J. J. HOFFMAN.

CAR ROOF.

APPLICATION FILED FEB. 19, 1909.

999,166. Patented July 25, 1911.

Fig. 1.

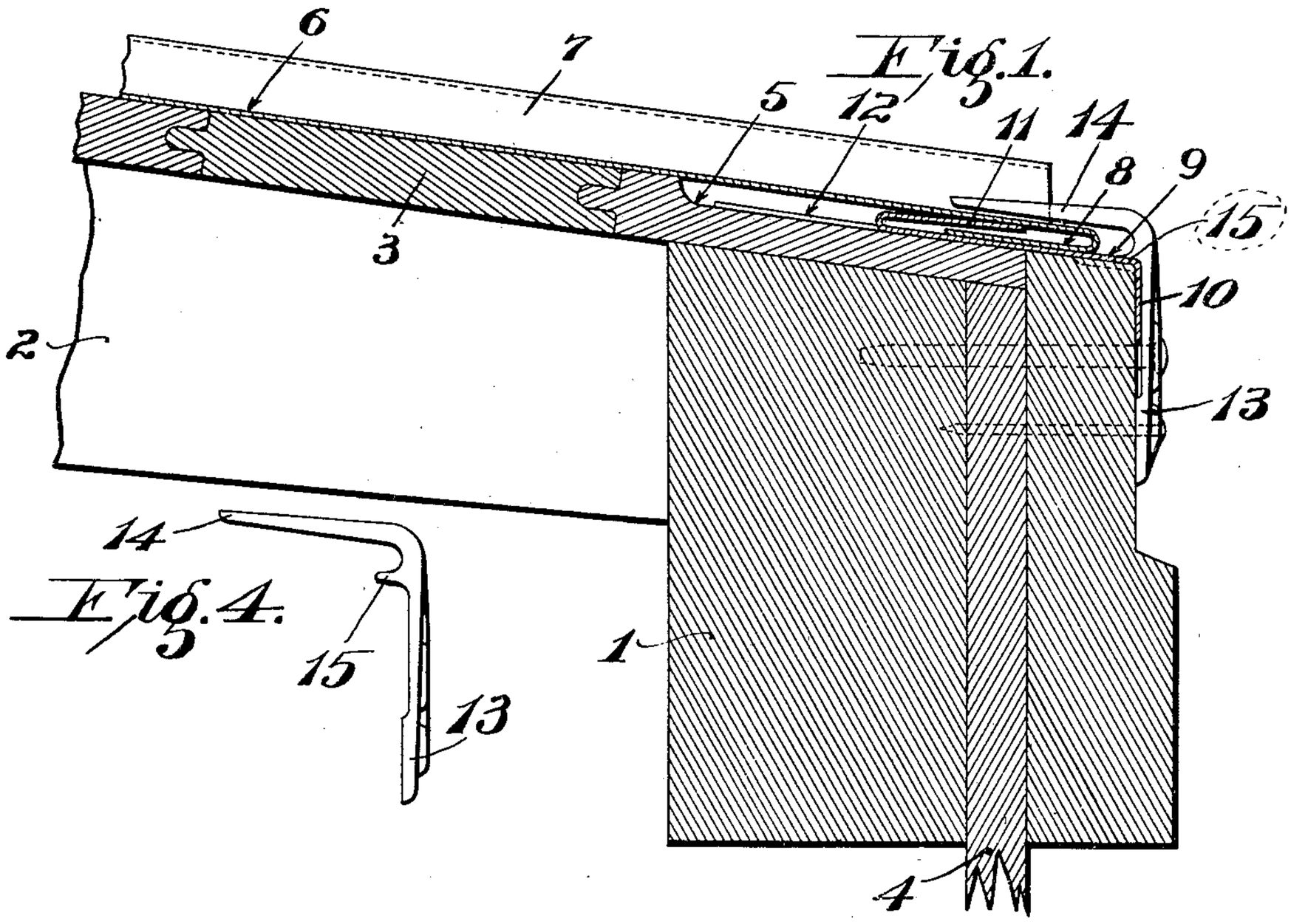

Fig. 4.

Fig. 2.

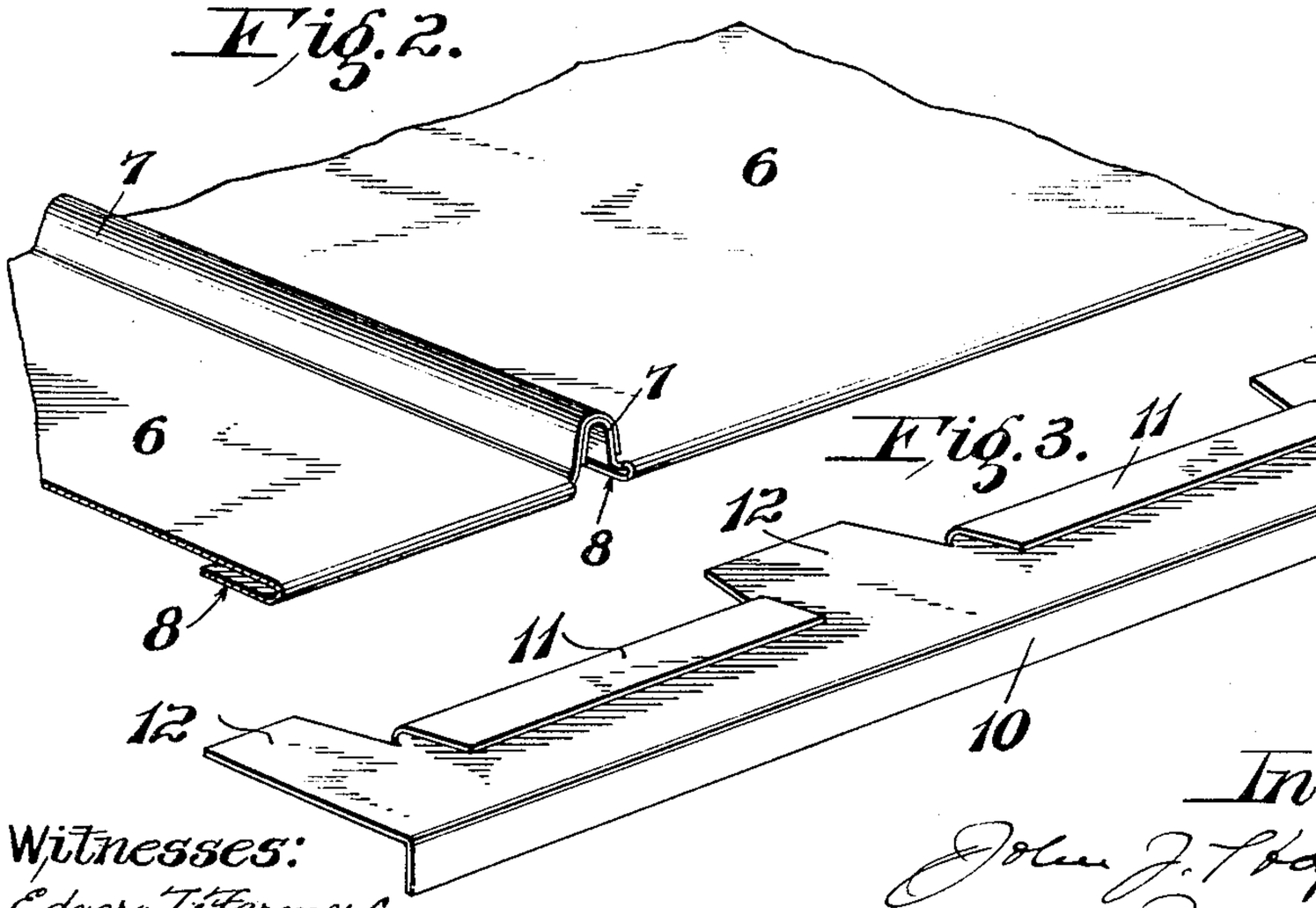

Fig. 3.

Witnesses:
Edgar T. Farmer.
G. A. Pennington

Inventor:
John J. Hoffman,
By Cornell Dame,
Attys.

UNITED STATES PATENT OFFICE.

JOHN J. HOFFMAN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO PETER H. MURPHY, OF PITTSBURG, PENNSYLVANIA.

CAR-ROOF.

999,166. Specification of Letters Patent. Patented July 25, 1911.

Application filed February 19, 1909. Serial No. 478,821.

To all whom it may concern.

Be it known that I, JOHN J. HOFFMAN, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Car-Roofs, of which the following is a specification.

With outside car roofs of the constructions commonly used at the present time, the roof sheets are turned down at the eaves in order to shed water; and frequently such sheets fail by tearing lengthwise of the car from a point above but close to the eaves. I attribute this method of failing to the fact that in the weaving of the car, there is a concentration of tensile stresses along the edge of the sheet by reason of the ends thereof becoming fastened to a greater or less extent.

The purpose of the present invention is to eliminate or minimize the tendency of the sheets to tear lengthwise of the car.

To this end the invention consists in flexibly mounting the roof sheets with their outer ends inside of the contour of the car so as to avoid turning them down over the eaves, in connection with a flashing for shedding water over the eaves.

It also consists in the means for flexibly holding said roof sheets in place.

It also consists in the flashing hereinafter described and claimed.

It also consists in the combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawing, which forms part of this specification and wherein like symbols refer to like parts wherever they occur, Figure 1 is a vertical cross sectional view of the upper side portion of a car embodying my roof; Fig. 2 is a fragmentary perspective view of two interlocking roof sheets; Fig. 3 is a perspective view of the flashing strip; and, Fig. 4 is a side elevation of the clip.

The substructure of the car is of any usual type comprising side plates 1, carlines 2, wooden roof sheathing 3, and wooden side sheathing 4. Preferably, the boards of the roof sheathing extend longitudinally and the outermost board overlaps the side plate. The edge portion of the wooden sheathing or substructure for a distance of approximately four inches from the edge of the roof is offset or rabbeted (as shown at 5) so that its surface is lower than the plane of the surface of the main portion of such sheathing, in order to accommodate the rebent ends or interlocking flanges hereinafter mentioned. The metal roof sheets 6 lie flatwise on the sheathing and are arranged transversely of the car. They are connected at their side edges by rebent flanges or interlocking seams 7 of any suitable type which will permit limited relative movement of the sheets. The outer end 8 of each sheet is rebent to lie in the rabbet of the sheathing parallel with the body of the sheet and at a slight distance below such body, the rebend being made along a line close to the eaves or edge of the car.

Secured in the depressed marginal portion of the wooden sheathing is a flashing strip 9 whose outer marginal portion 10 is bent down over the eaves. The inner margin of this flashing strip has two elongated V-shaped notches cut therein, and the endmost marginal portions of said strip are bent upwardly and then backwardly so as to form tongues 11 which lie parallel with the body of the strip. The portion between said notches remains unbent. The respective rebent marginal portions or tongues 11 of each flashing strip engage the rebent marginal portions 8 of two interlocking roof sheets, and the unfolded portion 12 of the strip between them lies beneath the roof seam or rib 7 and constitutes a flashing therefor. In practice, the rebends of the flashing strip and of the roof sheets are so proportioned that normally a space of approximately one inch will intervene between the edge of the rebent portion and the loop with which it engages. By this arrangement, each sheet is free to move inwardly or outwardly for a distance of approximately an inch without becoming disengaged from the flashing strip which serves to hold it in position. By reason of the edge portion of the sheathing being depressed, the movement of the roofing sheets does not necessitate any bending or buckling thereof.

Secured to the eaves are clips 13 which have inwardly extending portions or fingers 14 adapted to overlap the margins of the roof sheets. These clips are provided on the inner face with short studs or lugs 15 adapted to bear downwardly against the flashing strip and thereby serve as a means

for positioning the inwardly projecting fingers, such fingers being far enough above such studs to keep them normally clear of the roof sheets. The distance from the rebent margin of the roof sheet to the upwardly extending member of the clip is short enough to cause the edge of the sheet to bear against said clip before the edge of its rebent portion becomes disengaged from the rebent portion of the flashing.

The several flashing strips abut edgewise or slightly overlap each other, but in all cases, the middle portion of each strip is arranged to lie beneath a roof seam so as to better shed the water at this point. By reason of the upturned interlocking flanges of the flashing strip, any water that may be blown under a roof sheet will find its way out over the eaves, as the flashing is continuous from one end of the car to the other.

By the construction above described, the roof sheets are free to slip on each other far enough to adjust themselves to the varying conditions caused by the "weaving" of the car, without danger of becoming disengaged from their fastening devices and without having to bend. At the same time, the securing devices at the eaves constitute a flashing which fully protects the woodwork from moisture.

The invention is applicable to sheets which extend from eaves to eaves but is especially advantageous with roofs whose sheets terminate at the ridge where they are held by any suitable fastening device.

What I claim is:

1. A car roof comprising movably secured metal sheets mounted on the substructure and movable transversely thereof and whose side margins are interlocked to form seams and whose outer ends are rebent on the under side along a line short of the eaves, and metal flashing strips whose outer margins overlap the eaves continuously from end to end of the car and whose inner margins have tongues rebent to be slightly above and movably engage the rebent portions of the roof sheets, the portions of the inner margin of a flashing strip between its rebent tongues lying below a seam, the edges of said rebent portions being normally spaced from the corresponding bend to permit the rebent portions of the sheets to slide inwardly and outwardly over said flashing strips.

2. A car roof comprising a wooden substructure having a wide rabbet in its upper surface at the eaves, a series of strips constituting a continuous flashing mounted in said rabbet with their outer margins turned downwardly over said eaves and with rebent tongues at their inner margins, movably secured metal roof sheets mounted on the substructure and movable transversely thereof and having their outer ends rebent short of the eaves to movably engage said tongues, and metal clips having inwardly extending fingers overlapping the marginal portions of the respective roof sheets far enough above the substructure to avoid binding the roof sheets, whereby said clips serve to limit the outward movement of the sheets and also to hold them down and thereby relieve the rebent portions of stresses tending to raise the sheets.

3. A car roof comprising a wooden substructure having a wide rabbet in its upper surface at the eaves, a series of strips constituting a continuous flashing mounted in said rabbet with their outer margins turned downwardly over and fastened to said eaves and with rebent tongues at their inner margins, metal roof sheets mounted on the substructure and movable transversely thereof and having their outer ends rebent short of the eaves to lie slightly below and movably engage said tongues and metal clips having inwardly extending fingers overlapping the marginal portions of the respective roof sheets, said clips having lugs on their inner faces for positioning the fingers thereof clear of the margins of the sheets whereby said clips serve to limit the outward movement of the sheets and also to hold them down and thereby relieve the rebent portions of stresses tending to raise the sheets.

Signed at St. Louis, Missouri, this 17th day of February, 1909.

JOHN J. HOFFMAN.

Witnesses:
J. B. MEGOWN,
JAMES A. CARR.