

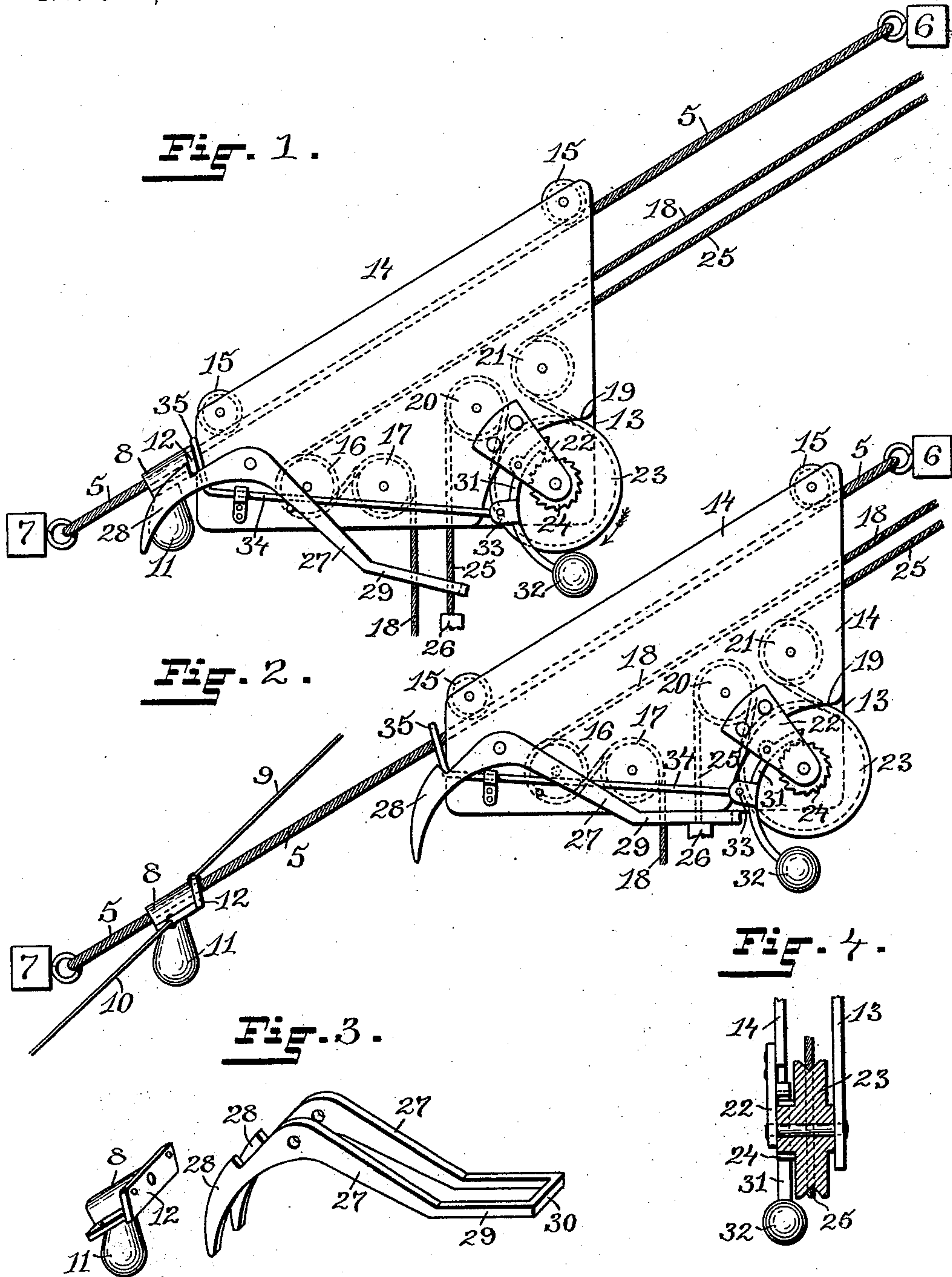
(No Model.)

2 Sheets—Sheet 1.

G. F. JENNINGS.  
HOISTING MECHANISM.

No. 528,297.

Patented Oct. 30, 1894.



WITNESSES:

Henry J. Miller  
Chas. H. Lutter Jr.

INVENTOR:

George F. Jennings,  
Joseph A. Miller & Co.,  
Attys.

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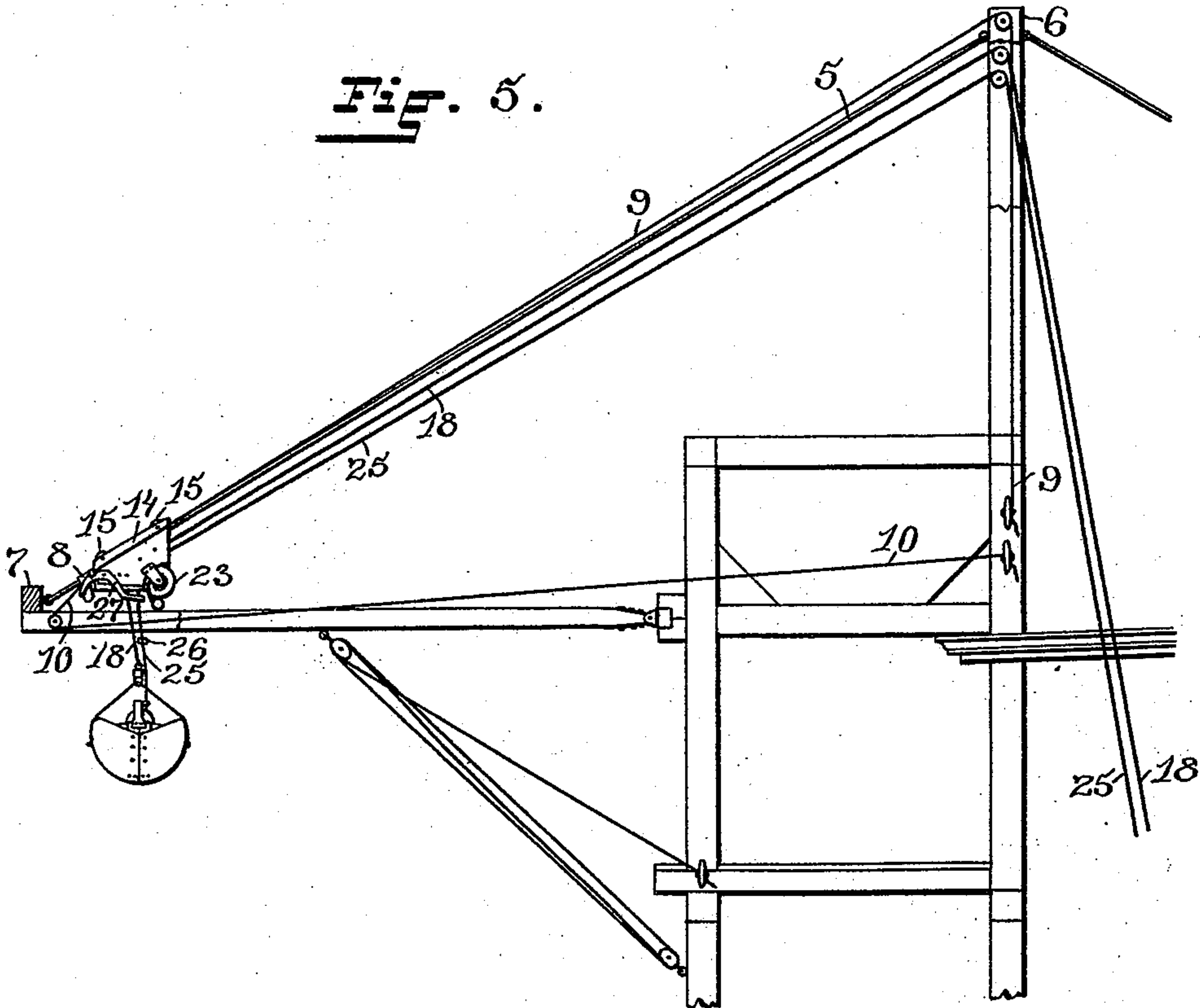
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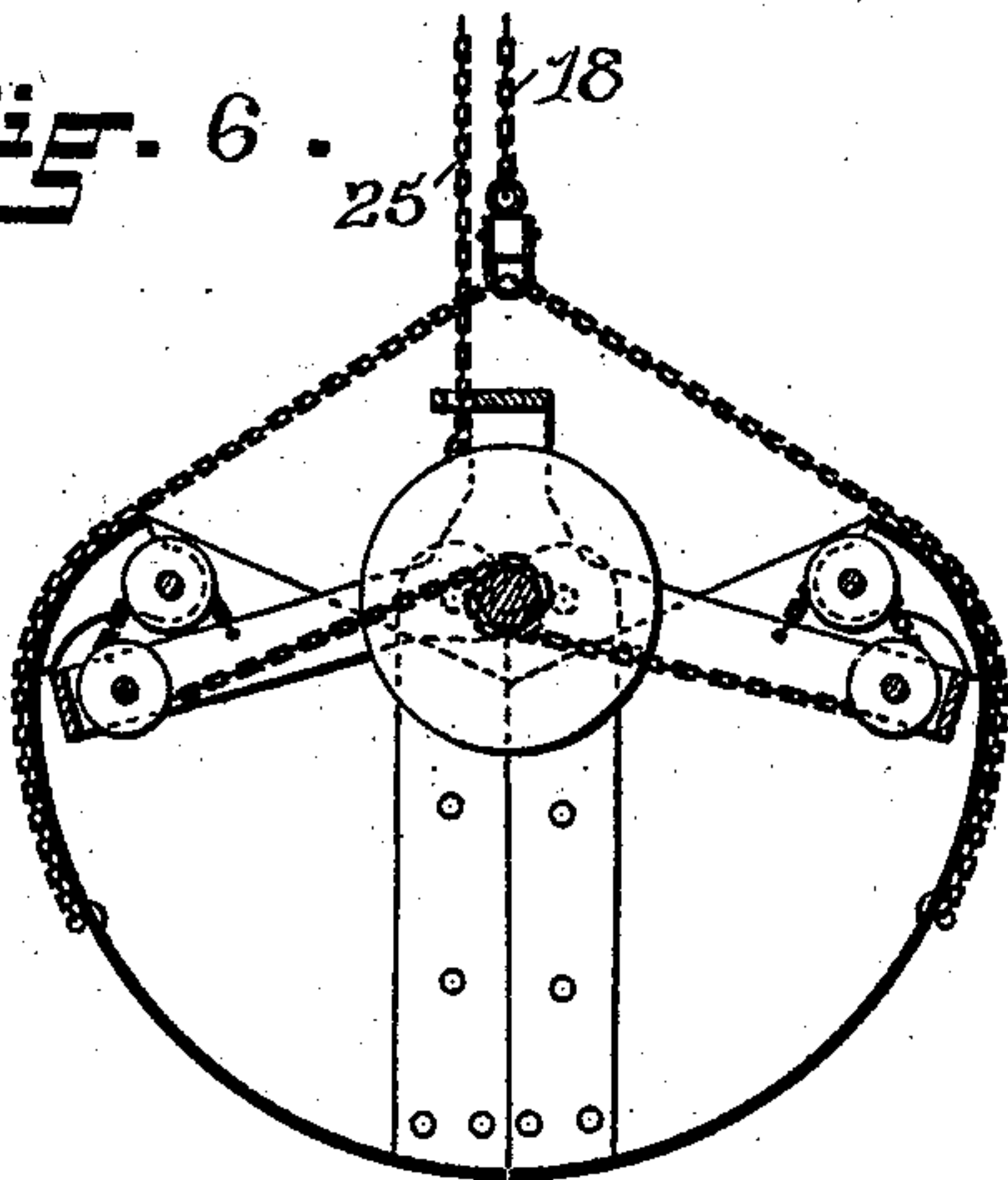
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**Fig. 5.**



**Fig. 6.**



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# UNITED STATES PATENT OFFICE.

GEORGE F. JENNINGS, OF FALL RIVER, MASSACHUSETTS.

## HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 528,297, dated October 30, 1894.

Application filed May 10, 1894. Serial No. 510,710. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE F. JENNINGS, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain  
5 new and useful Improvements in Hoisting Mechanisms; and I hereby declare that the following is a full, clear, and exact description of the same; reference being had to the accompanying drawings, forming part of this  
10 specification.

This invention has reference to improvements in carriages for hoisting machines.

The object of the invention is to so construct a traversable carriage, adapted to support and convey a bucket or other vessel, that  
15 the carriage may be automatically locked at a point of its traverse and may be automatically released.

Another object is to so construct a carriage  
20 of this nature that an increased friction may be exerted on the hoisting cable, at the time when the vertical lift of the hoisting-bucket is finished, against the reverse movement of the cable.

Still another object is to so construct a carriage, of the nature described, adapted for use with a digger-tub, so called, that at the end of the vertical hoist the hoisting-cable  
25 will be frictionally locked against reverse movement and the carriage will be unlocked from the holding mechanism.  
30

The invention consists in the combination with a way, or track, and the novel stop carried thereby, of the peculiar carriage movable on the way and furnished with improved means for engaging the stop.  
35

The invention also consists in such other novel features of construction and combination of parts as may hereinafter be more fully  
40 described and pointed out in the claims.

Figure 1 represents a side view of the improved carriage mounted on an inclined stay, being at the lowest point of traverse. Fig. 2 represents a similar view of the carriage as  
45 it approaches the upper end of its traverse, the friction sheave being locked and the engaging device being elevated at the rear end. Fig. 3 represents views of the engaging device, removed from the carriage, with the transverse stop. Fig. 4 represents a vertical  
50 cross-sectional view of parts of the carriage showing details of the locking sheave. Fig.

5 represents a side elevation of a frame work, on which the hoisting-mechanism is designed to be operated, showing the arrangement of  
55 the hoisting-cables and of the lines for adjusting and holding the chock-stop. Fig. 6 represents a vertical sectional view of one form of digger-tub designed to be operated in combination with this mechanism but  
60 which forms no part of the present invention.

Similar numbers of reference designate corresponding parts throughout.

In the drawings 5 indicates an inclined cable-way secured at its ends to the timbers 6  
65 and 7 forming parts of any suitable frame work, the cable-way being, for different uses, inclined more or less than is indicated in the drawings. On the cable is mounted the tubular chock-stop 8, which is adjustable thereon  
70 by means of the hand lines 9 and 10, having a pendent weight 11 and a transversely-extending plate 12.

The carriage is formed of side-plates 13 and 14 between the upper parts of which are journaled the trolley-wheels 15—15 traversable on  
75 the cable-way. Between the lower portions of these side-plates are journaled the sheaves 16 and 17 on which the actuating-cable 18 works. The lower rear corner of the plate 14  
80 is cut away as at 19 and above this cutaway portion are journaled the sheaves 20 and 21. From the outer surface of the plate 14 extends the inclined arm 22 between which and the plate 13 is journaled the friction-wheel 23  
85 having a V-shaped groove in its face and provided with the ratchet 24. The hoisting-cable 25 is attached to the hoisting bucket of a digger-tub, of which only the cross-bar 26 is herein shown, and extends over the sheave 20,  
90 then under the friction-wheel 23 and thence over the sheave 21 to the hoisting-mechanism.

The engaging device consists of the side-arms 27—27, pivoted to the plates 13 and 14, having the forward downwardly-curved  
95 hooks 28—28 and rearwardly-extended shanks 29—29 connected by the cross-piece 30, the hooks being so shaped that when the carriage is moved against the chock-block the hooks will ride under the transverse plate 12  
100 and engage the same to prevent the backward movement of the carriage until these hooks are disengaged, this being accomplished by the cross-arm 26 of the hoisting-bucket when



the same is drawn upward sufficiently by the cable 25, thus elevating the rear ends of the side-arms 27 and depressing the hooks 28.

To the inner surface of the arm 22 is pivoted the curved pawl 31 adapted to engage the ratchet 24 and having the counter-weight 32 by means of which the pawl is drawn downward to make such engagement. To the lower arm of the pawl, below the pivot, is secured a plate 33 to which the tripping-rod 34 is pivoted. This rod is adapted to reciprocate in guides on the side-plate 14 of the carriage and has an upwardly-turned end 35 extending, when the carriage is free of the chock-block, slightly in front of the same.

As the carriage moves along the cable-way the end 35 of the tripping-rod 34 strikes the chock-block simultaneously with the engaging of the hooks 28, the pawl 31 is disengaged from the ratchet 24 and the friction-wheel is allowed to rotate in the direction indicated by the arrow in Fig. 1. The cables are now paid out and the bucket descends and secures its load. The actuating cable is then drawn in to close the bucket and then both cables are taken in together, the bracket ascending until the cross-bar 26 strikes the extensions 29 of the hook-arm 27 and lifts the same releasing the hooks from the transverse plate of the chock-block. When the hooks are released the carriage moves along the cable and space is provided for the forward movement of the tripping rod, thus allowing the counter-weight 32 to act to throw the pawl 31 into engagement with the ratchet 24 and preventing the rotation of the friction-wheel in the direction indicated by the arrow in Fig. 1. The continued taking in of the cables will now draw the carriage along the cable way until it reaches the desired point. The actuating cable is now paid out thus allowing the bucket to open and deposit its load after which both cables are paid out simultaneously and the carriage moves or is drawn back to the chock-block, the pawl is disengaged and the operation is repeated.

This improved hoisting-mechanism is designed to be supported by a frame work similar to that illustrated in Fig. 5, described and claimed in United States Letters Patent No. 508,171, issued November 7, 1893, to which reference is made, the lines 10 passing over pulleys mounted at the outer end of the boom and brought inward to a convenient point, while the lines 9, by means of which the chock-stop 8 is drawn upward on the stay 5 and supported in place, are carried upward over pulleys mounted at the upper portion of the frame work and then brought downward to a convenient point.

The digger-bucket may be of any usual construction and is designed to be opened by the holding of the cable 18 and the release of the cable 25, while it is closed and raised by the drawing in of the cable 25, the cable 18 be-

ing taken in simultaneously, one form of this bucket being illustrated in Fig. 6 of the drawings.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a hoisting-mechanism, the combination with a cable way, a chock-block adjustably mounted thereon having a transverse plate and a pendent balance-weight, of a carriage depending from the cable way and movable thereon, a pulley, having a V-shaped groove, journaled in the carriage and having a ratchet, smaller grooved pulleys journaled in the carriage above the first mentioned pulley, a pawl pivoted to the carriage and adapted to engage the ratchet, a tripping rod, pivoted to the pawl and extending beyond the front of the same, mounted on the carriage so as to reciprocate, hooks extending beyond the front of the carriage to engage the transverse plate of the chock and having arms pivoted to the sides thereof and depending below the same, a hoisting-cable passing over the small pulleys and under the ratchet pulley, and a cross-arm on said cable adapted to engage the hook arms.

2. In a hoisting-mechanism, the combination with an inclined stay, means for supporting the same, the stop 8 having the transverse plate 12 adjustably mounted on the stay and means for adjusting and holding the stop on the stay of a carriage having side-plates 13 and 14, the trolley-wheels 15—15 journaled in the carriage and traversable on the stay, cable sheaves journaled between the sides of the carriage, the side-bars 27, having hooks 28 and extensions 29, pivoted to the side plates, a hoisting cable mounted on the cable sheaves, and a cross arm for elevating the ends 29 of the hook arms, as described.

3. The combination with an inclined cable, and a stop secured thereto, of a carriage having the side-plates 13 and 14, the trolley-wheels 15 journaled between the same and traversable on the cable, the sheaves 16—17 and 20—21 journaled between the side plates, the cable 18 passing partially around each of the sheaves 16 and 17, the arm 22 secured to the side-plate 14, the friction-sheave 23, journaled between the arm 22 and the plate 13, having a V-shaped groove in its face and the ratchet 24, the pawl 31, having the weight 32, pivoted to the arm 22, the tripping-rod 34 mounted so as to reciprocate and pivotally connected with a portion of the pawl and having the bent end 35, the hoisting-cable 25 passing under the friction-wheel 23 and over the sheaves 20 and 21, and the cross-bar 26 at the end of said cable, as described.

In witness whereof I have hereunto set my hand.

GEORGE F. JENNINGS.

Witnesses:

HENRY J. MILLER,  
M. F. BLIGH.