

H. C. WILLIAMS.
MECHANISM FOR INSTALLING TRANSMISSION LINE WIRES.
APPLICATION FILED NOV. 2, 1917.

1,265,851.

Patented May 14, 1918.
2 SHEETS—SHEET 1.

Fig. 1

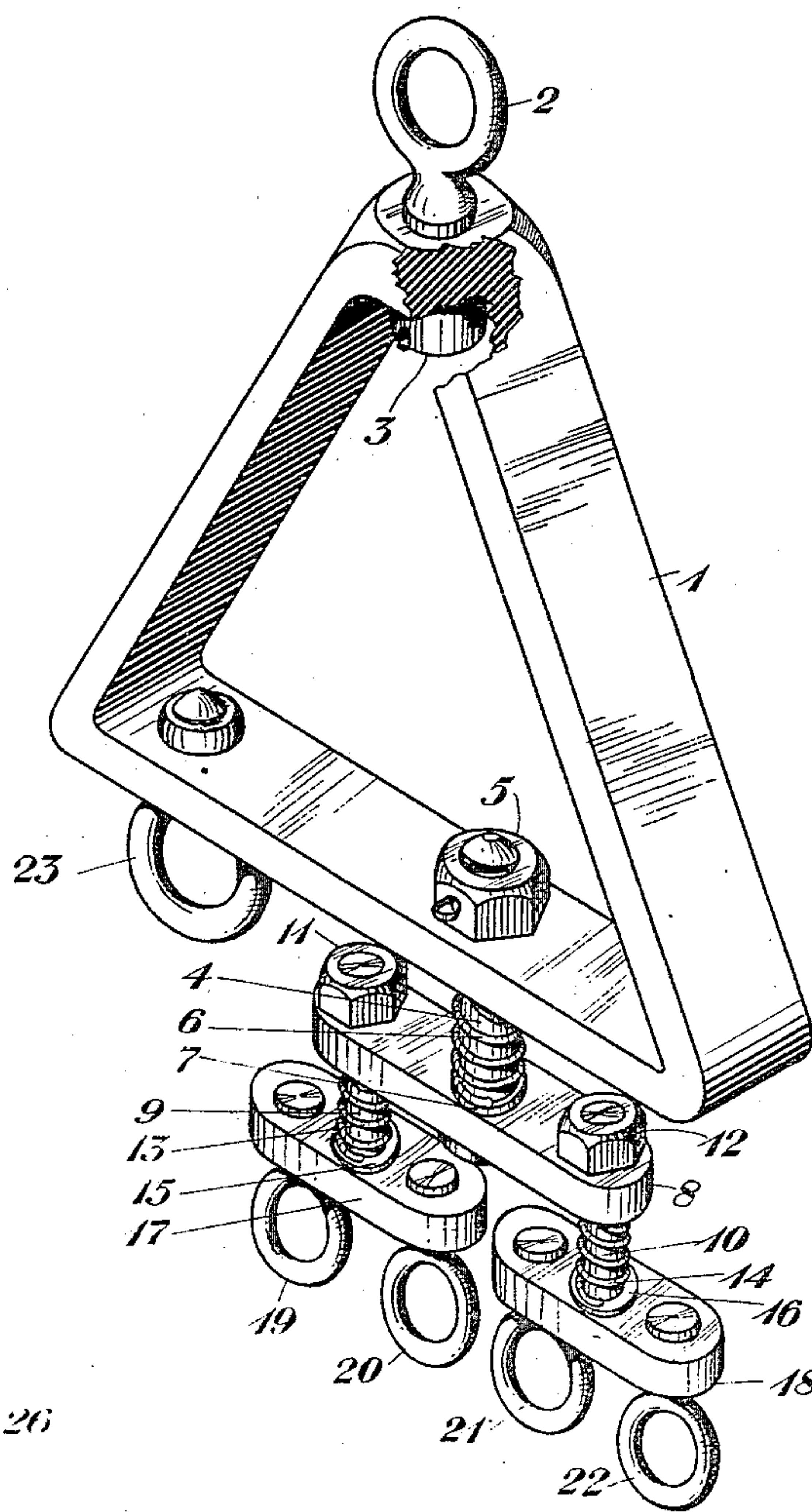
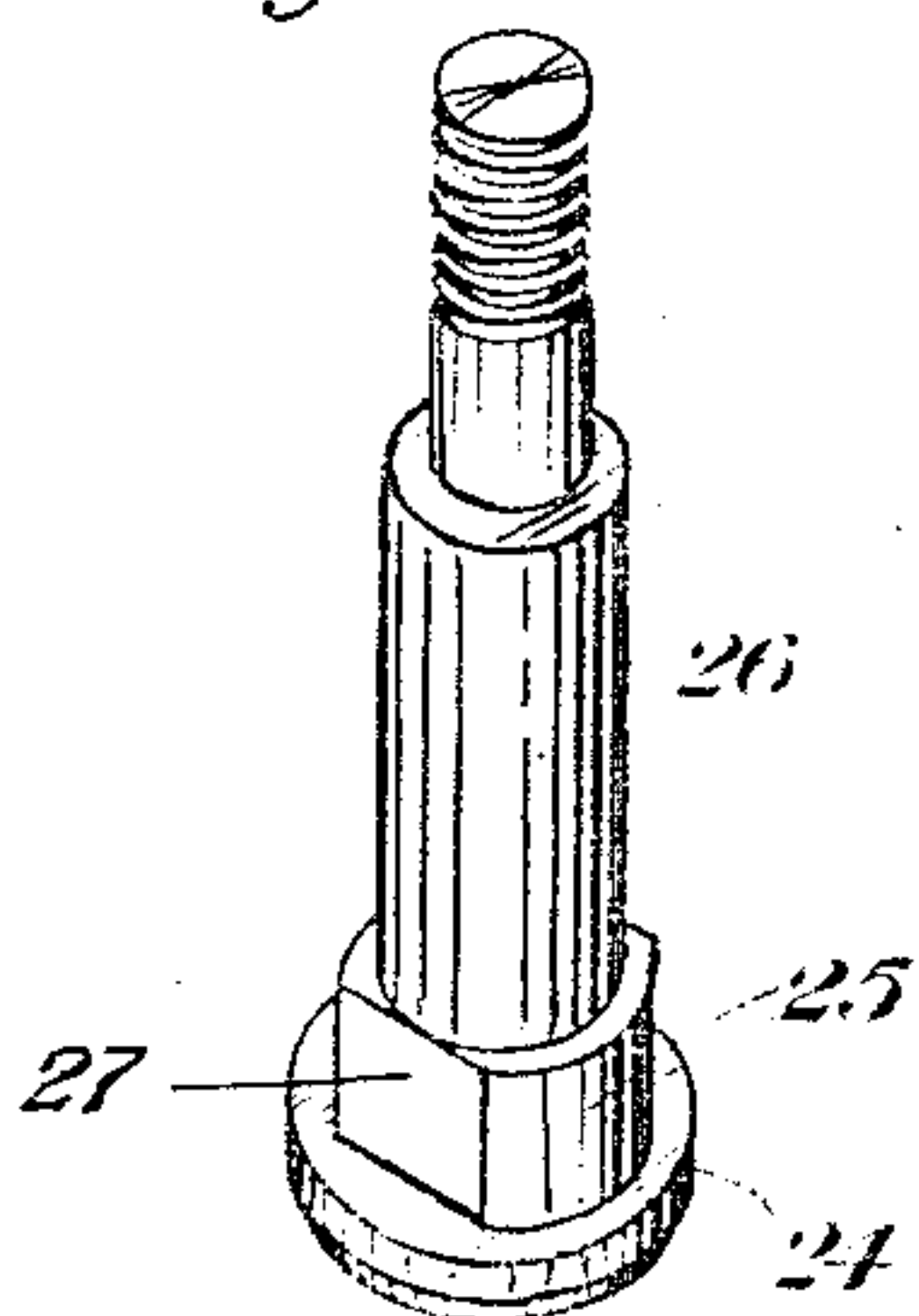


Fig. 2



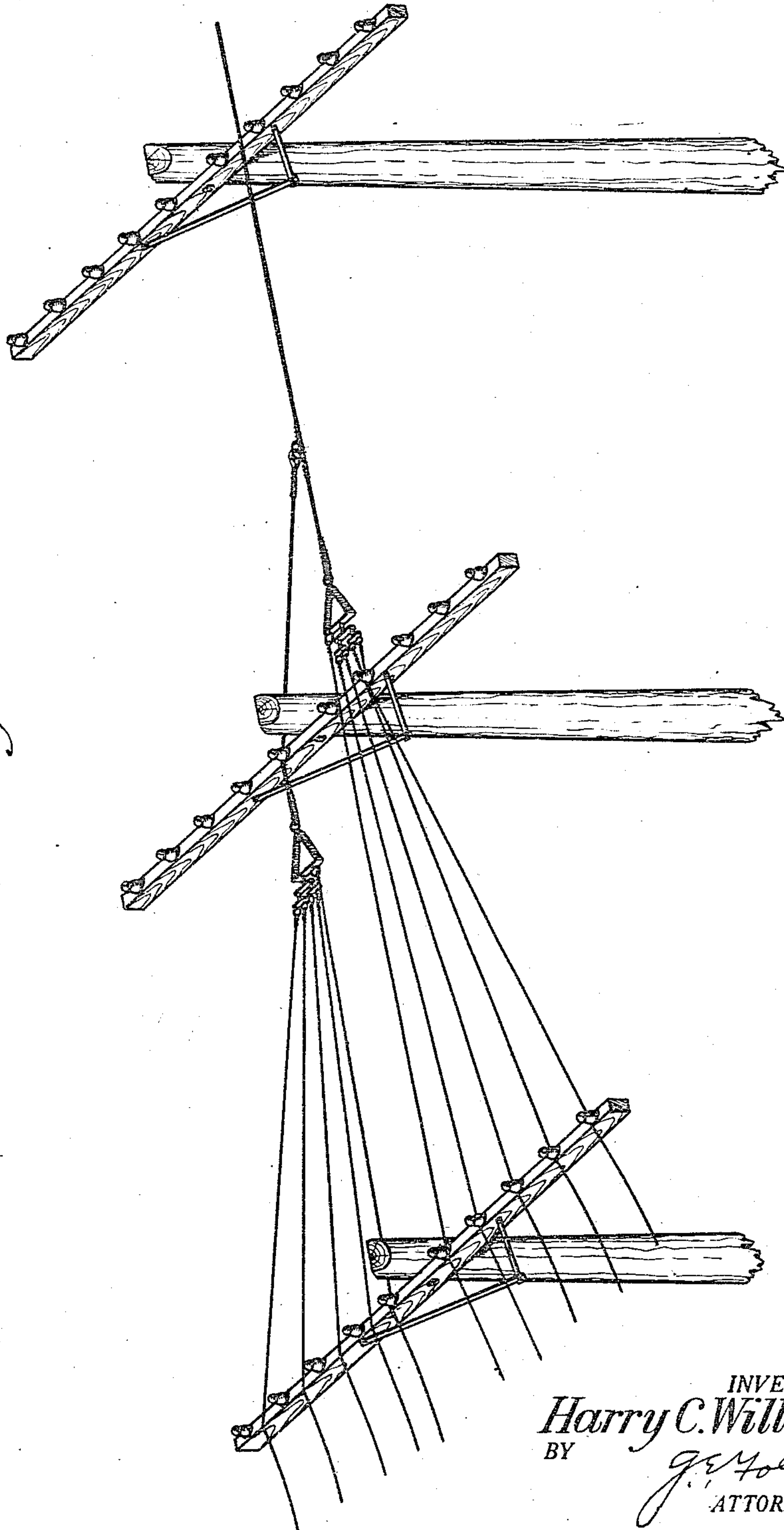
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Fig. 3



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UNITED STATES PATENT OFFICE.

HARRY C. WILLIAMS, OF IRVINGTON, NEW JERSEY, ASSIGNOR TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF NEW YORK.

MECHANISM FOR INSTALLING TRANSMISSION LINE-WIRES.

1,265,851.

Specification of Letters Patent.

Patented May 14, 1918.

Application filed November 2, 1917. Serial No. 199,999.

To all whom it may concern:

Be it known that I, HARRY C. WILLIAMS, residing at Irvington, in the county of Essex and State of New Jersey, have invented certain Improvements in Mechanism for Installing Transmission Line-Wires, of which the following is a specification.

This invention relates to apparatus for use in the construction of overhead transmission lines and more particularly to mechanism for installing line wires on crossarms and to facilitate the transposing of these wires.

Heretofore in installing line wires on crossarms it has been customary to connect the line wires to the pulling line by means of a device to which each of said line wires was attached in a fixed position relative to the others. Wherever it was desired to transpose the wires of any pair or the pairs of wires, or both, it was necessary to disconnect the wires of a pair or the pairs of wires from the said connecting device and to transfer and fasten them to their new positions thereon corresponding with the transposed position of the wires or pairs on the crossarm or other supporting device. The use of a connecting device of this type causes much delay and introduces a possibility of error, which delay and error will be minimized through the use of this invention.

The object of this invention is, therefore, to provide an apparatus for connecting a plurality of line wires to a pulling line whereby all of said wires may be supported in substantially the same plane, and each wire held securely in a definite position with respect to the other wires, and also having means associated therewith whereby the wires of any pair, or the adjacent pairs of wires, or both the wires and the pairs may be transposed, without disconnecting the wires from the said apparatus, and may be securely held in such transposed position.

This invention will be clearly understood by referring to the accompanying drawing of which Figure 1 is a perspective of the entire apparatus, a part of which is shown in section so as to disclose certain details, Fig. 2 is a perspective of a detail, and Fig. 3 is a perspective showing a method of using this apparatus.

In the drawing, 1 represents a yoke

through the apex of which is placed an eye 55 bolt 2, adapted to rotate about an axis substantially parallel with the axis of the pulling line. A nut 3, at the inner end of the bolt secures it to the yoke. Through the side of the yoke opposite the apex is placed 60 a bolt 4, rigidly fastened thereto by means of the nut 5. Coaxial with the bolt 4 is a spring 6, one end of which presses against the yoke and the other end against the washer 7, which is in contact with the member 8. The said member is prevented by the shoulder of bolt 4 from rotating about said bolt and is normally held in a fixed position by the spring 6, but it is capable of being rotated about said bolt. This will 70 be more clearly seen by referring to Fig. 2 which shows in perspective, bolt 4, having a head 24, and a shoulder 25 between the head 24 and the shank 26. The shoulder 25 has two parallel faces, one of which, 75 designated 27 is shown and the other of which is similar and diametrically opposite, and the planes of these two faces are tangent to the shank 26. The slot in member 8 has two parallel sides and slightly rounded 80 ends, the distance between the two parallel sides of the slot being a trifle greater than the distance between the two parallel faces of the shoulder of the bolt. Two bolts 9 and 10, similar to but preferably smaller 85 than the bolt 4, are attached to member 8, one extending through each end of said member, as shown in Fig. 1, and rigidly fastened thereto by means of the nuts 11 and 12, respectively. Around bolt 9 is 90 placed a spring 13, one end of which presses against member 8 and the other end against washer 15, which is in contact with member 17. Two eyes, 19 and 20, are attached to member 17, one at each end, and adapted 95 to rotate about an axis substantially parallel with the axis of the bolt 4. In a similar manner a spring 14 is placed around bolt 10, one end pressing against member 8 and the other end against washer 16, which is 100 in contact with member 18, the said member having two eyes 21 and 22 attached thereto in the same manner in which eyes 19 and 20 are attached to member 17. Another eye 23, is securely fastened to the yoke 105 and adapted to rotate about an axis substantially parallel with the axis of the bolt 4. The function of each of said eyes is to

provide rotatable means for connecting the line wires to this connecting apparatus. The members 17 and 18 are prevented from rotating by means similar to those which prevent the member 8 from rotating, and are held in their normally fixed positions by the springs 13 and 14 respectively.

The apparatus here disclosed is adapted for connecting the maximum of five line wires at the same time, and therefore it is customary to connect to the pulling line two of these devices having a total capacity of ten wires, since this is the maximum number of wires placed at the same time upon the type of crossarm which is now most widely used in telephone and telegraph line construction. However, it is not desired to restrict the invention to the single form in which it is here shown inasmuch as apparatus embodying this invention may be designed to connect any number of line wires.

If it is desired to place five line wires upon crossarms on a pole line, a pulling line is attached to the yoke by inserting it in the eye of the eye-bolt 2 and securing it in the usual manner, and five line wires are connected to the eyes 19, 20, 21, 22 and 23 usually by inserting each of said wires through an eye and twisting the free end about the standing end of each wire, but in some instances it may be desirable to connect each wire to a snap-hook which, in turn, is connected to an eye of the connecting device. By means of a power-driven winch or a team of horses, or other suitable method a force is applied to the pulling line whereby the line wires are drawn from pole to pole in the manner shown in Fig. 3.

At the point where, for example, it is desired to transpose the wires of one pair, such as those connected to eyes 19 and 20, member 17 is pressed toward the yoke against the action of spring 13 sufficiently far to lift the member 17 entirely above the shoulder of the bolt 9. It may then be rotated about the bolt freely in either direction through an arc of 180° when the pressure of spring 13 will cause said member to drop back into its normal position against the head of the bolt where it is prevented from turning by the shoulder of bolt 9. If member 17 has been raised above the shoulder of bolt 9, and is being rotated about the bolt, when said member reaches a position where the sides of the slot are parallel with the faces of the bolt, said member will drop into its normal position against the head of the bolt, and will be prevented from turning.

If it is desired to transpose two adjacent pairs, but not the wires of the pairs, member 8 is rotated through 180° in the same manner in which the member 17 was rotated, and is securely held in that position in a

manner similar to that in which member 17 is held. The rotation of member 8 will transpose not only both pairs of wires, but also the wires of each of the transposed pairs. In order to remove the transposition of the wires of the pairs the members 17 and 18 are rotated in a direction opposite to that in which member 8 was rotated, thereby removing the twist from the wires, leaving the pairs only transposed.

The invention provides a simple apparatus for connecting a plurality of line wires to a pulling line and for holding securely each of said wires in a definite position relative to the others, but so adapted that the wires or pairs may be transposed without disconnecting the wires from said apparatus, thereby facilitating the transposing of said wires and tending to minimize the possibility of error which arises when the line wires are disconnected from the connecting apparatus in order to effect their transposition.

While, for the purpose of illustration, the invention has been shown as embodied in a single form, it is to be understood that the invention is capable of other and widely different forms of embodiment which fall within the scope of the appended claims.

What is claimed is:

1. In a device for connecting a plurality of transmission line wires to a pulling line, the combination of a yoke, and means for attaching a plurality of pairs of line wires to said yoke, said means including a mechanism whereby the wires of any pair may be transposed and securely held in transposed position.

2. In a device for connecting a plurality of transmission line wires to a pulling line, the combination of a yoke, and means for attaching a plurality of pairs of line wires to said yoke, said means including a mechanism whereby the adjacent pairs of wires may be transposed and securely held in transposed position.

3. In a device for connecting a plurality of transmission line wires to a pulling line, the combination of a yoke and means for attaching a plurality of pairs of line wires to said yoke, said means including a mechanism whereby the adjacent pairs of wires may be transposed, and also the wires of any of said pairs may be transposed, and both wires and pairs securely held in transposed position.

4. The combination of a yoke, rotatable means for attaching a pulling line to said yoke and rotatable means whereby a plurality of line wires may be connected to said yoke.

5. The combination of a yoke, rotatable means for attaching a pulling line to said yoke, and a transposing mechanism consisting of a plurality of rotatable eyes grouped

in pairs and connected to rotatable members whereby the wires connected to each pair of eyes may be transposed.

5 6. The combination of a yoke, rotatable means for attaching a pulling line to said yoke, and a transposing mechanism consisting of a plurality of rotatable eyes, grouped in pairs and connected to rotatable members, said members also being grouped in pairs and connected to a rotatable member whereby the pairs of wires connected to said eyes may be transposed and the said wires of each of said pairs may be transposed.

10 7. The combination of a yoke, having a rotatable eye-bolt associated therewith, and a transposing mechanism consisting of a bolt rigidly connected to said yoke, and having a spiral spring co-axial with said bolt, and a member adapted to rotate about said bolt, said member having at each end a bolt rigidly attached thereto, each bolt having a spiral spring co-axial thereto and a member adapted to rotate about said bolt, each of which members having a plurality of eyes 20 associated therewith whereby a plurality of

wires may be connected to said yoke and whereby said wires may be transposed.

8. In a device for connecting a plurality of transmission line wires to a pulling line the combination of a yoke, a bolt rigidly attached to said yoke, said bolt having a shoulder of non-circular cross-section and a head having a diameter greater than the maximum dimension of said shoulder, a rotatable member pivoted upon said bolt and having a slot of substantially the same shape and size as the cross-section of said shoulder, whereby said member is adapted to fit said shoulder and rest upon said head, thereby being prevented from rotating, and a spiral spring co-axial with said bolt whereby the said member may be held thus fixed. 30 35 40

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 13th day of October, 1917. 45

HARRY C. WILLIAMS.

Witnesses:

L. W. LAMB,

JAS. G. McLAUGHLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."