

(No Model.)

C. A. SHANK.
TURN TABLE.

No. 495,434.

Patented Apr. 11, 1893.

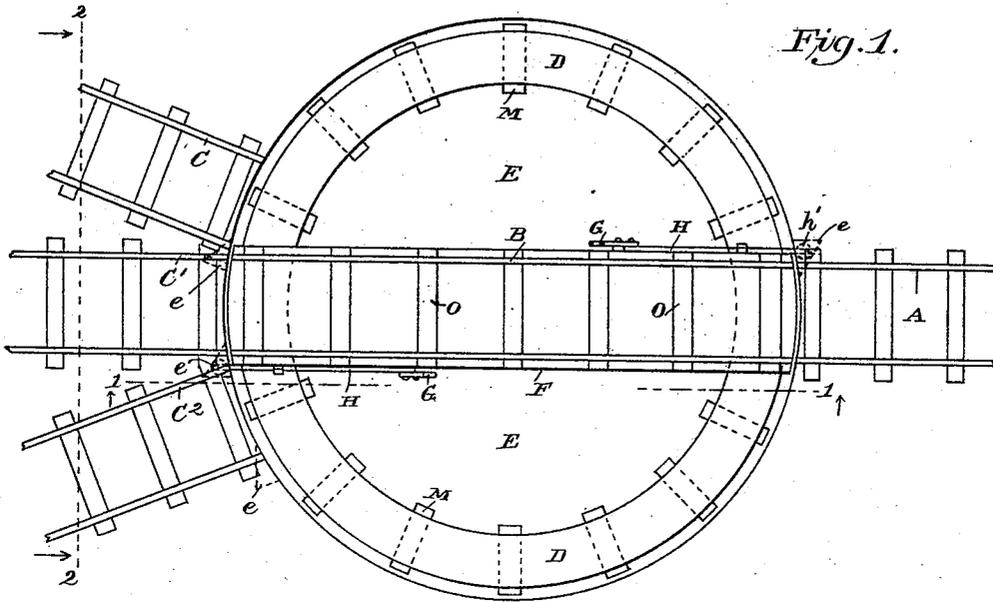


Fig. 1.

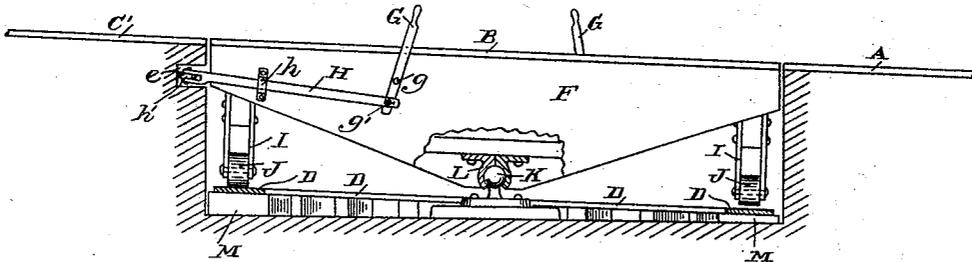


Fig. 2. Sec. 1-1.

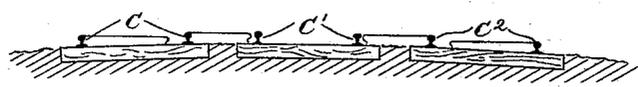


Fig. 3. Sec. 2-2.

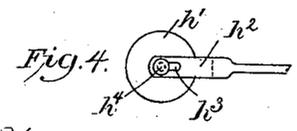


Fig. 4.

WITNESSES:
Maurice Randolph
Walter Melius

Charles A. Shank
INVENTOR,

BY Edward W. Rankin

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES A. SHANK, OF ALBANY, NEW YORK.

TURN-TABLE.

SPECIFICATION forming part of Letters Patent No. 495,434, dated April 11, 1893.

Application filed April 28, 1892. Serial No. 431,005. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SHANK, a citizen of the United States, residing at the city of Albany, in the county of Albany and State of New York, have invented a new and useful Automatic Turn-Table, of which the following is a specification.

My invention relates to that kind of railroad appliances used for turning locomotives or cars, and the object of my invention is to furnish such a turntable as will act automatically when the locomotive or car to be turned is placed thereon, and to furnish certain accessory appliances connected therewith for regulating the action of the table. By means of my said invention a locomotive or car can be turned with great ease and saving of labor, and without increase in the cost of the turntable over those now in use.

The turntables now in general use consist of a circular pit, with a rail or rails running around the bottom thereof, near the circumference and having in the center a pivot, on which is hung or otherwise arranged a structure of wood or iron, so adjusted as to turn thereon, and with a track on the upper side or deck thereof on which the locomotive may run, and with wheels under each end of this structure to run on the circular track on the bottom of the pit. At convenient points around the pit are arranged tracks leading to the main track, sidings or the round house as may be desired. In such a table as usually constructed it is necessary to keep the bearing parts carefully oiled and the circular track in the pit level and in good order or the labor of turning the table becomes very great. Such tables are usually turned by hand power applied near the ends thereof by handles or otherwise, and unless the parts are carefully adjusted the labor is seriously increased, especially that of turning the large engines now coming into general use. It is also necessary to place the locomotive as nearly in the center as possible, so as to adjust the weight as nearly as possible upon all the supports of the table.

By my invention, while using to a large extent the appliances already known, I have so modified certain of the elements thereof as to enable the weight of the locomotive or car to act as the motive power to turn the table to

any desired point. I found that unless the weight of the locomotive or car was carefully adjusted on the table, the whole of said weight rested on the central support and on the wheels under one end of the table only. I then saw that if the said weight were so adjusted as to fall more fully on said central support and on the wheels under only one end of the table, and the track on the bottom of the pit was so arranged as to be graded or inclined sufficiently, the wheels under the weighted end of the table would tend to run down the incline or grade of the circular track below, and so turn said table and the object thereon, without calling in any other power, as the wheels would of themselves seek the lower level, and the other end of the table being slightly raised, by the adjustment of the weight, would offer no resistance to the turning, as its wheels would not touch the circular rail at all. It remained then only necessary to work out the details of arrangement to make my invention practical.

The substance, general scope and idea of the invention, being as above stated, the grading of the circular track on which the wheels under the ends of the turntable run, sufficient play at the central pivot and shifting the weight of the object to be turned to the end over the higher point of the rail below, I now describe the invention in the form into which I prefer to cast it, and some accessories thereto, useful to accomplish more completely and satisfactorily the work that I intend shall be done by my said invention and contrivance.

The pit in which the table turns may be made in the usual manner, and being circular is approached at as many points as may be desired by tracks leading to the main track, sidings or round house, and the several stalls therein. The main structure of the turntable itself does not differ greatly from those in common use, except in the slightly greater play given at the pivot, and in that the wheels under the ends of the table are arranged so that only those under one end can touch the circular rail in the bottom of the pit at the same time. It may be made of wood or iron, and on its top or deck there is the usual track for a car or locomotive. It should be made of greater length than that of the longest car or locomotive desired to be turned

thereon, and in such a manner that in no case shall the whole weight of the object to be turned on it necessarily be poised equally on the center thereof. Under each end of said table wheels are arranged, by any suitable gearing to run on the circular track on the bottom of the pit, but in such a manner that only the wheel or wheels under one end can touch said track at one time. This may easily be accomplished by having the table when unweighted revolve or hang on the pivot alone.

The circular track on the bottom of the pit is preferably a single rail, and may be laid on ties or stringers in any approved manner, but this track is to be so laid or constructed that the upper surface or top of the rail is to be at some point in the circle higher than at any other point, and so that said rail shall gradually descend from said highest point both ways to a lowest point opposite thereto. In other words the top of said rail or rails may be conceived to be in a single plane, which plane has one side or end at a higher level than the other. Assuming for example a pit having a circular track laid therein of a diameter of twenty four feet, a gradual descent from the highest point therein of one foot both to right and to left of said highest point to the lowest point opposite would be sufficient to accomplish the objects had in view in my invention. This grade in the said circular track can be accomplished easily by a graded difference in thickness of the ties on which it is laid from said highest point to the lowest point opposite, or by grading the bottom of the pit, or the thickness of the rail or in any other convenient manner. As a result of this inclined or graded circular track on the bottom of the pit, the track on the top or deck of said table will vary somewhat in height at different points of the circumference of said pit, and to meet this variance in level, the several converging tracks are arranged to come to the edge of the pit at heights to correspond with that of the table at each respective point. The table is also so hung or pivoted that a slight weight on either end will bring the wheels under that end down upon the rails of the circular track below, and the track on the deck thereof to a level with the track coming to the edge of the pit to meet it at that point. At convenient points in the wall of said pit I construct an opening or hollow into which a brake, worked from the table as hereinafter described, can be inserted to stop and hold said table at any of the tracks coming to the edge of the pit. This opening or depression in the wall may be best constructed in the following manner: One side thereof, constituting the shoulder to stop and hold said brake, is made straight. This side or shoulder may be described as a plane substantially perpendicular to a tangent drawn to the circular wall of the pit at the point of departure of said straight side, and running to the extreme depth of the said opening or depression. From the foot of this

perpendicular or straight side, which is at the extreme depth of said opening or depression, the bottom thereof gradually decreases in depth until it reaches the circumference of said circular wall. In other words the bottom or inclined side of the opening or depression makes an acute angle with a tangent drawn to said wall at the point of departure of the bottom of said opening or depression. By this method of construction the brake will run easily into said opening or depression on the inclined or sloping bottom thereof and enter to the extreme length and depth thereof, and coming against the shoulder or straight side thereof, be stopped thereby and so hold the table. The opening or depression is made of sufficient width to permit the brake to easily slip therein, and of sufficient depth to make the straight or perpendicular side thereof a sufficient obstacle to effect the stoppage of the said brake and the holding of said table. As it is intended also that the said turntable shall work either way, in either direction, such openings or depressions are made in duplicate each set of two facing in opposite directions. I may also accomplish the same result by using projections on the face of said wall to catch and hold such brakes, instead of the groove like depressions with straight sides as above described.

Upon the turntable itself, and at two or more points convenient to the cab of a locomotive, when standing on said table in either position, I construct a brake worked on the general principles of a lever. I prefer to make these in duplicate, one on each side of the table and to work at opposite ends thereof. By the use of long handles thereto, I obtain the advantage of greater power, and also enable the engineer or brakeman to reach them without leaving the cab. These handles or levers are attached near their lower ends to the table by a bolt in such a manner as to have the bolt act as the fulcrum of the lever appliance, and so that the handle may be worked to and fro on said fulcrum. Instead of a bolt any other method of arranging said fulcrum may be adopted. Below the fulcrum the lever or handles are attached in any satisfactory manner to a sliding bar, which acts as the brake. This bar is moved forward and back by the lever motion of the said handle. The end thereof is so fashioned as to enter the openings or depressions in the walls of the pit and hold against the straight side of such openings. They may be also used as brakes against the walls of the pit to regulate the speed of the table when turning. For this purpose I prefer to make the sliding bar of the brake in this manner: It is attached at one end to the lever or handle of the brake in any suitable manner, and is held up in place by means of a support or bracket, connected with the main structure of the table. The end not attached to the lever is best made forked, and between the two prongs of that end there is placed a wheel with a fixed axle.

This wheel and axle turn in sliding sockets in the two prongs of the sliding bar. The wheel is made of sufficient dimensions to prevent the forked ends from coming in contact with the wall of the pit when the brake is set. The object of this is to prevent the tearing to pieces of the wall by the forked ends of the bar, when the brake is used to regulate the motion of the table by pressing the end of the brake against the wall. The object of the sliding sockets is to allow the wheel to be pressed back against the junction between the two prongs and so impede the turning of the wheel and act as a brake thereon, and through that on the motion of the table. By means of this form of construction also and that of the grooved openings in the wall, above described, the wheel at the end of the brake bar will run easily into the sloping entrance of the opening, or out of the same, in case the motion of the table is reversed.

It is convenient in the arrangement of the graded circular track on the bottom of the pit to fix the highest point thereon opposite the point where the track connecting with the main track comes to meet the table. Most of the locomotives come upon the table for the purpose of being turned and then going out on the main track again, and by this arrangement they can run on said table, throw the weight on the highest point of the circular track and the table will turn of itself to the lowest point of the track and the locomotive be ready to start out again with its other end foremost. It is not an essential feature of my invention that said turntable be made over a pit, though this is the usual and preferable method of construction, but the inclined or graded circular track may be laid on the ground, and the converging tracks coming to meet the table may be led thereto on any elevated structure, grading each to strike the proper level of the table at that point, and stops for the brakes may be arranged by posts or in any other approved method.

In putting my invention into practical use, I will suppose a locomotive coming from the main track, desiring to go upon one of the other tracks converging at the table. The empty table, if not in position is turned to the proper point, and the locomotive enters and runs far enough thereon to throw the weight on the end of the table over the highest point of the circular track beneath, the brakes are loosened and the table turns of its own accord until the weighted end is over the lowest point of the circular track below. If the table arrive at the desired track before the said lowest point on said circular track is reached, the brake is put on to stop and hold the table at the proper point. If the desired track is beyond the lowest point of the said circular track, the weight is shifted to the other end of the table and the motion is continued to the required point. By means of the duplicate brakes and the fact that said track is graded both ways from said highest

point to the lowest point thereof, and by means of having duplicate brake holes or depressions in the wall, facing in opposite directions, the motion can be had in either direction, and stopped at the desired point which ever way the table turns, and in this method also the locomotive can be turned so as to leave the table either end foremost. If the object is simply to turn the engine around, and the entering track is at either the highest or lowest point on the circular track below, the turning may be accomplished by a single motion, otherwise by shifting the weight as above described. The engine may be held in place on the table by blocks or other device.

The foregoing description of my invention may also be studied more in detail by an examination of the accompanying drawings, in each figure whereof similar letters are used to designate like parts.

Figure 1. is a top view of a turntable, showing tracks coming thereto, the circular track on which the wheels under the ends thereof run, and the brakes and grooves in the wall to stop and hold such a table. Fig. 2 is a cross section of such a table and its pit, and of the graded circular track on the bottom of such pit, and showing also the brake attachment and groove in the wall to hold said brake. In this figure the main features of my invention, to-wit, the grading of the circular track, and the support of said table on only one end of the same and on the central pivot, are brought into prominence, one side of said circular track being appreciably higher than the other, and the wheel under one end of said table being shown not to rest on the track below. The line of the cross section shown in this figure is designated in Fig. 1. by the dotted line, partially broken, between the small figures 1. 1. to which the arrows point on said Fig. 1. Fig. 3. shows a cross section of three tracks approaching the turntable, and brings out the difference in level, with which they come to meet the track on said table. The line of this cross section is also designated on Fig. 1. by the dotted line between the small figures 2. 2. to which the arrows point on said Fig. 1. Fig. 4. is a plan view of the end of the sliding bar of the brake, showing the wheel therein and its axle, and the sliding socket in one of the forks or prongs at the end of said bar.

A. represents a track approaching said table, and in the arrangement preferred by me would be that one leading from the main track. B. is the track upon the top or deck of such a turntable. C. C¹. and C². are three tracks approaching said turntable, and coming from stalls in the roundhouse, sidings or other direction.

D. D. represent the circular track on which the wheels under the ends of the turntable run. In Fig. 2. the difference in the grade or level of this track may be plainly seen, and as there represented is caused by the varying thickness of the ties under said rail. In these

figures the said circular rail is shown as broader than the wheels J. J. intended to run thereon, but this is not a feature of my invention, as I do not confine myself to any particular form of the said circular rail, but only require that the same be constructed in such a manner that it is graded each way from the highest point to the lowest point opposite thereto. E. E. represent the bottom of the pit in which such turntables usually turn. F. is the main structure of such a turntable as constructed in any proper form, to revolve on a central pivot and with wheels under the ends thereof. G. G. represent the handles or lever bars of the brake device to stop and hold the said table as above described. It will be noticed in both Figs. 1. and 2. that as drawn these are two in number, one on each side of said table, and it appears clearly from Fig. 2, that each faces in an opposite direction. In this connection we notice also the two small letters, *g* and *g'*. Of these *g*. is the fulcrum on which the said lever or handle of the brake works, and is conveniently a round bolt attached to the main structure of the said table, and *g'*. is the joint between said lever or handle of said brake and the sliding bar, H. This in its turn may be a round bolt passing through both bars, and riveted or secured by a nut in such a manner as not to interfere with the play of the parts. H. H. represent said sliding bars. These are seen in duplicate in Fig. 1. and on opposite sides of said table and working in opposite directions. And in this connection we note the bracket *h*. (Fig. 2) which is attached to the main structure of the table to hold said bar and support the same in place. The opening in the wall into which the brake is thrust, for the purpose of stopping and holding the said table is shown at *e*. and the peculiar form into which I prefer to cast the ends of said brakes is shown specially in Fig. 4. and therein, as also in Figs. 1. and 2. the wheel at the end of said brake, is designated by *h'*. Also in said Fig. 4. we note one of the two prongs at the end of said sliding bar, designated by the letter *h²*. and the sliding socket, shown at *h³*. and the extremity of the fixed axle of said wheel shown at *h⁴*. In Fig. 1. the peculiar shape of the groove *e* also appears.

I. I. show the gearings or brackets to hold the wheels J. J. which are to run on the cir-

cular track D. D. in the pit, as shown on Fig. 2 of the drawings.

J. J. represent the wheels under each end of the turntable. It is to be noted that there is a slight space between the wheel under one end of said table and the track below. This is shown at that end of the table F. which is nearest the section of track designated C'.

K. represents a ball pivot, on which the table turns and rests at its center.

L. is a bearing cover or casting resting on the ball pivot K.

M. M. show ties under the circular track. The varying thickness of these ties is clearly shown in Fig. 2, the tie under that part of said circular track nearest the track C'. being appreciably thicker than that under that part of the said circular track nearest the track A. As said track A. is supposed to be that track leading to the main railroad line, the lowest point in said circular track is shown as contiguous to the said track A. showing the arrangement as preferably made, for the turning of locomotives coming from the main track to be turned and then to return thereto.

O. O. represent ties under the track on the top or deck of the table.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. The combination of a graded or inclined circular track, having the highest point in said track opposite the lowest point in said track, and the incline extending from said highest point to said lowest point both ways, with a turntable, pivoted in the center so that only the wheel or wheels under one end thereof can touch the circular rail below at once, substantially as described.

2. The combination of a turntable, pivoted in the center so that a slight weight on either end will bring the wheels under that end upon the graded circular track beneath, with a graded circular track on which said wheels under the ends thereof run, substantially as described and for the purposes above set forth.

Dated Albany, New York, April 25, 1892.

CHARLES A. SHANK.

Witnesses:

EDWIN G. DAY,

EDWARD W. RANKIN.