Feb. 23, 1926.

1,574,271

R. G. WILCOX

TURNTABLE

Filed August 13, 1925

3 Sheets-Sheet 1

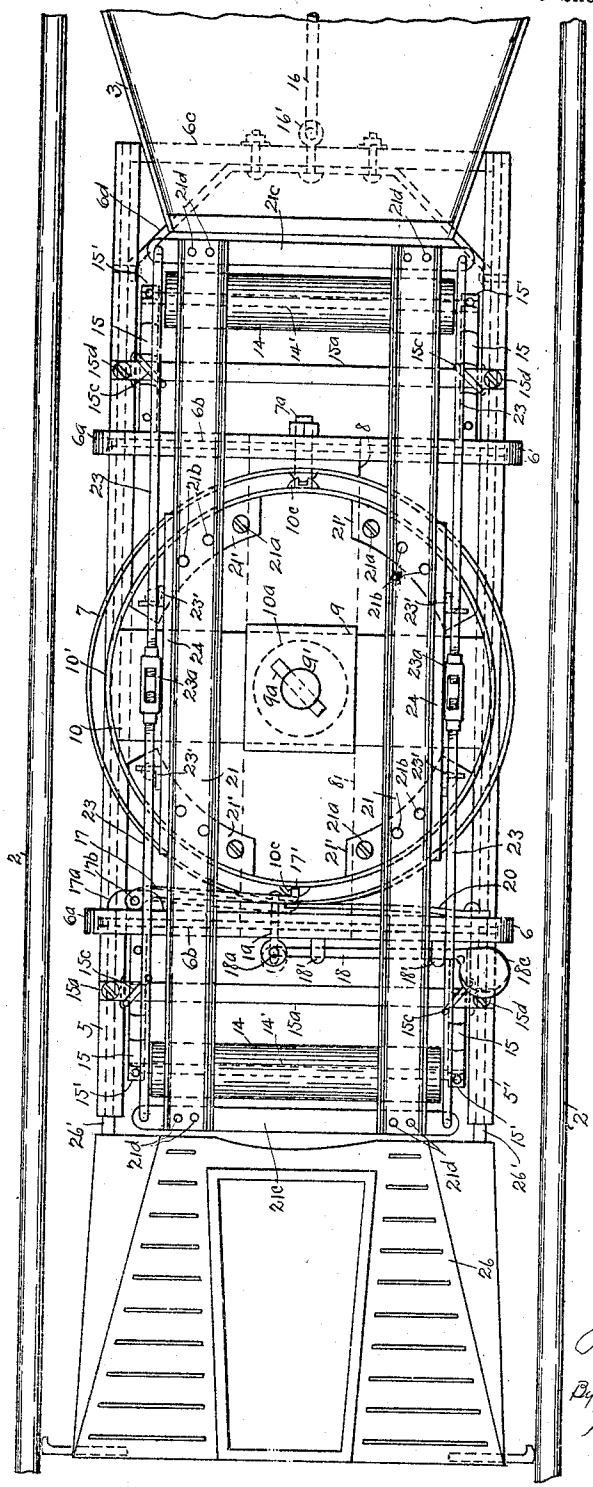


FIG. 1.

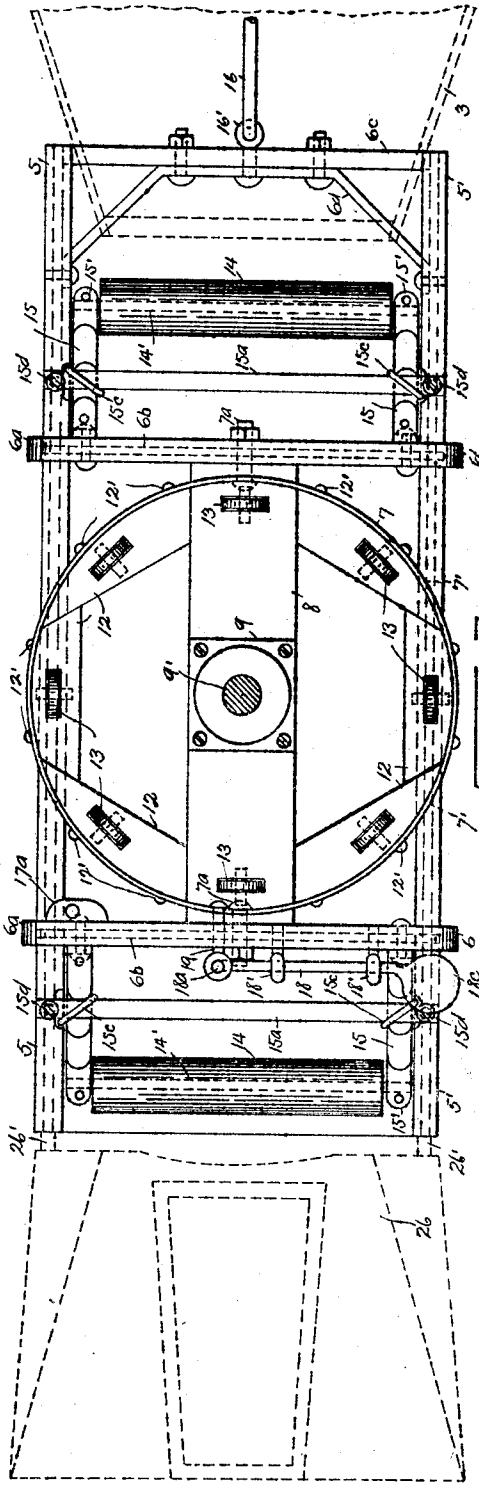
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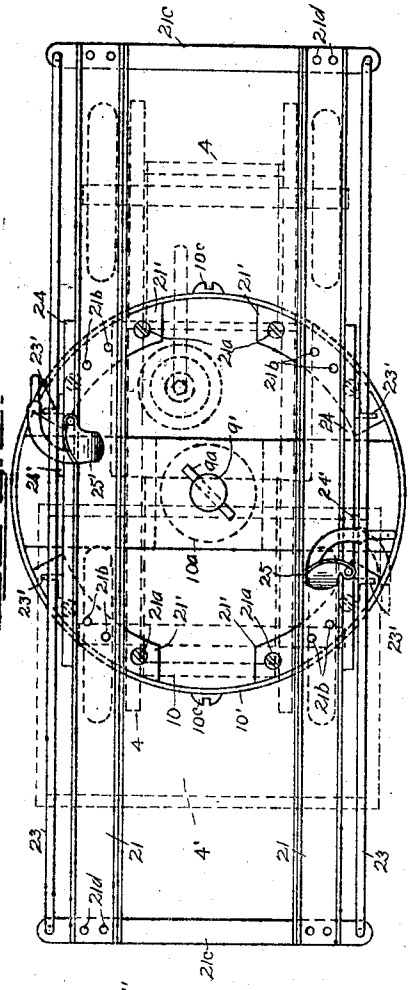
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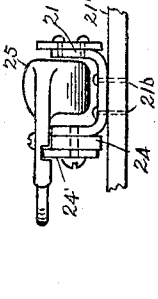


Fig. 3

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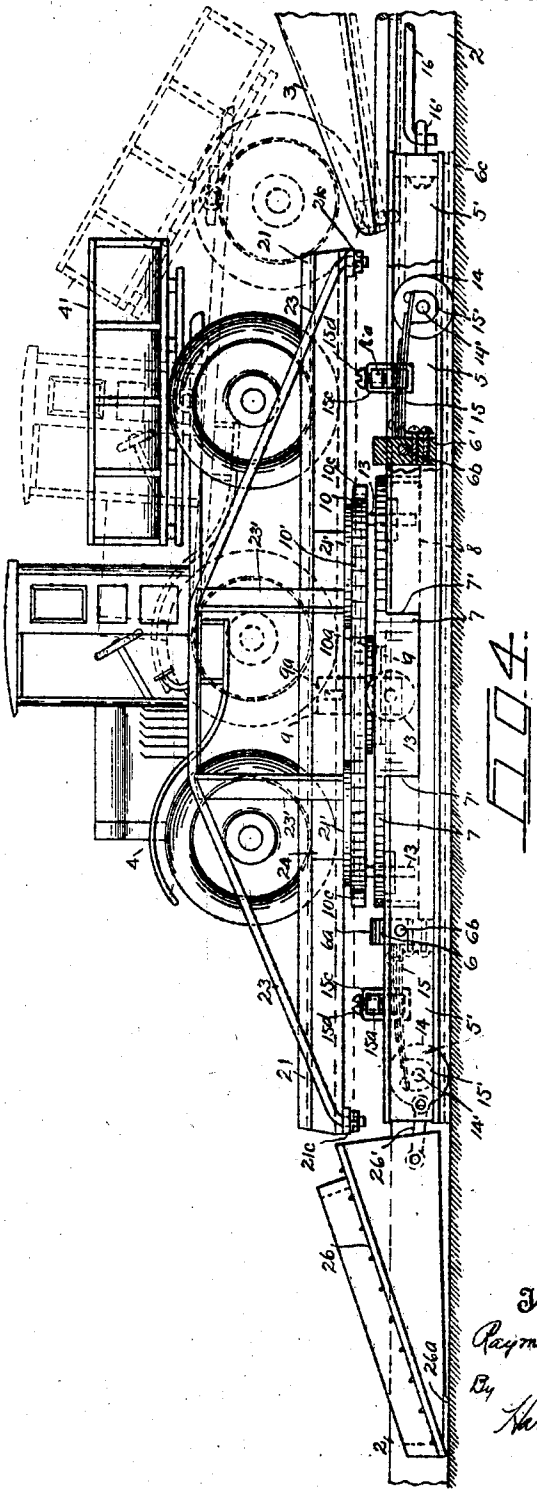


Fig. 4.

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UNITED STATES PATENT OFFICE.

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TURNTABLE.

Application filed August 13, 1925. Serial No. 50,037.

To all whom it may concern:

Be it known that I, RAYMOND G. WILCOX, a citizen of the United States, residing at Hannibal, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Turntables, of which the following is a specification.

This invention relates to improvements in turntables, designed for use in connection with the well-known pavers employed for concrete and other highway construction work.

The primary object of the invention is to provide a novel and simple turntable, which may be connected directly to and rendered movable with the paver, the said table preferably being operatively disposed between the usual form-rails or curbs, which gage the lateral margins of the paving, and being rotatable in a plane above and clear of said rails. A further object is to provide a base upon which the table is rotatable, the said base being supported by rollers, by means of which the entire turning mechanism may be trundled forwardly and backwardly between the form-rails, or may be moved from one job to another, and said rollers tending to smooth and pack the newly excavated road-bed; the connections between the base and the said rolls comprising springs, that are constructed and applied in a novel manner, to provide a four-point resilient support for the turning mechanism; the power of the said springs preferably being so regulated that the unloaded turntable and base may be elevated and held above and clear of the roadbed, for rendering said parts freely movable from one location to another on the rollers; the said base being arranged to be lowered by the flexing of said springs until certain parts rest upon the earth, when loads of concrete and other paving material, which are usually carried by auto or other dump-trucks, are driven upon the revoluble portion of the turning apparatus, for preventing accidental shifting of the parts during the turning and dumping operations. A further object is to provide novel stop mechanisms, whereby the dump-truck may be suitably positioned upon the table, and also novel means for locking the table at the end of each half-revolution, whereby the longitudinal axes of the table, the truck, and the paver may be maintained parallel to the form-rails, while the trucks are being moved towards and away from the paver.

I attain these objects by the means set forth in the detailed description which follows, and as illustrated by the accompanying drawings, in which—

Figure 1 is a top-plan view of the complete turntable mechanism; showing its relation to the form-rails, and to the skiff of the paver. Fig. 2 is a similar view of the base of the turntable. Fig. 3 is a top-plan view of the revoluble table, in which dotted lines show a dump-truck headed towards the paver, and ready to be turned for effecting the dumping of its load. Fig. 4 is a side elevation of the complete turntable mechanism, the approach, and a portion of the paver, wherein full lines show the dump-truck at the end of the turning operation, and dotted lines show the rear-wheels of the truck backed on to the skiff, and the tray tilted for depositing the load in the skiff. Fig. 5 is a detail view showing the means for locking the wheel-stops.

In the drawings, 2 represents similar spaced parallel form-rails or temporary curbs, which are usually made fast to the level excavated roadbed, for gaging the breadth of the strips of concrete or other road surfacing; the concrete being prepared by a mixing machine or paver, of any suitable construction, of which only a portion of the tiltable skiff, or charging member 3, is shown. Ordinarily the paving is laid in two or more parallel contiguous strips, the latter being usually formed separately, and the rails 2, being taken up and relaid at intervals, as the paving work progresses. The paver, usually self-propelled, is disposed between the rails 2, and is moved forwardly, following the completion of each block of forty or fifty feet of the paving. The materials for the concrete are usually prepared at some convenient distant point, and are then hauled to the paver by auto dump-trucks, as 4, as best seen in Fig. 4. In the present case, the dump-trucks, both when loaded and unloaded, traverse the space between the rails 2, and approach the paver when loaded headon, as shown by dotted lines in Fig. 3, after which the truck turned end-for-end, as shown by the full

lines in Fig. 4, ready for the dumping of the load into the skiff 3 (see dotted lines in Fig. 4).

The reversing of the loaded trucks, is effected by means of a novel and simple turntable, which will now be described: The non-revoluble base of the apparatus, comprises a pair of I-beams, or like members 5—5′, which are spaced and disposed parallel to each other, as well as to the rails 2. These I-beams are preferably tied together for forming a rigid frame, by means of cross-ties 6—6′, whose bodies depend between the I-beams, while extended end-portions 6^a rest upon and project beyond the tops of the said beams. The ties 6 may be secured to the beams 5 by any suitable means, as by rods 6^b, which may pass longitudinally through the ties, and transversely through the webs of the I-beams, as shown in Figs. 1, 2 and 4. The rear ends of the girders 5—5′ are preferably tied and spaced by a cross-bar 6^c, which co-operates with other parts, for supporting the forward end of the skiff 3 during the dumping operations. Between the cross-ties 6—6′ is disposed the circular base portion of the turntable, which preferably comprises a band or ring of metal 7, of greater diameter than the spacing of the I-beams, whose lower lateral edges are preferably cut-away, as at 7′ (see Fig. 4) for allowing the said edges to sink below the tops of the beams, by which the band is mainly supported. The central portion of the band 7 is preferably anchored to the cross-tie 6, by bolts 7^a (see Figs. 1 and 2). A timber or like member 8 extends longitudinally and centrally across the band 7, to which it may be rigidly secured, in any well-known manner, the said timber also being rigid to the ties 6—6′. Upon the member 8 is mounted a pivot plate 9, which is bored out concentrically to the band 7 to receive a pivot bolt or pin 9′, which comprises the axis of the turntable 10. Interiorly the band 7 is fitted with angular wood or metal parts 12, which may be held in place by any suitable means, as fasteners 12′, as best seen in Fig. 2. These angular parts are provided mainly for supporting a plurality of friction rollers 13, which engage and support the underside of the table 10, and permit its free rotation, in a well-known manner. The rear-end of the base frame is reinforced by an angular brace 6^d, which is respectively secured to the I-beams 5—5′ and the bar 6^c, as shown in Figs. 1 and 2. The entire weight of the base, as well as the superposed table 10 and related parts, is supported by similar front and rear traction rollers 14, which normally rest upon the earth, and afford means for trundling or moving the turntable mechanism from place to place. The rollers 14 are connected to the cross-ties 6—6′, by similar leaf-springs 15, as shown in Figs. 1, 2 and 4, wherein the bases of said springs are rigidly bolted to the said ties, while their free ends are fitted with bearings 15′, in which shafts 14′ of the rolls 14 journal. The combined tension of these springs is preferably such that the springs tend to lift and resiliently hold the turntable base a few inches above and clear of the earth when the table 10 is unloaded, as shown in Fig. 1, and by the full lines in Fig. 4, thereby facilitating the free movement of the table and related parts, in either direction longitudinally. The springs 15 yield, when the normal weight of the turntable mechanism is augmented by the weight of a truck-load of material, sufficiently to cause the I-beams 5—5′ to make firm contact with the earth (see dotted lines Fig. 4), by which the greater portion of the weight of the truck and its load is sustained. This tends to relieve the springs and the bearings 15′ of all abnormal and injurious strains and prevents accidental shifting of the turning mechanism during the dumping operations. The medial portions of the springs 15 are preferably supported by transverse bars 15^a, whose opposite ends normally rest upon the tops of the I-beams 5—5′, the said bars being connected to the springs by stirrups 15^c, and the said bars being adjustable vertically by means of set screws 15^d, by means of which the springs 15 may be raised and lowered for correspondingly varying the clearance between the bottoms of the I-beams and the road-bed. The bars 15^a also tend to lessen the strains upon the bases of the springs which are supported by the cross-ties 6—6′, and produces virtually a cantilever effect, which is desirable. The turntable base is preferably connected to the running-gear of the paver, by means of a rod or coupler 16, the forward end of the latter being shown pivoted to the rear tie 6^c, by means of eye-bolt 16′ (see Figs. 1, 2 and 4).

The turntable proper consists of a circular body 10, which may be wood or other suitable material, and is preferably enclosed and firmly bound by an annular metal part 10′. Upon the bottom face of the body 10 is secured a pivot plate 10^a, similar to the part 9, which is also perforated to receive the pivot pin 9′, around which the table revolves. The pin 9′ may be held in place by any means, as by a key 9^a, which passes through a slot in the upper end of the pin, as shown in Figs. 1, 3 and 4. At the forward and rearward sides of the table 10, I provide notched lugs or projections 10^c, which are arranged to be successively engaged by a tooth 17′ of a tension controlled latch-bar 17, for locking and holding the table at the end of each half turn, as shown in Fig. 1. The outer end of the latch-bar is pivoted to a support 17^a carried by cross-bar 6, by a pin 17^b. The latch 17 is released for per-

mitting the table 10 to be rotated, by a rod 18, which is shown rockably supported by eye-bolts 18′, the latter being secured to the tie 6. The inner end 18ª of the rod 18 is bent upwardly and passes loosely through the eye of a rod 19, the said rod passing loosely through the said cross-tie and connecting with the latch-bar 17, whereby the rocking of the rod 18, by the depressing of a pedal 18ᵉ formed on the outer end of said rod, swings the free end of the latch-bar 17 away from the lugs 10ᵉ, and allows the table 10 to be rotated. A spring-bar 20, mounted horizontally near the opposite end of the tie 6 and engaging the free end of the latch-bar exerts a constant tension for moving the latch-bar towards the table, when the pressure on the pedal 18ᵉ is relaxed, so that the latch is normally held ready to snap into the radial notches of the lugs 10ᵉ, when the table is turned. Upon the table 10 is rigidly mounted parallel channel-shaped tracks 21, which support the dump-trucks 4. These tracks are preferably directly supported by curved spacers 21′, which are secured to the top side of the table, by screws 21ª; the said tracks being held in place by bolts 21ᵇ. The opposite ends of the tracks project beyond the body 10, and are preferably tied together by cross-bars 21ᶜ, which are secured by rivets 21ᵈ. The ends of these bars project beyond the tracks 21, and are perforated to receive the ends of similar guy-rods 23, which prevent the ends of the tracks from springing downwardly under the stress of the loaded trucks. The medial portions of the guy-rods are preferably elevated and supported by the upper ends of spaced angle-iron posts 23′, the said posts being suitably supported by the body 10. Each rod 23 may be made in two sections, which may be connected and rendered adjustable by means of turn-buckles 23ª, as shown in Fig. 1. The outer sides of the tracks 21 are reinforced by elongated plates 24, which pivotally support similar stops 25—25′, the latter being arranged to be swung inwardly across the troughs of the tracks 21, in the paths of the truck-wheels, for blocking the progress of the trucks, and when the stops are in the latter position, notches formed in the under edges of their curved handles engage stationary latches 24′ supported by said plates (see Fig. 5), for locking the stops against accidental release. The operator of the turntable usually stands near the pedal 18ᵉ, and within convenient reach of the stop 25 (see Fig. 3). When the truck 4 is driven upon the turntable 10 headon, as shown by dotted lines in Fig. 3, immediately the forward truck wheels pass the middle of the table, the operator swings the stop 25, for example, inwardly in the path of the corresponding rear-wheel of the truck, for stopping the truck, after which he releases the latch 17 by depressing the pedal 18ᵉ, and then rotates the table 10 for reversing the truck, as shown by full lines in Fig. 4. By this turning movement, the stops 25—25′ change positions, so that the released stop 25′ may be operated upon the arrival of the next truck, and so on. After the truck 4 is reversed, the stop 25 may be swung out of the path of the wheels. The truck 4 is next backed towards the paver until its rear wheels drop from the tracks 21 into the skiff 3. The tray 4′ of the truck is then tilted in the direction for depositing its load in the skiff, as shown by dotted lines in Fig. 4. 26 represents the usual approach which is preferably pivotally connected to the I-beams 5—5′ by links 26′ (see Figs. 1, 2 and 4). The approach may be moved over the roadbed with the turntable as the paving progresses, and for this purpose a shoe 26ª is mounted on the front underside of the approach, as shown in Fig. 4.

My invention is extremely simple. The novel construction of the turntable carriage or base, by which a relatively narrow and elongated support suitable for operative disposal between the closely spaced form-rails or curbs 2 (this space is usually 8–9 feet) may be provided; the mounting resiliently of the turntable mechanism upon the traction rollers 14, by which the entire mechanism is supported when unloaded above and clear of the roadbed, and may be trundled in different directions between said rails, by direct connection with the paver, at will, and the mounting of the turning member 10 upon its carriage in such manner that it may be rotated, whether the table is loaded or unloaded, in a plane above and clear of the form-rails, thus obviating all danger of disturbing or weakening the setting of the said rails, are the material and novel features to which I lay claim, and which, so far as I am aware, have never been known or used.

Having thus described my invention, what I claim, is—

1. The combination with a turntable and a carriage for supporting the table, of a plurality of rollers for supporting and trundling said parts from place to place, and resilient means directly connecting said rollers with the carriage adapted to hold the carriage above and clear of the earth when the table is unloaded, said table and carriage adapted to gravitate and to become seated on the earth when a vehicle or other abnormal weight is placed upon the table.

2. The combination with a turntable having spaced tracks for supporting vehicles, a carriage upon which said table is rotatable, means for locking said table after each half revolution thereof, means pivoted adjacent said tracks adapted to stop the forward travel of the vehicles across said table, a

plurality of traction rollers engaging the roadbed adapted for trundling the table and carriage from place to place, and a plurality of springs arranged in pairs resiliently connecting the rollers with the carriage.

3. In a turning apparatus for vehicles, a turntable, a carriage for supporting said table, rollers for supporting and moving said apparatus from place to place, springs arranged in pairs, one pair for each roller, for connecting said apparatus with said rollers, and means for adjusting said springs for effecting the elevation of the apparatus above the earth, said springs adapted to flex by the gravitation of said apparatus towards the earth when the weight of the apparatus exceeds the normal lifting power of said springs.

4. A turntable and a carriage therefor adapted to be operatively mounted between the form-rails employed for high-way construction, rollers for supporting and moving said parts over the roadbed between said rails, said rollers being constantly in contact with and adapted to roll and level the roadbed in advance of paving and like work, and a plurality of springs for resiliently connecting said rollers with said carriage, adapted to hold the carriage away from the roadbed while said parts are being moved from place to place.

5. A turntable and a carriage therefor adapted to be operatively mounted between the form-rails employed in highway construction, rollers for supporting and moving said parts over the roadbed between said rails, said rollers being constantly in contact with and adapted to roll and level the roadbed in advance of paving and like work, a plurality of springs for resiliently connecting said rollers with said carriage, and means for regulating the power of said springs whereby the table and carriage may be elevated above and clear of the roadbed when the turntable is unloaded, said carriage adapted to be moved into contact with the roadbed when a vehicle is driven upon said table.

6. A turntable for use in road construction, including a revoluble member having parallel tracks for supporting vehicles, an elongated base comprising spaced parallel beams, cross-ties for connecting and spacing said beams, rollers disposed near the ends of and between said beams, springs rigid to the cross-ties and pivoted to the axles of and comprising the sole support for the said rollers adapted to resiliently hold said base above and clear of the roadbed, said springs adapted to flex for effecting the firm seating of said beams upon the roadbed when truck loads of material are driven upon said member.

7. A turntable for road construction work, comprising a rotatable member adapted to support vehicles loaded with paving and other material, a rectangular carriage for supporting said member, rollers for supporting and moving said turntable from place to place, said rollers adapted to traverse the roadbed and to roll and level said bed, tension members for connecting said rollers with the carriage, the combined power of said tension members being exerted for lifting and holding said turning mechanism above and clear of the roadbed when no vehicle is being supported by said mechanism, said turning mechanism adapted to gravitate and become firmly seated on the roadbed when a vehicle is driven upon said rotatable member, and means for increasing and decreasing the lifting power of said tension members.

8. A mechanism for turning dump-trucks during road construction, comprising a rotatable member adapted to support the trucks, a carriage upon which said member is rotatable, said carriage comprising parallel girders tied together by cross-bars, traction rollers disposed transversely between said girders, by which said mechanism may be trundled from place to place, means for connecting said rollers with said cross-bars whereby said mechanism may be resiliently supported above and clear of the roadbed, said connecting means adapted to yield when a dump-truck is driven upon said member sufficiently to effect the firm seating of the carriage upon the roadbed for preventing shifting of said mechanism during the turning and dumping operations.

In testimony whereof I affix my signature.

RAYMOND G. WILCOX.