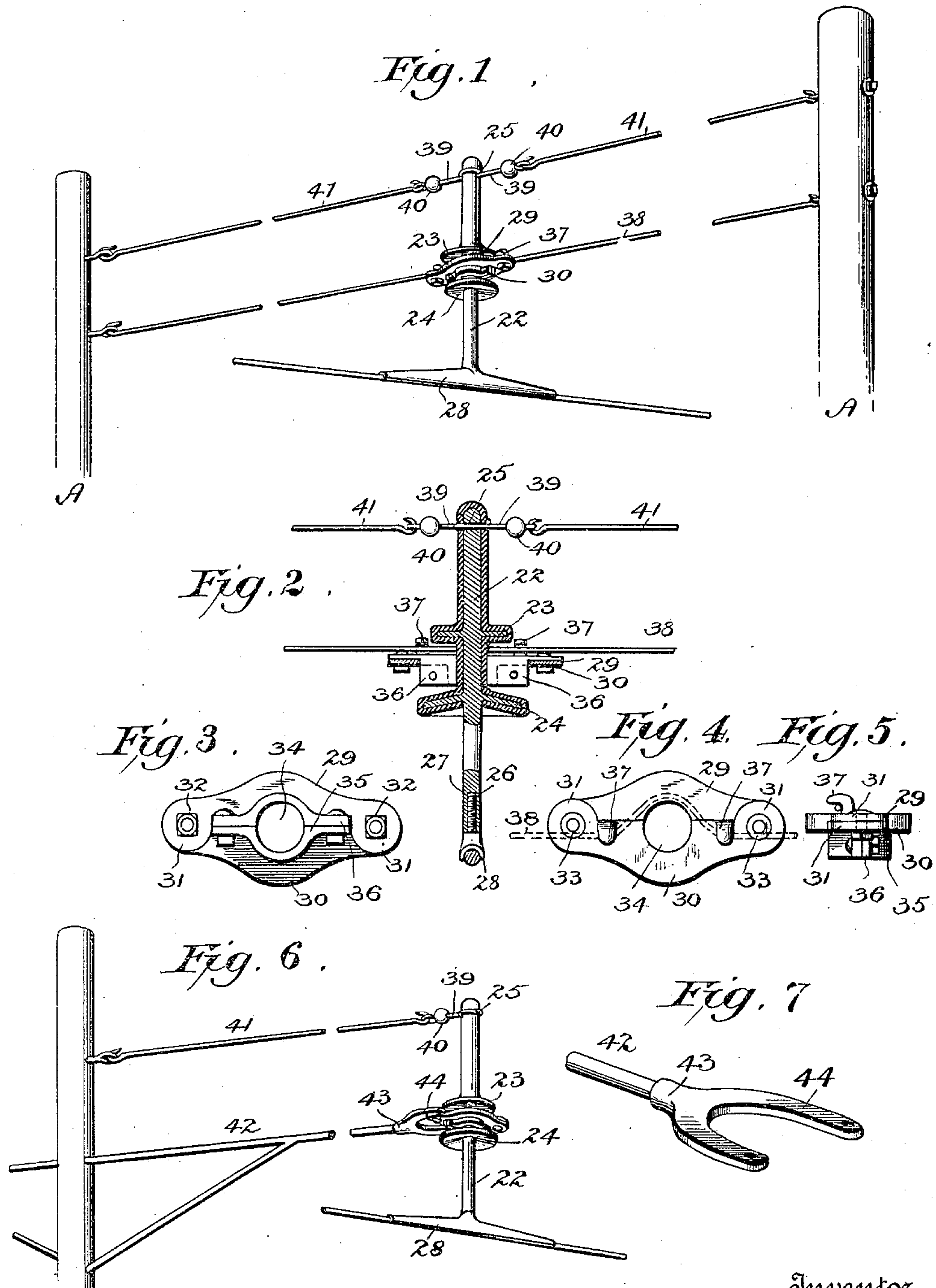


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PATENTED JULY 10, 1906.

J. T. BUNN.  
SUPPORT AND HANGER.  
APPLICATION FILED JAN. 19, 1905.



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## SUPPORT AND HANGER.

No. 825,299.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, JOSEPH TURNER BUNN, a citizen of the United States, and a resident of the city of Washington, in the District of Columbia, have invented a new and useful Improvement in Supports and Hangers, of which the following is a specification.

My invention relates to an improvement in supports and hangers for trolley-wires or other electric-current conductors; and my invention is more particularly designed for use with such trolley-wires as are engaged by a trolley-wheel having upstanding guides or guards projecting from each side of the trolley-wheel to a point above the wire or conductor for the purpose of retaining the wheel on the wire and of guiding the wheel back to the wire should the wheel accidentally be thrown off either from lateral or vertical play of the trolley-wheel support.

It is well known among the trade that guides or guards of this description are of but slight benefit unless they extend some distance above the electric-current conductor, and when so extended the guides invariably soon batter to pieces, break, and crack the insulating or other supports or hangers to which the conductor is secured and by which it is supported.

One object, therefore, of my invention is to provide such a support or hanger that while adequately supporting the conductor shall be of such form as to avoid contact with the trolley-wheel guides.

Another object of my invention is to provide a hanger which will be efficient in the highest degree and one which can be easily manufactured and placed on the market inexpensively.

A further object of my invention is to provide a hanger which can be associated with the usual form of clamps or ears at present employed in order to reduce the cost of exchanging one for the other to a minimum and avoiding an unnecessary waste of material.

A still further object is the provision of a hanger suitable for use on straight stretches of track and also one which is more suitable for the curved portions of the track.

To these ends, therefore, my invention consists in certain novel features of construction and combinations of parts, such as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved hanger.

Fig. 2 is a vertical sectional view of the same. Fig. 3 is a bottom plan view of the clamp embracing the standard. Fig. 4 is a top plan view of the clamp. Fig. 5 is an end view of the clamp. Fig. 6 is a perspective view showing the hanger connected to the usual form of cross-arm, and Fig. 7 is a detail perspective view of the yoke.

In my device I provide a standard 22, located intermediate the ends of which is a comparatively wide collar 23, projecting out from the periphery of the standard, and at a point suitably distant beneath the collar is located a petticoat 24, inclined downwardly to shed water, the petticoat, collar, and standard being preferably, although not necessarily, cast in one piece. The upper end of the standard is provided with an aperture 25, and the standard is coated or overlaid with a suitable insulating material to a point beneath the petticoat shown. The lower end of the standard has formed therein an interiorly-threaded socket 26, adapted to receive the stem 27 of a base 28, to which the conductor is secured in the usual manner. From this it will be seen that it is possible in equipping established lines with my improved hanger to merely sever the usual old form of hanger at a point above the base, so as to leave a stem, which can then be threaded and the standard of my invention applied thereto, thus saving material and expense. Another advantage resides in the fact that if for any reason the standard or the base should become unfit for further use it is only necessary to unscrew one from the other and substitute a new piece for the worn-out piece without throwing away the entire hanger.

In order to afford a suitable means to which to attach the supporting-wire 38, I provide a clamp which is approximately elliptical in shape and is composed of two cooperating members 29 and 30, which are substantial duplicates of each other with the exception that the member 30 is provided with a rabbet along the edge against which the edge of member 29 abuts to receive the abutting edge of member 29. At either end of each member are located the projecting apertured lips 31 31, which overlap the opposite surfaces of the members 29 and 30, the perforations 32 in the lips registering with each other, bolts 33 being adapted to pass through the registering perforations to fasten the two members tightly and snugly together.

The opposing faces of each of the members



is further provided with a recess 34, the recesses when the members are together forming an aperture for receiving the standard 22, and each member is also provided with a depending flange 35, which follows the outline of the recess and is provided with apertured extensions 36 36 at each end, the apertured extensions adapted to coincide and having fastening means passed therethrough, whereby to secure the clamp tightly upon or around the standard, the flanges forming an extended bearing-surface. This clamp is placed around that portion of the standard between the petticoat and the collar, each of which it engages and is thereby prevented from endwise movement on the standard, the ends of the clamp projecting beyond the peripheries of the collar and of the petticoat.

Upon the member 30 are cast or formed the backwardly-turned hooks 37 37, around which a supporting-wire 38 may be wound, as shown, the wire first passing under one hook, thence around the standard, and thence beneath the remaining hook, the wire adapted to extend between two poles on opposite sides of the track, to which poles it is secured in precisely the same manner as are the wires 1 and 2.

Although shown on member 30, it is obvious that the hooks might be located on member 29 or on each of the members.

In the event that one or both of the hooks 37 37 should become broken, I can of course substitute double-headed bolts for the bolts 33 33, the wire being connected with the bolts in the same manner as shown in Figs. 1 and 2 relative to the double-headed bolts 8 8.

Should it be desired at any time to adjust the standard and base relative to the supporting-wire, all that is necessary will be to loosen the clamp, it being unnecessary to remove any of the parts, and it is also obvious that if necessary the stem can be attached to the socket in any other suitable manner and locked against rotation relative to the standard.

To the upper perforated end of the standard are secured the wire-sections 39 39, the outer ends of which are embedded in suitable balls 40 40 of insulation, which balls are in turn secured, by means of connectors 41 41, to the poles on either side of the track and operate in precisely the same manner as does wire 3 for swinging the standard and the base to one side or the other of the conductor.

The form of hanger above described is particularly adapted for use in conjunction with curved sections of track, where it is desired to cause the conductor to accurately follow the curve of the track without having angles formed in the conductor; but along straight sections of the track, and particularly in cities, where the supporting-poles are located between double lines of tracks and have the usual cross-arm extending therefrom, I provide the following attachment whereby my

hanger shown in Figs. 1 to 5 may be secured to the cross-arm. To this end the outer end 42 of the cross-arm, which is hollow, is sawed off and externally threaded to receive the interiorly-threaded stock 43 of a yoke 44, which yoke may be conveniently constructed of a piece of piping split at one end and threaded on the other end, or it may be especially manufactured, as desired. The outer ends of the yoke are perforated, the perforations registering with the bolts 33 33 of the clamp, by means of which bolts the yoke is secured to the clamp, the yoke partially embracing the standard 22 and passing beneath the extended outer ends of the clamp to support the hanger, or it may be secured on top of the clamp, as preferred. Of course in this form the supporting-wire 38 is not used; but the connector 41 and wire-section 39 are retained. In this manner I provide a neat, cheap, strong, and durable means for supporting the hanger and the conductor carried thereby and throughout have utilized every means whereby economy in changing from an old form to the new form might be observed.

From the foregoing it will be seen that my invention is both simple and inexpensive to manufacture and much more serviceable than others now in use.

By means of the construction set forth I provide a drop-wire system which permits the use of the extended hangers hitherto set forth. The adjusting-wires 41 41 admit of a pull in either of two opposite directions on the upper end of the standard 22 to swing the base to one side or the other on the supporting-wire 38 as a fulcrum, and by means of its adjustable connection with the poles A A there is permitted a bodily lateral or horizontal movement of the hanger, as may be desirable, to bring it into its proper position. Thus by means of the wires 41 41 the hanger can be adjusted at any suitable inclination. In going around a curve the outer track-rail is generally located in a higher plane than is the inner rail, so as to tilt the car for retaining it on the rails and overcome the centrifugal force. Naturally this tilting of the car will tilt the trolley-wheel; but by means of my improvement the hangers may also be tilted in alinement with the trolley-wheel, so that the latter will take the bases perfectly.

It is further to be noted that by the use of the drop frame or hanger a drop trolley-wire is obtained, which is also one of the objects of my invention, and it can be seen that my invention is not restricted in its use wholly to overhead conductors, but can be utilized for underground or third-rail systems as well.

It is further evident that many other changes than those heretofore set forth might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention,



and hence I do not wish to limit myself to the exact construction herein set forth; but,

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an electrical conductor, of a hanger comprising a suitably-supported insulated standard, a clamp comprising a plurality of members carried by the standard, means for securing the members together, an adjustable supporting-wire connected with the clamp, and means connected with the upper end of the standard for adjusting the hanger.

2. The combination with a trolley-wire, of a hanger comprising a standard, means connecting the wire and standard, a supporting means connected with the standard intermediate its ends, and an adjustable connection extending from the standard to a stationary member to adjust the position of the hanger transversely of the wire, the supporting means constituting a fulcrum for facilitating such adjustment.

3. The combination with an electrical conductor, of a hanger connected therewith, means for supporting and adjusting the hanger laterally and means for swinging the hanger to either side of the perpendicular.

4. A hanger for conductors comprising an insulated standard having a socket at its lower end, means for swinging the standard laterally relative to the conductor, a base secured to the conductor and a stem carried by the base, the upper end of the stem removably received in the socket in the standard.

5. A hanger comprising a standard, means for adjusting the standard relative to the conductor, a base secured to the standard, means removably secured to and embracing the standard and supporting means extending transversely to the conductor and engaging the removable means.

6. A hanger comprising a standard, a collar and petticoat formed integrally therewith, a base, a stem carried by the base and removably connected to the standard, means secured to the upper end of the standard for adjusting the hanger laterally, and separate adjusting and supporting means secured intermediate the ends of the hanger for adjusting the hanger in a direction axially of the standard.

7. A hanger comprising a standard, means secured to the upper end of the standard for adjusting the hanger laterally, and separate adjusting and supporting means secured intermediate the ends of the hanger for adjusting the hanger in a direction axially of the standard.

8. A hanger comprising a standard, a collar and a petticoat spaced apart and carried by the standard, insulating material enveloping a portion of the standard, clamping means secured to the standard outside the in-

sulation and supporting and adjusting means connected with the standard.

9. A hanger comprising a standard, a collar and a petticoat carried thereby, a removable clamping means embracing the standard at a point between the collar and the petticoat, the collar engaging and resting upon the clamping means, adjusting means connected to the standard near the upper end thereof, and supporting means connected with the removable clamping means.

10. A hanger comprising a suitably-insulated standard, a clamping means carried by the standard, the clamping means comprising a plurality of cooperating members, means for securing the members together around the standard, and means connected with the clamping means for supporting the hanger.

11. A hanger comprising a suitably-insulated standard, a clamping means carried by the standard, the clamping means consisting of a plurality of cooperating recessed members, flanges carried by the members and encircling the recesses, the members fitted about the standard which latter is received in the recesses, means engaging the flanges for securing the members together and fastening them on the standard, means carried by the members and supporting means engaging the last-named means for supporting the hanger.

12. A hanger comprising a standard, a clamping means secured on the standard, the clamping means comprising a plurality of recessed cooperating members, one of the members provided with a groove along one edge for receiving the abutting edge of the opposite member, means for securing the members together around the standard, supporting means and means carried by the members and engaged by the supporting means.

13. A hanger comprising a standard, a clamp carried thereby the clamp comprising a plurality of members provided with registering recesses, a plurality of separate means for securing the members to each other, and for fastening the members about the standard, the fastening means received in the registering recesses and supporting means connected with the clamp for supporting the hanger.

14. A hanger comprising a standard, a clamp carried by the standard, the clamp comprising a plurality of recessed members, ears projecting from at least one of the members and overlapping the opposite member, fastening means passing through the ears for securing the members together and supporting means engaging the clamp for supporting the hanger.

15. The combination with a pole provided with a cross-arm of a hanger, a clamping means carried by the hanger, a yoke removably connected to the cross-arm, and par-

tially embracing the standard and means for securing the yoke and clamping means together.

16. The combination with a pole provided  
5 with a cross-arm of a hanger, means for removably securing the hanger to the cross-arm at a point intermediate its ends and means connected to one end of the hanger for adjusting it laterally.

10 17. The combination with a pole, of a

cross-arm, a hanger, a clamping means on the hanger, a yoke carried by the cross-arm and removably connected to the clamping means.

In testimony whereof I have signed this specification in the presence of two subscrib- 15  
ing witnesses.

JOSEPH TURNER BUNN.

Witnesses:

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E. C. ENNOTT.