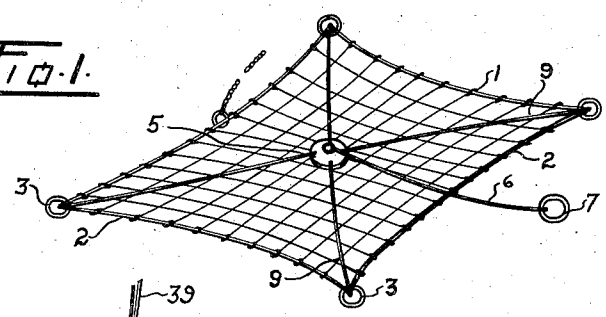
May 4, 1948. W. A. BICKELL 2,440,712

LOADING SLING

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Fig. 1.



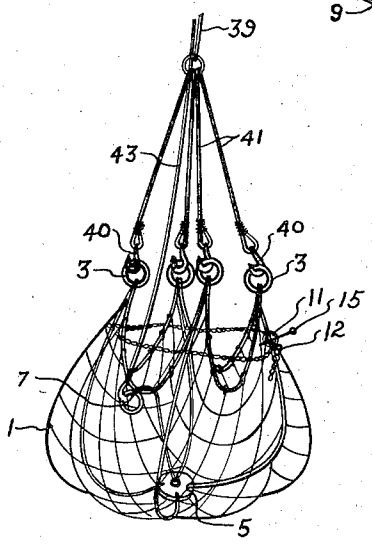


Fig. 2.

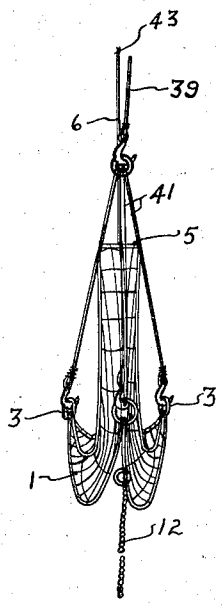


Fig. 3.

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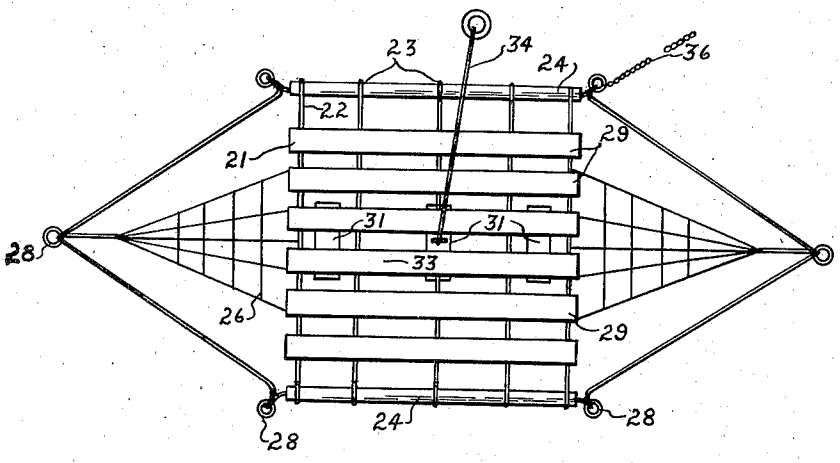


FIG. 4.

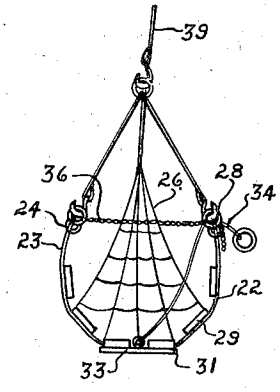


FIG. 5.

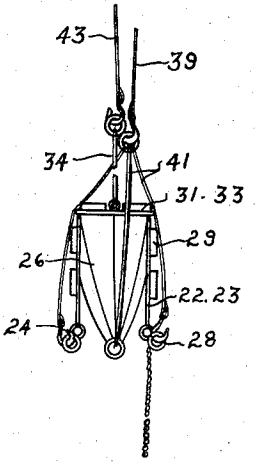


FIG. 6.

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LOADING SLING

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Application August 13, 1946, Serial No. 690,250

6 Claims. (Cl. 294—77)

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My invention relates to improvements in loading slings, which are particularly adapted for transporting rock and heavy bulk material.

The object of the invention is to provide a means and method of conveying bulk material such as rock from a loading place to a place where said rock is to be dumped, such for instance would include the loading of the rock from a wharf onto a scow by means of a derrick, or other hoisting device, for transportation to destination, and for the removal of the rock by a derrick to shore or fill from said scow.

In this work as now usually done, the rock is piled upon a scow for transportation to destination and is removed by a derrick equipped with a clam shell or orange peel bucket, the removal of the rock being slow and costly on account of difficulty in picking up the rock and the spilling of some loose rock when the bucket fails to get properly under a large piece of rock.

The invention contemplates loading the rock into slings, placing the loaded slings onto the transporting vehicle or vessel for transportation and removing the loaded slings one by one with a derrick and spilling the load from each sling by means of said derrick.

Referring to the drawings:

Fig. 1 is a perspective view of the preferred form of the invention extended ready for loading.

Fig. 2 is a perspective view of the sling in the form it would assume when loaded.

Fig. 3 is a view showing the sling after unloading.

Fig. 4 is a plan view of a timber reinforced modification.

Fig. 5 is a closed end elevational view of the modification as when loaded.

Fig. 6 is a view of the modification after unloading.

In the drawings like characters of reference indicate corresponding parts in each figure.

The rock or other load is omitted from the drawings to more clearly show the disposition of the structural elements of the invention.

The numeral 1, see Figures 1, 2 and 3, indicates a net made of wire, wire cable or chain of any suitable strength and is provided with outer or border ropes 2 which are secured at each corner of the net with a ring 3. A disk 5 is secured to the net material at its centre and is fitted with a centre line 6 having a ring 7 at its outer end. The length of the centre line is sufficient to extend around one side of the load and beyond the border rope 2. The disk is connected by lines 9

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to each of the rings 3, which prevents undue elongation of the fabric diagonally of the net.

Attached to or adjacent one of the border ropes 2 is a ring 11 having connected therewith a choker chain 12, which is adapted to encircle the loaded sling, as shown in Figure 2, with the free end of said chain being passed through the ring 11 and held in tightened position around the sling by inserting a pin 15 through a convenient link of the chain to prevent its withdrawal.

In the modification shown in Figures 4, 5 and 6, the numeral 21 indicates a sling which is formed with a wire or chain fabric 22 having transverse strands 23 which are bound at each end to longitudinal spreaders 24. These spreaders are preferably made of pipe. Connected to each end of the fabric 22 is a triangular end flap 26 consisting of similar mesh material. A border line 23 extends through or along the spreaders 24 and to the outer extremities of the end flaps 26 and is provided with lifting rings 28 at each angle of the line. The fabric 22 is provided with a plurality of spaced longitudinal slats or planks 29 which are secured to the fabric by U-bolts or other suitable fastenings, not shown. The two centre planks 29 are transversely connected together as at 31 to form a rigid platform 33 and a fabric suspension wire 34 having a ring at its outer end, is secured to the centre of said platform to maintain it in a substantially horizontal position when the sling is suspended solely from said wire 34 and no load is being carried by the sling.

Connected to or near the border line 23 of one of the rings 28 is a choker chain 36 which is adapted to be fastened around the sling 21 in the manner described for the choker 12, when the sling is carrying a load as in Figure 5.

In use, the sling 1 is laid down upon a surface adjacent a loading derrick having a hoisting cable generally indicated by the numeral 39 and hereinafter referred to as the "load line." The sling is spread out and its centre wire 6 is extended out beyond the border line 2 as shown in Figure 1. The sling is loaded with rock or other material and the rings 3 of the sling are secured to hooks 40 connected to branches 41 of the load line 39, when the line 39 is raised to cause the sling 1 to fold around the load, the choker line 12 is tightened around the sling as shown in Figure 2. The loaded sling is then raised by the load line 39 and placed in position upon a scow and the hoisting hooks 40 detached therefrom. As many loaded slings as may be convenient are loaded in side by side and in superimposed rela-

tion, each sling and its load forming a complete compact package, capable of safely riding on the scow through relatively rough seas.

When the scow reaches its destination, another derrick having a load line 39 and a sling line 43, raises the slings and unloads them in the following manner. The hooks 40 of the load line 39 are attached to the rings 3 of a sling and the sling line 43 is secured to the ring 7 of the centre line 6, when the load line 39 has taken its load, the choker 12 is slackened off by removing the pin 15 from its link. The sling and its load are raised with both lines 39 and 43 being hauled in simultaneously, the sling is then swung out to dumping position and with the sling line held stationary, the load line 39 is lowered, so that the sling turns inside out, spilling its load between the branches 41.

It will be realized that the sling 1 will then be draped over the disk 5 as shown in Figure 3, with the branches in contact with its periphery, so that by lowering the load line 39, when returning the empty sling to the deck of the scow, the disk 5 will drop between the rings 3 and the sling can be laid down with but little effort in spread out position on the scow and other slings laid upon it for return to the loading wharf.

With the modified sling 21 as shown in Figures 4, 5 and 6, the procedure is the same as previously described and differs only that the loaded sling when lifted, assumes a substantially box or skip like shape instead of a globular form. Its advantages over the sling 1 is that the planks 29 protect the fabric 22 to some extent from damage from rocks being dropped onto the sling during loading and the planks are more easily replaced than the elements of the fabric.

What I claim as my invention is:

1. A sling for handling bulk material comprising a net having suspension means spaced about its border and adapted to be supported by said means from a load line, a line connected to an inner part of said net for supporting the net when the suspension means are lowered to discharge the material from the sling.

2. A sling for handling bulk material comprising a net having suspension means spaced about its borders and adapted to be supported by said means from a load line, a plate member secured to an inner part of said net and a line extending from said plate member for supporting the net when the suspension means are lowered to discharge the load from the sling.

3. A sling for handling bulk material comprising a net having suspension means spaced about its border, and adapted to be supported by said means from a load line, a line connected to an inner part of said net for supporting the net when the suspension means are lowered to discharge the material from the sling, and a choker attached to the sling for encircling the sling adjacent the borders when said sling is loaded.

4. A sling for handling bulk material comprising a substantially rectangular fabric having suspension means spaced about its borders, said fabric having longitudinally disposed rigid members spaced apart and secured to the fabric and a line extending from an inner part of the fabric for supporting the sling when the sling is being unloaded.

5. A sling for handling bulk material comprising a substantially rectangular fabric having suspension means spaced about its borders, said fabric having longitudinally disposed rigid members spaced apart and secured to the fabric and a line extending from an inner part of the fabric for supporting the sling when the sling is being unloaded, at least two of said rigid members being cross connected together to form a rigid platform, said line being so connected to the fabric or the platform as to support said platform in a substantially horizontal position when said sling is suspended from the said line.

6. A sling for handling bulk material comprising a net of polygonal form having a suspension device at each angle of its sides for attaching the sling to a load line, a plate member mounted substantially in the centre of the net, a tensional member extending from each suspension device to the plate and a centre line extending from the plate member beyond the side edges of the net.

W. A. BICKELL.

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