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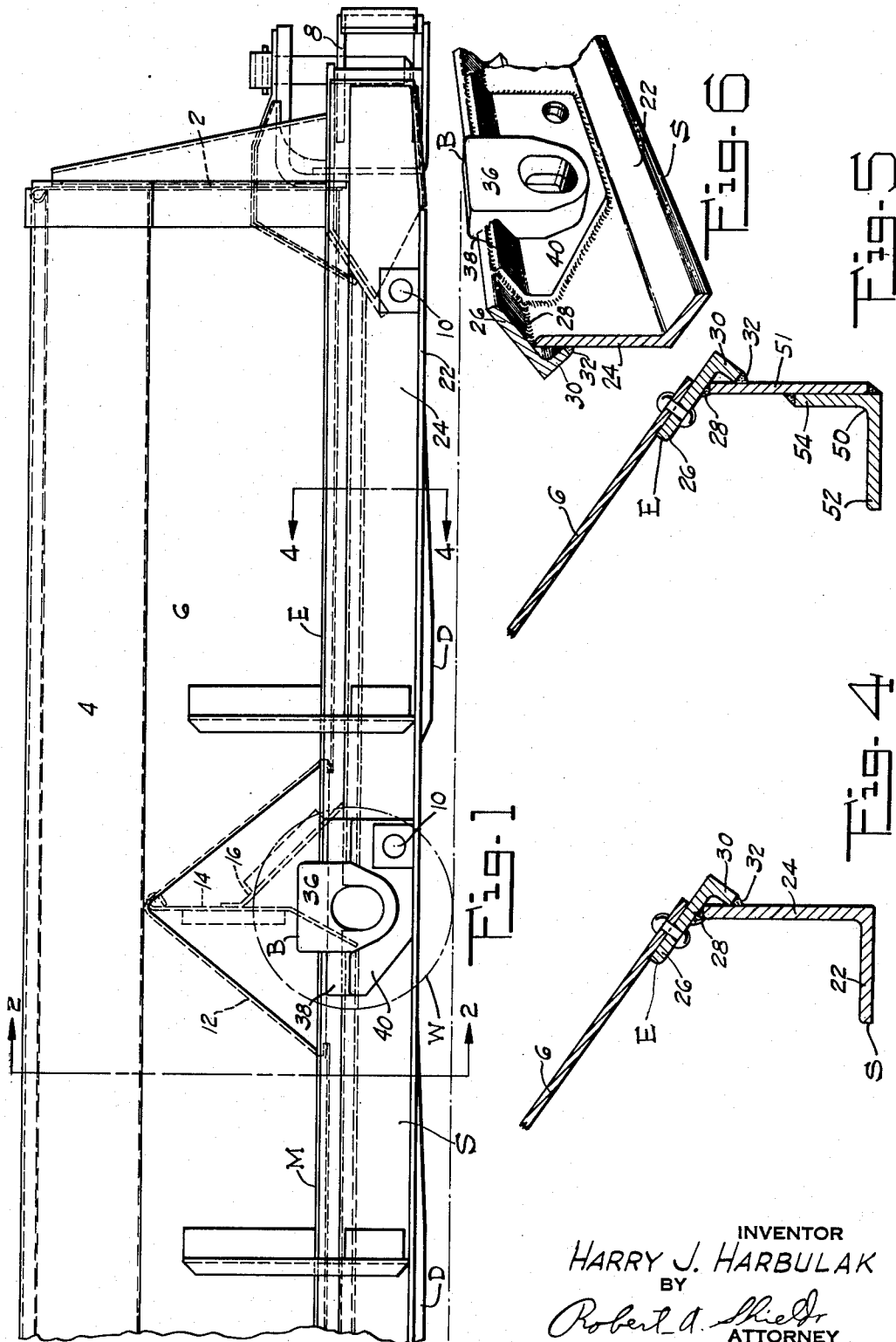
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2,741,998

MINE CAR

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2 Sheets-Sheet 1



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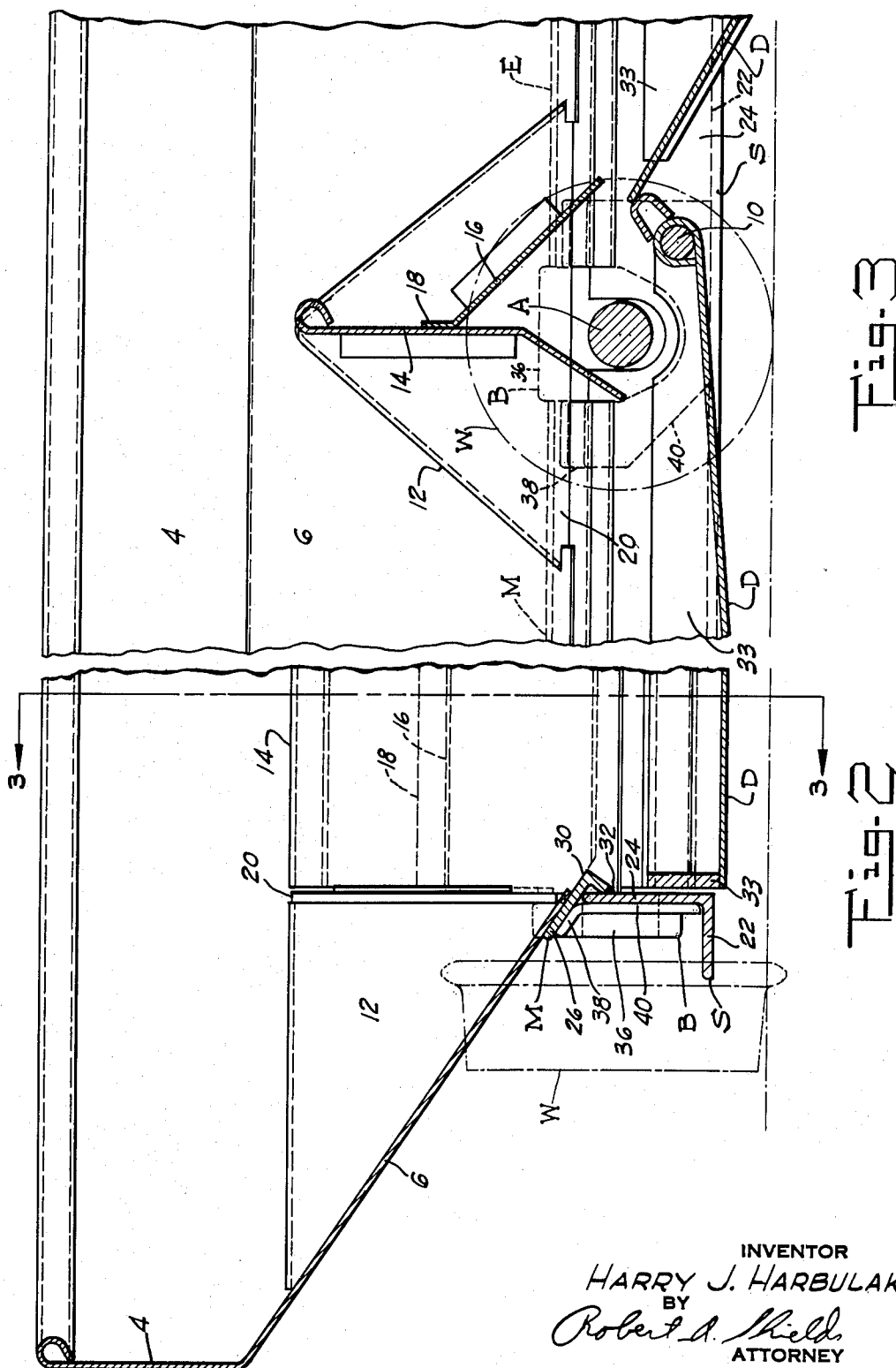
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MINE CAR

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This invention relates to mine cars in general but in particular to mine cars of the drop bottom type or mine cars having sloping side floor portions.

Drop bottom mine cars or other cars built with sloping side wing portions have normally been built with the main load carrying sill element deformed to correspond to the slope of the floor. The angle of repose differs for different kinds of coal, and, accordingly, the slope of the side floor portions should be changed for each type of coal or other lading carried. The maximum stress in the sill element is at the point adjacent the axles or support zones. With the previously distorted sills the notching or stretching of the metal in the zone of the axle boxes weakened the sill. Considerable difficulty was met with in pressing these sills, requiring repeated heatings and pressing in special dies in order to obtain the three inclined portions separated by straight or vertical portions. Sills of the old type are shown in Patent 2,347,277, and whenever it was desired to change the slope of the side wing portion new dies had to be made. It is an object therefore of the present invention to provide a sill so constructed and arranged as to eliminate all die costs and the high pressing and labor costs now necessary.

A further object of the invention is to provide a sill so constructed as to eliminate the weakening of the sill by distortion or notching in the zone of the axle boxes or other points of support.

A still further object of the invention is the provision of a sill whereby the slope of the side floor portions can be readily changed without any change in tooling.

A yet further object of the invention is the provision of a multi-part sill having increased strength and simplicity of construction.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which:

Fig. 1 is an elevational view of substantially one-half the car;

Fig. 2 is a sectional view of substantially one-half the car taken on line 2—2 of Fig. 1;

Fig. 3 is an inside sectional view taken substantially on line 3—3 of Fig. 2;

Fig. 4 is an enlarged sectional view of the improved sill;

Fig. 5 is a sectional view similar to Fig. 4, but disclosing a slight modification; and

Fig. 6 is a partial perspective view of the sill and axle box of Figs. 1 to 4 inclusive.

Referring now to the drawings in detail it will be seen that the car is constructed with end walls 2, vertical side walls 4, and sloping side floors 6, all of which are connected to and supported by the main load carrying sill elements S. The ends of the sills are connected together by end structures 8, which may be of any desired form, and which are adapted to receive the draft and haulage forces applied to the car. The space between the side sills and between the end structures is normally closed

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by a plurality of doors D hinged, as at 10, to swing downwardly for discharge of the lading.

The car body is supported through axle boxes B upon axles A, which in turn are supported by wheels W. In order to prevent spreading of the side walls a tent shaped wheel housing 12 is provided closing the necessary opening in the side floor portion and the wheel housings are joined together by means of transverse plates 14 and 16. These plates are connected together, as at 18, and then diverge to provide shedding surfaces over the axle and over the meeting edges of the doors between doors D. As clearly shown, the ends of plates 14 and 16 are secured to a vertical plate 20, which is of triangular form and has its lower edge welded to the axle box and to the adjacent sill elements, the side edges being also welded to the wheel housing 12. Thus an extremely strong cross-tie and protection structure is provided in the zone of the greatest stress on the sills.

The sills are formed by a main sill element extending from end to end of the car and having a lower outwardly directed leg 22 and an upwardly directed or vertical leg 24. This vertical leg is notched to receive the axle A and is punched to receive the door pivots 10; otherwise, it is imperforate except where the end structures are riveted thereto. A plurality of angle shaped members of identical cross-section are provided. Two of these angle members E extend from adjacent the end of the car to the axle box, while the third member M extends between the axle boxes, all as clearly shown in the figures. These angle members E and M are provided with inclined legs 26 welded or otherwise secured, as at 28, intermediate their ends to the upper edge of vertical leg 24. These legs 26 are inclined so as to be parallel to the sloping side floors 6. The other leg 30 of the angle member is directed downwardly and outwardly and is edge welded, as at 32, to an intermediate portion of vertical leg 24. By varying the length of leg 30 the inclination of leg 26 can be controlled, and without any change in tooling and without the use of any special dies. The axle box, as best shown in Figs. 1 and 6, comprises a main central portion 36 attached to rest upon the axle, and from this central portion inclined and vertical ears 38 and 40 respectively extend for direct attachment to the angle members E and M and to the vertical leg 24 of the sill element. Thus it will be seen that the ends of angle members E and M are securely attached to the inclined ears 38 and to the central part 36 of the box. It will also be seen that the intermediate portions of angles E and M are securely attached, as at 28 and 32, to the leg 24 of the sill element and that this attachment provides a strong top portion of hollow or tubular cross-section for the sill. Likewise, it will be seen that the inner edges of leg 26 and the leg 30 overlap the vertical side portion 33 of the drop bottom doors D and will prevent leakage of fine dust through the necessary gap between the door edge and the sill. It will also be seen that this sealing effect may be increased or decreased without modifying the slope of the floor portion, merely by lengthening or shortening the leg 30 of the angle members.

In certain instances it may be desirable to form the sill as shown in Fig. 5, in which case the sill element may be formed of an angle 50 and plate 51. In this case the angle 50 is provided with horizontal leg 52 and vertical leg 54 with the height of vertical leg 54 so chosen that it will not need to be notched in the axle zone. The angle 50 and plate 51 are securely welded together and the angle members E and M are attached to plate 51 exactly as previously described in connection with vertical leg 24.

While the invention has been described more or less in detail with specific reference to the accompanying drawings, it will be obvious that various modifications

and rearrangements may be made without departing from the scope of the invention as defined by the following claims.

What is claimed is:

1. In a mine car having axle boxes and outwardly and upwardly sloping side floor portions, a sill element extending from end to end of the car beneath a side floor portion, and a plurality of angle members each having one leg extending parallel to the adjacent side floor and secured thereto and to the upper edge of said sill element and extending to either side of the sill element, the other leg of each angle member being edge secured to an intermediate portion of said sill element.
2. In a mine car having axle boxes and outwardly and upwardly sloping side floor portions, a sill element extending from end to end of the car beneath a side floor portion, and a plurality of angle members spaced apart to receive the axle boxes therebetween and each having one leg extending parallel to the adjacent side floor and secured thereto and to the upper edge of said sill element, the other leg of each angle member being edge secured to an intermediate portion of said sill element, said angle members extending between the axle boxes and between said axle boxes and ends of the car and having their ends adjacent the axle boxes secured thereto.
3. In a mine car having axle boxes and outwardly and upwardly sloping side floor portions, a sill element extending from end to end of the car beneath a side floor portion, and a plurality of angle members spaced apart to receive the axle boxes therebetween and each having one leg extending parallel to the adjacent side floor and secured thereto and to the upper edge of said sill element, the other leg of each angle member being edge secured to an intermediate portion of said sill element, each of said angle members having an end thereof secured to an axle box.
4. In a mine car having axle boxes, outwardly and upwardly sloping side floor portions and downwardly swinging drop bottom doors between the portions, a sill element extending from end to end of the car beneath a side floor portion and alongside the drop bottom doors, and a plurality of angle members spaced apart to receive the axle boxes therebetween and each having one leg extending parallel to the side floor and secured thereto and to the upper edge of said sill element, the other leg of each angle member being edge secured to the inner face of said sill element in overlapping relation to the edges of the drop bottom doors to seal the same against leakage of material between the doors and sill element.
5. In a mine car having axle boxes, outwardly and upwardly sloping side floor portions and downwardly swinging drop bottom doors between the portions, a sill element extending from end to end of the car beneath a side floor portion and alongside the drop bottom doors, and a plurality of angle members spaced apart to receive the axle boxes therebetween and each having one leg extending parallel to the side floor and secured thereto and to the upper edge of said sill element and extending to either side of the sill element, the other leg of each angle member being edge secured to the inner face of said sill elements in overlapping relation to the edges of the drop bottom doors, each of said angle members having an end thereof secured to an axle box.
6. In a mine car having wheels, axle boxes, outwardly and upwardly sloping side floor portions, and downwardly swinging drop bottom doors between the side floor portions, the combination of, a sill element located ad-

5 adjacent the side edges of the drop bottom doors extending from end to end of the car beneath each side floor portion and secured to the axle boxes, angle members secured to the sill elements and having one leg substantially paralleling and secured to the side floor portion and the other leg overlapping the side edges of said drop bottom doors to seal the same against leakage of material, said angle members being also secured to the axle boxes to constitute with said sill elements the main load carrying members of the car.

7. In a mine car having wheels, axle boxes, outwardly and upwardly sloping side floor portions, and downwardly swinging drop bottom doors between the side floor portions, the combination of, a sill element extending from end to end of the car beneath each side floor portion and secured to the axle boxes, angle members secured to the sill elements and having one leg substantially paralleling and secured to the side floor portion and the other leg overlapping the side edges of said drop bottom doors, said angle members being also secured to the axle boxes to constitute with said sill elements the main load carrying members of the car, and triangular plates extending substantially vertically upward above the axle boxes and having their base portions overlapping and secured to said angle members and axle boxes to form portions of wheel housings and to reinforce the load carrying members at the axle boxes.

8. A car side sill comprising an angular shaped member having legs directed substantially vertically and horizontally, and a second angular shaped member having one leg secured intermediate its edges to the upper edge of the vertically directed leg and the other leg secured to the vertically directed leg below the upper edge thereof.

9. A car side sill comprising an outwardly directed lower flange, an upwardly directed web, an upper flange directed upwardly and outwardly from the web, and a projection extending inwardly from the upper portion of said web and forming therewith a hollow reinforcement.

10. A car side sill comprising an outwardly directed lower flange, an upwardly directed web, an inclined upper flange extending both outwardly and inwardly of the web, and a downwardly and outwardly directed portion joining the inwardly projecting upper flange and said web below the upper end thereof.

11. A car side sill comprising a pair of angles secured together, one angle having an outwardly directed leg and an upwardly directed leg, the other angle having a first inclined leg secured intermediate its ends to the upper edge of said upwardly directed leg, and a second inclined leg having its edge secured to said upwardly directed leg intermediate the ends thereof.

12. A car side sill comprising a first angle member, a web plate secured to one leg of said angle member, and a second angle member having one leg secured intermediate its ends to the upper edge of said web plate and having the edge of the other leg secured to the web plate intermediate its edges.

13. The structure of claim 11 characterized in that the inclination of said first-named inclined web may be changed by varying the length of said second inclined web.

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