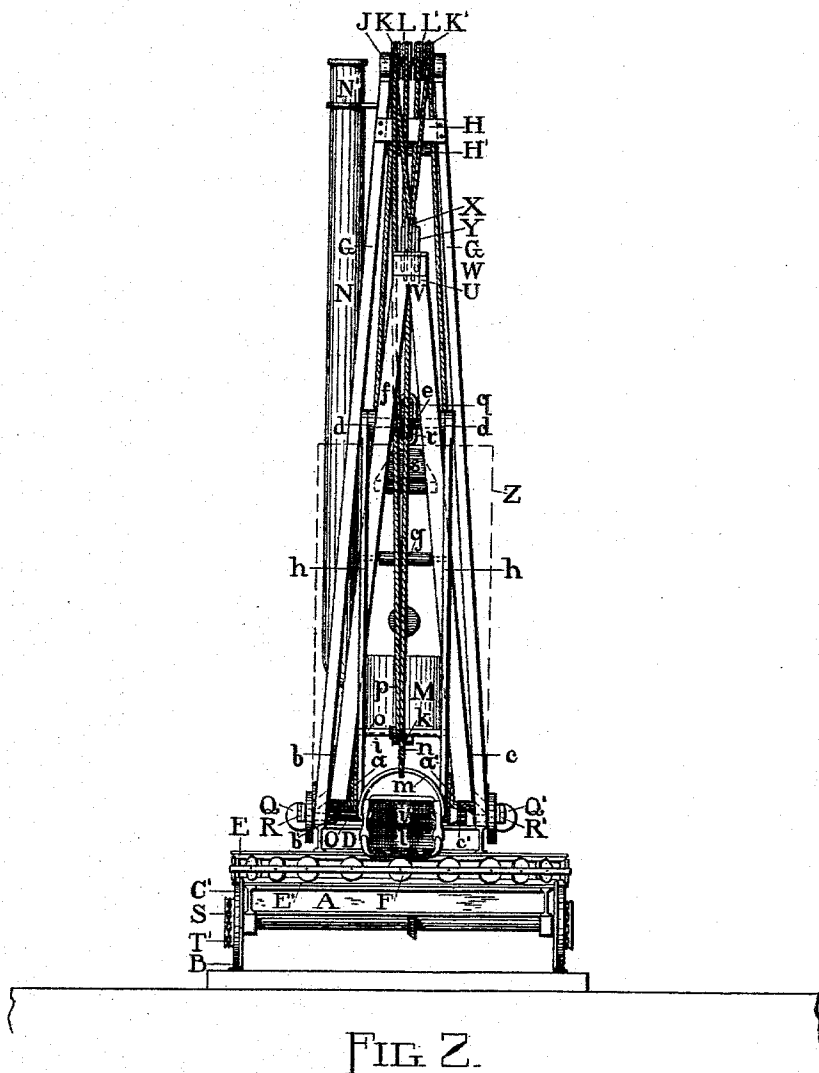
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WITNESSES:

W. T. Willwall
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INVENTOR:

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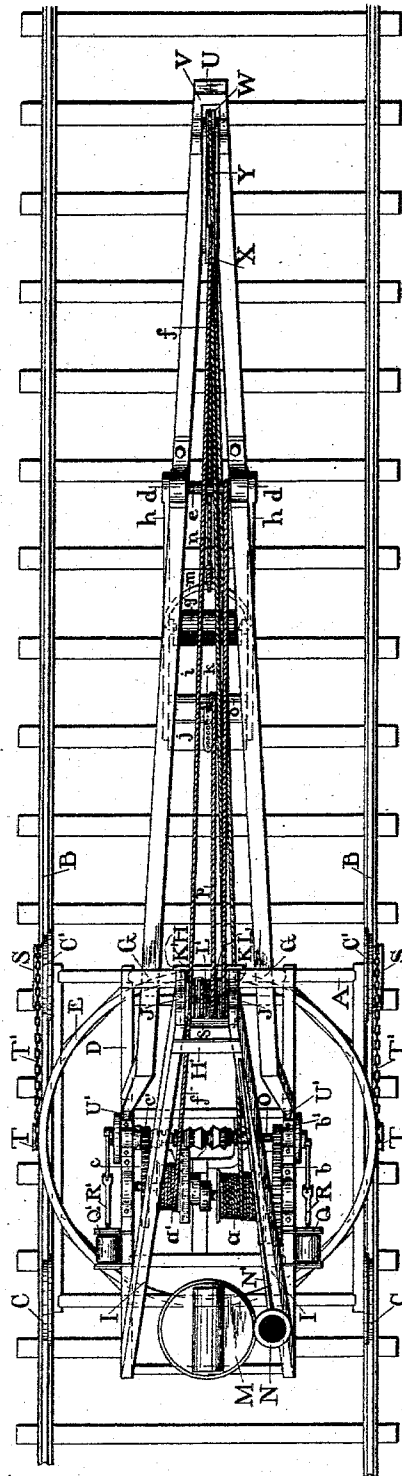


FIG. 3.

WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE H. HULETT, OF CLEVELAND, OHIO.

MACHINE FOR HANDLING COAL, ORE, &c.

SPECIFICATION forming part of Letters Patent No. 495,040, dated April 11, 1893.

Application filed November 25, 1892. Serial No. 453,009. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. HULETT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Machine for Handling Coal, Ore, and other Material, of which the following is a full, clear, and complete description.

My invention relates to improvements in machines for handling coal, ore, and other material in which a bucket, having a door in the end thereof, is connected by means of suitable arms to the boom of a traveling crane; said bucket being operated about the pivotal connection between the arms and the boom by ropes passing over and around guide sheaves placed to accommodate the same.

The object of my improvement is to provide a device for handling coal, ore, and other material rapidly and easily, when compared with the old method or filling the bucket by hand with the shovel, and is especially applicable in the loading or unloading of a scow or barge, as well as loading a car from a pile of ore or coal upon the ground or from a boat.

That my invention may be fully seen and understood by others, reference will be had to the following specification and annexed drawings forming part thereof, in which—

Figure 1 is a side view of my invention, the dotted lines ² indicating the position of the bucket when loaded and ready to be relieved of its contents. Fig. 2 is a front view and Fig. 3 is a top view of the device.

Similar letters of reference designate like parts in the drawings and specification.

The truck A is supported on the tracks B, by the wheels C and C', and the revolving platform D has the radial track E, on the bottom thereof, between which and the radial track E', Figs. 1 and 2, on top of the truck A are the wheels F, supporting said platform D. To opposite sides of the forward end of the revolving platform D are secured the beams G, G, which are bound together at the top by the bar H. The two beams G form the mast which is retained in a vertical position by the braces I, I, secured at their bases to the rear end of the platform D and at their upper extremities, to the tops of the beams G, by the straps J, which also form the bearings for the

shaft of the sheaves K, K' and L, L'. The braces I are strengthened near the top by the bar H'.

The boiler M is situated upon the rear of the revolving platform and has the stack N which is guyed to one of the braces I, by the rod N'. Said boiler furnishes the motive power for revolving the shaft O and the mechanism secured thereto, by means of the cylinders Q, Q' and the piston-rods R, R'. The two forward wheels C', of the truck A, are provided with the sprocket attachments S, S, which are attached to the sprocket-wheels T, T, Figs. 1 and 3, one on each side and midway of the truck, by the chains T' and when said sprocket-wheels are revolved the truck A, with its load, is propelled along the tracks B. Since the mechanism, for revolving the sprocket-wheels T, Figs. 1 and 3, and the platform D upon the truck A, is not an essential feature of my invention it is not deemed necessary to illustrate or describe the same.

The beams U, U hinged at U', Figs. 1 and 3, to opposite sides of the revolving platform D, are united, at the ends opposite the pivotal points U', by the strap V and constitute the boom. In the strap V are the bearings for the sheave W. The sheave X is received into the upper end of the link Y, the lower terminal of said link being pivoted to the strap V. The dotted lines Z, Figs. 1 and 2, represent a housing or covering for the platform D.

Two winding drums *a* and *a'*, best shown in Fig. 3, are secured to the revolving platform D. The drum *a* is revolved by the large gear *b* which meshes with the small gear *b'*, said gear *b'* being fast on the shaft O, and the drum *a'* is revolved by the large gear *c*, Fig. 3, which meshes with the small gear *c'*, Figs. 2 and 3, also fast on the shaft O.

Bolted to each of the beams U, a little more than half the distance from the front of the platform D to the end of the boom, are the boxes *d*. The boxes *d* are connected by the rod *e*. One end of the rope *f* is attached to the drum *a'*, from which said rope passes over the sheave K' at the top of the mast, thence around sheave X and back, over sheave K to the rod *e*, where the opposite end is made fast. By revolving the drum *a'* either forward or backward, the boom will be raised or

lowered accordingly, as will be readily seen by the foregoing description. A short distance only from the boxes *d* and between said boxes, and the pivotal ends *U'* of the boom, is the roller *g*, pivoted between the beams *U*, *U*, for the purpose hereinafter described. Pivoted to the outside of the boxes *d* are the arms *h*, *h*, depending therefrom and riveted at their lower, bifurcated terminals to the bucket *i*. The bucket *i* is open in front, as shown at *i'*, Fig. 2, and closed behind by the door *j*, hinged at *k* to the top of the bucket; said door *j* being provided with a suitable locking device *j'* whereby it may be either securely held in place or quickly and readily released. On the front of the bucket *i* are the ears *l*, Figs. 1 and 2, to which the bail *m* is attached. The rope *n* is connected at one end with the bail *m*, while the other end, after passing around the sheave *W* in the outer terminus of the boom, is secured to the winding drum *a*. Above the bucket *i* is the rod *o*, connecting the arms *h*. One end of the rope *p* is attached to the rod *o*, while the other is attached to the upper part of the pulley block *q*, Fig. 1, after passing over the sheave *L*, around the sheave *r* and over the sheave *L'*. From the base of the block *q* is suspended the counterweight *s*, by means of which the bucket *i* is retained in its normal position, as shown by the full lines in Fig. 1. A stock-pile is represented at *t*, in Fig. 1.

In operation the truck *A* is propelled forward on the tracks *B* to within a suitable distance of the stock-pile *t* and the boom is adjusted, by means of the rope *f* attached to the drum *a'*, so that the radius struck by the bucket, at the ends of the arms *h*, will be great enough for the bucket to penetrate the face of the stock-pile. The drum *a* is now revolved, winding up the rope *n* and drawing the bucket over the arc of a circle indicated by the dotted lines *u*, Fig. 1, until said bucket assumes the position *i'*, Fig. 1, where it is held by a suitable brake applied to the drum *a*. As the bucket is forced through the stock-pile it will become filled with coal, ore, or whatever material said stock-pile is composed of,

since the front of the bucket is open. The forward movement of the bucket draws up the counterweight *s*, by means of the rope *p*. As the bucket moves forward the rope *p* comes in contact with the roller *g* and is thereby prevented from drawing ahead sufficiently to foul the rope *f* for the rod *e*. When the bucket *i* has been filled and is in the position *i'*, Fig. 1, at the end of the boom, said boom is swung over a car or boat, as desired, and the bottom *j* released which will permit the contents of the bucket to be discharged. After the discharge of the load the drum *a* is released and the counterweight *s* draws the bucket back to its original position, while the boom is carried around into the position before described and the machine is ready for a repetition of the operation just described.

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

1. In a machine for handling coal, ore and other material, a bucket suspended from the boom of a revolving crane or derrick by two arms pivoted to opposite sides of said boom, the arms being connected by the rod *o* above the bucket, in combination with a rope passing over suitable sheaves at the top of the mast and a counterweight attached to said rope, in the manner substantially as and for the purposes set forth.

2. In a machine for handling coal, ore and other material, the combination of two arms pivoted to opposite sides of the boom of a revolving crane or derrick and connected by the rod *o*, a suitable bucket attached to the lower extremities of the arms, a rope passing from the bail of the bucket over a sheave to be attached to a winding drum, and a rope passing from the rod *o*, over suitable sheaves to be attached to a counterweight in the manner substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. HULETT.

Witnesses:

W. H. BURRIDGE,

W. A. BIDDLE.