

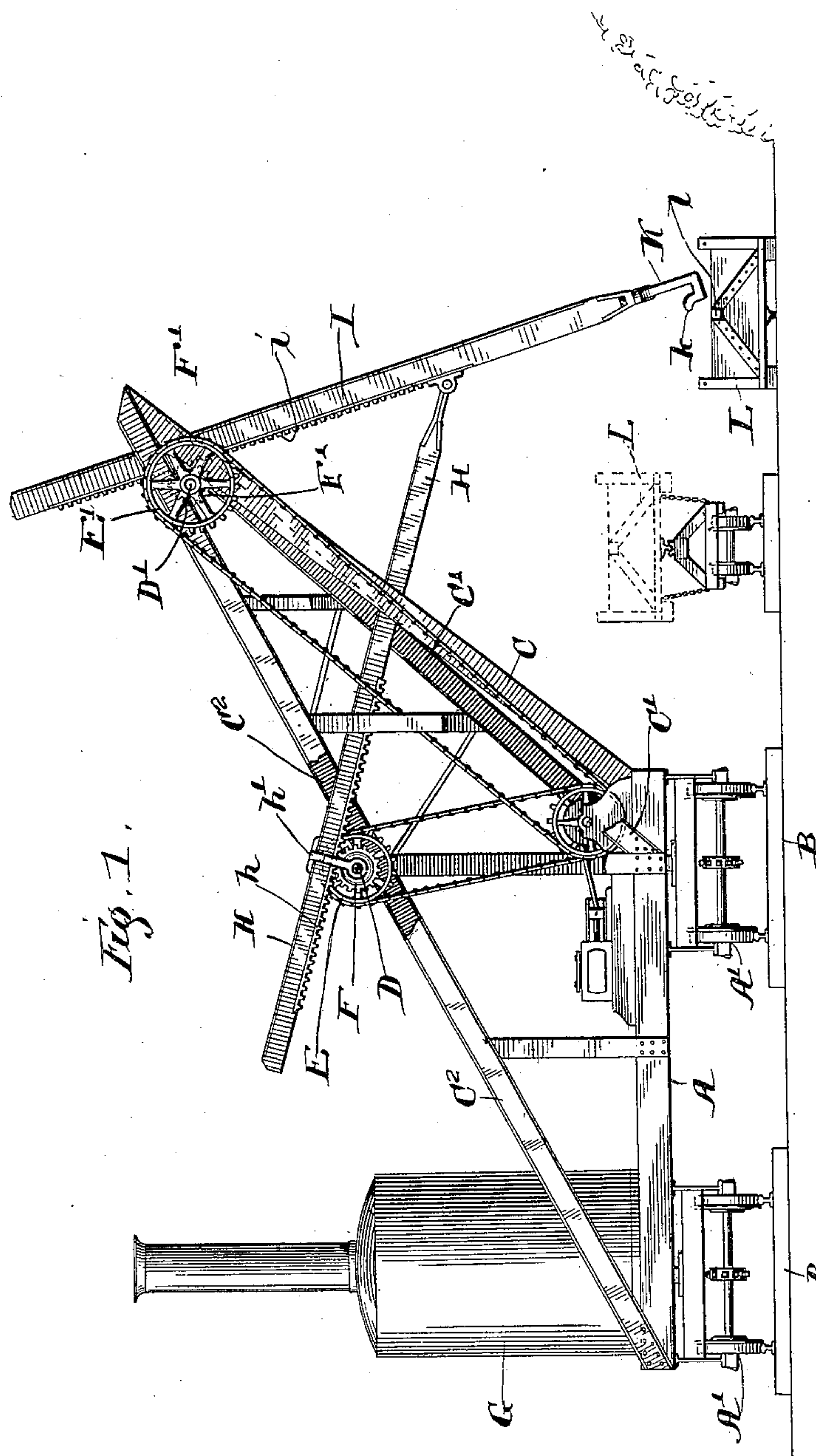
(No Model.)

2 Sheets—Sheet 1.

E. R. SHNABLE.  
DERRICK.

No. 600,093.

Patented Mar. 1, 1898.



Witnesses:  
Chas. O. Shewey.  
A. H. Nelson

Inventor:  
Emile R. Shnabel  
by Miles Green & Bitner  
Atty.

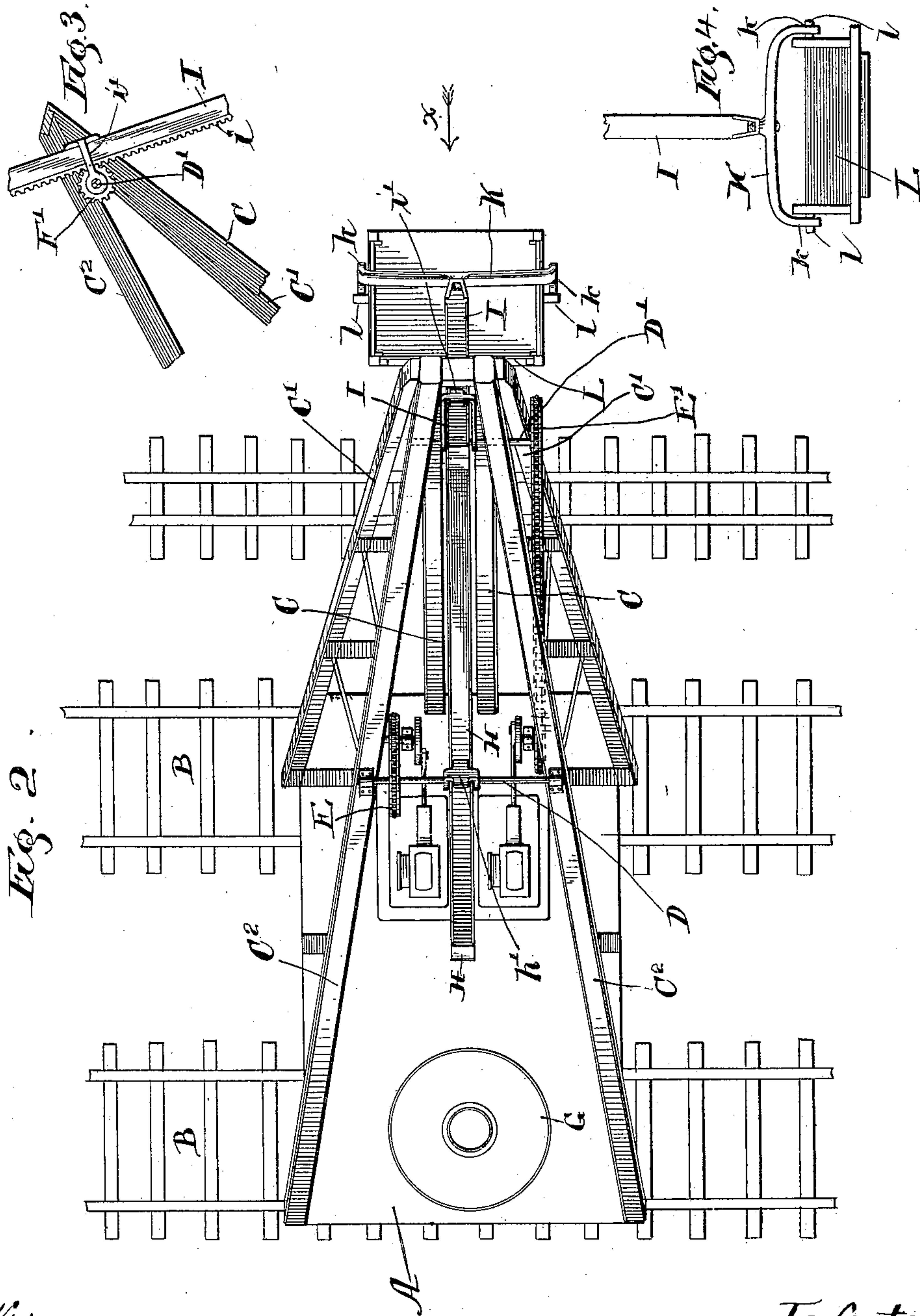
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# UNITED STATES PATENT OFFICE.

EMILE R. SHNABLE, OF CHICAGO, ILLINOIS.

## DERRICK.

SPECIFICATION forming part of Letters Patent No. 600,093, dated March 1, 1898.

Application filed September 10, 1897. Serial No. 651,214. (No model.)

*To all whom it may concern.*

Be it known that I, EMILE R. SHNABLE, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Derricks, of which the following is a specification.

My invention relates to improvements in derricks adapted for use in raising and moving heavy bodies, the invention being shown in the drawings herewith as embodied in a traveling derrick specifically adapted for lifting and moving skips or car-bodies such as are used in transporting excavated material.

The invention is fully described and explained in this specification and shown in the accompanying drawings, above referred to, in which—

Figure 1 is a side elevation of a complete derrick embodying my improvements, together with a car and car-body for transporting material. Fig. 2 is a top plan of the structure shown in Fig. 1. Fig. 3 is a view, partly in side elevation and partly in longitudinal vertical section, showing the apex of the frame, the vertically-moving beam, and the rack and gear for operating the same; and Fig. 4 is a front elevation of a skip or body supported at the lower end of the vertical beam, the view being in the direction indicated by the arrow *x*, Fig. 2.

In the views, A is a suitably constructed and proportioned bed or platform resting on trucks A' A', which are supported and move freely upon parallel tracks B B. Upon the platform A is rigidly supported an oblique derrick-frame made up of two posts C C, mounted at the front edge of the platform, two bracing-posts C' C', mounted near the front edge of the platform, and two other bracing-posts C<sup>2</sup> C<sup>2</sup>, mounted at the rear edge of the platform, the posts C C being parallel to each other and separated by a comparatively slight space and each of the sets of bracing-posts being inclined inward, so as to bring the upper ends of all the posts together at the apex of the frame, as clearly shown in Fig. 2.

On the frame thus formed are mounted two transverse shafts D D', the first being supported on the posts C<sup>2</sup> C<sup>2</sup> about midway of their length and the second being supported in the frame near its apex, and on these shafts

are mounted, respectively, sprocket-wheels E E' and gear-wheels F F', as shown in the drawings. Each of the sprocket-wheels is connected by a sprocket-chain with a second sprocket-wheel connected with and operated by a suitably-placed engine, the engines for the two sets of sprocket-wheels being independent of each other and independently operated, but both being supplied with steam from a boiler G, mounted on the rear end of the platform A and serving to balance the weight of the overhanging portion of the derrick. Between the posts C C is an approximately horizontal beam H, provided on its lower face with a rack-bar *h*, which rests upon and engages the gear F, the beam being held in suitable relation to the gear by means of a stirrup *h'*, through which it slides freely, the stirrup being pivoted on the shaft D. The beam H is pivoted at its front end to an approximately vertical beam I, having on its rear face a rack-bar *i*, which engages the gear D' and is held in proper relation thereto by a stirrup *i'*, corresponding in construction and function to the stirrup *h'* on the beam H. It is evident that by the suitable rotation of the shafts D D' and their gears F F' the beams H I may be given any desired movements and that the free end of the approximately vertical beam I may thus be raised or lowered or moved backward or forward, as desired, the movement of the free end of the beam in any direction being rendered positive, since it is imparted through the two rigid beams.

The free end of the beam I may be provided with any suitable attachment to adapt it for any given kind of work; but in the drawings I have shown it as provided with a bail K, fastened at its middle to the end of the beam and having at its ends rearwardly-open hooks *k k*, adapted to embrace studs *l l* at the ends of a skip or car-body L, as shown in Figs. 1, 2, and 4. The hooks and studs may be of any desired form, but I prefer to make the studs approximately rectangular and to form the hooks so as to conform substantially to the sides of the studs when in engagement therewith in order to prevent the tilting of the skip when raised from the ground and supported by the hooks and beam. By the use of the derrick provided with the hooked bail thus described the skips, as fast as they are



filled, may be lifted from the earth and placed upon suitable car-platforms ready for transportation.

While I prefer to form the hook or other engaging device on the free end of the approximately vertical beam I, it is evident that it may be formed upon the beam H, the beam I being pivoted to the beam H at a suitable point in its length, and the operation of the two beams being adapted to move the hooks or other engaging device positively, as may be desired.

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

1. In a derrick the combination with a suitable supporting-frame, of two beams pivoted together and longitudinally guided in said frame and means for moving said beams in said guides; substantially as described.

2. In a derrick, the combination with a suitable supporting-frame, of two transverse shafts mounted in the frame and provided with rigidly-mounted gears, two beams pivoted together and provided with rack-bars engaging said gears, respectively, and means for rotating said shafts and their gears independently and thereby imparting independent longitudinal movement to said beams, whereby the free end of one of said beams may be moved positively in any given direction in the vertical plane of the beam.

3. The combination with the frame, of the shafts, D, D', and gears, E, E', the beam, I, having a rack-bar engaging the gear, F', the beam, H, pivoted to the beam, I, and having a rack-bar engaging the gear, F, and means substantially as shown and described for independently rotating the shafts, D, D', and gears, F, F', whereby the free end of the

beam, I, may be moved positively in any desired direction, in the vertical plane of the beam.

4. In a derrick, the combination with a suitable frame, and a longitudinally-movable beam supported in the frame and provided at its free end with a bail having terminal hooks, of means for operating the beam to give the bail movement in any desired direction in the plane of the beam, the hooks on the bail being adapted to engage studs at the ends of a skip or car-body whereby the latter may be raised and moved as desired.

5. The combination with the frame formed substantially as described, of the beams, H, I, supported in the frame and pivoted together, and means substantially as shown and described for giving the two beams independent longitudinal movement, the beam, I, being provided with a bail, K, having terminal hooks, *k*, *k*, adapted to engage and conform substantially to approximately rectangular lugs at the ends of a skip or car-body, whereby the latter may be lifted and moved and at the same time secured against tilting.

6. In a derrick the combination with a suitable framework, of two beams pivoted together and guided longitudinally and also in a substantially vertical plane by said framework together with suitable independent devices for moving said beams longitudinally in the framework; substantially as described.

In witness whereof I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, this 4th day of September, A. D. 1897.

EMILE R. SHNABLE.

Witnesses:

CHAS. O. SHERVEY,  
A. I. H. NELSON.