

Dec. 26, 1939.

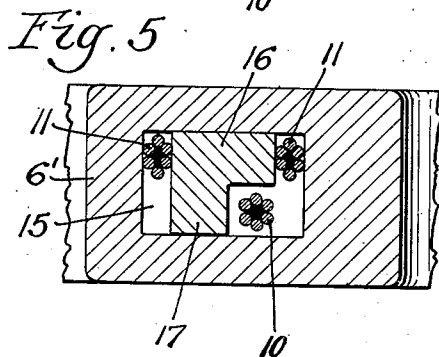
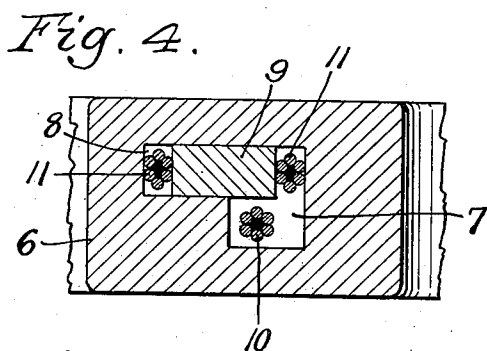
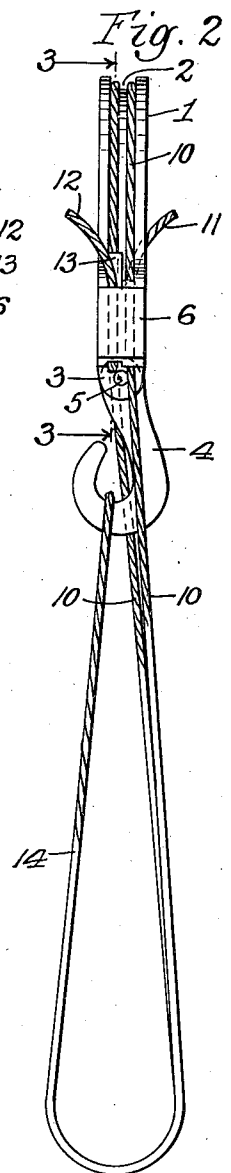
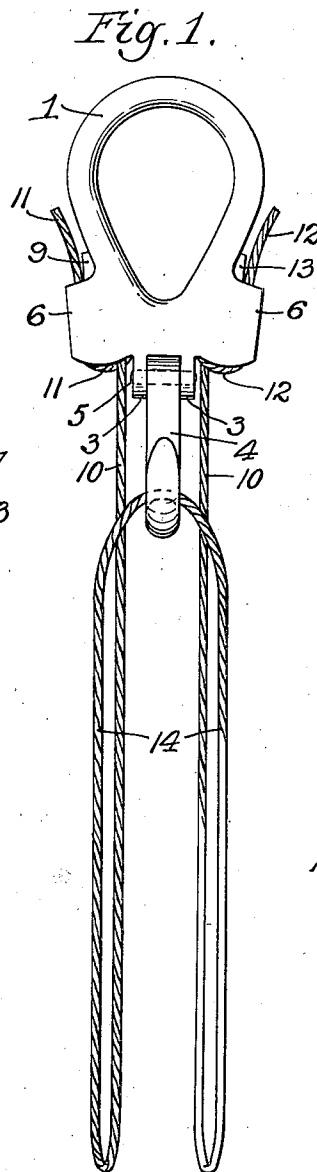
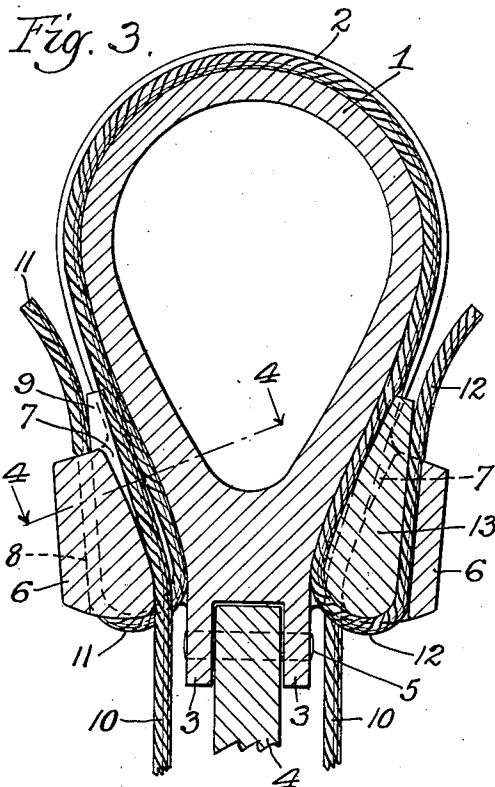
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2,184,466

THIMBLE

Filed Dec. 3, 1937

3 Sheets-Sheet 1



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Fig. 6.

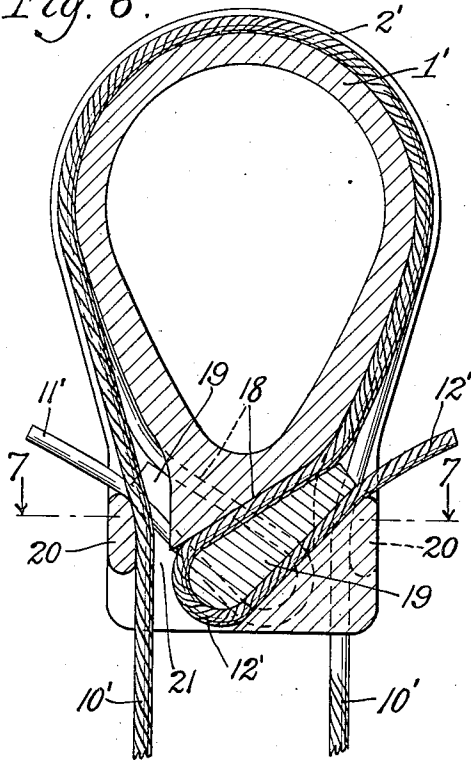


Fig. 8.

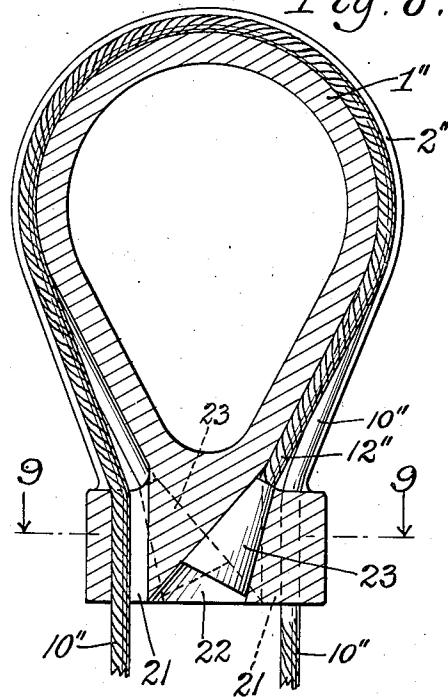


Fig. 7.

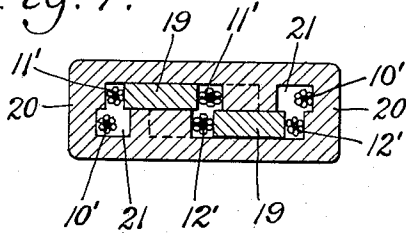
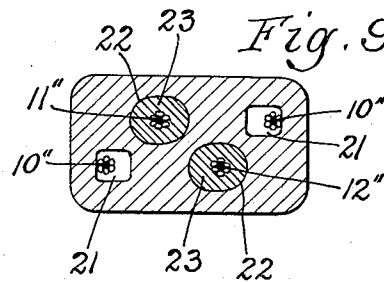


Fig. 9.



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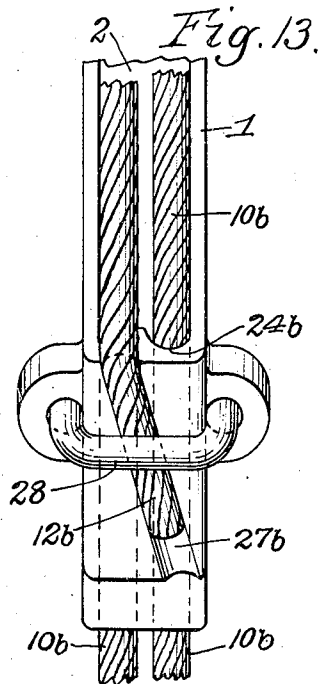
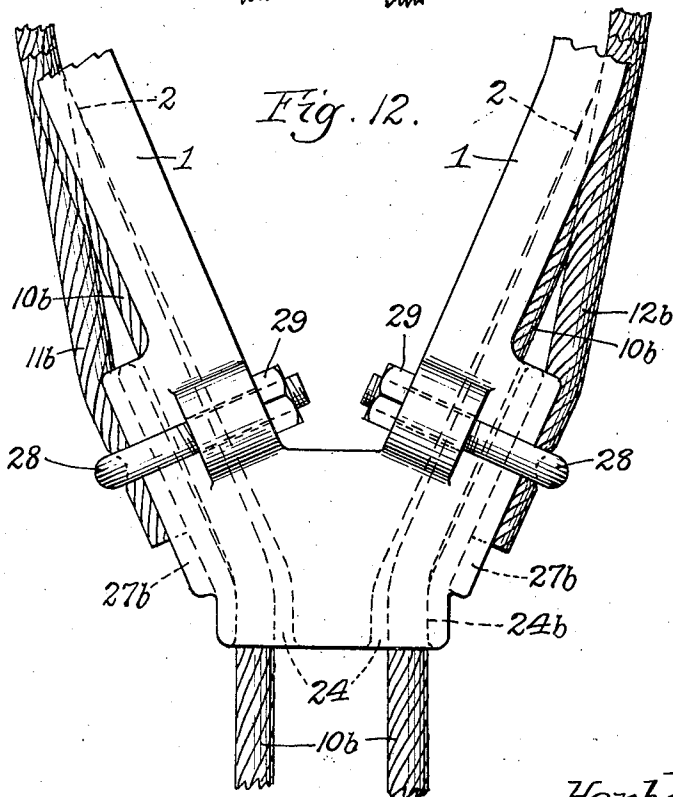
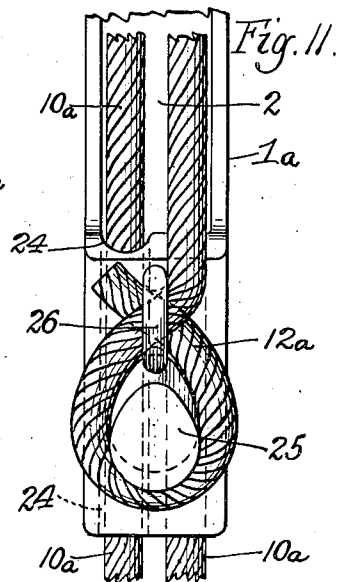
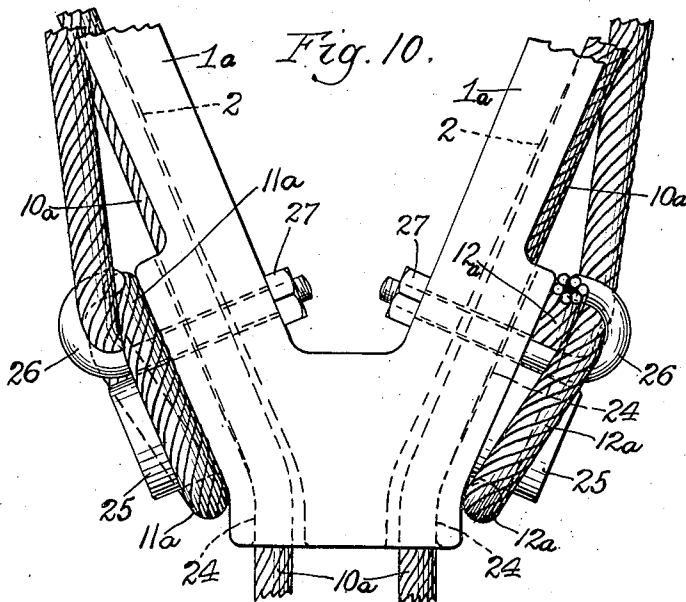
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,184,466

THIMBLE

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Application December 3, 1937, Serial No. 177,952

6 Claims. (Cl. 294—74)

This invention relates to a rope fitting of the type generally called a "thimble". In the particular forms shown, the thimble forms a part of the sling which is made of wire rope or cable, the rope being attached to the thimble.

It has for one object to provide a thimble embodying ready and simple means for attachment of rope.

Another object is to provide a thimble in which the rope ends which are secured to the thimble pass about the thimble and are secured to it so that in a sense they run free over the thimble.

Another object is to provide a thimble in which the ropes are in tension and the thimble itself is wholly or largely in compression, and thus a lighter and less cumbersome thimble may be used than would be necessary with the thimble as a whole in tension.

Other objects will appear from time to time in the course of the specification and claims.

The invention is illustrated more or less diagrammatically in the drawings, wherein:

Figure 1 is a front elevation of one form of thimble with rope attached to complete a sling;

Figure 2 is a side elevation of the thimble and sling of Figure 1;

Figure 3 is a longitudinal cross section on an enlarged scale with parts omitted, taken at line 3—3 of Figure 2;

Figure 4 is a transverse sectional detail on a further enlarged scale taken at line 4—4 of Figure 3;

Figure 5 is a sectional detail generally similar to Figure 4 illustrating a modified form of wedge;

Figure 6 is a longitudinal section generally similar to Figure 3 but showing a modified form of rope attaching means;

Figure 7 is a transverse sectional detail taken at line 7—7 of Figure 6;

Figure 8 is a longitudinal section generally similar to Figure 6 but showing a further modification of the rope end attaching means;

Figure 9 is a transverse sectional detail taken at line 9—9 of Figure 8;

Figure 10 is a side elevation of the rope attaching means of a further modified form;

Figure 11 is a side elevation of the form of Figure 10;

Figure 12 is a view generally similar to Figure 10 and showing a further modified form of rope attaching means; and

Figure 13 is a side elevation of Figure 12.

Like parts are designated by like symbols throughout the specification and drawings.

As shown in Figures 1 to 4 inclusive, 1 is a

thimble which is provided in its exterior with a groove 2 of such size as to receive the ropes with which the thimble is to be used. The thimble 1 is provided with a pair of ears 3, 3 between which a hook 4 is mounted upon a trunnion pin 5. The hook might be omitted without departing from the spirit of the invention and is illustrated merely to indicate that a hook may be used with the thimble. The hook might be swingable as shown, or fixed, and might be positioned anywhere on the thimble, if desired, or might be totally omitted from it.

The thimble is enlarged as at 6, 6 to provide a space through which the ropes pass and within which they are secured. In the forms shown in Figures 1, 2, 3 and 4, each enlargement 6 is provided with an irregularly shaped hollow portion or cavity 7 which is formed with a section of reduced width 8. The size of the wider portion 7 is such that a rope may lie freely within it. Within the portion 8 is positioned a wedge 9, which, as shown particularly in Figure 3, may be tapered.

A rope 10 is passed through the portion 7 about the thimble, it is positioned within the groove 2, and its end 11 is looped about the wedge 9 and the wedge is drawn tightly into the portion 8 and the rope is thus wedged in place as shown in Figures 3 and 4. Similarly, the other end 12 of the rope is passed about a second wedge 13 and is held in place. Thus each end of the rope passes once about the thimble and is held in place by a wedge which crowds it against the walls of the cavity in one of the enlargements 6. The tight 14 of the rope 10 may be looped over the hook 4 where one is used.

In the modification shown in Figure 5, the thimble enlargements 6' are provided with a cavity 15 of uniform, and in the form shown herewith, generally rectangular cross section, and instead of the relatively flat wedges 9 and 13, a wedge 16 is used which has a reduced portion 17. This wedge leaves the rope section 10 free but crowds or grips the end portion 11 or 12 just as the wedges 9 and 13 do.

In the modified form of Figure 6, the eye 1' has a groove 2' but does not have a hook. It is provided with two apertured cavities 18 within each of which an end 11' or 12' of the rope is positioned and wrapped about a wedge 19. A keeper member 20 may also be formed as a part of the thimble to hold the rope 10' in the position shown. Clearance spaces 21 are provided so that the rope sections 10' are not gripped and run free, but the rope sections 11' and 12' are gripped by their respective wedges 19 as shown.

In the modification of Figure 8, the thimble 1' has a groove 2'. It is provided adjacent its bottom or lower end with two perforations 21, 21, of such size that the rope section 10' may pass freely through it without being caught or cramped, and it is provided also with a pair of tapered cavities or pockets 22, within each of which a thimble 23, preferably correspondingly shaped, is positioned. Thus the rope ends 11' and 12' have formed upon them the buttons or enlargements 23 and these fit tightly into their respective pockets 22 and hold the rope ends in place.

In the modified form of Figure 10, the thimble 1a is provided with a groove as in the case of the other forms, and is provided on each side with a perforation 24 of sufficient size to allow the rope section 10a to pass through it without being caught or cramped. Adjacent its lower end, the thimble is provided on each side with a projection 25 about which the rope ends 11a and 12a may be wrapped, the rope end being arranged so that it passes over itself and is gripped as shown by a J-bolt 26, which is secured by a nut 27. The projection 25 may be omitted or used if desired. It is convenient to use it on relatively large sizes of rope or cable and it is not necessary on smaller sizes. On smaller sizes, the rope ends are merely twisted about the shank of the J-bolt 26. On larger sizes where it is difficult to secure such tightness, the projection 25 is an added convenience.

In the forms shown in Figures 12 and 13, the thimble is generally the same as that shown in Figures 10 and 11, as in that form the thimble is provided with perforations or passages 24b through which the rope section 10b may pass, and the rope ends 11b and 12b are received in grooves or depressions 27b which may be formed in the exterior of the thimble and are held in place therein by U-bolts 28 which are secured by nuts 29. The grooves 27 may be angularly disposed with respect to the groove 2 as shown in Figure 13, or they may be otherwise arranged.

We claim:

1. In combination in a rope thimble, a member defining an eye and having a grooved exterior, and a rope having a pair of rope ends, each being passed once about said eye and having its free end secured to said eye defining member and a pivoted hook pivoted on and depending from said eye defining member, said rope being free at all points away from said thimble and adapted to engage said hook.

2. In combination in a rope thimble, a member defining an eye and having a grooved exterior, and a rope having a pair of rope ends, each being passed once about said eye and having its free end secured to said eye defining member, and being elsewhere in contact with but free to move with respect to said eye and a pivoted hook pivoted on and depending from said eye defining member, positioned between said rope ends.

3. In combination a sling and thimble, said thimble comprising a member forming an eye, there being a plurality of sockets formed in said eye forming member, said sling having two ends, each end being passed once about said eye forming member, once through one of said sockets and into the other of said sockets, and a wedge located within each of said sockets and in contact with one of said sling ends, whereby the sling end is secured in one of said sockets.

4. In combination a sling and thimble, said thimble comprising a member forming an eye, there being a plurality of symmetrically arranged sockets formed in said eye forming member, said sling having two ends, each end being passed once about said eye forming member, once through one of said sockets and into the other of said sockets and being rebent into said socket, and a wedge located within each of said sockets and within the bend of said sling end and in contact with one of said sling ends, whereby the sling end is secured in said socket.

5. In combination in a sling, an exteriorly grooved eye-forming member, a rope sling associated therewith, said rope sling having two ends, a pair of sockets formed one on each side of said eye-forming member, both rope ends extending into each socket, one rope end being positioned freely therein for movement there-through, the other being reversed upon itself, one reversed portion lying partially within each said socket, and means for securing each reversed portion within the socket in which it lies.

6. In combination in a sling, an eye-forming rope thimble having an exterior groove and a pair of sockets positioned one on each side of said eye-forming member, each socket providing a clearance, a rope end positioned within said clearance for free movement therethrough, a second rope end extending into said socket and being bent upon itself within said socket, and means for securing it in position in said socket.

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