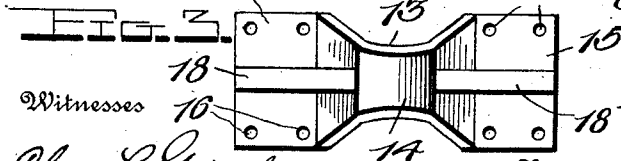
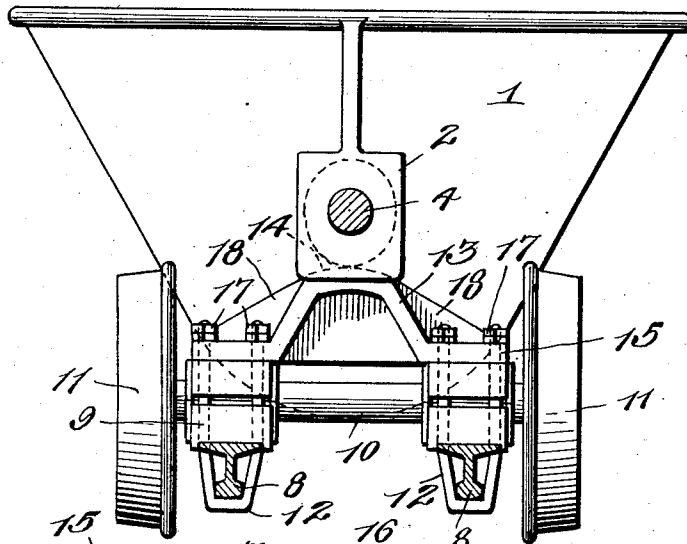
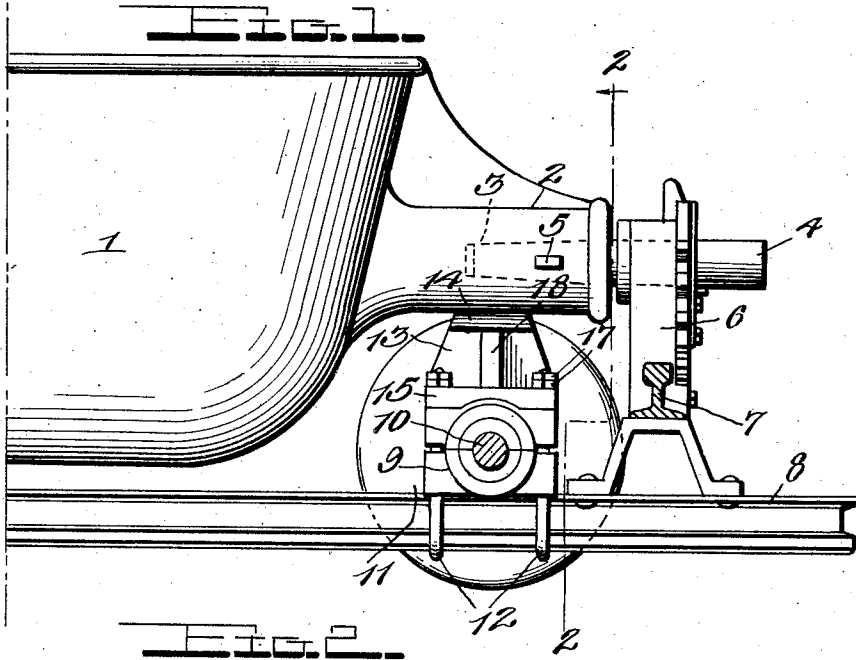


L. F. KUHN.
CINDER CAR.

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Patented Dec. 17, 1912.



Witnesses

Chas. L. Griesbauer.
L. H. Ellis.

Inventor

L. F. Kuhn,

By Watson E. Coleman,
Attorney

UNITED STATES PATENT OFFICE.

LOUIS F. KUHN, OF CANANEA, MEXICO.

CINDER-CAR.

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To all whom it may concern:

Be it known that I, LOUIS F. KUHN, a citizen of the United States, residing at Cananea, Sonora, in the Republic of Mexico, have
5 invented certain new and useful Improvements in Cinder-Cars, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to cinder cars used
10 in connection with smelters for receiving and transporting molten metal and liquid cinder from blast furnaces and has for its object to provide a novel supplemental support for the trunnions at each end of the
15 car, whereby the weight of the car and contents is partially taken from the bearing shaft and journal member for holding the same.

A further object of this invention is to arrange the support of this invention so that
20 it can be readily removed, replaced and inspected, as the conditions require.

Another object of this invention is to arrange the same so that it can be manufactured and installed at a comparatively low
25 cost, and so that when in position, will not interfere with the tilting action of the car they are placed on.

A still further object of this invention is
30 to provide means whereby the weight will be taken off the sills proper that are used in connection with this class of cinder cars, so as to relieve the stress from the trunnions and prevent them bending under the weight
35 of the bowl of the same and its contents.

Other objects of this invention will become apparent as it is more fully set forth.

It is well known that the weight of the bowl and contents of a cinder car strains the
40 bearing shafts that rotatably hold the same, so that they are distorted or broken after a comparatively short usage. Of course these shafts could be strengthened by increasing the diameter thereof but such a
45 method is objectionable for many obvious reasons. This invention is for the purpose of relieving the stress entailed in the design of the present style of cars used for the purpose, and also in order to afford means of
50 relieving the stress on the bearing shafts and supporting sills so that they will not be strained in any way by the weights referred to.

At the same time this invention consists
55 in general of a simply formed member

which can be readily disposed on the frame of the car and under the trunnions of the bowl so that the latter will be partially supported thereby, and yet not interfere in any way with the tilting action of the same. 60

In the accompanying drawings which illustrate by way of example an embodiment of this invention, Figure 1 represents a side view of a cinder car embodying this invention, taken from inside one of the wheels. 65 Fig. 2 is a sectional view on the line 2—2 of Fig. 1, and Fig. 3 is a detail plan view of one of the supplemental supports embodying this invention. Fig. 4 is a detail showing the trunnions resting on the supporting 70 member.

Similar reference characters refer to similar parts throughout the drawings.

In the construction shown in the drawings, 1 represents a bowl of a cinder car, the
75 opposite ends of which are provided with trunnions 2, said trunnions being provided with tapered bores 3 which extend partly into the same, as can be noted in Fig. 1 of the drawings. A bearing shaft 4 having its
80 inner end portion suitably tapered, is disposed within the bore 3 and provided with a lock bar 5 which holds the same securely in position, suitable registered openings being provided in the trunnions for said lock 85 bars.

Suitable journal bearings 6 support each of the shafts 4 and any usual form of tilting mechanism is mounted upon one of the supports, but forming no part of this in- 90 vention and therefore not shown in detail. The journal bearings 6 are carried by the cross bars 7 which extend transversely of and are supported by the sills 8. The sills 8 extend beneath the journal boxes 9 mounted upon the axle 10 carried by the wheels 11
95 of the car and are supported by the hangers 12 connecting said sills and journal boxes. It will thus be seen that the journal bearings 6 which form the usual support for the 100 trunnions transfer their load to the sills 8 at points outside of the point of support of the wheels by the axles and there is consequently not only a tendency of the shaft 4 to bend under the load of the bowl and its 105 contents but also of the sills to give at their point of support by the axle under the bending stress.

The features of construction, thus far described, are of the usual type and do not 110

constitute any part of the present invention which consists in the provision of means for relieving the bearing shaft and the sills of a great portion of the load.

5 A supplemental support 13 is mounted on the boxes 9 at each end of the car and has its upper portion 14 bent upwardly and rounded to form an arch as shown in the drawings in order to normally support the
10 trunnions 2.

It will be noticed from Fig. 2 of the drawings that the trunnions 2 are substantially oval in cross section so that when the bowl is in a vertical position the lower face of the
15 trunnions will rest upon the arched portion of the supports 13 thereby relieving the bearings of considerable weight. When the bowls are turned upon their axis the trunnions 2 will obviously be out of contact with
20 the arched portion of the supports 13 thereby permitting the bowls to be easily turned for the purpose of emptying their contents.

Suitable holes 16 are provided in the lower and flat portions or feet 15 of each arch so
25 that the end portions of the hangers 12 will extend therethrough and by means of nuts 17 securely hold the same to the boxes 9. Extending from the curved portion of the member 13 to the outer edges of the same
30 are webs 18 for the purpose of strengthening the same.

Thus it can be seen that the invention while of very simple construction affords a means for transmitting a large portion of
35 the weight of the bowls to the journal boxes more directly than is possible by the present means. The general shape of the supporting member in question is such as to permit its ready manufacture and installation and
40 not interfere with the present existing parts of a car of the nature referred to, so that the same can be applied to a car without necessitating any structural change in the car.

Obviously while there is shown but one
45 form of this invention in the drawings, it is not desired to limit this application for patent to that particular form, or in any other way otherwise than necessitated by the prior art, as many modifications in the construction thereof may be made without departing
50 from the principles thereof.

Having thus described this invention, what is claimed is:—

1. In a cinder car or the like, the combination, with the wheels, the axles, sills carried 55 by the axles, journal bearings carried by the sills beyond the wheels, trunnions journaled in the bearings, and a bowl carried by the trunnions, an arch carried by the axle beneath the trunnions between the bearings 60 and bowl and having an upper convex bearing face to support the trunnions intermediate their length.

2. In a cinder car, the combination with the wheels, the axles, sills carried by the 65 axles, journal bearings carried by the sills beyond the wheels, of trunnions being elliptical in cross-section and a bowl carried by the trunnions, a bearing shaft extending from said trunnions and journaled within 70 the bearings, and an arch carried by the axle beneath the trunnions between the bearings and the bowl, said trunnions being adapted for rotation whereby when the bowl is in a vertical position the trunnions will rest upon 75 the said arches and when the bowl is in a tilted position the trunnions will be free of the arches, substantially as described.

3. In a cinder car, the combination, with the wheels, the axles, sills carried by the 80 axles, journal bearings carried by the sills beyond the wheels, of trunnions being oval in cross-section and a bowl carried thereby, bearing shafts detachably connected to said trunnions and journaled within said bear- 85 ings, a support carried by the axle beneath the trunnions between the bearings and bowl, the said support comprising an arched medial portion having an upper convex bearing face, said trunnions adapted to be 90 supported upon the convex bearing face of the supports when the bowl is in a vertical position and the said trunnions being free of the said supports when the bowl is in a tilted position substantially as described. 95

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

LOUIS F. KUHN.

Witnesses:

CHAS. N. BAUER,
JAMES M. LAWTON.