

J. H. HAYWARD.
BUCKET SUSPENSION DEVICE.

APPLICATION FILED JULY 11, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

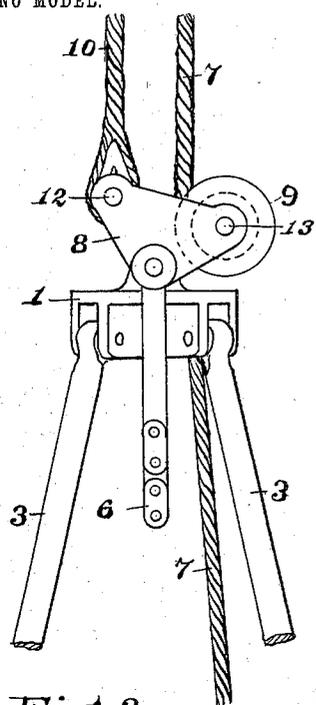


Fig. 2.

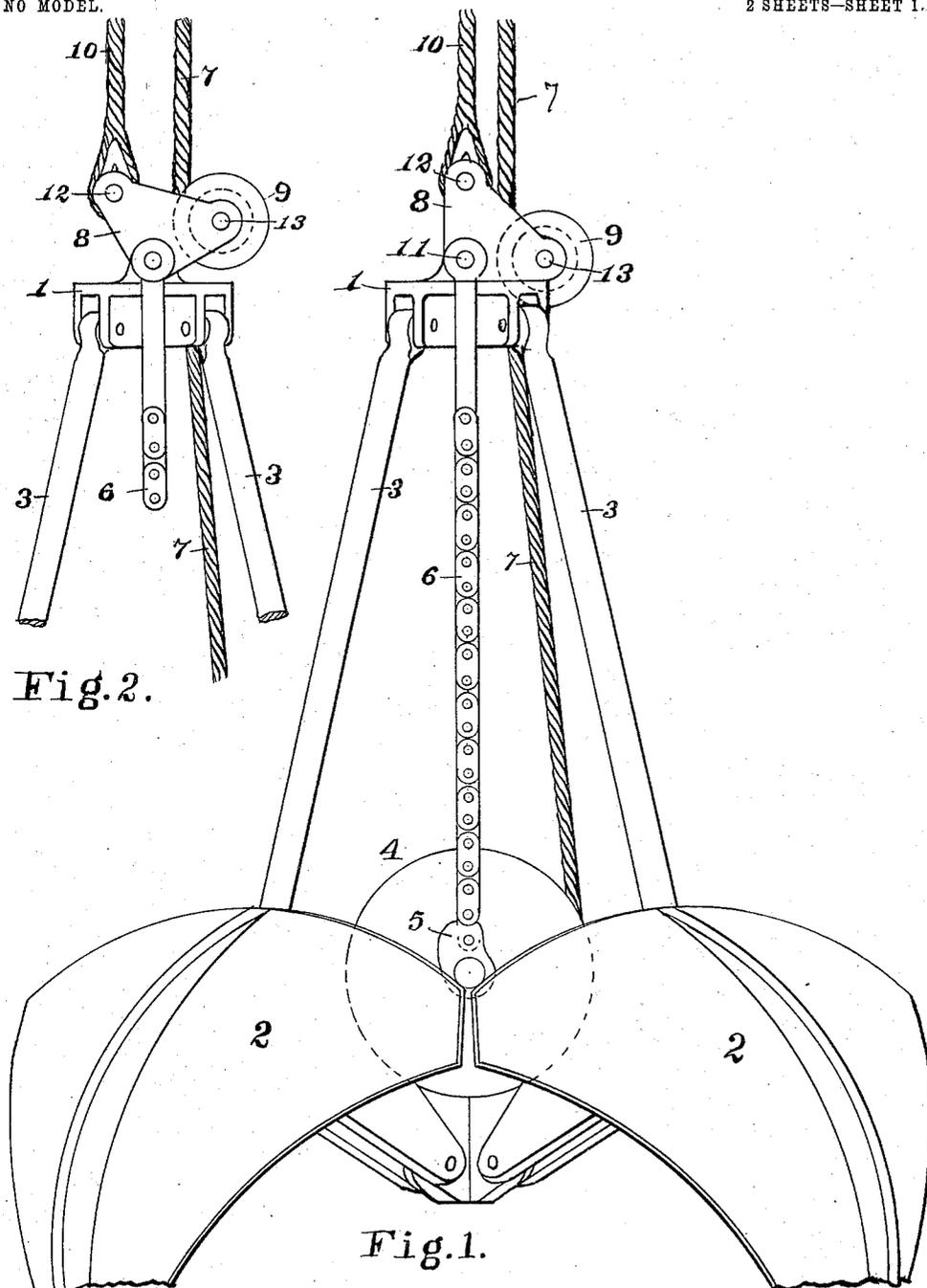


Fig. 1.

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No. 748,371.

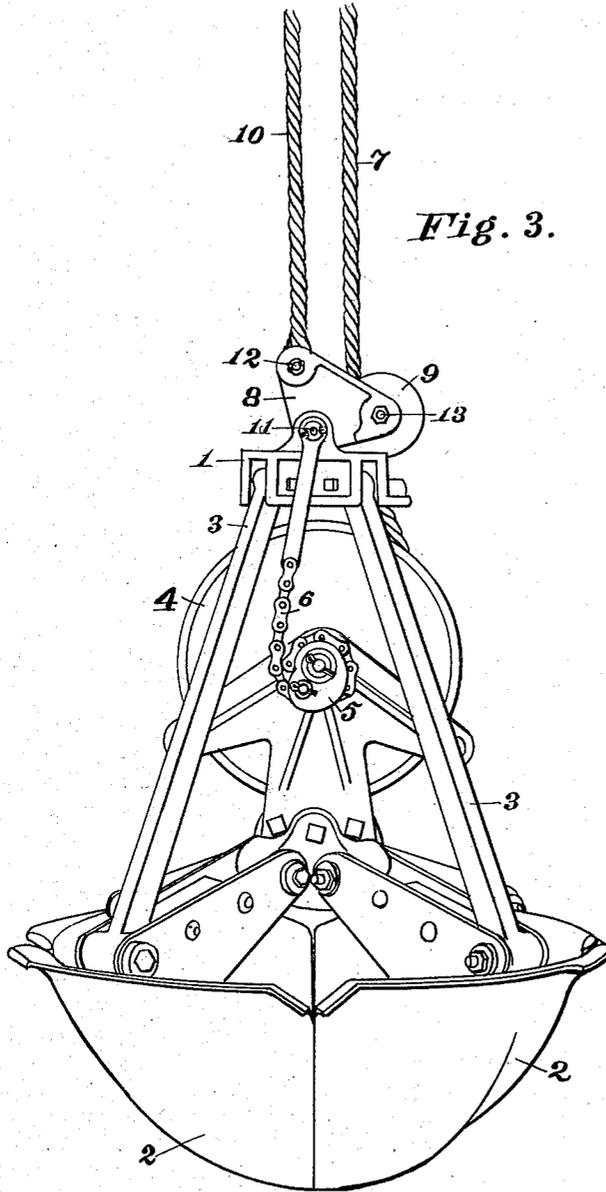
PATENTED DEC. 29. 1903.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN H. HAYWARD, OF NEW YORK, N. Y., ASSIGNOR TO THE HAYWARD COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BUCKET-SUSPENSION DEVICE.

SPECIFICATION forming part of Letters Patent No. 748,371, dated December 29, 1903.

Application filed July 11, 1903. Serial No. 165,070. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. HAYWARD, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Bucket-Suspension Devices, of which the following is a specification.

My invention relates to an improvement in the suspending mechanism of excavating-buckets of that kind which employs two ropes for their operation—one, which is called the "holding-rope," and the other, which is called the "closing-rope."

My invention particularly relates to a mechanism whereby the canting tendency due to the eccentric location of the closing-rope may be obviated.

My invention is, however, adapted for use with any device which is alternately suspended by either of two ropes, one of which is at times placed eccentrically.

The scope of my invention will be ascertained from the following description and will be definitely set forth in the claims terminating the same.

In the drawings accompanying herewith I have shown my invention as applied to an excavating-bucket of the orange-peel type.

In the drawings, Figure 1 is a side elevation of such a bucket in opened position. Fig. 2 is a side elevation of the upper end of such a bucket, showing the position when strain is brought upon the closing-rope. Fig. 3 is a side elevation of a bucket having my device attached thereto, showing the bucket in closed position.

In connection with the operation of what may be termed "two-rope" buckets—that is, buckets which employ an opening and a closing rope or their equivalents—it is usual to employ a windlass device or drum for the actual operation of closing, said windlass device or drum being operated by the closing-rope and having the periphery thereof, which receives said rope, located eccentrically of the axis of the bucket. In such cases there is a tendency to cant or trip the bucket from the perpendicular, which action is undesirable. My invention is designed to correct this tendency.

The bucket shown herewith comprises in

its main features a head 1, from which are suspended a series of links 3, to the lower ends of which are pivotally connected the buckets or blades 2, and with these a windlass device consisting of a reel or drum 4, which is adapted to receive a few turns of the closing-rope, a small cam or drum 5, and a chain or other flexible connector 6, adapted to be wound upon said drum 5 as it is rotated and secured at its upper end to the head 1. These parts are common to buckets of the class named. Their shape and manner of combination may be varied; but as these parts, except as hereinafter indicated, form no part of my invention their specific description is not thought to be necessary.

The holding-rope 10 by my invention is not directly connected with the head 1, but is connected with a pin 12, carried by a link or suspension member 8, which is pivotally secured by a pin 11 in its lower end to the head 1. This link or suspension member carries a guide for the closing-rope, located laterally from the line connecting the pins 11 and 12. The above line is supposed to coincide with the axis of the bucket. The guide for the closing-rope 7 consists, as herein shown, of a small pulley or wheel 9, mounted upon a pin 13. In this position it will be noticed that the closing-rope 7 is placed eccentrically of the axis of the bucket, and if the bucket were suspended from this alone there would be a tendency for the bucket to cant or tip to one side, such action tending to throw the lower part of the bucket to the right. As, however, the guide 9 is carried by the pivot suspension member or the link 8, it will be thrown upward at an angle, which at the same time draws the side guide nearer to the axis of the bucket. This position is indicated in Fig. 2. As this reduces the cause for the canting of the bucket—namely, the eccentric location of the closing-rope—the canting will thereby be greatly reduced. In view also of the fact that such swinging of the link throws the holding-rope 10 to the opposite side of the center of the bucket the canting tendency may thus be entirely overcome.

It is evident that my invention may be embodied in other forms than that herein shown. I do not, therefore, wish to be limited to the

particular constructions herein shown and described, but to be understood as broadly claiming the use of a pivoted suspension member which tends to correct the eccentric position of the ropes in accordance with the changes in the strains thereon.

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

- 10 1. The combination with a two-rope bucket of means operated by the strain upon the ropes to throw the rope which is under strain toward the center line of the bucket.
- 15 2. The combination with a two-rope bucket, of a guide for one of the ropes hinged to the bucket and actuated by the strain upon the said rope to draw it toward the center line of the bucket.
- 20 3. The combination with a two-rope bucket, of a guide for one of the ropes hinged to the bucket and actuated by the strain upon said rope to draw it toward the center line of the bucket and a connection for the other rope to said guide adapted to throw the guide
- 25 away from said center line.
4. A suspending mechanism for two-rope buckets, comprising a hinged member provided with means for attaching one of the ropes directly thereto and carrying a guide
- 30 for the other rope, said member being actuated by the strain on said ropes to carry the rope which is under strain toward the center line of the bucket.
5. The combination with a two-rope bucket,
- 35 comprising a head-frame, buckets supported therefrom, a windlass device for operating said bucket, and a rope for operating the windlass, of a link pivoted to the head and adapted to receive the hoist-rope connection,
- 40 and a guide carried by said link and embracing the windlass-operating rope.
6. A suspension-link for two-rope buckets

having three triangularly-disposed pivots, one adapted to be connected with the bucket, another with the holding-rope and the third carrying a guide for the closing-rope. 45

7. A suspension-link for two-rope buckets provided with means for pivotally securing thereto of the holding-rope and the bucket, and having a guide for the opening-rope later- 50 ally from said pivots.

8. A suspension device for two-rope buckets, comprising means operated by tension upon the closing-rope to throw the point of attachment of the holding-rope farther from 55 the center line of the bucket.

9. A suspension device for two-rope buckets comprising means operative by tension upon either rope to throw that rope nearer to the center line of the bucket and the other 60 rope farther from said center line.

10. A suspension device for two-rope buckets operative by tension upon the closing-rope to throw said rope toward the center line of the bucket and by tension upon the holding- 65 rope to throw the closing-rope away from the center line of the bucket.

11. A suspension device for two-rope buckets operative by tension upon the closing-rope to throw the holding-rope farther from 70 the center line of the bucket.

12. A suspension device for two-rope buckets operative by tension upon the closing-rope to throw the holding-rope farther from the center line of the bucket and by tension 75 upon the holding-rope to throw said holding-rope back toward the center line of the bucket.

In testimony whereof I have hereunto affixed my signature, this 3d day of July, 1903, in the presence of two witnesses.

JNO. H. HAYWARD.

Witnesses:

H. L. REYNOLDS,
C. J. GIESEY.