Nov. 22, 1966 A. K. JORDAN ETAL 3,286,968

TRAVELLER ASSEMBLY CROSS ARM BRACKET

Filed April 5, 1965 3 Sheets-Sheet 1

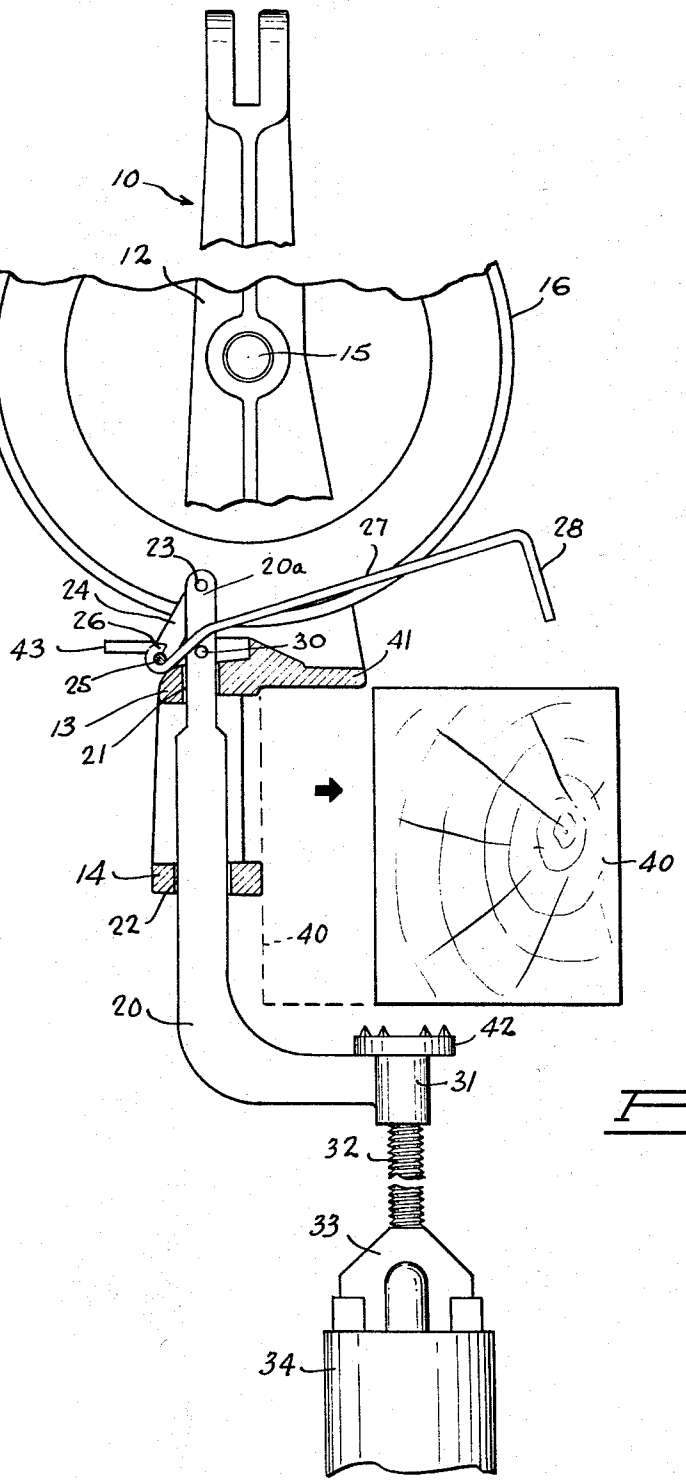

Fig. 1

Nov. 22, 1966 A. K. JORDAN ETAL 3,286,968

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Filed April 5, 1965 3 Sheets-Sheet 2

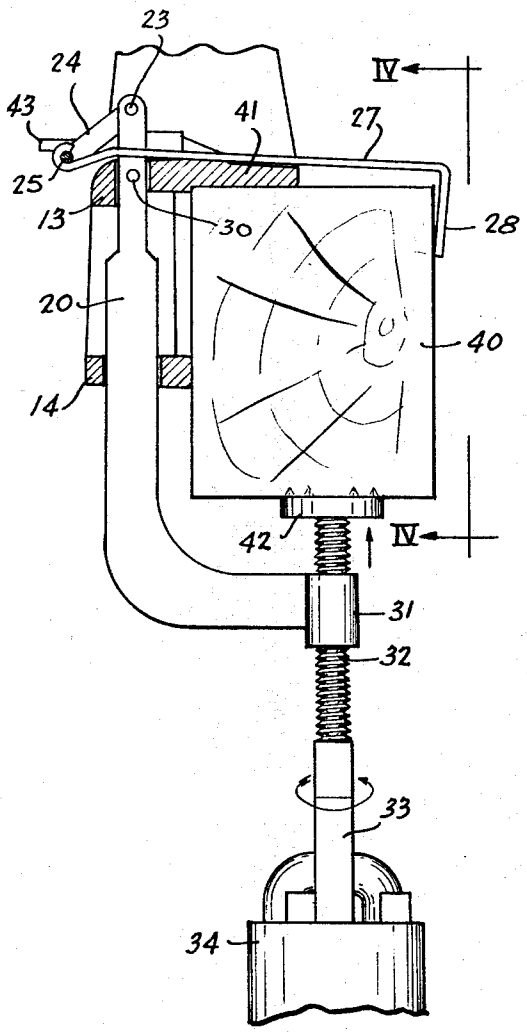

Fig. 3.

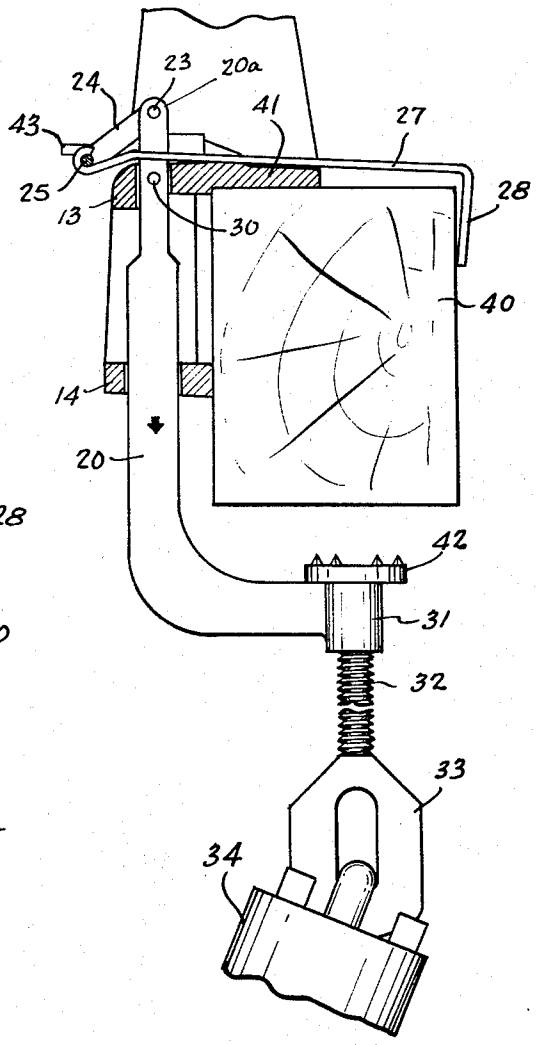

Fig. 2.

Nov. 22, 1966 A. K. JORDAN ETAL 3,286,968

TRAVELLER ASSEMBLY CROSS ARM BRACKET

Filed April 5, 1965 3 Sheets-Sheet 3

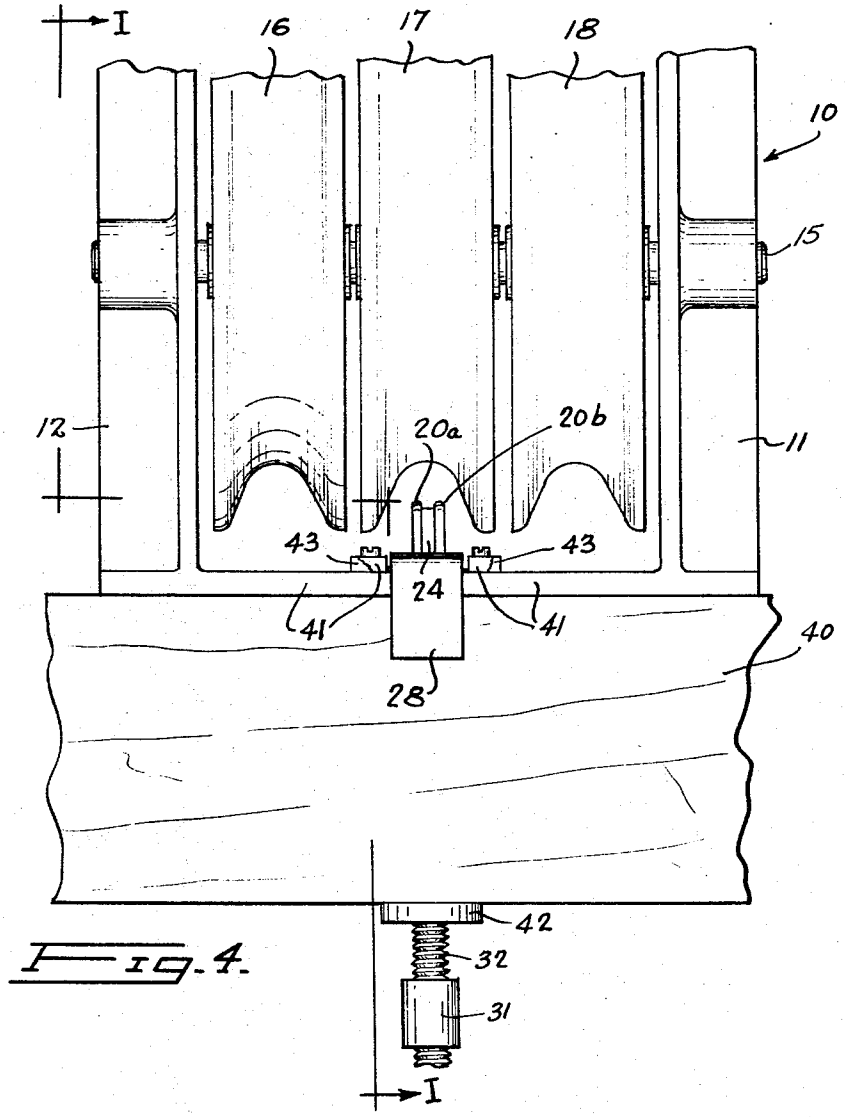

Fig. 4.

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3,286,968

TRAVELLER ASSEMBLY CROSS ARM BRACKET

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The present invention relates to a traveller assembly or pulley block used for the stringing of electric conductors on poles or towers.

Electric transmission lines are conveniently constructed using a series of towers or poles carrying insulators for supporting the conductors and insulating them from the towers. The conductors need to be carefully handled during the erection of the line to prevent kinking or scratching of the surfaces.

The technique used for stringing electric conductors in present is to mount a traveller on each of the poles, to pass a pulling cable over or through the series of travellers, and to draw the pulling cable through the travellers by means of a winch. A running board is attached to the end of the pulling cable, and the electrical conductors to be strung are in turn attached to the running board to trail rearwardly therefrom while being maintain in tension during the stringing operation by braked pay-out drums.

Sometimes it is desired to string new conductors on poles or towers that already carry one or more conductors in service. This requirement arises more often in lower voltage lines using wooden pole structures, than with high-tension steel towers, but it can arise in both instances. When live conductors already extend between the poles a problem is presented in safely mounting each traveller on its respective pole. It is not normally convenient to shut down the existing lines, so that it becomes necessary to provide protection for the personnel involved. For example, when it is desired to place a traveller on say the upper cross-arm of a pole on which live conductors are already strung from a lower cross-arm, elaborate precautions have to be taken to protect the linesman. It is possible to use a boom truck, the boom of which is arranged to extend over the top of the existing lines. Alternatively it is common practice to install heavy fibreglass guards over each phase of the existing line, so that the linesman can climb through the fibreglass guards to the upper cross-arm to install the traveller. A great deal of time is consumed in applying and subsequently removing such fibreglass guards, but the available alternative (a boom truck) is expensive.

The principal object of the present invention is to provide an improved construction of traveller assembly adapted for mounting on the cross-arm of a transmission pole by manipulation from the ground or other location (e.g. half way up the pole) sufficiently remote from danger from existing live conductors.

One manner in which the invention may be carried into practice is illustrated diagrammatically in the accompanying drawings. It is to be understood that these drawings and the accompanying description are furnished by way of example only, and not by way of limitation of the broad scope of the invention, which latter is defined in the appended claims.

In the drawings:

FIGURE 1 is a side view of a traveller constructed in accordance with the invention, shown in position immediately prior to installation on a transmission pole cross-arm, the section being taken on the line I—I in FIGURE 4;

FIGURE 2 is a fragment of FIGURE 1 showing the parts at a later stage in the operation;

FIGURE 3 is a view similar to FIGURE 2 showing the parts at yet a later stage; and

FIGURE 4 is a view on the line IV—IV in FIGURE 3.

The traveller comprises a frame **10** composed of a pair of side members **11** and **12** joined together at their lower ends by a pair of cross-members **13** and **14**. The side members **11** and **12** support a shaft **15** on which three sheaves **16**, **17** and **18** are pivotally mounted.

A support arm **20** extends slidingly through passages **21** and **22** in the frame members **13** and **14** respectively. At its extreme upper end the support arm **20** is forked, as shown at **20***a* and **20***b* in FIGURE 4. A pin **23** in this forked upper end of the arm **20** is pivotally connected to one end of a link **24**, the other end of which bears a pin **25** engaging a pair of bent around, forked ends **26** of a clamp arm **27**. The other end of arm **27** terminates in a downwardly projecting flange **28**. A pin **30** projects laterally from the support arm **20** for engagement with undersurfaces of the clamp arm **27**.

At its lower end, the support arm **20** terminates in a boss **31** internally threaded to receive a screw **32**, the lower end of which terminates in a plate **33** conventionally employed for engagement by a "hotstick" **34**. A "hotstick" is a tool commonly used by transmission line workers and comprises an elongated insulated pole by which equipment, such as switches, can be manipulated from a remote location. The manner of connecting the hotstick **34** to the plate **33** is conventional in equipment of this type and requires no detailed explanation.

When the traveller shown in FIGURE 1 is to be engaged over a typical cross-arm **40**, the linesman will, as necessary, partially climb the pole on which the cross-arm **40** is secured, while remaining a safe distance below any live conductors. An assistant will then pass him the hotstick **34** with the traveller attached, in the position shown in FIGURE 1. The linesman will then lift the traveller safely through the live conductors, bringing it into the position adjacent the cross-arm **40** shown in FIGURE 1. During this operation, the entire weight of the upper part of the traveller acts down through the support arm **20** to be supported in turn by the hotstick **34**. This action will have the effect of urging the arm **20** upwardly in relation to the frame **10** of the traveller, that is to the position shown in FIGURE 1, wherein it will be noted that the pin **30** bears on the underside of the clamp arm **27** to elevate it to the unclamped position shown.

The linesman then maneuvers the assembly in the direction indicated by the arrow in FIGURE 1, until it embraces the cross-arm **40**, i.e. tthe latter occupies the dotted line position shown in this figure. A projecting ledge **41** of the frame member **13** now overlies and rests upon the upper face of the cross-arm **40**, a vertical side face of which now bears against the frame member **14**. The operator now permits the weight of the traveller to be assumed by the cross-arm **40**, with the result that the support arm **20** moves downwardly, in the manner indicated in FIGURE 2. The link **24** accordingly moves downwardly and outwardly, and the pin **30** falls to allow the clamp arm **27** to take up the position shown in FIGURE 2, that is with its flange **28** embracing the outer vertical edge of the cross-arm **40**.

The next step is for the operator to partially loosen the hotstick **34** from the plate **33**, which allows rotation to be transmitted between these two parts, and to turn the stick **34** until securing means in the form of a spiked screwpad **42** on the upper end of the screw **32** has been firmly engaged with the under surface of the cross-arm **40**, in the manner indicated in FIGURE 3. As the screw **32** is tightened, two effects are produced; firstly, the traveller is firmly secured to the cross-arm **40** in the vertical direction (by virtue of the diminution of the distance between

the pad **42** and the ledge **41**); at the same time, the resulting downward pull on the support arm **20** tends to force the link **24** towards an increasingly horizontal position, thus urging the clamp arm **27** to the left so that the distance between its flange **28** and the frame members **13** and **14** also tends to be diminished. As a result, the traveller is firmly secured to the cross-arm **40** both horizontally and vertically. With the traveller so secured, the linesman can completely free the hotstick **34** from the plate **33**, and the operation is complete. Removal of the traveller follows a reverse series of steps.

Projections **43** extend rearwardly from the frame member **13** to overlie the ends of the pin **25**, which project laterally of the clamp arm **27**. These projections **43** serve to confine the lower end of the link **24** and consequently the end **26** of the clamp arm **27** to movement substantially between the positions shown in FIGURES 1 and 3.

We claim:

1. A traveller assembly comprising:

(a) a frame including members for supporting at least one sheave, and surfaces for overlying an upper face and for engaging a first vertical face of a horizontal cross-arm,

(b) a support arm slidable in said frame between a lower and an upper location,

(c) a clamp arm including a flange for engaging the other vertical face of the cross-arm, said clamp arm being movable between an unclamped position in which said flange is withdrawn to allow the assembly to be placed over the cross-arm, and a clamping position in which said flange embraces the cross-arm,

(d) means connecting the clamp arm to the support arm and means locating the clamp arm in relation to the frame whereby movement of the support arm towards its upper location urges the clamp arm to unclamped position and movement of the support arm towards its lower location urges the clamp arm to clamping position,

(e) and securing means for movement to engage the undersurface of said cross-arm for clamping the same between said securing means and said overlying frame surface.

2. A traveller assembly according to claim **1**, wherein said securing means is mounted on said support arm whereby clamping movement of said securing means urges said support arm more downwardly and thereby urges said clamp arm more tightly into clamping position.

3. A traveller assemby comprising:

(a) a frame including upstanding members for supporting at least one sheave, a horizontally extending ledge for overlying and engaging an upper face of a horizontal cross-arm and at least one vertical surface for engaging a first vertical face of the cross-arm,

(b) a support arm vertically slidable in said frame between a lower and an upper position,

(c) a clamp arm for overlying said cross-arm, said clamp arm including a depending flange for engaging the other vertical face of the cross-arm, said clamp arm being pivotable between an upper, unclamped position in which said flange is above the cross-arm to allow the assembly to be placed thereover, and a lower clamping position in which said flange embraces said other vertical face of the cross-arm,

(d) a link pivotally interconnecting the upper end of the support arm with the end of the clamp arm remote from said flange,

(e) an element projecting from said support arm to engage the underside of said clamp arm and an element projecting from said end of the clamp arm to engage the frame whereby movement of said support arm to its upper location urges the clamp arm upwardly to unclamped position and movement of the support arm towards its lower location permits said clamp arm to fall to clamping position,

(f) and securing means mounted on said support arm for upward movement to engage the undersurface of the cross-arm for clamping the same between the securing means and said ledge and for urging said support arm downwardly whereby, through said link, to urge said flange tightly against said other vertical face of the cross-arm.

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