June 29, 1965 J. M. EITEL 3,191,910

GUIDING DEVICE

Filed Sept. 13, 1961 3 Sheets-Sheet 1

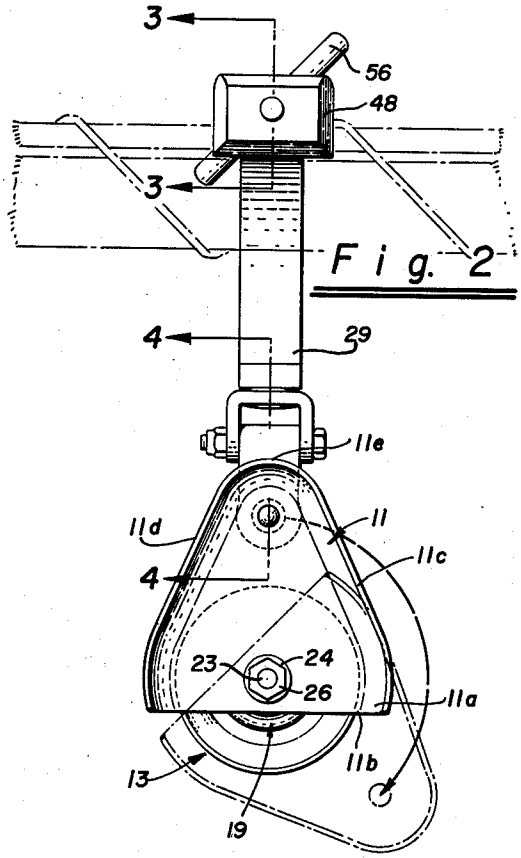


Fig. 2

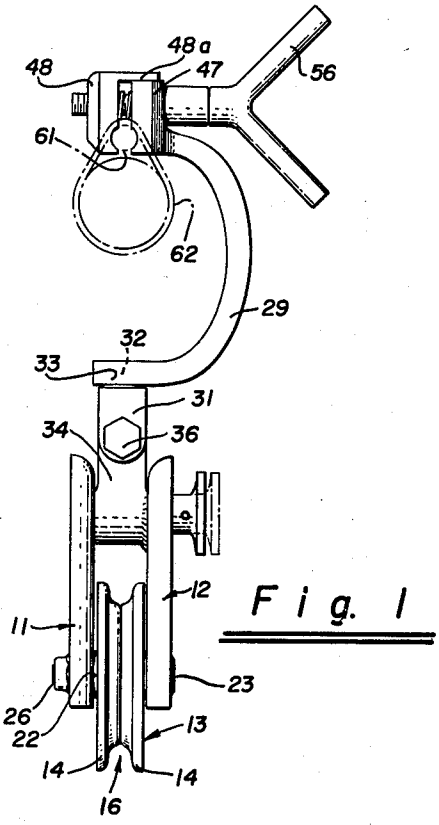


Fig. 1

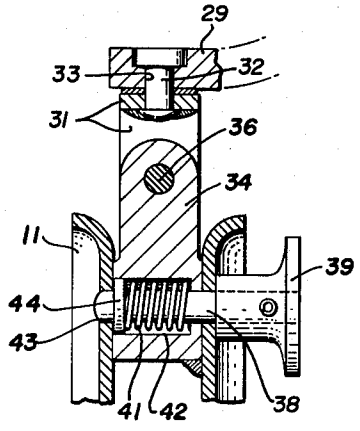


Fig. 4

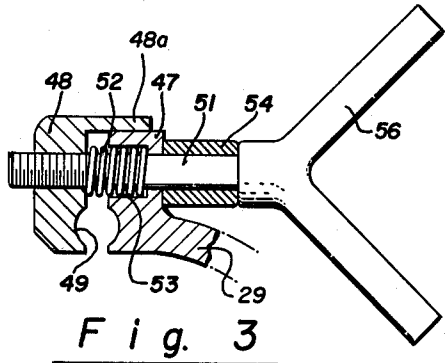


Fig. 3

INVENTOR.
Jay M. Eitel
BY
Flehr & Swain
Attorneys

June 29, 1965 J. M. EITEL 3,191,910

GUIDING DEVICE

Filed Sept. 13, 1961 3 Sheets-Sheet 2

Fig. 5

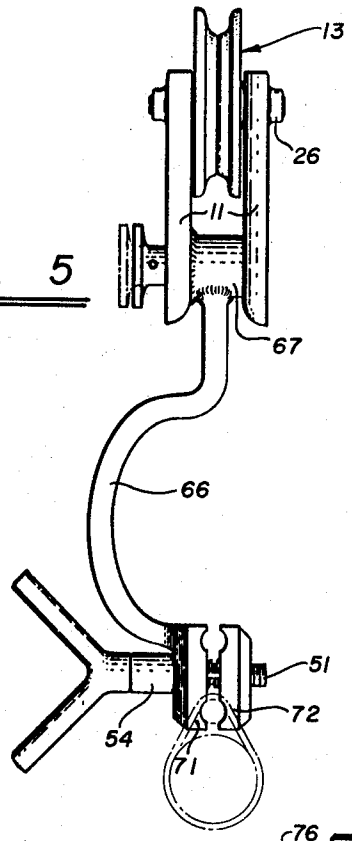


Fig. 6

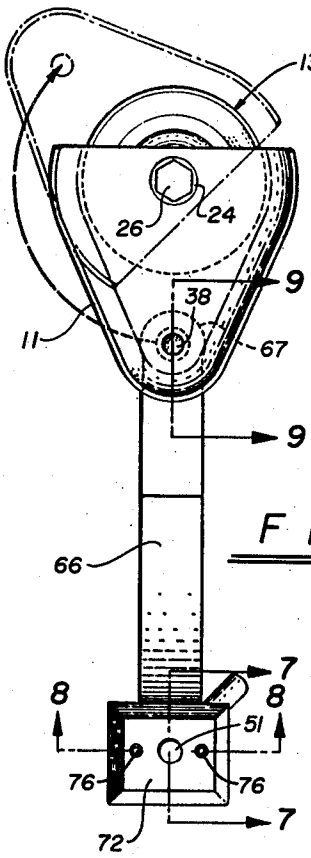


Fig. 8

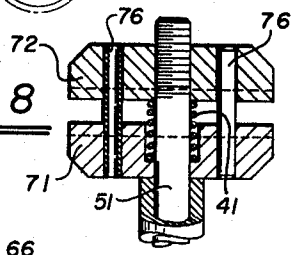
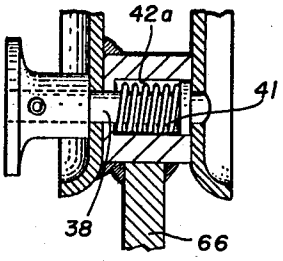


Fig. 9



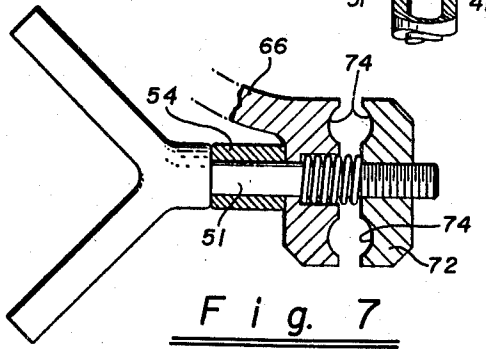


Fig. 7

INVENTOR.

BY Jay M. Eitel

Fleh & Swain

Attorneys

June 29, 1965 J. M. EITEL 3,191,910

GUIDING DEVICE

Filed Sept. 13, 1961 3 Sheets-Sheet 3

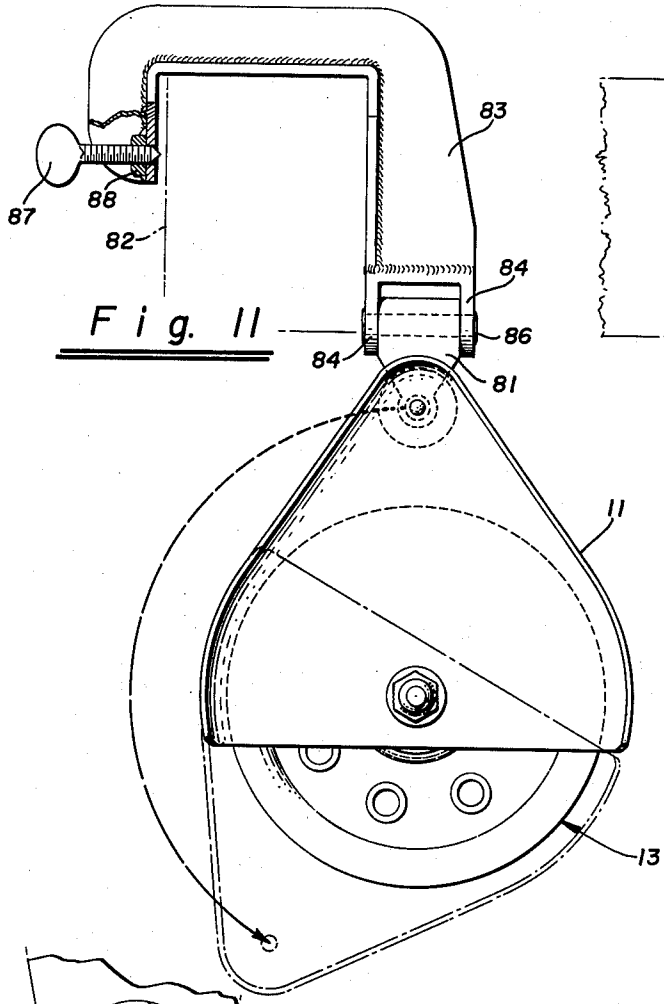


Fig. 11

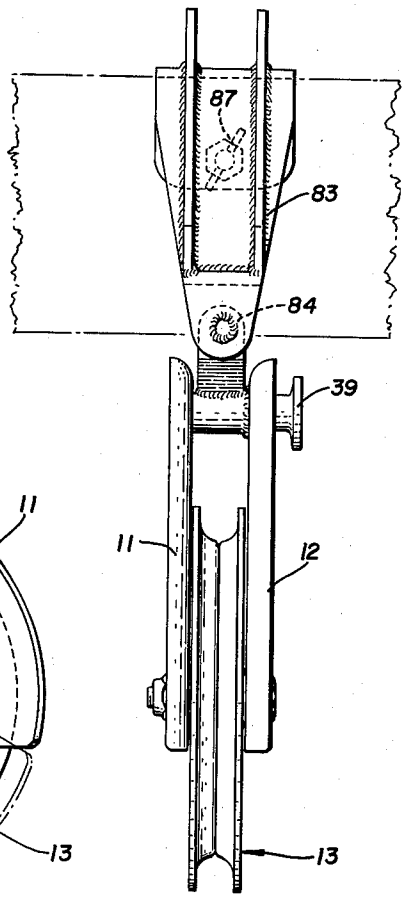


Fig. 10

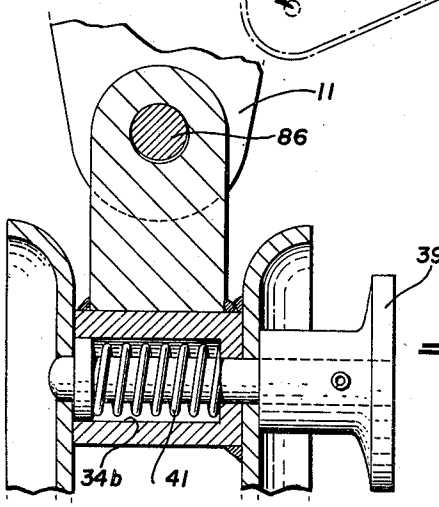


Fig. 12

INVENTOR.
Jay M. Eitel
BY
Flehr and Swain
Attorneys

United States Patent Office 3,191,910 Patented June 29, 1965

3,191,910

GUIDING DEVICE

Jay M. Eitel, Los Altos, Calif., assignor to Telsta Corp., San Carlos, Calif., a corporation of California

Filed Sept. 13, 1961, Ser. No. 137,914
1 Claim. (Cl. 254—194)

This invention relates to a guiding device and more particularly to a guiding device suitable for use with strand or messenger.

In certain cable stringing operations, as for example in the stringing of strand or cable where there is a cable already in place, it is very difficult to string the strand or cable without having it become entangled with the cable which is already in place. This is important because if the cable or strand being strung does become entangled with the cable already in place the cable already in place may be ripped out or damaged in some way. There is, therefore, a need for a device which will make it possible to string cable in areas where cable is already in place without danger of damaging the existing cable.

In general, it is the object of the present invention to provide a guiding device which can be utilized for stringing cable where there is already existing cable.

Another object of the invention is to provide a guiding device of the above character which is particularly adapted for stringing of strand or messenger utilized for supporting cable.

Another object of the invention is to provide a guiding device of the above character which can be readily attached to cross arms.

Another object of the invention is to provide a guiding device of the above character which can be attached to the already existing cable.

Another object of the invention is to provide a guiding device of the above character in which means is provided on the device for retaining the elongate element being strung within the device.

Another object of the invention is to provide a guiding device of the above character in which the elongate element can be readily inserted and removed.

Another object of the invention is to provide a guiding device of the above character which can be readily and economically manufactured.

Additional objects and features of the invention will appear from the following description in which the preferred embodiments are set forth in detail in conjunction with the accompanying drawings.

Referring to the drawings:

FIGURE 1 is a front elevational view of a guiding device incorporating my invention.

FIGURE 2 is a side elevational view of the guiding device shown in FIGURE 1.

FIGURE 3 is an enlarged detail view of the clamping means taken along the line 3—3 of FIGURE 2.

FIGURE 4 is an enlarged detail view taken along the line 4—4 of FIGURE 2.

FIGURE 5 is a front elevational view of another embodiment of my guiding device.

FIGURE 6 is a side elevational view of the guiding device shown in FIGURE 5.

FIGURE 7 is a cross-sectional view taken along the line 7—7 of FIGURE 6.

FIGURE 8 is a cross-sectional view taken along the line 8—8 of FIGURE 6.

FIGURE 9 is a cross-sectional view taken along the line 9—9 of FIGURE 6.

FIGURE 10 is a front elevational view of still another embodiment of my invention.

FIGURE 11 is a side elevational view of the guiding device shown in FIGURE 10.

FIGURE 12 is a detail view of a portion of the guiding device shown in FIGURE 11.

In general my guiding device consists of a pair of side plates between which a pulley is rotatably mounted. A support member is fixed to one of the side plates and spaced from the pulley. Means is mounted on the support member releasably engaging the other side plate. The other side plate is movable between elongate elements retaining and releasing positions. Means is connected to the support member for mounting the cable guiding device on a crossarm or on a cable.

As shown in FIGURES 1 through 4 of the drawings, my guiding device consists of a pair of side plates 11 and 12 which are substantially pear shaped as shown. The plate 11 is provided with a substantially flat portion 11*a*, a lower straight edge 11*b*, upwardly extending inclined side edges 11*c* and 11*d* which also turn outwardly as shown particularly in FIGURES 1 and 2 and an upper rounded portion 11*e* which also extends outwardly. Plate 12 is formed in a similar manner.

A pulley 13 is rotatably mounted between the side plates 12. The pulley 13 can be formed in a suitable manner such as of two pressed steel members 14 fastened together by suitable means such as spot welding and formed to provide an annular groove 16. The pulley is mounted on the outer race of a ball bearing assembly 19. The inner race of the ball bearing assembly is mounted on a sleeve 22 having a length slightly greater than the thickness of the pulley 13. The sleeve is mounted on a bolt 23 which extends through the side plates 11 and 12 and through the sleeve 22. The bolt is held in place by a washer 24 and a nut 26 of a suitable type such as an elastic stop nut. In this manner, the plates 11 and 12 are maintained in spaced apart relationship while at the same time permitting free rotation of the pulley 13.

Means is provided for supporting at least one of the plates 11 and 12 and consists of a goose-necked member 29 which is substantially in the form of an open U. One end of the member 29 is pivotally connected to a U-shaped member 31 by a pin 32 which is rotatably mounted in an opening 33 provided in the member 29. A support member 34 is fixed to one of the side plates 11 and 12 by suitable means such as welding. The support member 34 is pivotally connected between the depending ears of the U-shaped member 31 by a bolt 36.

The support member 34 is affixed to one of the side plates 11 and 12 by suitable means such as welding. A retaining pin 38 is slidably mounted in the support member 34 and in the side plate 11 to which the support member 34 is fixed for movement in a direction which is perpendicular to the side plates 11 and 12. A knob 39 is mounted on the outer end of the pin 38. Means is provided for yieldably urging the pin 38 in a direction perpendicular to the side plates 11 and 12 and in a direction toward the other side plate 11 which is not fixed to the support member 34. This means consists of a spring 41 mounted on the pin 38 and disposed within a well 42 provided in the support member 34. A hole 43 is provided in the side plate 11 which is not fixed to the support member and which is adapted to receive the outer end of the pin 38 as shown particularly in FIGURE 4. A collar 44 is mounted on the pin and limits the travel of the pin through the hole 43.

Means is provided on the other end of the goose-necked member 29 for supporting the guiding device on the cable. It consists of two clamping members 47 and 48. The clamping member 47 is fixed to the goose-neck member 29. Both of the clamping members 47 and 48 are provided with substantially semicircular recesses 49 which are adapted to receive a cable as hereinafter described. The member 48 is provided with an extension or ear 48*a* which slidably engages the upper extremity of the

member 47. A threaded pin 51 is rotatably mounted in the member 47 and is threaded into the member 48. Yieldable means consisting of a spring 52 is mounted on the pin 51 in a well 53 and serves to urge the members 47 and 48 apart as shown particularly in FIGURE 3. A collar 54 is mounted on the member 47 and receives the pin 51. A Y-shaped handle 56 is provided for rotating the screw 51.

Operation and use of the guiding device shown in FIGURES 1 through 4 may now be briefly described as follows. Let it be assumed that it is desired to string a messenger or strand upon a pole line in which there is already existing cable supported by messenger or strand. When such is the case, it is desirable that the strand or messenger to be strung not become entangled with the already existing cable. To prevent this, a plurality of the guiding devices shown in FIGURES 1 through 4 are attached to the messenger or strand 61 already supporting the existing cable 62. This can be readily accomplished by operating the clamping means 46 provided on the guiding device by opening the clamping members 47 and 48 and positioning the guiding device so that the messenger seats within the substantially semicircular recesses 49 provided in the members 47 and 48 and then tightly clamping the members 47 and 48.

When the guiding devices are mounted on the messenger in this manner, it will be noted that the goose-neck members 29 readily clear the cable 62 supported by the messenger 61. Thereafter, the elongate element in the form of strand or messenger which is being strung is placed in the guiding devices. This is accomplished by rotatably moving one of the side plates, side plate 11 to the cable receiving position shown by the dot and dash lines in FIGURE 2 after first releasing the side plate by withdrawal of the pin 38 so that the side plate can be rotated to the position shown. The elongate element is then placed into the guiding device onto the pulley 13. Thereafter, the side plate 11 is returned to a position so that it can receive the pin 38 and be retained in an elongate element retaining position.

It will be noted that the movable side plate 11 is formed in such a manner that the side plate can be rotated upwardly from the dot and dash lines shown in FIGURE 2, and when it comes into engagement with the outer extremity of the pin 38 it cams the pin 38 inwardly against the force of the yieldable spring 41 because of the rounded outer surface provided on the side plate. When the side plate has been moved to a substantially vertical position, the pin 38 will engage the hole 43 provided in the side plate.

After the strand has been placed in the guiding devices, it can be readily pulled through the guiding device because of the roller bearing mountings provided for the pulleys 13. The swivel mounting provided for the pulleys permits the pulleys to move in any direction in which the strand or messenger is being pulled while at the same time retaining the messenger or strand out of engagement with the already existing cable.

Another embodiment of my invention is shown in FIGURES 5 through 9. The side plates 11 and 12 and the pulley 13 are identical to that described for the previous embodiment. However, the supporting means provided for the pulley and the side plates is somewhat different from that disclosed in the previous embodiment. The supporting means in the embodiment in the FIGURES 5 through 9 consists of a member 66 shaped substantially in the form of a goose-neck which is directly connected to a cylindrical support member 67 fixed to one of the side plates 11 and 12 in the same manner that the support member 34 is fixed to one of the side plates. The member 67 is provided with a recess 42*a* which is identical to the recess 42 and which receives the spring 41 mounted on the pin 38. It will be noted in this embodiment no swivel connection is provided for mounting of the side plates of the pulley.

The clamping means provided is slightly different from the clamping means disclosed for the embodiment shown in FIGURES 1 through 4. It consists of a pair of clamping members 71 and 72 with member 71 being fixed to the member 66 and the member 72 being threadedly engaged by the pin 51. The members 71 and 72 are similar to the members 47 and 48 with the exception that they are provided with semicircular recesses 74 on their upper and lower extremities as shown particularly in member 47. Guide pins 76 are fixed in the member 71 and slidably receive the member 72 and serve to prevent rotation of the member 72.

Operation and use of this embodiment of my invention is very similar to that shown in FIGURES 1 through 4. However, this embodiment is made in such a manner that it can depend from the existing cable by fastening the clamping means in such a manner that the lower grooves 74 engage the existing messenger. When it is desired to support a strand or messenger which is to be strung above the existing cable, the clamping means is mounted in such a manner that the upper grooves 74 engage the messenger or strand and so that the pulley 13 upstands from the messenger. This can be readily accomplished in view of the fact that the strand is firmly grasped between the clamping means. By utilizing such a cable guiding device, it is possible to place the new messenger or strand below the existing strand or messenger or above the existing strand or messenger.

Another embodiment of my invention is shown in FIGURES 10 through 12 which again consists of side plates 11 and 12 and a pulley 13 substantially identical to that shown in the previous embodiments except that they are of greater size. The supporting means provided for supporting the side plates of the pulley 13 is quite different and consists of a support member 81 to which one of the side plates 11 and 12 is affixed by suitable means such as welding. The support member 81 is provided with a well 34*b* which receives the spring 41 in the same manner as the previous embodiments.

Suitable clamping means is provided for mounting the pulley crossarm 82 and consists of a clamp 83 which is substantially C-shaped in form. The lower extremity of the clamp is provided with a pair of spaced ears 84 which extend over the support member 81 and are pivotally connected thereto by a rivet 86. The C-clamp is formed in such a manner that the open end of the "C" faces downwardly as shown in FIGURE 11 and is adapted to be fastened on a crossarm 82 as shown in FIGURE 11. A thumb screw 87 threaded into a nut 88 and mounted on the C-shaped member 83 is adapted to be urged into engagement with the crossarm 82 as shown in FIGURE 11 to ensure that the guiding device will not slip sideways or accidentally fall off of the crossarm. The thumb screw 87 is formed with a pointed end so that it can readily enter the wooden crossarm to prevent such accidental slippage or disengagement.

Operation and use of this embodiment of my guiding device is also very similar to that of the previous embodiments. The strand or messenger inserted in the device by releasing one of the side plates 11 and 12 in a manner hereinbefore described, placing the strand over the pulley and then moving the plate 11 so that the pin 38 again engages the pole in the side plate. The guiding device is formed in such a manner that it can be readily placed over the crossarm on the pole and fastened in place by setting of the thumb screw 88 so that it will not slip sideways or accidentally become dislodged from the crossarm. The guiding device can then be utilized for placing final tension on the messenger or strand.

It is apparent from the foregoing that I have provided a new and improved cable guiding device which is particularly adapted for use for stringing messenger or strand where there is existing cable or strand. It is also useful for placing final tension on the messenger or strand. The device is constructed in such a manner that

it can be readily mounted on the existing strand or conventional support means. It is also designed in such a manner that it can be manufactured economically.

I claim:

In a guiding device for guiding an elongate element into a position adjacent to an existing elongate element, a pair of substantially pear-shaped side plates formed of sheet metal and having outwardly flared rounded edges, a pulley rotatably mounted between the pair of side plates, a support member affixed to one of the side plates and spaced from the pulley, the other of the side plates having a hole therein and being movable between open and closed positions with respect to the pulley and said one side plate about an axis coincident with the axis of rotation of the pulley, a pin slidably mounted in the support means for movement in a direction parallel to the axis of rotation of the pulley, means yieldably urging the pin into engagement with the hole in said other side plate when said other side plate is in a closed position to retain said other side plate in a closed position, a knob affixed to the pin to permit retraction of the pin from said other side plate so that said other side plate can be moved to an open position to permit insertion of an intermediate portion of an elongate element onto the pulley, means mounted on the pin and adapted to engage one of said side plates and serving to limit the travel of said pin in a direction towards said other side plate, clamping means adapted to engage the existing elongate element, said clamping means including a pair of clamping members, a goose-necked member having one end secured to one of said clamping members, a swivel member rotatably mounted on the other end of said goose-necked member for rotation about an axis substantially perpendicular to the axis of rotation of the pulley, means pivotally connecting said swivel member to the support member to permit rotation of the support member about an axis perpendicular to the axis of rotation of said pulley and perpendicular to the axis of rotation of said swivel member, the other of said clamping members being movable

toward and away from said one clamping member, a threaded pin rotatably mounted in said one clamping member and threadedly engaging said other clamping member, means carried by said clamping member for preventing rotation of said other clamping member with respect to said one clamping member, and spring means disposed between the clamping members for yieldably urging said other clamping member away from said one clamping member, said pulley being movable in at least two directions with respect to said clamping means, one direction of movement being permitted by rotation of said swivel member on said goose-necked member, the other direction of movement being permitted by the pivotal connection between said swivel member and said support member.

References Cited by the Examiner

UNITED STATES PATENTS

588,309	8/97	Agobian	254—192
844,159	2/07	Ludford	254—192
1,516,489	11/24	Barton	24—263.3
1,784,521	12/30	Gwinn	254—192
2,008,467	7/35	Perry	254—190
2,041,420	5/36	Lindgren	254—190
2,149,760	3/39	Carlson	24—263.3
2,366,636	1/45	McKissick	254—193
2,449,703	9/48	Johnson	254—193
2,453,963	11/48	Bercaw	254—193
2,555,059	5/51	Schrader	254—193
2,613,256	10/52	Thomas.	

FOREIGN PATENTS

551,126	1/58	Canada.
275,919	9/51	Switzerland.

SAMUEL F. COLEMAN, *Primary Examiner.*

HARRISON R. MOSELEY, JOSEPH P. STRIZAK, *Examiners.*