

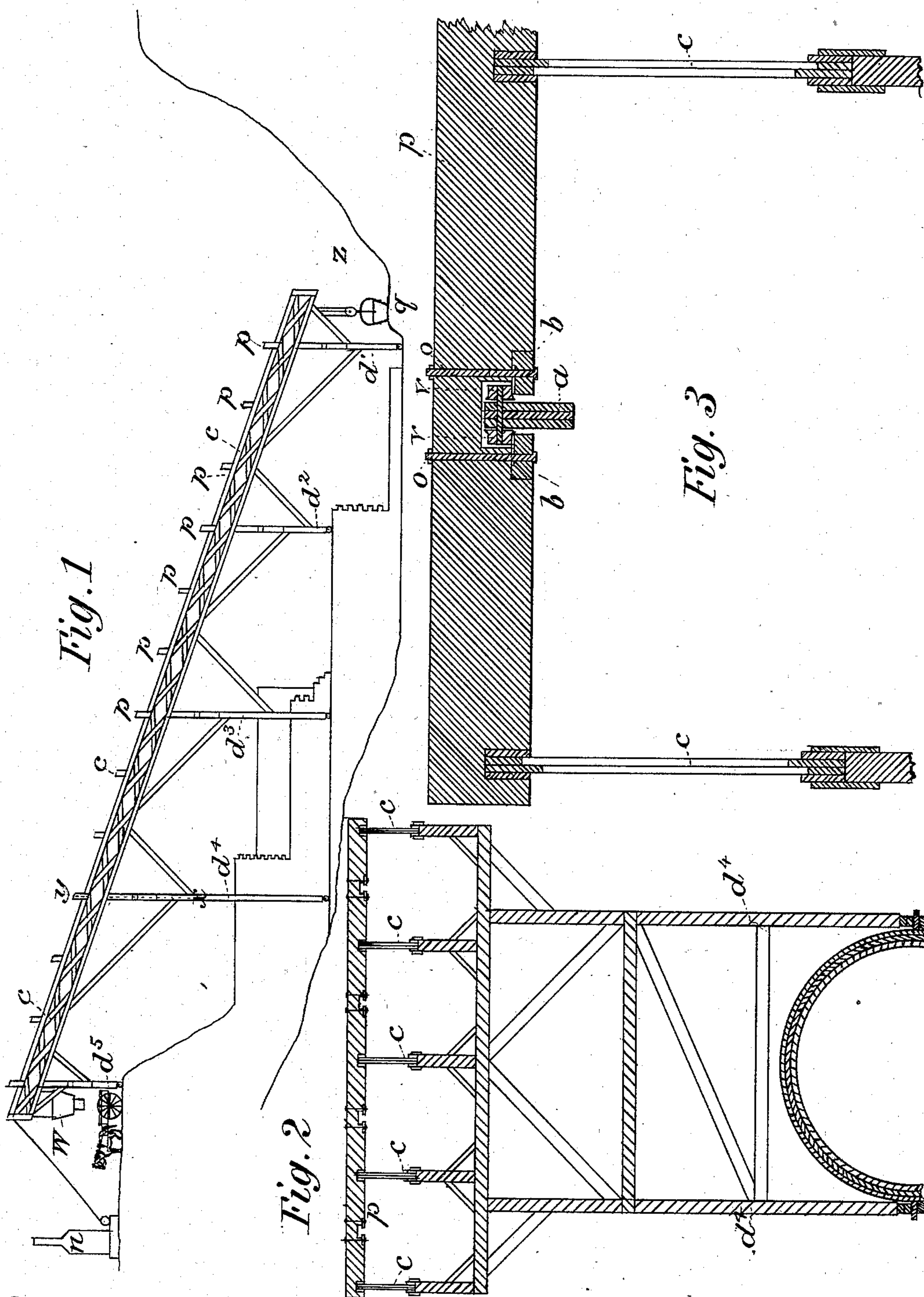
(No Model.)

2 Sheets—Sheet 1.

H. A. CARSON.

MECHANISM FOR MOVING EARTH AND EXCAVATED MATERIAL.  
No. 282,163.

Patented July 31, 1883.



Witnesses:  
N. H. Carson  
S. J. Wilmarth

Inventor:  
H. A. Carson

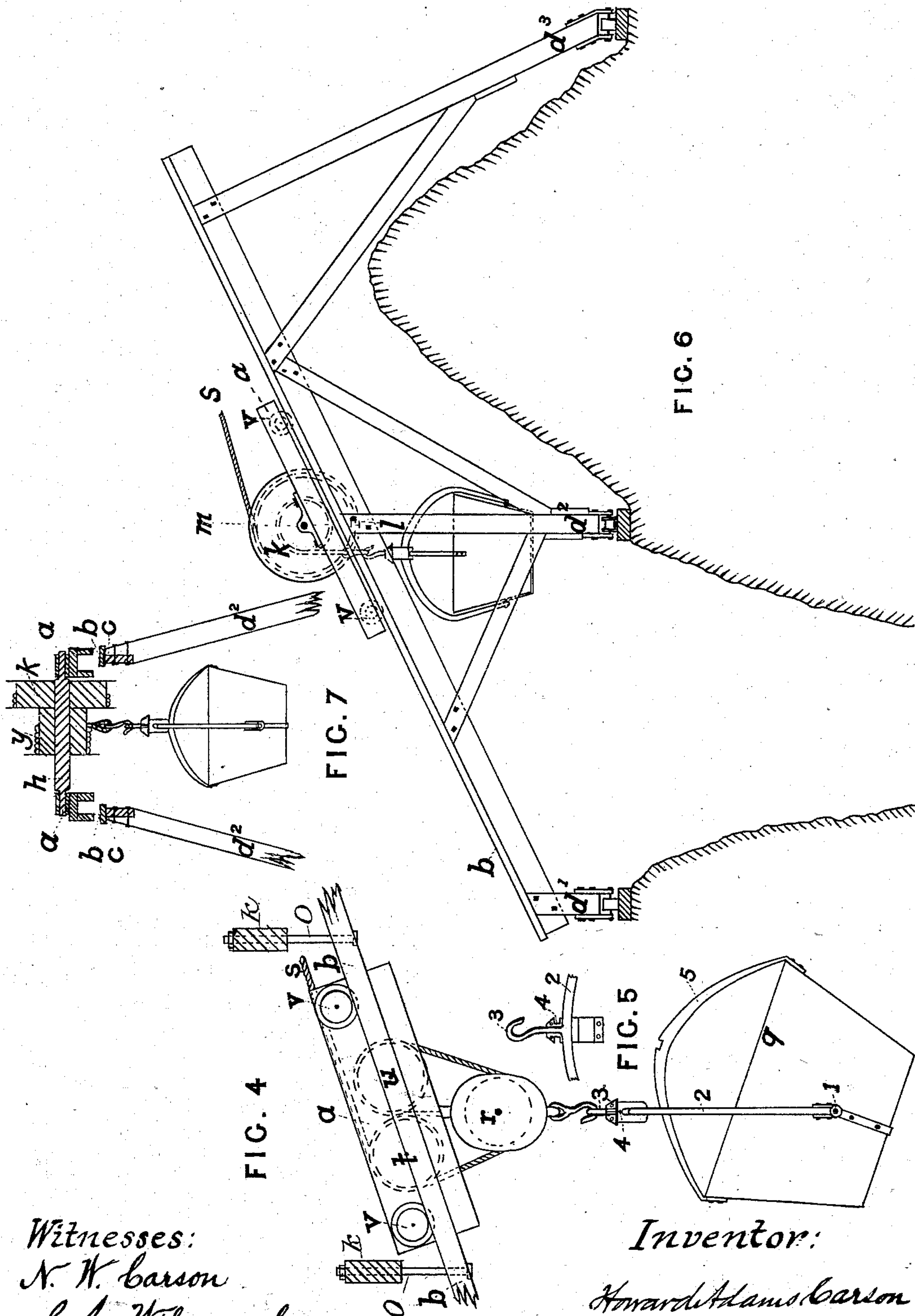
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Howard Adams Carson



turning the boom to its place for lowering. From one to three boom-men are required at a single derrick for this sole purpose. The expense of the boom-men is saved and the loss of time prevented by the use of the incline. An incline of equal capacity with a given boom-derrick is also much more cheaply and quickly moved than the latter from one position to another. Where long trenches are excavated by means of derricks, the cost of moving them frequently forms a considerable proportion of the whole expense. As no guys are required with the incline, the time and labor necessary for fastening and tightening these expensive and treacherous appendages are dispensed with.

It may be further said that the incline is characterized by great simplicity and compactness and small liability of getting out of order. Having described and shown the usefulness

of my invention for moving and depositing excavated material, I claim—

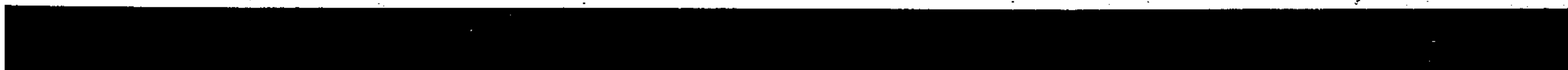
1. One or more carriages, each combined with a hoisting-tackle or winch and running upon an inclined track, the length of said inclined track bearing approximately the same ratio to the vertical projection as the weight required to be lifted bears to the pull necessary to lift it when employing said winch or tackle, in combination with a portable frame consisting of girders, legs, cross-pieces, and braces, all substantially as set forth.

2. The tub *q*, combined with bail 2, the hook 3, the slide 4, and the notched brace 5, all substantially as set forth.

HOWARD ADAMS CARSON.

Witnesses:

N. W. CARSON,  
S. J. WILMARTE.





# UNITED STATES PATENT OFFICE.

HOWARD A. CARSON, OF BOSTON, MASSACHUSETTS.

## MECHANISM FOR MOVING EARTH AND EXCAVATED MATERIAL.

SPECIFICATION forming part of Letters Patent No. 282,163, dated July 31, 1883.

Application filed December 29, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, HOWARD ADAMS CARSON, of Boston, in the county of Suffolk, of the State of Massachusetts, have invented a  
5 new and useful Improvement in Means or Mechanism for Moving and Depositing Earth or other Excavated Material, (which has not been patented with my consent or knowledge in any foreign country,) of which the following  
10 is a specification.

My invention consists of one or more carriages, each supporting a hoisting-tackle or winch, each carriage running upon an inclined railway attached to a portable frame, and in  
15 relation thereto as hereinafter described. Said portable frame consists of girders, cross-pieces, and legs so braced and connected together as to suffer no distortion when the said carriage and its load are being moved thereon, nor  
20 when the frame itself is being moved from one position to another. Each tackle or winch mentioned above employs one or more ropes for hoisting a tub filled with excavated material, and for moving the carriage.

25 My invention further consists of a suitable tub for holding and dumping excavated material, and of some subordinate details of the mechanism generally described above. This mechanism may be varied in size and in some  
30 subordinate details to meet most economically the requirements of different jobs of excavation.

To enable one skilled in the art of excavation to make and use the machines, two forms  
35 will now be described.

Figure 1, Sheet 1, is a side elevation of an "incline" (as the invention will now be called) intended for excavating a sewer-trench and dumping the whole or part of the excavated  
40 material so as to refill the trench over the completed sewer. Fig. 2 is a cross-section of the same incline on the line *x y*, but drawn on a larger scale. Fig. 3 is a partial cross-section at same point on a still larger scale, and  
45 showing some details that could not be shown with clearness in the first or second figure. Fig. 4, Sheet 2, is a side elevation of a carriage with tackle and tub attached.

The carriage *a* is supported and runs on the  
50 track *b* by means of four small flanged wheels, two of which, *v v*, are shown. The carriage *a* has in its interior two pulley-wheels, *t* and *u*.

A rope, *s*, attached to the bucket of the tackle-block *r*, is reeved around *u*, then around the pulley of *r*, next partially around *t*, and then  
55 passes to the right, the whole constituting a triple purchase. If a chock or other obstruction is placed so as to prevent the carriage *a* from running downhill on the tracks *b*, the tub *q* may be lowered by slacking off the rope *s*. It  
60 is evident that the track *b* may be fixed at such an inclination that if the rope *s* is pulled to the right the tub *q* may be hoisted without causing the carriage *a* to start to ascend the incline. The hoisting-tackle being threefold,  
65 this inclination will be somewhat greater than eighteen degrees; or it may be said that the horizontal projection of the inclination will be about three times the vertical projection. The least inclination cannot be stated with  
70 minute precision unless the relative friction of the different parts is accurately known. When the hoisting has so far progressed that the block *r* strikes the carriage, a further pull of the rope *s* will cause the carriage to ascend  
75 the incline, carrying with it the tub and its load.

In Fig. 4 the tub *q* has a pair of trunnions (one of which, 1, is shown) rigidly attached to it. On these trunnions revolves the bail 2. To the  
80 bail 2 is solidly attached the hook 3, having a straight cylindrical shank. Around this shank is loosely fitted the slide 4. The latter is, for convenience, made in two halves, one of which is shown in Fig. 5, which, when in position for  
85 use, are united by four tap-bolts. The slide 4 has a space in it, which allows the bail 2 to pass through, and this space is great enough to allow the slide a sufficient vertical movement. When the bail and tub are upright, the  
90 slide will drop by its own weight and the lower portion occupy the notch in the brace 5, and serve, when the whole is suspended, as a lock to prevent the tub from revolving on its trunnions and discharging its load. When it is  
95 desired to discharge the load from the tub, the slide 4 is lifted, either by hand or automatically, so as to disengage it from the notch in the brace 5.

The novelty in the just-described tub exists  
100 in the notched brace 5 and the central locking-slide, 4. Tubs turning on trunnions with other locking devices have been in use for years.

The incline, Fig. 1, Sheet 1, has four sets of