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METHOD OF MAKING METAL STRUCTURES

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Fig.1. Fig.2. Fig.3. Fig.4.

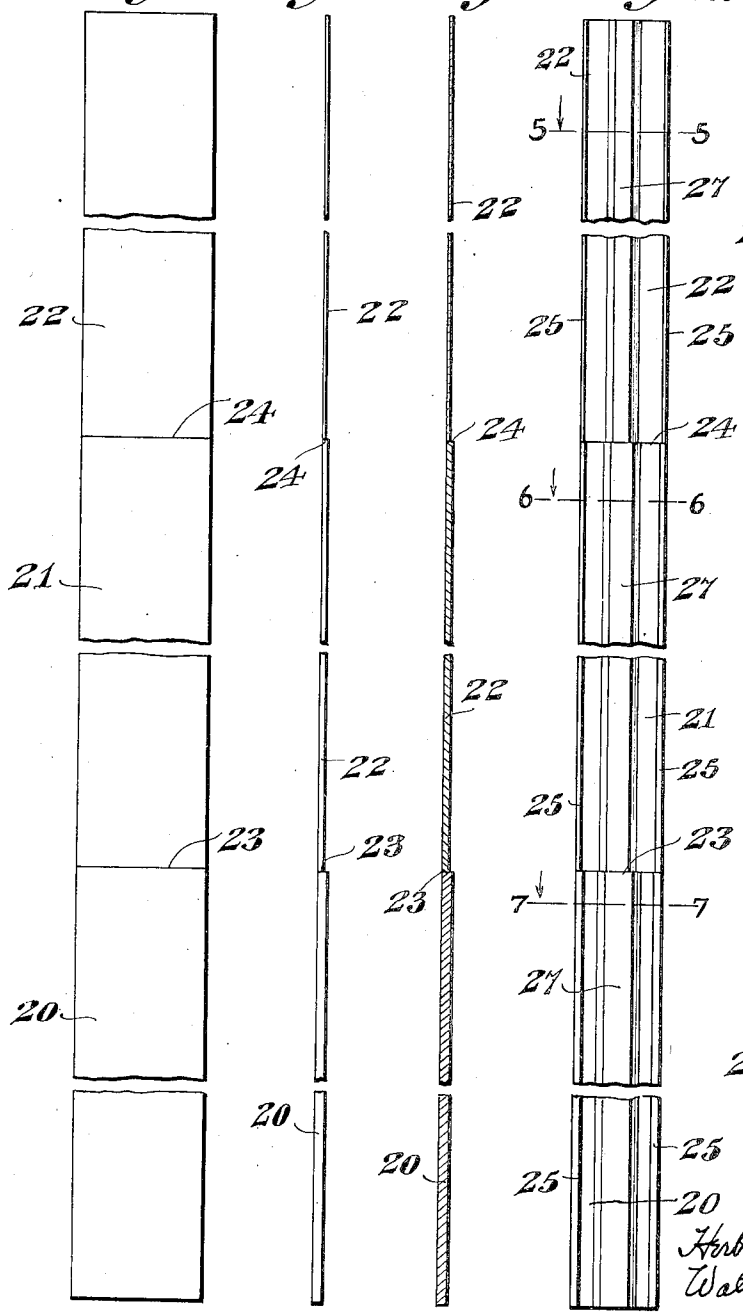


Fig.5.

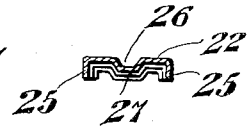
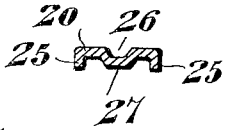


Fig.6.



Fig.7.



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Fig. 8.

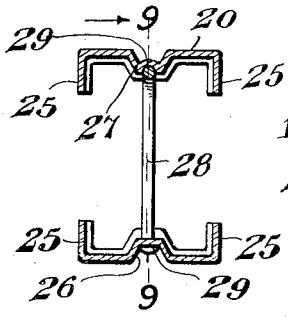


Fig. 10.

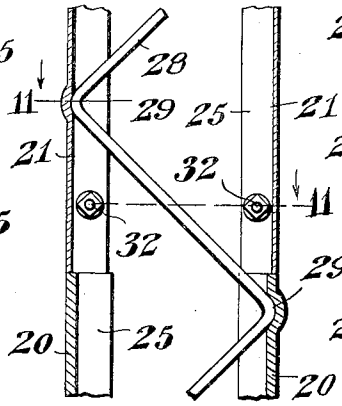


Fig. 12.

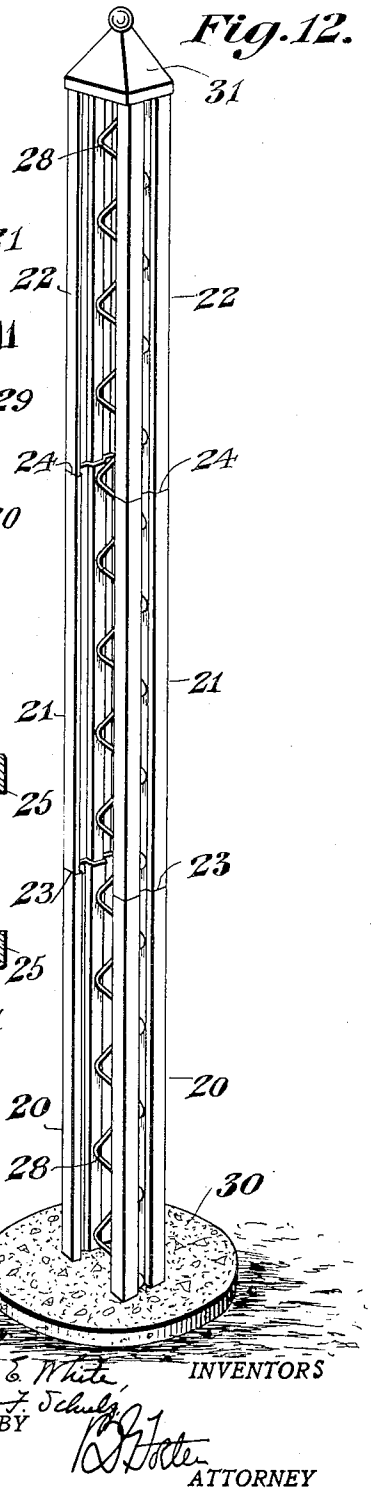


Fig. 9.

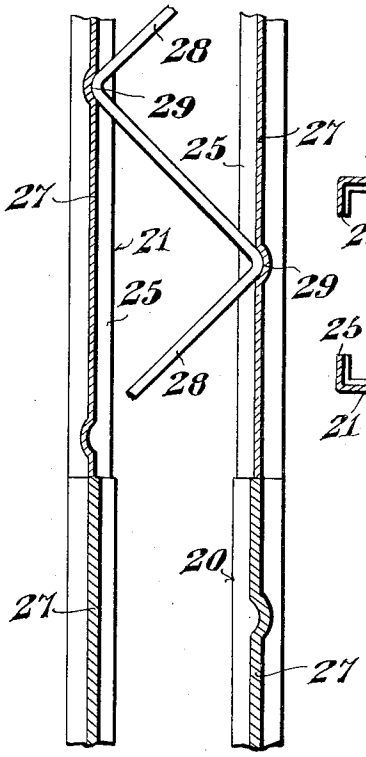
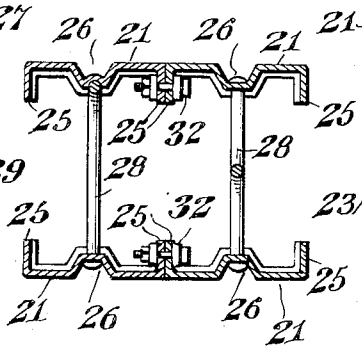


Fig. 11.



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Fig. 13.

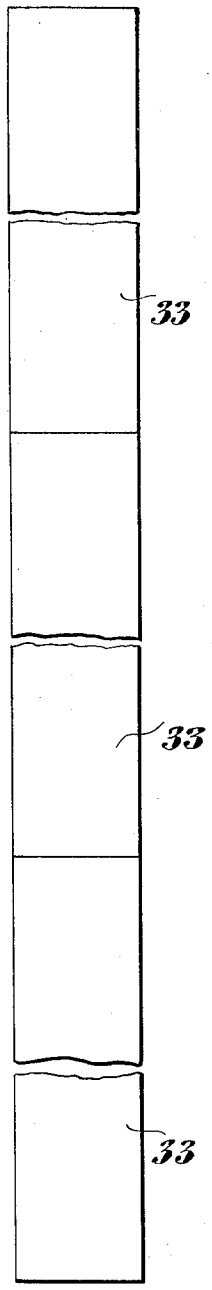


Fig. 14.

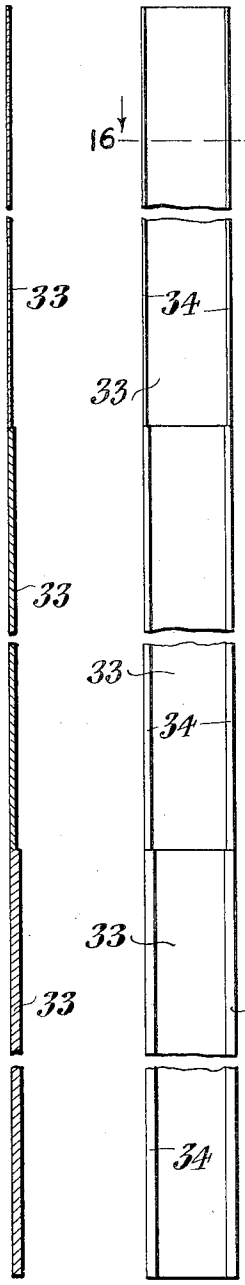


Fig. 15.

Fig. 16.

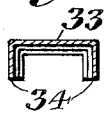


Fig. 17.

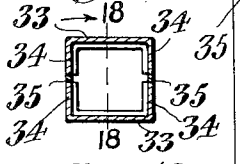


Fig. 18.

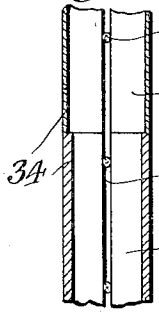
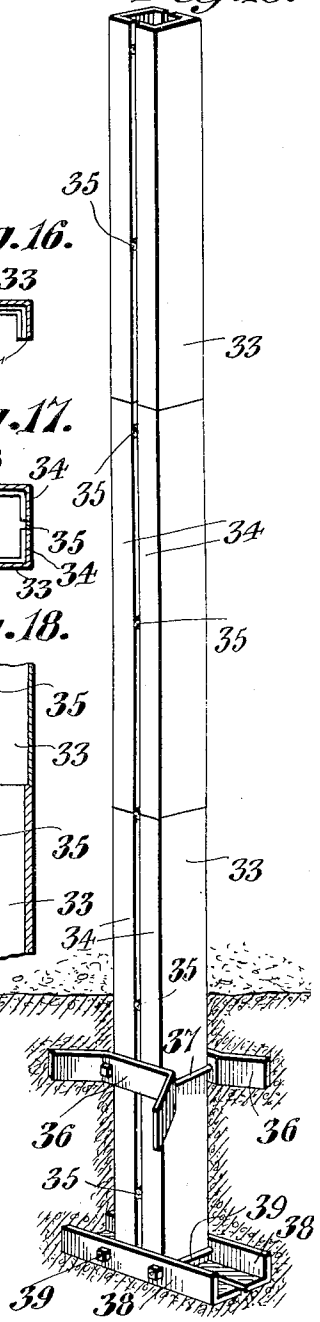


Fig. 19.



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UNITED STATES PATENT OFFICE

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METHOD OF MAKING METAL STRUCTURES

Application filed April 25, 1930. Serial No. 447,349.

The object of the present invention is to provide a novel method of making poles or supports of sheet metal at relatively small expense and producing strong and rigid structures that will constitute proper supports capable of withstanding the stresses of weather and the like that may be brought upon and against them.

In the accompanying drawings:

Figure 1 is a plan view of a sheet metal blank from which one of the members is formed.

Figure 2 is an edge view of the same.

Figure 3 is a longitudinal sectional view.

Figure 4 is a rear face view of the member after it has been formed.

Figures 5, 6 and 7 are cross sectional views respectively on the lines 5—5, 6—6 and 7—7 of Figure 4.

Figure 8 is a cross sectional view through a completed pole or support.

Figure 9 is a vertical sectional view through a portion of the same and on the line 9—9 of Figure 8.

Figure 10 is a view in elevation of a modified form of construction.

Figure 11 is a sectional view on the line 11—11 of Figure 10.

Figure 12 is a perspective view of a completed pole set up.

Figure 13 is a plan view of a blank of a modified form of construction.

Figure 14 is a vertical sectional view therethrough.

Figure 15 is a rear elevation of the completed form.

Figure 16 is a sectional view on the line 16—16 of Figure 15.

Figure 17 is a horizontal sectional view through a completed pole of the modified form of construction.

Figure 18 is a sectional view on the line 18—18 of Figure 17.

Figure 19 is a detail perspective view of the completed pole of modified form set up.

In producing the embodiment disclosed in Figures 1 to 10 and Figure 12, the pole is made up of associated members. Each member in turn is made up of sheet sections. Thus, as shown in Figures 1, 2 and 3, a blank is provided, consisting of flat sheet sections 20, 21 and 22 that are successively of different thickness or gauge, but are of the same width. These sections are abutted end to end and are electricaly butt-welded, as shown at 23 and 24 into substantialy a single piece or blank, with the faces of the sections on one side flush and on the opposite side in stepped relation, all as shown in Figures 2 and 3. This blank is then run through forming rolls, which in the embodiment disclosed in Figures 4–7 inclusive, bend the margins of the blank rearwardly into longitudinal flanges 25 that extend the length of the member across the joints and thereby including all the sections. The central portion of the blank is furthermore inset or channeled, as shown at 26, thereby producing on the rear side a continuous reinforcing and stiffening rib 27.

Two of the members thus formed are placed in opposition, with their flanges 25 and ribs 26 extending inwardly, and a lattice rod or bar 28 of generally serpentine form is interposed between them, and at its bends or knuckles is electrically welded to the inner sides of the ribs 26, as shown at 29. As a consequence a skeleton pole or support is produced, the exposed faces of which are relatively smooth and continuous and yet the walls of this pole decrease in thickness from the base to the upper end.

The structure may be utilized in various ways. Thus in Figure 12, the pole as above described, is shown as mounted in a concrete base 30, and has a cap 31. It may be provided with cross arms or other supports for electric wires and the like.

If a heavier structure is desired, two poles may be placed side by side, as indicated in Figures 10 and 11 with their adjacent marginal flanges abutted and bolted together, as shown at 32.

A modified form of construction is illustrated in Figures 13–19 inclusive. In producing this embodiment, the blank is formed the same as with that first described. It consists of plates or sheets 33 successively of different thickness, butt-welded, with their outer faces flush and their rear faces offset. In

this form of structure the blank thus produced is rolled to form rearwardly extending marginal flanges 34 only, a channeled structure being thus produced, which is heavier at its lower end than at its upper end, but with relatively smooth outer faces. Two of these channeled members can be placed in opposition as indicated in Figure 19, and the adjacent faces of the margins 34 spot-welded at separated points as indicated at 35. This provides a skeleton structure that is open to permit the free circulation of air to and through the interior. The pole thus produced, can be mounted in various ways. Thus in Figure 19, wing plates 36 are located on opposite sides of the base, and connected by tie bolts 37. The ends of the wing plates extend beyond the pole and are preferably offset. The bottom of the pole may rest upon angle plates 38. These angle plates have upstanding flanges lying alongside the lower end of the pole and through them pass tie bolts 39 that serve to clamp the angle plates to the pole, thereby producing an effective support and anchor for the pole when its lower end is embedded in the earth.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of operation may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. For example, it is not necessary that the sheets be abutted with their outer faces flush. The inner faces may be flush or both faces may be stepped. Furthermore the disclosures are otherwise only examples of the forms the sheets may take during their formation. They may be varied in cross-sectional contour.

What we claim, is:

The method of forming poles and the like which consists in butt-welding end to end a plurality of sheets of successively different thicknesses and rolling the sheets to offset the longitudinal margins and provide an intermediate channeled rib, said ribs providing stiffening reinforcements throughout the structure.

In testimony whereof, we affix our signatures.

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WALTER F. SCHULZ.