No. 712,476. Patented Nov. 4, 1902.

H. A. L. BARRY.

MEANS APPLICABLE FOR USE IN RAISING, LOWERING, TRANSPORTING, AND DISCHARGING MATERIALS.

(Application filed May 7, 1900.)

(No Model.) 3 Sheets—Sheet 1.

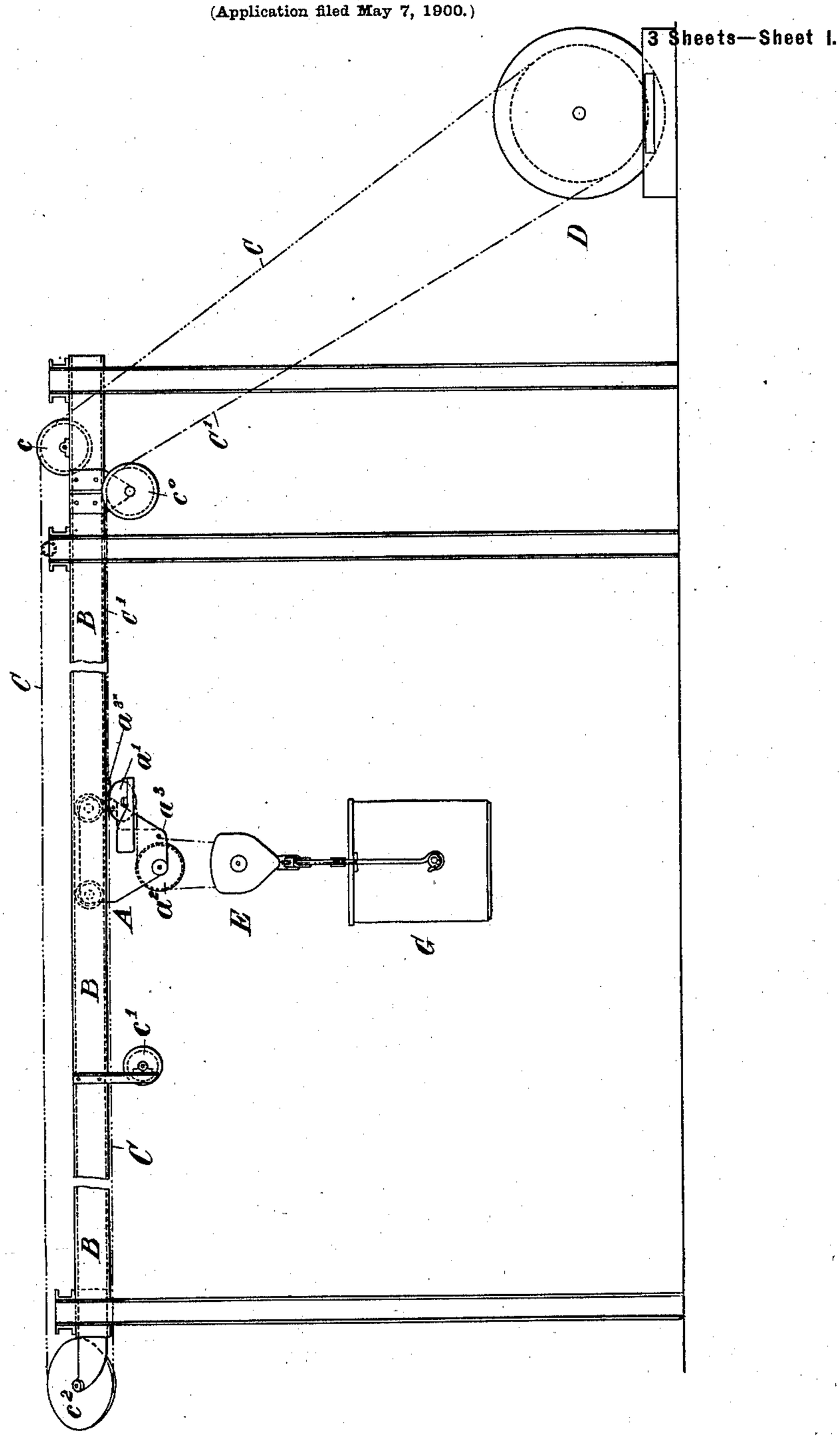

Fig. 1.

Witnesses.

Walter Doel Williams

Henry Pankhurst.

Inventor.

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Fig. 3.

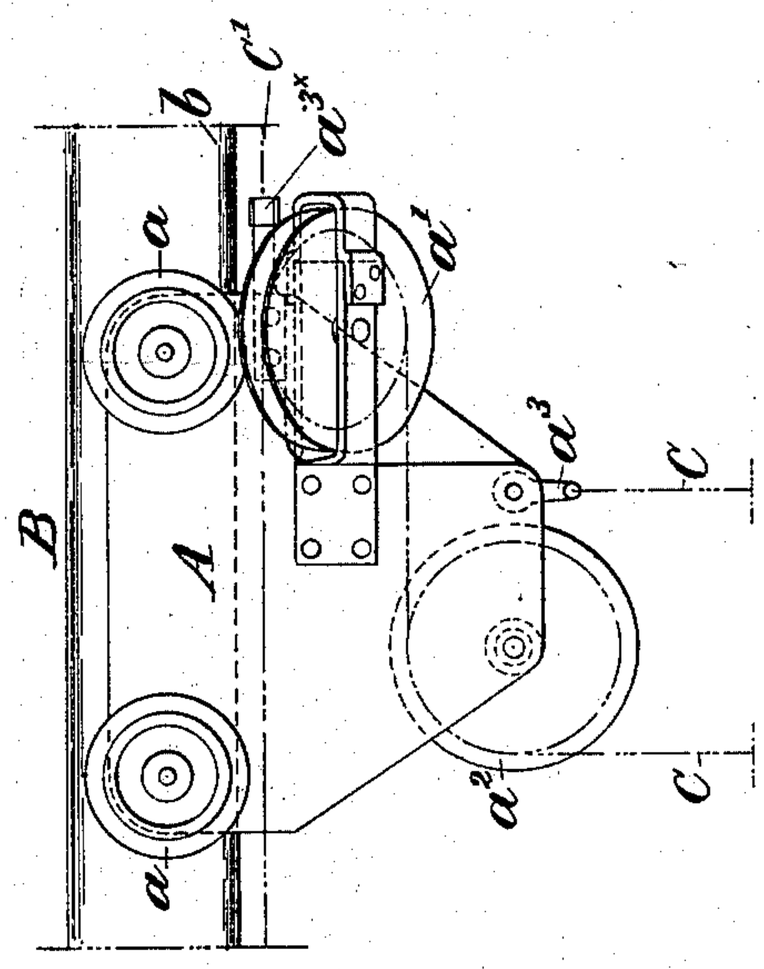
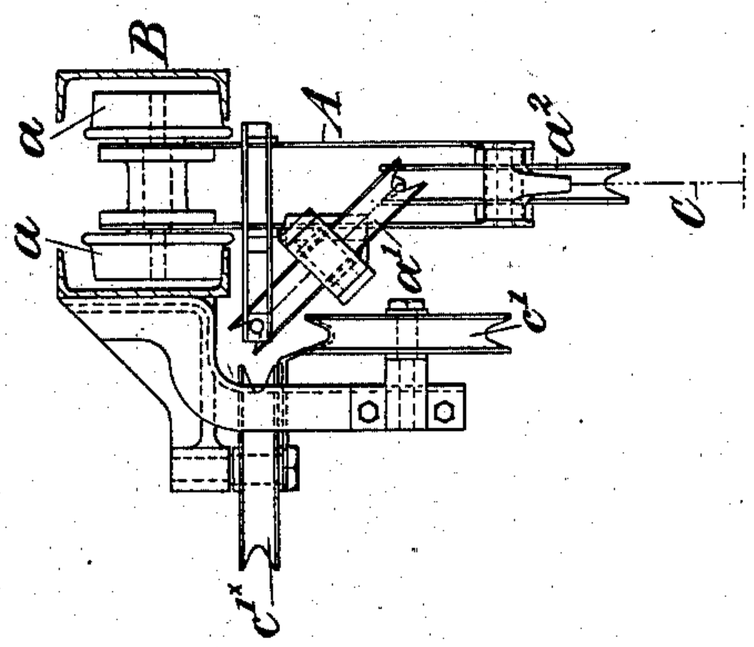


Fig. 2.



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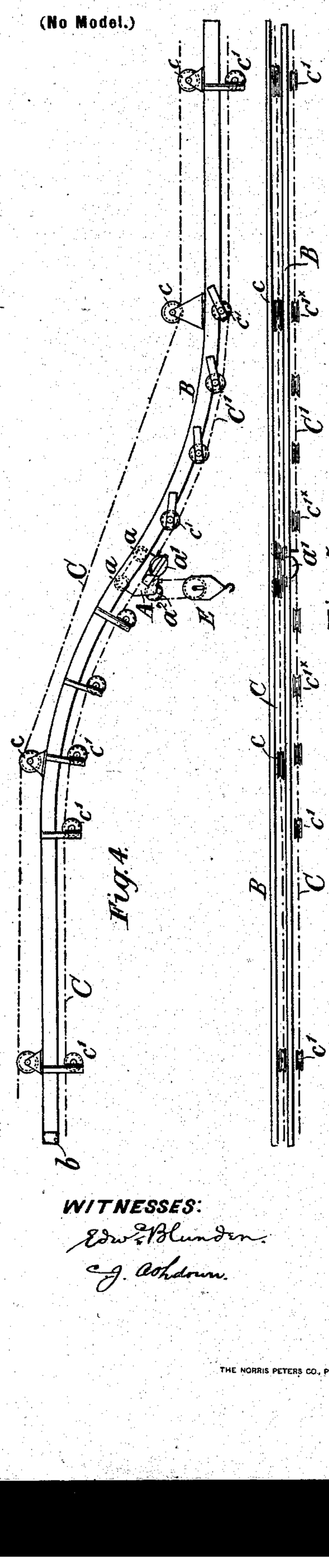

Fig. 4.

Fig. 5.

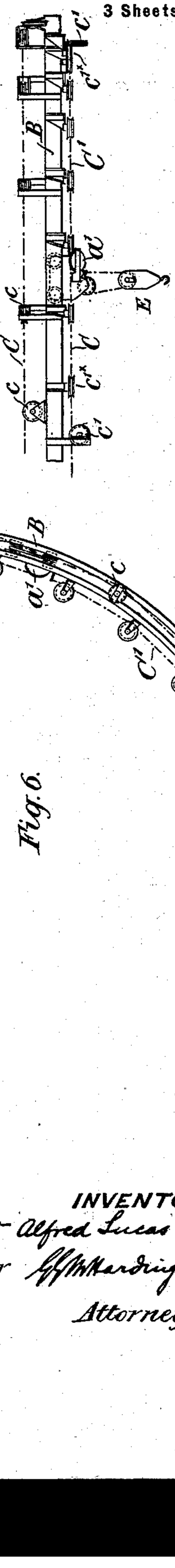

Fig. 7.

Fig. 6.

WITNESSES:
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UNITED STATES PATENT OFFICE.

HERBERT ALFRED LUCAS BARRY, OF WESTMINSTER, ENGLAND.

MEANS APPLICABLE FOR USE IN RAISING, LOWERING, TRANSPORTING, AND DISCHARGING MATERIALS.

SPECIFICATION forming part of Letters Patent No. 712,476, dated November 4, 1902.

Application filed May 7, 1900. Serial No. 15,787. (No model.)

To all whom it may concern:

Be it known that I, HERBERT ALFRED LUCAS BARRY, a subject of the Queen of Great Britain and Ireland, residing at 15 Great George street, in the city of Westminster, England, have invented new and useful Improved Means Applicable for Use in Raising, Lowering, and Transporting Materials, (in respect whereof I have applied for Letters Patent in Great Britain, to bear date October 14, 1899, No. 20,606,) of which the following is a specification.

This invention relates to apparatus for use in raising, lowering, conveying, or transporting materials; and it consists in improved means whereby such operations are expedited and facilitated, the apparatus being simplified in construction and rendered more certain in operation.

In the accompanying drawings, Figure 1 is a diagrammatic view in elevation, showing the general arrangement and mode of working of a transporter constructed according to my invention. Fig. 2 is a transverse section, drawn to a larger scale, through the carriage, showing the arrangement of ropes and guide-pulleys for use both on a straight track and a curved track. Fig. 3 is a side elevation, the guide-pulleys for use with a curved track being removed. Fig. 4 is an elevation, and Fig. 5 a plan, illustrating a curved track, whereby the carriage is caused to travel from a lower to a higher level, or vice versa, and clearly showing the arrangement of guide-pulleys for enabling the ropes to perform their functions with freedom. Figs. 6 and 7 are respectively a plan and an elevation of another form of curved track, clearly showing the manner in which the carriage negotiates the curve.

According to my improved mode of construction and arrangement the carriage A, which may be of the ordinary description, is provided with suitable traveling wheels a a, according to the type of overhead track employed. The beam or other structure B, whereon the track b is laid, is provided with end and side guide-pulleys, over or around which the ropes C C′ for manipulating the carriage and the bucket pass. Both these ropes are led from a winch D, the one C passing over the pulley c at the inner end of the beam B to and around a pulley c^2, mounted obliquely at the outer extremity of the said beam, beneath the latter, around a guide-pulley a', mounted on the side of the carriage-frame obliquely or at such an angle to the central pulley a^2 as to insure the rope (which up to this point lies at the side of the track) passing smoothly onto the central pulley a^2, the rope passing from this latter pulley around the pulley (not shown) pertaining to the return-block E and being finally secured at a^3 to the carriage-framing. This rope C is thus led first along one side of the beam and then along the other side thereof, it being guided and supported by guide-pulleys c', arranged upon the beam B. The pulley a' is mounted obliquely to the central pulley a^2 and at such an angle as to insure the rope (which up to that point lies at the side of the track) passing smoothly onto the central pulley a^2. The other rope C′ is also led from the winch over a pulley c^0 and one or more guide-pulleys c', one of these latter pulleys being shown in Fig. 1 upon the right-hand side of the carriage, this rope C′ being secured at $a^{3\times}$ to the carriage A. By carrying the ropes C C′ outside the path of the carriage its traction around a curved track may be facilitated, the track being provided at suitable points with pulleys c' $c'^{\times}$, (see Fig. 2,) adapted to guide and support the ropes in the different attitudes they may assume. When the beam or track is of great length, it is necessary that the rope should be supported at intervals to avoid accidents. In Figs. 4 and 5 the arrangement of these supports is illustrated in connection with a track having a vertical curve or which has curves which cause the carriage to travel from a lower to a higher level. The rope C is guided and supported by pulleys c, arranged centrally above the track, and by pulleys c', arranged below but laterally in relation to the beam or track B, the latter pulleys also serving as guides for the rope C′. The arrangement of the pulleys c' in the construction now referred to leads the rope C in a true or approximately true line to the wheel a', whence it passes to the pulley a^2. The position of the pulley a' is arranged in such a manner that the pull of the rope C is brought to the side of the carriage A, thus obviating any tendency for the car-

riage to overturn. The general arrangement of pulleys above described applies similarly to the horizontally-curved track. The rope is, however, guided and supported by the pulleys c' $c'^{\times}$. (See Figs. 6 and 7, in which it will also be seen that the ropes C and C′ are parallel, or nearly so, with the track.)

Assuming the bucket or skip G to be loaded and ready for being raised, the engine (not shown) is started, the rope C wound in, and the bucket G raised. When the bucket has been raised to the required level, the rope C is wound and the rope C′ paid out at an equal speed, with the result that the carriage A travels outward along the beam or track B, while the bucket G remains at the elevation to which it was raised. Upon the bucket arriving over the point at which its discharge is required the engine is stopped. The rope C′ now remains inactive, while the rope C is paid out, the result being that the bucket is lowered. The bucket having been discharged the engine is then restarted in the direction for winding the rope C, and thereby raising the bucket. For causing the bucket to return to its original position the rope C′ is wound and the rope C paid out, the carriage A retraversing the track B. The rope C′ is now rendered inactive, while the rope C is paid out, with the result that the bucket G descends to the loading-point.

It will be understood that the bucket may be picked up, transported, lowered, and discharged at any point in the track and that the travel and discharge of the bucket may be effected at any desired altitude between the loading and the track planes, these operations being effected by means of the levers controlling the winch and the reversing-lever of the engine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improved means applicable for use in raising, lowering and transporting materials, substantially as herein described, and comprising a traveling carriage furnished with inclined and central guide-pulleys, a beam or track for said carriage provided at its outer extremity with an obliquely-mounted pulley and with means for guiding the ropes at the side of said beam and a winch adapted for being driven in either direction.

2. In apparatus for raising, lowering, transporting and discharging materials, the combination, with a beam or track B, of a pulley c^2 on said beam and a pulley a' mounted obliquely in the side frame of the carriage, substantially as and for the purpose set forth.

3. In apparatus for raising, lowering, transporting and discharging materials, the combination, with a track B having an obliquely-mounted pulley c^2 thereon, of a carriage A, a pulley a' obliquely mounted in the side frame of the said carriage and a pulley a^2 mounted centrally in said carriage and having its plane parallel with the track, substantially as set forth.

4. In apparatus for raising, lowering, transporting and discharging materials, the combination, with a track B, a carriage A and obliquely-mounted pulley c^2 on said track, of an obliquely-mounted guide-pulley a' and centrally-mounted guide-pulley a^2 both on the said carriage, substantially as set forth.

5. In apparatus for raising, lowering, transporting and discharging materials, the combination, with a beam or track B, of side guide-pulleys c' c', obliquely-mounted pulley c^2, carriage A and guide-pulleys a', a^2 thereon, substantially as and for the purpose specified.

6. In apparatus for raising, lowering, transporting and discharging materials, the combination, with a curved beam or track having pulleys c', $c'^{\times}$ mounted thereon for guiding and supporting the operating-ropes, of a carriage A, obliquely-mounted pulley c^2 on said track, and an obliquely-mounted guide-pulley a' and centrally-mounted guide-pulley a^2 both on the said carriage, substantially as set forth.

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

HERBERT ALFRED LUCAS BARRY.

Witnesses:

WALTER DOEL WILLIAMS,

HENRY PARKHURST.