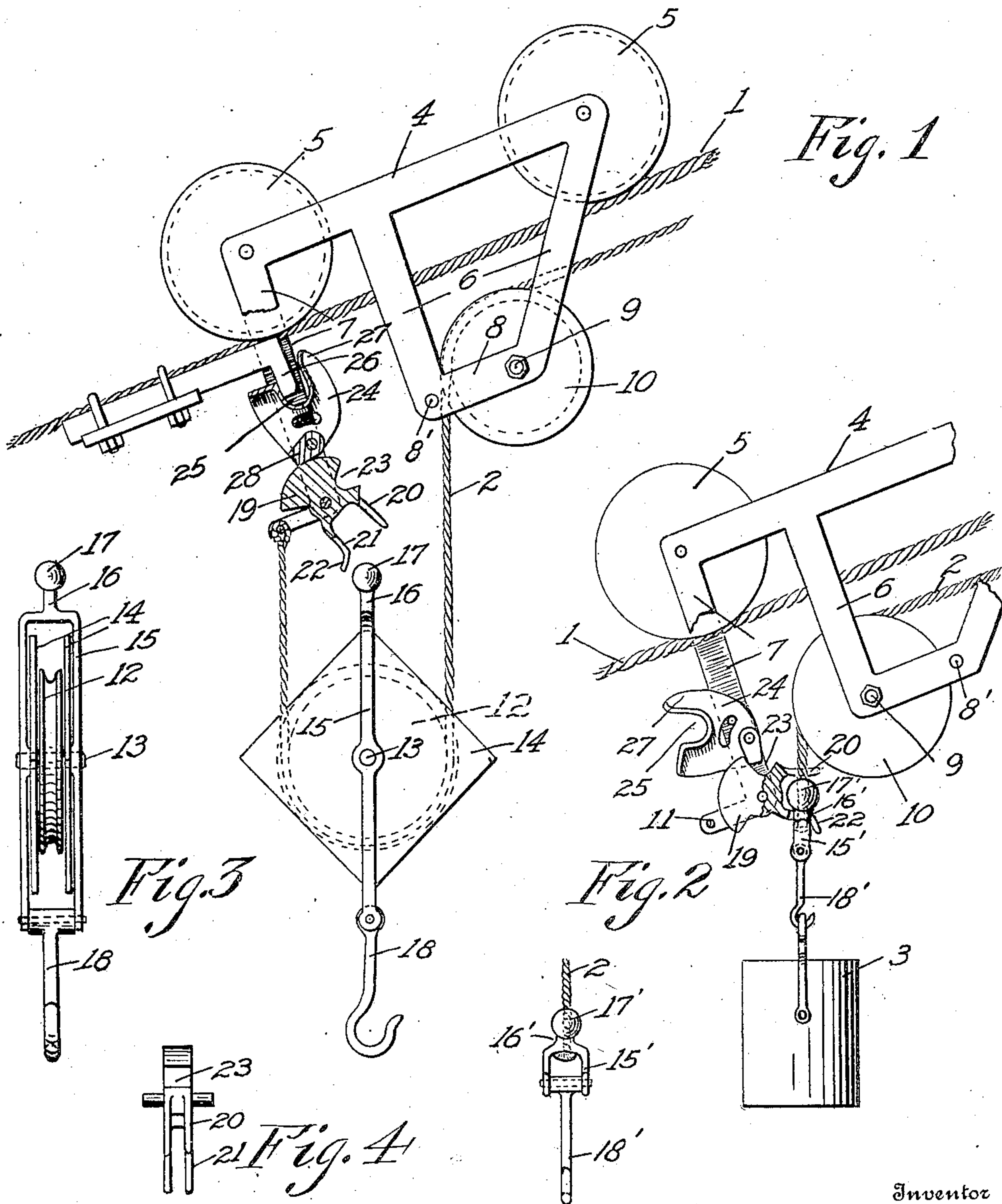


No. 879,744.

PATENTED FEB. 18, 1908.

J. W. COOPER.
HOISTING AND CONVEYING APPARATUS.
APPLICATION FILED MAY 13, 1907.



Witnesses
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Fig. 5.

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UNITED STATES PATENT OFFICE.

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HOISTING AND CONVEYING APPARATUS.

No. 879,744.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed May 13, 1907. Serial No. 373,507.

To all whom it may concern:

Be it known that I, JOHN W. COOPER, a citizen of the United States of America, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Hoisting and Conveying Apparatus, of which the following is a specification.

The primary object of my invention is the provision of an improved apparatus of the above type which can be operated in an efficient manner with a minimum expenditure of power.

A further object is to provide a construction which is interchangeable with respect to the mechanism controlling the raising and lowering of the bucket.

Other equally desirable objects will be set forth hereinafter and those structural features and combinations of parts upon which I desire protection, clearly defined in the claims hereto annexed.

Referring now to the accompanying drawing: Figure 1 is a view in side elevation, parts being broken away, of a hoisting and conveying apparatus constructed in accordance with my invention the several parts being shown in position for hoisting. Fig. 2 is a fragmentary view in side elevation of the invention with the parts in relative position for maintaining the load in raised position, the bucket being secured to a single run of the hoisting rope. Fig. 3 is an end view of the fall pulley and bucket hook employed in the construction shown in Fig. 1, and Figs. 4 and 5 are detail views.

Referring now to the drawing by numerals of reference, 1 indicates an inclined track which can be supported in any desired manner, and 2 the rope employed for raising and lowering the bucket 3.

Reference numeral 4 indicates the carriage provided with suitably spaced apart wheels 5 arranged to engage on track 1. Carriage 4 is provided with depending portions 6 and 7, the former being provided at its lower end with an approximately horizontal rail 8 formed with spaced apertures 8' adapted to alternately receive a shaft 9 on which sheave 10 is supported for rotation, and the latter having a suitably apertured lug 11 adapted to have one end of rope 2 secured thereto.

Reference numeral 12 indicates a fall sheave supported on a shaft 13 journaled in cheek plates 14 and on the projecting end portions of said shaft 13 a swing frame 15 is

supported. Frame 15 is provided at its upper end with an upwardly projecting rigid stem 16, provided with a spherical enlargement 17, and in the lower portion of said frame a depending bucket hook 18 is pivoted.

Mounted for rotation on the depending portion 7 of the carriage is a lock member 19, the same being provided with radial projections 20, 21 between which the spherical enlargement 17 is adapted to snugly engage when the bucket is elevated, said projection 21 being provided with a downwardly and outwardly inclined guard 22 and slotted as shown for reception of stem 16. At a point substantially opposite to projections 20, 21, lock member 19 is provided with a concentrically curved peripheral portion and at its upper side between said projections and said concentrically curved peripheral portion, is formed with a depression 23.

Pivotaly mounted on carriage 4 above lock member 19 is a catch 24 which is provided in its upper portion with a seat or depression 25 adapted to receive freely a stop 26 secured to said cable or track 1 adjacent the point at which the load is taken up, and at one side of the seat or depression 25 is an upwardly projecting lip 27. On the lower portion of catch 24 is a lug 28 whose lower surface is concaved slightly in conformity with the curved peripheral portion of lock member 19 and is disposed close thereto, so that when the catch is in such position that stop 26 is received in its seat 25 and the curved peripheral portion of lock member 19 is presented to the curved under face of said lug 28, swinging of said catch will be prevented and the carriage therefore secured against movement.

Movement of lock member 19, effected by the spherical enlargement 17 engaging projection 20 during movement of rope 2 to lift the load, brings depression 23 beneath lug 28 thereby freeing catch 24 and permitting the same to swing from engagement with stop 26 as the carriage starts forward, and as catch 24 swings, lug 28 is moved into the depression 23 to prevent reverse turning action of lock member 19 should enlargement 17 bear upon projection 21, as is obvious. As the carriage returns, lip 27 engages stop 26, tripping catch 24 so that seat 25 will be properly positioned to receive said stop. A pin 29 fixed to depending portion 7 of the carriage and riding in a curved slot 29, of catch 24, limits the movement of the catch.

The construction provided in Fig. 1 is often times very desirable as when but little power is at hand, but when this is not the case, the device can be readily changed, as shown in Fig. 2 to obtain a direct pull and consequently carry on the work with greater speed. In this latter construction, bucket hook 18' is pivoted to a frame 15' having an upwardly projecting rigid stem 16', provided with a spherical enlargement 17', and through this spherical enlargement 17' and stem 16' rope 2 is passed and knotted, as shown in Fig. 5, or otherwise secured.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent of the United States of America, is:

1. In combination with a track, a carriage mounted thereon and a hoisting rope supported on said carriage, a rotatable lock element on said carriage, said element being formed with a depression, a movable catch disposed to engage in said depression when said element is rotated, a means fixed on said element and operated by said rope to rotate said element, and a projection on said rotatable element to prevent lowering of the load, said projection having a downwardly and outwardly projecting guard.

2. In combination with a track, a carriage mounted thereon, and a hoisting rope supported on said carriage, a rotatable element on said carriage provided with a depression, a movable catch disposed to engage in the depression of said element when said element is rotated, means connected to be raised and lowered by said rope, an upwardly projecting stem on said means provided with an enlargement, means fixed to said element and operated by the enlargement on said stem during movement of said first means to rotate said element, and a projection on said rotatable element slotted to receive said stem and engage under the enlargement thereof to prevent lowering of said first means, said projection having downwardly and outwardly projecting guard means.

3. In combination with a track and a stop thereon, a carriage on said track, a hoisting

rope supported on said carriage, a frame connected to said rope to be raised and lowered thereby and provided with a bucket hook, an upwardly projecting stem on said frame provided with an enlargement, a rotatable element on said carriage having a depression and provided with a projection adapted to be engaged by the enlargement on said stem to effect rotation of said element, means secured to said element at a point below the projection thereof for engagement under the enlargement of said stem, and a catch member pivoted to said carriage and having its lower portion formed to snugly engage the edge portion of said element or engage in the depression thereof and having its upper portion formed with a seat for reception of said stop, for the purpose specified.

4. In combination with a track, a carriage mounted thereon, said carriage being provided with depending portions arranged one in advance of the other, one of said members being provided with an approximately horizontal rail, said rail being formed with a plurality of openings, a sheave, a shaft on which said sheave is carried adapted to be journaled in any of the openings of said rail, whereby said sheave can be adjusted toward or from the other of said depending portions of the carriage, a hoisting rope passing over said sheave, a rotatable element on said carriage provided with a depression, a movable catch disposed to engage in the depression of said element when said element is rotated, bucket carrying means supported on said rope provided with an enlargement, means fixed to said element and operated by the enlargement on said bucket carrying means, and a projection on said rotatable element arranged to engage under the enlargement of said bucket carrying means to prevent lowering thereof.

Signed at Seattle, Washington, this 4th day of May, 1907.

JOHN W. COOPER.

Witnesses:

JOHN W. FILKINS,
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