

No. 815,416.

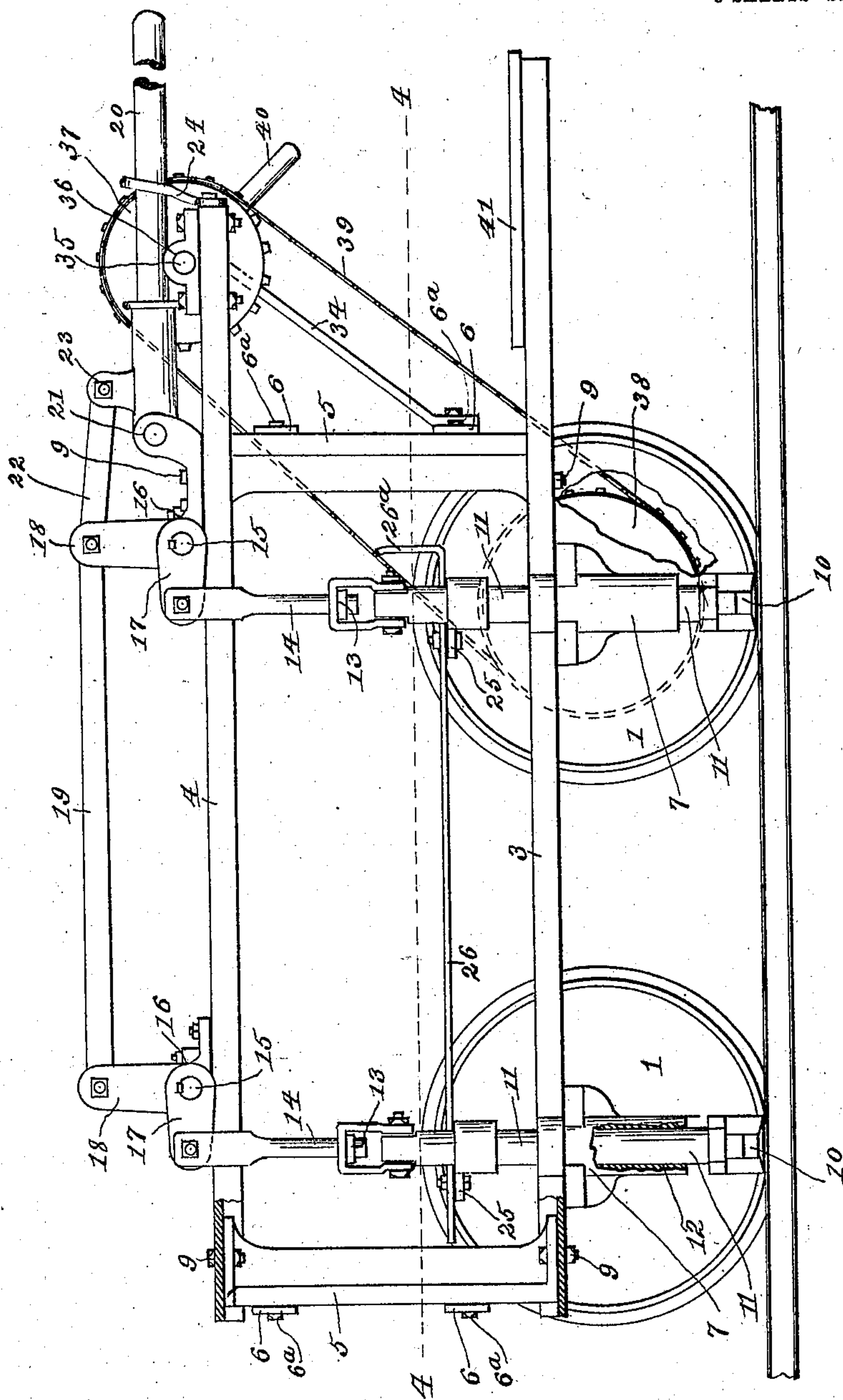
PATENTED MAR. 20, 1906.

S. A. GARLAND.
ELEVATING TRUCK.

APPLICATION FILED DEC. 5, 1904.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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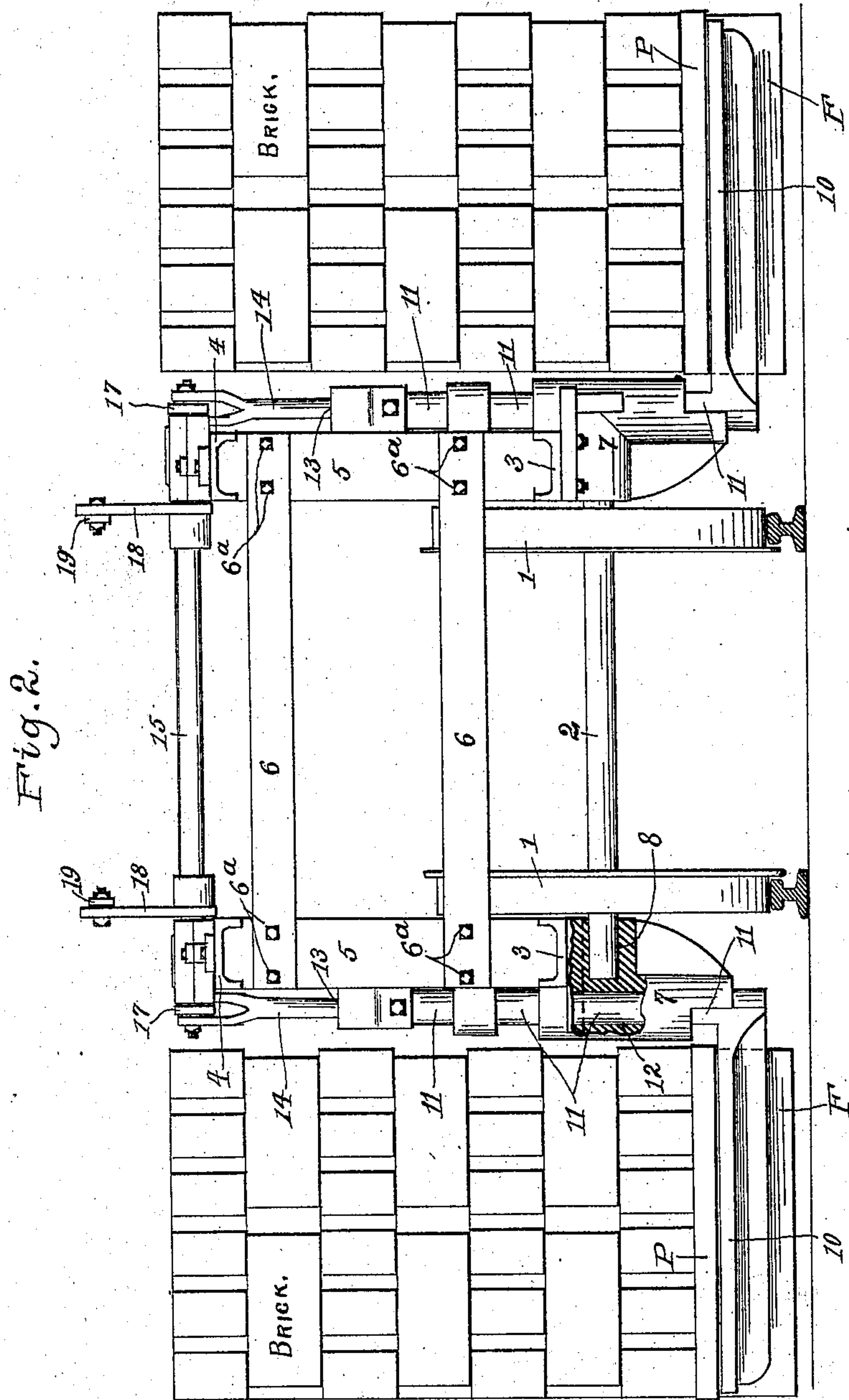
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5 SHEETS—SHEET 2.



Witnesses:

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5 SHEETS—SHEET 3.

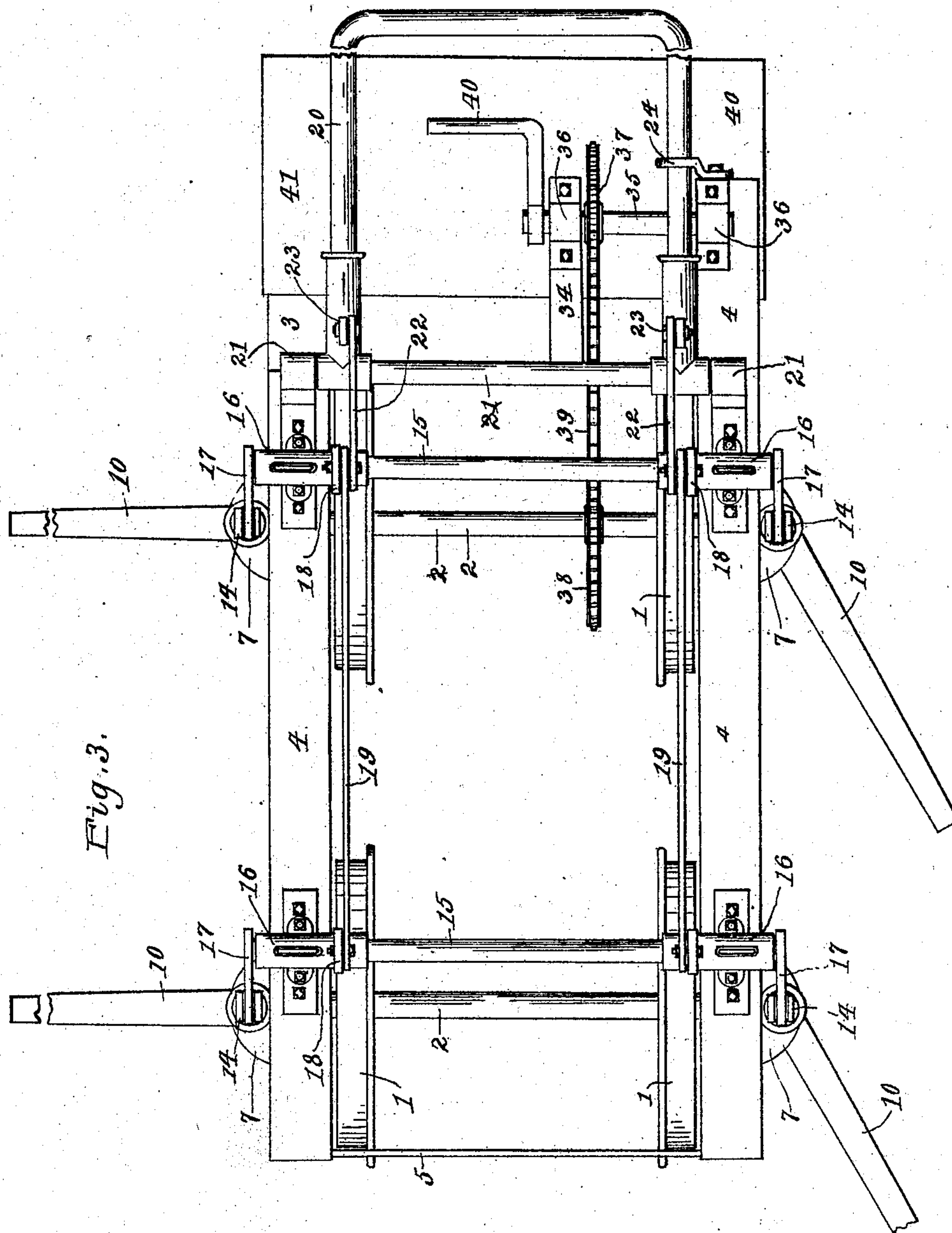


Fig. 3.

Witnesses:

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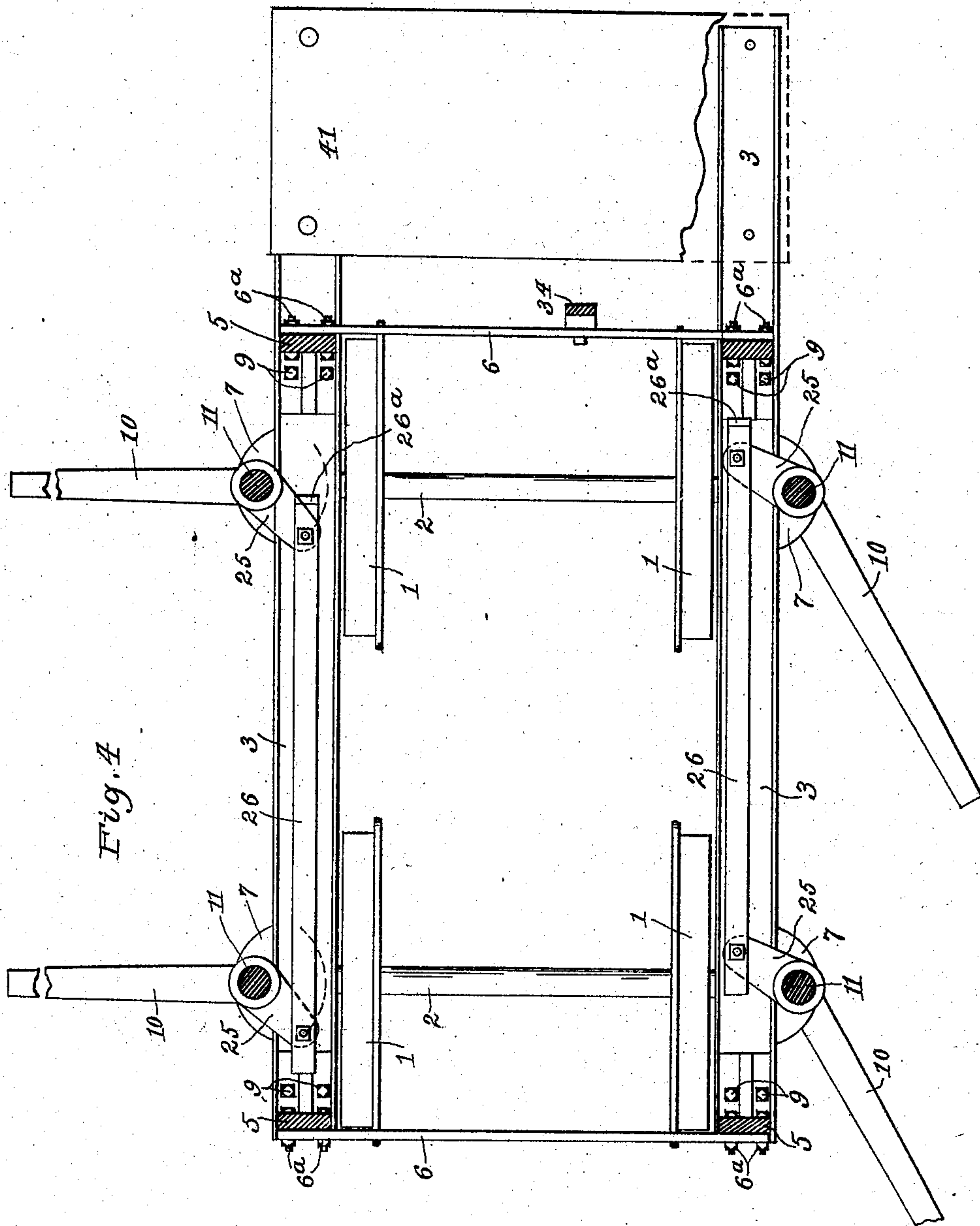
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5 SHEETS—SHEET 4.



Witnesses:

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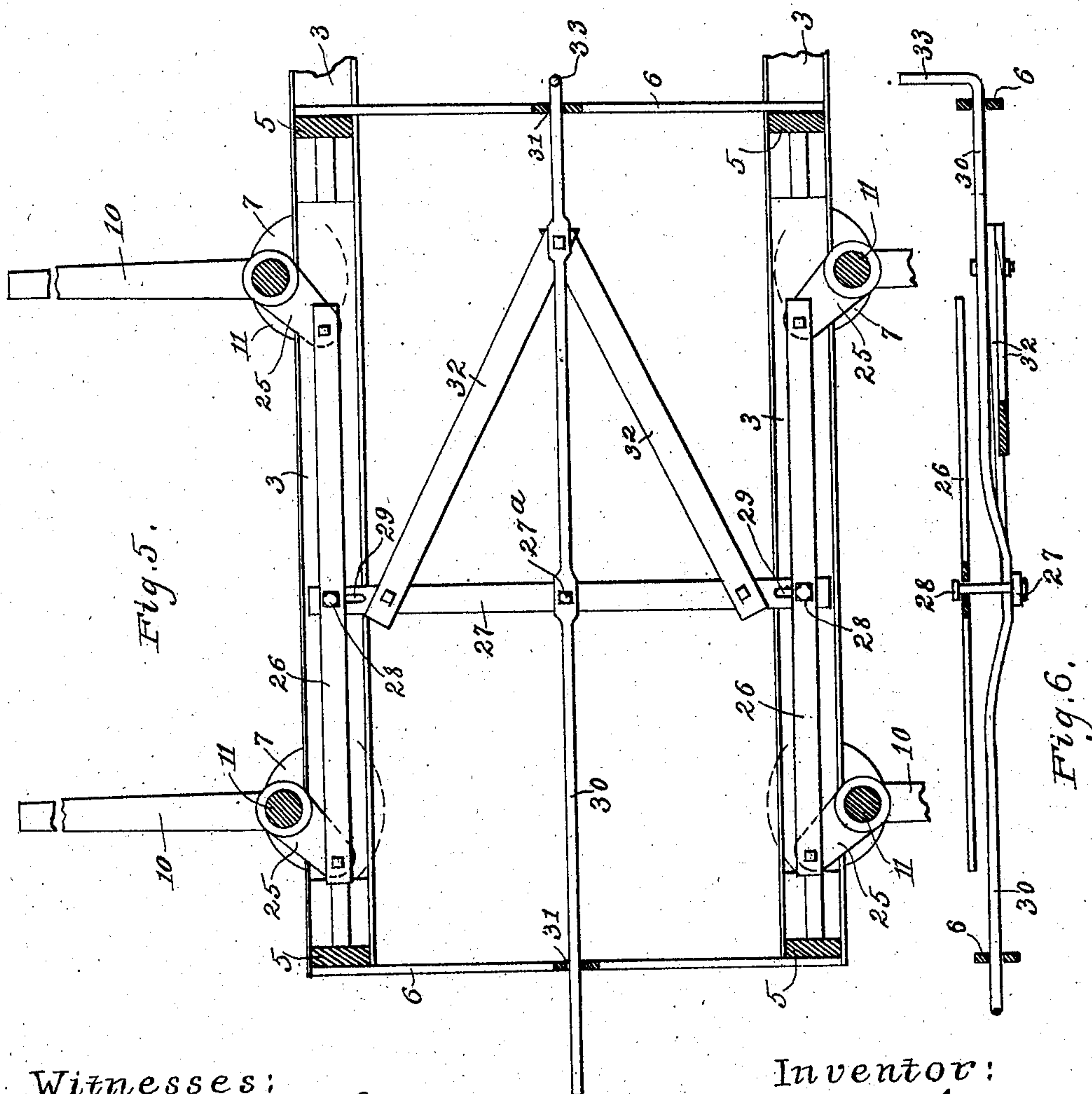
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No. 815,416.

PATENTED MAR. 20, 1906.

S. A. GARLAND.
ELEVATING TRUCK.
APPLICATION FILED DEC. 5, 1904.

5 SHEETS—SHEET 5.



Witnesses:
Carrie R. Dry,
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UNITED STATES PATENT OFFICE.

STEPHEN A. GARLAND, OF KNOXVILLE, TENNESSEE.

ELEVATING-TRUCK.

No. 815,416.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed December 5, 1904. Serial No. 235,492.

To all whom it may concern:

Be it known that I, STEPHEN A. GARLAND, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Improvement in Elevating - Trucks, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates particularly to trucks for hauling brick and similar articles or commodities which are to be placed for drying or burning or stored for any other purpose.

My truck is specially adapted for lifting pallets loaded with brick and carrying said pallets, with their loads, and depositing them for drying and burning, and my truck is adapted for taking such pallets from the ground or floor and again depositing them upon the ground or floor, so that elevated frames or racks for receiving and supporting the loaded pallets are unnecessary.

The truck may be operated upon the ground or floor or upon rail-tracks of any suitable form.

In the accompanying drawings, Figure 1 is a side elevation of a truck embodying my improvement. Fig. 2 is an end elevation of the same truck. Fig. 3 is a plan. Fig. 4 is a horizontal transverse section on the line 4 4 of Fig. 1. Fig. 5 is a horizontal sectional view of mechanism for simultaneously turning the supporting-arms. Fig. 6 is a detail sectional elevation of the mechanism for turning the supporting-arms.

Referring to said drawings, 1 1 1 1 are supporting-wheels arranged in pairs, and 2 2 are ordinary cylindric axles extending through pairs of said wheels and secured immovably to the latter. Said wheels support a frame consisting of lower side plates 3, upper side plates 4, and four upright corner-posts 5 and four horizontal end bars 6. The side plates 3 are located outside of the wheels 1 and have attached to or formed integral with themselves bearing-blocks 7, in which are horizontal bearings 8, into which extend the ends of the axles 2. By this means said frame is supported upon said axles. Each upper side plate 4 is located directly above one of the side plates 3 and supported by two of the posts 5, intervening between said upper side plate and the adjacent lower side plate. Said posts and said side plates are secured to each other by any suitable means, as by means of bolts 9. The transverse bars

6 are secured to said posts by bolts 6^a. Upon said frame are secured the other devices to be hereinafter described. Chief among these are four horizontal arms 10, which are arranged to be raised and lowered a short distance and to be extended transversely outward from each side of the machine and to be swung laterally, so as to become parallel to the sides of the truck, for purposes to be hereinafter described. Each of said arms is attached to or integral with an upright shaft 11, extending through an upright bearing 12 in the said bearing-block 7. To the upper end of each of said shafts another shaft 14 is attached by a swivel-joint 13.

Adjacent to the upper end of each of the last-mentioned shafts a rock-shaft 15 is mounted upon the upper side plate 4 in bearings 16. Each such rock-shaft has at its ends a rigid horizontal arm 17, hinged to the upper end of said shaft 14, and at the opposite end of the bearings 16 each of said shafts has a rigid upright arm 18. The upper ends of said upright arms at the same side of the truck are joined by a horizontal connecting-bar 19, hinged by its ends to said arms. To the front end of the upper portion of the truck-frame a U-shaped handle 20 is hinged in bearings 21, secured to the upper face of the upper side plates 4. From each front upright arm 18 of the adjacent rock-shafts a link 22 extends to the handle 20 and is hinged to the latter at 23.

From the foregoing description it will be readily understood that by raising and lowering the free end of said handle said rock-shafts will be rocked and the outer ends of the horizontal arms 17 will be raised and lowered, whereby said upright shafts 14 and 11 and the horizontal arms 10 will be raised and lowered. For ordinary purposes such movement is to be comparatively limited. Usually it will not exceed two or three inches.

Any suitable means may be employed for securing the handle 20 in its lower position. For this purpose the drawings show a hook 24, hinged by its lower end to the upper adjacent top rail 4 and adapted to extend over one of the arms of said handle when the latter has been depressed sufficiently to raise the arms 10. In addition to this upright movement of the said supporting-arms 10 said arms are turned horizontally by the partial rotation of the shaft 11 in the bearing 12. Said rotation is accomplished by the following-described mechanism: Above the lower

side plates each of said shafts 11 has a rigid crank-arm 25 extending toward the opposite shaft 11 at that end of the truck, and said crank-arms at the same side of the machine are joined by a connecting-rod 26, which is extended to each end of the truck, so that it can be reached by the hand of the operator for pushing or pulling said rod lengthwise. The ends of said bar, preferably only the ends adjacent the handle 20, may be prolonged and provided with handles 26^a. Such lengthwise movement results in the partial rotation of the shafts 11 and a corresponding lateral movement of the outer ends of said supporting-arms 10. This construction provides for the horizontal shifting of the two crank-arms at one side of the truck independently of the similar crank-arms at the other side of the truck. Simultaneous movement of the said crank-arms at both sides of the truck may be effected by means of the mechanism illustrated in Fig. 5. In said form a cross-bar 27, located approximately at the middle of the truck, is coupled to the connecting-bars 26 by a bolt 28, extending loosely through longitudinal slots 29 in said cross-bar 27 and being rigidly secured to said connecting-bars. Said bolt 28 is long enough to allow upright movement of said connecting-bar 26 and cross-bar 27 with reference to each other. A bar 30 extends lengthwise along the middle of the truck and is suitably secured to said cross-bar, as by a bolt, 27^a, and has its ends suitably guided, as by being extended through apertures 31 in the horizontal end bars of the truck-frame. Braces 32 join the cross-bar 27 and the longitudinal bar 30. Since the bolt 28 is relatively long and extends loosely through the slot 29, the connecting-bars 26 are free to partake of the upright movement of the crank-arms 25 and upright shafts 11. Either or both ends of the longitudinal bar 30 may be bent to form a convenient handle 33. From the foregoing description it will be understood that the longitudinal shifting of said longitudinal bar 30 will cause the forward or rearward movement of said cross-bar 27 and the connecting-bars 26, whereby the four supporting-arms 10 are simultaneously turned in a horizontal plane.

The operation of the truck is as follows: Two pallets P, having the two supporting cross-pieces or feet F, are placed parallel to each other and at a proper distance from each other to permit the truck to come between them and are then loaded with brick at the press or elsewhere. Any number of pairs of pallets may be thus arranged to be transported at any time. When a pair of said pallets are to be transported to a place for drying, (either in the open air or in a kiln,) the truck is pushed between the pallets constituting a pair, the supporting-arms 10 having been first lowered and turned approximately parallel to the sides of the truck. The truck

is set so that one of said arms at each side of the machine has a clear way to swing beneath the pallet between the two feet F, while the other of said arms has a clear way to swing beneath said pallet between one of said feet and the adjacent end of the pallet. Then by drawing down the U-shaped handle 20 the said supporting-arms are simultaneously lifted until they engage and lift said two pallets from the ground or floor. Thereafter the truck, with its load, is pushed or pulled to the place where said pallets are to be set, and by releasing said U-shaped handle 20 said supporting-arms are made free to descend until said pallets again rest upon the floor or ground and said arms are free from the pallets. Then said arms are again turned horizontally until they clear said pallets, after which the truck is hauled away to take another pair of pallets.

It will be observed that this truck is adapted for use in a brick-yard which has no truck-tracks and no pallet-supporting structures whatever. In other words, the truck is adapted to handle these pallets upon smooth level ground or upon a smooth level floor. If tracks are desired to make propulsion of the truck easier, such tracks may be laid approximately level with the ground or floor and the pallets taken from and again deposited upon the ground or floor, and my improved truck is well adapted to the hauling of heavy loads, for the truck has four wheels and the load is evenly divided upon such four wheels. In this connection attention is directed to the fact that each of the horizontal supporting-arms may be placed directly opposite one of the wheels, as shown in the drawings, whereby the pallets may be so placed as to put equal portions of the load upon the front and the rear wheels.

To aid in propelling the truck when it has a load, I have applied a crank-gearing to one end of the truck. From the adjacent upper end bar 6 of the truck-frame a bracket 34 extends outward and upward to the level of the upper face of the adjacent upper side plate 4, and a rotary shaft 35 is secured in bearings 36, seated upon said bracket and said side plate. A sprocket-wheel 37 surrounds and is secured to said shaft, and a similar sprocket-wheel 38 surrounds the adjacent axle 2, and a sprocket-chain 39 extends around said sprocket-wheels. The shaft 35 projects beyond said bracket and is there provided with a crank 40, whereby said shaft may be rotated and the said sprocket-wheels and said sprocket-chain operated for the rotation of the said axle 2. Beneath the crank 40 the lower side plates 3 of the truck-frame may be extended and receive upon their upper faces a platform 41, upon which the operator may stand while propelling the truck by means of said crank.

It is to be understood that in the several

portions of my truck the mechanism may be varied without departing from the essence of my invention.

I claim as my invention—

5 1. A truck containing horizontally opposite horizontally - shiftable arms supported on upright axes located at opposite sides of the middle longitudinal upright plane of the truck, and mechanism for simultaneously
10 lifting said arms, substantially as described.

2. A truck containing supporting-wheels, a frame, horizontally opposite horizontally-shiftable arms supported on upright axes located at opposite sides of the middle longitudinal upright plane of the truck, and mechanism for simultaneously lifting said arms,
15 substantially as described.

3. A truck comprising a frame, supporting-wheels, upright rotary and reciprocary shafts at each side of said frame, and horizontal supporting - arms supported by said shafts, substantially as described.

4. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, and mechanism for lifting and horizontally shifting said arms, substantially as described.

5. A truck containing a frame, supporting-wheels located within said frame, horizontally opposite horizontally - shiftable arms supported on upright axes located at opposite sides of the middle longitudinal upright plane of the truck, and mechanism for simultaneously lifting said arms, substantially as
30 described.

6. A truck comprising a frame, supporting-wheels located within said frame, upright rotary and reciprocary shafts at each side of said frame, and horizontal supporting-arms supported by said shafts, substantially as described.

7. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, rock-shafts, swivel connections between the arms of said rock-shafts and said upright shafts, and a handle in operative relation
45 with said rock-shafts, substantially as described.

8. A truck comprising a frame, supporting-wheels located within said frame, upright reciprocary and rotary shafts at each side of said frame, supporting-arms extending laterally from said shafts, rock-shafts, swivel connections joining the arms of said rock-shafts and said upright shafts, and a handle in operative relation with said rock-shafts, substantially as described.

9. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, rock-shafts, swivel connections between the
65 arms of said rock-shafts and said upright shafts, a handle in operative relation with said rock-shafts, and mechanism for turning said upright shafts, substantially as described.

10. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, rock-shafts, swivel connections between the arms of said rock - shafts and said upright shafts, a handle in operative relation with said rock-shafts, crank-arms on said upright shafts, and bars connecting said crank-arms, substantially as described.

11. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, rock-shafts, swivel connections between the arms of said rock-shafts and said upright shafts, a handle in operative relation with said rock-shafts, crank-arms on said upright shafts, bars connecting said crank-arms, and mechanism for joining said bars, substantially as described.

12. A truck comprising a frame, supporting-wheels located within said frame, upright reciprocary and rotary shafts at each side of said frame, horizontal arms supported by said shafts, rock-shafts, swivel connections joining the arms of said rock-shafts and said upright shafts, a handle in operative relation with said rock-shafts, and mechanism for turning said upright shafts, substantially as described.

13. A truck comprising a frame, supporting-wheels located within said frame, upright reciprocary and rotary shafts at each side of said frame, horizontal arms supported by said shafts, rock-shafts, swivel connections joining the arms of said rock-shafts and said upright shafts, a handle in operative relation with said rock-shafts, crank-arms on said upright shafts, and bars connecting said crank-arms, substantially as described.

14. A truck comprising a frame, supporting-wheels located within said frame, upright reciprocary and rotary shafts at each side of said frame, horizontal arms supported by said shafts, rock-shafts, swivel connections joining the arms of said rock-shafts and said upright shafts, a handle in operative relation with said rock-shafts, crank-arms on said upright shafts, bars connecting said crank-arms, and mechanism joining said bars, substantially as described.

15. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, mechanism for lifting said shafts, and crank-arms extending laterally from said upright shafts, substantially as described.

16. A truck comprising supporting-wheels, a frame, upright reciprocary and rotary

shafts at each side of the truck, supporting-arms extending laterally from said shafts, mechanism for lifting said shafts, crank-arms extending laterally from said upright shafts, and bars connecting said crank-arms, substantially as described.

17. A truck comprising supporting-wheels, a frame, upright reciprocatory and rotary shafts at each side of the truck, supporting-arms extending laterally from said shafts, mechanism for lifting said shafts, crank-arms extending laterally from said upright shafts, bars connecting said crank-arms, and mechanism joining said bars, substantially as described.

18. A truck comprising a frame, bearing-blocks, 7, applied to said frame, supporting-wheels, axles extending through said supporting-wheels into said bearing-blocks, upright shafts journaled slidably and rotatably in said blocks, horizontal supporting-arms secured to said shafts, and mechanism for lifting and turning said shafts, substantially as described.

19. A truck comprising a frame, bearing-blocks, 7, applied to said frame, supporting-wheels, axles extending through said supporting-wheels into said bearing-blocks, upright shafts journaled slidably and rotatably in said blocks, horizontal supporting-arms secured to said shafts, rock-shafts having arms coupled to said upright shafts by swivel connections, and a handle in operative relation with said rock-shafts, substantially as described.

20. In a truck, the combination with a frame consisting of lower side rails, upper

side rails, corner-posts, and end bars, of supporting-wheels, and horizontally opposite horizontally-shiftable arms supported on upright axes located at opposite sides of the middle longitudinal upright plane of the truck, and mechanism for simultaneously lifting said arms, substantially as described.

21. In a truck, the combination with a frame consisting of lower side rails, upper side rails, corner-posts, and end bars, of supporting-wheels, upright reciprocatory and rotary shafts at each side of the truck, supporting-arms applied to said shafts, and mechanism for lifting said shafts, substantially as described.

22. In a truck, the combination with a frame consisting of lower side rails, upper side rails, corner-posts, and end bars, of supporting-wheels located within said frame, upright rotary and reciprocatory shafts at each side of said frame, and horizontal arms supported by said shafts, substantially as described.

23. A truck comprising supporting-wheels, wheel-axles, a frame, liftable and horizontally-shiftable supporting-arms at each side of the truck, a rotary shaft and hand-crank supported upon one end of said frame, and gearing connecting said shaft and one of the wheel-axles, substantially as described.

In testimony whereof I have signed my name, in presence of two witnesses, this 28th day of November, in the year 1904.

STEPHEN A. GARLAND.

Witnesses:

HORACE VAN DEVENTER,
CYRUS KEHR.