Fig. 2.
DOOR HEADER ARRANGEMENT FOR BOX CARS

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This invention relates to railway box cars and more particularly to a door header construction for the doorways of such cars whereby weather, light and foreign matter are prevented from entering the cars from over the doors.

The principal object of the invention is to provide a box car door header so formed as more effectively to prevent weather, light and foreign matter from passing over the top of the door and entering the car through the doorway.

An important object of the invention is the provision of a door header member comprised of a formed section having an outstanding flange adapted to baffle the elements at the top edge of the car door from entering the car and to deflect any elements passing the flange into the formed section.

A further and more specific object of the invention contemplates a car door header in the form of a trough at the inner side of the door and having an outstanding flange overlying the door top edge adapted to baffle the top of the door against the entrance of foreign matter and to deflect matter forced past the flange into the trough and direct it over from the trough over the door to the outside.

A still further and specific object of the invention is related to the disposition of the bottom wall of the trough shaped header at an inclined angle such that any accumulation of water or the like is directed away from the interior of the car and having drain holes at the ends of the trough to maintain the water level below the point where it might leak into the car.

Another object of the invention is the provision of a combination door closure, baffle, and guide and holder unit adapted for application to the top of a box car door at the trailing edge whereby the door is guided and held in position and weather, light and foreign matter prevented from passing over the top of the door and entering the car through the doorway when the door is in closed position.

The foregoing and other objects of the invention are attained by the door header structure and arrangement illustrated in the accompanying drawings, wherein:

Figure 1 is a longitudinal sectional view through a box car side door opening illustrating the relationship between various members of the car structure and the sliding side door when the door is in closed position;

Figure 2 is a transverse sectional view through the top portion of the side door opening taken on line 2—2 of Figure 1 illustrating the door header, the top portion of the door and a portion of the car roof structure;

Figure 3 is a view similar to Figure 2 except taken on line 3—3 of Figure 1 and having the door removed illustrating the relationship between the spark shield member and the door top retainer;

Figure 4 is the same as Figure 3 except showing the door in closed position and illustrating the combination door closure, baffle and holder unit applied on top of the door at the trailing edge corner of the door;

Figure 5 is a fragmentary perspective view of the front top corner of the door opening illustrating various members of the car structure as arranged for the leading edge of the door;

Figure 6 is also a fragmentary perspective view the same as Figure 5 except taken at the opposite rear top corner of the door opening and illustrates the car structural members as arranged for the trailing edge of the door, and

Figure 7 is a fragmentary perspective view of the door assembly illustrating the top corner at the trailing edge of the door.

The invention affords a car door header structure which achieves a weatherproof seal along the upper edge of the door and effectively baffles the door top edge against the passage of light or foreign matter into the car. The header structure is comprised of a general trough shaped section including an inner flange adapted to be secured to the side plate of the car, a bottom wall disposed at an inclined angle sloping outwardly and downwardly from the inner flange and an upwardly extending outer flange in proximate relation to the inner edge of the door adjacent the door top edge and having an outwardly directed terminal flange overlying the door top edge with the door having a generally outwardly disposed flange underlying the flange on the header. The door top retainer on the car overlies the header and door top edge to obtain a seal arrangement at the top of the door such that weather forced past the baffle flange will be deflected into the trough shaped portion. The generally horizontal terminal flange of the header by reason of its overlying relationship to the top of the door will cause any overflow of foreign matter from the trough to be discharged over the top of the door and beyond the outside face of the door. The outwardly and downwardly inclined bottom wall of the trough directs water or the like that might accumulate in the trough away from the interior of the car and drain holes in the vertical terminating walls at each end of the trough drain the water to the outside of the car thereby maintaining the water level in the trough below the point where it might leak into the car. The combination door closure, baffle, and guide and holder unit of the invention achieves a weatherproof seal on top of the door at the trailing edge when the door is in the closed position and effectively prevents the passage of weather, light and foreign matter into the car. The unit is comprised of a closure plate portion horizontally disposed on the top edge of the door, two upwardly extending baffle flanges and a door guide and holder pad extending downwardly on the outer surface of the door.

In the drawings 19 represents a railway box car having a side wall 12 and a roof 13 with a longitudinally extending side plate 14 operatively disposed at the juncture thereof. The side plate member includes a depending flange 15, a generally horizontal web portion 16 and an upwardly and inwardly directed flange 17 upon which the roof is supported and secured. The side wall 12 is provided with an opening or doorway 18 which is adapted to be covered and uncovered by a sliding side door 19. A door top retainer 20 is secured to the depending flange 15 of the side plate and is provided with an outwardly extending web portion 21 at the top of the door and an outer depending flange 22 depending outwardly of the door top edge structure. The retainer extends for the full width of the door 19 and its movement in uncovering the door opening 18 and is secured by riveting to the flange 15 of the side plate through the medium of upwardly extending flange 23. The side door 19 is provided with a door top edge framing member 24 which has a generally outwardly directed upper flange 25.

Front and rear door posts 26 and 27 respectively, de-
3. fine the sides of the door opening 18 and are secured at the top to side plate 14. A front stop 28, secured to the front door post and a spark strip 29, secured to the rear door post, act to provide weather sealing closures for the leading and trailing edges of the door in its closed position.

A leading edge framing member 30 on the door and a door trailing edge framing member 31 cooperate with the front stop and spark strip to effect the weather sealed closures. An angle shaped baffle plate 32 supplements the spark strip 29 in weatherproofing the trailing edge of the door. It is to be noted that the door front stop 28 and the door top retainer 20 are so interrelated at the front top corner of the door opening that the entrance of light is precluded at this location in the closed position of the door 19 with the door leading edge member 30 entered in the front stop 28 and the door top edge member 24 disposed under the top retainer 20. A closure plate covering the top of the leading edge member seals the open top end of this member.

At the top trailing corner of the door special provision is made to seal this area against the entrance of light when the door is closed. An integral unit 35 comprised of a closure plate portion 37, two upwardly extending baffle flanges 38 and a door guide and holder pad 39 overlies the flange 34 on the door trailing edge member 31 and is secured at the top against the rear turn flange 36 embracing the spark strip 29. The unit 35 is secured to the door trailing edge framing member 31 by welding and moves with the door as an integral part thereof. The door guide and holder pad 39 cooperates with the inwardly spaced portion 40 on the inside face of the depending flange 34 of the top retainer 20 for guiding and holding the door 19 in position during the final closing movement of the door. Spaced upstanding baffles 38 on the unit 35 terminate in spaced proximity to the under side of the web 21 of the top retainer 20 and act as baffles against the entrance of light or weather at this point to seal this area when the door is closed. It will be seen that the closure plate portion 37 of the unit 35 with its associated baffles 38 in the closed position of the door overlies the rearwardly extending flange of the spark strip 29 and closes the top of the door trailing edge framing member 31 between the baffle flanges 38 and 36 that the weather is prevented from entering over this point and the passage of light either directly or reflected is blocked from entering past this point into the door opening.

Extending entirely across the top of the door opening 18 the header 41 is provided which effectively weatherproofs the entire top edge of the door 19 to prevent the entrance of light or foreign matter throughout the full width of the door. The header is in the form of a trough at the inner side of the door and has an upstanding inner flange 42 engaging the inside face of the depending flange 15 on the side plate and secured thereto by riveting. A sloping web portion 43 extends generally outwardly from the flange 42 under the bottom edge of the flange 15 and an upstanding outer flange 44 completes the trough like shape of the header. The flange 44 is disposed in proximate relation to the inside face of the side door adjacent the top edge thereof to provide a closer weather sealing relationship therewith and at the top of this upstanding flange a horizontal flange 45 extends outwardly in overlying relationship to the flange 25 on the door top edge framing member. The header extends continuously between the front door post 26 and the associated front stop 28 and the rear door post 29. At the leading edge of the door the header is fitted to the front stop and welded and the closure plate on the door leading edge member 30 effectively prevents any light or weather from entering upwardly through the door edge member and over the header flange 45. At the trailing edge of the door the header is fitted against the spark strip 29 and welded and the closure plate portion 37 of cast unit 35 with the baffles 38 effectively prevent the entrance of light and weather over the header flange 45 at this corner. The cast closure unit 35 thus seals off the top of the opening that might otherwise occur between the header and the top retainer and overlies the top of the rearwardly directed flange 34 on the door trailing edge framing member 31 to provide an effective barrier against the entrance of light and moisture or other foreign matter. The upstanding baffles 28 on the cast closure unit 35 which is mounted on the top of the door trailing edge member 31 approach in the direction of the header flange 45 as the cast closure unit enters over the rearward flange of the spark strip and in the final closed position of the door the two baffle faces afford a completely weathersealed condition at the top rear corner of the door in conjunction with the overlying top retainer.

The outstandimg flange 45 on the door header acts as a baffle that will deflect the elements and provide an efficient seal along the top edge of the door to prevent the entrance of light and foreign matter under the door 19 into the car. If water or snow or the like should be forced past this baffling flange they will be deflected into the trough portion of the header and if the trough becomes filled the outstandimg flange overtopping the door will serve to direct the overflow to the outside of the door edge and prevent drainage of any water accumulation in the trough through either end to the outside of the car. These openings are disposed adjacent the lowermost point of the trough where the sloping web 43 joins with the upstanding flange 44 so that the trough normally does not accumulate any water above the level of the point where the sloping web 43 joins with the inner upstanding flange 42. In practice opening 47 formed by the offset in the side door posts 26 and 27 at the bottom of side plate flange 15 is sealed with caulking material. The header is disposed under the top retainer 20 and the outermost edge of the header extends downwardly past the outstandimg flange 45 on the header and the outwardly directed flange 25 on the door so that any matter which may blow upwardly under the retainer will first encounter the door flange 25 which will check further progress of such matter and if the force behind the matter is great enough to blow flange 25 then it will be deflected over the header flange 45 into the trough and be prevented from finding its way over the door into the car.

From the foregoing it will be seen that the invention provides a complete baffle to the entry of foreign matter over the door into the car.

What is claimed is:

1. In a freight vehicle having a wall including a door opening and a sliding door adapted for covering and uncovering said door opening, a header secured to said wall of said vehicle at the top of said door opening, said header having an outwardly directed web extending to an upstanding flange in proximate relationship to the inner face of said door adjacent the top edge, said upstanding flange being spaced outwardly from said wall of said vehicle in parallel vertical relationship thereto, and a flange secured to said upstanding flange adjacent its top end and its associated spark strip, and a baffle member and over the header flange 45. At the trailing edge of the door the header is fitted against the spark strip 29 and welded and the closure plate portion 37 of cast unit 35 with the baffles 38 effectively prevent the entrance of light and weather over the header flange 45 at this corner. The cast closure unit 35 thus seals off the top of the opening that might otherwise occur between the header and the top retainer and overlies the top of the rearwardly directed flange 34 on the door trailing edge framing member 31 to provide an effective barrier against the entrance of light and moisture or other foreign matter. The upstanding baffles 28 on the cast closure unit 35 which is mounted on the top of the door trailing edge member 31 approach in the direction of the header flange 45 as the cast closure unit enters over the rearward flange of the spark strip and in the final closed position of the door the two baffle faces afford a completely weathersealed condition at the top rear corner of the door in conjunction with the overlying top retainer.

2. In a freight vehicle having a side wall including a door opening and a sliding door adapted for covering and uncovering said door opening, a longitudinal side plate member at the top of said side door opening, a generally rectangular header is fitted against said side door, a header secured to said side plate, said header having an outwardly directed web extending to an up-
standing flange in proximate relationship to the inner face of said door adjacent the top edge, said upstanding flange being spaced outwardly from said wall of said vehicle in parallel vertical relationship thereto, and a flange secured to said upstanding flange adjacent its top portion terminating in an outwardly extending direction and overlying said door top edge flange.

3. A weatherproof arrangement for sealing the top edge of a door opening in the wall of a freight vehicle having a sliding door adapted for covering and uncovering said door opening comprising a trough shape door header having an upstanding inner flange secured to the wall of said vehicle at the top of said door opening, an outwardly directed bottom web extending from said upstanding inner flange adjacent the outer edge of said depending flange having a depending outer flange in proximate relationship to the inner face of said sliding door adjacent the top edge and terminating in an outwardly directed flange overlying the top edge of said door, a generally outwardly directed flange on the top edge of said door, a door top retainer having an upstanding inner flange secured to the wall of said vehicle, an outwardly extending web overlying said header and top edge of said door, an integral weather sealing unit at the top trailing edge corner of said door comprising a horizontally disposed closure plate portion secured on the top of said door, spaced baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said outwardly extending web of said door top retainer and a guide and holder pad extending downwardly from said closure plate portion on the outer face of said door, said outer depending flange of said door top retainer having an inwardly spaced portion facing said header, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door.

4. In a freight vehicle having a sliding door, a door top corner closure member comprising an integral weather sealing unit at the top trailing edge corner of said door, said unit having a horizontally disposed closure plate portion secured on the top of said door, a door top retainer secured to said vehicle, said top retainer including an outwardly extending web overlying the top edge of said door, said baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion.

5. In a freight vehicle having a sliding door, a door top corner closure member comprising an integral weather sealing unit at the top trailing edge corner of said door, said unit having a horizontally disposed closure plate portion secured on the top of said door, a door top retainer secured to said vehicle, said top retainer including an outwardly extending web overlying the top edge of said door, said baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door, said baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion.

6. In a freight vehicle having a sliding door, a door top corner closure member comprising an integral weather sealing unit at the top trailing edge corner of said door, said unit having a horizontally disposed closure plate portion secured on the top of said door, a door top retainer secured to said vehicle, said top retainer including an outwardly extending web overlying the top edge of said door, said baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door, said baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door, said baffle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the under side of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door, said baffle flanges engaging said header and holder pad extending downwardly from said closure plate portion on the outer face of said door.
8. In a freight vehicle having a side wall including a door opening and a sliding door adapted for covering and uncovering said door opening, a longitudinal side plate member having a depending flange at the top of said door opening, a trough shape door header having an upstanding inner flange engaging the inner face of said depending flange of said side plate and secured thereto, an outwardly and downwardly inclined bottom web extending from said upstanding inner flange under the bottom edge of said depending flange of said side plate to an upstanding outer flange in proximate relationship to the inner face of said sliding door adjacent the top edge and terminating in an outwardly directed flange overlying the top edge of said door, a drain opening at the end of the trough portion of said header for draining water that might accumulate in the trough to the outside of the car thereby maintaining a predetermined water level in the trough, a generally outwardly directed flange on the top edge of said door, a door top retainer having an upstanding inner flange secured to said depending flange of said side plate, an outwardly extending web overlying said header and top edge of said door and an outer depending flange disposed outwardly of said header and top edge of said door providing a sealing arrangement along the top edge of said door such that weather forced past the outwardly directed flanges on the top edge of the door and on the door header will be directed into the trough portion of said header which upon becoming filled with foreign matter or the like will overflow and be directed by said outwardly directed flange of said header beyond the outside face of said door, an integral weather sealing unit at the top trailing edge corner of said door comprising a horizontally disposed closure plate portion secured on the top of said door, spaced battle flanges extending upwardly from said closure plate portion and terminating in spaced proximity to the underside of said outwardly extending web of said top retainer and a guide and holder pad extending downwardly from said closure plate portion on the outer face of said door, said outer depending flange of said door top retainer having an inwardly spaced portion facing said door, said inwardly spaced portion co-operating with said guide and holder pad on said door for guiding and holding said door in position during the final closing movement of said door.

9. In a freight vehicle having a wall including a door opening and a sliding door adapted for covering and uncovering said door opening, a generally outwardly directed flange on the top edge of said door, a door header secured to the wall of said vehicle at the top of said door opening, said door header terminating in an outwardly directed flange overlying said flange on the top edge of said door, and a door top retainer secured to said wall of said vehicle, said door top retainer having an outwardly extending web overlying said outwardly directed flange of said door header and terminating in a generally vertical depending flange disposed outwardly of said door header flange and said door top edge flange.

10. In a freight vehicle having a wall including a door opening and a sliding door adapted for covering and uncovering said door opening, a longitudinal side plate member at the top of said door opening, a generally outwardly directed flange on the top edge of said door, a door header secured to said side plate, said door header having an outwardly directed web extending to an upstanding flange in proximate relationship to the inner face of said door adjacent the top edge, said upstanding flange being spaced outwardly from said wall of said vehicle in parallel vertical relationship thereto, a flange secured to said upstanding flange adjacent its top portion terminating in an outwardly extending direction and overlying said door top edge flange, and a door top retainer secured to said side plate, said door top retainer having an outwardly extending web overlying said outwardly directed flange of said door header and terminating in a generally vertical depending flange disposed outwardly of said outwardly directed flange of said door header and said door top edge flange.

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