

(No Model.)

W. S. JARBOE, W. P. SEIBERT & J. WHITE.
SPAN WIRE INSULATOR.

No. 456,574.

Patented July 28, 1891.

Fig. 1.

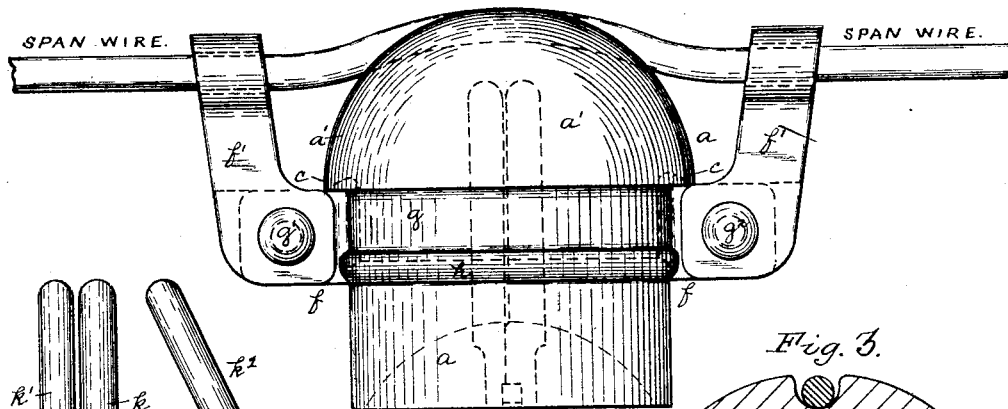


Fig. 3.

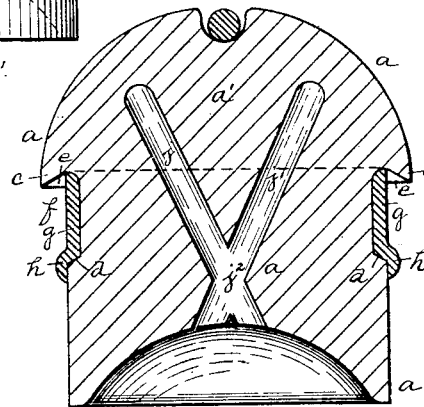


Fig. 5.

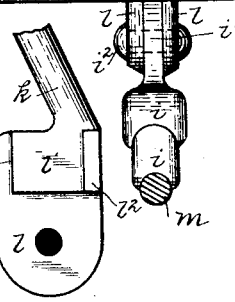


Fig. 4.

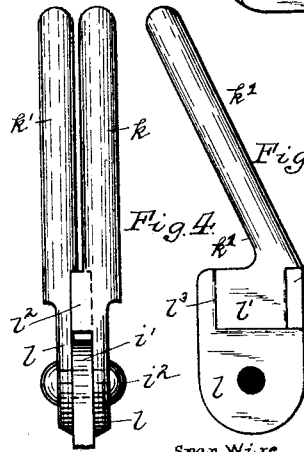


Fig. 6.

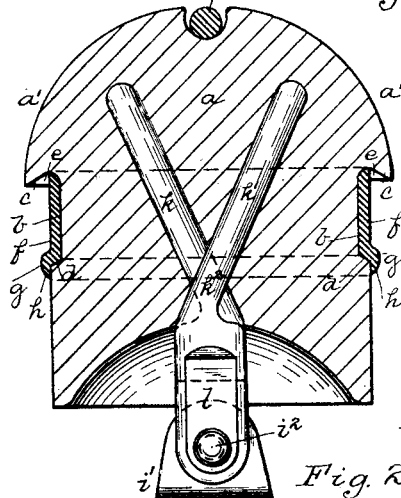
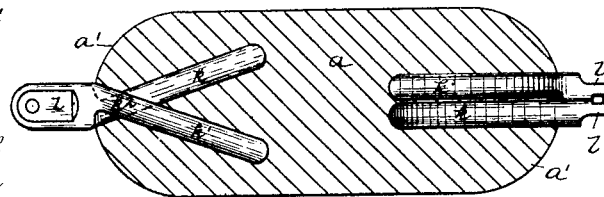


Fig. 2.

Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SPAN-WIRE INSULATOR.

SPECIFICATION forming part of Letters Patent No. 456,574, dated July 28, 1891.

Application filed November 28, 1890. Serial No. 372,784. (No model.)

To all whom it may concern:

Be it known that we, WALTER S. JARBOE, WILLIAM P. SEIBERT, and JOHN WHITE, residents of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Span-Wire Insulators; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to what are commonly known as "span-wire insulators"—that is, to a form of insulator employed to insulate the span-wire from which the trolley-wire is suspended in the overhead system of electric railways. Many forms of these insulators have been devised, some consisting of an outer shell or casing of metal containing a block of insulating material provided with a threaded connection of some kind, to which the depending link is secured which supports the trolley-wire. Others have been constructed, consisting simply of a block of insulating material exposed to the inclemency of the weather, said block having a nut or threaded seat therein with which the bolt engages, from which the link supporting the trolley-wire depends. To insert the nut or other threaded connection an opening is formed in the top of the insulating-block, and after the insertion of said nut a plug is secured within the opening, but as the block is directly exposed to all kinds of weather it is practically impossible to prevent the rain and frost from finding its way between the plug and the body of the block. The action of the rain and frost, unless excluded, will cause the block to warp and decay prematurely, requiring the removal of the blocks at short periods at great inconvenience and expense. The threaded connections become loose and prevent the rigid support of the trolley-wire, while they add to the cost of insulators.

The object of our invention, therefore, is to provide a cheap yet durable insulating block free from any joints or openings to which water or frost might find access, and one in which the connection for the support of the depending link is rigidly secured within the body of the block without the employment of a threaded connection of any kind.

To these ends our invention comprises, gen-

erally stated, an insulator consisting of a block of insulating material having pins entering transversely therein and forming a connection at their outer ends, from which the link which supports the trolley-wire depends, thus thoroughly insulating said depending link and providing for a very rigid and secure connection with said block.

Our invention further comprises certain improvements in the manner of adjusting the yoke for supporting the block from the span-wire, all of which will be fully hereinafter set forth and claimed.

To enable others skilled in the art to make and use our invention, we will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a front view of our improved insulator with yoke attached. Fig. 2 is a vertical section. Fig. 3 is a like view with pins removed. Figs. 4, 5, and 6 are views of the pins employed, and Fig. 7 is a modified form of insulating-block.

Like letters indicate like parts.

The block *a* may be formed of any suitable insulating material, wood turned to the shape illustrated being well suited for the purposes of our invention, the rounded top *a'* serving to shed the water falling thereon. The annular depression or groove *b* is formed around the block *a* at about the middle thereof, the enlarged head *a'* of the block forming a shoulder *c*, which projects beyond the lower shoulder *d*, formed by the annular groove *b*. Under the head *a'* and formed in the shoulder *c* thereof is the annular groove or recess *e*. The yoke *f*, by means of which the block *a* is suspended from the span-wire, is provided with the diverging arms *f'*, which engage with the span-wire, while the ring *g* of said yoke, secured at *g'* and at *g''*, surrounds the block *a*, fitting in the annular groove *b*, with its upper edge fitting snugly in the annular recess *e* in the head *a'*, said recess serving to hold the yoke-band more securely in place. The yoke-band *g* is further provided with the depending lip *h*, so that when said yoke-band is adjusted to place the lip *h* projects over the shoulder *d* slightly, so that any water falling on said yoke-band will be carried over the lip *h*, which acts as a shed to prevent the

water from finding its way into the space between the yoke and the wood and acting to rust the yoke and decay the wood. The shoulder *c*, projecting beyond the lip *h*, further protects the yoke from water and consequent rusting.

To provide for the connection of the depending link or fin *i* with the block *a*, we bore or drill transverse channels *j j'* therein, crossing, as at *j*², and diverging in opposite directions within the body of the block, the entrance to said channels being from the lower face of said block *a*. Pins *k k'* are inserted in the channels *j j'*, respectively, crossing each other, as at *k*², and diverging in the direction of the channels *j j'*. The outer end of said pins *k k'* are formed with the enlarged flat portions *l* thereon, said enlarged portions *l* having the lugs *l'* formed thereon. The lugs *l'* are cast with the flanges *l*² and shoulders *l*³, so that when two pins cross each other in the manner shown the lugs *l'* will come in contact with each other, the flange of one lug abutting against the shoulder *l*³ of the other, and vice versa. This construction provides a space between the enlarged flat portions *l* for the insertion of the lug *i'* of the depending link or fin *i*, while a pin *i*² connects said fin to the flat portions *l*. It is very obvious that perfect insulation for the pins *k k'* is obtained, said pins being surrounded on all sides by the wood, while at the same time by constructing the block with the transverse pins therein a very sure and rigid connection is formed for the support of the depending link *i* and the trolley-wire *m*.

It is apparent that a weight suspended from the pins *k k'*, connected at their outer ends in the manner shown, only tends to render more secure the pins within the channels formed for them, so that instead of becoming loose through supporting the trolley-wire their resistance to withdrawal from the block is increased.

In our improved insulating-block there are no threaded connections of any kind which increase the cost of manufacture, and there is no opportunity for water to obtain access into the body of the block or into the annular groove formed for the reception of the yoke-band, owing to the protection afforded by the shoulder *c* and the lip *h*.

In Fig. 7 we have illustrated another form of insulator to which our invention is applicable. These insulators are employed to further insulate the span-wire where metallic posts are employed to support the span-wires. These insulators are commonly termed "pull-off blocks," and, being secured to the ends of

the main section of the span-wire, they are connected to the poles by shorter sections of the span-wire, which complete the span. The shape shown is well suited for the purpose. The pins *k k'* are secured in place in the same manner as before described, crossing each other and secured at their outer ends to form the connection in the manner hereinbefore set forth. As it is necessary in this instance to provide connections at both ends, the pins secured in one end are situated at right angles to the pins secured in the opposite ends, so that the diverging ends of said pins will be more widely separated and consequently more thoroughly insulated than if they were inserted at the same angle.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A span-wire insulator consisting of a block of insulating material having pins entering transversely therein and connected at their outer ends to form a connection from which the trolley-wire is suspended, substantially as and for the purposes set forth.

2. A span-wire insulator consisting of a block of insulating material having pins entering transversely therein, said pins arranged at an angle to each other and connected at their outer ends to form a connection for the suspension of the trolley-wire, substantially as and for the purposes set forth.

3. A span-wire insulator consisting of a block of insulating material having an annular groove therein for the reception of the yoke-band, a shoulder above and projecting beyond said yoke-band, and a lip formed on said yoke-band projecting over the lower shoulder of the annular groove, substantially as and for the purposes set forth.

4. The combination of the block *a*, the transverse pins *k k'*, having the enlarged portions *l*, the lugs *l'*, the flanges *l*², and shoulders *l*³, engaging with one another, the pin *i*², and the link *i'*, substantially as and for the purposes set forth.

5. The combination of the block *a*, the transverse pins *k k'* entering therein, the annular groove *b*, the shoulder *c*, the recess *e*, and the yoke-band *g*, having the projecting lip *h*, substantially as and for the purposes set forth.

In testimony whereof we, the said WALTER S. JARBOE, WILLIAM P. SEIBERT, and JOHN WHITE have hereunto set our hands.

WALTER S. JARBOE.
WILLIAM P. SEIBERT.
JOHN WHITE.

Witnesses:

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