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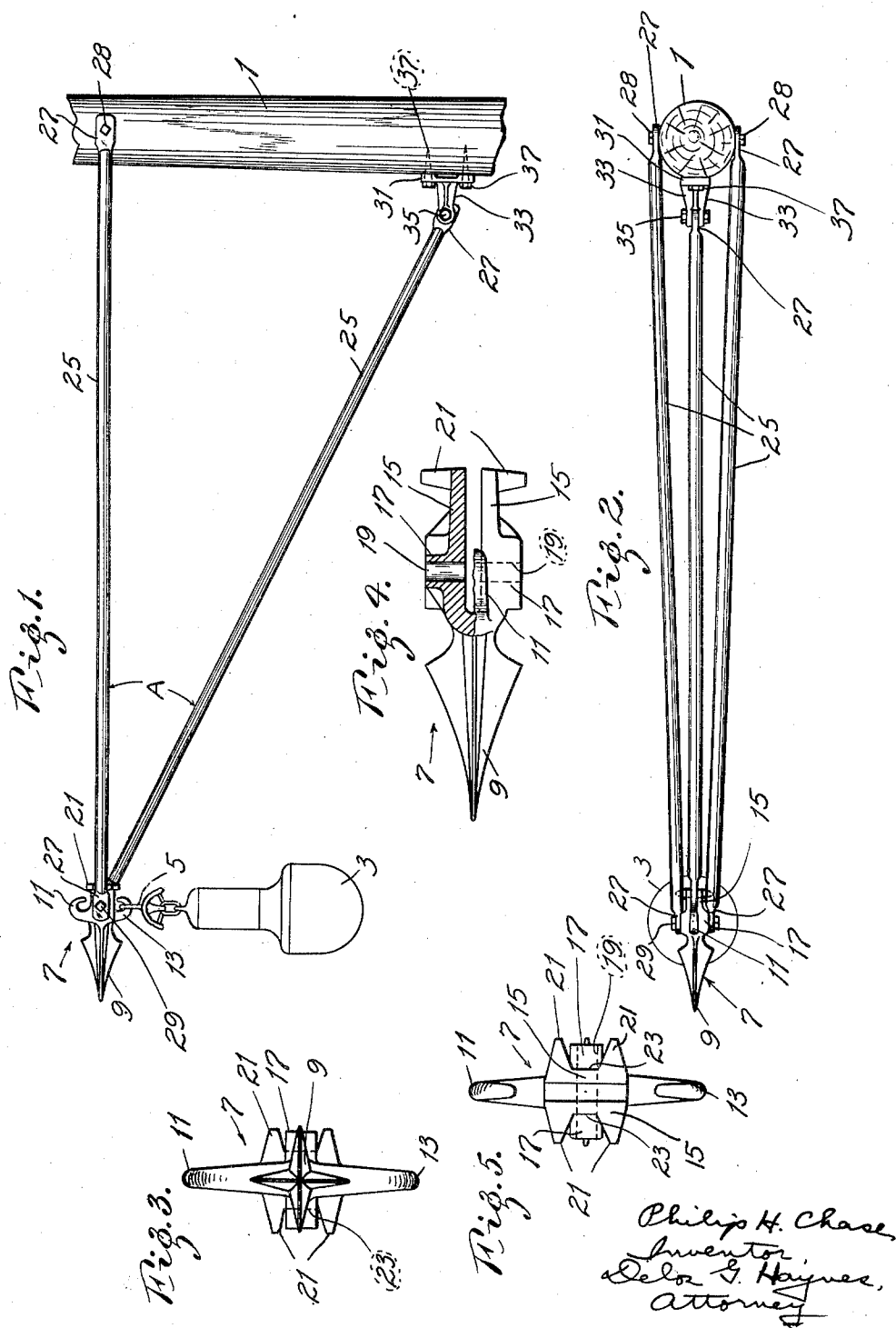
P. H. CHASE

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MAST ARM

Filed Aug. 14, 1925

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April 8, 1930.

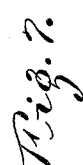
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MAST ARM

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5 Sheets-Sheet 2



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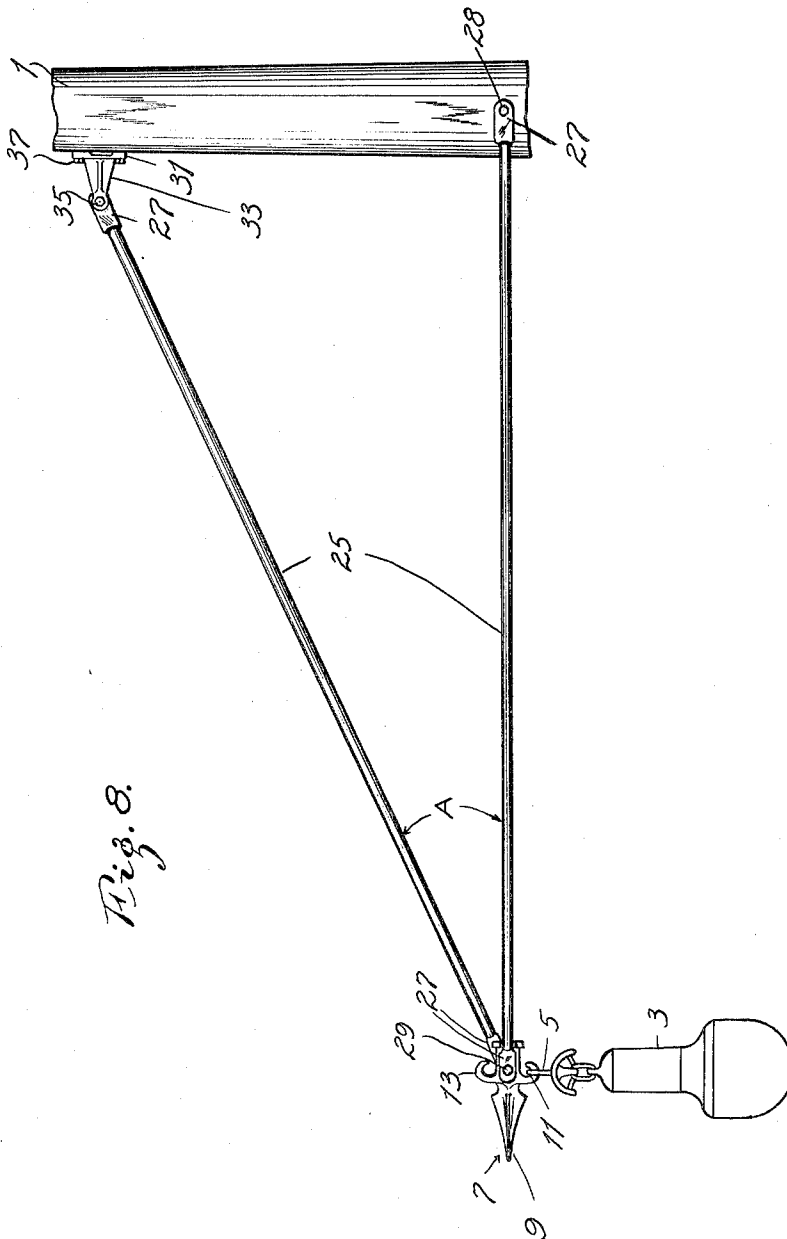
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MAST ARM

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5 Sheets-Sheet 3



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MAST ARM

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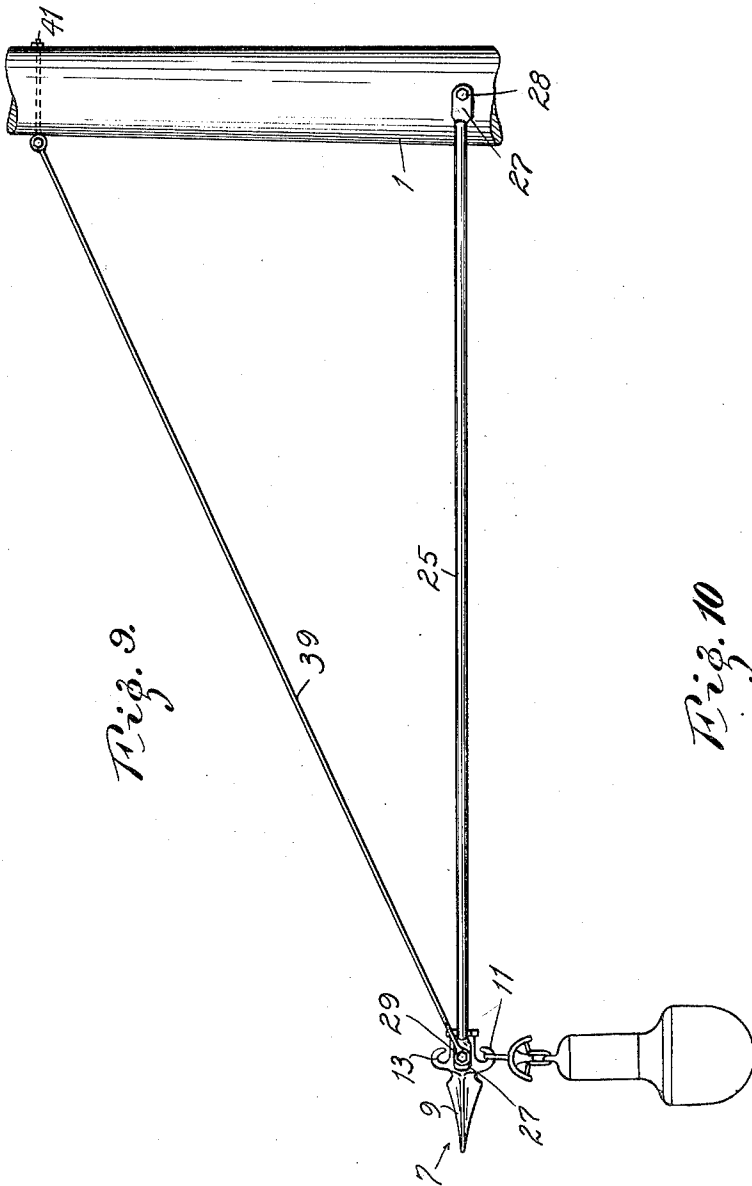


Fig. 9.

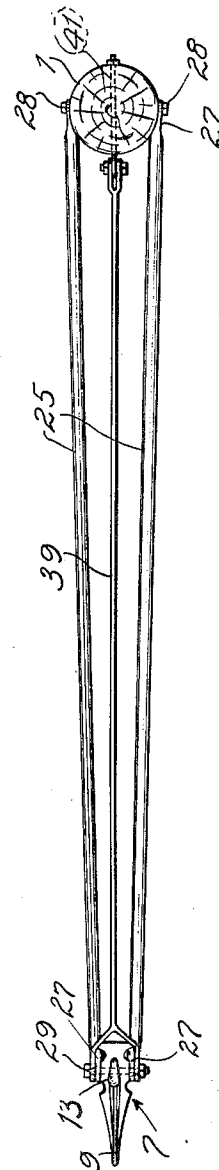


Fig. 10

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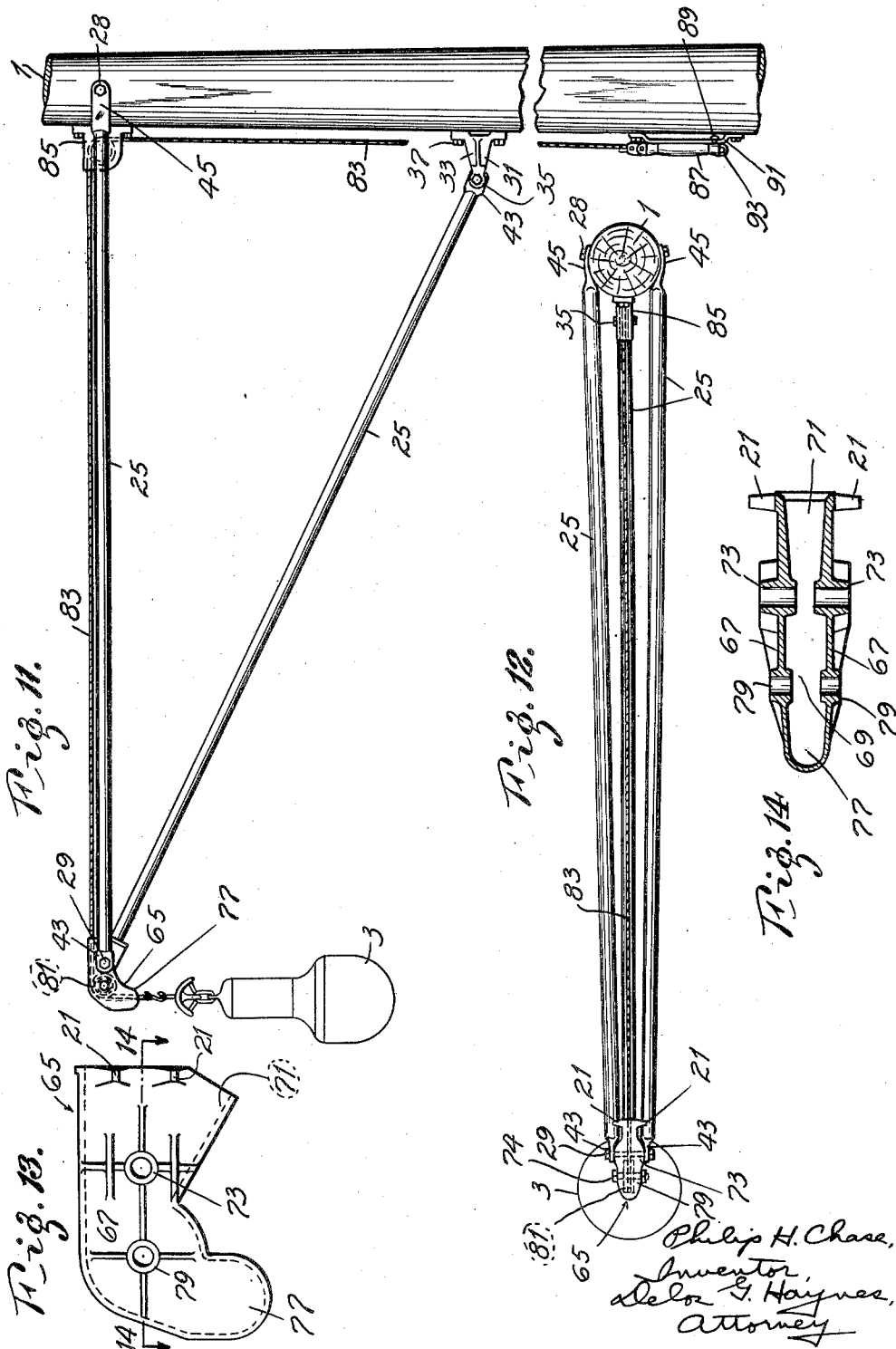
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MAST ARM

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UNITED STATES PATENT OFFICE

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MAST ARM

Application filed August 14, 1925. Serial No. 50,247.

This invention relates to supports for street lamps and with regard to certain more specific features, to mast arms for hanging lamps from the sides of poles.

Among the several objects of the invention may be noted the provision of a mast arm adapted to be braced against collapse by either a compressive or tensile action of one of its members, the action depending upon the user's choice as dictated by factors outside of a manufacturer's control; the provision of a device of the type described which shall accomplish the purposes described and be ornamental; the provision of such a device with an attachment for lowering lamps; and the provision of a device of the type described which shall be adapted to economical manufacture and have a low final cost to the user yet have perfect interchangeability of parts between different forms thereof. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the features of construction, combinations of elements, and arrangements of parts which are exemplified in the circuit and structure hereinafter described and the application of which will be indicated in the following claims.

In the accompanying drawings in which are shown several of various possible embodiments of the invention,

Fig. 1 is a side elevation of a non-lowering form of the device showing the compressive use of one member;

Fig. 2 is a top plan view of Fig. 1;

Fig. 3 is a front end view of the ornamental end casting of Fig. 1;

Fig. 4 is a plan view of the casting of Fig. 3 showing parts broken away;

Fig. 5 is a rear elevation of the casting of Fig. 3;

Fig. 6 is a side elevation of a non-lowering form of the device showing alternate forms for applications of the braces;

Fig. 7 is a plan view of Fig. 6;

Fig. 8 is a side elevation of the form of the device shown in Fig. 1 showing the device reversed and showing the tensile use of one member thereof;

Fig. 9 is a view similar to Fig. 8 showing the substitution of a light tensile strut for the heavy strut of Fig. 8;

Fig. 10 is a plan of Fig. 9;

Fig. 11 is a side elevation of a lowering form of the device;

Fig. 12 is a plan view of Fig. 11;

Fig. 13 is a side elevation of the nose casting of Fig. 11; and

Fig. 14 is a horizontal section taken on line 14—14 of Fig. 13.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now more particularly to Fig. 1, there is illustrated a pole 1 to which a light 3 is to be hung or braced. The light may be of any type and is provided with a fastening link 5.

To hang the lamp 3, this invention provides the reversible ornamental end casting 7 comprising a forwardly formed spear shape 9. The shape 9 may comprise as many flanges as suit a particular user's fancy.

Four flanges are shown herein as this number gives a spear-like projection when viewed from the side or below. The said flanges neck down toward their rear ends and at this point on the casting 7 are integrally formed two vertically arranged hooks 11 and 13 for holding the link 5 of the lamp 3. In Fig. 1 the hook 13 is shown downwardly and holding the link 5. The hooks serve the useful purpose stated and have the appearance of the usual barbs which belong to a spear or pike head.

Rearwardly of the hooks 11 and 13 are formed two vertical flat extensions 15 (Figs. 4 and 5). These extensions 15 have space therebetween and each is provided with a sidewardly extending boss 17 bored in line with the bolt hole 19, which hole traverses said space between the extensions.

At their rear edges the extensions 15 are provided with pairs of sidewardly extending lugs 21, arranged, when viewed from the front or rear, in staggered relationship with regard to said bosses. Notches 23 remain between the lugs 21. These notches align with the bosses 17.

To suspend the ornamental casting 7, there are provided three braces or struts 25, preferably of a malleable, tubular construction. Each strut has been flattened at its two ends, preferably by a forging process. All the struts are of substantially equal length and have like flat ends 27. The flats 27 are each provided with holes equal in diameter to said hole 19.

One end of each strut is bolted to the casting 7. A pair of the struts have their flats 27 laid against the bosses 17 whereby their round portions near said flats pass through the notches 23 between lugs 21. A bolt 29 is passed through the holes in the struts and the hole 19 of the casting 7 after a flat of the third strut has been passed in between the portions 15 to align its hole with hole 19. Hence by applying a nut to said bolt 29 the three struts and the casting 7 are tied together. The middle strut may rotate with respect to casting 7 but said casting can not rotate with respect to the side struts because of the lugs 21.

The side struts are adapted to be held horizontal and are bolted to the sides of the pole 1 by lag screws 28. To hold said struts horizontal the central strut (of equal length) is to be used (in this form) as a lower compression member. Hence it is swung downwardly and through a suitable angle A such that ample bracing effect is obtained. This, of course, brings the lower end of the brace or strut well away from the pole 1. In order to fasten this lower end to the pole there is provided a clevis block 31. This block has extending legs 33 bored to receive the bored lower flat 27 of the central strut 25 between them. A bolt 35 clamps the strut into the clevis 31 and lag screws 37 hold the clevis to the pole to permit obtaining a large angle A. Hence there is provided a rugged and simple yet beautiful mast arm for the lamp.

Fig. 8 shows the same parts illustrated in Fig. 1 except that the mast arm has been inverted whereby the clevis block 31 appears above the screws 28 and the hook 11 below hook 13. Of course when inverting the device it may be done by merely switching the position of the lower or central strut and the clevis without disturbing the Fig. 1 position of the casting 7.

The changeableness of position of the central strut from below to above and vice versa is of advantage where wires, tree branches and the like interfere with a given position of said strut. Also different lighting companies sometimes prefer different modes of bracing, tensile or compressive and vice versa, depending on local conditions such as weights of lights, individual preferences, and the like. This invention permits one set of parts to suit varied requirements.

Fig. 9 shows a modification of Fig. 8 where in the heavy central brace 25 is replaced by

a tension rod 39, forked at its lower end to embrace the casting 7 and the braces 25 (or others to be described) on the said bolt 29. At its upper end it is forked to embrace and be bolted to an eyebolt 41 passing through the pole 1. The rod 39 is not equal in length to the braces 25. It is merely a cheaper device for bracing where it is known that at no time will it be required to change the type of brace. The rod 39 is light in so far as it is never under a buckling stress.

Fig. 6 shows another means for attaining interchangeability of braces. Here the casting 7 is identical with the form shown in Fig. 1 but the braces 26 are made larger. They are all of a length equal to the length of brace such as is required for a central brace which will brace at angle A without a long legged clevis 31 but with a standard clevis block 47 (Fig. 6). The legs 49 of the clevis 47 are relatively short as there is not much distance to make up between the pole and strut.

The flats of the braces are also differently formed. Each brace 26 has a short flat 43 formed thereon at one end and a long flat 45 at the other end.

The short flat 43 of the central brace is attached to the relatively short legged standard clevis 47 and the long flat 45 is bolted between the portions 15 of the casting 7 by the bolt 29. This bolt 29 also holds the short flats of the horizontal braces on the outside of casting 7. The long flats of said horizontal braces are attached to the pole 1 by lag screws 51. In so far as the horizontal members 26 are now longer than need be, their long flats 45 may be beaten around the pole (see Fig. 7), by the workman who mounts the arm. The holes in the long flats 45 are near the outer ends of the flats and hence the screws 51 come in from the rear of the pole whereby there is no tendency to pull them out of place lengthwise. This is an advantage of this form as well as the fact that a standard legged clevis may be used.

It will be understood that this last form may be reversed as indicated in Fig. 8. It may also be applied to the structure indicated in Fig. 9.

One more form of the structure is incorporated in this specification to illustrate the improved lowering combinations with which this device may be used. The last form is shown in Figs. 11 to 14. It comprises the large clevis 31 of Fig. 1 and short equal length braces 25 having unequal flats.

The hook 53 and ornamental casting 7, however, are replaced by an open nose 65. This nose 65 (Figs. 13 and 14) comprises a casting (preferably) having side walls 67 enclosing an opening 69. The casting has a downward and rearwardly slanting opening 71 communicating with said opening 69 whereby the flat of a brace 25 may be entered. Drilled bosses 73 corresponding to

bosses 17 of the casting 7 extend from the side of the nose and likewise lugs corresponding to lugs 21 of casting 7. These bosses and lugs are adapted to receive the horizontal braces as did the casting 7, while the slanting brace enters the slanting opening 71 to align the hole of its flat with said drilling of the bosses. Hence, again, a single bolt 29 may be made to hold the nose 65 and three braces together.

The opening 69 of the nose curves downwardly at a point 77 forwardly of the nose. Above and to one side of the point 77, ahead of the drilling of bosses 73 and in line therewith are formed drilled bosses 79. A bolt 74 passes through the drilling and carries a sheave wheel 81 (Fig. 11). Hence a rope or cable 83 may be passed through the nose 65, turned at right angles at the sheave wheel 81 and made to carry a lamp 3 at its lower end.

Rearwardly the rope passes to a block and sheave 85 fastened to the pole 1 between the horizontal braces. Thence the rope passes down along the pole. At its lower end it is provided with a combined strain insulator 87 and hook 89. The hook engages an opening in a cleat 91 whereby the lamp is prevented from falling.

To lower the lamp an operator need only remove the hook from its opening and permit it to rise as the lamp descends. An eye 93 is provided to receive a hook (not shown) such as a repairman carries attached to a suitable rope (not shown) so that he can control the descent of the lamp, and raise it again when he has finished his work upon it.

It is to be understood that any of the hereinbefore described combinations of flat braces and clevises may be used with the nose casting 65.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A bracket for holding the flattened braces of a mast arm comprising two walls and a pocket therebetween, lugs outside of said walls laterally drilled, pairs of lugs on said walls rearwardly of the first-named lugs arranged in staggered relationship thereto, a bolt passing through the drilled lugs whereby the flattened ends of outside braces are held to the lugs and the flattened end of another in said pocket, the non-flat portions of said first named braces resting between the members of the said pairs of lugs.

2. A mast arm comprising three strut mem-

bers, flattened at their ends, two of said members having their inner ends secured to a pole, the third member extending at an angle to the first members, means for securing the third member to the pole, an open bracket comprising two walls and a pocket therebetween, aligned lateral openings in said walls, pairs of lugs on said walls located rearwardly of said openings arranged in staggered relation thereto, a bolt passing through said openings and the flattened ends of said struts to hold the struts and bracket together, portions of the struts being engaged by said lugs to prevent relative rotation.

In testimony whereof, I have signed my name to this specification this twelfth day of August, 1925.

PHILIP H. CHASE.