

(No Model.)

2 Sheets—Sheet 1.

W. E. LUDLOW.

COAL, IRON ORE, AND MERCHANDISE DERRICK.

No. 282,543.

Patented Aug. 7, 1883.

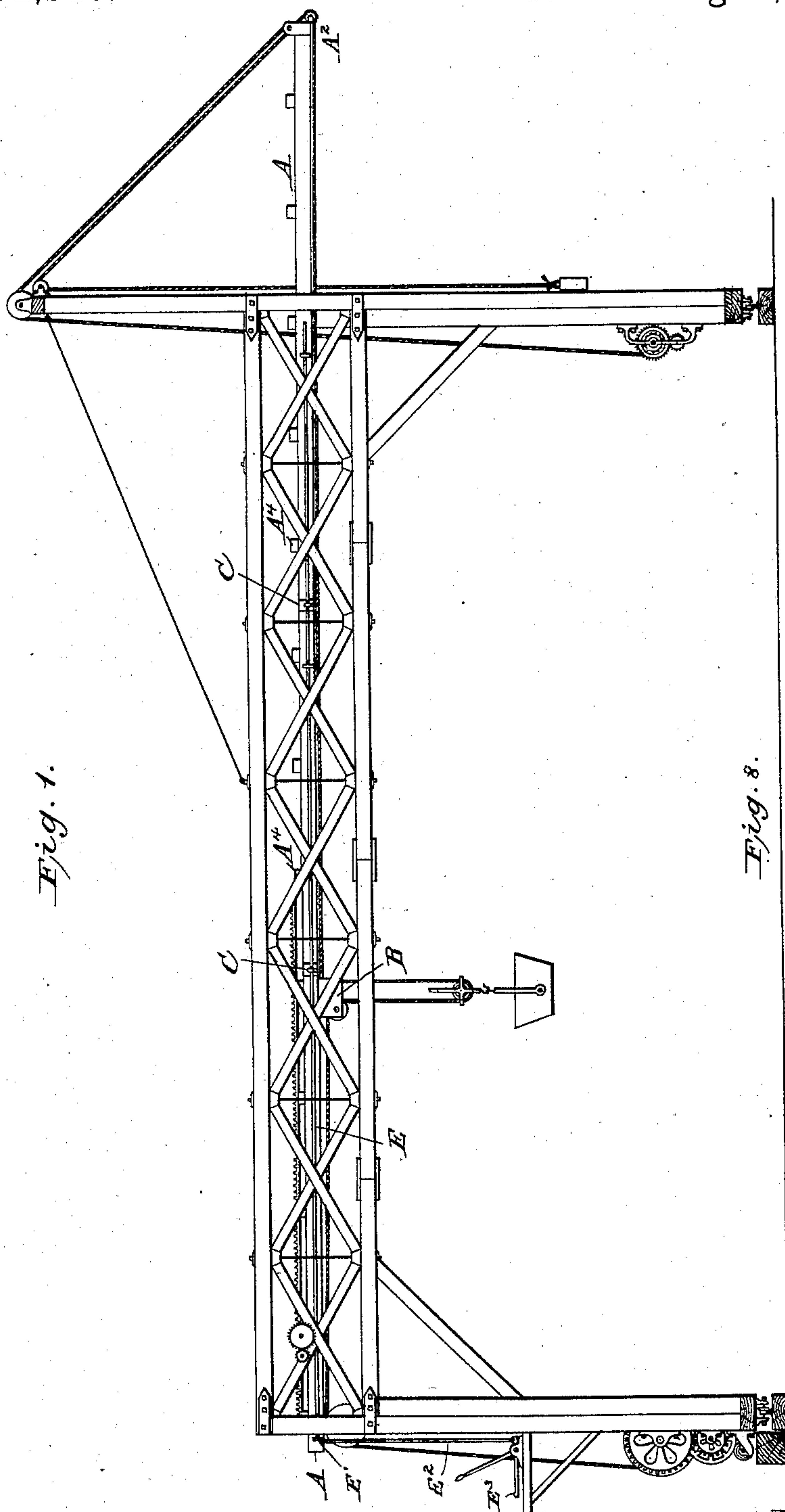


Fig. 1.

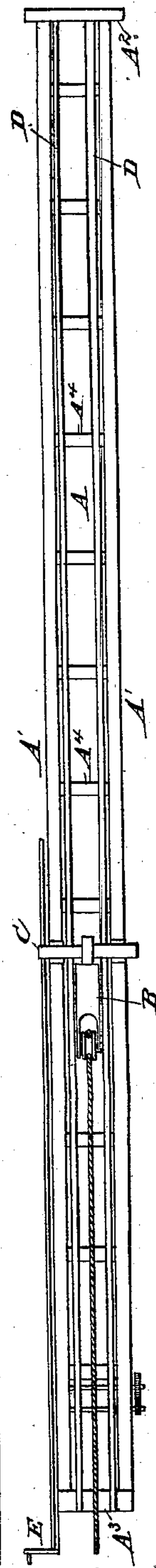


Fig. 8.

Witnesses:
A. M. Long.
E. J. Walker

Inventor.
William E. Ludlow
per Haller & Haller
Attys.

(No Model.)

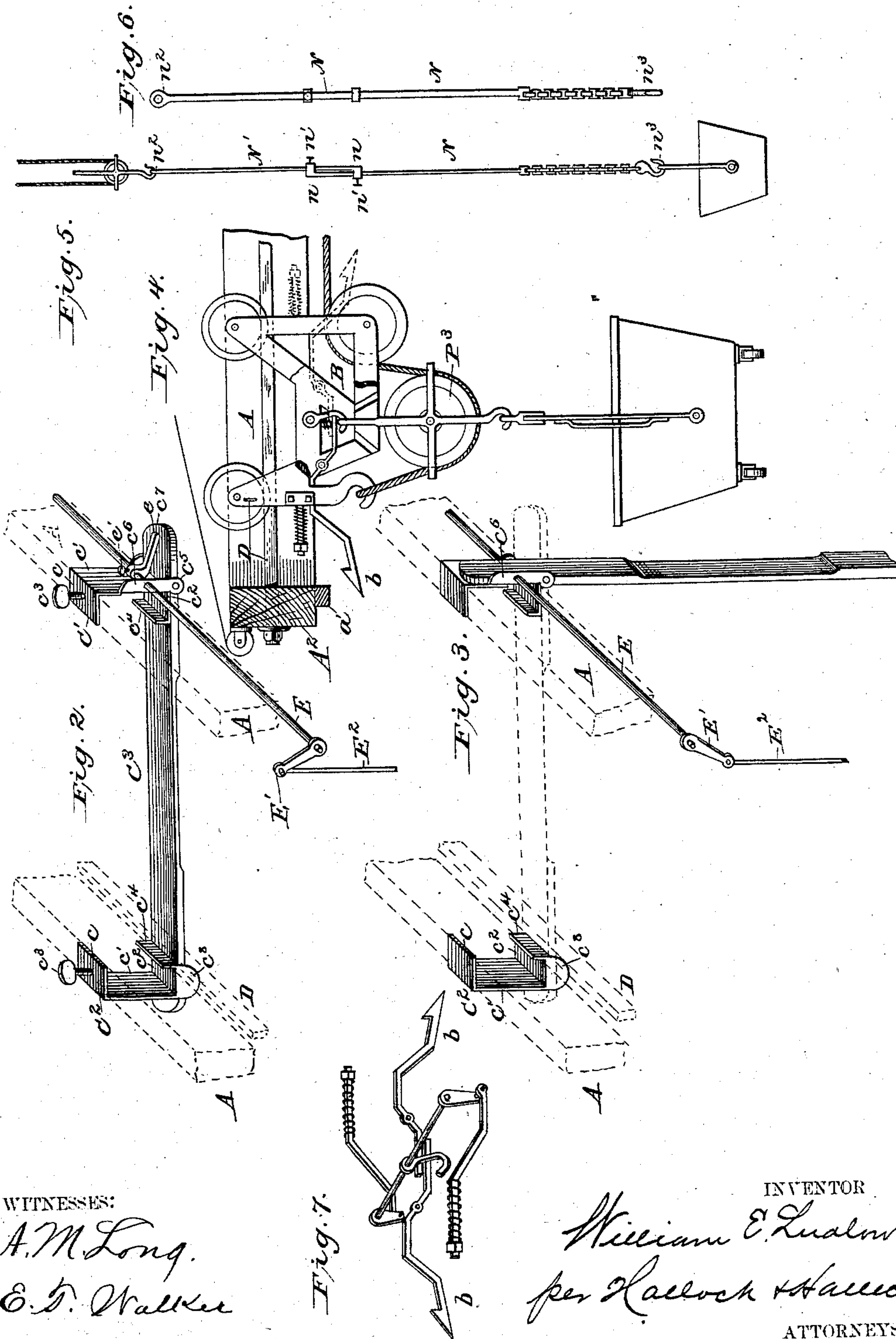
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WITNESSES:

A. M. Long.

E. D. Walker

Fig. 7.

INVENTOR

William E. Ludlow
per Haddock & Haddock
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UNITED STATES PATENT OFFICE.

WILLIAM E. LUDLOW, OF SANDUSKY, OHIO.

COAL, IRON-ORE, AND MERCHANDISE DERRICK.

SPECIFICATION forming part of Letters Patent No. 282,543, dated August 7, 1883.

Application filed January 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. LUDLOW, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Coal, Iron-Ore, and Merchandise Derricks; and I do hereby declare the following to be a full, clear, and exact description of the invention, 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 derricks for loading and unloading coal, iron ore, and merchandise from a vessel to a wharf, from a wharf to a vessel, and from one point to another upon the wharf or other places where the derrick may be stationed.

It more particularly relates to improvements upon the derrick patented by Andrew Beckert, No. 257,128, dated April 25, 1882.

Referring to the drawings, Figure 1 represents a side elevation of the derrick; Fig. 2, a perspective view of my catch ready to receive the latch; Fig. 3, a perspective view of the catch with catch-bar dropped to permit the carrier to pass; Fig. 4, a side elevation with parts broken away to show the hook; Fig. 5, an end elevation of the adjustable bucket-supporting device; Fig. 6, a side elevation of the same; Fig. 7, a detail perspective view, and Fig. 8 a bottom plan view, of the boom.

The derrick-frame and operating parts are similar to those shown in said patent to Beckert, and further description of those parts is unnecessary.

A represents the boom, B the carrier, and C the movable catch. The boom A may be of any desired shape, but I prefer one similar to that shown in Beckert's patent, before referred to, which is formed of two beams, A' A', laid parallel, and joined together at their ends by cross-pieces A² A³, and provided upon the upper side with cross-pieces A⁴, which strengthen the boom and prevent the beams from separating.

In the space formed by parts A', A', A², and A³ are rods or runways D for the carrier B. These rods are attached to cross-pieces A² A³ in any suitable manner.

The carrier B may be similar to that shown in the forementioned patent to Beckert; or it may be of any of the well-known forms, pro-

vided it has a latch, b, operated substantially in the same manner as that of Beckert's, which engages with a catch, a, upon the under side of the beam and beneath cross-piece A². In Beckert's patent the carrier B travels from this catch to a movable stop, against which the trigger on a bucket suspended from the carrier strikes and releases a catch, which permits the bucket to overturn and dump its contents into a receptacle placed beneath the stop. Coal and other substances dropped from this height fall such a distance as to break a great many of the large lumps into small lumps and dust, and merchandise cannot be moved at all. The object of my invention is to overcome this difficulty by lowering the bucket to the receptacle in the same manner as it is lowered from the end having the catch A. To accomplish this I provide the removable catch C, which takes the place of the movable stop in the patent to Beckert. This catch C is formed of two clips, C' C², and a catch-bar, C³. The clips C' C² are each provided with a top, c, side c', bottom c², and a lip, c⁴. These clips embrace the beams A' A' of the boom A, with open sides facing each other, and may be moved to any point upon the beam without detachment. When a point for setting has been fixed upon, they can be firmly attached to the beams by screws c³.

Upon clip C' are outwardly and downwardly projecting ears C⁵, through which a pintle passes for the catch-bar C³ to move upon. One of the ears is provided with an extension, c⁶, having an opening for a rod, E, to pass through. The catch-bar C³ is of sufficient thickness to receive the impact of the rod for operating the hook of the carrier, and is pivoted near one of its ends to the ears c⁵ of clip C', and its short end c⁷ serves as a stop when the bar is dropped. When said catch-bar is placed across the space between the beams it rests against the under side of the clips between lugs c⁵ and C⁸, which prevent lateral displacement when operated upon by the carrier.

Extending from end to end of the framework and parallel with the boom is a rod, E, journaled at each end to permit of its being rocked. One end of the rod extends a short distance outside the frame-work, and is provided with a crank-arm, E', to the free end of which is attached the upper end of a connecting-rod, E². The lower end of this rod is at-

tached to one end of a lever, E^3 , fulcrumed upon the platform, where the operator stands to operate the raising and lowering mechanism of the machine.

Upon the rod E is a dog, e , which may be fixed to the rod by a set-screw, e' . The free end of this dog is in contact with the stop end of catch-bar C^3 , and when the rod E is rocked one way forces the catch-bar to the position shown in Fig. 2, and when rocked in the opposite direction releases the catch-bar, which drops to the position shown in Fig. 3.

The operation of the device is as follows: A bucket of coal, iron ore, or other substances is lifted from a vessel to the carrier B . The shank on the bucket is caught by a hook at the same time that it releases the latch b from catch a . The carrier moves along the runway until it passes the point where the catch C , having its latch-bar in the position shown in Fig. 1, is fixed. The operator then presses upon the outer end of lever E^3 , which elevates connecting-rod E^2 and rocks rod E by means of crank-arm E' . The rod in rocking turns dog e and presses its outer end against the stop end of the catch-bar, which is lifted to the position shown in Fig. 2. The carrier is now drawn back until the latch b catches upon the catch-bar C^3 , one side of which is beveled to permit the latch to pass readily to the side it catches upon. At the same time that the latch engages with the catch the rod which operates the hook strikes the latch-bar and forces the hook out of the eye of the shank in the pulley-frame from which the bucket is suspended, and the bucket and pulley descend by means of the lift-rope from the carrier to the receptacle and the bucket is dumped. As soon as dumped the bucket and pulley are elevated by the lift-rope, and the shank of the pulley enters the opening and forces the outer end of the lever-latch downward to release it from the catch, so that the catch-bar C^3 can drop and the carrier have free passage to the outer end of the boom, when it releases the bucket, which descends for another load.

It is obvious that two or more dogs can be placed upon the rod, and two or more catches at different points on the boom, so that the buckets can be dumped in receptacles placed at corresponding points below said boom.

If desired, the carrier may be provided with a latch at each end, so that it will not be necessary to drop the latch except when it is necessary to pass one of the latches. By using two or more latches coal, iron ore, or other substances may be moved from one receptacle to another placed within the frame of the derrick by operating said catches in an obvious manner. A carrier having the additional latch and stop in dotted lines is shown in Fig. 4, and a skeleton of the operating parts of such a carrier is shown in Fig. 7.

As it is intended to have the boom of the derrick about forty feet from the ground, it will often be found advantageous to have an adjustable rod to suspend the load from the

pulley P^3 of the carrier, as it will reduce the distance for the load to travel. This is peculiarly advantageous in moving merchandise from one part of the wharf to the other, or for taking loads out of large vessels. To accomplish this I provide two rods, $N N'$, each having a sleeve, n , which embraces the body of the other, and the upper, N' , provided with an eye, n^2 . The lower rod, N , is provided with a chain or other flexible substance, so that the hook n^3 may be slipped under the handle of a bucket, or in the eye of a sling for merchandise. After the rods have been adjusted they may be fixed in place by set-screws n' .

What I claim as new is—

1. In a coal, iron-ore, and merchandise derrick, a drop-catch having means, substantially as described, for raising and lowering it.
2. In a coal, iron-ore, and merchandise derrick, a drop-catch consisting of two clips, and a catch-bar pivoted to one of said clips and adapted to be raised against or lowered from the other clip, for the purpose set forth.
3. In a coal, iron-ore, and merchandise derrick, the combination of a catch having a drop-bar, and a rod having a dog for raising said drop-bar.
4. The combination of a catch having a drop-bar, a rod having a dog for raising said drop-bar, and a crank-arm at one end, and an operating-lever having a rod attached to one end of the crank-arm, substantially as described.
5. In a coal, iron-ore, and merchandise derrick, the combination of a boom having a runway between its beams, a carrier adapted to run from end to end of said runway, and having a latch and a catch attached to said beam and adapted to be stretched across the space between the beams to stop and hold the carrier by its latch, or to be dropped and allow the carrier to pass, for the purpose set forth.
6. The combination of a boom having catches arranged at different points between the uprights of the derrick, a carrier moving on the boom-runways between the uprights and adapted to latch upon the catches, and means, substantially as shown, for operating the carrier.
7. The combination of a boom having drop-catches, a carrier having latches at each end, and means for drawing such carrier upon the boom.
8. In a coal, iron-ore, and merchandise derrick, an adjustable rod formed in sections detachably fixed and adapted to move upon each other, and having hooks at its upper and lower ends, for the purpose set forth.
9. In a coal, iron-ore, and merchandise derrick, a rod formed of sections $N N'$, sleeves $n n$, set-screws $n' n'$, eye n^2 , and hook n^3 , substantially as described.

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

WILLIAM E. LUDLOW.

Witnesses:

E. B. KING,
JAY F. CLOSE.