M. J. NEUMAYER.

ADJUSTABLY CLAMPED ROOF.

APPLICATION FILED JULY 28, 1914. RENEWED SEPT. 5, 1917.

1,244,763. Patented Oct. 30, 1917.

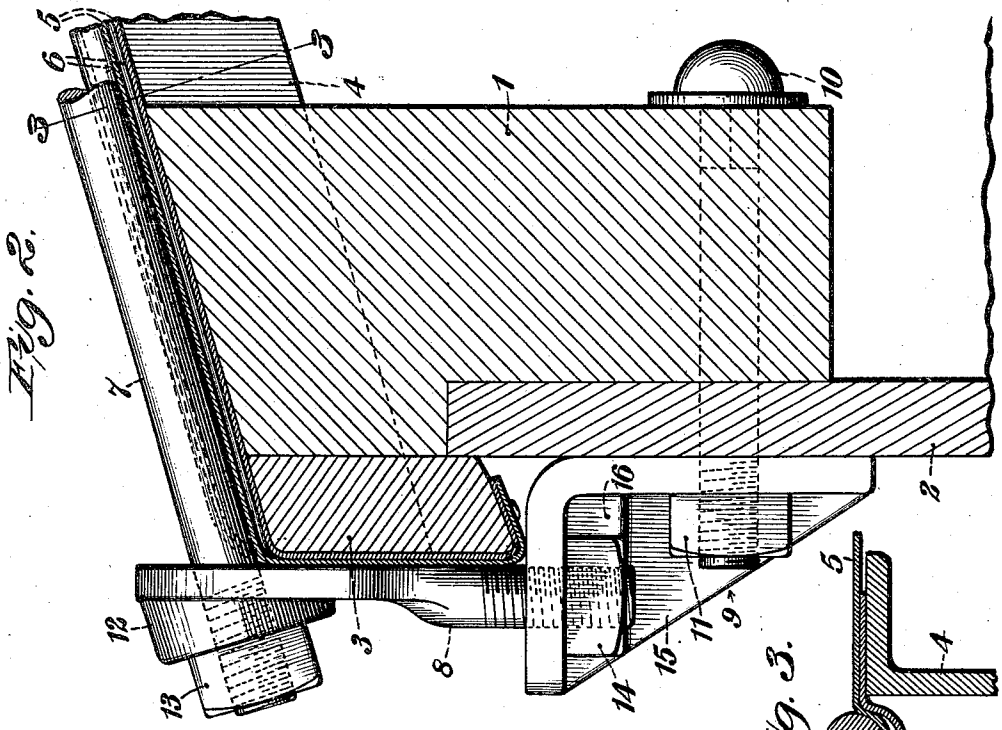


Fig. 2.

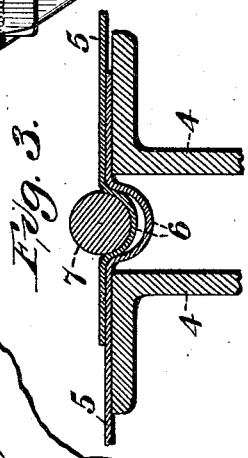


Fig. 3.

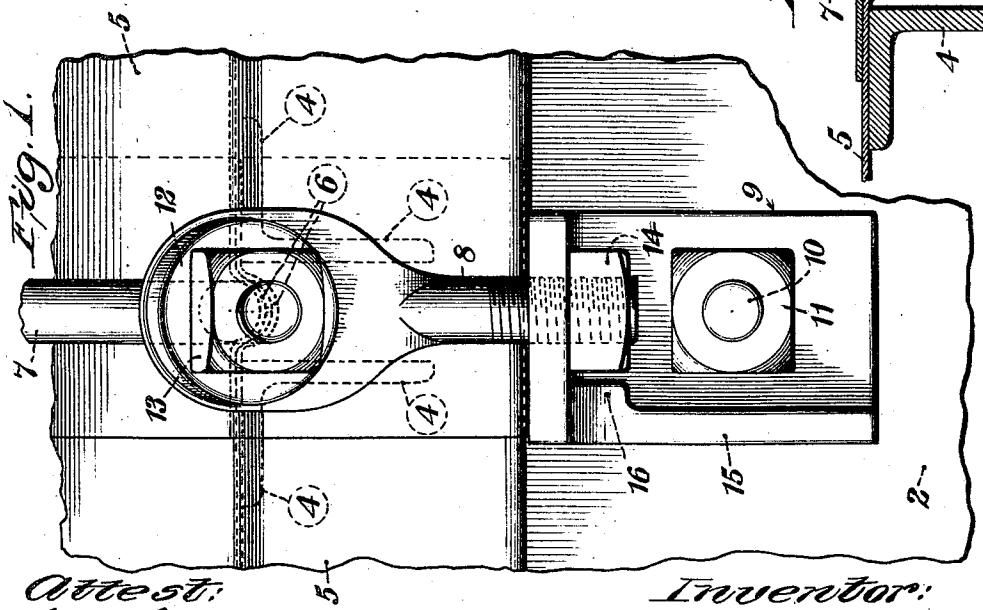


Fig. 1.

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UNITED STATES PATENT OFFICE.

MAXIMILIAN J. NEUMAYER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

ADJUSTABLY-CLAMPED ROOF.

1,244,763. Specification of Letters Patent. Patented Oct. 30, 1917.

Application filed July 28, 1914, Serial No. 853,660. Renewed September 5, 1917. Serial No. 189,886.

To all whom it may concern:

Be it known that I, MAXIMILIAN J. NEUMAYER, residing at St. Louis, Missouri, and being a citizen of the United States, have invented certain new and useful Improvements in Adjustably-Clamped Roofs, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though 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 will occur to persons skilled in the art.

In said drawings:

Figure 1 is a fragmentary side elevation of an upper portion of a car, showing one of the adjustable clips coöperating with a binding rod to hold the roof sheets in place.

Fig. 2 is a transverse sectional view through that part of the car shown in Fig. 1, further illustrating the relation of the parts shown in the latter figure; and

Fig. 3 is a section through one of the carlines, showing the arrangement of one of the binding rods and the lapping roof sheets, the section being taken on line 3—3, of Fig. 2.

In roofs that have been heretofore positioned and retained in place by means of rods binding them to the walls of the structure they covered, it has been customary to bend over the ends of said rods and to anchor them in various ways.

This is an objectionable practice because the outer fibers at the bent ends of the rods are stretched and apt to be so much so beyond their elastic limit as to greatly impair the strength and reliability of such rods. There has also usually been a lack of opportunity for properly adjusting the binding force.

My present invention provides means for clamping the roof in place in such manner that there may be a proper adjustment of the rods to the contour of the roof framing, and so that the roof sheets will be firmly held in place, but, when secured to a structure subject to vibratory impulses, as a railroad car, allowed to respond to the weaving action of the car body, while the car is in motion. Thus undue binding of the sheets upon the roof framing is entirely avoided without a concession to the danger of their displacement.

An improved adjustment of the binding rods is also attained with my arrangement, it being possible to adjust said rods either vertically or horizontally to secure a refined pressure on the roof sheets best adapted to maintain the preferable frictional relation between the lapping portions of adjacent roof sheets and the roof framing upon which they rest.

Other advantages which have not already been enumerated but become apparent hereinafter operate to increase the merit of this invention.

As the structure is symmetrical at both sides of the car, it has been deemed unnecessary to illustrate or describe more than one side, and, in the drawings, 1 represents a side plate of conventional form, which may be of wood, as shown, or of suitably shaped metal, forming a part of the car body, and 2 the sheathing of one of the side walls of the car body. On the outside of the side plate 1, and lapping both it and the sheathing 2, is the fascia board 3.

Supported by the side plates 1 at opposite sides of the car, and forming part of a roof frame, are carlines 4 of any suitable type, the form shown harmonizing excellently with the general arrangement herein disclosed and comprising a pair of spaced angles. Roof sheets 5, which may be formed either of flat or corrugated metal sheets, lap each other and are preferably crimped at the joints, the space between the angles of each carline accommodating said crimped joints. The roof sheets at each side of the car extend outwardly over the side plate and fascia board, and are there bent downwardly and extend to the bottom of said fascia board and are then turned inwardly to lap the bottom of the latter.

It is considered desirable to have the underlying roof sheet lie in contact with the top surfaces of the carlines, side plates and fascia boards, and with the outer and under surfaces of a suitable anchor therefor, which in the present example is the fascia. Said under surface of the fascia board is preferably inclined upwardly and inwardly, and the edges of the roof sheets are shown, in Fig. 2, to be secured to said under sur-

faces, as by nails, or other suitable means. A drip edge is thus provided at the outer lower edge of the fascia board, and away from the sheathing.

At the joints of the roof sheets, the lapping portions of said sheets are in direct surface contact with each other except at the crimped portions. The flutings or corrugations 6 crimped in the roof sheets at each joint are arranged eccentrically to each other, one above the other, and have an elastic correlation, the under fluting receiving the upper, there being space between the two, said flutings preferably terminating at the outer faces of the fascia boards.

Within the fluting of the superposed roof sheets lie transversely disposed binding rods or members 7, which may extend across the car for the full width of the roof, or may terminate at and be secured to the usual saddle blocks, not shown, near the middle of the roof. The rods 7 project outwardly beyond the fascia boards, and when these rods are drawn downwardly, as hereinafter set forth, the fluting of the superposed sheet is crowded into that of the underlying sheet, a spring-like binding connection between the lapping ends of contiguous sheets resulting, as best illustrated in Fig. 3. There remains, however, enough flexibility in the associated lapping portions to allow said lapping sheets to slide one upon the other within certain limits, when subjected to an otherwise disrupting distortional stress. It is, of course, obvious that instead of the rods shown, bars of other cross section with suitable ends, or relatively wide strips of metal with separate threaded lugs attached to the ends thereof, or any other suitable binding means may be used.

Slipped over each end of each binding rod 7 or its approved equivalent is the eye of an eyebolt 8, the shank portion thereof depending and passing through an aperture in the upper horizontal outstanding flange or leg of a bracket 9, which bracket is secured in position as to the side plate or the exterior of the sheathing 2 by a bolt 10, which passes through said bracket, sheathing and the side plate and is provided with a tightening nut 11.

The eye of eyebolt 8 is provided with an integral perforated boss 12 having an outer face inclined or beveled to be disposed substantially perpendicular to the axis of the end of the binding rod 7, which passes therethrough and projects therebeyond. Threaded onto each projecting end portion of the binding rods is a nut 13, by means of which transverse adjustment of the rod 7 may be made, and also the downward pressure of the rod against the roof sheets regulated.

The shanks of eyebolts 8 not only pass through the horizontal flange of brackets 9, but extend therebelow, and have screwed upon their lower extremities nuts 14. In consequence thereof, an additional vertical adjustment of the binding rods 7 is permitted, for, upon the proper positioning of the nuts 14 on the shanks of the eyebolts 8, said binding rods 7 will be caused to correspondingly increase or decrease the presure upon the roof sheets 5.

Brackets 9 are of inverted L-shaped cross section, and each may be provided with one or more bracing ribs 15, which connect the vertical and horizontal legs of said brackets. Just below the horizontal leg of each bracket 9, the bracing rib 15 is formed with an inwardly projecting pad or boss 16, which, when the nut 14 of the eyebolt 8 is in its normal position, prevents the rotation of said nut, insuring against the accidental detachment of the eyebolt 8, and the consequent release of that end of binding rod 7 which is held in place by said eyebolt.

In securing the roof in place, and after the roof sheets have been properly positioned, the eyebolts 8 are connected to the brackets 9 and by the manipulation of nuts 14 adjusted to the proper height, the eyes of the bolts 8 being mounted upon the ends of rods 7, and the brackets 9 being secured to the car. Nuts 13 are screwed onto the projecting ends of binding rods 7 to complete the uniting of the parts, and are tightened to exert the proper pressure.

When the parts are assembled, the form illustrated in the drawing shows the eyebolt 8 drawn against the vertically disposed portion of a roof sheet where it parallels the outer face of the fascia board. Said eyebolt, therefore, cannot be revolved, even if the rotation preventing pad or boss 16 be omitted.

What I claim is:—

1. In a structure of the class described, a roof frame comprehending a carline comprising spaced members, lapping roof sheets supported upon said roof frame and provided with elastically correlated seats between said carline members and within the lap of said roof sheets, a binding member adapted to coöperate with one of said seats and projecting beyond the roof without substantial deviation from its path of direction, and means for vertically adjusting said binding member and to secure it in position.

2. In a car roof, suitably supported relatively slidable lapping roof sheets, a binding rod adapted to bear thereagainst and to project beyond the roof, a bracket adapted to be secured to a car body and having an outstanding flange, an eyebolt passing therethrough and having an eye beveled and apertured to correspond to the disposition of said rod, means for adjusting the height of said eye, and means for adjusting said rod transversely of the roof.

3. In a car roof, suitably supported rela-

tively slidable lapping roof sheets, a binding rod adapted to bear thereagainst and to project in a substantially straight path beyond the roof, a bracket comprising a flange adapted to be secured to the body portion of a car, an apertured outstanding flange and a rib connecting both flanges, a bolt comprising an eye adjusted to the disposition of said rod and a shank passing through said outstanding bracket flange, a tightening nut on said rod, an adjusting nut on said bolt shank below said last mentioned flange, and means on said bracket preventing the rotation of the adjusting nut when the parts are assembled.

4. In a car, a side plate forming part of a car body, suitably supported relatively slidable lapping roof sheets extending over the outside of said car body, a binding rod stretched over said roof sheets and extending outwardly there beyond in a substantially straight path, fixed holding means secured to said car body, adjustable means connecting said rod and holding means and means adapted to prevent swiveling of said adjusting means.

5. In a car roof, a roof frame comprehending a carline comprising parallel spaced members, lapping roof sheets provided with elastically correlated seats positioned between said spaced carline members and a binding rod above one seat adapted to regulate the pressure between both seats, each roof sheet adapted to lap both spaced members and to be relatively slidable therewith and with relation to each other.

6. In a railway car, framing members, roof sheets provided with lapping corrugations extending over said framing members, a binding member in alinement with some of the corrugations of said roof sheets and extending therebeyond, an anchor secured to one of said framing members, a vertically adjustable member secured to said anchor and to said binding member and means for adjusting said adjustable member.

7. In a car roof, a frame member comprising a carline, roof sheets having their edges lapped over said carline, a binding member over the lapping portion of said roof sheets, an anchor bracket secured to the side of the car, in combination with an adjustable connector connecting the said bracket with the end of said binding member whereby the end of said binding member may be adjusted vertically relative to said anchor bracket.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

MAX J. NEUMAYER.

Witnesses:
OSCAR HOCHBERG,
EDMUND D. CAMPBELL.