

W. E. BELCHER.
EQUALIZER YOKE.
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1,173,642.

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Fig. 1

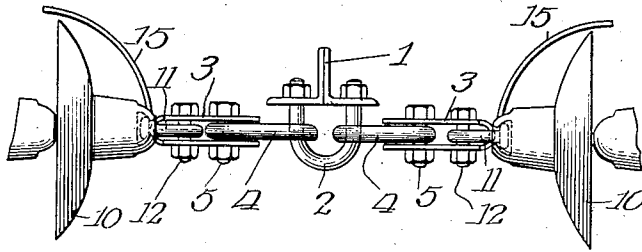


Fig. 2

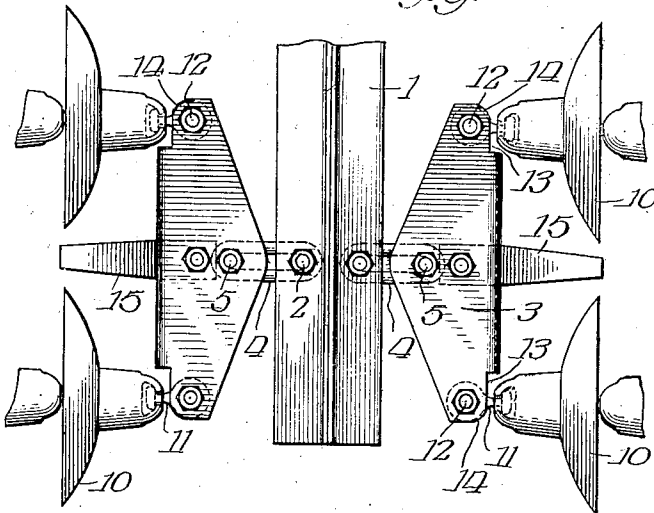
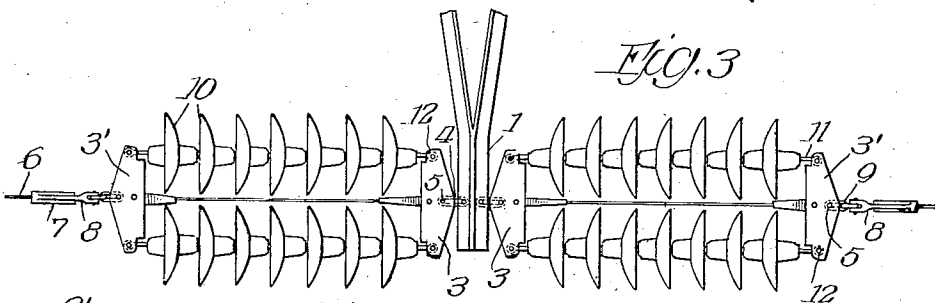
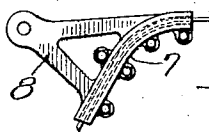


Fig. 3



Witnesses: Fig. 4

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UNITED STATES PATENT OFFICE.

WALLACE E. BELCHER, OF WASHINGTON, DISTRICT OF COLUMBIA.

EQUALIZER-YOKE.

1,173,642.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALLACE E. BELCHER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Equalizer-Yokes, of which the following is a specification.

This invention relates to strain or equalizer yokes for use in connection with strings of insulators employed in electrical transmission lines.

It is the object of my invention to provide an equalizer yoke of simple form, easily constructed of ductile ferrous metal, such as steel, the strength of which is readily ascertained, whereby all unnecessary weight is eliminated and the behavior of the yoke under stress is assured.

Other objects and advantages of my invention will be apparent as it is better understood by reference to the following specification when read in connection with the accompanying drawing, in which—

Figure 1 is a side elevation of a portion of a strain insulator system showing my invention in use; Fig. 2 is a plan view of the same; Fig. 3 is a plan view of a strain insulator system showing the arrangement of the equalizer yokes, according to my invention, with respect to the supporting cross arm and the transmission line; and Fig. 4 is a detail in side elevation showing the means for connecting the yokes to the transmission line.

Referring to the drawing, 1 indicates a cross arm which may be supported in any suitable manner from a tower (not shown). The U-shaped member 2 is secured to the under side of the cross arm and from the member 2 the yokes 3 are supported by means of links 4, which engage the bolts 5 in the yokes 3 or are otherwise connected thereto.

The transmission line 6, at a suitable distance on either side of the cross arm 1, is disposed through and secured in the downwardly directed portions 7 of the supporting members 8, which are in turn connected to the yokes 3' through the links 9, engaging the bolts 5 therein. Between the oppositely disposed arms of the yokes 3 and 3' strings of individual strain insulators 10 are mounted, the insulators being connected with each other in any suitable and well-known manner and to the yokes 3 and 3' by the connecting members 11, which are secured to the

yokes 3 and 3' by the bolts 12. It is to be understood that the connecting members 11 may be varied in form to accommodate the various types of strain insulators now on the market or which may subsequently be devised. The transmission line 6 is disposed beneath the cross arm and the insulators in a loop depending at either end from the members 8, the loop being sufficiently spaced from the supporting structure to prevent contact therewith.

The yokes 3 and 3' are identical in form and consist of a plate of ductile ferrous metal, such as steel, bent upon itself along a median line to substantially a U-shape and is preferably of a triangular truss or beam shape in plan, as shown in Fig. 2, the compression member of the truss being formed by the bent portion of the plate. The oppositely disposed portions of the bent plate are provided with openings near the apex of the triangle and near the extremities of the base through which the bolts 5 and 12 are respectively disposed. The bent portion of the plate is cut away slightly at either end of the base of the triangle, as indicated at 13, to allow the connecting members 11 to be inserted between the oppositely disposed portion of the plate and the corners of the oppositely disposed portions of the plate are rounded, as indicated at 14, in order that the connecting members 11 may be made as short as possible and the yokes may yet freely turn without interfering with the adjacent insulators. A discharge horn 15 is connected in any suitable manner to the yoke.

It will be readily understood that I have devised an equalizer yoke which is extremely simple in form, which may be easily manufactured and which, being made of a material the properties of which are easily ascertained, is extremely reliable in service since the strength of the truss may be readily calculated and a proper size used in view of the anticipated stresses to which it may be subjected. Equalizer yokes according to my invention are much superior to any similar device which may be constructed of cast iron or fabricated from a number of intricate parts. I am enabled to attain results with yokes constructed according to my invention which are impossible with other forms of equalizer yokes, since the strength of cast iron or fabricated yokes is always uncertain and these mem-

bers are, moreover, extremely heavy in proportion to their strength when compared to the simple form of yoke which I have devised.

- 5 It will be apparent that various changes may be made in the form, construction and arrangement of the parts without sacrificing any of its material advantages, the form hereinbefore disclosed being merely one preferred embodiment thereof.

I claim:

1. An equalizer yoke for insulators, comprising a single steel plate bent upon itself along a median line to form a truss, the bent
15 portion of said plate forming the compression member of said truss, means for pivotally supporting said truss adjacent its center, means for connecting insulators thereto adjacent its ends, and a discharge horn secured to said plate.

2. A strain insulator system comprising a supporting arm, a plurality of yokes, each comprising a single plate of ductile ferrous metal bent upon itself, means for pivotally supporting said yokes on said arm, a transmission line, a plurality of yokes of similar

construction, means for pivotally connecting said last-mentioned yokes to said transmission line, and strings of insulators supported between the oppositely disposed ends of
30 said first and last-mentioned yokes, said pivotal connections permitting freedom of rotative movement of the relative parts of said system.

3. A strain insulator system comprising a
35 supporting arm, a pair of yokes, each comprising a single steel plate bent upon itself to form a truss, means for pivotally supporting said yokes on said arm, a transmission line, a pair of yokes of similar
40 construction, means for pivotally connecting said last-mentioned yokes to said transmission line, and strings of strain insulators supported between the oppositely disposed ends of said first and last-mentioned yokes,
45 said pivotal connections permitting freedom of rotative movement of the relative parts of said system.

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Witnesses:

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