No. 622,227. Patented Apr. 4, 1899.

C. W. HUNT.

HOISTING APPARATUS.

(Application filed Dec. 1, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

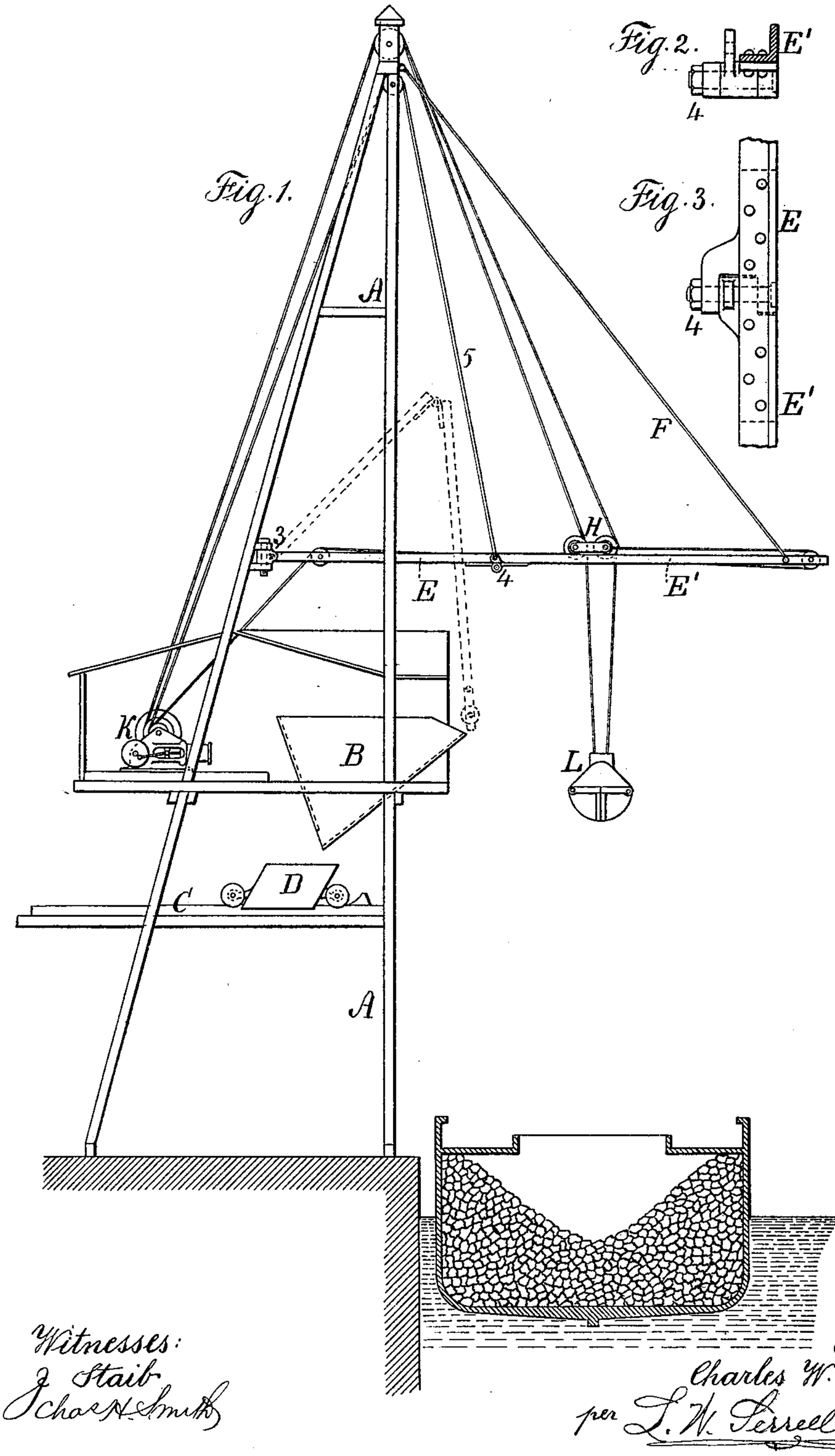

Fig. 2.

Fig. 3.

Witnesses:
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Chas. H. Smith

Inventor:
Charles W. Hunt
per L. W. Serrell & Son Attys.

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Fig. 4.

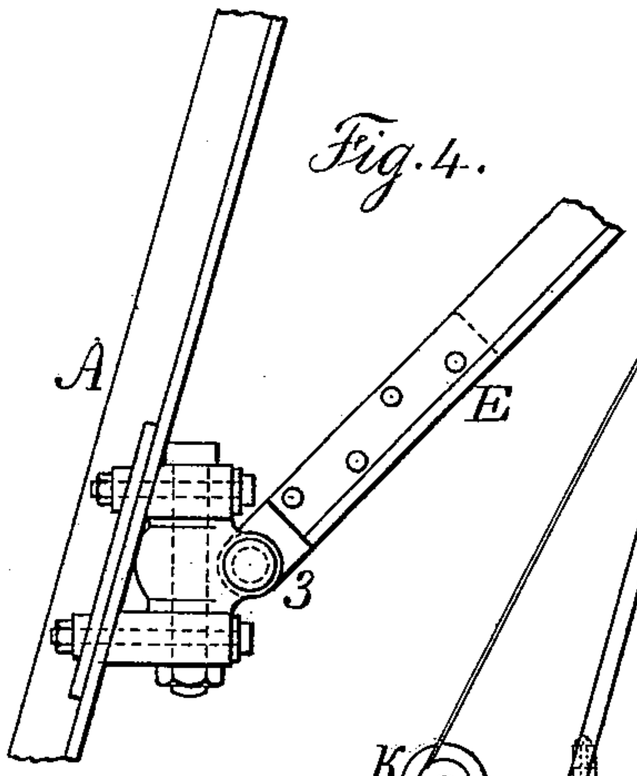

Fig. 5.

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UNITED STATES PATENT OFFICE.

CHARLES W. HUNT, OF NEW YORK, N. Y.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 622,227, dated April 4, 1899.

Application filed December 1, 1898. Serial No. 697,946. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HUNT, a citizen of the United States, residing at New York, (West New Brighton,) in the county of Richmond and State of New York, have invented a new and useful Improvement in Hoisting Apparatus, of which the following is a specification.

In booms or derricks for handling coal, ore, and other materials a bucket has been made use of and means for lowering and raising such bucket, together with its contents, and a boom extending out over the vessel or car has been employed, with a traveling truck having sheaves or rollers around which the hoisting-chains pass, and this truck has been allowed to run upon the boom, so as to allow the bucket to be run in for the delivery of the contents. In this character of apparatus difficulty has arisen in consequence of the boom projecting out over the water, and in some instances the boom has been fitted so that it could be swung around to get it more or less out of the way, and in some instances the boom has been made to extend telescopically or similar to a topmast. These devices, however, are not easily handled and are expensive to construct. In my present improvement the boom is made in parts hinged together, so that by lifting the middle portion of the boom the outer end is allowed to drop and swing downward and fold, thereby bringing the boom inward and out of the way.

I usually make the boom with two track-rails, so that the truck can run upon such track as the bucket is drawn inward for the delivery of the load or moved outward so as to descend into the boat or car from which the material is to be removed.

In the drawings, Figure 1 is a general elevation illustrating the present improvement. Fig. 2 is a cross-section showing the boom at or near the joint in the same. Fig. 3 is a plan of the same. Fig. 4 is an elevation illustrating the connection of the boom at the back or supporting end, and Fig. 5 is a diagrammatic elevation illustrating the boom as at the end of a horizontal track.

The tower or derrick portion of the apparatus is to be of any desired character. I have represented a framework at A, a chute or bin at B, and C indicates the floor upon which a railway and car D can be applied for receiving the material that is drawn up. The boom E is connected at the back end 3, so that it can be swung, and there is a guy-rope, chain, or rod F from the outer end of the boom extending up to the top or apex of the framework A, and at 4 there is a joint in the boom that allows the two parts of the boom to be drawn upward at the joint by ropes or chains 5 into the position indicated by dotted lines in Fig. 1, so that the outer end of the boom swings downward as the joint 4 is drawn upward, and in consequence of the peculiar proportion of the parts as represented the outer portion E′ of the boom can swing down and occupy a nearly vertical position, as indicated by the dotted lines.

It will be apparent that the connection 3 between the boom and the stationary portion of the derrick is advantageously made so that the boom may have a horizontal movement as well as a vertical folding movement as the center part of the boom is drawn up; and with this object in view the connection at 3 may be a universal joint or, preferably, a horizontal pivotal connection to a vertical piece having trunnions on the end or a bolt through it, as represented, so that the boom can be swung laterally or horizontally upon the vertical pivot, and when the boom is folded the joint will turn at the end of the boom; but any desired character of joint can be made at this place.

The joint 4 in the boom is preferably made with hinges upon horizontal pins, and where the boom is made of two parts, so as to have upon it track-bars, as shown, for a truck H, two hinges are required, as illustrated in Figs. 2 and 3, the hinges being in line with each other, and the lower end of the rope or chain 5 may connect to a bridle or stirrup passing across over the boom and truck to the outsides of the joint-hinges; but where the hoisting-ropes extend up to the top of the frame two ropes or chains 5 are usually required.

It will be apparent that the hoisting apparatus, including the engine and drums for the ropes or chains, may be of any desired character and do not form a necessary portion of the present invention.

When the boom is at the end of a horizontal track P, as illustrated in Fig. 5, the load

may be hoisted up to the desired elevation and then run along upon the track to the place where the contents of the bucket are discharged; and I refer to Letters Patent Nos. 351,446 and 442,286, granted to me, as illustrative of the devices that may be employed for giving motion to the bucket.

The boom at the end of the track with the upwardly-folding joint is to be constructed as heretofore described, but the joint at the inner end can be made to hang from a pivot sufficiently high to allow the truck to run beneath it, the stirrup and pivot allowing for the horizontal motion to the boom; but the separate tracks are to be pivoted to the stirrup, as illustrated in Fig. 5, so that the joint in the boom may be drawn up to allow the outer end of such boom to swing downward and out of the way when not in use.

The ropes or chains 5 are shown as passing over pulleys at the apex of the framework or tower leading to the drums at K, so that the ropes or chains 5 can be drawn upon to lift up the middle portion of the boom when the same is to be folded, or the reverse.

The bucket illustrated at L is of any desired character, and the ropes or chains therefrom pass over pulleys or sheaves upon the truck H and lead to any suitable drums. In Fig. 1 they are represented as led to drums illustrated at K, and under all circumstances the movement given or allowed to the truck H may be controlled in any desired manner by the attendant.

Where the boom is made with two track-rails, so that the truck can run on the same and the weight be suspended from the car or truck by a connection passing down between the two track-rails, these parts may be connected together at the outer end of the boom, and a sheave or block may be provided at this place for any hoisting purpose.

The boom may be level or inclined upward or downward in either or both of its parts. When inclined, it is sometimes necessary to use a rope to draw the truck along on the incline. The rope or chain 5 can be attached to the boom at any desired place and used for raising up the middle in folding the boom, or separate ropes or chains can be used, if desired.

I claim as my invention—

1. The combination with a stationary support, of a boom having two lines of rail and an opening between them and connected together at the outer end, a guy rope or chain for suspending this outer end and a hinge for connecting the inner end to the stationary support, the boom being divided and hinges for connecting the respective parts of the boom together and means for moving the joint and the boom upwardly in folding said boom, substantially as set forth.

2. The combination with a stationary support, of a boom having a track thereon and composed of two parts, a guy rope or chain to the outer end of the boom, a hinge for connecting the two parts of the boom and means for drawing the joint thus formed upward so that the outer end of the boom can swing downward in folding the boom out of the way, and hinges at the back end of the boom for connecting the same to the stationary support and on which hinges the inner part of the boom can be folded upwardly or the boom swung horizontally while in use, substantially as set forth.

3. The combination with the stationary support, of a boom having two parallel track-rails connected at their outer ends and a guy rope or chain for sustaining such outer ends of the boom, joints at the inner ends of the rails, hinges for connecting the parts comprising the boom and means for drawing up the boom at the hinges for folding the same, a truck running upon the track-rails of the boom and pulleys upon the truck and ropes or chains passing over the pulleys to the load for raising the same and for moving the truck along upon the rails, substantially as set forth.

4. The combination with a stationary track and a car and pulleys and ropes or chains thereon adapted to raise and suspend a weight, of a boom having a track that is a continuation of the stationary track, a support for the outer end of the boom, a hinge for connecting the inner end of the boom at the stationary track and a joint between the two parts forming the boom and means for drawing up the latter joint to fold the boom, substantially as specified.

5. The combination with a stationary support, of a boom, a joint for connecting the boom to the stationary support and upon which the boom can be swung horizontally or folded upwardly, means for sustaining the outer end of the boom, a hinge for uniting the two parts of which the boom is composed, means for moving the hinge upwardly in folding the boom, substantially as set forth.

6. The combination with a stationary support, of a boom, a joint for connecting the boom to the stationary support and upon which the boom can be swung horizontally or folded upwardly, means for sustaining the outer end of the boom, a hinge for uniting the two parts of which the boom is composed, means for moving the hinge upwardly in folding the boom, a track upon the boom, a truck running upon such track, sheaves carried by the truck and ropes or chains passing over such sheaves and by which a weight is raised and sustained, substantially as set forth.

Signed by me this 28th day of November, 1898.

CHAS. W. HUNT.

Witnesses:
GEO. T. PINCKNEY,
S. T. HAVILAND.