June 17, 1941. A. B. HOUK 2,245,977

TONGS

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FIG. 1

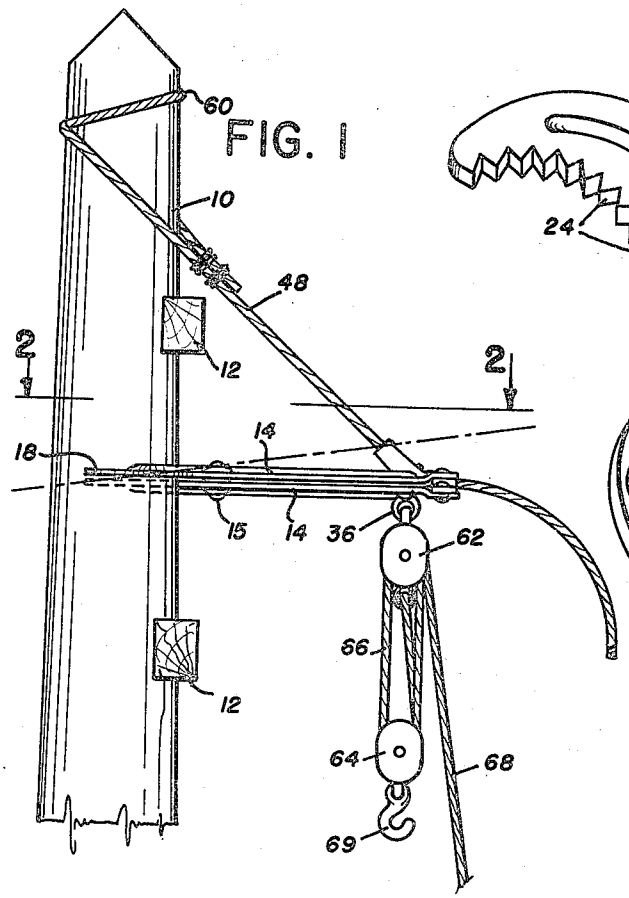
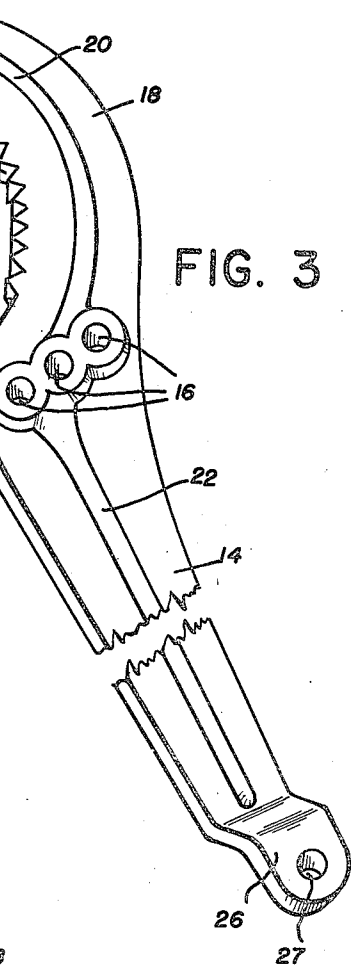


FIG. 3



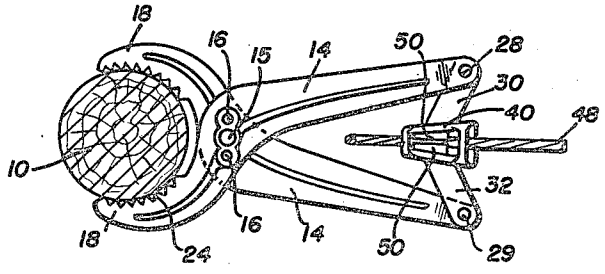


FIG. 2

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FIG. 4

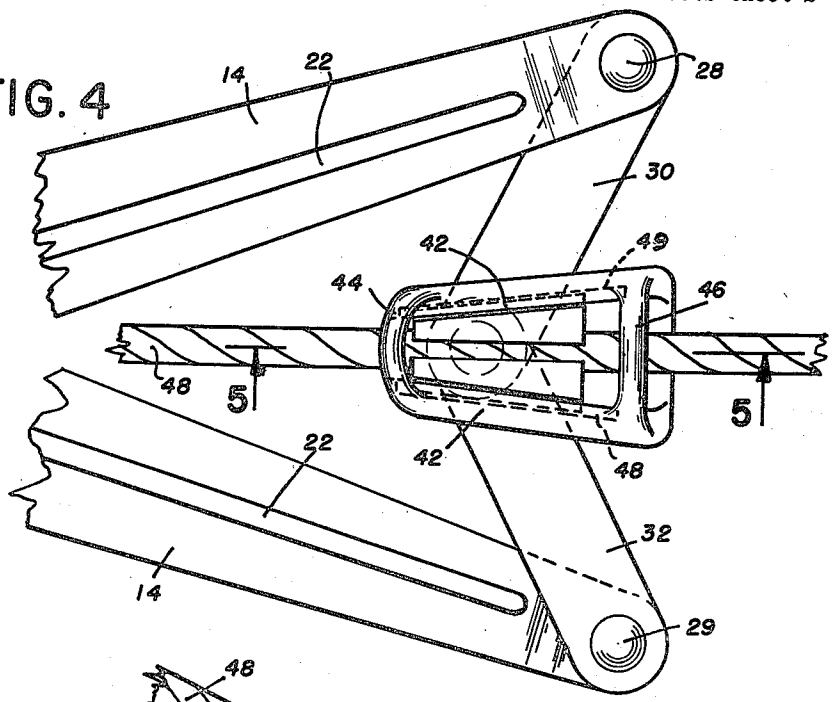
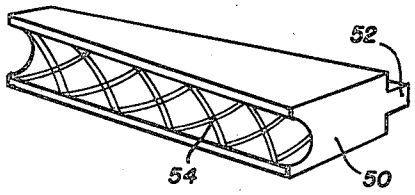


FIG. 6



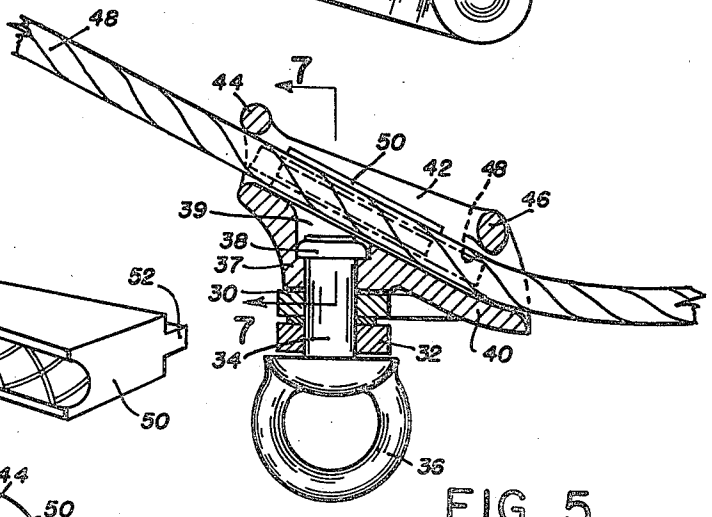


FIG. 5

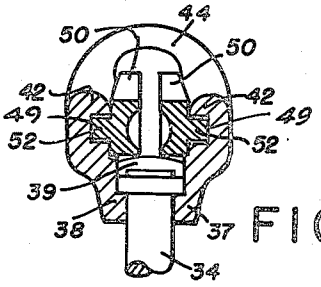


FIG. 7

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Patented June 17, 1941

2,245,977

UNITED STATES PATENT OFFICE

2,245,977

TONGS

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Application December 7, 1940, Serial No. 369,133

5 Claims. (Cl. 248—230)

In the construction of electrical transmission lines, and in their maintenance, it is often necessary that heavy transformers be mounted upon the wire-carrying poles. Great difficulty has been experienced by the linemen in raising the heavy transformers into the proper position for permanent mounting upon the pole. An electrical transformer weighs from several hundred pounds upward and, especially with the heavier type transformer, it is often extremely difficult to position them accurately so that they can then be readily mounted on the pole.

The principal object of my invention has been the provision of a tackle support comprising a pair of tongs which may be readily attached to or removed from a pole and which when properly in position will form a boom for use in lifting transformers or heavy objects.

Another object of my invention has been the provision of such a support which is composed of the minimum number of rugged parts and which at the same time is adapted for heavy duty use in the construction field.

Another object of the invention has been the provision, in a tackle support, of means for the attachment of a brace line which, when force is applied to the support, as when a weight is lifted, the support will be caused to more positively engage a pole.

A further object of my invention has been the provision in a tackle support of a pair of tongs having a rope grip of the wedge type for cooperative use in connection with a bracing rope or cable.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the drawings, wherein for the purpose of illustration I have shown a preferred form of my invention, and in which like numerals refer to like parts throughout the same,

Figure 1 is an elevational view showing my support in place upon the upper end of a pole,

Figure 2 is a plan view, partly in section as though taken on line 2—2 of Figure 1,

Figure 3 is a perspective view, with portions broken away for convenience of illustration, of one arm of the tongs forming the support,

Figure 4 is a fragmentary plan view showing the ends of the support tongs, their closer links and a rope grip employed in connection therewith,

Figure 5 is a vertical sectional view taken along line 5—5 of Figure 4,

Figure 6 is a perspective view of one of the slidable jaws used in my rope grip, and

Figure 7 is a fragmentary sectional view taken on line 7—7 of Figure 5.

The reference numeral 10 designates a pole which may be of the type employed in the construction and support of electrical transmission lines and in this instance I have illustrated the pole 10 as being provided with a pair of cross arms 12, 12.

My support is particularly adapted for cooperative relation with round poles and the like, and comprises a pair of tong arms 14, 14 pivoted together by means of the bolt 15 which passes through one selected hole 16 in each of the tongs. Each tong has an arcuate jaw end 18 and may be provided with reinforcing ribs 20 and 22 as can best be seen in Figure 3. By the use of the ribs 20 and 22 the total weight of the tongs may be reduced without the sacrifice unduly of necessary strength. Each of the arcuate jaws is shown as having a plurality of teeth 24 in the curved face of the jaws for engagement with the pole to prevent dislodgement or displacement of the tongs accidently.

The ends of the tongs may have offset portions 26 which would be provided with pivot holes 27 through which pass pivot pins 28 and 29. Pins 28 and 29 also engage in links 30 and 32 that are pivoted at their outer ends to the two arms 14, 14 and connected together at their inner ends by the pin 34.

I have shown pin 34 as being provided with a ring 36 on its lower end and the head 38 on the upper end. A boss 37 having the inner socket 39 is designed for the reception of the head 38 and supports a rope grip body 40 above the pivoted together ends of links 30 and 32. The rope grip has overhanging flanges 42, 42, one on each side of the central open portion.

A forward guide loop 44 is provided between the overhanging flanges to assist in guiding a brace rope and to prevent it from becoming accidently dislodged from the rope grip. A similar loop 46 on the rear end of the body serves in the same manner as loop 44 to guide a rope 48.

Fitted in the rope grip body 40 are a pair of wedge shaped jaws 50 having tongues 52 on their outer edges and inner grooved faces 54 which may be scored or roughened and are designed primarily for frictional engagement upon a rope or cable as 48.

In the body 40 adjacent flanges 42 I have provided grooves 49 into which the tongues 52 of

the rope grip members are fitted for sliding movement. The general plane of the two grooves **49**, **49** is such that they converge toward the forward end of the body **40**. This convergence extends from the loop **46** toward the loop **44**, so that the wedge shaped jaws, as they are urged forwardly in the grooves, are brought closer together in a parallel manner and will securely grip a rope or cable that has been placed there-between.

Referring now to Figure 1, the rope **58** is shown as being formed of a loop **60** that may be reversed upon itself around the upper end of the pole **10** to anchor the rope to the pole. The free end of the rope passes between the jaws **50** in the clamp and is then permitted to depend outwardly, readily accessible for adjustment of the tongs.

From the ring **36**, as I have illustrated in Figure 1, a block and tackle comprising a pair of blocks **62** and **64** have threaded therein the usual rope **66**. I have also shown the standing part **68** for operation of the block and tackle. The lower block **64** has a hook **69** which may be engaged in an eye on a transformer or other heavy object and when pull is applied to the line **68** the block will effectively raise the heavy object in the customary manner.

The attachment of my tongs to a pole is very simple. The jaws are spread open so that the longitudinal axis of the links is substantially aligned. In this manner the jaws will be placed in their wide-open position. They are then engaged around the pole and manually closed by flexing the links **30**, **32**. A rope or cable **48** is secured to the pole passing one or more times around the upper end of the pole and fastened and has its lower free end passed between the jaws **50**, **50** of the rope grip, tightened thereon. The tong jaws are closed around the pole by causing the links **30—32** to tend to assume the position shown in Figure 4, due to the cable anchor above the tong and the weight of the tong or the weight imposed by the object being lifted.

Ordinarily, it is customary to adjust the tongs on the plane indicated by the dotted line in Figure 1, which is at an angle to the general horizontal plane. When weight is applied to the tongs, as when a transformer is being lifted, the line **48** will be securely held in the rope grip and will tend to close the jaws **18**, **18** more firmly and in a horizontal position upon the pole through the flexing action of the links **30** and **32**. By adjusting the angle in which the tongs are set it is a simple matter to determine just about how far out from the pole the final set of tong support will be. In this manner with transformers of varying sizes the operator can, without difficulty, arrange the tongs so that the transformer when properly positioned will lie closely along the side of the pole and be in position for attachment without the necessity of applying considerable power to swing the transformer into proper place for bolting to the pole.

A device of the nature that I have described of course is not solely usable in the construction of electrical transmission lines, but has a multitude of uses wherever it is desired to provide a temporary boom or lateral support for the attachment of block and tackle or other similar hoisting equipment.

When it is desired to remove the tongs from a pole or a tree, the rope or cable **48** will be removed from the cable grip and the jaws of the tongs then can be opened to permit their disengagement and removal from the pole.

The foregoing description and the accompanying drawings are believed to clearly disclose a preferred embodiment of my invention, but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope and spirit of the following claims:

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A tackle support comprising a pair of lever arms cross-pivoted together intermediate their ends and having arcuate toothed jaw portions; a closer link pivoted to each lever arm at the end opposite the toothed jaw portions; a pivot pin joining said closer links; a rope grip adjacent said pivot pin and comprising a body portion having opposed converging slide ways, rope guide loops adjacent the ends of said slide ways, and a slide jaw associated with each slide way; and a ring associated with said pivot pin.

2. A tackle support comprising a pair of lever arms cross-pivoted together intermediate their ends and having arcuate toothed jaw portions; a closer link pivoted to each lever arm at the end opposite the toothed jaw portions; a pivot pin joining said closer links; a rope grip associated with said pivot pin and comprising a body portion having opposed converging slide ways, rope guide means adjacent the ends of said slide ways, and a slide jaw associated with each slide way; and a ring associated with said pivot pin.

3. A tackle support comprising a pair of lever arms cross-pivoted together intermediate their ends and having arcuate toothed jaw portions, a closer link pivoted to each lever arm at the end opposite the toothed jaw portions; a pivot pin joining said closer links; a rope grip associated with said pivot pin and comprising a body portion having opposed converging slide ways, and a slide jaw associated with each slide way; and hoist attaching means associated with the outer supported end of said tong.

4. A tackle support comprising a pair of lever arms cross-pivoted together intermediate their ends and having arcuate toothed jaw portions, a closer link pivoted to each lever arm at the end opposite the toothed jaw portions; a pivot pin joining said closer links; a rope grip associated with said pivot pin and comprising a body portion having grooved opposed converging slide ways, and a slide jaw having a tongue associated with the groove in each slide way; and a ring associated with said pivot pin.

5. A tackle support comprising a pair of lever arms cross-pivoted together intermediate their ends and having arcuate toothed jaw portions, a pair of closer links each pivoted to a lever arm and to each other, a rope grip associated with the pivot joining the two links and including converging jaw ways, each having a jaw mounted for slidable movement therein.

ALLEN B. HOUK.