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2,345,728

WHEEL HANDLING TILT TABLE

Original Filed June 16, 1939 2 Sheets-Sheet 1

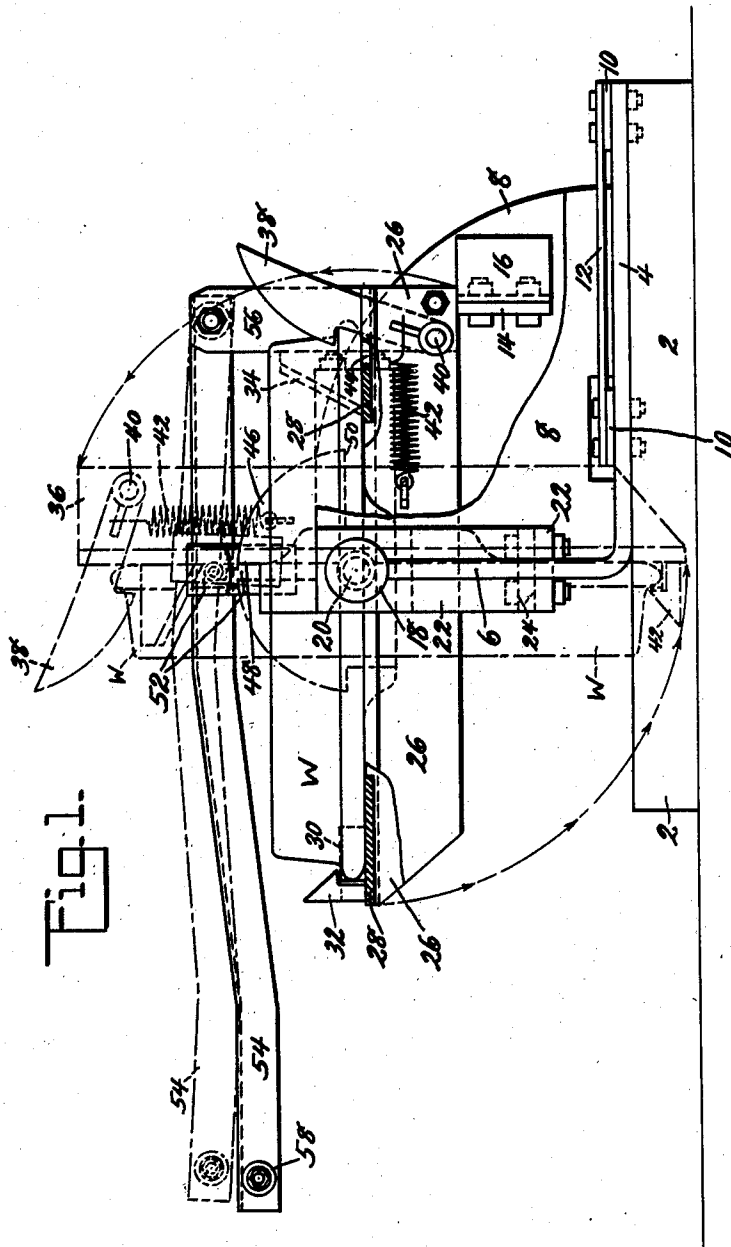


Fig. 1.

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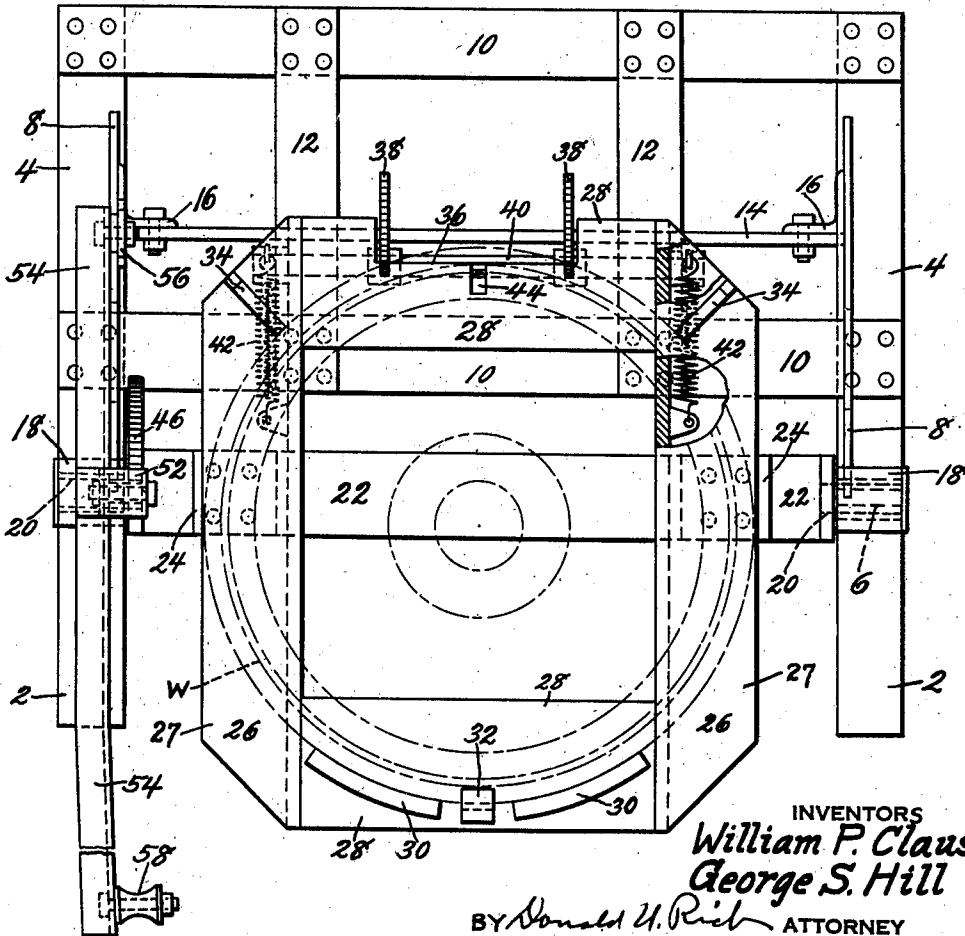
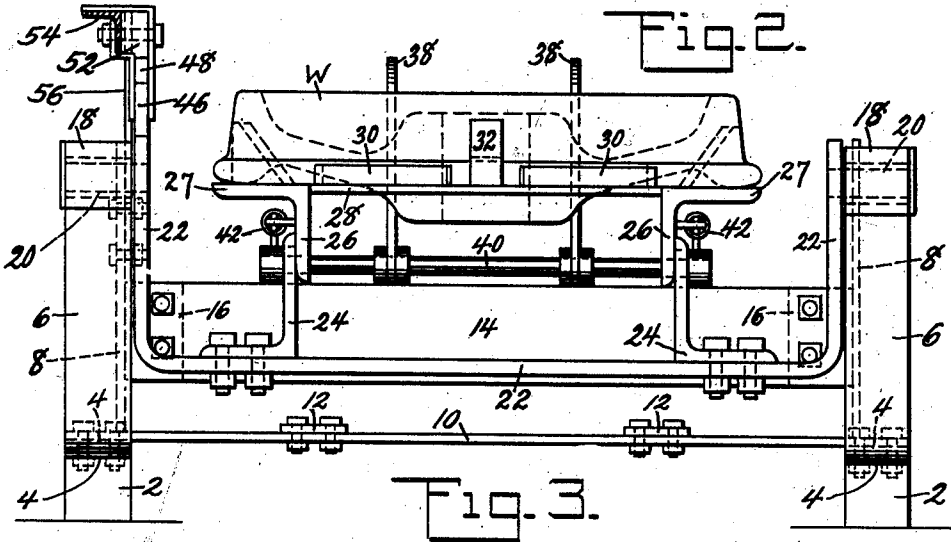
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WHEEL HANDLING TILT TABLE

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Original application June 16, 1939, Serial No. 279,452, now Patent No. 2,293,194, dated August 18, 1942. Divided and this application June 24, 1942, Serial No. 448,266

11 Claims. (Cl. 214—130)

This invention relates to wheel handling tilt tables, and particularly to such tables intended for use in foundries or at any point where it is necessary to handle heavy railway car or similar wheels, the present application being a division of our co-pending application Serial No. 279,452, filed June 16, 1939, now Patent No. 2,293,194, granted August 18, 1942.

As pointed out in the above identified application, the present method of handling such wheels, both from the soaking pits and in the assembly plant, involves extremely heavy and dangerous manual work, since the wheels are of substantial weight and are handled at high temperatures. It is, accordingly, an object of the present invention to provide an automatically operating tilt table which will receive the heavy, hot wheel and position it so that it may be easily and safely removed from the table by a carry-off carriage, as shown and described in said application.

A further object of the invention is the provision of an automatically operating tilt table which will receive the wheel in a horizontal position and deliver it to the carry-off carriage in a substantially vertical position for transportation thereby to the location desired.

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:

Figure 1 is a side elevational view of the wheel handling tilt table showing the wheel in position thereon, the view also showing the table and operating mechanism in line and dash when in position to deliver the wheel to the carry-off carriage;

Fig. 2 is a front end view of the tilt table, and

Fig. 3 is a plan view of the tilt table shown in Fig. 2.

Referring now to the drawings in detail, it will be seen that the tilt table comprises base pieces 2 which may be secured to the floor and to which are secured the horizontal legs 4 of angle-shaped members having their vertical legs 6 directed upwardly. The horizontal leg 4 and vertical leg 6 of each angle piece are connected together by bracing gussets 8 welded or otherwise secured to the legs, while the horizontal legs and base members are tied together in proper relation by transversely extending bars 10 which are in turn braced by ties 12, all as clearly shown in Figs. 1, 2 and 3 of the drawings. The bracing gussets are tied together by means of a bar 14 secured to the gussets by any suitable

means, such as the angles 16, and this bar serves not only to tie the gussets together, but also acts as a stop for the rotatable or tilt table now to be described.

The upper ends of legs 6 have welded or otherwise secured thereto bearing structures 18 adapted to rotatably support stub shafts 20 which extend through the bearings and carry at their inner ends a U-shaped strap 22. Secured to strap 22 are spaced angle members 24 having one leg of each thereof extending upwardly and constituting attaching and supporting means for angle members 26 having oppositely directed horizontal flanges 27 forming the side pieces of the tilting platform or table. The angle members 26 are connected together adjacent their ends by bars 28 located in the plane of the outwardly directed legs, the bars thus forming with the angles a substantially rectangular table or platform rigidly connected to the U-shaped strap, which is in turn pivotally mounted upon the supporting structure. One of the connecting bars or plates 28 has welded or otherwise secured thereto bottom stops 30 and a retaining hook-shaped lug 32, while the outwardly directed legs of the side pieces have secured thereto at the ends remote from the bottom stops 30 and retaining lug 32 a pair of centering lugs or braces 34 adapted to guide the wheel W into position upon the table. The other connecting bar or plate 28 has a part thereof removed as at 36 in order to permit movement of latches 38 keyed or otherwise secured upon a shaft 40 journaled in the vertical legs of the side angles 26. The latches are constantly urged toward the center of the platform or table by means of springs 42 connected to an arm mounted on the shaft and to a lug secured to the side pieces of the table or platform. Intermediate the latches 38 an additional notch or cut-out portion 44 is made in the plate 28, as clearly shown in Fig. 3, for a purpose later to be described. One of the arms of the U-shaped supporting strap 22 has secured thereto, as by welding or otherwise, a plate 46 having its upper edge curved concentric with the pivot shafts 20 and terminating at its ends in shoulders 48 and 50 adapted to engage a lug 52 secured upon a trip arm 54. One end of this trip arm is pivotally mounted upon the tilt table base by means of standards 56 secured to one of the bracing gussets, while the other end of the trip arm is extended outwardly a considerable distance from the base and table and has secured thereto a roller 58. It will be seen from the drawings that by the use of the

U-shaped strap it has been possible to place the platform or table slightly below the axis upon which the table is mounted for rotation, thus causing the axis of rotation to pass through the flange of the wheel which will be supported upon the tilt table. It should also be noted that the axis of the wheel is slightly to one side of the axis of the tilt table, thus causing the tilt table, when the wheel is mounted thereon, to rotate in a counter-clockwise direction as viewed in Fig. 1. The axis of rotation for the table is necessarily slightly to one side of its center, but the weight of the latches 38, connecting shaft 40 and springs 42 will more than compensate for this condition and cause a slight out-of-balance on the table itself due to the latches. Also, when the table is in a vertical position to deliver the wheel the U-shaped strap and angles 24 are at a considerable distance from the axis and will tend to cause the tilt table to rotate in a clockwise direction, as viewed in Fig. 1, until the table has reached a horizontal position in which it is held by the side angles 26 striking the stop which connects the bracing gussets. In other words, the tilt table with wheel mounted thereon constantly tends to assume a vertical position and is held in such vertical position by the angles striking one of the cross members tying the base frame together, as shown by dot and dash lines in Fig. 1; while when the wheel is removed from the tilt table it tends to return to a horizontal position with the angle striking the stop 14; that is, the center of gravity of the loaded tilt table is always to the left of the axis, while the center of gravity of the unloaded table is always to the right of the axis of rotation, as viewed in Fig. 1.

The operation of the device is as follows and assuming the tilt table to be in its horizontal position, which it will automatically assume: A wheel with flange downward is lowered upon the tilt table with lug 32 and centering lugs or braces 34 operating to center the wheel on the tilt table and force the same under the hook portion of lug 32; also, during lowering of the wheel the latches 38 will retract and as soon as the wheel has come to rest upon the tilt table they will spring forward to engage over the flange of the wheel. The wheel is now held in position upon the tilt table, which is prevented from rotating by reason of the lug 52 on the trip arm or operating handle 54 being in engagement with shoulder 43, as shown in Fig. 1. Release of lug 52 from shoulder 43 by shifting movement of operating handle 54 permits the tilting platform with wheel mounted thereon to swing on its pivots to a vertical position such as shown in broken lines in Fig. 1. When used in association with the carry-off carriage shown in co-pending application, Serial No. 279,452, the release of lug 52 from shoulder 43 is effected by shifting movement of operating handle 54 by engagement of part of said carry-off carriage with the roller 53 on said handle. The latches 38 are then released from the wheel by means provided on the carriage and another latch, also provided on the carriage, is engaged over the flange of the wheel at the notch or cut-out portion 44 formed in the plate 23, the wheel now being transferred to the carriage in a manner and by means described in the aforementioned application. While the wheel is being transferred to the carriage the lug 52 is in engagement with the shoulder 59, thus retaining the tilting platform in a substantially vertical position; however, upon withdrawal

of the carriage after transfer of the wheel thereto, the roller 53 is again engaged by a part of the carriage, thus lifting the trip arm 54 to disengage lug 52 and shoulder 59, with the result that the tilt table will promptly assume a horizontal position with the lug 52 again engaging the shoulder 43, the table now being ready to receive another wheel.

It will be seen from the preceding description that the use of the automatically operated tilt table of the present invention eliminates the necessity for a workman to approach the heavy car wheel, and permits handling of the wheel easily and without danger of injury. It will, of course, be obvious to persons skilled in the art that various modifications and rearrangements of parts may be made, but all such modifications and rearrangements of parts are contemplated as will come within the scope of the following claims which define our invention.

What is claimed is:

1. A wheel handling tilt table comprising in combination, a base, a tilting platform mounted on said base for rotation about a substantially horizontal axis from a substantially horizontal wheel receiving position to a substantially vertical wheel discharging position, lugs on said platform adapted to position said wheel thereon as it is received in such a manner as to cause said platform to be tilted to wheel discharging position, certain of said lugs supporting said wheel on the platform when in wheel discharging position, and latch means carried by the platform and engageable with the wheel to prevent accidental discharge thereof from the platform.

2. A wheel handling tilt table comprising in combination, a base, a tilting platform mounted on said base for rotation about a substantially horizontal axis from a substantially horizontal wheel receiving position to a substantially vertical wheel discharging position, lugs on said platform adapted to center said wheel thereon as it is received, certain of said lugs supporting said wheel on the platform when in wheel discharging position, latch means carried by the platform and engageable with the wheel to prevent accidental discharge thereof from the platform, and additional latch means for retaining said tilting platform in wheel receiving and wheel discharging positions.

3. A wheel handling tilt table comprising in combination, a base frame, a U-shaped axle member pivotally mounted on said frame for swinging movement about a substantially horizontal axis, a platform rigidly secured to said axle member and having its top surface arranged below the axis of the axle member and adapted to receive successive wheels in a substantially horizontal position and to discharge them in a substantially vertical position, and lock means retaining said wheels upon said platform.

4. A wheel handling tilt table comprising in combination, a base frame, a U-shaped axle member pivotally mounted on said frame for swinging movement about a substantially horizontal axis, a platform rigidly secured to said axle member and having its top surface arranged below the axis of the axle member and adapted to receive successive wheels in a substantially horizontal position and to discharge them in a substantially vertical position, lock means retaining said wheels upon said platform, and additional lock means for retaining said platform in wheel receiving and wheel discharging positions.

5. A wheel handling tilt table comprising in combination, a base frame, a tilting platform mounted on said frame for swinging movement about a substantially horizontal axis from a substantially horizontal wheel receiving position to a substantially vertical wheel discharging position, and means carried by said platform for positioning and retaining a wheel thereon, said means being so formed and arranged as to act in part to counterbalance said platform causing it normally to assume wheel receiving position and to tilt said platform when a wheel is received thereon to wheel discharging position.

6. A wheel handling tilt table comprising in combination, a base frame, a tilting platform, means mounting said platform on said frame for swinging movement about a substantially horizontal axis, said platform having its top surface arranged below said axis, and wheel positioning and retaining means carried by said platform, said means and said platform being relatively so arranged with respect to each other and to said axis as to cause said platform to automatically assume a substantially horizontal position to receive a wheel thereon and to be automatically tilted upon receiving said wheel to a substantially vertical position for discharge thereof.

7. A wheel handling tilt table comprising in combination, a base frame, a tilting platform, means mounting said platform on said frame for swinging movement about a substantially horizontal axis, wheel positioning and retaining means carried by said platform, said means and said platform being relatively so arranged with respect to each other and to said axis as to cause said platform to automatically assume a substantially horizontal position to receive a wheel thereon and to be automatically tilted upon receiving said wheel to a substantially vertical position for discharge thereof, and lock means for retaining said platform in wheel receiving and wheel discharging positions.

8. A wheel handling tilt table comprising a base, a wheel holding platform pivotally supported by said base, and releasable means retaining said platform in horizontal wheel receiving position, said platform being so arranged with respect to its pivotal support as to swing to substantially vertical position by gravity upon re-

lease of said means when a wheel is arranged thereon.

9. A wheel handling tilt table comprising a base frame, a wheel holding platform, means mounting said platform on said frame for swinging movement about a substantially horizontal axis, said platform being mounted on said frame and so arranged that its center of mass is located to one side of said axis whereby to swing by gravity to a substantially horizontal position to receive a wheel thereon, and wheel positioning means carried by said platform so arranged that said platform upon receiving a wheel thereon will have the center of mass of the wheel and platform located on the other side of said axis whereby said platform is caused to swing by gravity to a substantially vertical wheel discharging position.

10. A wheel handling tilt table comprising a base frame, a wheel supporting platform mounted on said frame for rotation about a substantially horizontal axis, and wheel positioning and retaining means carried by said platform and so arranged as to constitute in part counterbalance means normally causing said platform to assume a substantially horizontal position to receive a wheel thereon, said positioning means being so located as to cause said platform upon receiving a wheel thereon to be tilted to substantially vertical position for discharge of said wheel.

11. A wheel handling tilt table comprising a base frame, a wheel supporting platform pivotally mounted on said frame to swing bodily about a substantially horizontal axis, wheel holding means on said platform, said platform and means being so formed and arranged that their combined center of mass is located to one side of said axis whereby to normally cause said platform to swing by gravity to a substantially horizontal position to receive a wheel thereon, and wheel positioning means on said platform so arranged that when a wheel is received thereon the center of mass of the combined platform and wheel is located on the opposite side of said axis whereby to cause said platform to swing by gravity to a substantially vertical position for discharge of said wheel.

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