

No. 761,220.

PATENTED MAY 31, 1904.

T. F. GORMAN & W. L. RILEY.

ELEVATING TRUCK.

APPLICATION FILED JUNE 20, 1903.

NO MODEL.

5 SHEETS—SHEET 1.

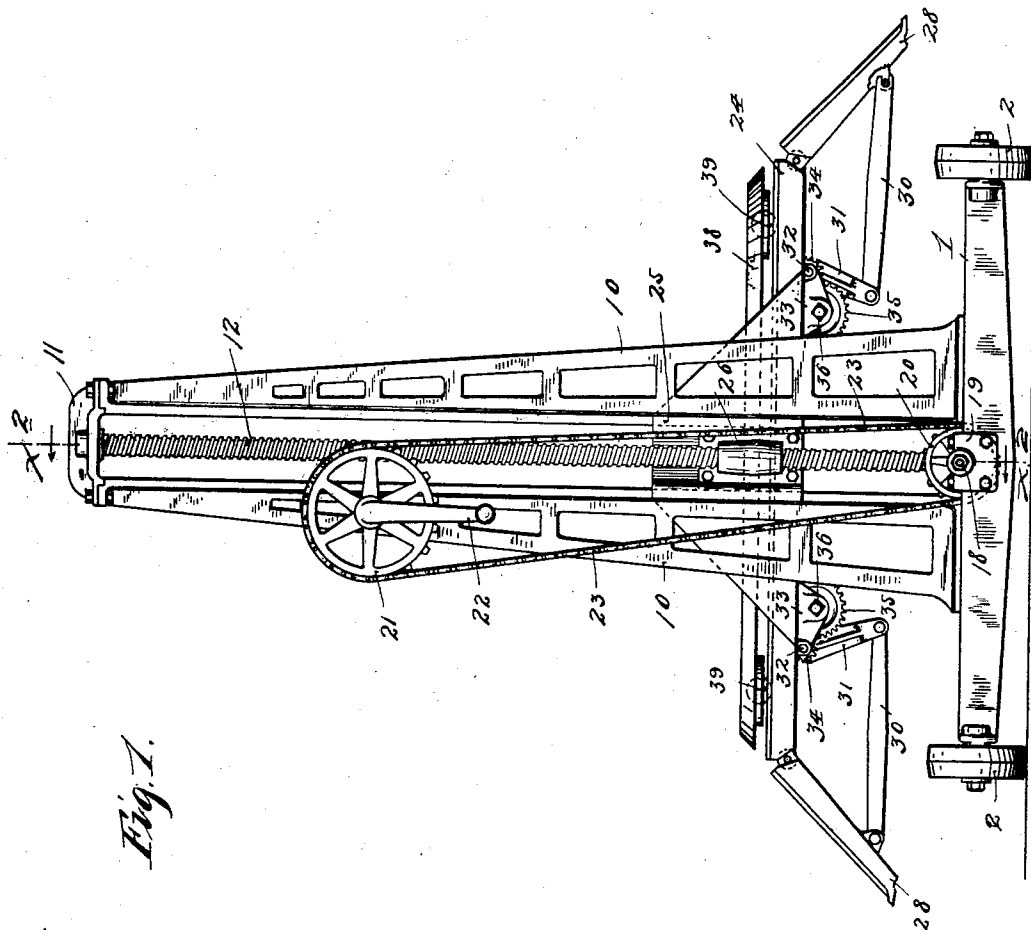


Fig. 1.

Witnesses.

A. D. Kline

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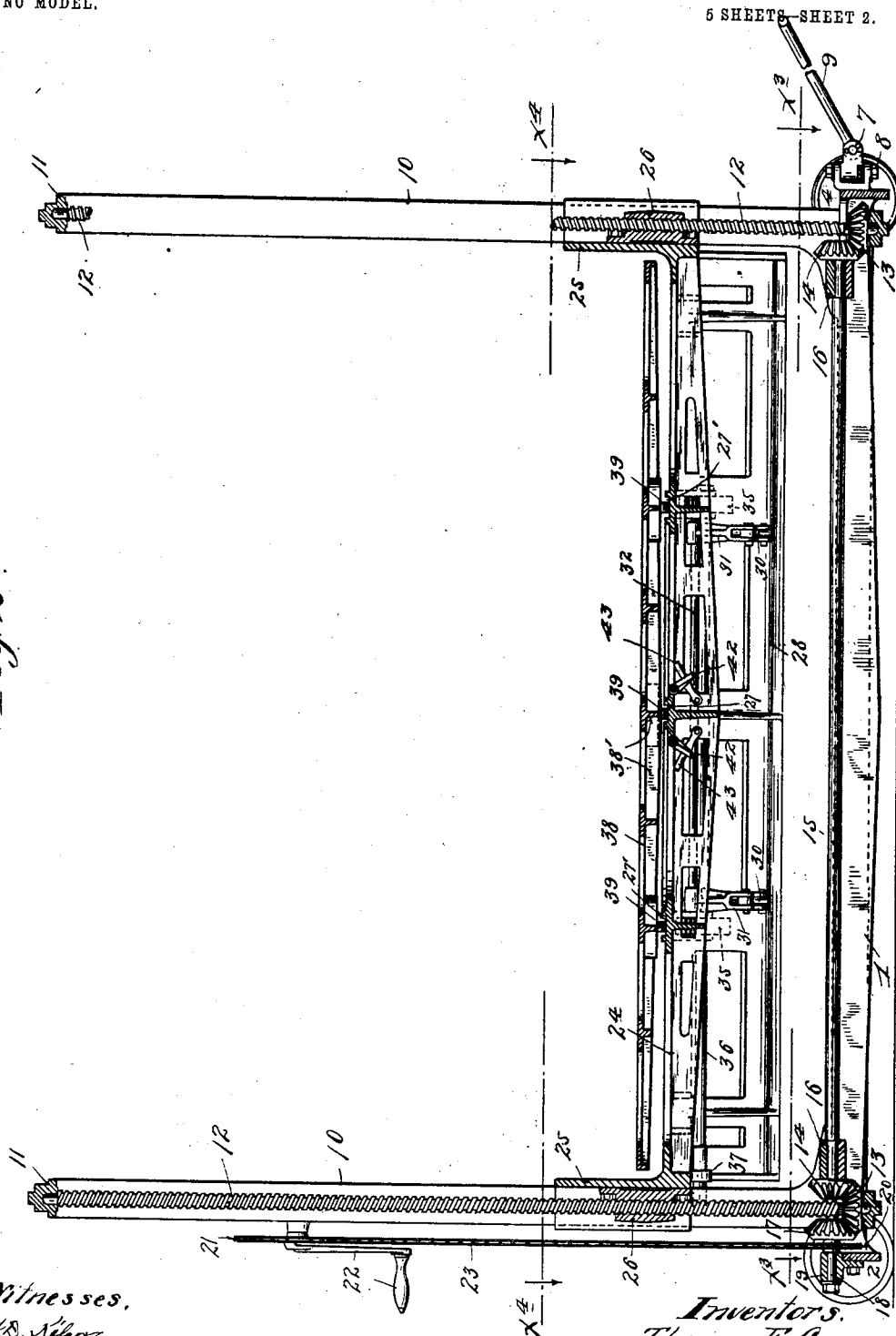
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5 SHEETS-SHEET 2.

Fig. 2.



Witnesses.

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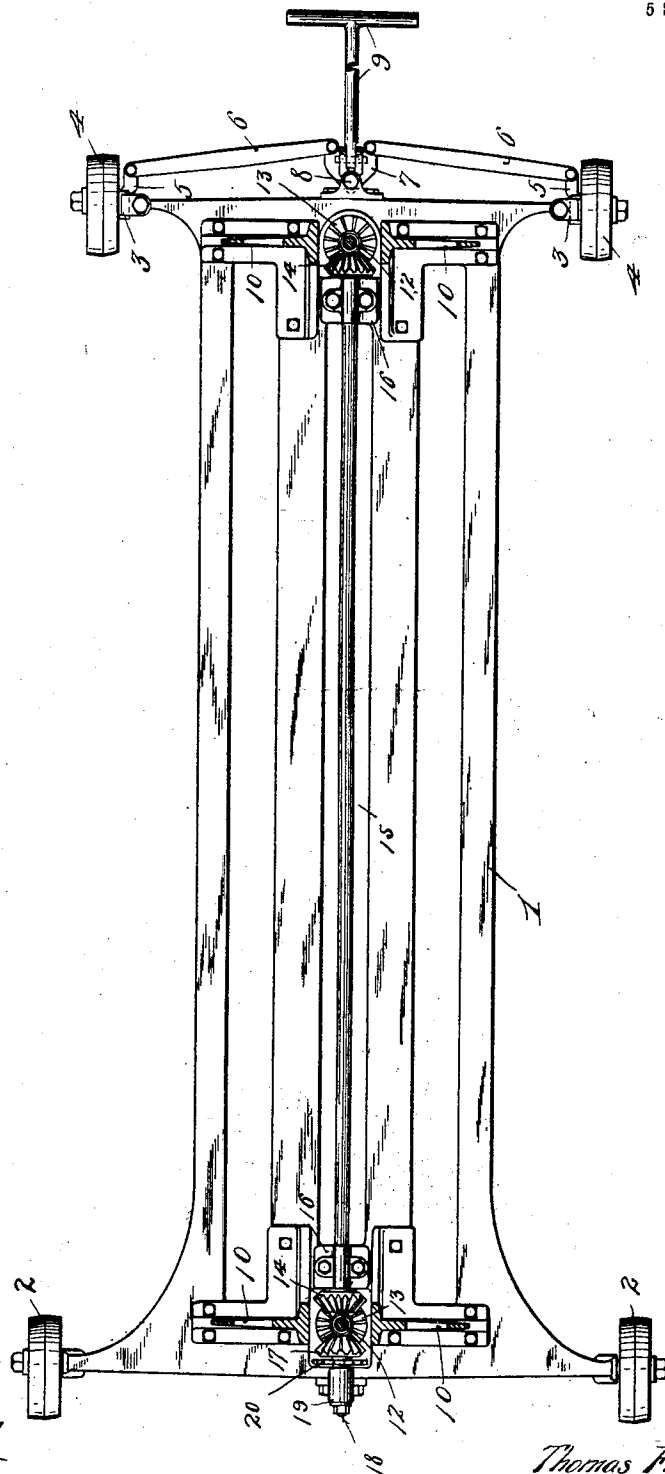
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5 SHEETS—SHEET 3.

Fig. 3.



Witnesses,

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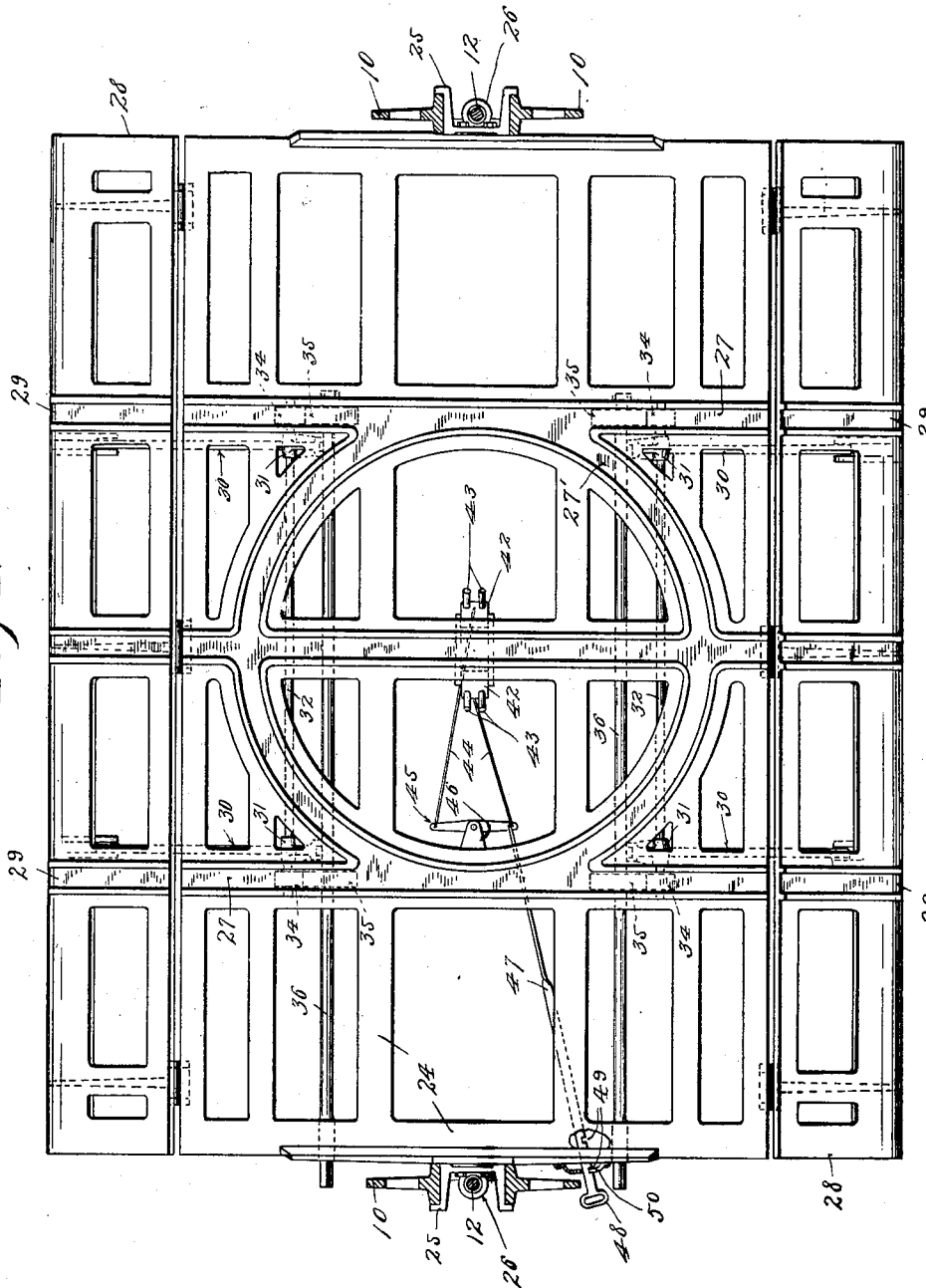
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NO MODEL.

5 SHEETS—SHEET 4.

Fig. 4.



Witnesses.

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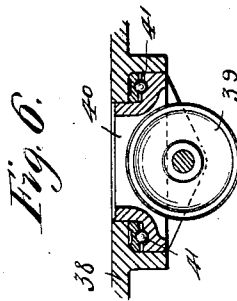
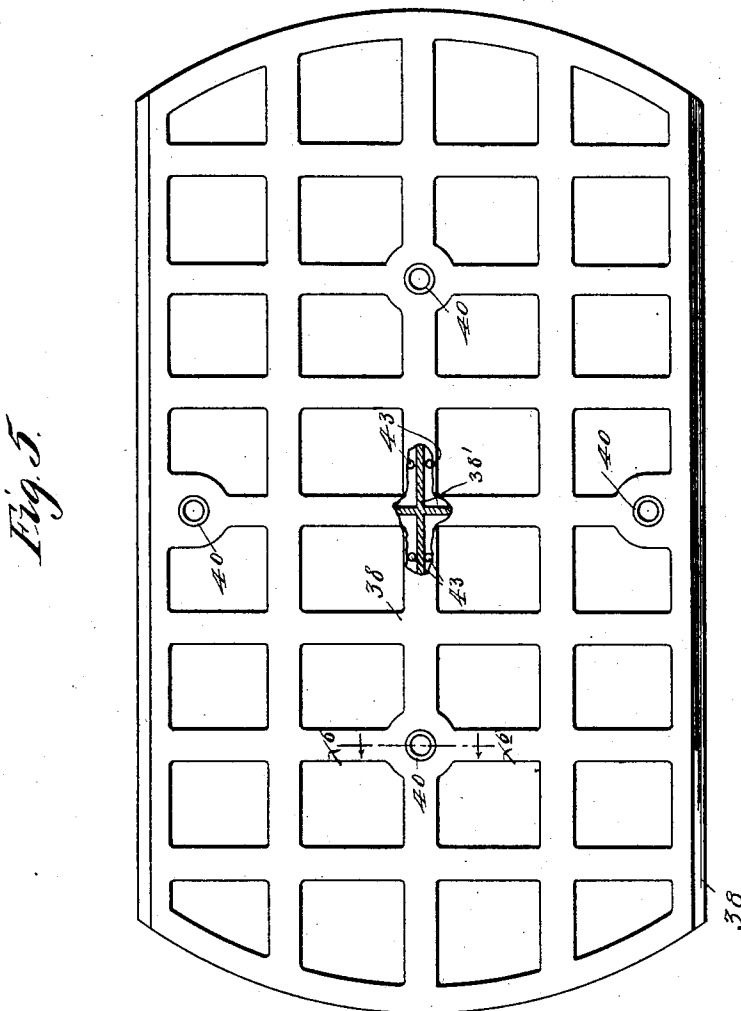
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NO MODEL.

5 SHEETS—SHEET 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS F. GORMAN AND WILLIS L. RILEY, OF ST. PAUL, MINNESOTA.

ELEVATING-TRUCK.

SPECIFICATION forming part of Letters Patent No. 761,220, dated May 31, 1904.

Application filed June 20, 1903. Serial No. 162,375. (No model.)

To all whom it may concern:

Be it known that we, THOMAS F. GORMAN and WILLIS L. RILEY, citizens of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Elevating-Trucks; and we do hereby 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.

Our invention has for its object to provide an improved elevating-truck having a bed-plate which will rise and lower and provided with a wheeled table which is mounted to move over the said bed-plate.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 shows the complete truck in rear elevation. Fig. 2 is a vertical longitudinal section through the truck on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a section on line $x^3 x^3$ of Fig. 2. Fig. 4 is a horizontal section on the line $x^4 x^4$ of Fig. 2 with the wheeled table removed. Fig. 5 is a plan view of the wheeled table removed from working position, and Fig. 6 is a detail in vertical section on the line $x^6 x^6$ of Fig. 5.

The numeral 1 indicates the longitudinally-extended frame or reach portion of the truck, to the rear end of which is journaled a pair of small truck-wheels 2 and to the forward portion of which is pivoted a pair of trunnions 3, on which are journaled truck-wheels 4 similar to the truck-wheels 2. The inner pivoted ends of the trunnions 3 are provided with short forwardly-projecting arms 5, which are connected by links 6 to a centrally-located steering-head 7, which in turn is pivoted at 8 to the forward portion of the frame 1, as best shown in Fig. 3. To the steering-head 7 a pole or steering-bar 9 is pivoted for vertical movements.

Rigidly secured to and rising from the front and rear portions of the framework 1

is a pair of bifurcated guide-columns 10, the sides of which are united at their upper ends by short tie-bars 11. Vertically-disposed screw-rods 12 are journaled at their upper ends in the tie-bars 11 and at the lower ends in the ends of the framework 1. One of the screw-lugs 12 has right-hand threads and the other has left-hand threads, this, as is obvious, being necessary because the two shafts are rotated in reverse directions by their coöperating miter-gears. These screw-rods are located centrally between the guide-surfaces of the guide-columns 10, and at their lower ends they are provided with miter-gears 13. The miter-gears 13 mesh with miter-gears 14 of a counter-shaft 15, suitably journaled in bearings 16 of the frame 1 and extending from front to rear of the truck, as best shown in Figs. 2 and 3. The rear gear 13 also meshes with a miter-gear 17, secured to the forward end of a stub-shaft 18, journaled in a bearing 19 on the frame 1 and, as shown, provided with a sprocket 20. On the upper portion of one side of the rear guide-column 10 is loosely journaled a relatively large sprocket 21, provided with a hand-crank 22. A sprocket-chain 23 runs over the two sprockets 20 and 21.

The vertically-adjustable bed-plate 24 of the truck is horizontally-disposed and is provided at its front and rear ends with cross-heads 25, which work on the parallel inner guiding-surfaces of the guide-columns 10 and hold the said bed-plate against lateral, endwise, and tilting movements. On each cross-head 24 is rigidly secured a nut-block 26, through which the corresponding screw-rod 12 works to vertically adjust the bed-plate. As shown, the bed-plate 24 is of skeleton form and is ribbed to give the same proper strength. On its upper face the bed-plate is formed with transversely-extended tracks 27 and with an intersecting circular track 27', which tracks are formed by channels or grooves, as best shown in Fig. 4. To the side edges of the bed-plate 24 are hinged adjustable leaf-sections 28, provided with depressed tracks 29, that aline with the transverse tracks 27 of the bed-plate proper. The free portion of each leaf-section 28 is connected by a pair of links 30 to a cor-

responding pair of oscillating arms 31, which pairs of arms are rigidly secured to rock-shafts 32, journaled in depending flanges 33 of the vertically-adjustable bed-plate 24.

Each rock-shaft 32 has secured to it a pair of spur-pinions 34, which mesh with spur-gears 35 of counter-shafts 36, which shafts 36 are also journaled in the flanges 33 of the bed-plate. The rear ends of the shafts 36 project to the rear portion of the machine and are squared or made angular to fit a wrench. (Not shown.) The rear ends of said shafts 36 are, as shown, also journaled in lugs 37, depending from the rear portion of the bed-plate 24.

If desired, retaining-pawls may be applied to certain of the gears 35 or pinions 34 to hold the leaf-sections 28 in any set adjustment, either inclined or horizontal.

A traveling table 38 is mounted upon the bed-plate 24 and is provided with wheels which work in the tracks 27 and 27' thereof. These wheels 39 are preferably mounted in tubular hubs 40, that are swiveled in the table 38 and support the said table by means of ball-bearings 41, as best shown in Figs. 1, 5, and 6. To lock the traveling table in a central position on the bed-plate, as shown in Figs. 1 and 2, a lock device is provided, which lock device is preferably constructed as follows: 42 indicates a pair of lock-dogs pivoted to the simple portion of the bed-plate 24 and provided each with a pair of lock-pins 43, which when the dogs are thrown upward embrace the depending crossed web 38' of the table 38, as indicated in Fig. 5. The free ends of the lock-dogs 42 are connected by reversely-acting rods 44 to the opposite ends of the short lever 45, which is pivoted at its intermediate portion to a lug 46, depending from the bed-plate 24, as best shown in Figs. 2 and 4. One end of the lever 45 is connected by a rod 47, which extends to the rear end of the bed-plate 24 and terminates in a handpiece 48, which may be readily reached from the rear of the machine. The handpiece 48 may be engaged with either one of two catch-fingers 49 and 50 on the rear portion of the bed-plate 24 to hold the lock-dogs 42 either in operative or inoperative positions at will.

This improved truck was especially designed for use in printing establishments for handling the heavy "forms" and transporting the same from place to place; but it is of course adapted for general use wherever a truck of this general character may be found serviceable.

To adjust vertically the bed-plate 24, and hence, of course, the traveling table 38, it is only necessary to turn the sprocket 21 by means of its crank 22 in the one direction or the other. This causes the screw-rods 12 to rotate in reverse directions and to impart equal vertical movements either upward or downward to the nut-blocks 26, and consequently to the bed-plate 24 and parts carried

thereby. In this way the traveling table 38 may be lowered very closely to the ground for the purposes of loading, and this may be elevated so that the traveling table, together with its load, may be moved off from the bed-plate and onto a table or onto a printing-press which is to receive the same. In loading and unloading the traveling table or in removing the traveling table, together with its load, from the bed-plate or running the same onto the bed-plate the leaf-sections 28 may be adjusted so as to greatly assist in making the work easy. For instance, when the bed-plate is lowered the leaf-sections may be turned down into contact with the floor or ground and will then serve as skids over which a heavy form or other article to be loaded on the truck may be slid. Again, when the leaf-sections are turned down an article may be placed thereon and then lifted into horizontal line with the bed-plate by imparting pivotal movements to the said wings by the application of a wrench to the squared ends of the shafts 36. When the leaf-sections 28 are adjusted into horizontal positions, the traveling table may be run over the same and off onto any support which is to receive it. In practice when the truck is used in a printing establishment several traveling tables would usually be provided for each truck. This enables the traveling tables to be removed from the truck, with the heavy form carried thereby, and to be transported therewith from one place to another and other tables, together with other forms, to be substituted therefor on the truck. In this way the handling of heavy forms is made a comparatively easy matter. The circular track 27' on the bed-plate makes it possible to quickly turn the table end for end or side for end, so that a heavy form may be removed from the truck in any desired relative position.

It will of course be understood that the device described is capable of modification within the scope of our invention as herein set forth and claimed.

What we claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a truck, having a vertically-adjustable bed-plate provided with hinged wings, the said bed-plate and wings having tracks formed thereon, of a traveling table having wheels working over the tracks of said bed-plate and leaf-sections.

2. The combination with a truck, having a vertically-adjustable bed-plate, of side sections or wings hinged thereto, oscillating arms supported by said bed-plate, links connecting said arms to said wing-sections, and intermeshing gears for oscillating said arms, to raise and lower the said wing-sections, substantially as described.

3. The combination with a truck having a bed-plate formed with tracks, of a traveling table having wheels working over said tracks,

and a lock for locking said table on the said bed-plate, substantially as described.

4. The combination with a truck having a bed-plate formed with an endless circular track and with intersecting transverse tracks, of a table having swiveled wheels working over the said tracks, substantially as described.

5. The combination with a truck, having a vertically-adjustable bed-plate, of hinged wing-sections pivoted to the sides of said bed-plate, said bed-plate and its wings having alined tracks, of a traveling table having wheels working over said tracks, the said table having a centrally-located depending

crossed flange 38', and a lock for securing said table against movement on said bed-plate, said lock comprising a pair of pivoted dogs 42 having lock-pins 43 engageable with said crossed flange 38', and means for imparting movement to said dogs and holding the same in different adjustments.

In testimony whereof we affix our signatures in presence of two witnesses.

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WILLIS L. RILEY.

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