Oct. 2, 1928.

1,686,288

C. D. MEALS

ROPE SLING

Filed Aug. 25, 1927

2 Sheets-Sheet 1

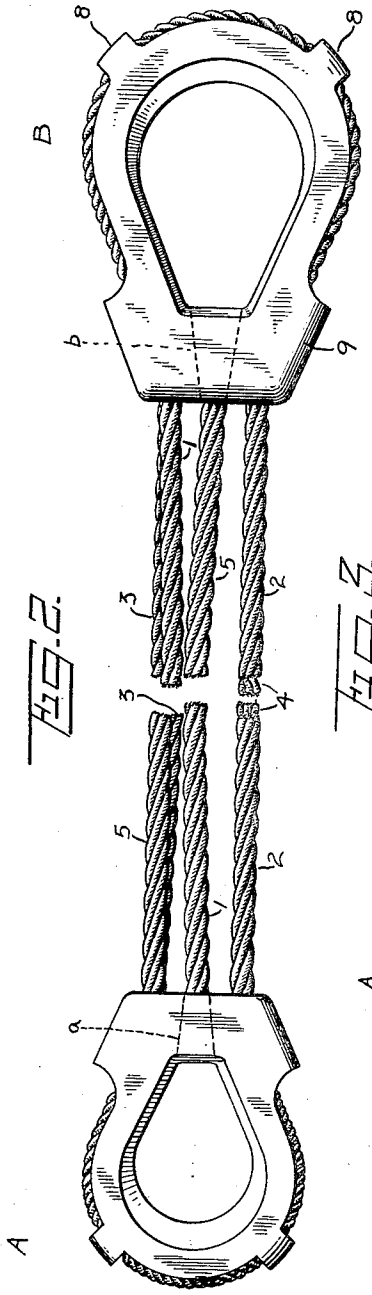


FIG. 2.

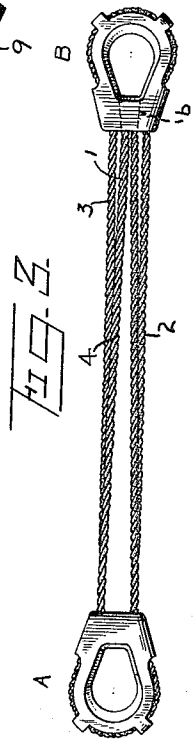


FIG. 3.

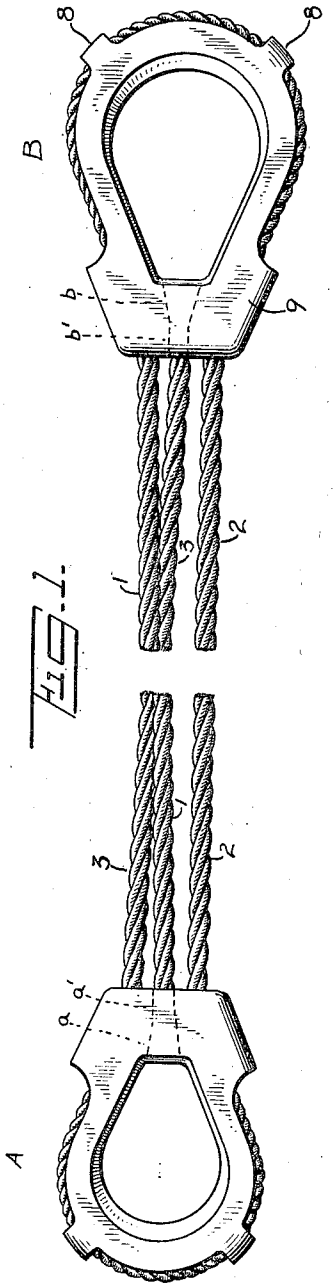


FIG. 1.

INVENTOR

Casper D. Meals.

BY

Frederick S. Duncan ATTORNEY

Oct. 2, 1928.

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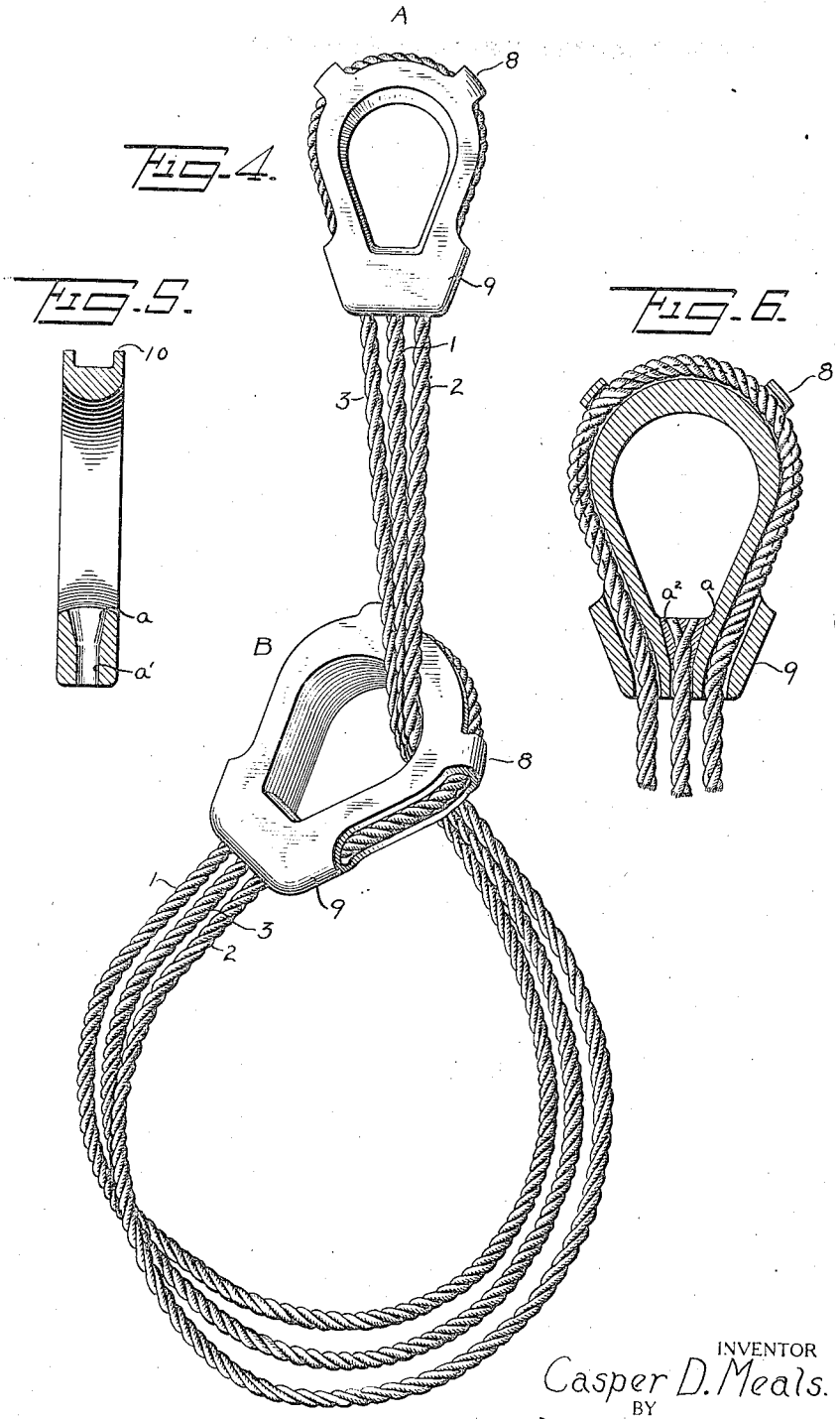


Fig. 4.

Fig. 5.

Fig. 6.

INVENTOR

Casper D. Meals.

BY

Frederick S. Dumeau, ATTORNEY

Patented Oct. 2, 1928. 1,686,288

UNITED STATES PATENT OFFICE.

CASPER D. MEALS, OF NUTLEY, NEW JERSEY, ASSIGNOR TO AMERICAN CABLE COMPANY, INC., A CORPORATION OF DELAWARE.

ROPE SLING.

Application filed August 25, 1927. Serial No. 215,389.

This invention relates to slings made of wire rope and more particularly to a type of sling intended for hoisting and handling girders, beams and other similar heavy building materials, but applicable generally for hoisting and similar purposes.

An important object of the invention is the provision of an improved form of multi-rope sling, i. e., a sling comprising three or more wire ropes, strands or flexible tension members extended side by side and connected at the ends of the sling to thimbles, the improvement consisting in passing a single extended flexible member around the thimbles several times to form one or more closed loops around each thimble with the respective parts of the rope between the thimbles constituting the several tension members of the multi-rope sling, and securing the ends of the wire rope to the thimbles, one end to each thimble, so that when the sling is placed under tension by drawing the thimbles away from each other, the tension upon the stretches of wire rope between the thimbles is equalized by the shifting of the portions of the loops secured around the thimbles, on which the rope is free to slide in the direction of its length.

The purpose of providing several stretches of wire rope, instead of using a single cable of equivalent strength, is to permit greater flexibility in the sling, so that it may be more readily bent around a beam, pole, or other structural part to which attachment is to be effected, but in making such multi-rope slings, heretofore, it has been the usual practice to secure the ends of each stretch of rope to the thimbles at each end of the sling so that there is no provision for equalization by running of loops freely around the thimbles, and such slings have therefore been relatively stiff, and it has been difficult, if not impossible, to provide for an equal tension upon each stretch of the wire rope. It has also been the practice to form a multi-rope sling comprising a plurality of endless grommets, arranged side by side, but unless the endless grommets are of exactly the proper size relatively to each other, the tension on individual stretches of the grommets is not equal, bringing more strain upon one than upon another. Such slings also require greater skill and expense in construction, and are more difficult to repair than a multi-rope sling, formed of an extended single wire rope in pursuance of the present invention.

A clear conception of the now preferred construction and further objects of the invention may be had from the following specification in conjunction with the accompanying drawings in which:

Fig. 1 discloses in plan view a sling embodying the invention.

Fig. 2 discloses in plan view a further form of sling.

Fig. 3 discloses in plan view a modified form of sling.

Fig. 4 is a perspective view of the cable when in use.

Fig. 5 is an end cross-section of a thimble.

Fig. 6 is a front cross-section of a thimble.

The now preferred form of the invention comprises two equalizing thimbles, such as those illustrated at A and B with an extended single flexible member 1, formed of a suitable length of wire rope, for example, one end of which is secured to thimble A, as by a socket connection of well-known form, designated by the reference character *a*. From this connection the wire rope runs to the thimble B, passing around the outer end thereof, and thence runs in a stretch 2 extending to and around the outer end of thimble A, from which the free end of the wire rope is extended in a stretch 3 to thimble B and is secured thereto by a socket or other suitable connection *b*, preferably similar to the connection *a*.

The thimbles A and B may be of any form suitable to hold the loops of the wire rope in assembled relation while permitting the rope to slide freely thereon to the extent necessary to equalize the tension on any number of stretches when the thimbles A and B are drawn apart, either in a straight line, as in Figs. 1, 2 and 3, or when formed into a loop, by passing one of the thimbles through the other, as illustrated in Fig. 4, and then drawing upon the free thimble A.

Provision may be made for any desired number of stretches of wire rope by using a rope of suitable length to form additional loops around thimbles A and B, of appropriate size, and in Figs. 1, 2 and 5 is shown a multi-rope sling having stretches of rope numbered 1, 2, 3, 4, and 5, formed of a single rope, one end of stretch 1 being secured to thimble A by a socket connection *a* like that

already described, and the free end of stretch 3 or 5 being similarly connected to thimble B by a socket *b*.

In Fig. 3 is shown a sling formed of loops passing about the thimbles A and B but having the ends of stretches 1 and 4 secured to thimble B by a socket connection *b* similar to that described above.

The form of thimble selected for illustration is identical throughout the embodiments shown, and a description of that shown in detailed section in Figs. 5 and 6 will suffice to permit a clear understanding of the cooperation of each thimble with the wire rope.

The thimbles are respectively of oval shape, each preferably formed as an integral casting at one end of which is a socket *a* to which the corresponding end 1 of the wire rope is led through an aperture a^1 and secured suitably as by a zinc filling a^2. The periphery of each thimble is generally channel-shaped in cross-section, and of a width suitable to receive the desired number of loop portions of wire rope, as shown in Fig. 5. The walls of 10 being of a height equal to, or more than, the radius of the rope used thereby preventing the loops of rope from slipping off while in use.

For the purpose of holding the loops in place, the rims of the channels are bridged, at suitable points, as indicated at 8 throughout the drawings, and preferably more extended outer walls are provided as shown at 9, to confine the loops at the regions where they merge into the stretches of the sling. This serves to bring the stretches into assembled relation.

It will be apparent from the foregoing description that wire slings constructed in pursuance of the invention provide for equalization of tension through their structure, with a minimum number of essential parts, inasmuch as the use of a single, extended flexible member lends itself readily to assembly with thimbles of integral structure, and accordingly the cost of construction is relatively low as compared with that of multiple slings requiring two-part thimbles, and there are fewer parts to work loose or require repair.

It is to be understood, however, that suitable modifications may be made in the structure of the thimbles as well as in the type of flexible members used, and in the number of stretches provided, to meet desirable requirements in use, without departing from the spirit of the invention.

I claim—

1. A sling of the type described, said sling comprising a pair of thimbles and a single flexible member, each end of which is secured to a thimble, the intermediate portion of said member being carried around each of said thimbles thereby forming a plurality of stretches of said flexible member extending between said thimbles whereby when tension is placed upon said sling it is equalized among said stretches.

2. A sling of the type described, said sling comprising a pair of thimbles and a single flexible member, each end of which is secured to a thimble, the intermediate portion of said member being carried around each of said thimbles a plurality of times, thereby forming a plurality of stretches of said flexible member extending between said thimbles whereby when tension is placed upon said sling it is equalized among said stretches.

3. A sling of the type described, said sling comprising a pair of thimbles and a flexible wire rope, one end of which is secured to one of said thimbles and the other end thereof is secured to the other of said thimbles, the intermediate portion of said wire rope being formed into loops running freely around said thimbles respectively and forming a plurality of stretches of flexible wire rope extending between the thimbles, whereby when tension is placed upon said sling it is equalized among said stretches.

4. A sling of the type described comprising a pair of thimbles, each of said thimbles having a socket formed therein, a single flexible wire rope, one end of said rope being secured in said socket in one of said thimbles, said rope being formed into loops running freely around said thimbles and having its other end secured in said socket in the other thimble, thereby forming a plurality of stretches of rope between the thimbles, whereby when tension is placed upon said sling it is equalized among said stretches.

5. A sling of the type described comprising a pair of thimbles, a single flexible wire rope, one end of said rope being secured to one of said thimbles, said rope being formed into loops running freely around said thimbles and having its other end secured to the other thimble, thereby forming a plurality of stretches of rope between the thimbles, each of said thimbles having a peripheral groove to receive said loops.

6. A sling of the type described comprising a pair of thimbles, a single flexible wire rope, one end of said rope being secured to one of said thimbles, said rope being formed into a plurality of loops, each running freely around both of said thimbles, and the other end of said rope being secured to the other thimble, thereby forming at least five stretches of rope between the thimbles, each of said thimbles having a single peripheral groove formed therein to receive said loops.

In testimony whereof, I have signed this specification.

CASPER D. MEALS.