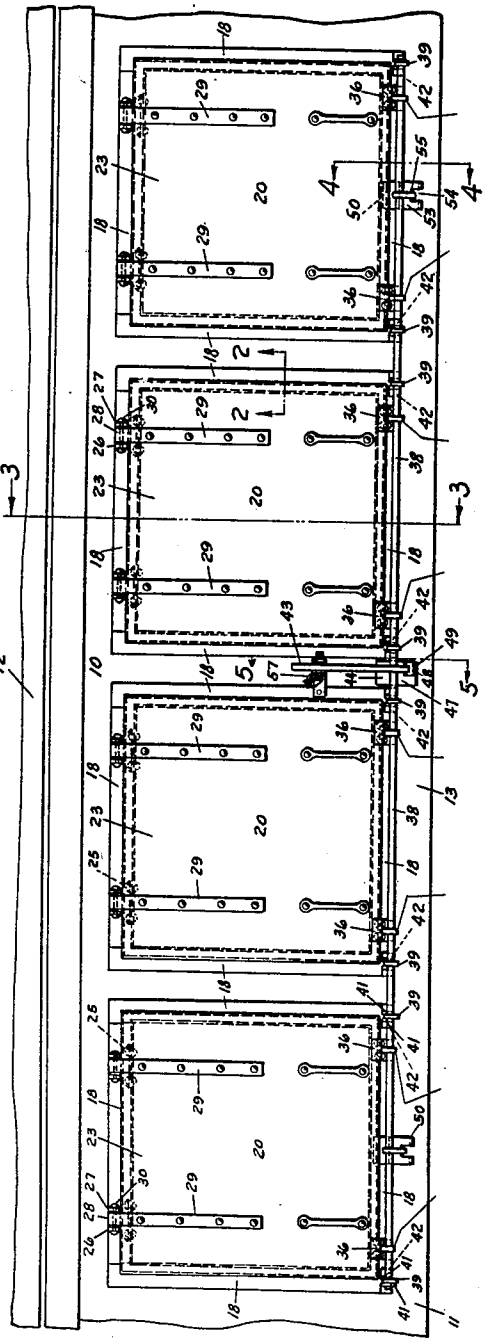
Feb. 19, 1952 W. A. BEAUCHAMP 2,586,601

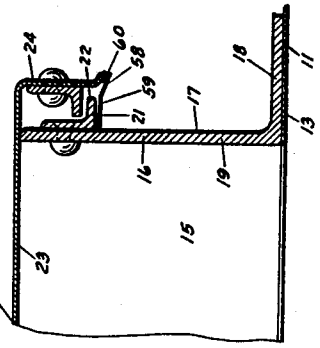
RAILWAY HATCH COVER AND LOCKING MEANS THEREFOR

Original Filed May 11, 1944 2 SHEETS—SHEET 1

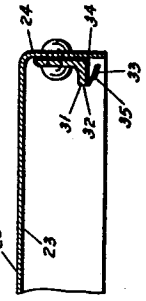
FIG—1



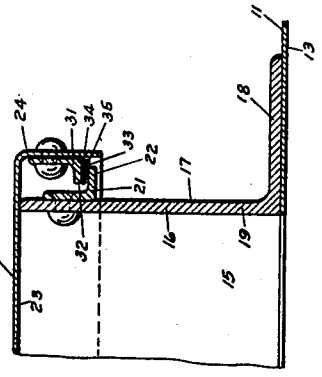
FIG—8



FIG—7



FIG—2



~INVENTOR~

WILFRED A. BEAUCHAMP

~BY~ Samuel Reese

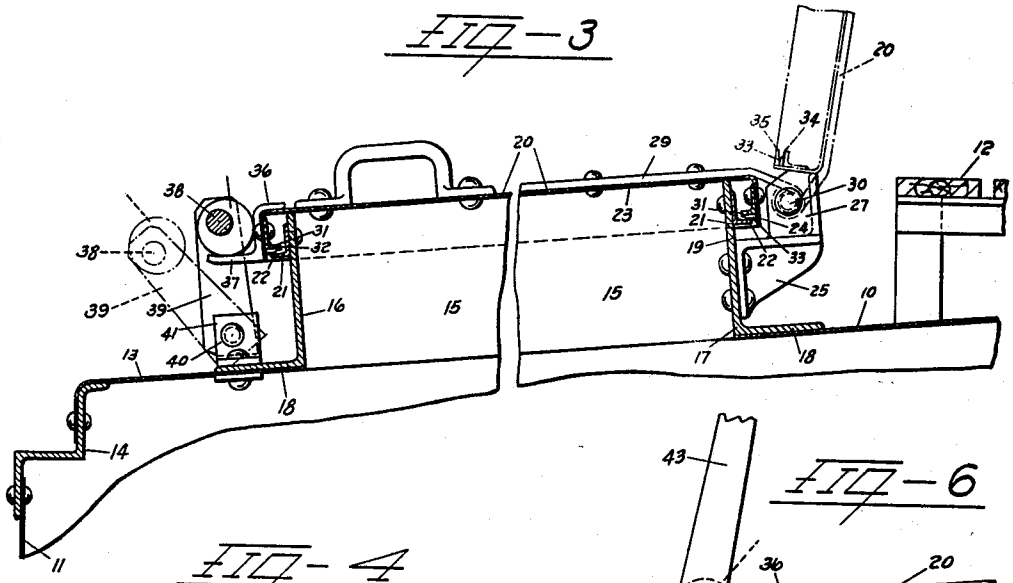
~ATTY~

Feb. 19, 1952 W. A. BEAUCHAMP 2,586,601

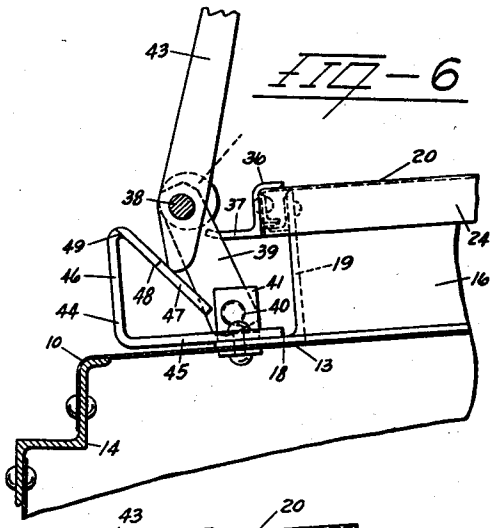
RAILWAY HATCH COVER AND LOCKING MEANS THEREFOR

Original Filed May 11, 1944 2 SHEETS—SHEET 2

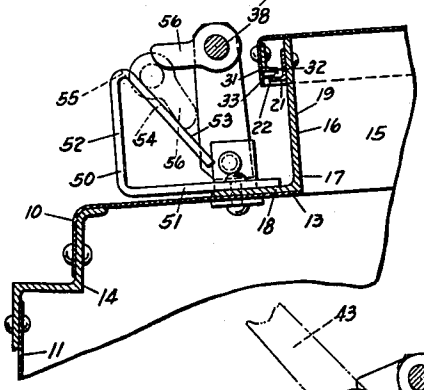
FIG—3



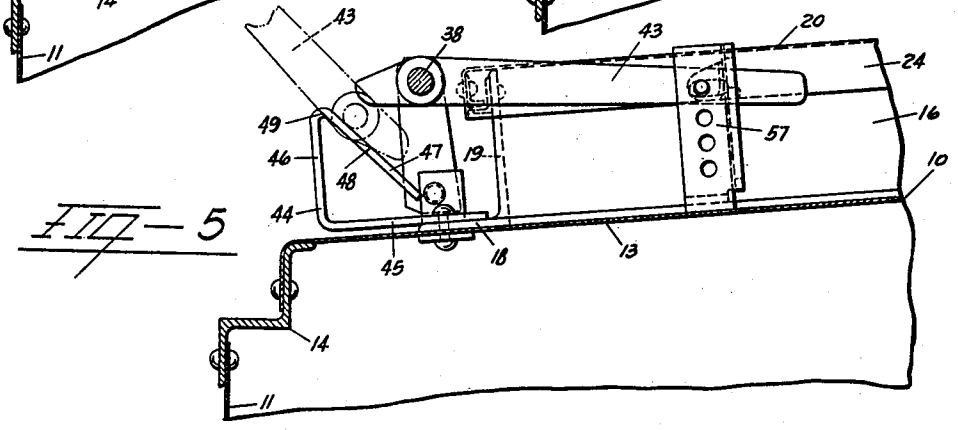
FIG—6



FIG—4



FIG—5



~ INVENTOR ~

WILFRED A. BEAUCHAMP

BY ~ Samuel Reese

~ ATT'Y ~

Patented Feb. 19, 1952

2,586,601

UNITED STATES PATENT OFFICE

2,586,601

RAILWAY HATCH COVER AND LOCKING MEANS THEREFOR

Wilfred A. Beauchamp, Chicago, Ill., assignor to The Youngstown Steel Door Company, Cleveland, Ohio, a corporation of Ohio

Original application May 11, 1944, Serial No. 535,176. Divided and this application September 20, 1946, Serial No. 698,311

2 Claims. (Cl. 20—16)

1

This invention relates to railway hatch covers and locking means therefor and more particularly to hatch covers for covered railway hopper cars.

It is an object of this invention to provide hatch covers which shall be effectively sealed.

A further object is to provide hatch covers embodying flexible sealing means wherein the covers and sealing means are so associated with the hatch frames that the sealing means is flexed sufficiently to provide effective seals while the weight of the covers is carried by the frames independently of the sealing means.

A further object is to provide locking means for series of hatch covers of covered hopper cars which shall provide more direct locking pressure and a substantial reduction in torsion stresses.

A further object is to provide locking means for series of hatch covers of railway hopper cars wherein the locking means is swingable away from and toward the covers to furnish more direct locking pressure and a substantial reduction in torsion stresses and the locking means is automatically swung toward the covers during actuation to locking position.

A further object is to provide locking means for series of hatch covers which shall furnish a more secure and uniform fastening than heretofore obtained by locking devices of this class.

Other objects of the invention will become clear as the description thereof proceeds.

In the drawings forming part of this specification:

Fig. 1 is a fragmentary plan view of a covered railway hopper car showing locking means embodying the instant invention in locking relationship with a series of hatch covers on the car roof.

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1.

Fig. 3 is a vertical section taken on line 3—3 of Fig. 1.

Fig. 4 is a vertical section taken on line 4—4 of Fig. 1.

Fig. 5 is a vertical section taken on line 5—5 of Fig. 1.

Fig. 6 is a view similar to Fig. 5 showing the swinging of the locking means toward the hatch covers during actuation of the locking means to locking position.

Fig. 7 is an enlarged sectional view of one side of a hatch cover showing one form of sealing means.

Fig. 8 is a view similar to Fig. 7 showing another form of sealing means.

Referring to the drawings, the numeral 10 designates a portion of a roof structure for a covered railway hopper car designated generally by numeral 11. Fig. 1 illustrates a portion only of the roof structure and it will be readily understood by those skilled in the art that the portion of the roof structure on the opposite side of the running board 12 is similar in construction to the portion of the roof structure illustrated.

2

The roof structure embodies metallic sheets 13 extending across the car and supported at their eaves ends upon side plates, one of which is indicated at 14. A plurality of hatches 15 are formed in the metallic sheets 13 of the roof 10. Fig. 1 of the drawings shows four of such hatches but it is to be understood that more or less may be utilized and that the spacing of said hatches may be as desired. A hatch frame 16 is secured to the roof sheets 13 around each of the hatches 15. As illustrated each hatch frame is formed of angle members 17 having one leg 18 secured upon the roof sheets 13 and the other leg 19 extending upwardly from the roof in order to provide supports for hatch covers 20 hereinafter described. The hatch frame 16 is substantially rectangular in outline so as to conform to the outline of the hatches. An angle member 21 is secured to the upstanding leg 19 around the frame 16 adjacent to the upper edge of the frame in such a manner that one leg 22 extends outwardly from the hatch frame for a purpose which will hereinafter appear.

Each hatch frame is provided with a cover 20 preferably formed of sheet metal so as to provide a body portion 23 and a depending peripheral flange 24 which lies outwardly of the horizontal leg 22 of the angle member 21 when the cover is in closed position. Each cover is swingably supported upon its hatch frame by means of a plurality of brackets 25. Each bracket which is preferably in the form of a casting is formed with spaced ears 26—27 between which the eye portion 28 of a hinge strap 29 is adapted to be received. A rivet 30 passing through the ears 26—27 and the eye 28 of the hinge strap pivotally secures the strap to the bracket.

An angle member 31 is fastened around the inside of the depending peripheral flange 24 of each cover 20. The angle member 31 is so disposed that it presents a leg 32 directed toward the upstanding leg 19 of the hatch frame and lies above and in spaced relation to the leg 22 of the angle member 21. A flexible sealing strip 33, preferably formed of metal, is secured around the depending peripheral flange 24 of each cover between said flange and the angle member 31.

The sealing strip is formed with a portion 34 which abuts the underside of the leg 32 of the angle member 31 and with a freely extending flange 35 spaced below the leg 32.

It will be apparent from a consideration of Fig. 3 of the drawings that in the final closing movement of the hatch covers the freely extending flange 35 of the sealing strip 33 will engage and be flexed by the outwardly extending leg 22 of the angle member 21 thereby establishing an effective seal for the hatch covers. However, while sufficient pressure between the sealing strip and the leg 22 is provided in order to establish a seal, the weight of the cover when in closed position is not carried by the sealing strip but by the sturdier hatch frame. Possible damage to the light sealing strip is thereby obviated.

Means is provided to lock the series of hatch covers in closed position. To this end a plurality of Z-shaped clips 36 is secured to the depending peripheral flange along the swinging edge of the cover as more clearly shown in Fig. 3 of the drawings. The Z-shaped clips 36 are so arranged that one flange 37 thereof extends outwardly from the peripheral flange so as to serve as a somewhat flexible locking abutment.

A rod 38 extends across the series of hatches in spaced relation to the swinging edges of the hatch covers. The rod 38 is rotatably supported by a plurality of standards 39 each of which is pivotally supported, as indicated at 40, between the vertical flanges 41 of a pair of angle clips. The standards 39 are swingable about their pivots away from and toward the hatch covers so as to carry the rod 38 away from and toward the locking abutments 37 of the Z-shaped clips 36. Eccentrically mounted upon the rod 38 so as to rotate therewith are a plurality of cams 42 which are adapted to cooperate with the locking abutments 37 as hereinafter explained, in order to lock the hatch covers.

Rotation of the rod 38 and swinging movement of the standards 39 away from the closure member is obtained by means of a lever 43 fastened to the rod. At the end of this swinging movement the lever 43 will assume the position indicated by the dot and dash lines shown in Fig. 5 of the drawings. The lever 43 is supported in this position by means of a bracket 44 fastened to the leg 18 of the angle member 17. The bracket member 44 embodies a base 45, an upstanding portion 46, and a downwardly and inwardly inclined portion 47. The latter portion is cut away as indicated at 48 so as to provide a shoulder 49 against which the lever 43 is adapted to rest when it has been moved to its fullest extent away from the hatch covers. In this position of the lever it will be observed that the free end of the lever overlaps the portion 47 of the bracket 44 below the cope 48.

Additional brackets 50 may be secured through their base 51 to the leg 18 of the angle member 17. Each of these brackets is formed with an upstanding portion 52 and with a downwardly and inwardly inclined portion 53. An intermediate section of the portion 53 is cut away, as indicated at 54, so as to provide a shoulder 55 adapted to engage and limit outward movement of a finger 56 fixedly secured upon the rod 38.

When the covers 20 are in open position the standards 39 and the rod 38 carried thereby are swung outwardly as shown in dot and dash lines in Fig. 3 of the drawings. The covers 20 may then be swung to their closed position where they are supported upon the hatch frames 16. In order to lock the covers 20 in closed position the handle end of the lever 43 is grasped and the lever pulled toward the hinged edges of the closures. In this movement of the lever its free end will abut against the downwardly and inwardly inclined portion 47 of the bracket 44 so as to impart swinging movement to the standards 39 and to the rod 38 carried thereby. At the same time, the fingers 56 will fulcrum upon the downwardly and inwardly inclined portions 53 of the brackets 52 so as to aid in imparting swinging movement to the standards and to the rod. Such swinging movement positions the cams 42 above the locking abutments 37 of the Z-shaped clips 36 whereupon continued pull upon the lever 43 will impart rotation to the rod 38 and to the cams 42 mounted thereon. By reason of the instant invention rotation of the cams 42 will establish contact between them and the locking abutments 37 at points in close proximity to a plane at right angles to the roof structure and including the axis of rotation of the rod 38. By virtue of such contact the amount of eccentricity imposed upon the rod 38 is substantially reduced so that the torsional stresses set up in the rod are materially decreased. It follows that accurate and effective locking engagement between the cams 42 and the locking abutments 37 is secured and maintained. When the covers are locked, the lever is fastened in position by means of a fastener indicated generally by the reference numeral 57.

A modified form of seal is illustrated in Fig. 8 of the drawings. In this form a flexible sealing strip 58 is secured between the angle member 21 and the upstanding leg 19 of the angle member 16. The strip 58 embodies an outwardly extending flange 59 which is deformed so as to provide a downwardly and outwardly extending flange 60. In this form of the invention, moreover, the depending peripheral flange 24 of the hatch cover is bent downwardly and outwardly to provide a flange 61 which when the covers are closed engages and flexes the downwardly and outwardly extending flange 60 of the sealing strip in order to provide an effective seal for the cover. As in the previously described sealing construction the weight of the cover is carried by the hatch frame.

This application is a division of my co-pending application, Serial No. 535,176, filed May 11, 1944, now Patent No. 2,433,084 issued December 23, 1947.

It will be apparent that numerous changes and modifications in the details of the invention will be clear to those skilled in the art. It is intended, therefore, that all such modifications and changes be comprehended within this invention, which is to be limited only by the scope of the claims appended hereto.

I claim:

1. In a covered railway car having a roof, a hatch in said roof and a hatch frame member secured to said roof around said hatch, a cover member adapted to be supported by said frame member, said cover member having a body portion and a peripheral flange spaced outwardly of said frame member, said peripheral flange terminating below the top of said frame and above said roof, an angle member secured around the inner face of said peripheral flange, said angle member having an upstanding leg secured to the inner face of said peripheral flange and an inwardly extending leg, a flexible metallic sealing

strip disposed between said upstanding leg and said peripheral flange, said sealing strip having a flange abutting the underside of said inwardly extending leg and a freely bendable outwardly directed flange.

2. In a covered railway car having a roof, a hatch in said roof and a hatch frame member secured to said roof around said hatch, a cover member adapted to be supported by said frame member, said cover member having a body portion and a peripheral flange spaced outwardly of said frame member, said peripheral flange terminating below the top of said frame and above said roof, an angle member secured around the inner face of said peripheral flange, said angle member having an upstanding leg secured to the inner face of said peripheral flange and an inwardly extending leg, a flexible metallic sealing strip disposed between said upstanding leg and said peripheral flange, said sealing strip having a flange abutting the underside of said inwardly extending leg and a freely bendable outwardly

directed flange, said hatch frame engaging the body portion of said cover and supporting said cover when the latter is closed, said outwardly directed flange of said sealing strip being freely bent and being capable of further bending when said cover is closed.

WILFRED A. BEAUCHAMP.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,751,720	White	Mar. 25, 1930
2,015,767	Suckfield	Oct. 1, 1935
2,140,570	Young	Dec. 20, 1938
2,316,661	Beauchamp	Apr. 13, 1943
2,372,369	Ditchfield	Mar. 27, 1945
2,372,394	Reese	Mar. 27, 1945
2,405,040	Madland	July 30, 1946