

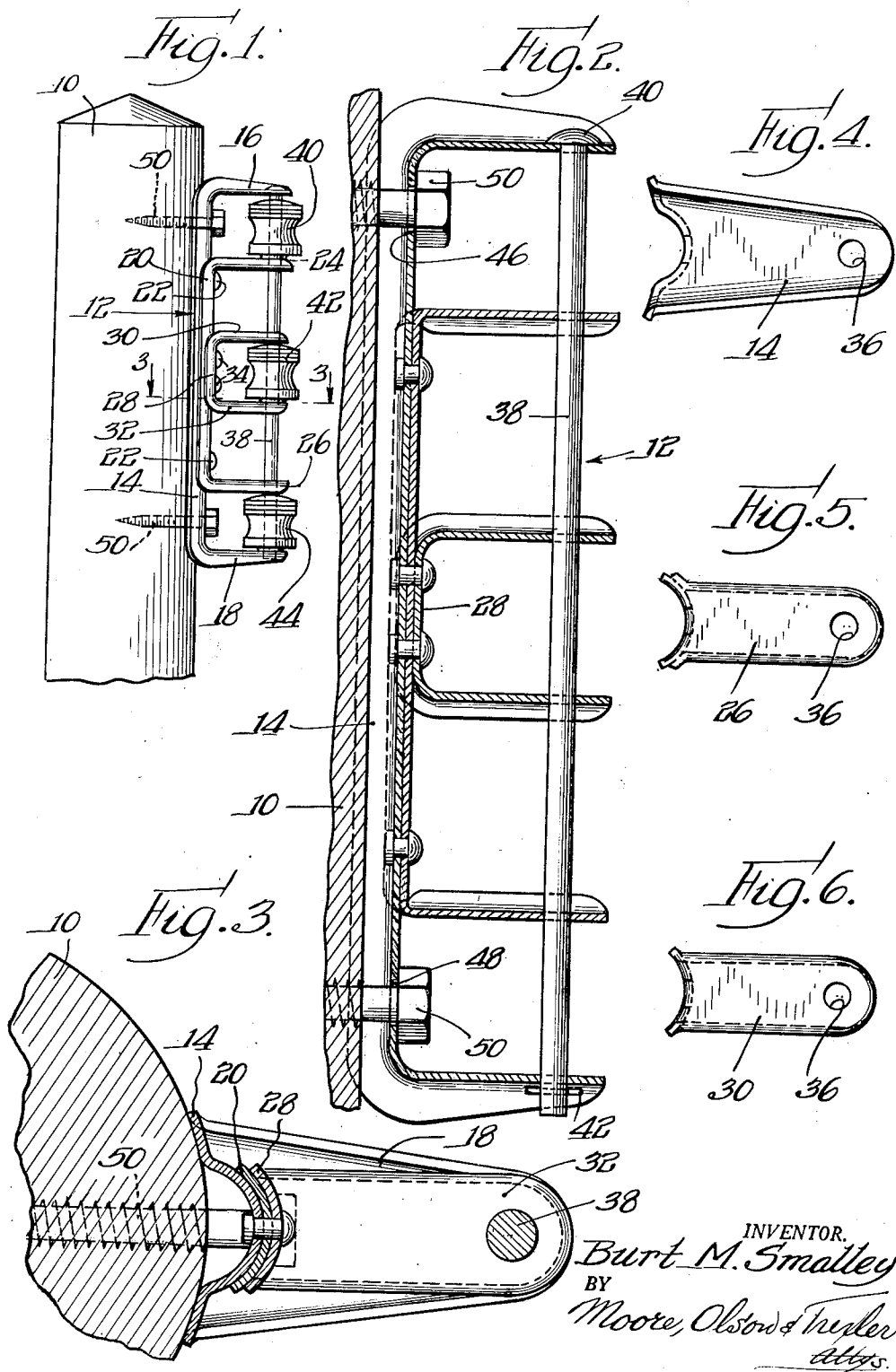
Nov. 3, 1953

B. M. SMALLEY

2,657,889

SECONDARY RACK

Filed May 21, 1949



INVENTOR.
Burt M. Smalley
BY
Moore, Olson & Tucker
Attys.

UNITED STATES PATENT OFFICE

2,657,889

SECONDARY RACK

Burton M. Smalley, Chicago, Ill., assignor to
Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois

Application May 21, 1949, Serial No. 94,589

1 Claim. (Cl. 248—67.7)

1 The present invention relates to power line hardware, and more particularly to secondary racks.

Secondary racks are employed in power line systems at a point where power is to be distributed from the main line. Secondary racks are generally mounted by means of a bolt adjacent each end, and the lateral pull on the insulators adjacent these bolts is transmitted directly to the bolts. However, there are generally one or more insulators spaced along the secondary rack between the bolts. The transverse pull on these insulators tends to bend the secondary rack outwardly in the area between the bolts. There is furthermore a vertical pull on all of the insulators due to the weight of the various wires secured to them. The weight of these wires also tends to bend the secondary rack in the area between the bolts.

In order to resist the forces tending to bend the secondary rack, the rack may be made of thicker material, but if it is so made, it is considerably more expensive. Furthermore, if such an expedient is used, the thickness must be sufficient to withstand the greatest strain, i. e., that which occurs at the center of the rack. Accordingly, other parts of the rack, most particularly the ends, are much stronger than need be, which is clearly unnecessary, and causes a great waste of material. The extra material increases the weight of the rack considerably, and it is always desirable to keep overhead structures as light as possible.

In order to present the utmost stiffness at the point where the bending tendency is the greatest and yet not have an excess of material at the end positions where the strain is much less, I have provided a rack constructed of a plurality of different sized parts secured to one another so that a minimum of material will be used and the rack will be stiffer in its central portions than near its ends. Only a single thickness of metal is presented at the ends with two thicknesses adjacent the center section and three thicknesses at the center section so that a very rigid member which will resist bending is formed.

All pole line material is exposed to severe weather conditions and is consequently galvanized to resist corrosion. It is not desirable to weld or rivet the various members of the rack together prior to galvanizing, as the zinc would not penetrate between the intimately contacting surfaces, and after a period of time rust would develop between the surfaces, causing considerable loss of strength. Furthermore, as the rust

2 displaces more volume than the metal itself, the surfaces would ultimately be pushed apart by the tremendous force created. Consequently the rack is designed so that it can be made in a plurality of individual pieces which are galvanized separately. The individual pieces are then fastened together with stainless steel rivets, making a completely non-corrosive assembly.

In attaching wires to secondary racks, it is difficult to pull the wire from the ground level up into position in the rack. By curving the surfaces of the rack adjacent the insulators, I have made it possible to pull the wire through the rack using an insulator as a pulley or by sliding the wire over the arm supporting the insulator without damaging the insulation on the wire.

A primary object of this invention is to provide a secondary rack which is stiff in regions receiving the greatest bending force, but which does not have an excess of material in regions not having such a great bending force.

An ancillary object of this invention is to present a secondary rack which is made of a plurality of component parts allowing the rack to be readily assembled so that it is strongest in areas receiving greatest stress.

A further object of this invention is to provide a secondary rack having smooth curved surfaces adjacent the insulators so that the insulation on the wire will not be damaged if the wire is moved along this surface.

A still further object of this invention is to provide a secondary rack which is symmetrical so that it is unnecessary to mount it with one particular end up. Other and further objects and advantages of the present invention will become apparent with a perusal of the following description when taken in conjunction with the accompanying drawings, in which:

Fig. 1 is an elevational view of the secondary rack affixed to a pole;

Fig. 2 is a longitudinal sectional view of the rack with the insulators removed;

Fig. 3 is a cross-sectional view taken along the line 3—3 in Fig. 1 with the insulators removed;

Fig. 4 is an end view of the base portion of the rack;

Fig. 5 is an end view of the insulator supporting arm nearest the end of the rack; and

Fig. 6 is an end view of the insulator supporting arm adjacent the center of the rack.

Referring more particularly to Figs. 1 to 3, it will be seen that there has been shown a pole or support 10 on which has been mounted a secondary rack generally designated by the nu-

3

meral 12. The rack comprises a pressed steel back or base portion 14 which is substantially channel shaped or arcuate in cross section for stiffness. Transverse arms 16 and 18 extend outwardly from and are integral with the base 14. The arms 16 and 18 are likewise substantially channel-shaped or arcuate in cross section for stiffness and to present a smooth surface adjacent the insulators to be described later. A second back portion 20 which is transversely shaped substantially in the arc of a circle for stiffness and is secured to the base portion 14 by stainless steel rivets 22, has transverse arms 24 and 26 of substantially the same shape as the back portion 20 extended from and substantially parallel to the arms 16 and 18.

In the present embodiment there is a third back portion 28 having an arcuate cross-section similar to that of the back portion 20 and having integral transverse arms 30 and 32 substantially the same as the transverse arms 24 and 26. The back portion 28 is secured to the back portions 14 and 20 by means of stainless steel rivets 34. Each of the arms 16, 18, 24, 26, 30 and 32 lies in the same plane and extends outwardly substantially the same distance from the back portion of the rack. Each of these arms is apertured as indicated at 36, all of the apertures being in line to receive a bolt 38 having a head 40 and secured at the opposite end by a self-locking cotter key 42. Three insulators 40, 42 and 44 have longitudinal bores to receive the bolt 38 and are mounted on it adjacent the end arms and between the two central arms of the rack. Two more insulators could be placed on the rack if desired, but it is preferable to have them spaced, and with the construction shown it is possible to have the surfaces of the arms adjacent the insulators smoothly curved to avoid fraying insulation when wire is dragged over the arms.

The base portion 14 is provided with apertures 46 and 48 adjacent its extremities for receiving mounting bolts 50 which secure the rack to the pole 10. As is the general practice, the rack is secured to the pole prior to the insertion of the insulators and the bolt 38.

It is apparent that by the construction just described I have presented a secondary rack which is the stiffest in regions requiring the greatest stiffness and is as light in weight as possible, not being overly heavy and stiff in regions not requiring great stiffness. It is further apparent that the structure is completely non-corrosive and that wires may be dragged over the insulator mounting arms of the rack when the wire is being installed without damage to the insulation.

It is obvious that various changes may be made in the features of construction shown and described, and yet remain within the spirit and scope of the invention and therefore I intend to be limited only by the following claims.

I claim:

A secondary rack assembly comprising an in-

4

tegral elongated U-shaped member having the legs at the ends of the intermediate body arched outwardly for rigidity and providing end mounting arms, the intermediate body being similarly arched for rigidity and having longitudinally extending lateral mounting flanges for seating throughout their lengths against a supporting pole and spacing the arched portion outwardly therefrom, the ends of the intermediate body immediately within and adjacent said mounting arms having attachment means for attaching the entire rack assembly to a supporting pole, an intermediate second elongated U-shaped member slightly shorter in length than said first member with the ends thereof disposed within and adjacent said attachment means and similarly arched to externally nest on the intermediate body of said first member for rigidifying substantially the entire intermediate body of said first member between said attachment means whereby to resist bowing thereof under stress in the unsecured portion between said attachment means, said second elongated member having the legs at the ends thereof providing mounting arms each cooperating with an adjacent mounting arm on said first member for supporting an insulator therebetween, a third U-shaped member having an arched body shorter than said intermediate U-shaped member and externally nesting on the arched central portion of said intermediate member to provide maximum thickness and strength at the center of the rack assembly to resist bowing in the unsecured portion between said attachment means, the arms of said third U-shaped member adapted to receive an insulator therebetween and being apertured in alignment with apertures in the other mounting arms for receiving an insulator mounting stud, and means for securing together the nested arched portions of said members along the extent thereof between said attachment means.

BURTON M. SMALLEY.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,524,141	Kyle	Jan. 27, 1925
1,616,360	Foster	Feb. 1, 1927
1,685,684	Smalley	Sept. 25, 1928
1,821,222	Kyle	Sept. 1, 1931
1,996,326	De Coux	Apr. 2, 1935
2,008,744	Brady	July 23, 1935
2,300,673	Johns	Nov. 3, 1942
2,302,883	Olivier	Nov. 24, 1942

OTHER REFERENCES

- Sectional Catalog No. 24, Line Material Company, dated Dec. 1924, page 1216, Figures 1941—3—G.
Catalog No. 3301, Line Material Co., pages 3009, and 3014 and 3015.