Jan. 11, 1966 H. F. FLOWERS 3,228,351

TILTING DUMP CAR REINFORCED END WALL CONSTRUCTION

Filed Feb. 27, 1963 2 Sheets-Sheet 1

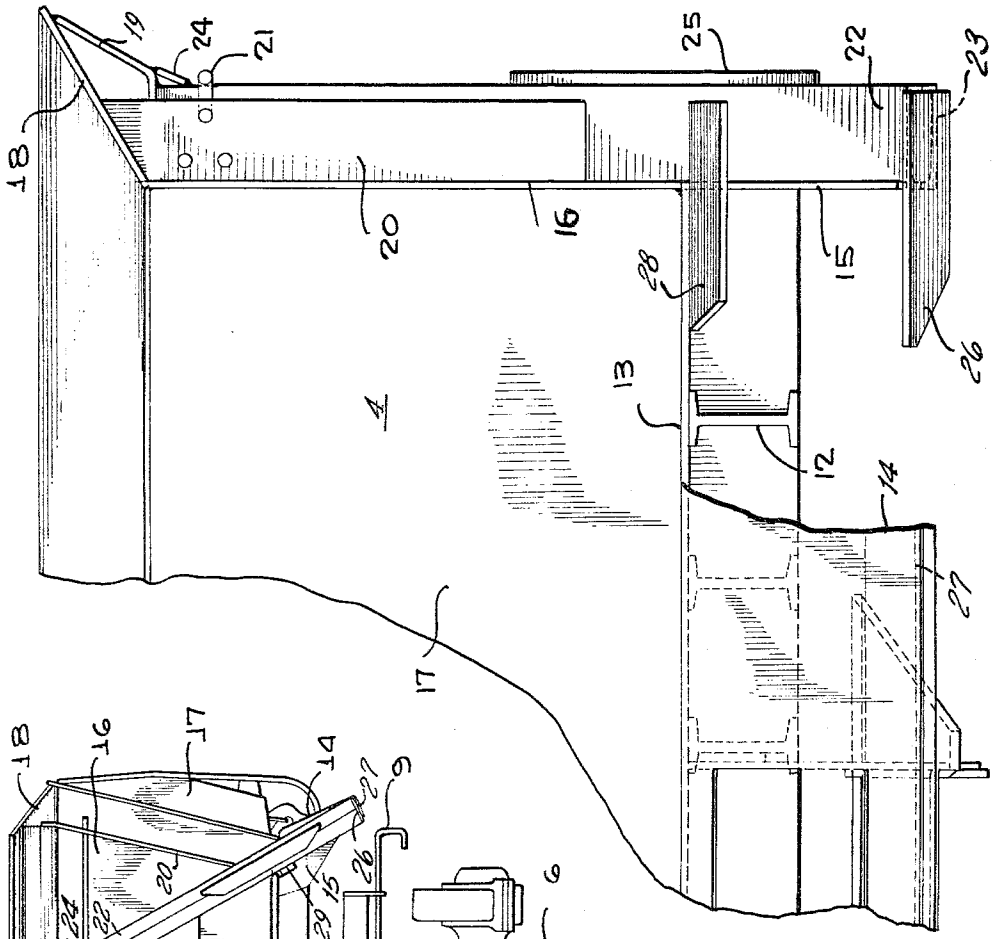


FIG. 1

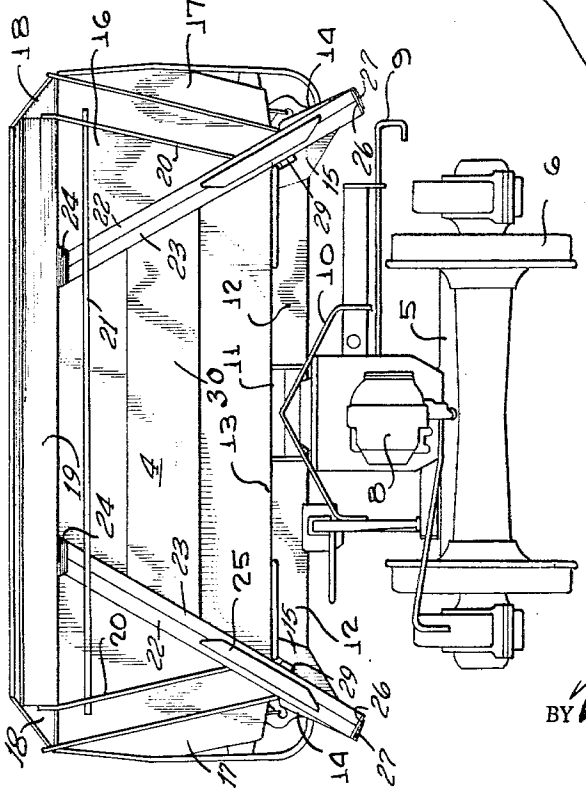


FIG. 3

HENRY FORT. FLOWERS
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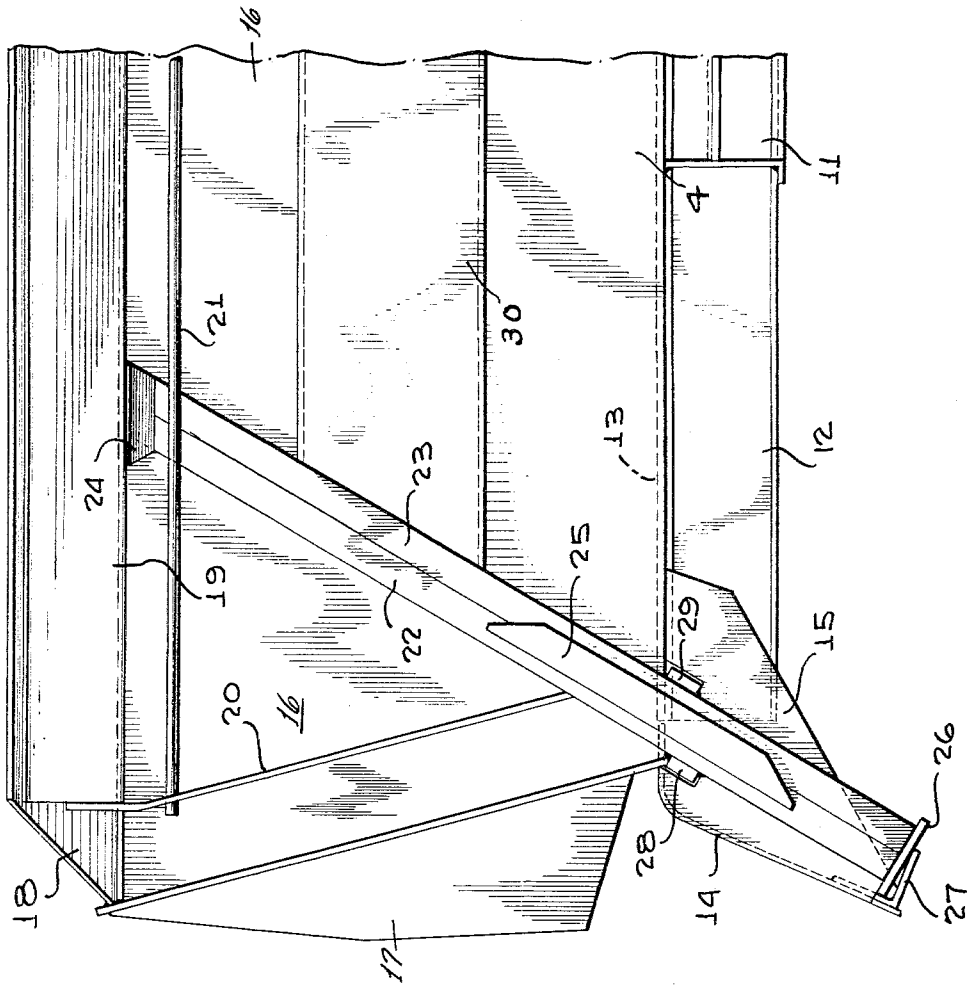


FIG. 2

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TILTING DUMP CAR REINFORCED END WALL CONSTRUCTION

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10 Claims. (Cl. 105—272)

The following specification relates to reinforced end construction of side dump cars of the type designed primarily for large scale movement of soil, ores, coal and like material.

Cars for these purposes must be exceptionally rugged to withstand loading from a travelling bucket, conveyor or the like in which material varying from fine particles to ponderous boulders are dropped into the cars. Frequently such heavy material, especially boulders, will strike the ends of the cars and be lost or rebound into the car. It is important under such circumstances to protect the end walls and pivoted sides of the car from the impact of heavy material.

One of the objects in the invention is to strengthen the end of the car body by bracing it in different directions.

A further object of the invention is to form the posts which brace the end walls in rigid box sections which can be welded directly to the end walls. They thus form reinforcements over the entire height of the end walls.

An important advantage of the invention is to brace such reinforcing posts not only over the vertical extent of the end walls, but also directly to the car bottom and for an extended distance below, so that the leverage is substantially increased.

A further object of the invention is to provide that the lower ends of such reinforcing posts will be braced from the conventional flaring skirts of the car bottom.

A still further object of the invention is to provide sloping, deflecting plates across the end walls of the car suitably braced against the posts as designed.

As illustrating the preferred form the invention has been shown on the accompanying drawings in which:

FIGURE 1 is the end elevation of a side dump car embodying the improvements;

FIGURE 2 is an enlarged fragmentary view and

FIGURE 3 is an enlarged fragmentary side elevation of the same.

Briefly described, the invention consists in providing diagonal posts against the end walls of the side dump car. These posts are of novel construction made from standard U-shaped channel bars of light metal. These posts extend the full height of the end walls and below the car bottom where they are braced to the bottom or floor of the car body and also by resting at a lower point against both the flaring skirt of the car body and an associated gusset. The posts supply adequate reinforcement for an inwardly sloping plate across the upper edge of the end wall.

The side dump car is of the type having a tiltable body **4** with down folding doors, or tiltable side walls, for discharge. The car has truck frames **5** mounted on wheels **6**. The underframe of the car has the usual construction. Each end of the underframe carries a coupler **8** and the underframe is provided with means for controlling the tilting of the body together with the down folding of the side doors, not shown, by means of a control lever **9**. This control lever will provide for selective tilting for the car body and simultaneous pivoting of one side for discharge.

A shield **10** is provided over the coupler **8** and associated parts.

The tiltable body **4** has transverse beams **12**.

The transverse beams **12** support a floor bottom or

plate **13**. This bottom extends to the side with downwardly and outwardly flaring skirts **14, 14**.

Each skirt **14** is connected to each end of the floor plate **13** by means of a triangular gusset **15**, also of light, rigid material. It is to be understood that the parts are continuously welded at their meeting edges.

The end wall **16** of the car is made of suitable metal, and in view of the reinforcing this may be relatively thin gauge.

Side doors **17, 17** are hinged at the bottom of the car body for outward tilting selectively in a well known manner.

The upper edges of the end walls **16** are provided with inwardly inclined slope plates **18**. These are designed to reinforce the upper edges of the end walls and also to deflect inward any material which falls outside of the vertical plane of the end wall.

Each slope plate has an inwardly inclining backing plate **19**. The backing plate welded to the outer edge of the slope plate **18** is also welded or otherwise attached at a suitable point below the top edge of the end wall.

A brace **20** extends from each end of the backing plate **19** downwardly parallel to the outer edge of the end wall, for attachment and support upon reinforcing posts.

A grab handle bar **21** runs horizontally between the upper ends of the braces **20** for convenience of the train men.

Two channel bars **22, 23** welded edge to edge, form a hollow box post. This post extends diagonally from the backing plate **19** to the lower side edges of the bottom **13**.

At the top the posts are braced against the backing plate **19** by means of an anchor plate **24**.

At the level of the car bottom **13**, the outer side of the posts carry reinforcing straps **25** which add to the rigidity and strength of the posts.

The lower ends of the channel bars **22, 23** are closed by a cross plate **26**.

Braces **20** support the thin end wall **16** far enough from the inner face of the down folding side door to prevent chunks of material from blocking the door from closing and sealing the opening between end wall and door; thus providing a thin door jamb.

The unsupported area of the end wall is reduced by a U-shaped horizontal member **30** with its edges welded to the end wall **16** and its ends welded to posts **23**.

The lower edges of the skirts **14** have welded angle bars which form feet **27** projecting beyond the ends of the skirts. The projecting ends of the feet **27** are rests for the cross plates **26** of the posts. (See FIGURES 1 and 2.) Cross plates **26** are attached by suitable means, such as welding, to the feet **27**.

A tie bar **28** attached to the upper face of the member **22** runs through the gusset **15** and is attached by any suitable means, such as welding, to the car bottom or floor at this point.

A similiar tie bar **29** is attached to and supports the lower side surface of the member **23**. The tie bar is suitably connected to the floor plate. In this manner the inclined post is braced to the floor plate at an intermediate point.

With the construction described above, an end construction for dump cars is provided which is greatly reinforced. By providing inclined end posts attached to the ends of the car and extended to points of anchorage below the car bottom, the car end is materially reinforced. The car end is also braced along the line parallel to the side edges of the end wall. Means are provided to hold the post both at the bottom of the skirt and along the end of the skirt and the end of the floor plate.

The posts and braces form additional support at the top of the end wall. They serve to support a deflecting

plate which is both a source of added strength and a control for material which might otherwise be lost.

This construction is capable of fabrication with a minimum of skilled labor from light weight material, thus increasing the economy of the product.

The invention has been shown in the preferred form but may be changed in minor details of material and proportions within the scope of the appended claims.

What I claim is:

1. In a side dump car body having a bottom with flaring side skirts, end walls and pivoted sides, the combination of inclined posts attached to the end walls and extending from their upper edges into supporting engagement with the side skirts below the car body bottom and tie bars connecting opposite sides of the posts to the lower surface of the car body bottom.

2. A side dump car body having a bottom with flaring side skirts, end walls and pivoted sides, gussets connecting the edges of the skirts with the ends of the bottom, and inclined posts attached to the gussets substantially parallel to said skirts and to the end walls for their full height.

3. A side dump car body having a bottom with flaring side skirts, end walls and pivoted sides, gussets connecting the edges of the skirts with the ends of the bottom, inclined posts attached to the gussets substantially parallel to said skirts and to the end walls for their full height and tie bars connecting opposite sides of the posts to the lower surface of the car bottom inwardly of said gussets.

4. A side dump car body having a bottom with side skirts flaring downwardly and outwardly therefrom, end walls and pivoted sides, a ledge on the lower end of each skirt extending inwardly therefrom, and posts attached to each of said end walls and diverging downwardly and outwardly therefrom to below said bottom into supporting engagement with said ledges, whereby said posts form a brace between said end walls and said skirts.

5. The side dump car body as defined in claim 4, wherein there is further included tie bars connecting the posts to the lower surface of said bottom.

6. The side dump car body as defined in claim 4, wherein there is further included gussets connecting the edges of said skirts with the ends of said bottom.

7. The side dump car body as defined in claim 4, wherein an additional brace member is attached to each of said end walls, said additional brace member being disposed with its sides substantially parallel to said bottom and having its opposite ends connected to one of said posts.

8. The side dump car body as defined in claim 4, wherein said posts are formed of channel members attached edge to edge.

9. The side dump car body as defined in claim 4, wherein there is further included inwardly sloping plates on the top edges of the end walls and backing plates for the sloping plates, and wherein said backing plates are attached to said sloping plates, end walls, and posts.

10. The side dump car body as defined in claim 4, wherein there is further included brace bars mounted on the end walls parallel to their side edges and extending from the posts to the upper edges of said end walls.

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