

June 4, 1929.

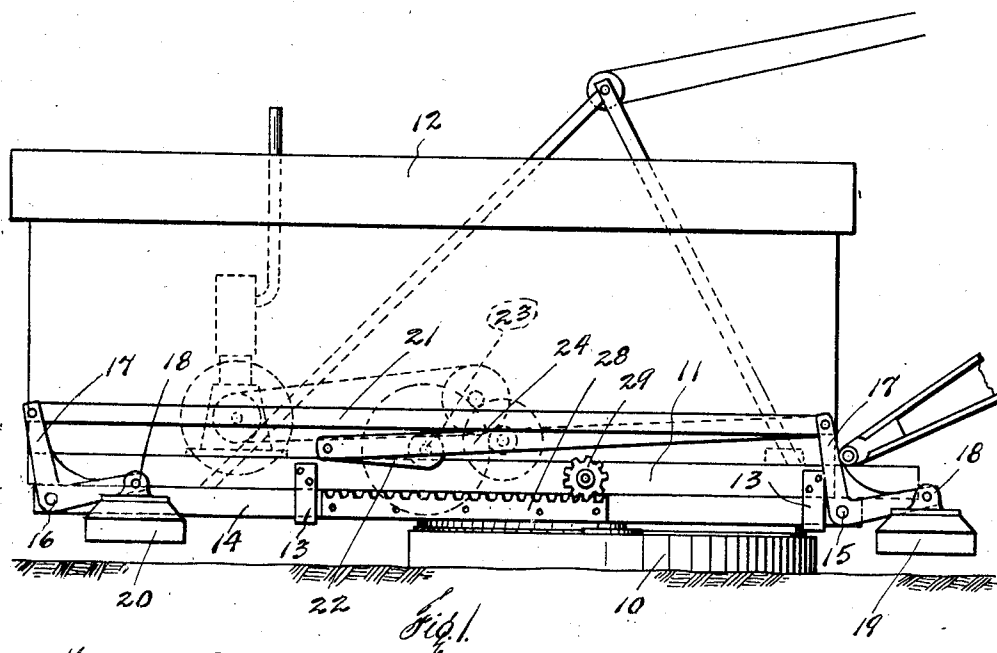
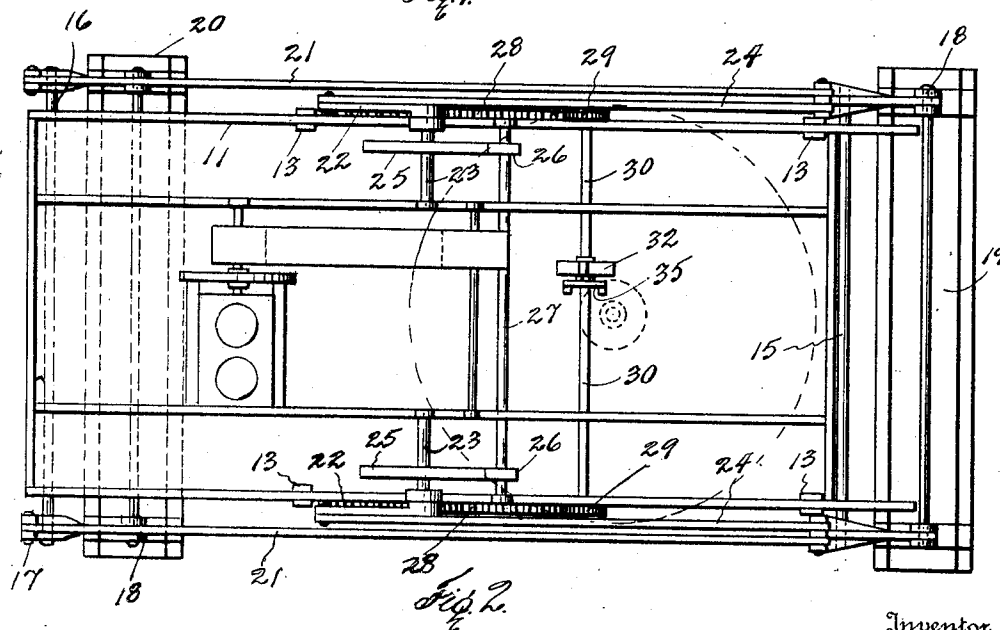
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TRACTION MECHANISM

Filed July 22, 1927

2 Sheets-Sheet 1



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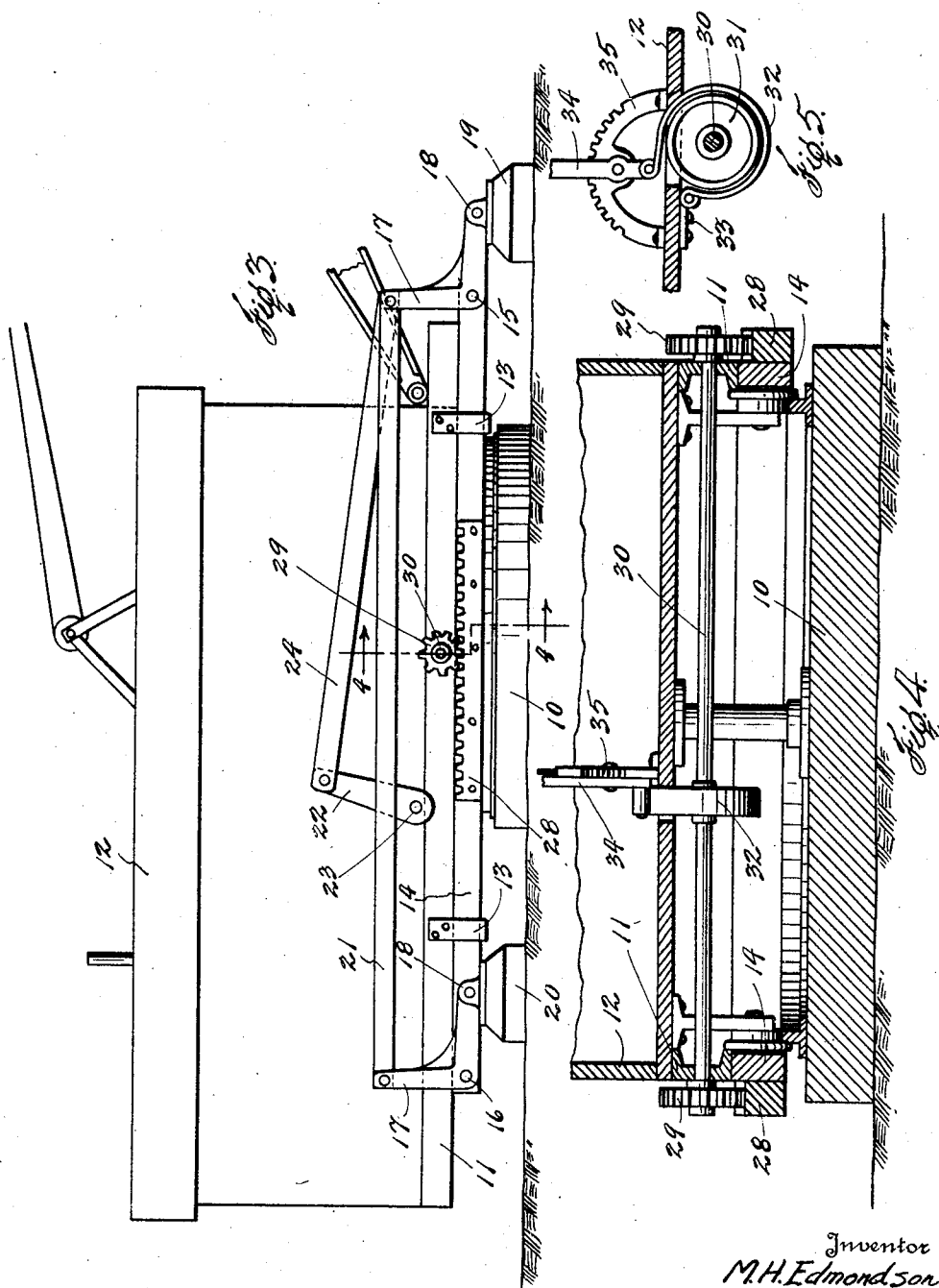
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TRACTION MECHANISM.

Application filed July 22, 1927. Serial No. 207,683.

This invention relates to new and useful improvements in traction mechanism.

One object of the invention is to provide a traction mechanism for steam shovels, drag lines, cranes and the like, whereby said machines may be advanced and moved in an efficient and ready manner while performing their usual work.

A particular object of the invention is that a strong light-weight and simple structure may be used and whereby the upper deck may be rotated and moved in any direction because of the attachment of the moving mechanism thereto. An important advantage of such an arrangement is that a very compact structure may be evolved, especially in view of the location of the traction shoes in front and rear of the turntable, whereby less clearing and grubbing as well as less injury in cultivated fields, results.

A further advantage of locating the traction shoes in front and rear of the turntable and thereby reducing the width of the machine, is that it may be more readily transported on railway flat cars and also that a larger turn-table may be used and this is more effective on soft ground.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is shown and wherein:

Fig. 1 is a side elevation of a mechanism constructed in accordance with the invention,

Fig. 2 is a plan view of the same, the house being omitted,

Fig. 3 is a view similar to Fig. 1 showing the mechanism advanced,

Fig. 4 is an enlarged transverse vertical sectional view taken on the line 4—4 of Fig. 3,

Fig. 5 is a detail of the brake mechanism.

In the drawings the numeral 10 designates the base or turn-table on which the rotatable deck frame 11 is mounted in the usual manner. The frame carries a house 12 and the operating mechanism is mounted on the frame.

In carrying out the invention, hangers 13 are attached to the sides of the base frame and support slide bars 14. A front rock shaft 15 is journaled in the front ends of said bars, while a rear rock shaft 16 is journaled in the rear ends of the said bars.

On the ends of the shafts 15 and 16 bell-crank levers 17 are pivoted. One pair of levers is pivoted to the brackets 18 of a front transverse shoe 19; while the other pair of levers is pivoted to the brackets 18 of a rear transverse shoe 20. The shoes extend across the machine and define its width; which is much less than where the shoes are on each side. The advantage of this is that it is not necessary to clear so wide a path and less ground is covered transversely of the machine. The shoes are of such size as to readily support the load.

The upper ends of the levers 17 are connected on each side by links 21. Crank arms 22 mounted on shafts 23 are pivoted to one end of pitmen 24 pivoted at their forward ends to the upper ends of the forward levers 17. The shafts 23 are suitably journaled on the base frame 11 within the housing 12 and each has a gear 25 fastened thereon. Each gear 25 is revolved by a pinion 26 mounted on a counter shaft 27 driven in the usual manner or in any suitable way.

When the levers 17 are swung forward the shoes 19 and 20 are brought to the ground and continued swinging of the levers causes them to fulcrum on the shoes, thus lifting the machine. The bars 14 are slidable under the base frame 11 and to lock these bars against sliding, I provide a braking mechanism. Rack bars 28 are secured to the outer sides of the bars 14 between the hangers 13.

Pinions 29 fastened on the end of a shaft 30 mesh with said rack bars, whereby said shaft is revolved by the sliding movement of the bars 14. The shaft is suitably journaled in the frame 11 and has a brake drum 31 fastened thereon. A brake band 32, having one end fastened to a bracket 33 on the underside of the floor of the frame 11, surrounds the drum. The opposite end of the band is pivoted to the lower end of a lever 34 pivoted to a segment 35. By swinging the lever the band is tightened and the drum held against rotation, which prevents rotation of the shaft 30 and pinions 29, thus

holding the racks 28 and bars 14 from sliding.

The operation is as follows:

When motion is imparted to the shaft 27 and the shafts 23 caused to revolve by means of the pinions 26 and gears 25, the crank arms 22 will be swung in clockwise direction, moving from the position shown in Fig. 1 to the position shown in Fig. 3 and continuing so as to completely revolve.

This movement of the arms and pitmen lowers the shoes 19 and 20 to the ground and as these shoes come to rest and the arms continue to revolve the said pitmen tend to urge the levers forwardly, thus lifting the machine with its base 10 from the ground. As soon as the base clears the ground, the continued movement of the cranks 22 and pitmen 24 will slide the base frame 11 rearwardly on the bars 14 for the reason that the levers 17 can not be further swung and no resistance is offered to the rearward sliding of the base and machine.

Owing to the fact that the shoes 19 and 20 have considerable weight and also that the bars 14 are free to slide, it is necessary to have some means for lifting the shoes clear of the ground so that they with the bars may be slid to a new position. For this purpose the brake mechanism, shown in detail in Figs. 4 and 5, is used. As the crank arms 22 go through the last half of their revolution, swinging downwardly from a horizontal position forwardly to the position shown in Fig. 1, the lever 34 is manipulated to cause the brake band 32 to engage the drum 31 so that the shoes will be lifted by the continued movement of the crank arms which will slide the bars and shoes rearwardly, the brake being released sufficiently to permit this movement.

Various changes in the size and shape of the different parts, as well as modifications and alterations, may be made within the scope of the appended claims.

What I claim, is:

1. In a traction mechanism, a base, a frame connected to the base, driving means carried on said frame, longitudinally movable supporting members carried by said frame, front and rear lifting and pulling elements extending transversely of the frame and mounted upon one of said members for engaging the ground at the front and rear of said frame, and means for transmitting motion from said driving means to said lifting and pulling elements for actuating the latter to move said supporting members upon each other.

2. In a traction mechanism, a base, a frame connected to the base, driving means carried on said frame, longitudinally movable supporting members carried by said frame, front and rear lifting and pulling elements extending transversely of the frame

and mounted upon one of said members for engaging the ground at the front and rear of said frame, means for transmitting motion from said driving means to said lifting and pulling elements for actuating the latter to move said frame progressively, and braking means for holding said movable members against relative movement.

3. In a traction mechanism, a base, a frame connected to the base, swinging front and rear propelling shoes disposed transversely of said frame, means slidable upon the frame for supporting said shoes, means for swinging said shoes to propel the frame, and means for fastening the slidable supporting means against relative movement.

4. In a traction mechanism, a base, a base frame, bars slidable of said frame, transverse shoes pivoted to said bars, means for swinging said shoes to engage them with the ground and to elevate them, and driving means for said swinging means.

5. In a traction mechanism, a base, a base frame, bars slidable under said frame, bell-crank levers pivoted to said bars, shoes pivoted to said levers and extending transversely of said frame, and means connected with said levers for swinging the same and sliding said bars.

6. In a traction mechanism, a base, a base frame, bars slidable under said frame, bell-crank levers pivoted to said bars, shoes pivoted to said levers and extending transversely of said frame, means connected with said levers for swinging the same and sliding said bars, and braking means for arresting movement of said bars.

7. In a traction mechanism, a base, a base frame, bars slidable under said frame, bell-crank levers pivoted to said bars, shoes pivoted to said levers and extending transversely of said frame, links connecting said levers, pitmen connected to said levers, crank arms connected to said pitmen, and means for revolving said arms.

8. In a traction mechanism, a base, a base frame, bars slidable under said frame, bell-crank levers pivoted to said bars, shoes pivoted to said levers and extending transversely of said frame, links connecting said levers, pitmen connected to said levers, crank arms connected to said pitmen, means for revolving said arms, rack bars carried by the sliding bars, pinions engaging said rack bars, a shaft carrying said pinions, and a brake connected with said shaft for fastening it against rotation.

9. In a traction mechanism, a base, a frame connected thereto, driving means carried on said frame, relatively slidably supporting members carried by the frame, lifting and pulling elements connected with one of said members and mounted to engage the ground, and means for transmitting motion from said driving means to said elements for

actuating the latter into ground engagement and to shift said frame members upon each other.

10. The combination as defined in claim 5 9, with means for holding said slidable members against relative movement and said lifting and pulling elements elevated above the ground.

11. In a traction mechanism, a base, a 10 frame connected to the base, swinging front

and rear propelling shoes disposed transversely of said frame, members slidable relative to the frame and pivotally supporting said shoes to advance the same, and means operative between the slidable member and the frame for transmitting propulsion from said shoes to the frame. 15

In testimony whereof I affix my signature.

MORTON H. EDMONDSON.