

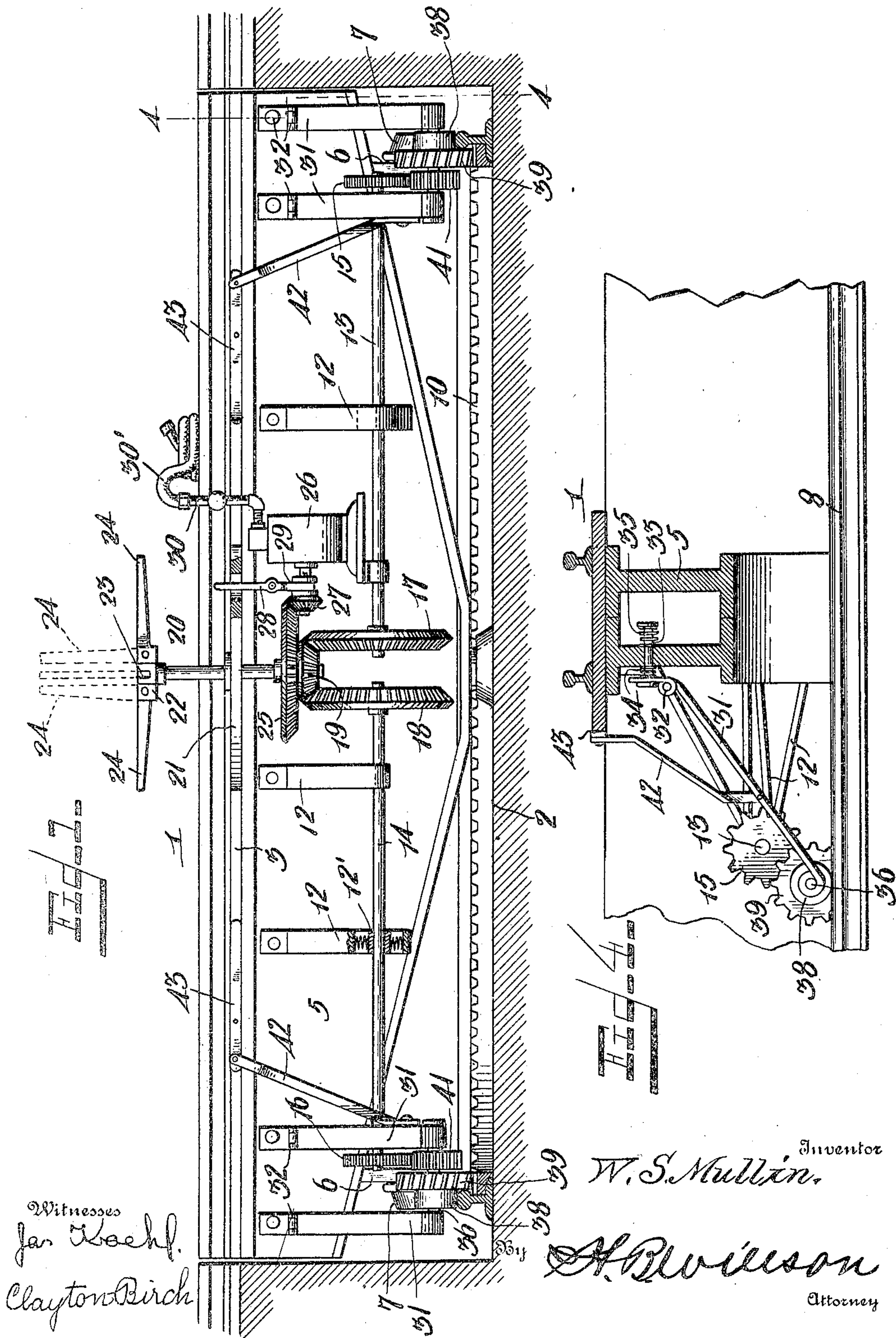
No. 770,916.

PATENTED SEPT. 27, 1904.

W. S. MULLIN.  
LOCOMOTIVE TURN TABLE.  
APPLICATION FILED MAY 31, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
for Invt.  
Clayton Birch

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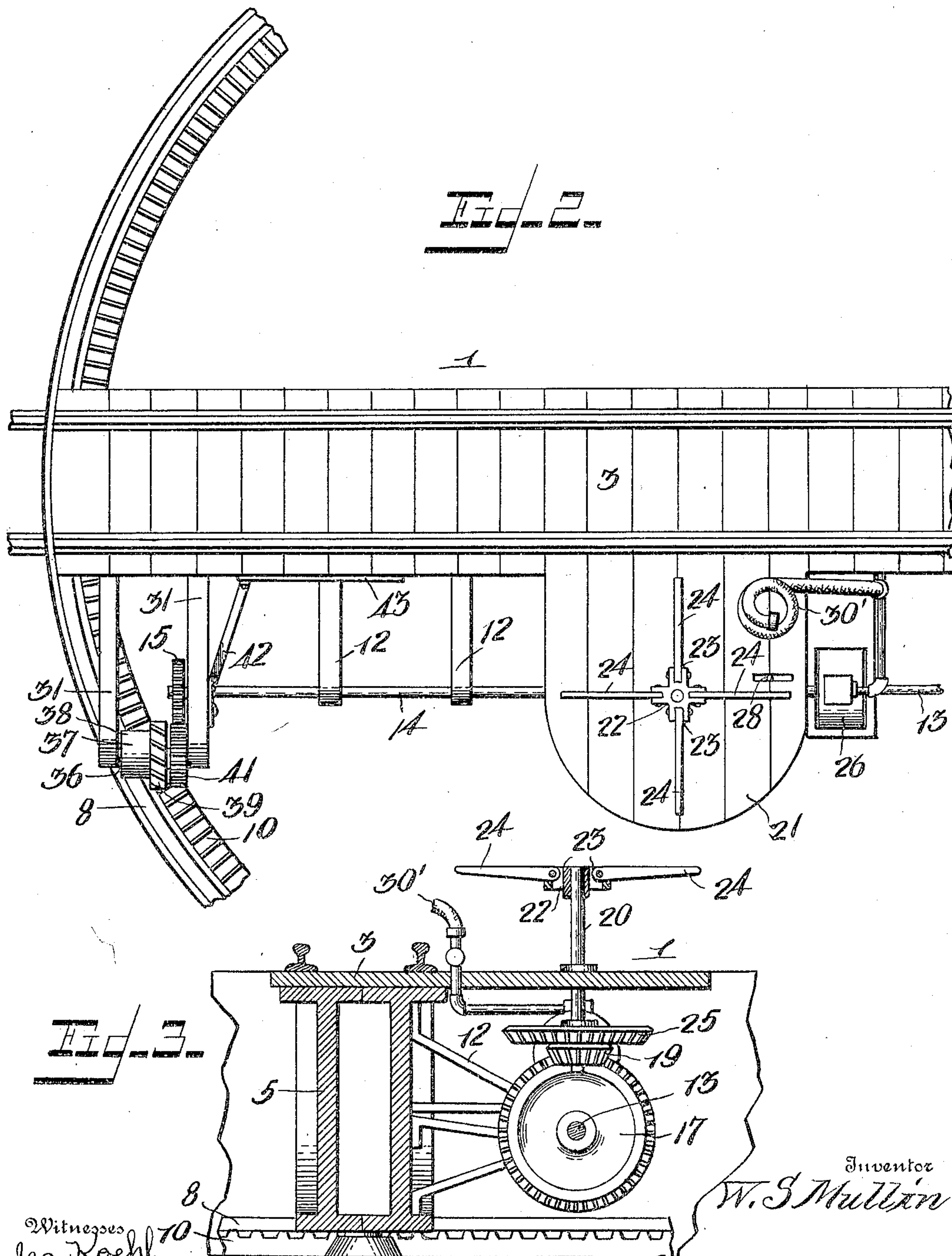
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2 SHEETS—SHEET 2.



Witnesses  
for Koehl.

Clayton Birch

Inventor

W. S. Mullin

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# UNITED STATES PATENT OFFICE.

WINFIELD SCOTT MULLIN, OF HYNDMAN, PENNSYLVANIA.

## LOCOMOTIVE TURN-TABLE.

SPECIFICATION forming part of Letters Patent No. 770,916, dated September 27, 1904.

Application filed May 31, 1904. Serial No. 210,599. (No model.)

*To all whom it may concern:*

Be it known that I, WINFIELD SCOTT MULLIN, a citizen of the United States, residing at Hyndman, in the county of Bedford and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive Turn-Tables; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in turn-tables for locomotives.

The object of the invention is to provide a turn-table for locomotives and other railway rolling-stock whereby the same may be quickly and easily turned in either direction.

Another object is to provide means whereby the turning mechanism may be actuated either by hand or other motive power.

A further object is to provide a turning mechanism of this character which will be simple in construction, strong, durable, and so arranged that power will be applied at each end of the turn-table, thereby preventing the dragging of either of said ends.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of a turn-table, showing the application of the invention. Fig. 2 is a top plan view of a portion of the same. Fig. 3 is a vertical cross-sectional view on the line 3 3 of Fig. 1. Fig. 4 is a vertical sectional view on the line 4 4 of Fig. 1.

Referring more particularly to the drawings, 1 denotes a turn-table which is pivotally mounted in the usual manner in the center of a pit 2. The turn-table 1 may be of the ordinary or any suitable construction, and is here shown as consisting of a platform 3 on which is secured the tracks 4. The platform 3 is supported upon transversely-disposed beams 5, the under sides of which incline upwardly toward the outer ends, as shown. The beams 5 are pivoted midway between their ends on

the bottom of the pit and at each end are provided with depending brackets 6, in the lower ends of which are journaled supporting-wheels 7, adapted to run on an annular track 8, arranged near the sides of the pit. On the inner flange of the track 8 is arranged an annular toothed rail or rack 10, which may be formed integral with the track 8 or secured thereto in any suitable manner. On one side of the turn-table are arranged laterally-projecting bearing brackets or hangers 12, in the outer ends of which are formed vertically-disposed guideways or passages, in which are disposed bearing-blocks 12', through which pass the shafts 13 and 14. The bearing-blocks 12' are adapted to have a slight vertical movement in the guideways of the brackets 12 and are supported therein by means of coiled springs, arranged between the same and the upper and lower walls of said passages or guideways. By this means the shafts 13 and 14 are allowed to give slightly, thus relieving the parts of unnecessary jarring and strain and permitting said shaft to be raised or tilted to a slight degree. On the outer ends of the shafts 13 and 14 are fixed spur gear-wheels 15 and 16, and on the inner ends of the same, midway between the ends of the turn-table, are fixed bevel gear-wheels 17 and 18, which are spaced apart, as shown. Arranged between and meshing with both the gear-wheels 17 and 18 at the upper side of the same is a beveled gear-pinion 19, fixed on the lower end of a vertically-disposed shaft 20, which is suitably journaled in vertical bearings on a laterally-projecting platform 21, secured to one side of the main platform 3 of the turn-table.

The shaft 20 projects above the platform 21 a suitable distance and has fixed thereon a head 22, in which is formed a series of radially-disposed sockets 23. In the sockets 23 are pivotally mounted the inner ends of radially-projecting levers 24, of which there may be any suitable number, four being shown in the drawings. When not in use, the levers 24 are adapted to be folded to an upright position, as shown in dotted lines in Fig. 1 of the drawings.

On the shaft 20 below the platform 21 is fixed a beveled gear-wheel 25, to which may



be applied any suitable mechanical or electrical power mechanism, by which power may be utilized to turn the shaft 20. The form of power here shown consists of a small engine 26, which is suitably supported upon the side of the beams 5 of the turn-table, and upon the drive-shaft of the same is slidably mounted a beveled gear-pinion 27, which is adapted to be thrown into and out of engagement with the beveled gear-wheel 25 by means of a suitably-pivoted shifting-lever 28, the forked end of which is engaged with a grooved collar 29, formed on the outer side of said pinion. The lever 28 is suitably pivoted to the framework of the turn-table, as shown.

The inlet-port of the engine 26 is provided with a supply-pipe 30, and the pipe 30 is provided with a threaded nipple, to which may be connected the end of a flexible steam-pipe 30'. This flexible pipe is adapted to be connected to the boiler of the locomotive at either side of the same and in any suitable manner to supply steam to the engine 26. The pipe 30 is provided with a valve, so that when not in use the same may be closed.

At each end of the turn-table are arranged a pair of laterally-projecting bearing arms or brackets 31, the upper ends of each of which are hinged, as at 32, and yieldingly connected to the beam 5 by means of a bolt 33, which passes through one of the beams 5 and has arranged thereon between the upper end of the bracket-arms 31 and the outer side of the beam a coiled spring 34. On the inner end of the bolt 33, between the head of the same and the inner side of the beam, is arranged a coiled spring 35. By thus connecting the bracket-arms 31 with the beams the jar and strain on said arms will be relieved. In the lower ends of each pair of arms 31 is journaled a short shaft 36, on which and between said pairs of arms or brackets 31 is fixedly mounted a combined track and gear wheel 37, the plain or smooth portion 38 of which is adapted to engage the track, while the toothed portion 39 of the same meshes with the teeth of the circular rack or toothed rail 10.

On the shafts 36 adjacent to the toothed portion 39 of the wheel 37 is also fixed a spur gear-wheel 41, which is adapted to mesh with the gear-wheels 15 and 16 on the outer ends of the shafts 13 and 14, whereby the movement of said shafts is imparted to the shafts 36 to drive the combined track and gear wheel 37, and thereby move said turn-table in one direction or the other.

To each pair of bracket-arms 31 is connected the lower end of an upwardly and inwardly projecting arm 42, the upper end of which is pivotally connected to a lever 43, which is in turn pivoted to the platform of the turn-table, as shown, whereby upon operation of said levers 43 the bracket-arms 31 may be raised, thereby disengaging the wheel 37 from the track and tooth rail, when the turn-table may

be pushed or pulled around in the common or ordinary manner.

When it is desired to swing the turn-table in either direction by hand, the levers 24 are turned down in their sockets 23 to a horizontal position, when they may be grasped by a suitable number of men, who walk around on the platform 21 and push or pull said levers, thereby turning the shaft 20 and the pinion 19, which will turn the gear-wheel 17 and shaft 13 in one direction and the wheel 18 and shaft 14 in the opposite direction, which will turn the spur gear-wheels 15 and 16 in opposite directions on the rack 10, thereby pushing one end of the turn-table and simultaneously pulling the other, thus preventing either end from dragging, as is frequently the case with turn-tables now in use. By this arrangement a double force is applied, which greatly facilitates the turning of the table.

When it is desired to turn the table with the engine 26, the shifting-lever is operated to slide the pinion 27 on the drive-shaft of the engine into engagement with the beveled gear-wheel 25, and the engine is then started, thereby turning said gear-wheel and the shaft 20, which will drive the horizontal shafts 13 and 14, as hereinbefore described, to turn the table in one direction, a reversal of the engine being necessary to turn the table in the opposite direction.

While I have shown and described a steam-engine as the motive power for mechanically operating the turn-table, it is obvious that a hydrocarbon, electric, or any other suitable form of motor may be used, if desired.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a turn-table for locomotives, the combination with the platform having suitable supporting-beams pivotally mounted in the center of a pit, of an annular track arranged on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted to engage said track, an annular rack arranged in said pit, horizontally-disposed shafts arranged on the side of said table, pinions fixed on the outer ends of said shafts, gears adapted to mesh with said rack, means whereby the pinions on said shafts are connected with said gears to turn the same, and means whereby said shafts and pinions are simultaneously driven to move said turn-table in one direction or the other, substantially as described.



2. In a turn-table for locomotives, the combination with the platform having suitable supporting-beams pivotally mounted in the center of a pit, of an annular track arranged  
 5 on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted to engage said track, an annular rack arranged in said pit, horizontally-disposed shafts arranged on the side of said table, spur-pinions  
 10 fixed on the outer ends of said shafts, gears adapted to mesh with said rack, means whereby the pinions on said shafts are connected to said gears to turn the same, gear-wheels fixed on the inner ends of said shaft in juxtaposition  
 15 to each other, a vertically-disposed shaft carried by said turn-table, a pinion fixed on the lower end of said shaft to engage both of said gear-wheels, and means whereby said vertical shaft and pinion may be driven either by hand  
 20 or other motive power to simultaneously drive said horizontal shafts, and thereby turn the table in either direction, substantially as described.

3. In a turn-table for locomotives, the combination with the platform having suitable supporting-beams pivotally mounted in the center of a pit, of an annular track arranged on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted  
 30 to engage said track, an annular rack arranged in said pit, horizontally-disposed shafts arranged on the side of said table, spur-pinions fixed on the outer ends of said shafts, gears connecting said pinions with said rack, gear-  
 35 wheels fixed on the inner ends of said shaft in juxtaposition to each other, a vertically-disposed shaft carried by said turn-table, a pinion fixed on the lower end of said shaft to engage both of said gear-wheels, a head fixed on the upper end of said shaft, radially-disposed  
 40 levers pivoted to said head whereby said shaft may be turned in either direction, and means whereby said lever may be folded to an upright position when not in use, substantially as described.

4. In a turn-table for locomotives, the combination with the platform having suitable supporting means pivotally mounted in the center of a pit, of an annular track arranged  
 50 on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted to engage said track, an annular rack arranged in said pit, horizontally-disposed shafts arranged on the side of said table, spur-pinions  
 55 fixed on the outer ends of said shafts, means for connecting said pinions with said rack, gear-wheels fixed on the inner ends of said shaft in juxtaposition to each other, a vertically-disposed shaft carried by said turn-table,  
 60 a pinion fixed on the lower end of said shaft to engage both of said gear-wheels, a head fixed on the upper end of said shaft, radially-disposed levers pivoted to said head whereby said shaft may be turned in either direction,  
 65 and means arranged on said shaft whereby

the same may be driven by a motor, substantially as described.

5. In a turn-table for locomotives, the combination with the platform having suitable supporting-beams pivotally mounted in the  
 70 center of a pit, of an annular track arranged on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted to engage said track, an annular rack arranged in said pit, horizontally-disposed yield-  
 75 ingly-mounted shafts arranged on the side of said table, spur-pinions fixed on the outer ends of said shafts, gearing connecting said pinions with said rack, gear-wheels fixed on the inner ends of said shaft in juxtaposition  
 80 to each other, a laterally-projecting platform secured to the side of said turn-table, a vertically-disposed shaft journaled in said platform, a pinion fixed on the lower end of said shaft to engage both of said gear-wheels,  
 85 means secured to the upper end of said shaft whereby the same may be turned by hand-power, a gear-wheel fixed on said shaft, a motor carried by said turn-table, a pinion slid-  
 90 ably mounted on the drive-shaft of said motor, and means whereby said pinion may be shifted into and out of engagement with the gear-wheel on said vertical shaft, thereby driving the same by said motor, substantially  
 95 as described.

6. In a turn-table for locomotives, the combination with the platform having suitable supporting-beams pivotally mounted in the center of a pit, of an annular track arranged  
 100 on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted to engage said track, an annular rack arranged in said pit, horizontally-disposed shafts yieldingly mounted on said supporting-beams,  
 105 pinions fixed on the outer ends of said shafts, hinged bearing-brackets, yieldingly connected to said supporting-beams, at each end of the same, shafts mounted in said brackets, combined track wheel and gear fixed on said  
 110 shafts to engage said track and annular rack, spur-gears also fixed on the shaft to engage the pinions on said horizontally-disposed shafts, means whereby said hinged brackets are raised to disengage said combined track  
 115 wheel and gear from said annular track and rack, and means whereby said horizontally-disposed shafts are driven to move said turn-table in either direction, substantially as described.

7. In a turn-table for locomotives, the combination with the platform having suitable supporting-beams pivotally mounted in the  
 120 center of a pit, of an annular track arranged on the bottom of said pit, supporting-wheels carried by the ends of said beams and adapted to engage said track, an annular rack arranged in said pit, horizontally-disposed shafts  
 125 yieldingly mounted on said supporting-beams, pinions fixed on the outer ends of said shafts, hinged bearing-brackets, yieldingly connect-  
 130



ed to said supporting-beams, at each end of  
the same, shafts mounted in said brackets,  
combined track wheel and gear fixed on said  
shafts to engage said track and annular rack,  
5 spur-gears also fixed on the shaft to engage  
the pinions on said horizontally-disposed  
shafts, and a system of arms and levers con-  
nected to said hinged brackets whereby the  
same may be slightly raised to disengage said  
10 combined track wheel and gear from said  
track and rack, and means whereby said hori-

zontally-disposed shafts are driven to turn  
said pinions and gears, and thereby move said  
turn-table, substantially as described.

In testimony whereof I have hereunto set 15  
my hand in presence of two subscribing wit-  
nesses.

WINFIELD SCOTT MULLIN.

Witnesses:

O. T. JOHNSON,  
GEO. S. MULLIN.