

No. 651,648.

Patented June 12, 1900.

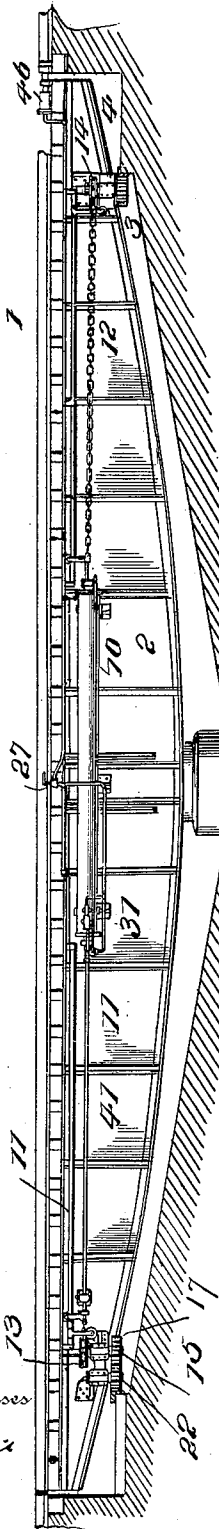
H. BREITENSTEIN.
RAILWAY TRANSFER TABLE.

(Application filed Oct. 25, 1899.)

(No Model.)

4 Sheets—Sheet 1.

FIG. 1.



Witnesses
J. H. Eager
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FIG. 2.

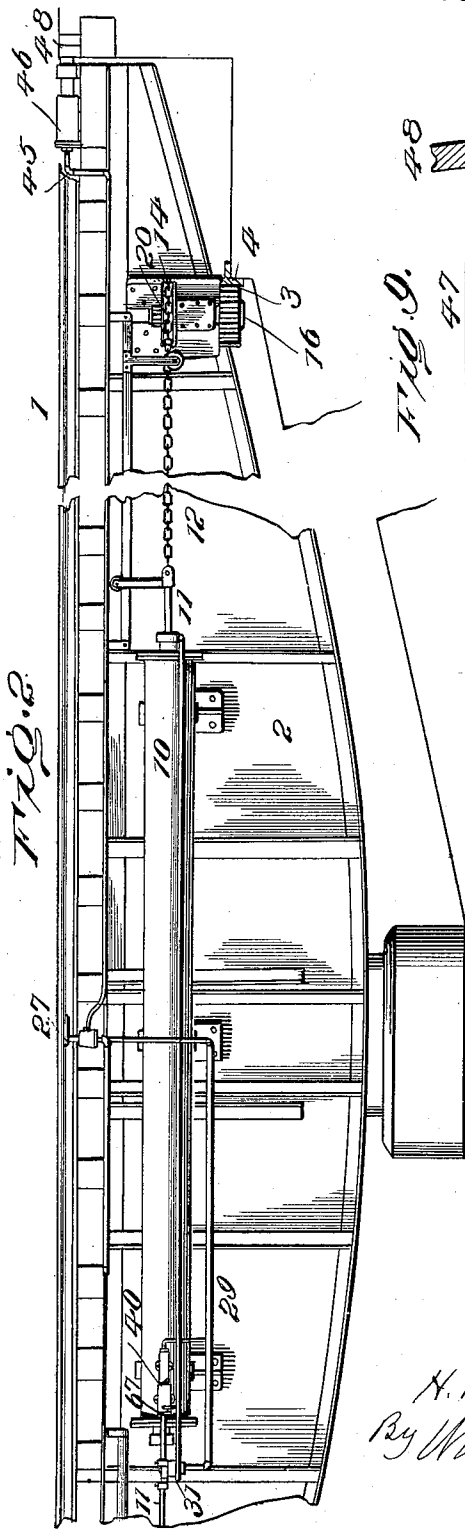
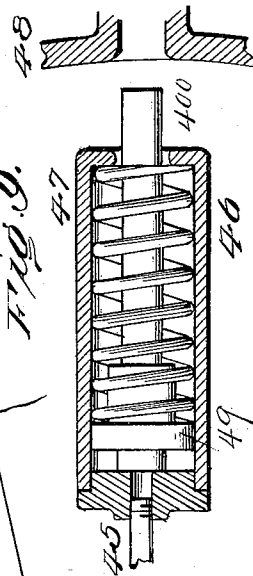


FIG. 3.



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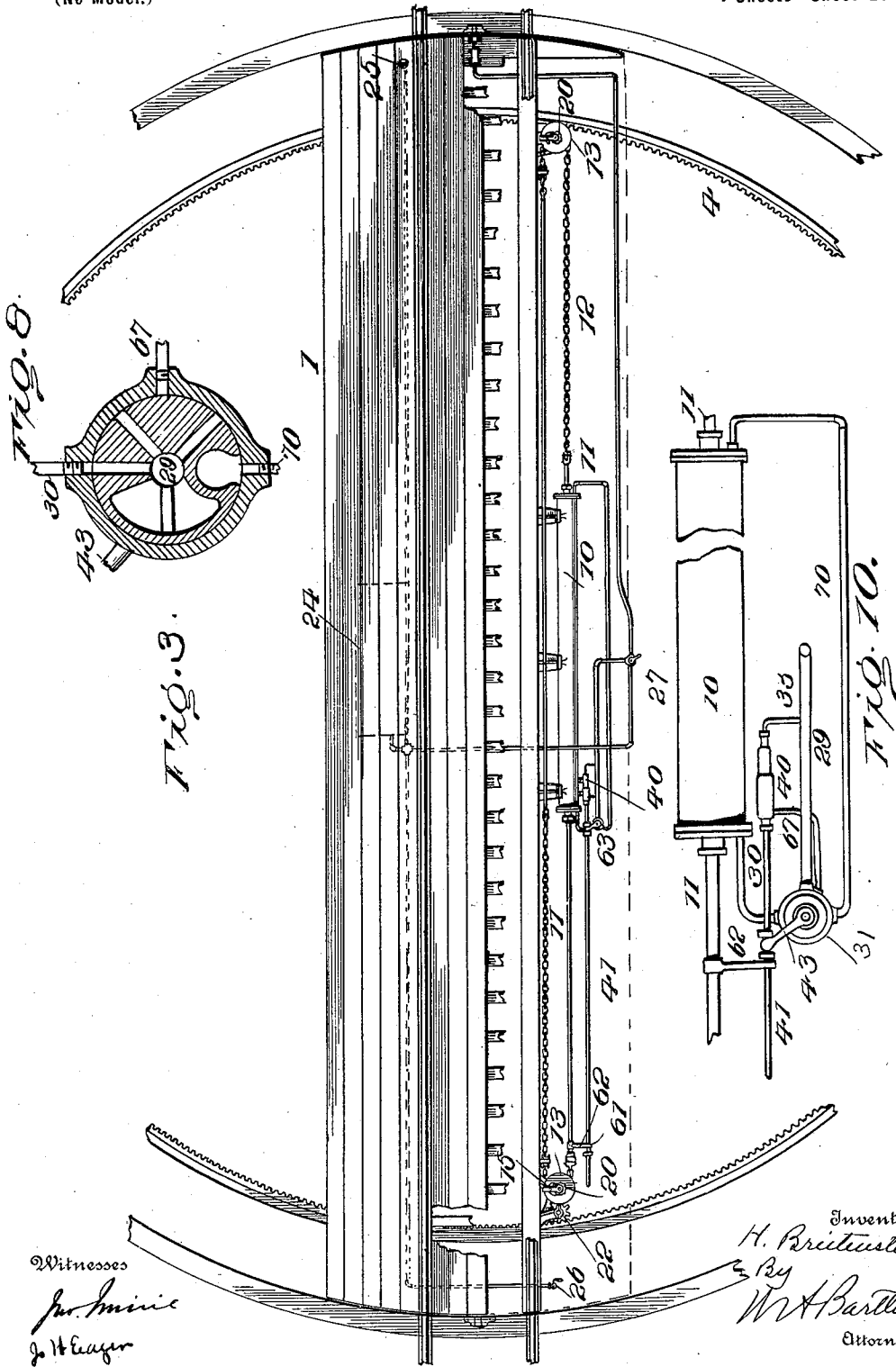
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4 Sheets—Sheet 2.



Witnesses

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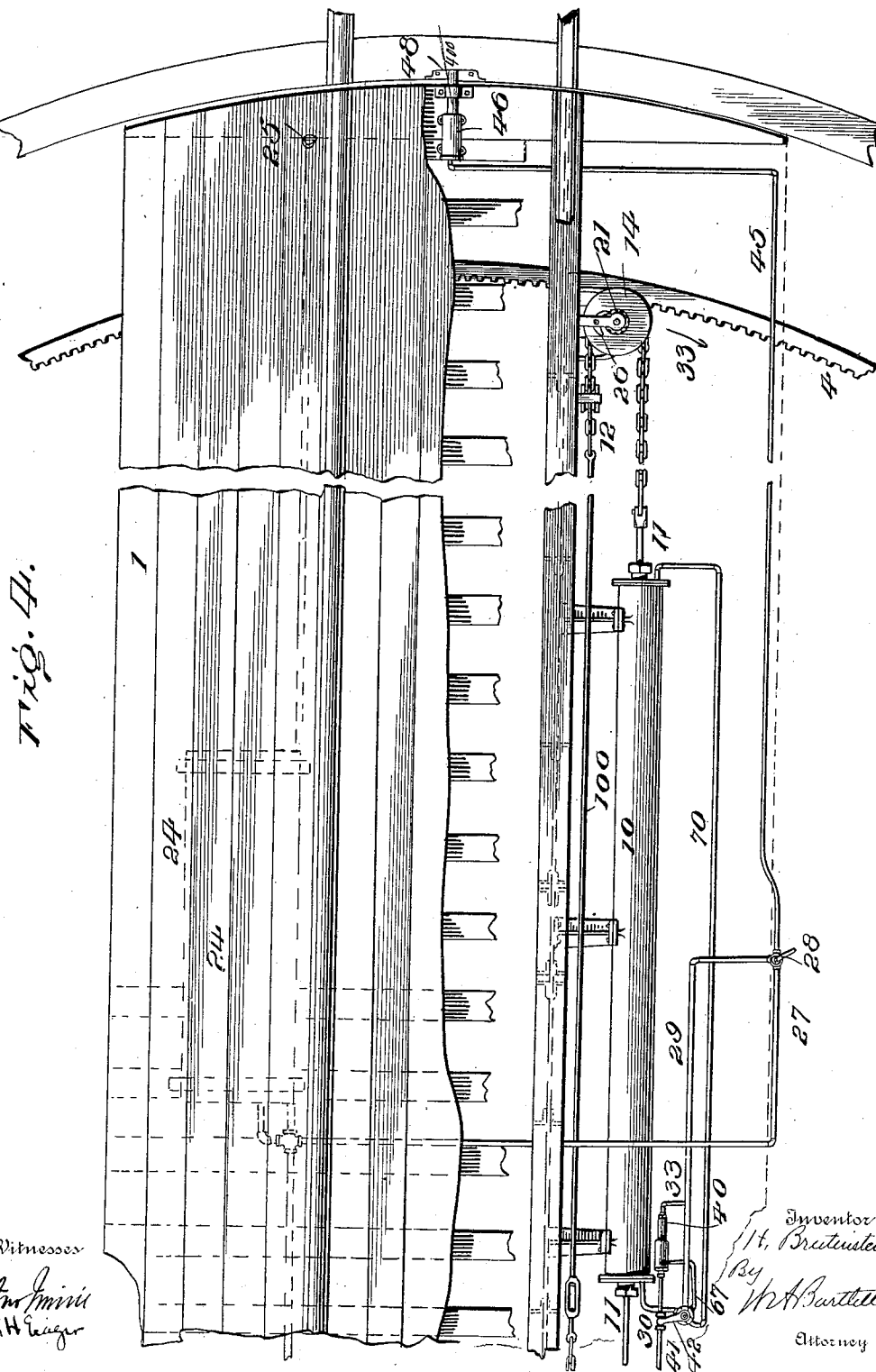
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4 Sheets—Sheet 3.



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4 Sheets—Sheet 4.

Fig. 5.

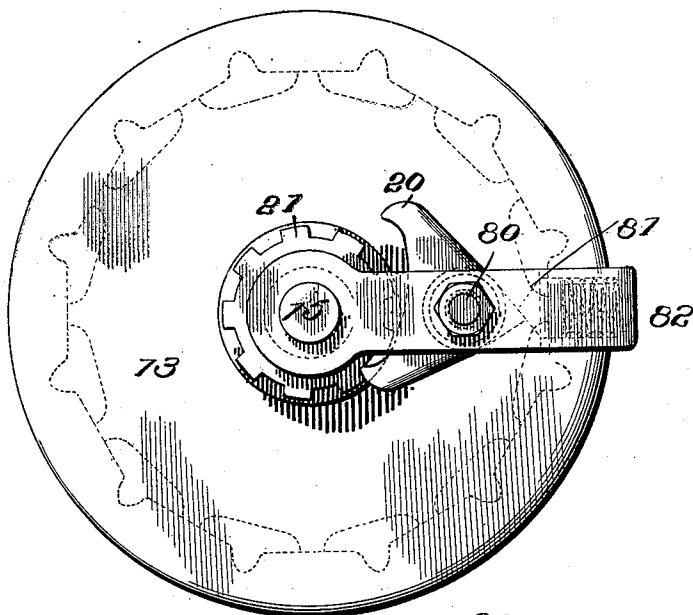


Fig. 6.

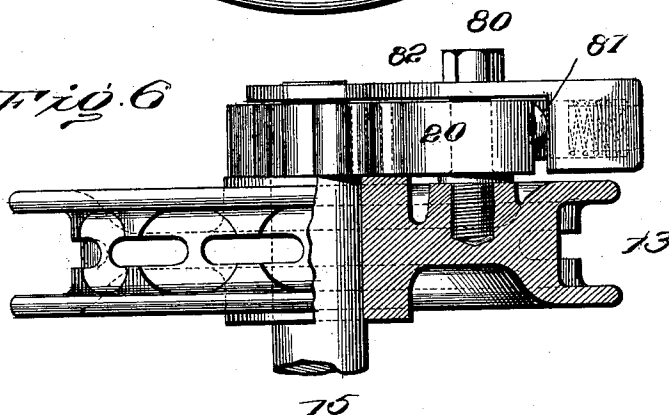
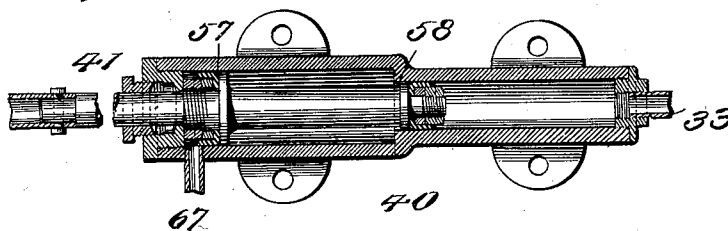


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY BREITENSTEIN, OF LARAMIE, WYOMING.

RAILWAY TRANSFER-TABLE.

SPECIFICATION forming part of Letters Patent No. 651,648, dated June 12, 1900.

Application filed October 25, 1899. Serial No. 734,740. (No model.)

To all whom it may concern:

Be it known that I, HENRY BREITENSTEIN, a citizen of the United States, residing at Laramie, in the county of Albany and State of Wyoming, have invented certain new and useful Improvements in Railway Transfer-Tables, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to shifting or turn tables for railways and like heavy structures.

The object of the invention is to produce a turn-table which may be operated mechanically, preferably by an air-supply which may come from a locomotive on the table, but may be stored in a reservoir on the table and receive reinforcement, when needed, from the locomotive. The mechanism of the device is arranged with relation to the source of supply and to utilize the power to advantage. The movement of the table may be continuous in one direction, although the piston movement by which the table is propelled may be reversed; and the invention consists in certain constructions and combinations of mechanical elements, substantially as hereinafter described.

Figure 1 is a side elevation showing many of the operative parts of the turn-table. Fig. 2 is a broken elevation, on a larger scale, showing the actuating-cylinder and connections and the general relation of parts. Fig. 3 is a broken plan showing the general arrangements of the parts of the device, and Fig. 4 is an enlarged view of some of the same. Fig. 5 is a plan of the wheel and ratchet. Fig. 6 is an elevation and partial section of the same. Fig. 7 is a longitudinal section of the cylinder for reversing valve. Fig. 8 is a horizontal section of three-way cock 31. Fig. 9 is a longitudinal section of locking-bolt. Fig. 10 is a plan of operating-valve, auxiliary cylinder, and connections.

45 The main table is of any usual or approved construction, being supported by trusses 2, centrally pivoted or otherwise, as desirable. The table is constructed to be rotated by gears 3 and 22, engaging with circular rack 4, the rack being inside the periphery of the table and sunk in the pit. In light tables friction-gears might be used instead of tooth-gears.

The main cylinder 10 has a piston of the air-lift type, the piston-rod 11 projecting at

each end of the cylinder and connecting to the chain 12, which chain extends around the chain-wheels 13 and 14 and may be continuous or may be in part a rod 100. The chain-wheels 13 and 14 are loose on shafts 15 and 16, which shafts are supported in suitable bearings connected to truss 2 or to other suitable support.

Shaft 15 carries a pinion 17, which engages intermediate gear 22, before referred to. Shaft 16 carries one of the gears 3.

A pawl 20 is so arranged in relation to each of the chain-wheels 13 and 14 and to a pinion 21, connected with the shaft thereof, that the rotation of the chain-wheels causes the one or the other of the pawls to operatively engage the pinion on one of the vertical shafts. Such arrangement of pawl with a driving-wheel is well known and forms no part of the present invention, save in its adaptation to this particular purpose.

The pinion 17 engages an intermediate pinion 22, which in turn engages rack 4. Thus it will be seen that the movement of piston-rod in one direction will throw driving-pinion 3 into operative engagement with rack 4, while a reverse movement will engage the other rack, one of the chain-wheels being at all times free, by means of the pawl-and-ratchet engagement.

The table preferably carries a reservoir 24, (dotted lines,) which reservoir may receive compressed air from a locomotive on the table by means of pipe connections 25 or 26. The reservoir 24 when charged should contain compressed air enough to work the table for a short time, or the pipes 25 and 26 may conduct the air directly to the operation of the table, as will be explained. The air from reservoir 24 or from the locomotive finds its way to pipe 27.

A four or multiple way valve at 28 controls the operation of the device. When this valve is set to conduct the air by pipe 29 to the center of the four or multiple way valve 31, the air also passes from pipe 29 by pipe 33 to the small end of auxiliary cylinder 40, and acting on the piston within said cylinder moves piston-rod 41, which engages lever 43 and turns valve 31 to admit air by pipe 30 to one end of cylinder 10. The air then acts on the piston in said cylinder to move the piston-rod 11. The piston-rod 41 has tappets 61 and 63 in line of movement of arm 62 on piston 11. As shown

in Fig. 3, when the arm 62 has moved far enough to strike tappet 63 it will move piston-rod 41 and so turn the four or multiple way valve 31 as to cut off the air from pipe 30 and direct it through pipe 70 to the other end of the cylinder 10, at the same time allowing the air to exhaust through pipe 30 in a manner common in valves of this character. The air-pressure will now reverse the movement of piston 11; but the pawl at the other end of the table will be thrown into engagement, so as to move the train connected with the chain-wheel 14, and, as this train has no intermediate, the movement of the wheel 13 in the opposite direction of the movement of the wheel 14 will continue the same rotary movement of the turn-table, the engagement of chain-wheel with one driving-train disengaging the other train, as will be understood. The auxiliary cylinder 40 has cylindrical chambers differing in diameter in which are two pistons 57 and 58, both connected to rod 41. As the cylinder 10 is much larger than either chamber of cylinder 40, the pistons in cylinder 40 will be moved therein when the arm 62 strikes the tappets on piston-rod 41, notwithstanding the air-pressure in cylinder 40. A pipe 67 leads from valve 31 to the large end of auxiliary cylinder 40. The engagement of arm 62 with the tappet 63 turns valve 31 to position to pass air through pipe 67 to the large end of cylinder 40, where the pressure on piston 57 exceeds that on piston 58, and the piston-rod 41 holds the valve 31 in position to deliver air to the right-hand end of cylinder 10 until the arm 62 of piston-rod 11 engages tappet 61 and turns valve 31 to repeat the former operation. Thus it is possible to continue the rotation of the turn-table in one direction as long as compressed air is admitted to pipe 27.

To stop the table, the four or multiple way cock or valve 28 is moved to position to cut off the air from pipe 29 and turn it into pipe 45. The air in the pipe 45 entering the cylinder 46 will press the piston 49 against the pressure of spring 47 and overcoming the spring will push the locking-bolt 400 to its seat in the notch in socket 48, thus locking the turn-table. Whenever the air-pressure is cut off from piston 49, the spring 47 unlocks said bolt by pressing back the piston 49 and its bolt or rod 400.

If it is desired to reverse the movement of the turn-table, the position of pawls 20 can be changed by hand. This is effected by turning the pawls on pivots 80, the double incline yielding for the purpose, and engaging on the other side of the double pawl 20, which is housed in housing 82. Such construction of pawl and ratchet-wheel is not here claimed.

It will be understood that steam or water pressure might be utilized for the operation of the pistons. Air-pressure is preferred, as most locomotives have air-compressing mechanism, and such can be quickly connected to the reservoir on the turn-table, and enough

air can be left in the reservoir to operate the turn-table for turning a car should such be desired.

It will be understood that the mechanism with but slight alteration might be applied to a shifting table or traveling crane, as well as to a turn-table, the difference being merely one of engaging a straight rack by the pinions 3 and 22 instead of a curved rack.

The salient feature of the invention is the ability to continue the table movement in one direction notwithstanding the reversal of direction of the piston movement in the driving-cylinder.

What I claim is—

1. In a turn or shifting table as described, a motor-cylinder and means for supplying a propelling medium thereto alternately at each end, a chain connected to the piston in said cylinder, a chain-wheel at each end of the table driven by said chain, and shifting pawls connecting one or the other chain-wheel to a driving-pin on the table engaging a fixed rack outside the table, all combined substantially as described.

2. In a turn-table as described, an operating cylinder and piston, a chain connected to said piston, chain-wheels at each end of the table driven by said chain, means for connecting said chain-wheels alternately to a driving-pin, a fixed rack outside the table, and an intermediate pinion engaging one of the driving-pinions and rack, whereby the reciprocation of the piston causes a continuous movement of the table, substantially as described.

3. In a turn-table as described, the main driving cylinder and piston, a multiple-way valve, and an auxiliary cylinder having pipe connections from such valve, and having connections to cause the valve movement, and means connected to the main piston by which the valve may be moved without regard to the auxiliary chamber, all combined substantially as described.

4. In a turn-table, the main cylinder and piston, the auxiliary cylinder having pressure areas of different size at its opposite ends, and the multiple-way valves connected to opposite ends of said main cylinder and to the auxiliary cylinder, all combined substantially as described.

5. In a turn-table, the combination of the main and auxiliary cylinders and the three-way valve connecting the same, the chain connected to the piston in the main cylinder and the chain-wheels at opposite ends of the table, and driving-pinions alternatively connected to the chain-wheels by reversible pawls, all substantially as described.

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

HENRY BREITENSTEIN.

Witnesses:

FRANK W. CHAMPION,
JOHN W. ERNEST.