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S. W. ZOLDOK

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DUMP CAR BOTTOM

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Fig. 1.

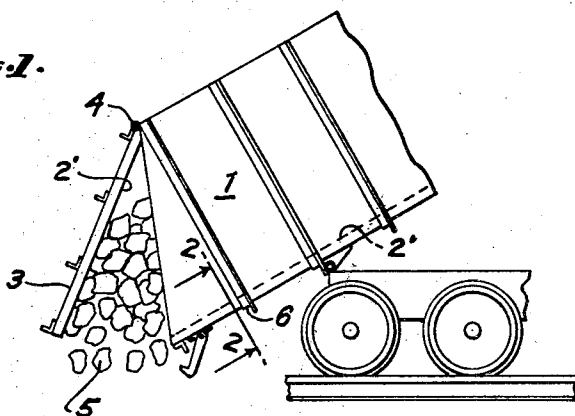


Fig. 2.

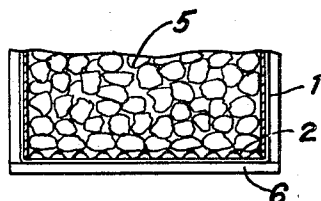


Fig. 3.



Fig. 4.



INVENTOR.
STEPHEN W. ZOLDOK
BY *[Signature]*
ATTORNEY.

UNITED STATES PATENT OFFICE

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DUMP CAR BOTTOM

Stephen W. Zoldok, San Luis Obispo, Calif.

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3 Claims. (Cl. 105—422)

This invention relates to dump cars, skips and buckets, particularly such as are used for carrying and dumping ore, and has to do with an improved bottom plate or liner for such cars and dumping receptacles.

The principal object of the invention is to provide an improved corrugated sheet metal bottom plate or liner which will better resist wear and stand much longer service than the sheet metal bottoms and liners heretofore used.

Other objects and advantages of the invention will appear in the following description.

In the accompanying drawing:

Fig. 1 is a side view of the rear portion of a dump mine car body shown tilted and dumping its contents of ore or rock.

Fig. 2 is a fragmentary cross sectional view of the car body of Fig. 1 taken along the line 2—2 of Fig. 1 and showing the corrugated bottom plate of the car.

Fig. 3 is an enlarged cross sectional view of the specially formed corrugated sheet metal bottom.

Fig. 4 is a view similar to that of Fig. 3 but showing a modification in the form of the corrugated bottom sheet.

Before describing the drawing in more detail it may be said that mine cars and other dumping receptacles above mentioned are generally made of flat sheet iron, and they are subject to great wear, particularly as the ore is unloaded by dumping the car, as the heavy highly abrasive ore cuts away the bottom plate of the car as it slides off, and also cuts away the metal of the pivoted door which usually drags upon the ore as it passes out (on rear dump cars), while on side tipping cars it cuts out the side wall of the car below the pile of ore sliding off.

I have overcome the excessive wear mentioned, or rather have found a way to minimize it, and add greatly to the life of the car or to any container bottom or side wall subject to the abrasive cutting of a moving load of this kind, either at time of dumping and/or filling of the container—and my invention briefly described comprises forming the bottom and/or other wall subject to such abrasive action, of special corrugated sheet metal in which the crowns of the corrugations are several times as thick as the balance of the sheet, and arranging the corrugations longitudinally with respect to the sliding movement of the ore when being dumped. The invention was the result of the discovery by me that when ordinary corrugated iron is used on a dump car in this manner the crowns of the

ridges are rapidly worn off while the remainder of the sheet is still in very good condition.

In the drawing, 1 designates a conventional dump car body, 2 is the bottom of the car, 3 the door hinged at 4, and shown open in Fig. 1 with the ore or rock 5 sliding out from the tilted body.

At least the bottom plate of the car is made or covered with a sheet of my special corrugated metal (iron or steel), and preferably the door 3 also, as it is subject to great wear as it drags more or less on the rocks 5 as they slide out under it.

The bottom sheet if used as the only bottom member of the car is of course supported on suitable transversely extending beams or angle irons 6. This sheet may be corrugated to the same general proportions as found in common corrugated sheets—that is, with equal crowns and valleys as shown in Fig. 3, but the metal sheet is preferably rolled while hot in such a way as to produce a great excess of metal on each crown as indicated at 7' and which gradually tapers off into the remainder of the metal which may be of uniform thickness.

While I prefer to use a corrugated sheet of the proportions as shown in Fig. 3, with curved valleys 2" equal in size to the crowns, still for some purposes the valleys may be flattened and two or three times as wide as the crown as shown at 7 in Fig. 4 and wherein the thickened crowns are designated 8.

The construction as above described for the bottom of this car also applies to the discharge opening door 3, and in some cases to all interior walls of the car if desired.

From a consideration of Figs. 3 and 4 it will be evident that with heavy abrasive chunks of ore or rock dropping upon such a bottom as shown in Figs. 2 and 3 the percussive wear will be largely confined to the thickened crowns of the corrugated sheet, and when the load slides along the bottom in dumping the grinding and cutting action will likewise be confined substantially to these portions, as the larger rocks and chunks rest almost entirely upon the crowns, and thus with such a relatively small increase of metal the life of the car bottom, door, and walls if used thereon, is greatly increased.

Having thus described my invention what I claim is:

1. In a receptacle for transporting and dumping abrasive chunks of heavy material, a corrugated sheet of material against which the material slides in dumping arranged with its corrugations extending longitudinal to the movement

of the material in dumping, the upper crowned portions of the corrugated sheet being thickened and spaced close enough to take the greater part of the abrasive weight of the material in the longitudinal sliding movement of the material during the dumping operation. 5

2. In a mine dump car, a corrugated sheet of metal forming the bottom of the ore receiving space and arranged with its corrugations extending longitudinally to the sliding movement of the ore during the dumping operation, and the metal of the corrugations of the sheet being thicker at the upper crowns of the corrugations than the side walls and the lower crowns of the sheet, said upper crowns adapted to support the large abrasive chunks of ore to take the greater part of the abrasive weight of the material during the dumping operation. 10

3. In a mine dump car, a corrugated sheet of 15

metal forming the bottom of the ore receiving space and arranged with its corrugations extending longitudinally to the sliding movement of the ore during the dumping operation, the metal of the corrugations of the sheet being thicker at the upper crowns of the corrugations than the side walls and the lower crowns of the sheet, said upper crowns adapted to support the large abrasive chunks of ore to take the greater part of the abrasive weight of the material during the dumping operation, and a gate pivotally secured to the dump end of the car and adapted to effect a drag upon the material during the dumping operation, said gate having its inner face covered with a similarly formed corrugated sheet of metal with the corrugations extending parallel to the movement of the material during the dumping operation. 20

STEPHEN W. ZOLDOK.