

Jan. 27, 1953

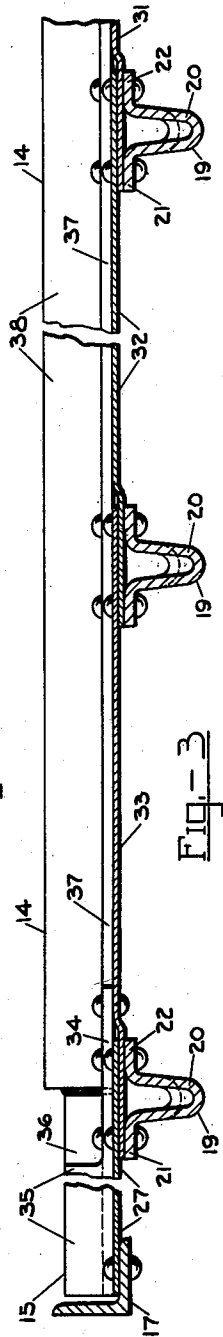
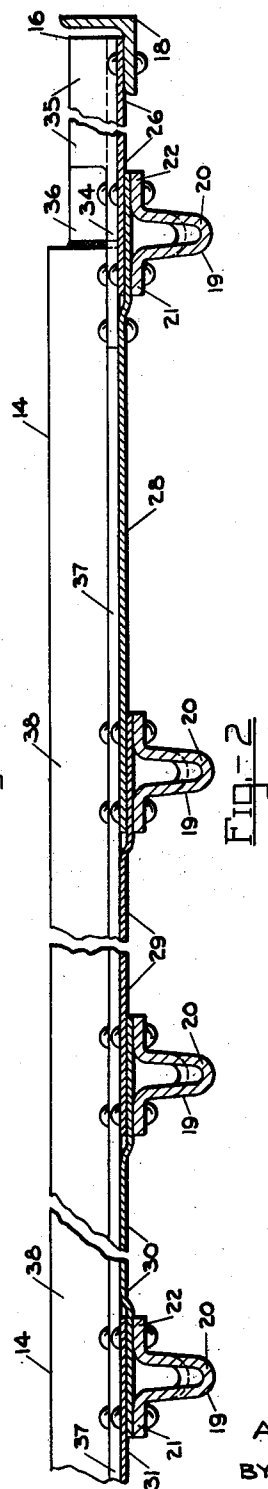
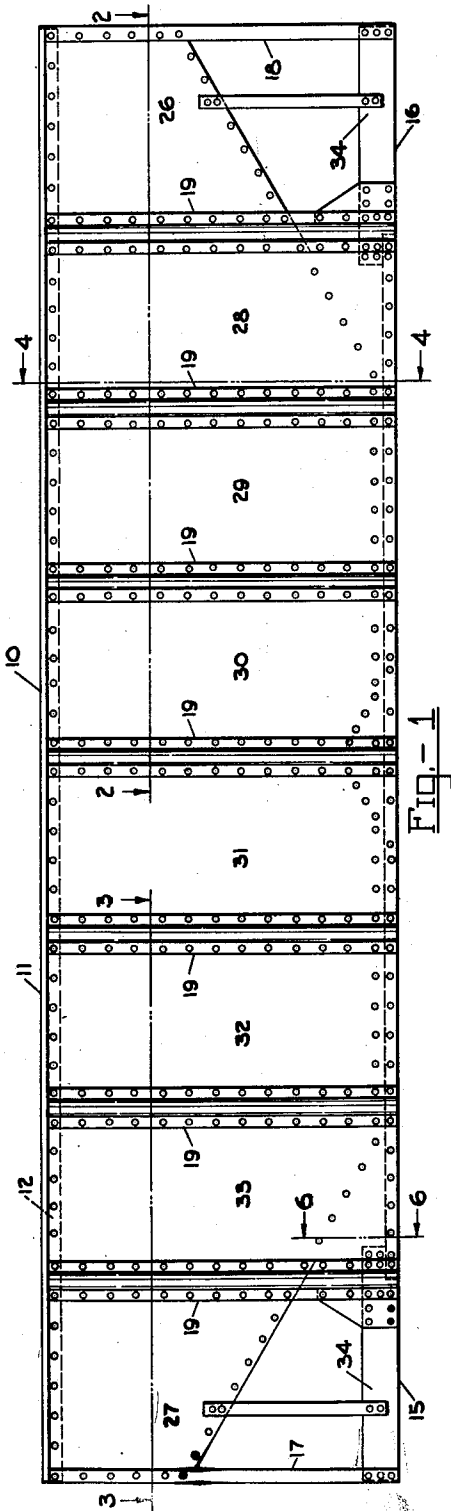
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2,626,574

CAR SIDE

Filed July 29, 1950

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

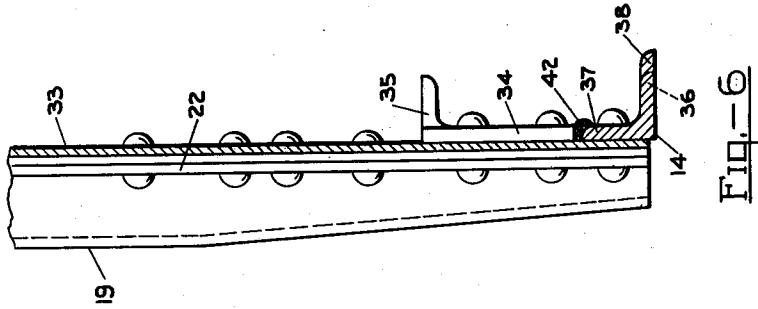


FIG.-6

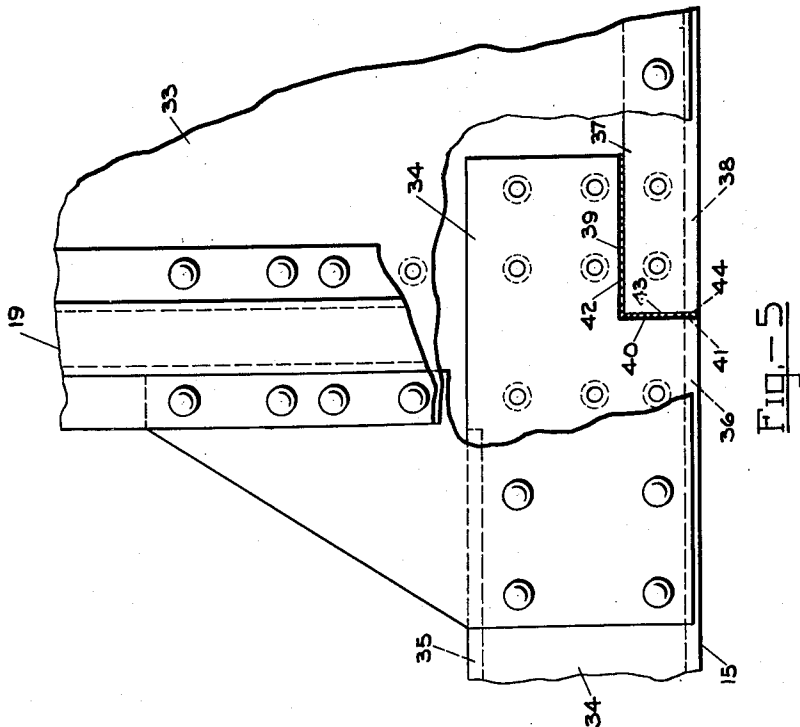


FIG.-5

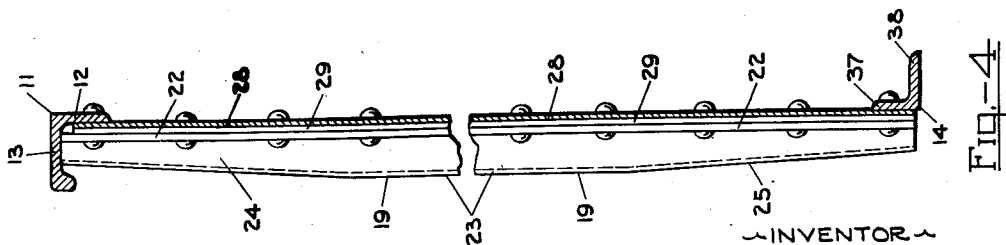


FIG.-4

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## UNITED STATES PATENT OFFICE

2,626,574

CARSIDE

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1 Claim. (Cl. 105—409)

1

This invention relates to carsides and more particularly to sides for hopper cars.

It is an object of this invention to provide sides for hopper cars assembled and applied as a unit in the replacement of damaged sides and in the construction of new cars as well.

A further object is to provide sides for hopper cars so constructed as to avoid loss of rivets which normally occurs when such cars are vibrated in a shakedown machine.

A further object is to provide sides for hopper cars which shall embody a novel stake and side sheet assembly and which shall not be damaged by the flow of material from the cars.

A further object is to provide sides for hopper cars which shall eliminate the small gussets now used to secure the main and sub-sills together and embody a stronger connection between these parts.

A further object is to provide sides for hopper cars which shall eliminate the butt straps presently used in the construction of hopper carsides.

A further object is to provide sides for hopper cars which shall be sturdier and effect substantial savings in cost in comparison with present hopper car sides.

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

In the drawings forming part of this specification:

Fig. 1 is an elevation of a side for hopper cars which embodies the instant invention.

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

Fig. 3 is a horizontal 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 an enlarged detail elevation of the connection between the main and sub-sills.

Fig. 6 is a vertical section taken on line 6—6 of Fig. 1.

Referring to the drawings the numeral 10 represents the carside of the instant invention as a whole. The carside embodies a top rail 11 usually formed of a bulb angle disposed with one leg 12 vertical and the other leg 13 horizontal and extending outwardly relative to the vertical leg. The carside also embodies a side sill structure formed of a main sill angle member 14 and sub-sill channel members 15 and 16. End stakes 17 and 18 and intermediate stakes 19 extend between and are secured as by means of riveting to the top rail 11 and the main side sill angle 14 and sub-sill channels 15 and 16 as illustrated

2

in Fig. 1 of the drawings. It will be apparent from this figure that the main side sill angle extends substantially between the intermediate stakes and that the sub-sill channels extend from the end stakes to the adjacent intermediate stakes.

As shown in Figs. 2 and 3 of the drawings the end stakes 17 and 18 are formed of angle members. Each of the intermediate stakes as illustrated is formed of a substantially channel-shaped member 20 provided with outturned flanges 21 and 22. With reference particularly to Figs. 2, 3 and 4 of the drawings it will be seen that the blank from which the intermediate stakes are formed is symmetrical about a horizontal axis so that the same blank can be used in the manufacture of each of the intermediate stakes. Each stake embodies an intermediate portion 23 which is of uniform depth and end portions 24 and 25 which decrease in depth progressively from the intermediate portion to the ends of the stake.

Each intermediate stake, moreover, is firmly abutted against the underside of the outwardly extending horizontal leg of the top rail. By reason of this relationship a substantial portion of the stress which arises when the hopper car is vibrated in a shakedown machine in order to loosen and expedite discharge of the material in the car is taken by the intermediate stakes. To this extent the rivets which fasten the intermediate stakes to the top rail and which would otherwise have to carry all of the stress set up by the vibration of the machine are relieved of such stress so that popping of the heads of these rivets is eliminated.

Individual metallic sheets 26 and 27 extend between and are secured to the end stakes and the adjacent intermediate stakes. Individual sheets 28, 29, 30, 31, 32 and 33 extend between and are secured as by means of riveting to the intermediate stakes. At each of the intermediate stakes the adjacent sheets are overlapped and are of such extent as to overlie both of the outturned flanges of each of the intermediate stakes. By this construction a very sturdy joint is obtained and butt straps heretofore utilized to connect adjacent sheets together are eliminated.

Prior to applicant's invention the main sill of the side sill structure of hopper cars terminated short of the intermediate stakes adjacent to the end stakes and were connected to the sub-sills by means of gussets. By reason of the instant invention the inherent weakness of this connection and the need for gussets are elimi-

3

nated. According to the instant invention the main angle sill is extended so as to overlap the adjacent outturned flange of the intermediate stakes adjacent to the end stakes and are secured to said flange as by means of rivets. This construction is clearly shown in Fig. 5 of the drawings which also illustrate the relationship and securement between the main and the sub-sills.

Each of the sub-sills is channel-shaped in section as indicated above and embodies a vertically disposed web 34, an inwardly extending upper flange 35 and an inwardly extending lower flange 36. The web 34 is in substantial alignment with the upstanding flange 37 of the main sill angle 14 and the lower inwardly extending lower flange 36 is in substantial alignment with inwardly extending flange 38 of the side sill angle. With reference to Fig. 5 of the drawings it will be seen that the overlapping of the main sill angle and the intermediate stake there shown is obtained by cutting away a portion of the web 34 of each of the sub-sills 15 and 16 as indicated at 39 and 40. Similarly a portion of the lower flange 36 of each of the sub-sill channels is cut away as indicated at 41. Accordingly, the end portion of the web 34 overlies the upper edge of the upstanding flange 37 of the main sill angle and is secured thereto as by means of welding 42. Similarly the upstanding flange 37 is welded to the adjacent portion of the web 34 as indicated at 43 and the inwardly extending flanges 35 and 36 are welded together as indicated at 44. A very strong connection between the main and sub-sills is thereby obtained and by securement of the main angle sill to the intermediate stakes adjacent to the end stakes the strength of the main sill is utilized in the side construction.

It will be apparent from Fig. 1 of the drawings that during discharge from the car the material at the right of the center line of the carside will flow toward the left and the material at the left of the center line will flow toward the right. In accordance with the instant invention the sheets of the carside are so arranged, as will be apparent from Figs. 2 and 3 of the drawings, that the free edges of the overlapped portions of the sheets which lie on the inside of the car face in the direction of the flow of the material. By this construction the pockets formed by the offsetting of one

4

sheet over the other will not fill up with material during discharge and the free edges of the indicated sheets will not be damaged.

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:

A carside construction of railway hopper cars, comprising end and intermediate stakes and a side sill structure, said side sill structure embodying a main sill extending substantially between said intermediate stakes and sub-sills extending substantially from each end stake to the adjacent intermediate stake, said main sill being formed of an angle member having an upstanding flange and a flange extending inwardly from the lower edge of said upstanding flange, each of said sub-sills being formed of a channel shaped member having an upstanding web and upper and lower inwardly extending flanges, said web and said lower flange of each of said sub-sills lying respectively substantially in alignment with said upstanding flange and inwardly extending flange of said main sill, a portion of said web and said lower flange of each sub-sill adjacent to the ends of said main sill being removed, whereby said webs extend over the upstanding flange of said main sill, said main and sub-sills being welded together, and means securing said main and sub-sills directly to said adjacent intermediate stakes.

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