

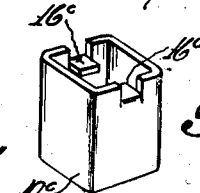
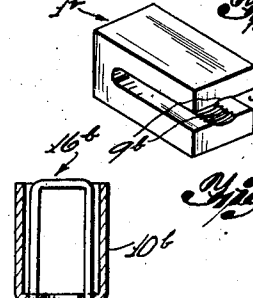
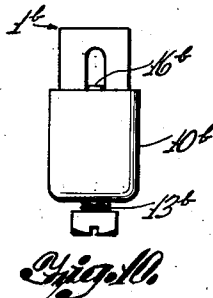
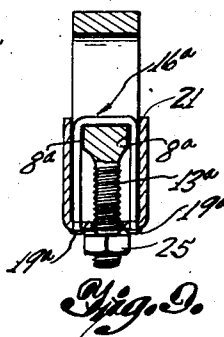
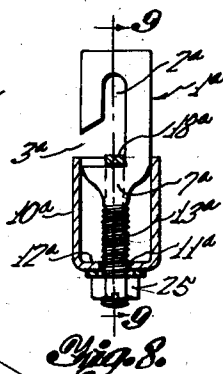
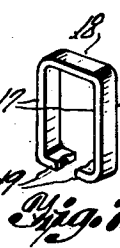
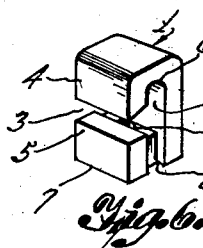
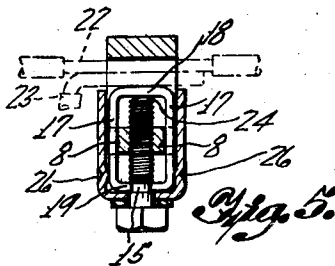
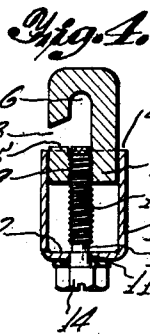
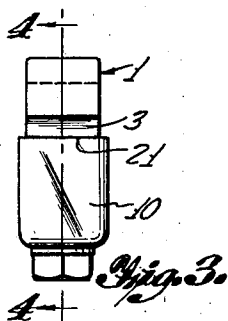
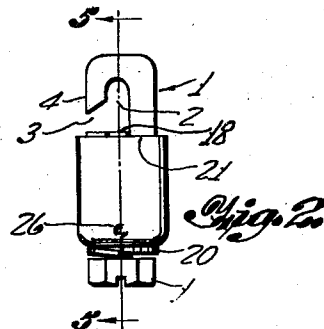
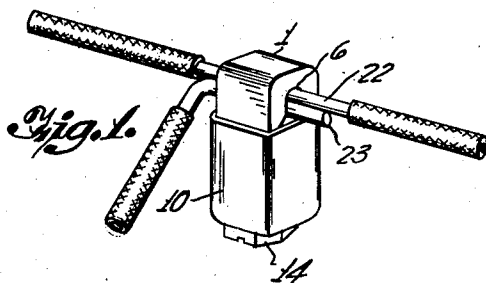
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1,981,685

WIRE CONNECTER

Filed Sept. 22, 1932



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1,981,685

WIRE CONNECTER

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Application September 22, 1932, Serial No. 634,328

13 Claims. (Cl. 173-273)

This invention relates to connectors for connecting branch or tap lines to the main line wires of systems supplying electrical energy for any required purpose, such as for operating telephone or telegraph instruments, electric lights or the like.

An important object of the invention is to provide a connector of the kind referred to which may be easily and quickly operated and installed by a lineman in the course of his work.

Another object is to provide such connector in a form which is at once relatively simple, strong, efficient and practical.

Still another object is to provide a connector embodying a slotted lug or keeper for engaging the wires, a thimble or sleeve slidably mounted upon the lug and adapted to close over the slot thereof, and means for forcing the thimble or sleeve to so close over said slot.

A still further object is to provide a connector embodying an elongated keeper lug having a wire holding slot formed therein and opening out through the lug for admitting the wires transversely inserted, a thimble slidably mounted upon the slotted end of the lug, there being an aperture through the closed outer end of the thimble, a screw extended through said aperture, the screw being connected at its inner end with the lug, as means for forcing the thimble inwardly upon the lug and over the said wire slot, and a bearing extended transversely through the wire slot and arranged to travel with the thimble, for pressing upon the wires within the wire slot.

Yet another object is to provide in a device of the kind described, the combination of an elongated keeper lug having a wire engaging slot formed therein and an extension of the slot opening out through the lug for admitting the wires into the wire slot, there being a screw bore formed in the lug in alignment with the wire holding slot and opening out through an end of the lug, a thimble slidably mounted over the tapped-out end of the lug, the said thimble having a screw aperture through its closed outer end, a screw passed through said aperture into the screw bore of the lug, the screw having connection with or bearing upon the thimble, to cause the latter to travel with the former, and a bearing element arranged to travel with the thimble and screw for pressing upon the wires within the wire slot of the lug.

With these and such other and further objects and advantages in view as may be developed in the course of the following specification, attention is directed to the accompanying drawing as

exemplifying certain practical embodiments of the invention, and wherein

Figure 1 is a perspective view showing one preferred form of the invention as in use for connecting a branch line or wire with the main line.

Figure 2 is a side elevation of the form of connector shown in Figure 1, the connector being here shown open and ready for the reception of the wires.

Figure 3 is a frontal elevation of the form shown in Figures 1 and 2.

Figure 4 is a section on the line 4-4 of Figure 3.

Figure 5 is a section on the line 5-5 of Figure 2, the wires engaged being represented in dotted lines.

Figure 6 is a detail in perspective of the keeper lug employed in the embodiments represented in the preceding figures.

Figure 7 is a detail in perspective of the bearing yoke employed in the embodiments represented in the preceding figures.

Figure 8 is a side elevation, partly in section, of a modified form of connector.

Figure 9 is a section on the line 9-9 of Figure 8.

Figure 10 is a side elevation of still another form of connector considered as within the scope of this invention.

Figure 11 is a detail in perspective of the form of keeper lug employed in the embodiment represented in Figure 10.

Figure 12 is a detail, partly in section, showing the method of anchoring the ends of the bearing yoke to the thimble, as employed in the structures represented in Figures 9 and 10.

Figure 13 is a detail showing a method of turning in tongues from the upper margins of the thimble to form bearings for pressing upon the wires within the wire slot of the keeper lug, this arrangement being in lieu of the special bearing yokes provided in other embodiments.

As represented in Figures 1 to 7 inclusive, the invention includes a somewhat elongated and squared keeper lug or block 1, formed with the main, longitudinally extended wire engaging slot 2, which opens out laterally through the lug as shown, and the auxiliary, wire admitting slot or mouth 3 extended out perpendicularly to the slot 2. Thus the keeper lug is provided with opposed upper and lower lips 4 and 5, the same forming the margins of the mouth 3 of the slot 2. The upper lip 4 is extended down so as to provide a wire recess or seat 6 at the upper end of the slot 2. The sides of the base 7 of the lug are recessed as shown at 8 in alignment with the main wire slot 2, thus forming guide grooves constituting a slide-

way for the bearing yoke later to be described. A screw threaded bore 9 is formed axially through the base of the lug. A squared thimble, housing, shell, sleeve or cap 10 is slidably mounted over the lower or tapped end of the lug 1, and is pierced with a screw aperture 11 through its closed end 12 in registry with the bore 9. A set screw 13 is passed through the aperture 11 into threaded engagement with the bore 9, the screw having the head 14 and being formed with a circumferential groove 15 adjacent the head. A bearing or pressure loop or yoke 16, including the spaced legs 17 connected by a bight portion 18, is slidably mounted through the slot 2, the legs being slidably disposed within the guide grooves 8 at either side of the lug 1, and the lower free extremities 19 of the yoke being turned perpendicularly inward and freely seated within the groove 15 of the screw, the margins or edges of the extremities being formed arcuately as shown, for the sake of a more positive seating in the groove. The screw head 14 may, of course, be formed in any conventional manner adapted for turning with a wrench or pliers or with a screw driver (operating tools not shown), as indicated by the faced form of the head and by the kerf therein. A lock washer 20 may be interposed between the head of the screw and the thimble. In assembling the described elements, it is contemplated that the bight 18 of the yoke 16 shall fall substantially in alignment with the free or upper margins 21 of the cap or thimble 10, and that the inner end of the screw 13 shall support the bight at the under side thereof, as indicated at 24.

After the elements of this structure are all assembled, the walls of the thimble 10 may be indented, as shown at 26, at points immediately aligned with the inturned extremities 19 of the legs 17 of the yoke 16, as means for locking those extremities rotatively within the groove 15 of the screw 13.

In the use of the device as described, the screw 13 and thimble 10 are withdrawn so as to clear the mouth or slot 3 leading into the wire slot 2 of the lug 1. The main wire 22 and branch 23 are then stripped and entered through the slot 3 into the main slot 2 and are seated within the recess 6. The screw 13 is then turned up, carrying with it the thimble 10 and the yoke 16, thus causing the bight 18 of the yoke to force the wires tightly together within the recess or seat 6 and completing the connection.

In the modification shown in Figures 8 and 9, the screw stem 13a is rigidly connected at its inner end with the base 7a of the lug 1a, and is extended out through the registering aperture 11a of the thimble, and a nut 25 is mounted upon the outer end of the screw. The turning up of this nut operates to force the thimble 10a inwardly. Inasmuch as the screw in this structure does not move bodily inward as with the previously described structure, the yoke 16a has its extremities anchored to the closed end of the thimble, as shown at 19a, and thus the yoke is carried along with the thimble.

In the further modification shown in Figures 10 and 11, the main wire slot 2b is extended straight out through the end of the lug 1b, and segmental screw threads 9b are formed longitudinally upon the opposite walls of this slot, the screw 13b being passed directly thereinto and carrying with it the thimble 10b and yoke 16b which is formed and mounted exactly like the yoke of the structure represented in Figures 8 and 9. It will be noted that the two first described forms of connector are unitary in char-

acter, that is to say, the wires can be seated therein without disassociating the elements of the connectors, but this is not true of the last described form, since in this the screw and thimble would need to be entirely removed from the lug to enable the entering of the wires into the slot 2b. In other respects, the operations of the several devices are substantially similar. It will also be noted that the thimbles or caps 10, 10a and 10b, all serve as a sort of housing and also operate to prevent the spreading asunder of the divided portions of the lugs formed by the slots 2, 3, 2a, 3a, 2b, under the pressures exerted by the screws.

In the modification shown in Figure 13, in lieu of an individual or separate bearing yoke 16, etc., bearing tongues 16c may be turned down inwardly from the free and opposite margins of the open end of the thimble 10c, transversely into the wire slot of the lug or block. These tongues would serve the same purpose as the separate bearing yokes referred to in the other structures.

While the several keeper lugs and associated thimbles shown in the present embodiments are represented as of a squared formation, which is considered preferable, the said elements might be formed round or oval, if preferred, and still fall within the scope of the invention, and while there are here embodied and described certain specific forms of structure, and certain specific embodiments of the invention, it is understood that same may be varied or modified in details, not departing from the spirit of the invention, as defined in the appended claims.

We claim:

1. In a device of the kind described, a keeper lug having a main wire slot extended transversely through the lug and a wire entrance slot extended out perpendicularly to the main slot, the said lug having also a tapped bore formed through one side of the lug in axial alignment with the said main wire slot, a thimble slidably mounted upon the lug with its open end opposed to the closed end of the main wire slot of the lug, the closed end of the thimble having a screw aperture therethrough in registry with the bore of the lug, a screw passed through said screw aperture of the thimble and into the tapped bore of the lug, the said screw having a circumferential groove adjacent its head, and a looped bearing yoke slidably mounted within the main wire slot of the lug, the bight of the yoke being disposed substantially in alignment with the free margins of the thimble, the body of the yoke being disposed within the said thimble and the free extremities of the yoke being turned inward and placed in rotative engagement with the said circumferential groove of the screw, whereby the yoke is made to travel with the screw.

2. In a device of the kind described, a keeper block including a base portion and an upper portion, the block being formed with a main elongated wire engaging slot opening out laterally through the block and an auxiliary wire entrance slot extended out perpendicularly and medially from the main slot, the sides of the base portion being recessed to form guide grooves, there being also a screw threaded bore formed through the base of the block in axial alignment with and opening into the main slot thereof, a thimble slidably enclosing the base portion of the block and adapted to close over the slots thereof, the thimble having an aperture through its closed end registering with the bore in the base of the block, a set screw passed through the thimble

aperture into the threaded bore of the base of the block, the head of the screw being adapted to bear upon the outer side of the closed end of the thimble for forcing the thimble inwardly upon the block, there being a circumferential groove around the screw adjacent the head, and a looped bearing yoke including spaced legs and a connecting bight slidably mounted through the main wire slot of the block, inside the thimble, the legs being slidably disposed in the guide grooves of the base of the block and the lower free extremities of the legs being turned inward and freely seated within the circumferential groove of the screw.

3. In a device of the kind described, a keeper block including a base and upper portion and formed with a wire engaging slot opening out through one side for the transverse insertion of wires, a screw stem rigidly connected with and extended from the base of the block in axial alignment with the wire engaging slot thereof, the said base of the block having guide grooves cut upon opposite sides in the extended median plane of the wire slot, a thimble having an aperture through its closed end and slidably mounted upon the base of the block with the said screw stem protruding through the aperture of the thimble, a nut upon the outer end of the screw stem, a looped bearing yoke including spaced legs and a connecting bight slidably mounted within the wire slot of the block and enclosed by said thimble, the legs of the yoke being disposed within the said guide grooves of the block and the extremities of the legs being anchored to the closed outer end of the thimble.

4. In a device of the kind described, an elongated keeper block having a wire slot extended longitudinally thereinto through one end, the walls at the opposite sides of the slot being segmentally and longitudinally screw threaded, a thimble slidably enclosing the slotted end of the block, the said thimble having an aperture through its closed end in alignment with the slot of the block, a set screw passed through the thimble aperture into the segmental threads of the slot, the head of the screw having a bearing against the closed end of the thimble, and a looped bearing yoke including spaced legs connected by a bight slidably mounted in the slot of the block, inside the thimble, the extremities of the legs being anchored in the closed end of the thimble.

5. In a device of the kind described, a keeper lug including a base and an upper end, the lug being provided with a slot for the transverse insertion of wires and with the inner end of the slot forming a wire seat in the upper end of the lug, a screw stem extended axially from the base of the lug, a thimble having an aperture through its closed end and slidably mounted by its upper end over the base of the lug with the screw stem protruding outwardly through the thimble aperture, a bearing within the slot of the lug, and means coordinating the screw stem for forcing the thimble and bearing inwardly upon the lug towards the said wire seat.

6. In a device of the kind described, a keeper lug having a wire slot closed at one end and opening out thru the lug, a thimble slidably mounted upon the lug with its open end opposed to the closed end of the wire slot thereof, the outer closed end of the thimble having a screw aperture therethru, a looped bearing yoke mounted within the thimble, the same including a pair of spaced legs disposed longitudinally at the

inner faces of opposite walls of the thimble, the bight of the yoke being passed slidably thru the slot of the lug in approximate alignment with the free margins of the open end of the thimble, and a screw element extended thru the screw aperture of the thimble, between the legs of the bearing yoke, and operatively connected at its inner end with the keeper lug for drawing that lug within the thimble and causing the latter to close over the wire slot of the lug, the said bearing yoke being arranged to maintain a fixed relation as to the thimble in the movement of the latter relative to the screw element.

7. In a device of the kind described, a keeper lug having a wire slot closed at one end and opening out thru the lug, a thimble slidably mounted upon the lug with its open end opposed to the closed end of the wire slot of the lug, and adapted to close thereover, the outer closed end of the thimble having an aperture therethru, a looped bearing yoke mounted within the thimble, the same including a pair of spaced legs disposed longitudinally at the inner faces of the opposed walls of the thimble and a connecting bight extended slidably thru the slot of the lug in approximate alignment with the margins of the thimble, and means extended thru the aperture of the outer end of the thimble and disposed within the looped bearing yoke mounted as aforesaid within the thimble, for forcing the thimble to close over the lug and slot thereof as aforesaid.

8. In a device of the kind described, a keeper lug provided with a wire engaging slot opening out thru the lug for the transverse insertion of wires, a thimble slidable upon the lug to close over said slot the open end of the thimble being opposed to the closed end of the wire slot and the outer closed end of the thimble having a screw aperture therethru, a screw stem extended thru the screw aperture of the thimble and operatively connected at its inner end with the keeper lug, means upon the screw stem for closing the thimble upon the lug, and a looped bearing yoke inclosed by the thimble and slidably engaging the slot of the lug, the said yoke including legs disposed laterally of the screw stem and so connected to the assembly of thimble and screw stem as to remain stationary relative to the thimble as the latter moves relative to the screw stem.

9. In a device of the kind described, a keeper lug having a wire slot opening out thru three sides for the transverse insertion of wires, a thimble slidably mounted upon the lug, the outer closed end of the thimble being pierced with an aperture, a screw passed thru the aperture of the thimble and into the wire slot of the lug, the said screw having a circumferential groove, and a bearing yoke within the thimble, the same including a bight passed slidably thru the slot of the lug and legs embracing the inner end of the screw, the extremities of the legs being turned into the groove of the screw for rotatably connecting the yoke and screw, the head of the screw having a bearing upon the outer closed end of the thimble for forcing the latter inwardly upon the lug.

10. In a device of the kind described, a keeper lug having a wire holding slot formed therein and opening out thru the lug for admitting wires transversely inserted, a thimble slidably and closely fitted over the slotted portion of the lug, there being an aperture thru the closed outer wall of the thimble, a screw extended thru said

aperture and operatively connected at its inner end with the lug as means for forcing the thimble inwardly upon the lug over said wire slot, and a looped bearing yoke extended transversely thru the wire slot of the lug and arranged to move with the thimble, the yoke including legs inclosed within the thimble laterally of the lug the lug being formed to slidably engage the said legs, and a connecting bight adapted to slidably traverse the slot of the lug.

11. In a device of the kind described, an elongated keeper lug having a wire engaging slot formed therein and an extension of the slot opening out thru the lug for admitting wires into the wire slot, there being a screw passage formed in the lug in alignment with the wire holding slot and opening out thru an end of the lug, a thimble slidably and closely fitted on the lug the same having a screw aperture thru its otherwise closed end, a screw passed thru said aperture into the screw passage way of the lug, the screw having a bearing upon the thimble so as to carry the latter with it, and a looped bearing yoke within the thimble the same including a bight portion extended slidably and transversely thru the slot of the lug and spaced legs disposed longitudinally and laterally of the lug, the said legs serving for supports for the said bight portion.

12. In a device of the kind described, a keeper lug having a wire engaging slot opening out thru the lug at three sides thereof for the transverse admission of wires, a looped bearing element including a bight portion slidably extended thru the slot of the lug and connected spaced legs

disposed slidably at either side of the lugs as supports for the bight portion, a thimble slidably and closely fitted over the lug and inclosing the bearing element, the open end of the thimble being turned in opposed relation to the closed end of the wire slot, the otherwise closed end of the thimble having a screw aperture there-
thru, a screw extended thru said screw aperture of the thimble and having operative connection with the keeper lug at its inner end, the said screw constituting means for forcing the thimble inwardly upon the lug, and means for causing the said bearing element to move with said thimble.

13. In a device of the kind described, a keeper lug having a wire slot opening out thru three sides for admitting wires transversely inserted, a thimble closely and slidably fitted upon the lug with its open end opposed to the closed end of the wire slot, the otherwise closed end of the thimble having a screw aperture therethru, a screw extended thru the screw aperture of the thimble and operatively connected at its inner end with the keeper lug, the said screw affording means for closing the thimble upon the lug, a looped bearing yoke within the thimble the same including a bight slidably extended thru the wire slot of the lug, and legs slidably disposed laterally of the lug as supports for the bight portion of the yoke, the said bearing yoke being mounted to move with the thimble relatively to the keeper lug.

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