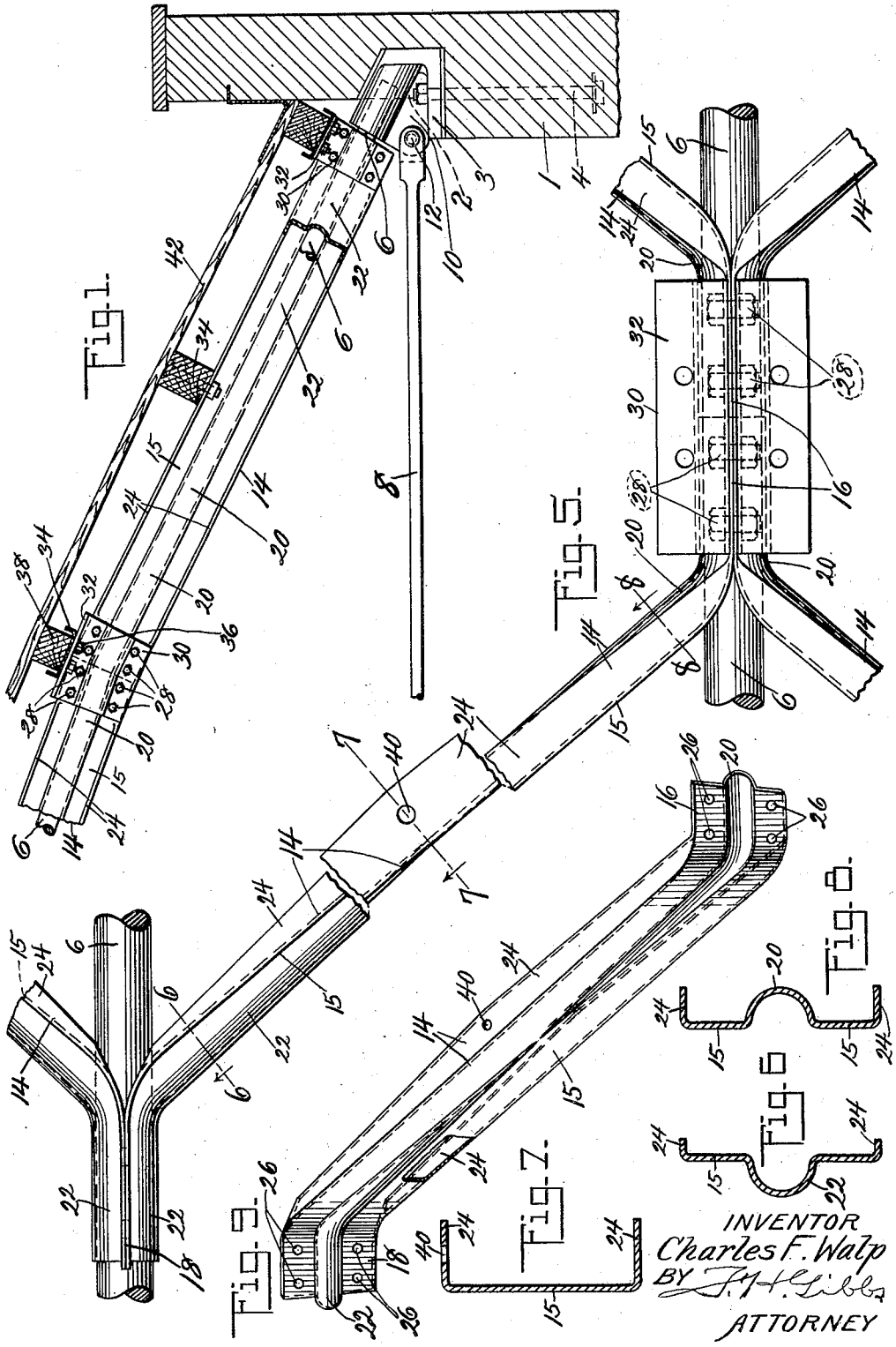
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ROOF

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ROOF

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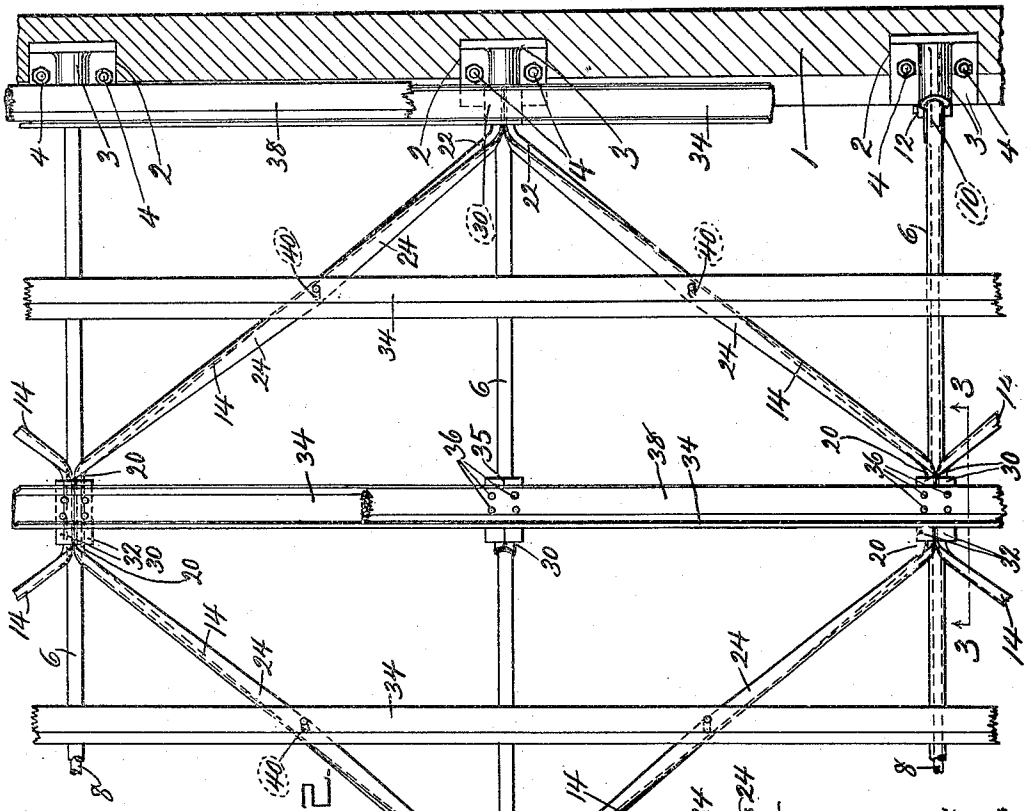


Fig. 2.

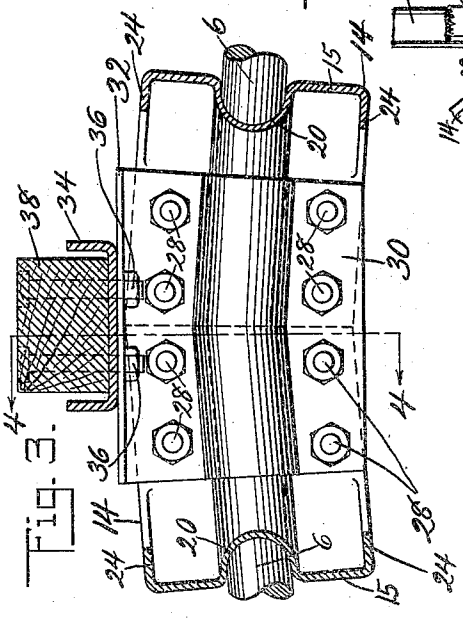


Fig. 3.

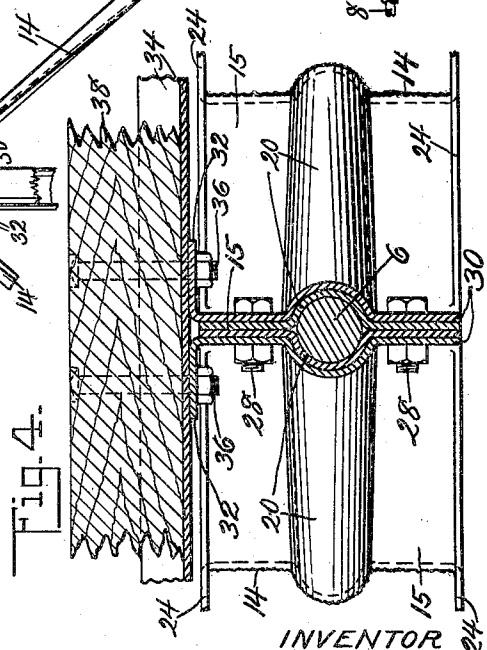


Fig. 4.

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UNITED STATES PATENT OFFICE

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ROOF

Application filed March 8, 1929. Serial No. 345,350.

This invention relates to roofs and, more particularly, to roofs of the type having a framing consisting principally of a plurality of small units or members which are bolted together to form a reticular frame structure; and it is an object of this invention to provide a roof frame of the type described, in which a plurality of units of but a single design and of uniform dimensions are used. It is also an object of this invention to provide a roof frame so designed that the units may be formed of pressed metal and all units for a roof may be formed with a single set of dies.

With these and other objects in view, as will appear more fully hereinafter, the invention consists substantially in the construction, combination, location and relative arrangement of the parts, all as will be more fully herein set forth, as shown in the accompanying drawings and finally pointed out in the appended claims.

In the drawings:

Figure 1 is a vertical transverse section of an edge portion of a roof constructed in accordance with this invention;

Fig. 2 is a top plan view of a fragment of the roof frame of Fig. 1, parts being broken away to show other parts more clearly;

Fig. 3 is a fragmentary vertical section taken as on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary vertical section taken as on the line 4—4 of Fig. 3;

Fig. 5 is a broken plan view drawn to a larger scale of a portion of the frame shown in Fig. 2;

Figs. 6, 7 and 8 are vertical sections taken on the lines 6—6, 7—7 and 8—8, respectively, of Fig. 5; and

Fig. 9 is a perspective view of one of the members of the frame shown in Fig. 2.

In the drawings, a roof constructed in accordance with this invention is shown in connection with walls 1 which are recessed as at 2 to receive socket castings 3 which are seated in the recesses 2 and secured therein by bolts 4. The socket castings 3 are spaced uniformly along opposite walls 1, and mounted therein are the rods or transverse members 6 which extend between oppositely positioned castings 3. Where it is necessary or desirable to relieve the wall of the thrust from the rods 6, tie rods 8 extend between oppositely positioned castings 3 beneath the rods 6 and are secured to flanges 10 of the castings by bolts or pins 12. Extending between adjacent rods 6 are the units or members 14, each unit comprising a pressed metal member consisting of a web 15 with its ends 16 and 18 bent in opposite directions and formed with oppositely disposed recesses 20 and 22 which are of sufficient depth in the ends to fit the rods 6 and which extend into the body of the unit forming reinforcing corrugations therefor and merging into the web 15 as they approach the center of the member. Along the longitudinal edges, the units 14 are provided with outwardly disposed flanges 24 which taper towards the end and merge with the ends of the units.

The units or members 14 are placed as shown in Fig. 2 with the ends of the units 14 on the same side of a rod 6 abutting and disposed adjacent ends of other units on the opposite side of the same rod, which ends cooperate to form a tube through which extends the rod 6. The ends outside the recesses 20 and 22 are provided with bolt openings 26, and bolts 28 which extend through these openings and through openings in bracket or tie plates 30 serve to unite the ends of the units to each other and to secure the units to the rods 6. The tie or bracket plates 30 are placed one on each side of a rod 6, lapping the adjacents of units 14, and are formed with recesses which receive the recessed portions of the ends 16 and 18 of the units and with outwardly projecting flanges 32 upon which rest the purlins 34. The purlins 34 are secured to the flanges 32 by bolts 36 which secure the furring strips 38 to the purlins 34 and which pass through alined openings in the purlins 34 and flanges 32. At the ends of the rods 6 the ends of but two of the units or members come together and at these points the bracket plates 30 are but half the length of the plates used where the ends of four of the units or members come together. In this connection, it will be noted that the rods 6 are bent, so as to form chords of equal length,

the points of bending coming at the point of junction of the ends of the units. The ends of the units 14 are cut so that the abutting edges bisect the angle formed by the sections of the rod 6; this being done in order to provide a joint in which there will be no overlapping of the units on the same side of a rod 6.

Where the purlins cross the rods 6, between the unit joints, supports for the purlins are provided by means of pairs of the bracket plates 30 which fit about the rod 6 and are secured thereto by bolts as at 35 and have the purlins 34 attached to the flanges as previously described. Where it is desired to place purlins which cross the units or members 14 at points other than at the joints of the units, the upper flanges of the units are provided with bolt openings 40 and the purlins 34 are secured to the flanges by bolts which engage in openings in the purlins 34 and in the openings 40.

In the erection of this roof framing, the units or members 14 will be attached to an end wall or an end rod 6 and project diagonally outward therefrom to the adjacent rod 6. The units or members 14 between that rod and the next rod will be attached to the units already positioned and the rod 6 extending between the adjacent ends. In this manner a plurality of substantially diamond-shaped figures will be formed which will be attached to the rods 6 and will extend from end to end of the roof. To this the purlins 34 and furring strips 38 will be secured and upon the furring strips will be nailed the roof boards 42.

While the preferred form of the invention has been shown and described, it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof within the scope of the claims will occur to persons skilled in the art.

What is claimed is:

1. In a roof frame, spaced parallel rods, members extending diagonally between adjacent rods and having their ends parallel to and cooperating to receive said rods and purlin supports securing said members together and to said rods.

2. In a roof frame, spaced parallel rods, members extending between adjacent rods and having their ends recessed and cooperating to receive said rods and purlin supports fitting said recessed ends and securing said members together and to said rods.

3. In a roof frame, spaced parallel rods, bracing members extending between adjacent rods, said bracing members having their ends bent to parallel said rods and recessed to form tubes receiving said rods, and clamping means securing said bracing members together and to said rods.

4. In a roof frame, spaced parallel rods, members extending diagonally between adjacent rods and having their ends cooperating to form tubes receiving said rods, and clamping means securing said members together and to said rods.

5. In a roof frame, spaced parallel rods, flanged diagonal bracing members extending between adjacent rods, said bracing members having their ends abutting and recessed to fit about said rods and clamping means connecting said bracing members and securing said bracing members to said rods, said bracing members on opposite sides of each rod cooperating to form a rod securing tube.

6. In a roof frame, spaced parallel rods, diagonal bracing members extending between adjacent rods, said bracing members having their ends recessed and cooperating to form rod receiving tubes, and clamping means securing said bracing members together and to said rods.

7. In a roof frame, spaced parallel rods, flanged diagonal bracing members extending between adjacent rods, said bracing members having their ends recessed to fit about said rods and clamping means recessed to fit the ends of said bracing members and having flanges for supporting the roof purlins.

8. In a roof frame, spaced parallel rods, flanged diagonal bracing members extending between adjacent rods, said bracing members having their ends abutting and recessed to fit about said rods, and clamping means recessed to fit said bracing members for securing said bracing members together and to said rods.

9. In a roof, spaced parallel rods extending from side to side thereof, bracing members extending between and recessed to receive said rods and means connecting said bracing members together and to said rods.

10. In a roof frame, spaced parallel rods, diagonal bracing members extending between said rods and means connecting said bracing members together and to said rods, said connecting means and bracing members serving as purlin supports.

11. In a roof frame, spaced parallel rods, flanged diagonal bracing members extending between adjacent rods and means connecting said bracing members together and to said rods, said bracing members having their ends abutting and extending parallel to said rods and recessed to fit about said rods.

12. In a roof frame, spaced parallel rods, flanged diagonal bracing members extending between adjacent rods and means connecting said bracing members together and to said rods, said bracing members having their ends extending parallel to said rods and recessed in opposite directions to fit about said rods.

13. In a roof frame, spaced parallel rods, diagonal bracing members extending between adjacent rods and means connecting said

bracing members together and to said rods, said bracing members having their ends recessed to fit about said rods.

14. In a roof frame, spaced parallel rods, flanged diagonal bracing members extending between adjacent rods and means connecting said bracing members together and to said rods, said bracing members having their end portions bent to extend parallel to said rods and recessed to fit about said rods.

15. In a roof frame, spaced parallel rods, flanged members extending between adjacent rods and having their ends parallel with and cooperating to receive said rods, means clamping said members together and to said rods, and purlins carried by said clamping means and members.

16. In a roof, spaced parallel members, diagonal members extending between and recessed to receive said parallel members and means connecting said diagonal members together and to said parallel members.

17. In a roof, spaced parallel members having a plurality of flat angularly disposed sections, diagonal members extending between and recessed to receive said parallel members and abutting at the angles between sections of said parallel members and means connecting said diagonal members together and to said parallel members.

18. In a roof frame, spaced members, pressed members extending between and recessed to receive said spaced members and means connecting said pressed members together and to said spaced members.

19. In a roof frame, spaced members, pressed members extending between and having ends recessed to receive said spaced members and means connecting said pressed members together and to said spaced members.

20. In a roof frame, spaced members, pressed members extending between and having ends fitting said spaced members and flanged tie plates fitting the ends of said pressed members and securing said pressed members together and to said spaced members.

In witness whereof I have hereunto set my hand.

CHARLES F. WALP.