

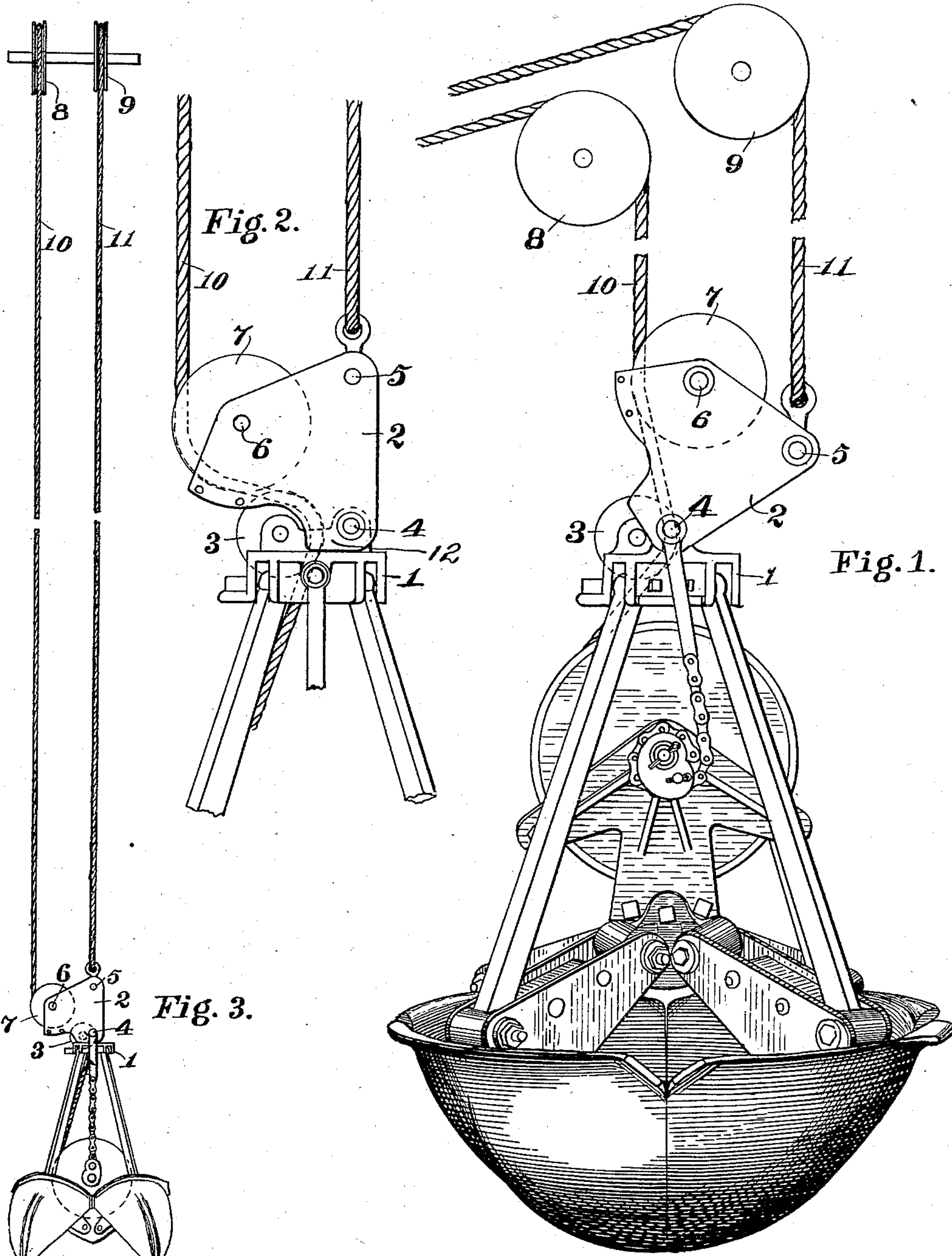
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PATENTED JAN. 19, 1904.

J. S. FOSTER.  
SUSPENSION DEVICE FOR TWO ROPE BUCKETS.

APPLICATION FILED OCT. 29, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JED S. FOSTER, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE LIDGERWOOD MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## SUSPENSION DEVICE FOR TWO-ROPE BUCKETS.

SPECIFICATION forming part of Letters Patent No. 749,784, dated January 19, 1904.

Application filed October 29, 1903. Serial No. 178,968. (No model.)

*To all whom it may concern:*

Be it known that I, JED S. FOSTER, a citizen of the United States, and resident of Westfield, Union county, New Jersey, have invented certain new and useful Improvements in Suspension Devices for Two-Rope Buckets, of which the following is a specification.

My invention relates to an improvement in devices employing two ropes for hoisting, and particularly to means for preventing such ropes from twisting together, and thus interfere with the hoisting.

My invention will be defined by the claims terminating this specification.

The drawings accompanying herewith illustrate my invention in forms which are now preferred by me.

Figure 1 is a side view of a two-rope bucket having my invention applied thereto. Fig. 2 is a side elevation of a slightly-modified form of my device, the parts being also in a different position. Fig. 3 shows a device such as shown in Fig. 1 with the parts in position corresponding to that of Fig. 2.

I have shown and will describe my invention as combined with a two-rope bucket, although it will be evident that it may be advantageously employed in hoisting any kind of a device or load where the controlling or determining conditions are analogous to those pertaining to such buckets. I have also shown a bucket of the orange-peel type, although any other type of two-rope bucket may be substituted therefor.

In the operation of two-rope buckets, and particularly when the hoist is considerable, it is found that a very slight cause is apt to start the bucket to turning, which causes the ropes to twist together, in which condition they cannot be run over the sheaves which support them, as these sheaves are separate and must needs be separate, as the two ropes have a certain amount of travel independent of each other. This twisting thus delays work and is very annoying. I have devised means by which this action may be largely prevented.

I have noticed that where the two ropes lie closely alongside of each other the objection-

able twisting is started much easier than where the two ropes are considerably separated, also when started it will keep up longer. I have therefore devised means whereby these ropes may be separated, and in addition to this I maintain a certain amount of tension upon both ropes during hoisting. While it would be objectionable to place a great amount of strain upon the holding-rope while hoisting, as this tends to open the bucket, a small strain upon this rope sufficient to attain the desired result may be employed without any danger of opening the bucket. The most convenient means for doing this is to employ a suspension member carrying a spreader-guide for one rope (the opening-rope) and means for attaching the other rope (the holding-rope) thereto, such member being pivoted to the bucket-head, preferably upon the center line of the bucket. Such a construction is shown in Figs. 1 and 3 and also in Fig. 2, except that it is not pivoted upon the center line of the bucket.

Referring to Fig. 1 I have therein shown an orange-peel bucket of usual construction, representing the closing-rope, both operating in the well-known manner. Upon the head of the bucket is journaled the usual guide-sheave 3 for the closing-rope, preferably so located as to carry the rope to the center line of the bucket.

The suspension member consists of a frame 2, within which is journaled a sheave 7, which constitutes a spreader-guide for the closing-rope. This suspension member is pivoted to the bucket-head 1 by a pin 4, preferably located on the center line of the bucket, and is also provided with an attachment for the holding-rope 11—such, for instance, as the pin 5—located at a point distant from the edge of the sheave 7, over which the closing-rope passes. The elevated supports for the two ropes, such as the sheaves 8 and 9, are preferably separated by at least an equal amount, if feasible.

If the bucket is suspended wholly upon the holding-rope 11, the suspension member swings over into the position shown in Figs. 2 and 3, with the two pins 4 and 5 in line with



the rope 11. In this position the surface 12 at the lower end of the frame member 2 contacts with the upper surface of the head 1, forming a stop to limit the swing of the frame 2 in one direction. If the weight is all on the closing-line 10, the suspension member swings in the opposite direction and may swing until the rope 10 is straight entirely down to the sheave 3. If some strain is maintained upon both ropes, the suspension member will assume an intermediate position, determined by the proportion of the strain carried by each rope. Change in position of the suspension member does not change the hang of the bucket.

In operating a bucket with my device attached thereto I maintain a certain percentage of the weight upon the holding-rope 11, but not sufficient to endanger opening the bucket. This strain, together with the separation of the two ropes, has a tendency to damp down or destroy any rotative impulse given to the bucket, and thus to prevent twisting of the ropes. When the suspension member is centrally pivoted upon the head, a central suspension for the bucket is maintained at all times. This feature is, however, not herein broadly claimed, as it is not generically my invention.

It is evident that variations from the construction herein described may be employed to secure the same result without departing from the spirit of my invention. I do not, therefore, wish it to be understood that my invention is limited to the constructions shown. On the contrary, it is intended to apply to all such constructions as fall within the terms of the accompanying claims.

What I claim is—

1. A suspension member for two - rope buckets having an attachment for one rope and a spreader-guide for the other rope to maintain the separation of said ropes.

2. A suspension member for two - rope buckets adapted for pivoted connection with the bucket and provided with a connection for one of said ropes and a spreader-guide for the other rope to maintain a considerable separation of said ropes.

3. A suspension member for two - rope buckets provided with a connection for the holding-rope and a guide-pulley between said holding-rope connection and the closing-rope.

4. The combination with a two-rope bucket having a guide for the closing-rope, of a suspension member provided with an attachment for the holding-rope and a spreader-guide for the closing-rope.

5. The combination with a two-rope bucket having a guide-sheave for the closing-rope

journaled upon the bucket-head, a suspension member pivoted upon the bucket-head and provided with an attachment for the holding-rope, and a guide-sheave for the closing-rope adapted to maintain a considerable separation of said ropes.

6. The combination with a two-rope bucket of a suspension or link member for the bucket adapted to receive the holding-rope connection, a spreader-guide for the closing-rope controlled in position by the said suspension member, and a guide for the closing-rope adapted to lead the said rope adjacent to the center line of the bucket.

7. The combination with a two-rope bucket of a suspension member pivoted to the bucket and provided with a connection for the holding-rope and a spreader-guide for the closing-rope.

8. The combination with a two-rope bucket of an indrawing or centering guide for the closing-rope, and a suspension member pivoted to the bucket and provided with an attachment for the holding-rope and a spreader-guide for the closing-rope.

9. A suspension member for two - rope buckets comprising a frame adapted for a pivotal connection with the bucket and provided with an attachment for the holding-rope and a stop limiting its swing under the influence of the holding-rope, and also having a spreader-guide for the closing-rope.

10. The combination with a two-rope bucket of a suspension member therefor adapted to spread the ropes and elevated supports for said ropes similarly separated.

11. The combination with a bucket employing a holding-rope and a closing-rope, of means for spreading said ropes as they leave the bucket, and elevated supports for said ropes likewise separated.

12. The combination with a bucket employing a holding-rope and a closing-rope, of a spreader attachment for said ropes adapted to be secured to the bucket and separated elevated supports for said ropes.

13. The combination with a bucket employing a holding-rope and a closing-rope, of a spreader attachment for said ropes adapted to be secured to said bucket and to maintain a constant central suspension thereof, and separated elevated supports for said ropes.

In testimony whereof I have hereunto affixed my signature, this 26th day of October, 1903, in the presence of two witnesses.

J. S. FOSTER.

Witnesses:

SPENCER NAILLER,  
H. L. REYNOLDS.