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EQUALIZER LINK FOR MULTIPLE BRANCH SLINGS

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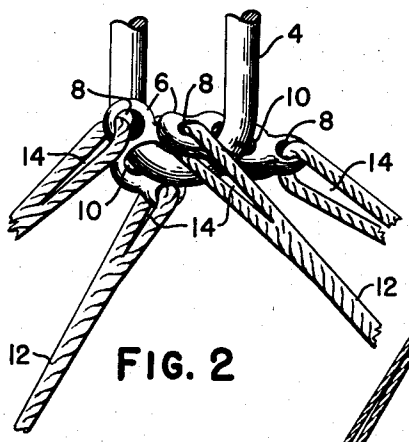


FIG. 2

FIG. 1

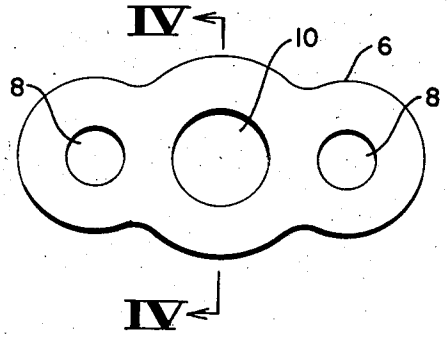


FIG. 3

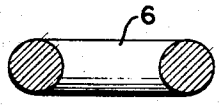


FIG. 4

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EQUALIZER LINK FOR MULTIPLE BRANCH SLINGS

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2 Claims. (Cl. 294—74)

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This invention relates to an equalizer joiner link for lift cranes and the like.

In industry a great number of loads handled by overhead traveling cranes are lifted and carried by means of slings, each branch or leg of which is equipped with a hook or similar device for attaching to the load. Up to the time of my invention, in the most commonly used form of 4-branch slings, a large center link was supported by the crane hook and carried two smaller links, generally known as master joiner links. To each of the smaller links were attached two of the sling chains or ropes which were spread out as required for attachment to the load. The use of this form of rig was a constant source of trouble for both maintenance and operating personnel, since there was nothing in the rig to compensate for variations in the length of the branches. This trouble occurred frequently since it is practically impossible to keep all four legs of a sling at exactly the same length. Even a slight difference in the length of one of the branches, or in the shape of the hooks or in the distance of the attachment points of the load from the center of gravity line resulted in half of the total load being imposed on a single branch and/or in undesirable twisting of the load.

It is an object of this invention to provide a master joiner link which adjusts itself automatically in two different planes and distributes the load evenly over all branches of the sling.

This and other objects will become apparent after referring to the following specification and attached drawings, in which:

Figure 1 is an elevational view showing a 4-branch sling provided with the equalizer link of the present invention;

Figure 2 is an enlarged detail view of the upper portion of the sling shown in Figure 1;

Figure 3 is a plan view of the equalizer link; and

Figure 4 is a cross-sectional view taken on the line IV—IV of Figure 3.

Referring more particularly to the drawings, reference numeral 2 indicates the hook of a lift crane (not shown) supporting connecting link 4, the walls of which are substantially arcuate in cross section. A pair of equalizing links 6 are carried by the connecting link 4. Each of the links 6 is provided with two end openings 8 on either side of the center opening 10. The walls of the equalizing link 6 are substantially round in cross section. The body of the link is elongated as best shown in Figure 3. The diameter of the center opening 10 is substantially

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larger than the outside diameter of the wall of the connecting link 4 so as to provide point contact between the equalizing link and the connecting link. Two legs 12 are supported by each of the links 6 to this purpose. Each of the legs 12 is provided with an eye 14 at its upper end, the rope of the eye being received in the opening 6. A hook 16 at the bottom of each of the legs 12 is attached to and supports the load L.

In use in a 4-branch sling, as shown in Figures 1 and 2, the equalizer links 6 take the place of the two master joiner links which were formerly used. By this arrangement the links 6 function not only as joiner links, but also as balance levers which distribute the load evenly. The rounded cross sectional construction of the link, as best shown in Figure 4, provides point contact so that equalization of the load results automatically, regardless of variations in lengths of the branches. By thus equalizing the strain on the branches and hooks, breakage of these parts is reduced to a minimum and consequently the hazards to personnel working in the vicinity of the crane are reduced to a minimum. Also, where twisting or distortion is likely to result in damage to the load being handled, as for example in assembly work, foundries, etc., such damages are eliminated by the use of my invention without in any way altering the existing practice or technique.

It will be noted that the use of the equalizer link of my invention is not limited to slings having any specific number of branches or to any particular arrangement of links which may be employed to form various types of slings or tension rigs. The equalizer link may be used either singly or in multiples, with common or interconnected mountings to provide for equal distribution of tension.

While one embodiment of my invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. Load-supporting apparatus comprising a load-carrying member, a center link supported by said load-carrying member, the walls of said center link being arcuate in cross section, a joiner link being elongated in shape and having three spaced apart openings in alignment therein, said center opening having a diameter substantially greater than the cross section of said center link, said joiner link being mounted on said center link by its center opening, a two branch flex-

ible load-supporting member received in each of said outside openings and carried by said joiner link, said outside openings each having a diameter substantially greater than the cross section of the load-supporting member received therein, the walls of said joiner link being arcuate in cross section, said flexible members being the only load-supporting members attached to said link.

2. Load-supporting apparatus comprising a load-carrying member, a center link supported by said load-carrying member, the walls of said center link being arcuate in cross section, a pair of joiner links carried by said center link, each of said joiner links being elongated in shape and having three spaced apart openings in alignment therein, the center opening in each joiner link receiving said center link and having a diameter substantially greater than the cross section of said center link, a single branch flexible load-supporting member received in each of said outside openings and carried by said joiner links, said outside openings each having a diameter substantially greater than the cross section of the load-supporting member received therein, the walls of said joiner links being arcuate in cross section, said flexible members being the only load-supporting members attached to said links.

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