Sept. 22, 1931. H. F. MAUREL 1,824,611

CONVEYER BUCKET

Filed March 8, 1930 2 Sheets-Sheet 1

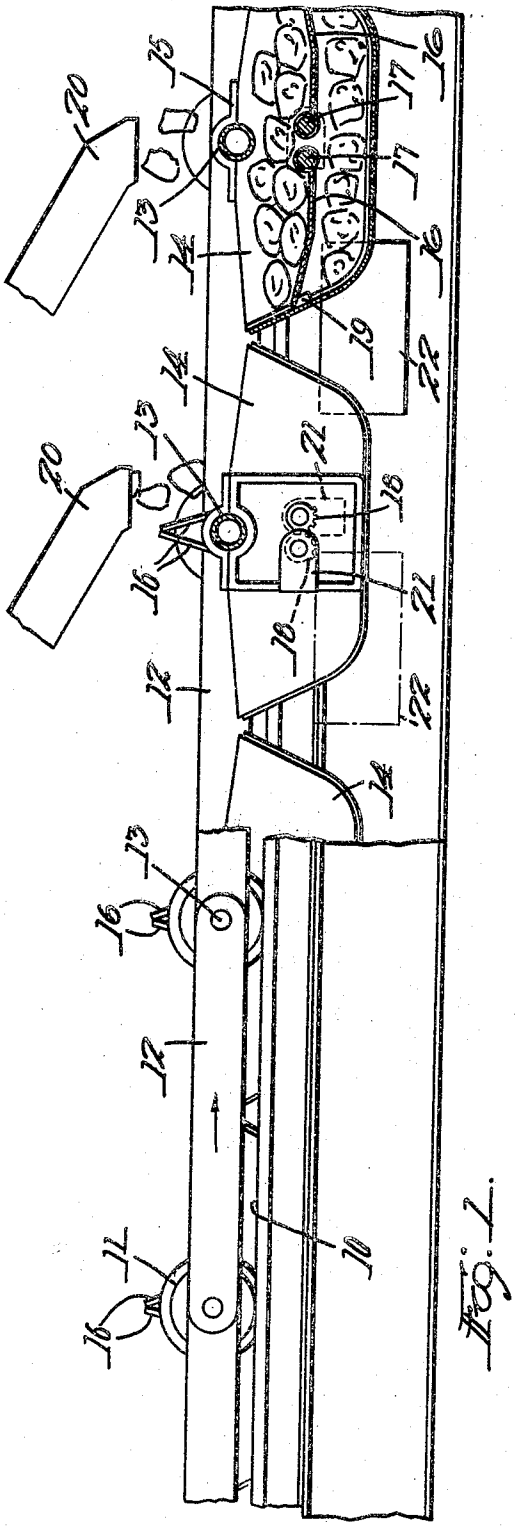


Fig. 1.

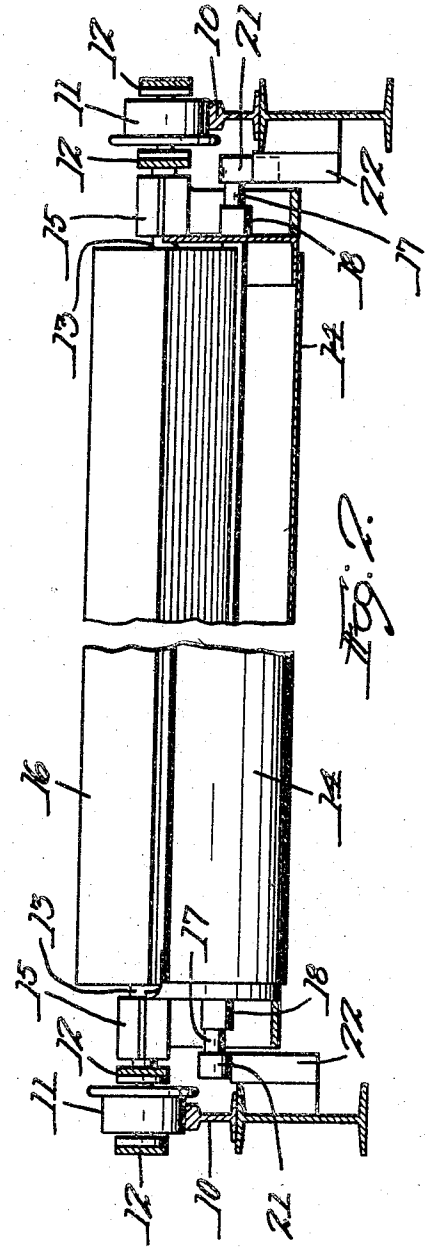


Fig. 2.

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CONVEYER BUCKET

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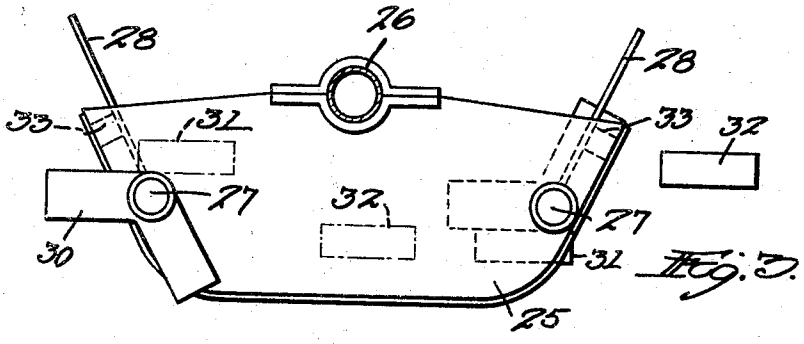


Fig. 3.

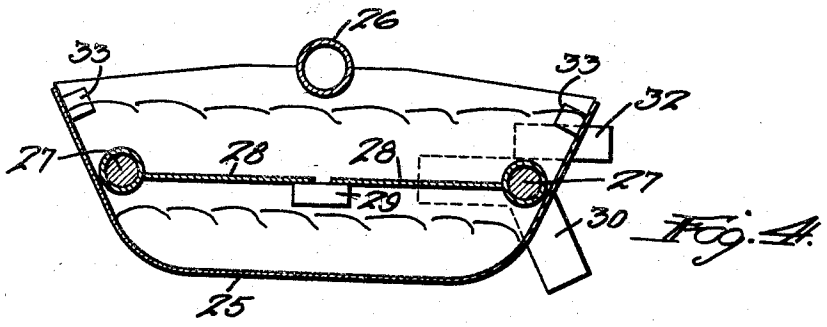


Fig. 4.

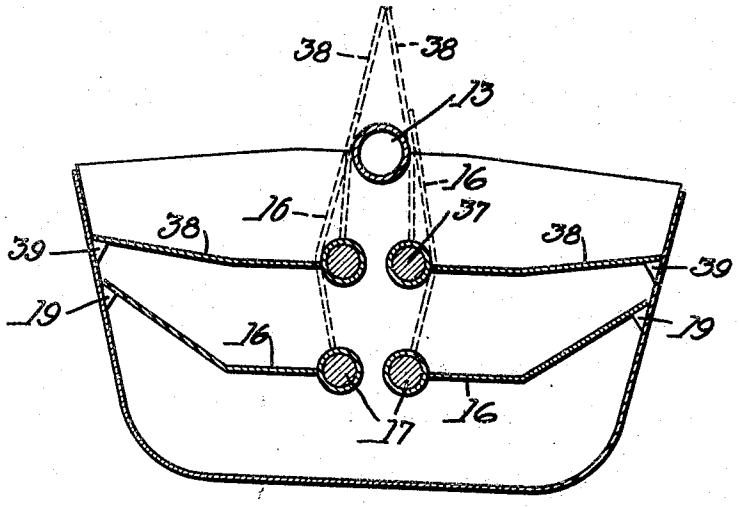


Fig. 5.

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UNITED STATES PATENT OFFICE

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CONVEYER BUCKET

Application filed March 8, 1930. Serial No. 434,399.

This invention relates to a bucket or basket for use to constitute the carrying means of a conveyer.

The principal objects of the invention are to provide a pivoted bucket or basket adapted to carry a quantity of material divided into two or more parts, so that no part of the material will be surrounded by other parts sufficiently to protect it from heat or gases and there will be no material difference in the treatment of the different parts of the material; to provide a basket having a secondary floor or partition above the bottom for supporting products in spaced relation to those carried by the bottom; to provide means whereby one or more additional bottoms or floors will be provided in such a way that they will swing downwardly by gravity or aided by mechanical means when the basket is inverted for discharging its contents and will also be swung into a general horizontal position at the proper time when the basket is brought right side up; to provide means for causing the different parts of the second bottom or floor to move together and especially to provide a basket of increased capacity, presenting an increased area of the substance carried by it for subjection to air currents for the purpose of heating, drying or otherwise treating the material.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a side view of a conveyer constructed in accordance with this invention showing one of the baskets in section and illustrating the parts in position for filling;

Fig. 2 is a sectional view of the conveyer showing one of the baskets in side elevation and broken away on one side to show it in section;

Fig. 3 is an end view of one of the baskets showing a modified construction;

Fig. 4 is a transverse sectional view of the same, and

Fig. 5 is a similar view showing a third modification.

This invention is designed for use particularly in the treatment of briquettes formed of ground coal and the like which have been passed through an oven having two or more zones in which the briquettes are first subjected to a distilling process to remove the volatile products and afterwards subjected to a baking or hardening process for the purpose of bringing them into a hard condition suitable for handling and shipment. Heretofore the briquettes have been conveyed through the various zones in this furnace in baskets which held the briquettes therein in large bodies. The outside briquettes protect those in the interior from the heat and the gases in this oven. Therefore there was danger that the briquettes at the center of the baskets would not be treated to exactly the same extent as those on the outside. Thus the product was not strictly uniform.

This invention is made particularly for the purpose of securing uniformity in results, with additional capacity getting the body of briquettes in the buckets or baskets into a form in which the heat and gases will have access to all the briquettes in a substantially uniform manner and there will be no center or core of the mass or body of briquettes that will be protected in any way by the outside layer. This is done by dividing the body of briquettes in each basket up into a plurality of masses which are of comparatively flat shape and of thin cross section in one direction so the heat and gases will penetrate directly to the briquettes in the interior.

The invention is shown as applied to an endless chain conveyer comprising two stationary tracks 10 suitably supported, rollers 11 mounted to roll on the tracks and a series of links 12 pivotally connected with the rollers and constituting two double chains. The rollers are mounted on axles 13 which are connected with the baskets 14 at their ends by securing them thereto in any desired manner, as for example, by means of caps 15 secured to the ends of the baskets and to the axles. The baskets can be freely pivoted on these axles or secured thereto as may be convenient. The ends of these axles pass through the links 12 so as to connect them together.

In this way the baskets are supported from the axles about which they are free to swing and they hang down therefrom normally so, no matter whether the chains are running horizontally, vertically, or otherwise the baskets will always depend therefrom so as to remain right side up and hold the contents against being dumped out.

In the form shown in Figs. 1 and 2 each basket is provided near the center with two parallel shafts 17 provided with pinions or gear segments 18 intermeshing so that the two shafts are obliged to turn simultaneously when they do turn. Each shaft also is provided with a plate 16 and these plates are shown as located substantially horizontally at about the center of the basket. Stops 19 are provided so that these plates can rest upon them as shown. It will be understood that the baskets are inverted in any usual way for discharging the contents.

At the left of Fig. 1 in the part of the view which is a side elevation, these plates 16 are shown as extending upwardly and they are bent or offset slightly so that they can pass around the axle 13 and come together at the top so that the basket can be filled on the bottom from a chute 20 as shown and not interfere with these plates standing up in this position. After the bottom of the basket is filled with briquettes up to a point lower than the elevation of the shafts 17, the two plates 16 are swung backwardly with their shafts to the position shown at the right hand end of Fig. 1 in section. This is accomplished by an arm 21 on the end of one of the shafts 17 coming into contact with a stationary dog 22 as the conveyer moves along from left to right in Fig. 1.

When the plates are moved back to the horizontal position the filling continues and the result is that the second layer of briquettes is deposited on these plates and the basket is able to carry about as many briquettes as it would if the plates were not present, but there is an air space between the bottom layer and the plates 16. This enables the heat and also the gases to get at the briquettes and there is no body of briquettes of larger width than substantially half the height of the basket. Therefore the heat can penetrate into the mass and there is no body of material at the center of the mass that might not be thoroughly subjected to the heating action. If it is desired to have gases or air penetrate into this body of briquettes, the plates 16 can be perforated as indicated in Fig. 1 and also the bottom of the basket can be provided with perforations for the same purpose. That, however, is not essential where the idea is to secure a uniform treatment by heat, particularly if the briquettes are to be heated by indirect heat instead of by the direct heat of the products of combustion.

In the form of the invention as shown in Figs. 3 and 4, an equivalent arrangement is shown in which the buckets or baskets 25 are pivoted on an axle 26 and depend therefrom as before. There are two separated shafts 27 each having a plate 28 extending inwardly and resting on the stop 29. These plates are provided with arms 30 projecting therefrom and constituting counterweights which are thrown upwardly by opening trips 31 and downwardly by closing trips 32. When up they rest against stops 33 and furnish upwardly projecting walls at the opposite ends of the baskets to guide the material down into the baskets. They are operated in a way that will be readily understood from the description given above of Figs. 1 and 2.

In Fig. 5 I have shown the basket on the same principle as that shown in Fig. 1 but in addition to the lower plates 16 there is an upper pair of shafts 37 carrying plates 38 adapted to rest on stops 39 and to move into the dotted line position for filling.

It will be understood that in all cases the tilting of the baskets bottom side up will bring the plates into the vertical position and they are held there by friction and gravity as they extend inwardly over the axle 13 even after the baskets are turned back to upright position and are swung down only by the various trips and dogs employed for engaging the arms on the ends of the shafts 17, 27 and 37.

This invention, although described as being designed particularly for the treatment of ground coal briquettes, is capable of being employed for any other uses in which the material to be conveyed is intended to be subjected to heat, cold or gases. Although I have illustrated and described only three forms of the invention I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited in this respect but what I do claim is:—

1. In a conveyer, the combination with a track, rollers movable along said track, axles for said rollers, and chains connected with the axles for drawing them along, of receiving baskets pivotally depending from said axles and supported thereby, plates located in said baskets and constituting floors, and stationary means along the track for moving said plates into and out of horizontal position for supporting material, as the chains move along.

2. In a conveyer, the combination with a stationary track, of rollers mounted thereon to roll along the track, chains connected with the rollers for operating them, said rollers having axles projecting inwardly toward each other, baskets pivotally supported by said axles, a pair of shafts in each basket, a plate connected with each shaft to move therewith

into and out of substantially horizontal position so that when in that position they constitute floors for receiving material, said shafts being oscillatable, projections on said shafts and stationary dogs along the tracks for turning the shafts to two different positions in one of which they act as means for supporting the material and in the other of which they move out of the way so that material can be deposited past them on the bottoms of the baskets.

3. A basket for a conveyer comprising a containing body having a bottom, a plate located above said bottom, means for moving said plate into two limiting positions in one of which it is spaced above said bottom to receive material thereon and transport it and in the other of which it is located out of the way so that material can be deposited directly on the bottom of the basket.

4. In a conveyer basket for the purpose described, the combination with the body of the basket having a bottom for receiving the material to be conveyed, of a pair of plates pivoted near the center of the basket and adapted to extend in opposite directions to furnish a floor above the bottom for receiving material to be conveyed, gear teeth connected with the two plates and intermeshing so that the two plates will be forced to turn simultaneously and a projection connected with one of the plates and adapted to be operated from the exterior of the basket to turn both plates.

5. As an article of manufacture, a conveyer basket having a bottom for receiving material to be conveyed and means above the bottom for receiving a second layer of material to prevent the depositing in the basket of a body of material having a depth sufficient to prevent the action of heat or gases on any material at the center thereof, said means being adapted to swing upwardly in the bucket to permit depositing the materials on said bottom from above.

In testimony whereof I have hereunto affixed my signature.

HENRY F. MAUREL.