

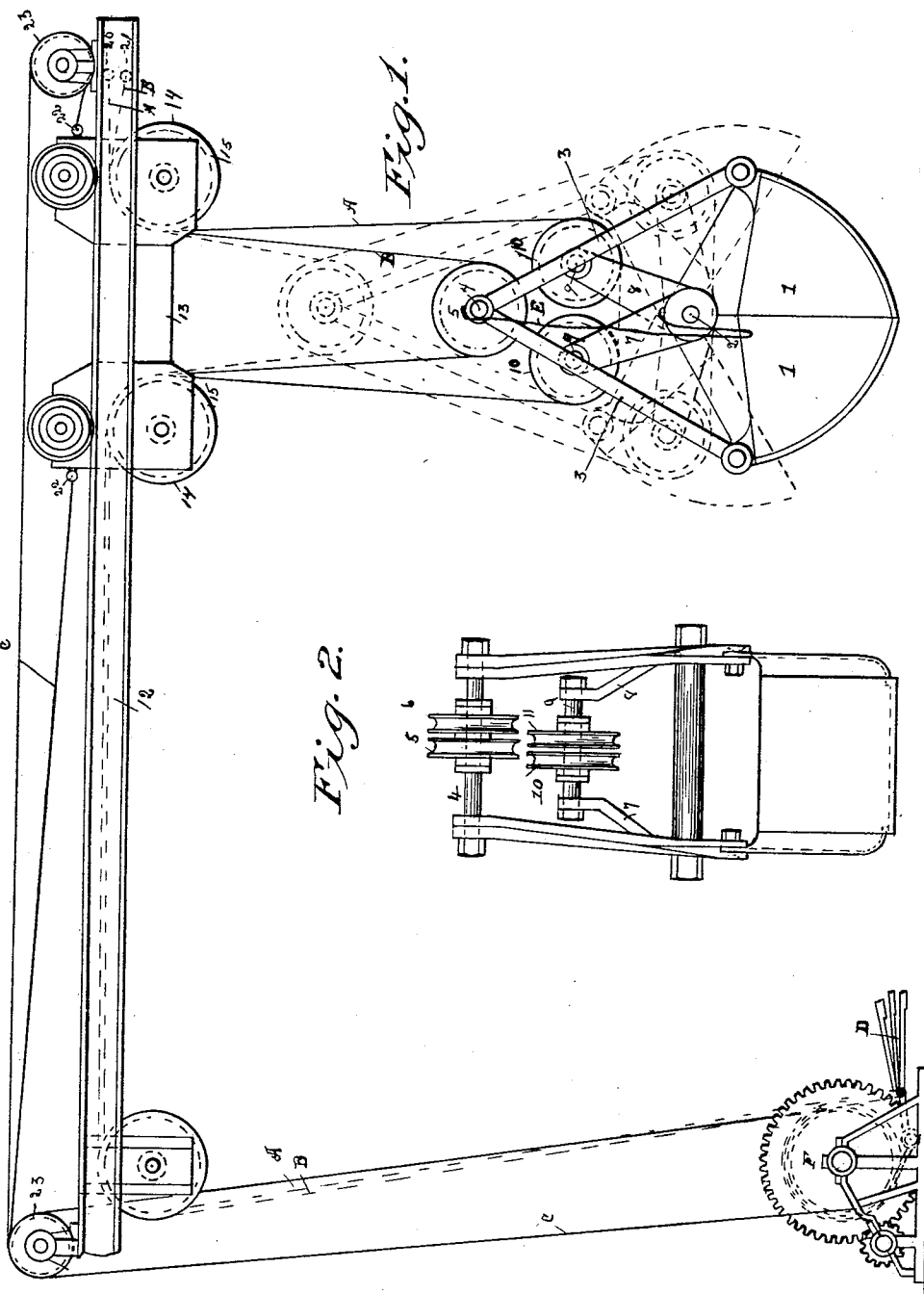
No. 702,909.

Patented June 24, 1902.

E. F. ATHERTON.  
HOISTING DEVICE.

(Application filed Mar. 26, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

EDMOND F. ATHERTON, OF CLEVELAND, OHIO.

## HOISTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 702,909, dated June 24, 1902.

Application filed March 26, 1901. Serial No. 53,006. (No model.)

*To all whom it may concern:*

Be it known that I, EDMOND F. ATHERTON, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Hoisting Devices, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in means for hoisting, conveying, and dumping a divided bucket; and the objects of the invention are to provide means for raising and lowering the bucket simultaneously with the forward movement of conveying or trolleying the bucket to the place of dumping.

My invention consists in the combination, with the bucket, of the power hoisting device and in the arrangement and construction of details, as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the device, including a bridge-girt and hoisting-engine. Fig. 2 is an end view of the bucket and attachments.

In the views, 1 1 are the divisions of the bucket, which are pivoted at the back to the shaft 2.

3 3 are arms pivoted at the outer edges of the bucket-sections on either side and pivoted together in pairs by means of the bail-shaft 4. 5 and 6 are sheaves upon this shaft.

7 and 8 are arms rigidly secured to the divisions of the bucket at the pivotal point and moving with the divisions as the bucket opens and closes. Each pair on one division is connected by means of a shaft 9, upon which are mounted two sheaves 10 and 11.

Overhead is a bridge 12 and traveler 13 thereon. Upon this traveler are two pairs of sheaves 14 and 15, the nearest sheaves in the figure being partly broken away to show the second sheaves beyond on the same shafts.

A is the hoisting-rope, which passes first over the sheave 14 in the traveler, thence over the sheaves 10 10 on the rigid arms 7 and 8, thence over the sheave 5 on the pivoted arms or bail and down again over the second set of sheaves 11 11 on the rigid arms 7 and 8, thence

over the other sheave 14 on the traveler 13, and thence to a dead-point 20 on the bridge.

The holding-rope B passes over the sheave 15 on the traveler, thence over the sheave 6 on the bail, thence over a second sheave 15 on the traveler, and thence to a dead-point 21 on the bridge. It will readily be seen that in this manner a great amount of rope is employed and the power increased, while the traveler can be trolleyed along rapidly at the same time that the bucket is lowered, so that the bucket can be drawn diagonally, if desired, to exactly the point for dumping instead of first raised, trolleyed, and then lowered and dumped.

C represents the trolleying-rope, which is attached to either end of the traveler at 22 and passes over sheaves 23 on the bridge and thence to the hoisting-engine F, which is provided with independent drums to accommodate the different ropes A, B, and C. Brakes, as D, serve to regulate the movements of the drums.

At E is shown a rope or chain connecting the bail with the bucket pivotal shaft, which is employed to prevent the divisions of the bucket from opening too widely.

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

1. Means for raising, lowering, dumping and trolleying a divided and pivoted bucket, comprising arms secured to the bucket divisions at the pivotal point, shafts connecting said arms in pairs, sheaves on said shafts, arms pivoted to the outer ends of the bucket divisions and pivoted together in pairs above said bucket, a shaft connecting said pairs of arms, sheaves on said shaft, a bridge and a traveler, sheaves on said traveler, a hoisting-rope passing over one of the sheaves on the traveler, thence over one set of pulleys on the shafts of the rigid arms, thence over one of the pulleys on the shaft of the pivoted arms, thence over another set of pulleys on the rigid-arm shafts, and thence over another sheave in the traveler to a dead-point on the bridge, substantially as described.

2. In combination with a divided or clam bucket, a pair of rigid arms secured to each division, a shaft connecting each pair of arms,

a bail for the bucket, comprising pairs of arms pivoted to the back of the bucket divisions, a shaft connecting the outer extremities of each pair of arms, sheaves upon each shaft, 5 sheaves upon an overhead support, a hoisting-rope passing over one of the overhead sheaves, thence over a sheave on one of the rigid arms, and over a sheave on each rigid arm, thence to a sheave on the bail-shaft, 10 thence over a sheave on each rigid arm and thence passing to a dead-point on the overhead support, and a holding-rope passing over

one of the overhead sheaves, thence over a sheave on the bail and thence to a dead-point on the overhead support, substantially as described. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDMOND F. ATHERTON.

Witnesses:

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