

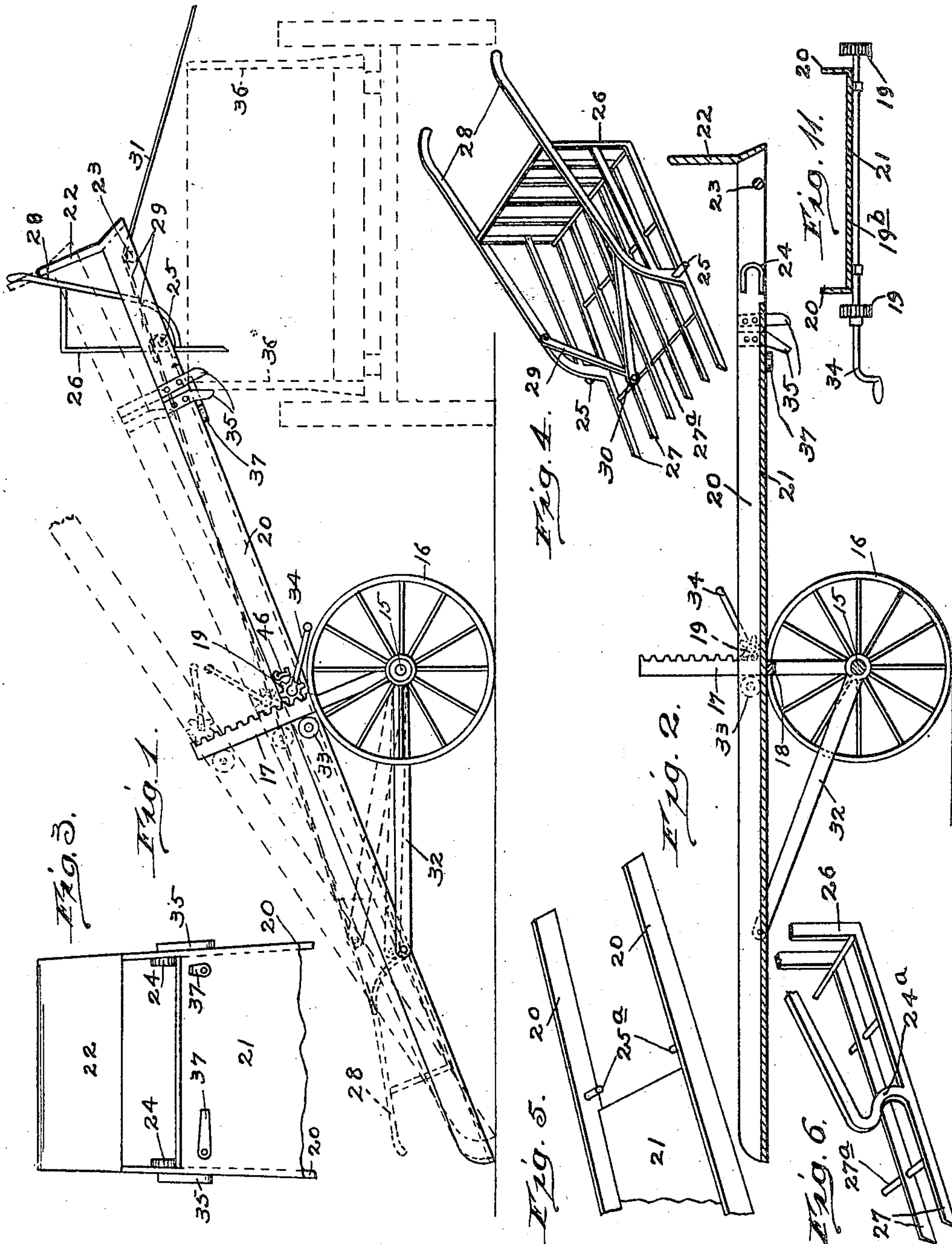
No. 822,614.

PATENTED JUNE 5, 1906.

LE GRAND KNIFFEN.
LOADING APPARATUS FOR WAGONS, &c.

APPLICATION FILED NOV. 27, 1905.

2 SHEETS—SHEET 1.



Witnesses:

Chas. E. Gorton

M. A. Nyman

Inventor:
Le Grand Kniffen

By: Chas. C. Tillman
Att'y

No. 822,614.

PATENTED JUNE 5, 1906.

LE GRAND KNIFFEN.
LOADING APPARATUS FOR WAGONS, &c.

APPLICATION FILED NOV. 27, 1905.

2 SHEETS—SHEET 2.

Fig. 8.

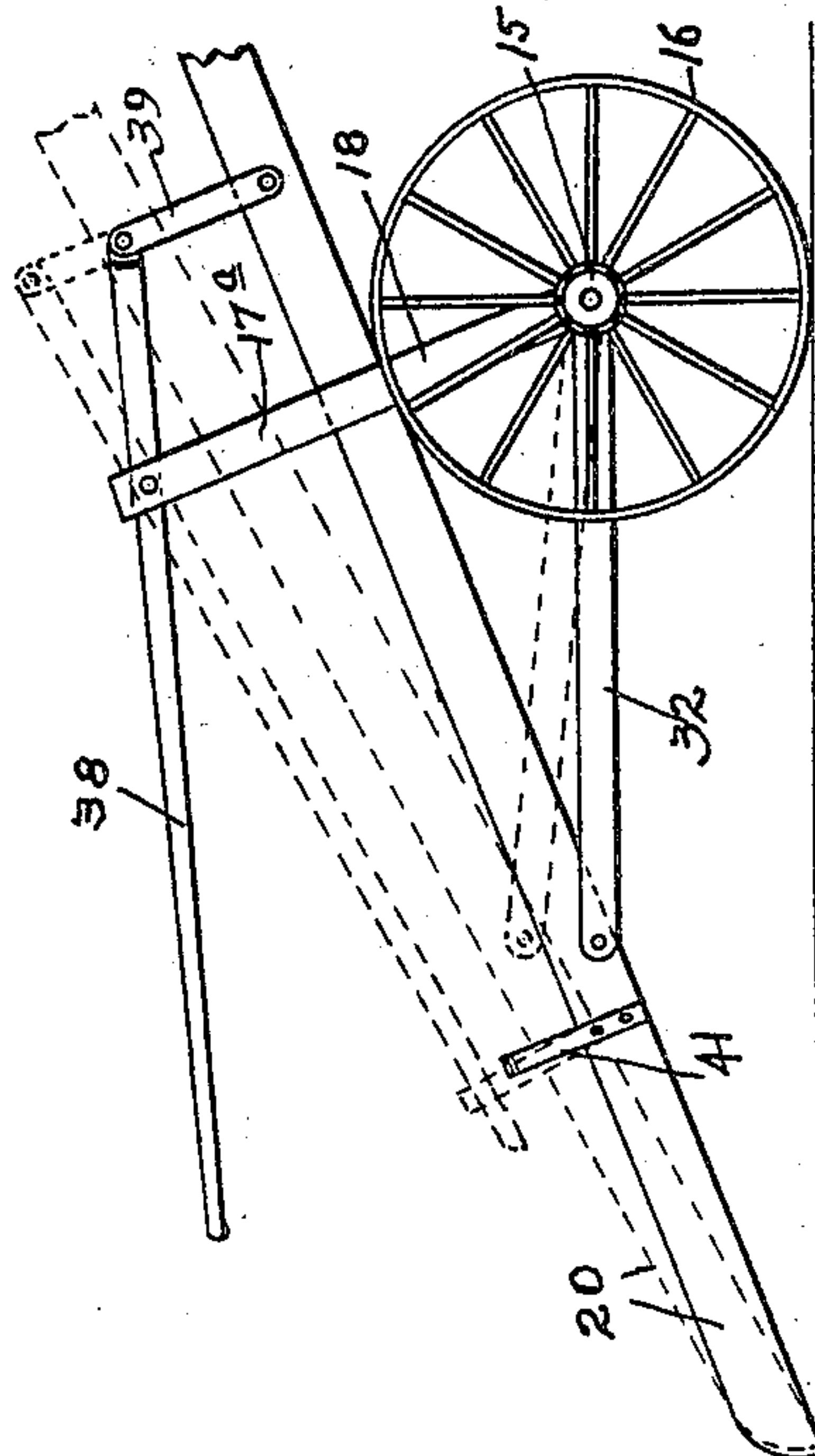


Fig. 9.

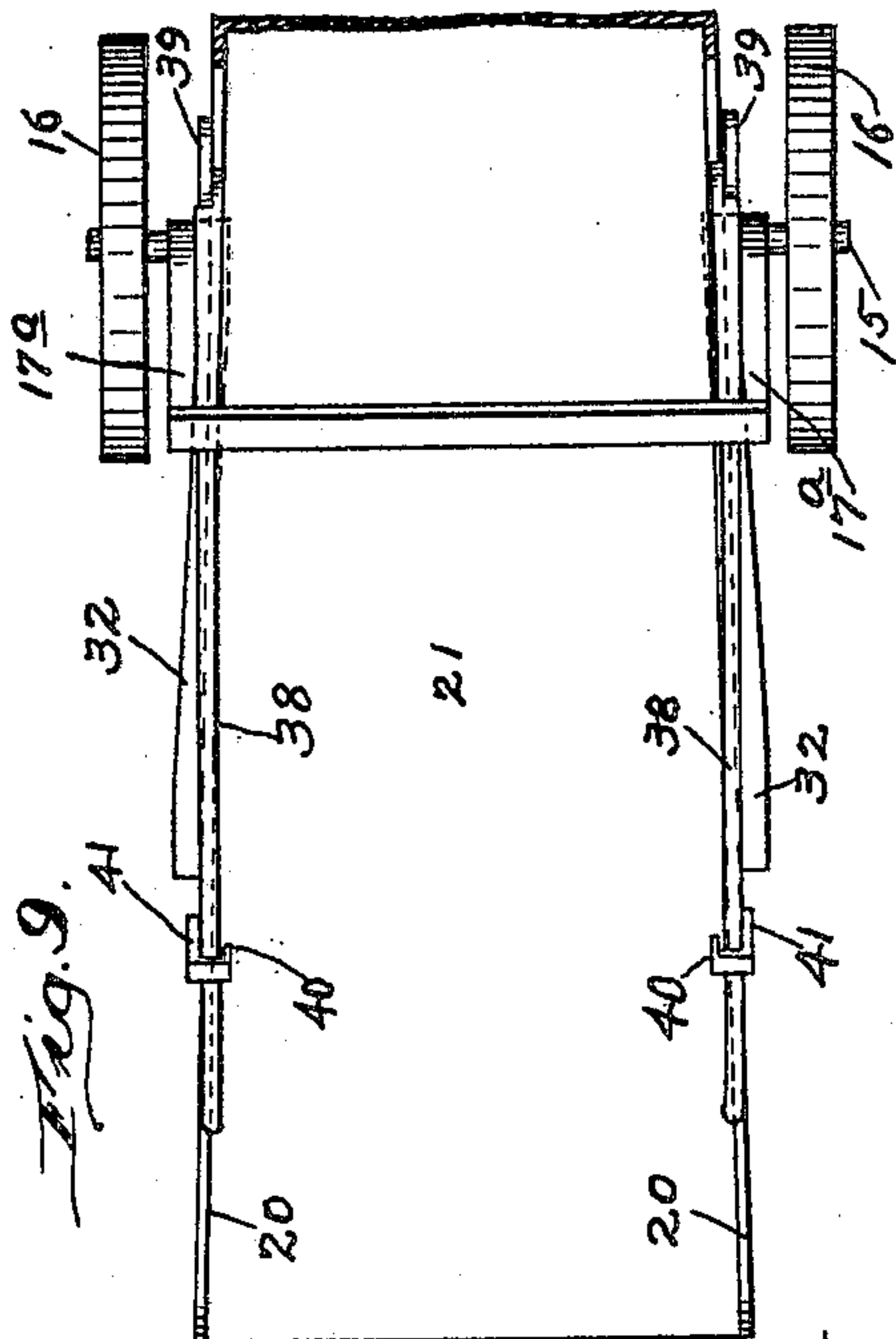


Fig. 7.

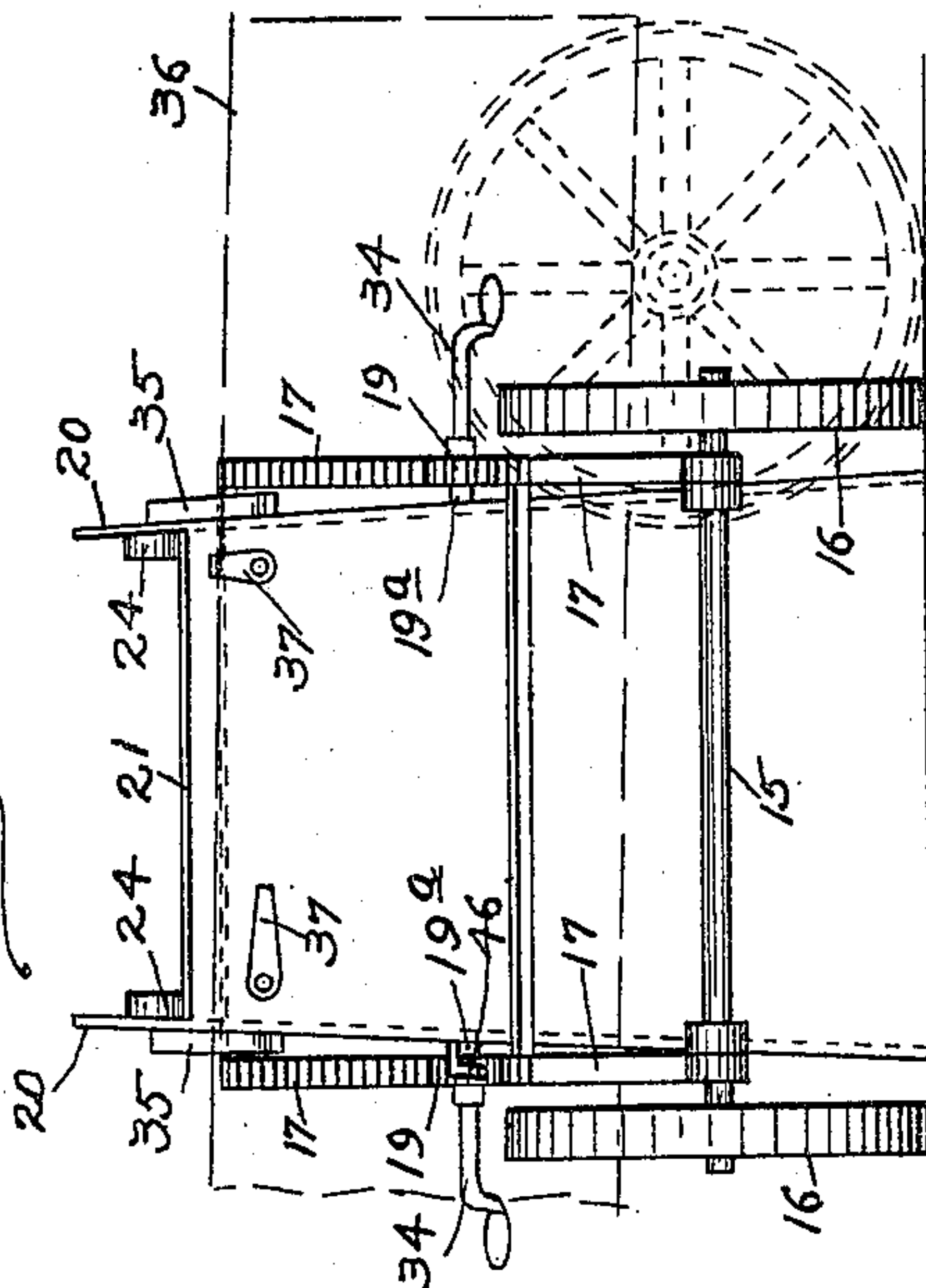


Fig. 10.

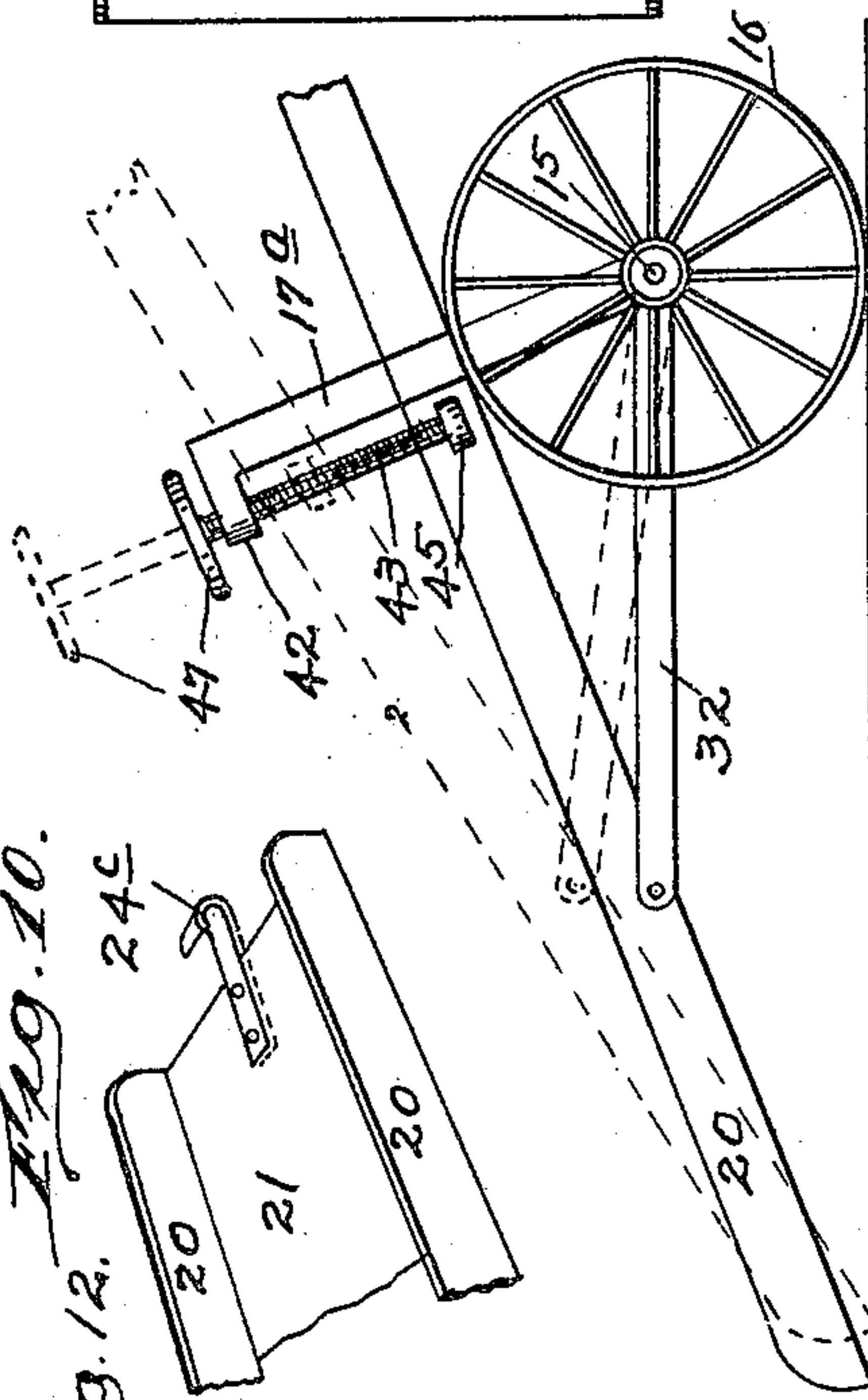
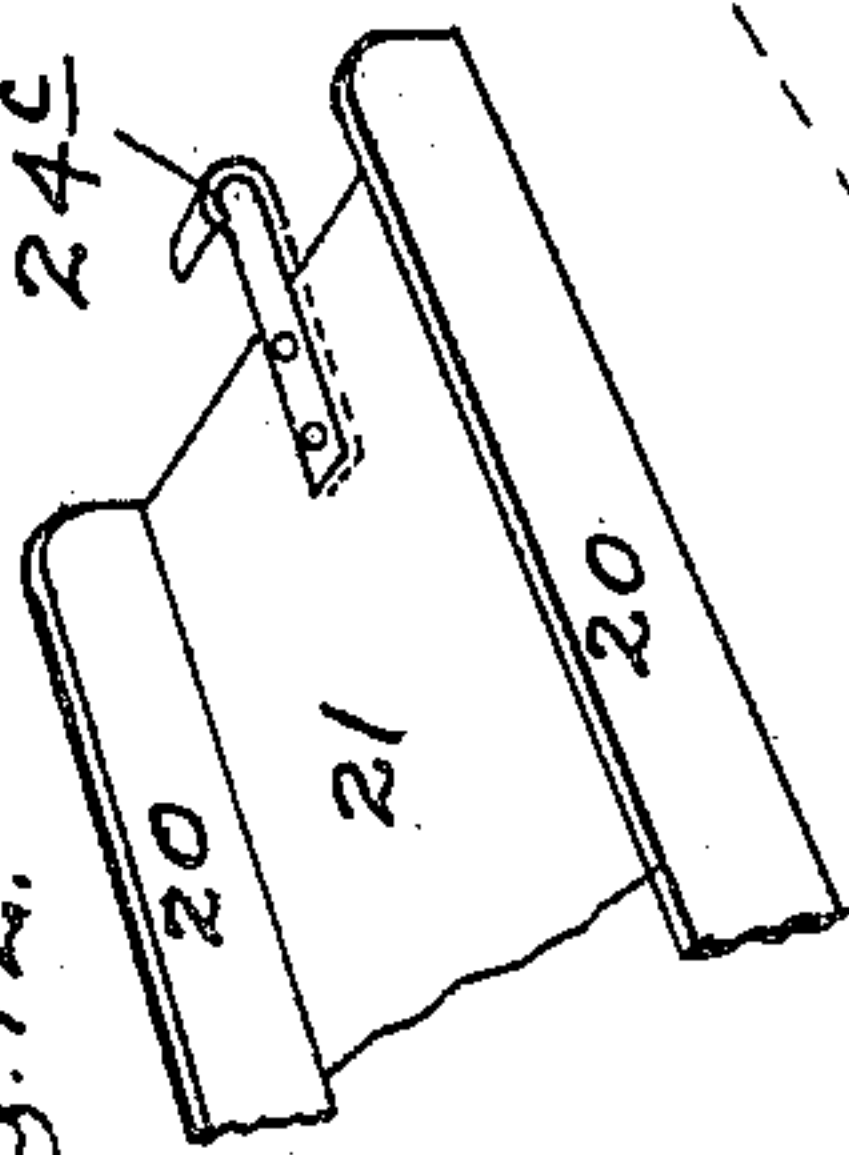


Fig. 12.



Witnesses:

Chas. E. Gorton.
M. A. Myman.

Inventor:
Le Grand Kniffen.

By

Chas. E. Gorton
Atty.

UNITED STATES PATENT OFFICE.

LE GRAND KNIFFEN, OF CHICAGO, ILLINOIS.

LOADING APPARATUS FOR WAGONS, &c.

No. 822,614.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed November 27, 1905. Serial No. 289,191.

To all whom it may concern:

Be it known that I, LE GRAND KNIFFEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Loading Apparatus for Wagons and the Like, of which the following is a specification.

This invention relates to improvements in an apparatus to be employed for loading wagon bodies or boxes, cars, or other elevated receptacles with manure, gravel, sand, dirt, grain, and the like, especially from a point lower than the receptacle to be loaded, of the type in which an inclined chute and traveling conveyer thereon is used; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a comparatively simple and inexpensive apparatus of the above-named character which shall be portable and adjustable, so that it can be readily removed by hand from place to place and certain parts thereof easily adjusted to vehicles or receptacles of different sizes and construction for loading the same.

Another object is to so construct the loader as to provide a wheeled and teetered chute on which the carrier for the material will travel, which may be placed in substantially a horizontal and almost balanced position, when it is desired to move the apparatus from one place to another, and which can be elevated at one of its ends to enable the team and wagon to pass thereunder to be loaded, when the chute may be lowered and properly levered and connected to the wagon-body or receptacle and again elevated to allow the loaded receptacle to pass out of the way.

A further object is to provide means for automatically dumping the carrier so that it will discharge its load into the wagon or receptacle, when it will be retained or held on the chute.

Numerous other objects and advantages will be disclosed in the subjoined description and explanation.

In the accompanying drawings, Figure 1 is a view in side elevation of a loading apparatus embodying one form of my invention, showing by continuous lines the chute thereof in place on the side of a wagon-body, the latter being indicated by dotted lines and

illustrating the carrier by continuous lines in its tilted or dumped position. The elevated positions of the chute and the lowered position of the carrier are indicated by dotted lines in this figure. Fig. 2 is a longitudinal sectional view through the wheeled chute, showing it in position to be moved from one place to another. Fig. 3 is a bottom plan view of the upper portion of the chute. Fig. 4 is a perspective view of the scoop or carrier. Fig. 5 is a perspective view of the upper portion of the chute, showing a modification in the construction of the stops thereon for the carrier. Fig. 6 is a similar view of a portion of the carrier, showing a modification in the construction of the stops thereon for those on the chute. Fig. 7 is a rear end view in elevation of the loader, showing it in position on the body of a wagon or manure-spreader, which is illustrated by dotted lines as being rearwardly inclined. Fig. 8 is a view in side elevation of the apparatus, showing a modification in the means for elevating and lowering the chute thereof. Fig. 9 is a plan view thereof. Fig. 10 is a side view of the apparatus, illustrating still another modification in the means for elevating and lowering the chute. Fig. 11 is a cross-sectional view of the chute, showing a modification in the construction of the parts used in connection with the rack-bars for elevating and lowering the same; and Fig. 12 is a perspective view of a portion of the upper end of the chute, showing a modification in its construction, as well as a modified form of the stop or bearing for the carrier.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The reference-numeral 15 designates the axle of the apparatus, on each end of which is mounted a wheel 16 of any desired size and construction. Mounted on the axle near the inner surface of each of the wheels 16 is an upwardly-extending rack-bar 17, which bars are united by means of a cross-piece 18 and are adapted to engage pinions 19, journaled on the sides 20 of the chute, which consists of a bottom 21 and upright sides 20 at each of its side edges and which sides preferably diverge or widen out toward their lower ends. One end of the chute, which will herein be called the "upper" end thereof, for the reason that in the operation of the apparatus it will be elevated above the wagon-body or receptacle to be loaded, is provided with an up-

wardly-extending cross-piece 22 and a transverse connecting-rod 23 for the purposes to be presently explained. As is clearly shown in Figs. 2, 3, and 5 of the drawings, the bottom 21 of the chute extends from the lower ends of the sides 20 thereof longitudinally with said sides, but terminates at some distance below or inwardly from the upper ends of the sides or that end thereof on which the cross-piece 22 is secured, thus leaving an open space for the operation of the carrier in dumping its load.

The upper portion of the chute is provided with a pair of stops or bearing-pieces 24, which are preferably secured to the inner surface of each of the side pieces 20 at or near the upper end of the bottom 21 of the chute. Each of said stops or bearing-pieces 24 is curved or substantially U-shaped and presents its opening toward the lower end of the chute to receive and engage stops or bearings 25 on the sides of the carrier 26, which may be of any well-known construction—for instance, like a road-scraper—but which in the present instance I have shown formed of tines or bars 27 as a convenient carrier for the handling of manure or like material; but it will of course be understood that where finely-comminuted material is to be handled a scoop or scraper may be employed, which may have a rearwardly-projecting handle 28 on each of its sides similar to those shown on the carrier illustrated in Fig. 4, by means of which the carrier may be guided by the operator. As shown in said figure, a bail 29 is pivotally secured to each of the sides of the carrier at points considerably above the bearings or stops 25 and has in its front portion an eye 30 for the reception of one end of a rope or cable 31, to the other end of which a horse or other means may be connected for drawing the carrier upwardly on the inclined chute.

Mounted at one of its ends on the axle 15, near each of the rack-bars 17, is a bar 32, the other end of each of which is pivotally secured to the chute and by preference to the sides thereof at a suitable point between the rack-bars and lower end of the chute. Journaled on each side of the chute near each of the rack-bars 17 and on the sides thereof adjacent to the lower end of the chute is an anti-friction-roller 33, which are employed to hold said rack-bars in mesh with the pinions 19, which are shown in Figs. 1, 2, and 7 of the drawings as being mounted on stub-shafts 19^a, journaled in the sides of the chute and each being provided with a crank-handle 34 for turning the same, so that the chute may be elevated from either side thereof. Instead, however, of employing the stub-shaft 19^a a transverse shaft 19^b, having pinions 19 mounted thereon to engage the rack-bars 17, journaled on the bottom of the chute and having a crank-shaft 34 at one of its ends, as

is clearly shown in Fig. 11 of the drawings, may be used. Each side of the chute is provided near its upper portion and at about the upper end of its bottom with two downwardly-extending projections 35 to stride the side-board 36 of the wagon-body, so as to securely hold the chute in place thereon. In some instances the wagon-body or receptacle is inclined from a horizontal plane either forwardly or rearwardly, as shown in Fig. 7 of the drawings, and in such cases it becomes necessary in order to properly support the chute to provide means for leveling its upper portion, and for this purpose a block 37 is swiveled on the lower surface of the chute at or near each of its sides, so that one of said blocks may be turned between the upper edge of the wagon-body or receptacle and the lower surface of the chute, as shown in Figs. 1 and 7, thus supporting the latter in a level position.

As shown in Fig. 5, I may provide each of the sides 20 on its inner surface with an inwardly-extending projection 25^a to act as stops or bearings for a modified form of the stops or bearing 24^a, with which each side of the carrier 26 may be provided, as shown in Fig. 6 of the drawings, in which figure it will be observed and understood that each side of the carrier will be provided with a curved stop or bearing 24^a, the open portion of each of which will be presented toward the upper end of the chute when the carrier is located thereon, so that when it reaches the upper end of the bottom 21 the bearings 24^a will engage those 25^a (see Fig. 5) on the chute, and thus stop and pivotally hold the carrier, so that it may be tilted to the position shown by continuous lines in Fig. 1, thus dumping its load into the wagon-body. It is evident that the same operation will be performed when the stops or bearings on the chute and carrier, respectively illustrated in Figs. 2 and 4 and above described, are used.

Instead of employing the rack-bars 17 and pinions 19, as illustrated in Figs. 1, 2, 7, and 11 and above described, for elevating and lowering one end of the chute, I may use the construction illustrated in Fig. 8 of the drawings, which consists in mounting on the axle 15 near each of its ends an upwardly-extending bar 17^a, on the upper portion of each of which is fulcrumed a lever 38, one end of each of which is connected to the chute by means of a link 39 and the other end of each of which when depressed may be caused to engage a hook 40 on the upper end of upwardly-extending straps 41, one of which is secured to each side of the chute, as is clearly shown in Figs. 8 and 9 of the drawings.

In Fig. 10 is illustrated another modification in the means of elevating and lowering the chute, which I may sometimes employ and which consists in dispensing with the levers 38 and links 39 and providing each of

the upwardly-extending bars 17^a at its upper portion with an apertured projection 42, in which is located a screw 43, each of which is provided at its upper end with a hand-wheel 47, used for turning the same so as to cause said screws to engage screw-threaded pieces 45, one of which is located on each side of the chute. In other respects the construction of the apparatus illustrated in Figs. 8, 9, and 10 of the drawings are the same as that shown in the other views and first above described.

The operation of the apparatus is as follows: When it is desired to move the device from one place to another, the chute may be raised to about a horizontal position, as shown in Fig. 2, when it is evident it may be easily trundled or wheeled to the desired point or so that one of its ends, which in operation will be its lower end, may be located near the material to be loaded into the wagon or other elevated receptacle. When the constructions illustrated in Figs. 1, 2, 7, and 11 are used, the upper end of the chute may be elevated by turning the pinions 19, which engage the rack-bars 17, by means of the crank-handles 34, in which operation the brace-bars 32 will so hold the lower portion of the chute as to cause its end to rest on the ground while the chute is being bodily elevated from the cross-bar 18, on which it normally rests. When the desired elevation is reached, the pawls 46, one of which is pivoted on each side of the chute, may be thrown into engagement with the pinions, thus preventing their rotation and the downward movement of the chute, when the wagon may be driven under the upper portion of the chute and the same lowered by releasing the pawls 46 from the pinions, when the projections 35 on the sides of the chute will strike the upper edge of one of the sides of the wagon-body, thus preventing the chute moving longitudinally thereon. If the wagon-body is inclined, as shown in Fig. 7 of the drawings, one of the swiveled blocks 37 may be turned so as to be interposed between the upper edge of the side of the wagon-body and the lower surface of the chute, thus leveling the latter. When thus secured in place, the carrier, to the bail 30 of which is secured one end of a rope or cord 31, which passes over a cross bar or rod 23 near the upper end of the chute and also crosswise over the wagon-body, and which may be connected at its other end to a horse or other means for drawing up the loaded carrier, is manipulated so as to load it with the material and then guided to the lower end of the chute, when it may be caused to travel up the same until the stops or bearings thereon strike the stops or bearings on the upper portion of the chute, when by reason of the fact that the bail 30 is connected to the sides of the carrier at points above the stops or bearings thereon, it (the carrier) will be tilted to the position shown by continuous lines in Fig. 1,

in which position it will be prevented from falling into the wagon-body by means of the upwardly-extending cross-piece 22, against which the handles of the carrier will strike and rest, for it is apparent that as the bottom 21 of the chute is shorter than the sides thereof an open space in the upper portion of the chute will be provided for the operation of the carrier and for the passage of its load.

When the construction illustrated in Figs. 8 and 9 of the drawings for elevating the chute is employed, it is only necessary to depress the free ends of the levers 38, which operation will elevate the chute from the cross-bar 18 to the desired position, when said levers may be held in their depressed position by means of the hooks 40, under which they may be passed.

In employing the construction illustrated in Fig. 10 it is obvious that by turning the screws 43 in the proper direction the chute may be elevated to any desired degree. It will be understood that the operation of the carrier is the same in all of the different constructions.

In Fig. 12 is shown a modification in the construction of the upper end of the chute, which consists in dispensing with that portion of the sides thereof which project beyond the bottom 21 of the chute, to the upper surface of which is secured a hook 24^c, the opening of which is presented toward the rear or lower portion of the chute to engage the cross-bar 27^a or other suitable means on the carrier to stop its progress, yet to provide a pivotal bearing therefor, on which it may be partially rotated or tilted when discharging its load. This cross-bar or means for engaging the hook 24^a is located rearwardly of the front end of the carrier, as will be understood by reference to Fig. 4 of the drawings.

It will be obvious from the above description that the improved apparatus is susceptible of considerable modification without departing from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the apparatus herein set forth in carrying out my invention in practice.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a wheeled axle, of two upwardly-extending bars mounted thereon and spaced apart, a chute located between the upwardly-extending bars, and means on the upwardly-extending bars and chute to elevate the latter.

2. The combination with a wheeled axle, of the chute adapted to be elevated therefrom to an inclined position and having in its upper end an opening, of stops or bearings on the upper portion of the chute, and a car-

rier adapted to travel thereon and having bearings or stops to engage those of the chute, whereby the carrier will be partially rotated or tilted to discharge its load through
5 said opening and its further progress prevented.

3. The combination with a wheeled axle, of a chute mounted thereon between the wheels and having near one of its ends an
10 opening between its sides, stops or bearings on the upper portion of the chute, means to elevate the same from the axle, a carrier adapted to travel thereon and having stops or bearings to engage those on the chute,
15 whereby the carrier will be partially rotated or tilted to discharge its load through said opening and its further progress prevented.

4. The combination with a wheeled axle, of a chute mounted thereon between the
20 wheels and having near one of its ends an opening between its sides, stops or bearings on the upper portion of the chute, means to elevate the same from the axle, a carrier having stops or bearings to engage those on
25 the chute, and means to cause the carrier to travel on the chute and to be tilted when the bearings of the carrier engage those of the chute, substantially as described.

5. The combination with a wheeled axle,
30 of a chute mounted thereon between the wheels and having near one of its ends an opening between its sides, stops or bearings on the upper portion of the chute, means to elevate the same from the axle, a cross-piece
35 at the upper end of said opening, a carrier adapted to travel thereon and having stops or bearings to engage those on the chute, whereby the carrier in its movement will be partially rotated or tilted to discharge its
40 load through said opening and its further progress prevented, substantially as described.

6. The combination with a wheeled axle, of two upwardly-extending bars mounted
45 thereon and spaced apart, a chute located between the upwardly-extending bars, brace-bars pivotally secured at one of their ends to one portion of the chute and at their other ends to the axle, and means on said bars and
50 chute to elevate the latter.

7. The combination with a chute adapted to be elevated to an inclined position and having in its upper portion an opening, of
55 curved stops or bearings on the upper portion of the chute, and a carrier adapted to travel thereon and having laterally-projecting bearings or stops to engage those of the chute, whereby the carrier will be partially rotated or tilted to discharge its load through
60 said opening and its further progress prevented.

8. The combination with a wheeled chute having in its upper end an opening, of means to elevate the same, curved stops or bearings

on the upper portion of the chute, the open- 65
ings of said stops being presented toward the lower portion of the chute, an upwardly-extending cross-piece at the upper end of the chute, and a carrier adapted to travel on the chute and having laterally-projecting bear- 70
ings or stops to engage those of the chute, whereby the carrier will be partially rotated or tilted to discharge its load through said opening and its further progress and rotation will be prevented. 75

9. The combination with a wheeled axle, of a chute mounted thereon, means to elevate the latter from the axle, and a pair of downwardly-extending and spaced-apart projections secured to each side of the upper por- 80
tion of the chute to engage one side of the wagon-body, substantially as described.

10. The combination with a wheeled axle, of a chute mounted thereon, means to elevate the latter from the axle, a pair of down- 85
wardly-extending and spaced-apart projections located at each side of the chute, and a block swiveled on the lower surface of the bottom of the chute near each pair of said projections, substantially as described. 90

11. The combination with a wheeled axle, of two upwardly-extending bars mounted thereon and spaced apart, a cross-bar uniting said upwardly-extending bars, a chute lo- 95
cated between the upwardly-extending bars and normally resting on the said cross-bar and loosely connected to the axle, and means on the upwardly-extending bars and chute to elevate the latter, substantially as de- 100
scribed.

12. The combination with a wheeled axle, of two upwardly-extending bars mounted thereon and spaced apart, one of said bars being provided with a rack, a cross-bar uniting said upwardly-extending bars, a chute 105
located between the upwardly-extending bars and normally resting on the said cross-bar and loosely connected to the axle, a pinion journaled on the chute to engage the rack on one of the upwardly-extending bars, and 110
means to turn said pinion, substantially as described.

13. The combination with a wheeled axle, of two upwardly-extending rack-bars mount- 115
ed thereon and spaced apart, a cross-bar uniting said rack-bars, a chute located between the rack-bars and normally resting on the cross-bar and loosely connected to the axle, pinions journaled on the sides of the chute to engage the rack-bars, means to ro- 120
tate said pinions, and an antifriction-roller journaled on each side of the chute near the rack-bars, substantially as described.

14. The combination with a wheeled axle, of two upwardly-extending rack-bars mount- 125
ed thereon and spaced apart, a cross-bar uniting the rack-bars, a chute located between the rack-bars, brace-bars pivotally se-

cured at one of their ends to the rear portion of the chute and at their other ends to the axle, pinions journaled on each side of the chute to engage the rack-bars, means to rotate the pinions, and an antifriction-roller journaled on each side of the chute near the rack-bars, substantially as described.

15. The combination with a wheeled axle, of two upwardly-extending bars mounted thereon and spaced apart, a chute located between said bars and having near one of its ends an opening between its sides, curved stops or bearings on the upper portion of the chute at each of its sides, means on the upwardly-extending bars and chute to elevate the latter, brace-bars pivotally secured at one of their ends to one portion of the chute and at their other ends to the axle, a carrier adapted to travel on the chute and having laterally-projecting bearings or stops on its sides to engage those of the chute, whereby the carrier will be partially rotated or tilted

to discharge its load through said opening and its further progress prevented.

16. The combination with a wheeled axle, of two upwardly-extending bars mounted thereon and spaced apart, one of said bars being provided with a rack, a chute located between the upwardly-extending bars, a stop or bearing on the upper portion at each side of the chute, brace-bars pivotally secured at one of their ends to the rear portion of the chute and at their other ends to the axle, a pinion journaled on the chute to engage the rack on one of the upwardly-extending bars, and a carrier adapted to travel on the chute and having stops or bearings to engage those of the chute, whereby the carrier will be partially rotated or tilted to discharge its load and its further progress prevented.

LE GRAND KNIFFEN.

Witnesses:

CHAS. C. TILLMAN,
M. A. WYMAN.