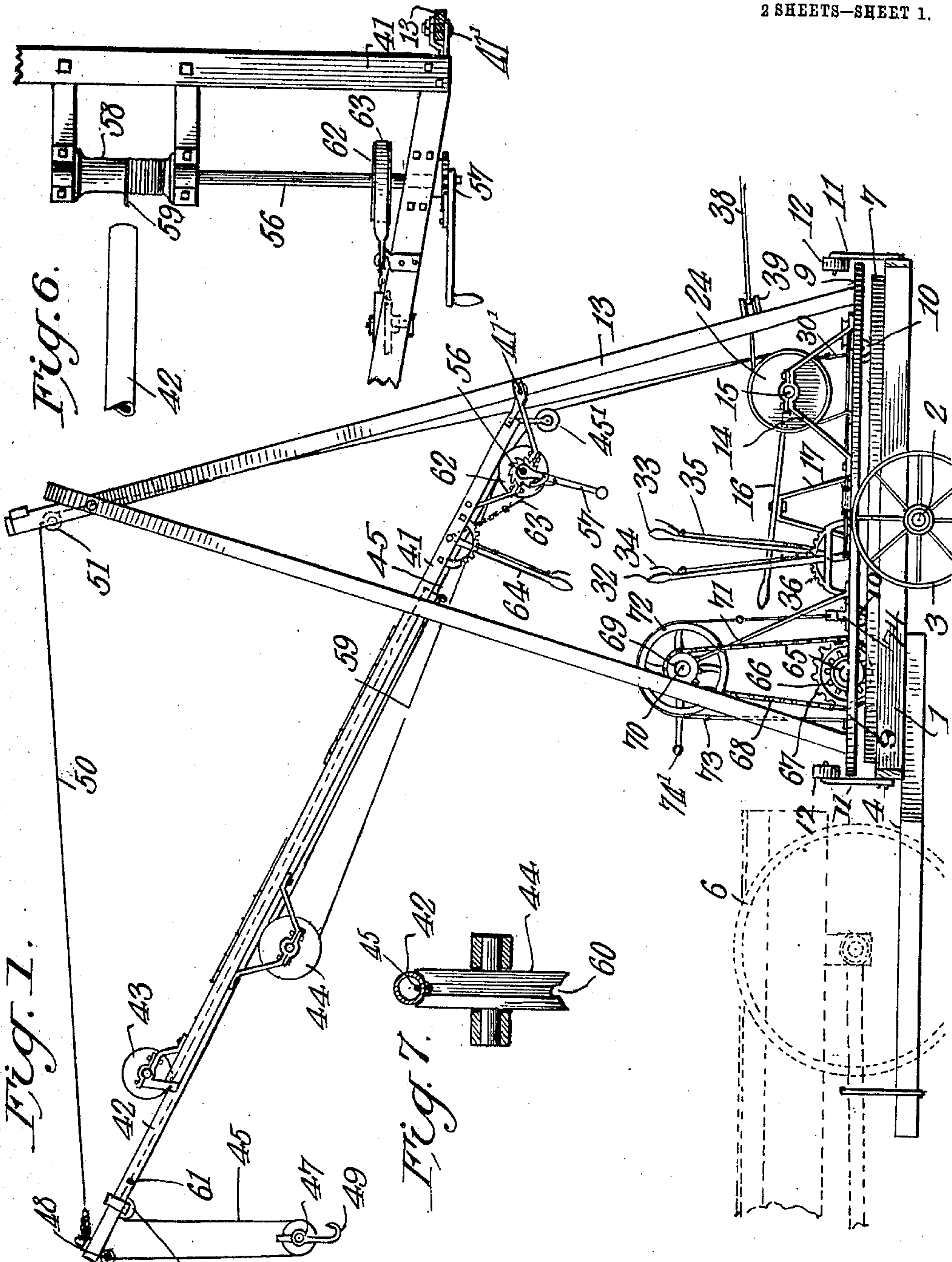


No. 871,456.

PATENTED NOV. 19, 1907.

R. TANNER.
SHOCK LOADING APPARATUS.
APPLICATION FILED JAN. 18, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

C. J. Stewart
Attorney

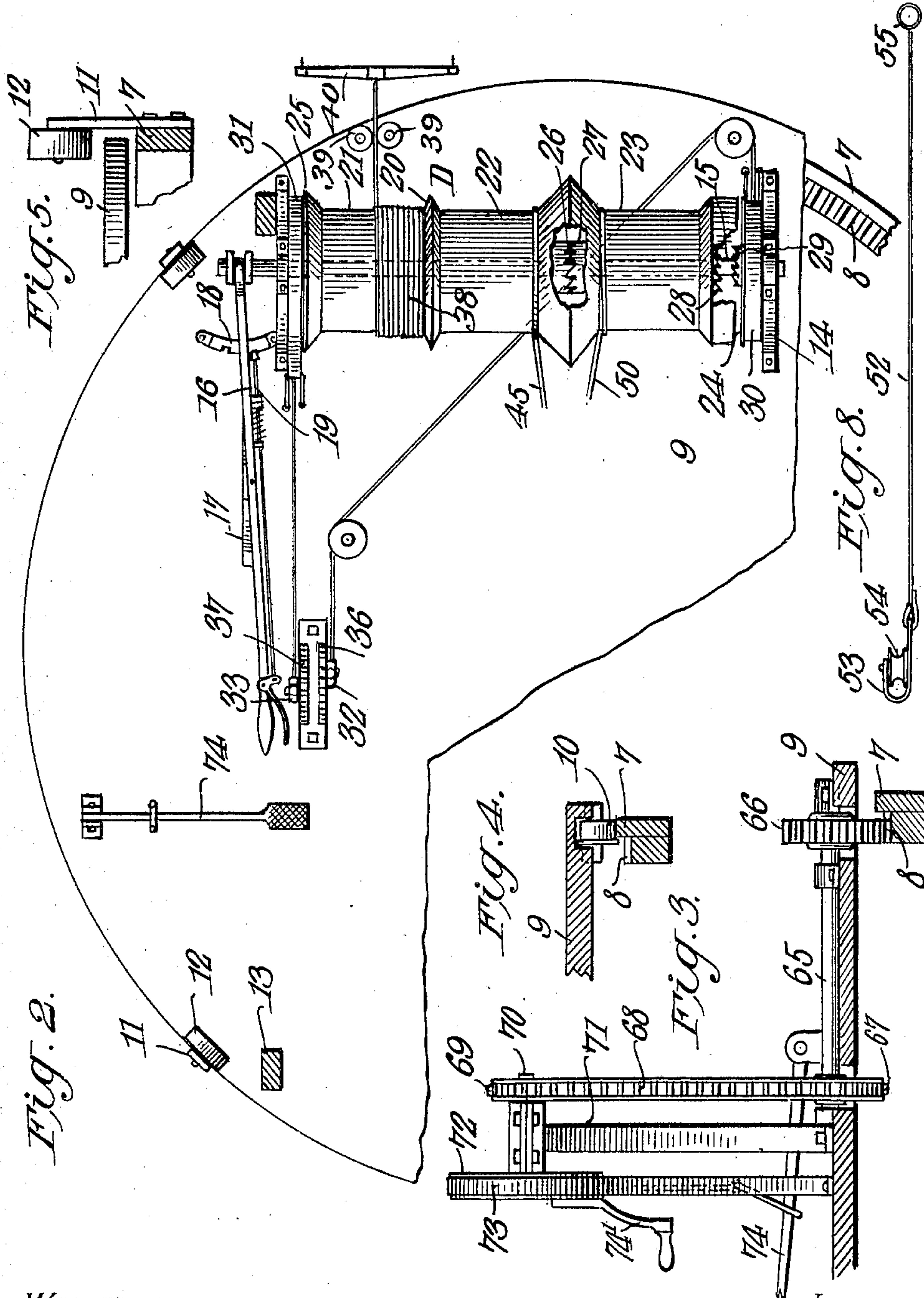
INVENTOR
Roe Tanner
By *C. J. Stewart*
ATTORNEYS

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WITNESSES:

B. H. Stewart

J. H. ...

INVENTOR
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UNITED STATES PATENT OFFICE.

ROE TANNER, OF ATTICA, OHIO.

SHOCK-LOADING APPARATUS.

No. 871,456.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed January 18, 1907. Serial No. 352,978.

To all whom it may concern:

Be it known that I, ROE TANNER, a citizen of the United States, residing at Attica, in the county of Seneca and State of Ohio, have
5 invented a new and useful Shock-Loading Apparatus, of which the following is a specification.

This invention has relation to apparatus for loading shocks upon wagons and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide an apparatus which may be easily and readily attached to the wagon and drawn from place to place.

A turn-table is mounted upon the frame of the loader and upon said turn table is erected a derrick. A boom is pivoted to the derrick for lateral swing with relation thereto and said boom is provided with a telescopic or extendible section and means for moving the said section with relation to the body portion of the said boom. A shaft is journaled
25 for rotation upon the turn-table and winding drums are mounted upon the said shaft. Two of the said drums are journaled upon the shaft while a third drum is fixed thereon. A tackle passes around the drum which is
30 fixed to the said shaft and also passes over a pulley suspended at the top of the derrick and is attached at its end to the telescopic section of the boom. The loose drums are joined together and are separated from each other by a median flange. A tackle passes
35 around one of the loose drums and to the end of which a draft-animal is attached. A tackle is wound around the other loose drum in the opposite direction from that in which the tackle is wound upon the first said loose drum. The last said tackle passes over a pulley provided upon the boom and passes around the pulley of a block carried by the
40 extreme outer end of the telescopic section of the boom and hangs pendent upon which portion is supported a block and hook. The extreme end of the last said tackle is fixed to the end of the telescopic section of the said boom. Suitable band brakes and levers for
50 controlling the same are provided for checking the rotation of the said drum and the parts so arranged that as the load is elevated the turn-table is partially rotated and means is provided for turning the said table man-

nally and also for checking the rotation thereof.

In the accompanying drawing:—Figure 1 is a side elevation of the shock loading apparatus. Fig. 2 is a top plan view of the same with parts removed. Fig. 3 is a vertical sectional view of the same showing the means
60 for manually rotating the turn-table in side elevation. Fig. 4 is a sectional view showing the track and wheel carried by the turn-table which runs upon said track. Fig. 5 is
65 an elevation of a portion of the top of the table showing the roller for preventing the table from tilting. Fig. 6 is a plan view of the inner portion of the boom, and Fig. 7 is a transverse sectional view of the telescopic
70 section of the boom showing the same rotating upon one of the guiding rollers therefor.

The apparatus is mounted upon a truck, which includes a frame 1, an axle 2 and carrying wheels 3. The frame is provided
75 with a tongue 4 adapted to be connected with the running gear of a wagon or hay rack 6, in connection with which the loading apparatus is to be used. Upon the frame 1 is supported a circular track 7 adjacent to
80 which is a circular gear rack 8. The turn-table 9 is provided with wheels 10 which run upon the track 7. The frame 1 is also provided with the vertically disposed arms 11 which are provided with the rollers 12 jour-
85 naled at the upper ends thereof and which lie over the upper edge of the turn-table 9 and hold the same in proper position over the track 7. The derrick 13 is erected upon the turn-table 9. Suitably mounted upon the
90 turn-table 9 is a drum or windlass-stand comprising brackets 14 having bearings for a shaft 15 which is slidable in its bearings by means of a lever 16 pivoted upon a lever
95 stand 17 which includes a segment rack 18 adapted to be engaged by a stop-member 19 connected with the shipping lever, so that the latter, together with the shaft 15 may be secured or locked at various adjustments. The shaft 15 carries a drum D having a
100 flange 20 intermediate its ends whereby the said drum is divided into the drum sections 21 and 22; the shaft 15 also carries a single winding-drum 23 and a friction wheel 24. The drum D which is loosely mounted upon
105 the shaft 15 so that it may rotate freely upon said shaft, which latter may move longitudinally therethrough, carries at one end

a friction wheel or face 25, and at its other end, which is adjacent the drum 23, a clutch member 26 adapted to engage a clutch member 27 upon the said drum 23. The latter, 5 which is fixedly secured upon the shaft 15 is provided at its opposite end with a clutch member 28 adapted to engage a clutch member 29 upon the friction-wheel 24 which latter is mounted to rotate with the 10 shaft 15 but in such a manner that the said shaft may slide therethrough.

Flexible band-brakes, as 30 and 31 are suitably mounted to engage the friction surfaces of the wheels 24 and 25 which latter 15 is connected with the drum D as described and said band-brakes are operatively connected with the levers 32 and 33 respectively, whereby, they may be tightened upon the respective friction surfaces. The brake- 20 levers 32 and 33 are connected with the stop-members 34 and 35 adapted to engage rack-segments 36 and 37, whereby they may be held securely in adjusted position. It may be here stated that the brake will normally be kept set upon the brake wheel 24. 25

Connected with and normally wound upon the section 21 of the drum D is the draft-tackle 38 which is guided between the pulleys 39 journaled upon the turn-table near 30 the edge of the latter, as shown in Fig. 2 or upon a cross piece supported by the derrick 13 as shown in Fig. 1. A swingletree or other draft-means, as 40, is attached to the end of the draft-tackle 38. The boom 41 is 35 pivoted upon the derrick 13 at the point 41'. Said boom is provided with the extendible hollow telescopic section 42 which is guided between the rollers 43 and 44 journaled upon the upper and lower sides of the body portion of the boom 41 near the outer end 40 thereof. The hoisting-tackle 45 is connected with the section 22 of the drum D and is wound upon the latter in the direction opposite to the draft-tackle; said hoisting- 45 tackle is guided over pulleys 45' and 46 near the inner and outer ends of the boom 41 and through a block 47. The said hoisting tackle 45 passes through the hollow boom section 42. The free end of said hoisting 50 tackle is made fast at the outer end of the boom as at 48. The block 47 has a hook 49 for the reception of the load. A boom adjusting tackle 50 is connected with and adapted to be wound upon the drum 23 and 55 is guided over the pulley 51 at the upper end of the derrick 13 and thence to the outer extremity of the boom with which it is connected. It will be observed that the adjusting element is directly connected with the 60 boom while the hoisting tackle passes through the block 47; assuming, then, that the diameter of the drums 23 and 22 is the same the free end of the boom, when the tackles are wound upon the drums will move 65 in an upward direction twice as rapidly as

the block 47 carrying the load will move in the direction of the free end of the boom. Thus enabling the latter to quickly swing clear of obstructions.

In connection with this apparatus there is 70 employed a shock-engaging sling which consists of a rope 52 having at one end a hook 53 carrying a pulley 54. The other end of the rope is provided with a ring 55 for engagement with the hook 49 of the block 47. 75 When this sling is placed around a shock and the free end of the rope 52 is passed over the pulley 54 it is obvious that the strain upon the free end of the sling rope will tighten the latter upon the shock which may thus be 80 conveniently handled. The shaft 56 is journaled upon the body portion of the boom 41 and is provided with an operating crank-handle 57. The spool 58 is fixed to the said shaft 56 and one end of the tackle 59 winds 85 about the periphery of the said spool. Said tackle passes around the guide roller 44 and lies within the peripheral groove 60 provided in the said roller. The opposite end of the tackle 59 is attached to the inner end of the 90 telescopic section 42 of the boom. Consequently, by winding the tackle 59 upon the spool 58 the section 42 of the boom will be projected with relation to the body portion 41 thereof. The section 42 is retracted by 95 gravity when the tackle 59 is unwound. Consequently, the said boom may be elongated or shortened for convenience in picking up a load or depositing the same. The outer portion of the telescopic section 42 is 100 provided with a cross-pin 61 which is adapted to come in contact with the extreme outer end of the body portion 41 of the said boom and limit the inward movement of said telescopic section with relation to the said body 105 portion. The disk 62 is fixed to the shaft 56 and the band-brake 63 passes around said disk and is attached at one end to the ratchet lever 64 which in turn is fulcrumed upon the boom section 41. Thus, it will be seen that 110 after the telescopic section 42 has been extended or projected with relation to the body portion of the boom it may be held in such extended position by manipulating the lever 64 which through the band-brake 63 and 115 disk 62 will hold the shaft 56 in fixed position. Also, the said lever 64 may be manipulated to permit the tackle 59 to unwind from the spool 58 so that the telescopic section 42 may move gradually by gravity with- 120 in the body portion 41 of the boom.

It will be seen from the foregoing description that the position of the free end of the boom is governed by section 23 of the drum D; when the block 47 is lowered to a load 125 engaging position the hoisting-tackle is unwound from the section 22 of the drum D thus winding the draft-tackle upon the section 21 of said drum; the free end of the boom may be lowered by gravity, the clutch mem- 130

ber 28 of the drum 23 being meanwhile, in engagement with the clutch member 29 of the friction-wheel 24 so that the lowering of the free end of the boom may be regulated 5 by the brake lever 32.

The turn-table may be turned to pick up a load any where within the reach of the boom, it being observed that the entire hoisting mechanism is supported upon the 10 turn-table and thus remains constantly in the same relative position to the derrick and boom. When the load has been connected with the hook 49, draft is applied to tackle 38 in a rearward direction from the wagon 15 6 upon which the load is to be placed and the guide pulleys 39 being arranged near the rear edge of the turn-table, the latter will be turned by the strain exercised upon the draft-tackle until the boom stops directly over the wagon bed. The unwinding 20 of the draft-tackle rotates the drum D upon the shaft 15 and the latter has been previously adjusted to place the clutch 27 of the drum 23 in engagement with the clutch 26 25 of the drum D so that both the drums will be simultaneously rotated to wind the hoisting-tackle 45 and the adjusting tackle 50 thus, quickly elevating the load to the desired altitude. The lifting of the load may 30 be effected before the turn-table is permitted to swing. The turn-table is provided with a shaft 65 upon which is fixed a gear-wheel 66 which meshes with the circular gear-rack 8. The sprocket-wheel 67 is also 35 fixed to the said shaft 65 and the sprocket-chain 68 passes around the sprocket-wheel 67 and the sprocket-wheel 69. The last said sprocket-wheel being fixed to an elevated shaft 70 journaled in the support 71. 40 The wheel 72 is fixed to the shaft 70 and the band-brake 73 operates against the periphery of the wheel 72. Said band-brake is connected with the foot-treadle 74 which is fulcrumed upon the turn-table 9 and which, 45 when depressed binds the brake 73 closely about the periphery of the wheel 72. Thus, by applying the foot to the treadle 74 the brake is operated, which through the sprocket-wheels 67, sprocket-chain 68, shaft 50 65 and gear-wheel 66 meshing with the gear-rack 8 will retain the said platform or turn-table against rotary movement. The wheel 72 is provided with a crank handle 74', by the manipulation of which, and through the 55 parts above mentioned the said turn-table may be rotated manually.

When the load has been brought to the desired position above the wagon bed the shipping lever 16 is operated to place the 60 clutch member 28 of the drum 23 in engagement with the clutch member 29 of the friction disk 24, upon which the brake will be set to prevent the lowering of the boom until desired. When the draft upon the

draft-tackle 38 is slackened by bringing the 65 draft-rod back the load will descend by gravity and its descent may be governed by the brake lever 34 controlling the brake strap that engages the friction surface 25 of the drum D. 70

It will thus be seen that a shocking apparatus is provided which will operate in lifting and depositing shocks within quite a considerable radius and that the entire operation of the apparatus may be gov- 75 erned by an operator standing upon a turn-table and that by manipulation of the various parts the shocks may be deposited at any desired point upon the bed of a wagon or rack. 80

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

1. In a loading apparatus, a truck, a turn-table supported upon the truck, a derrick 85 and hoisting apparatus upon the turn-table and a friction brake means including a foot-lever to prevent the table from turning.

2. In a loading apparatus, a truck, a turn-table supported upon the truck, a derrick 90 rising from the turn-table, a boom connected with the derrick, guide pulleys mounted upon the apparatus, a double drum supported for rotation upon the turn-table, friction means to control the rotation of the 95 drum, a draft element wound upon one section of the drum and guided between the pulleys, and a hoisting element wound in an opposite direction upon the other section of the drum and connected with the free end 100 of the boom and carrying a block.

3. In a loading apparatus, a carrying truck, a turn-table supported upon the truck, a derrick rising from the turn-table and having a boom, guide pulleys journaled 105 upon the apparatus, a double drum supported for rotation, friction means to control the rotation of the double drum, a shaft extending slidably and loosely through the latter and carrying a single drum, means for 110 adjusting said shaft, clutch means for connecting the single with the double drum, a brake wheel, clutch means to connect the brake wheel with the single drum, a flexible element wound upon the latter and guided 115 over the derrick to the free end of the boom, a hoisting element wound upon one section of the double drum and extending over guiding members upon the boom, and a draft element wound in the opposite direc- 120 tion to the hoisting element upon the outer section of the double drum and guided between the pulleys.

4. A hoisting apparatus comprising a turn table mounted upon a truck, a derrick 125 mounted upon said turn table, a boom supported by the derrick, guide rollers journaled upon said boom, a hollow telescopic

member passing between said guide rollers,
tackle operated from the turn table and
passing through said hollow member and
depending from the ends thereof and tackle
5 operated from the turn table and connected
with said boom.

In testimony that I claim the foregoing

as my own, I have hereto affixed my signature in the presence of two witnesses.

ROE TANNER.

Witnesses:

CHARLES C. SUTTON,
ROBT. ARMATAGE.