(No Model.)

4 Sheets—Sheet 1.

# T. CARROLL.

## LOAD DUMPING APPARATUS.

No. 561,485. Patented June 2, 1896.

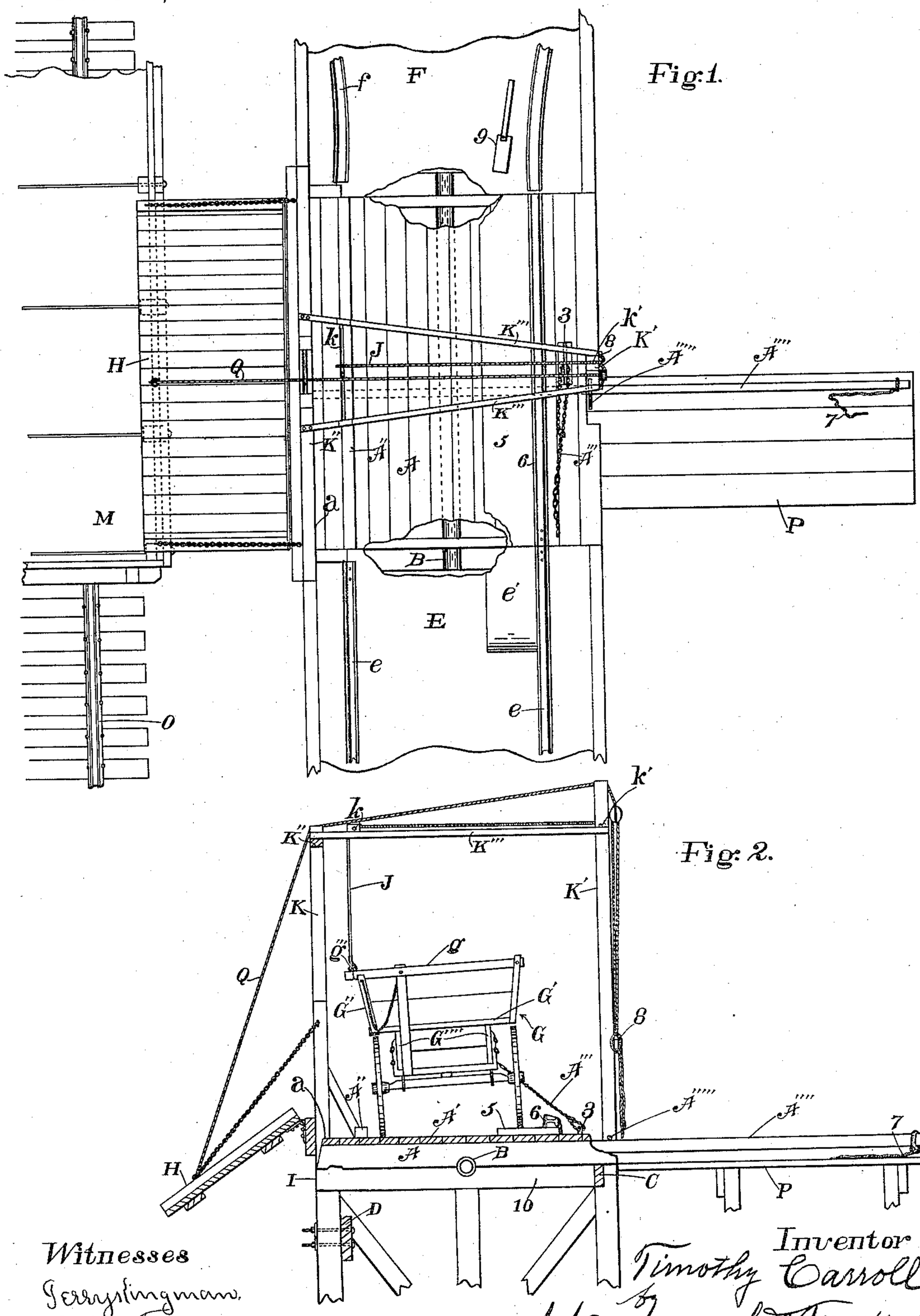


Fig: 1.




Fig: 2.

Witnesses
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(No Model.) 4 Sheets—Sheet. 2.

# T. CARROLL.

## LOAD DUMPING APPARATUS.

No. 561,485. Patented June 2, 1896.

Fig: 3.

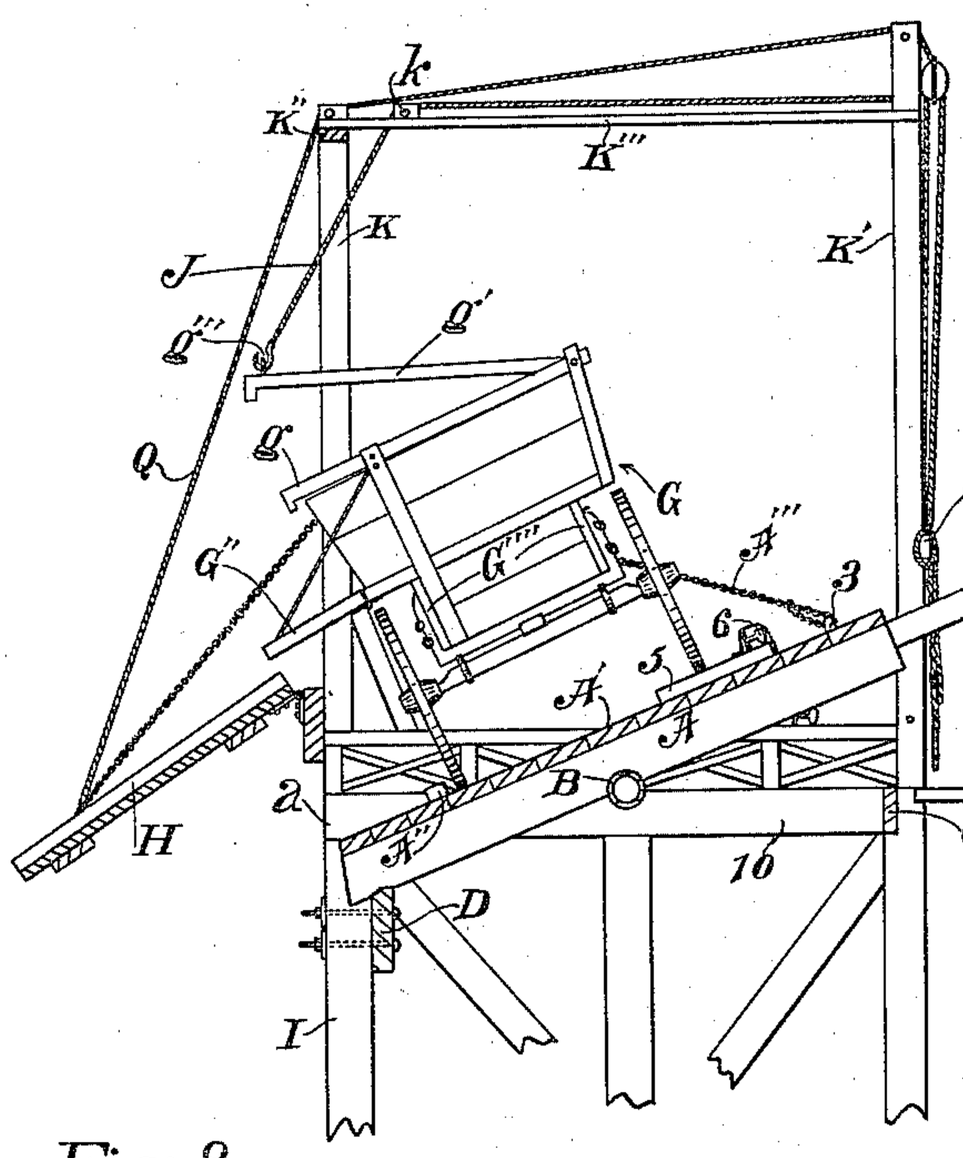



Fig: 7.

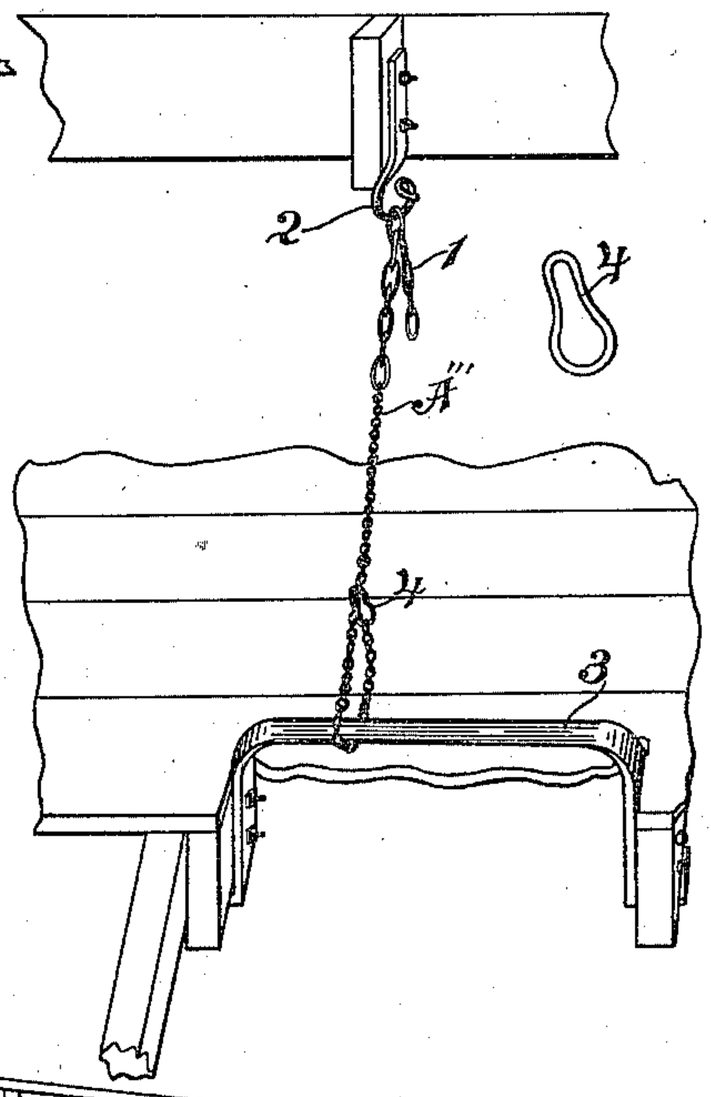



Fig: 8.

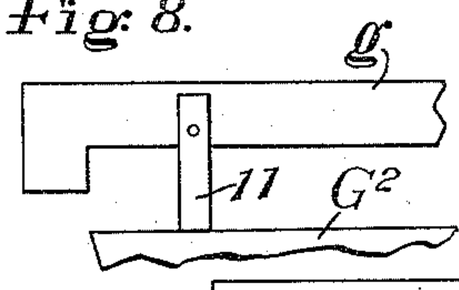
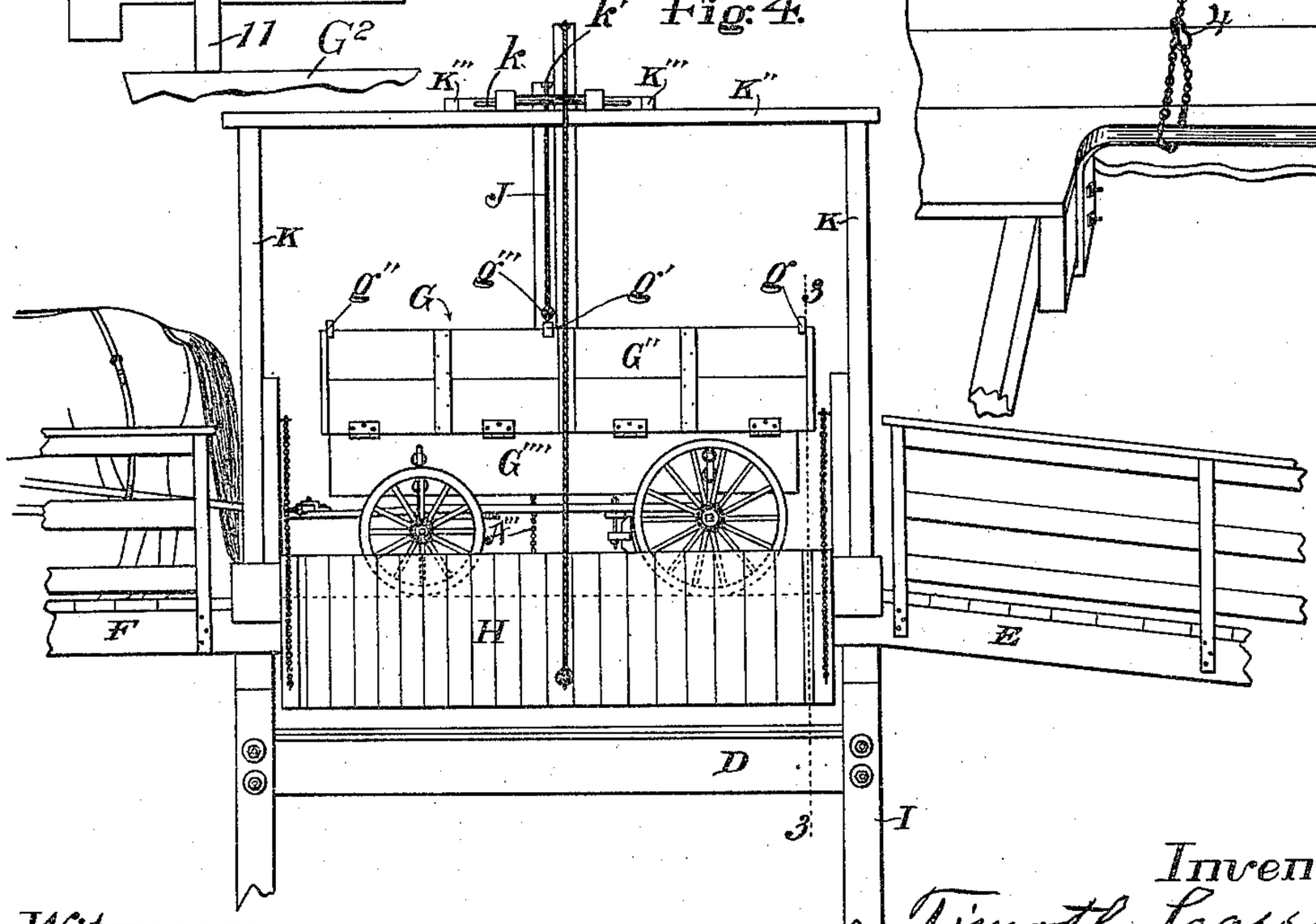



Fig: 4.




Witnesses

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(No Model.) 4 Sheets—Sheet 3.

# T. CARROLL.

## LOAD DUMPING APPARATUS.

No. 561,485. Patented June 2, 1896.

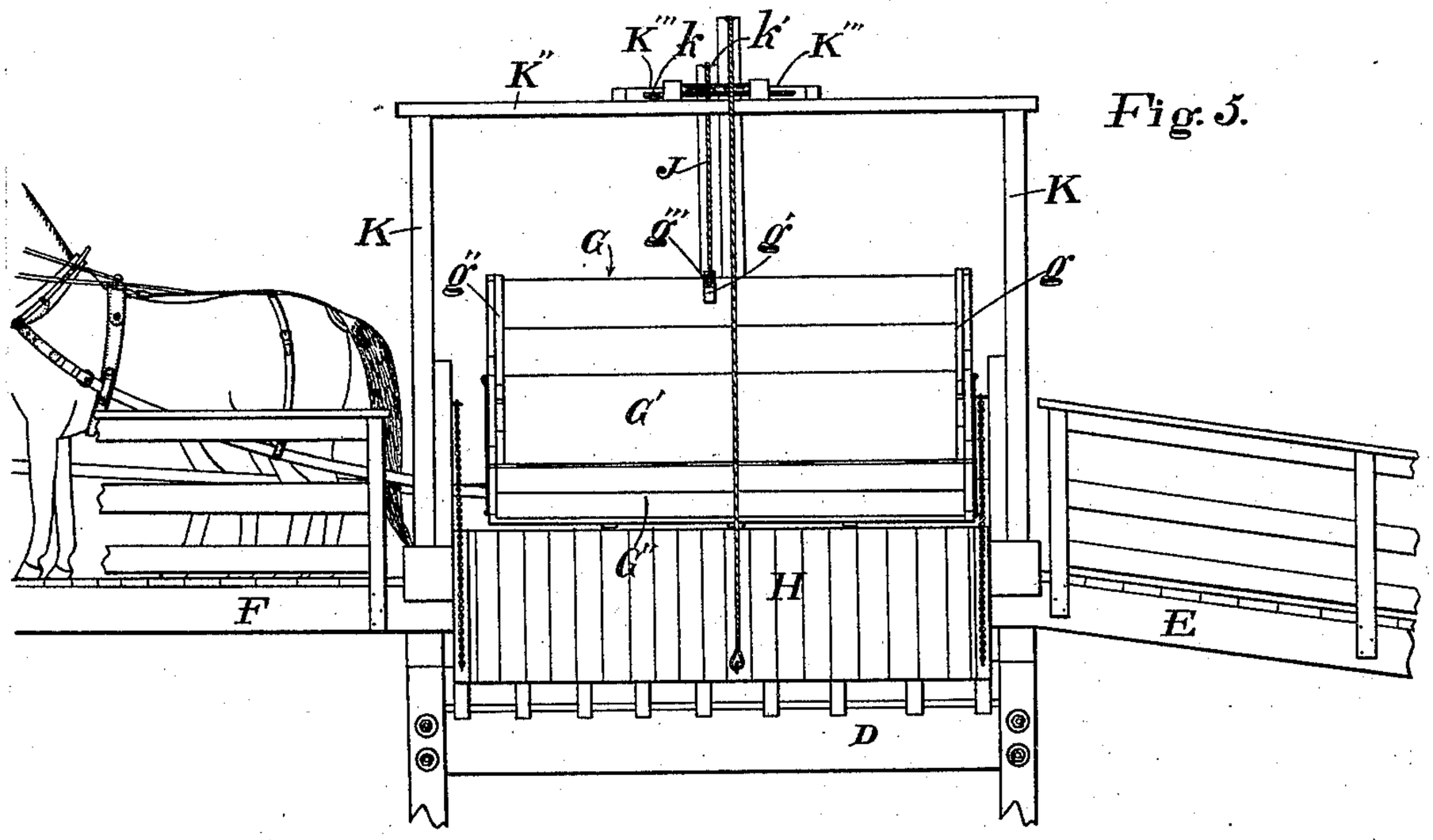


Fig. 5.

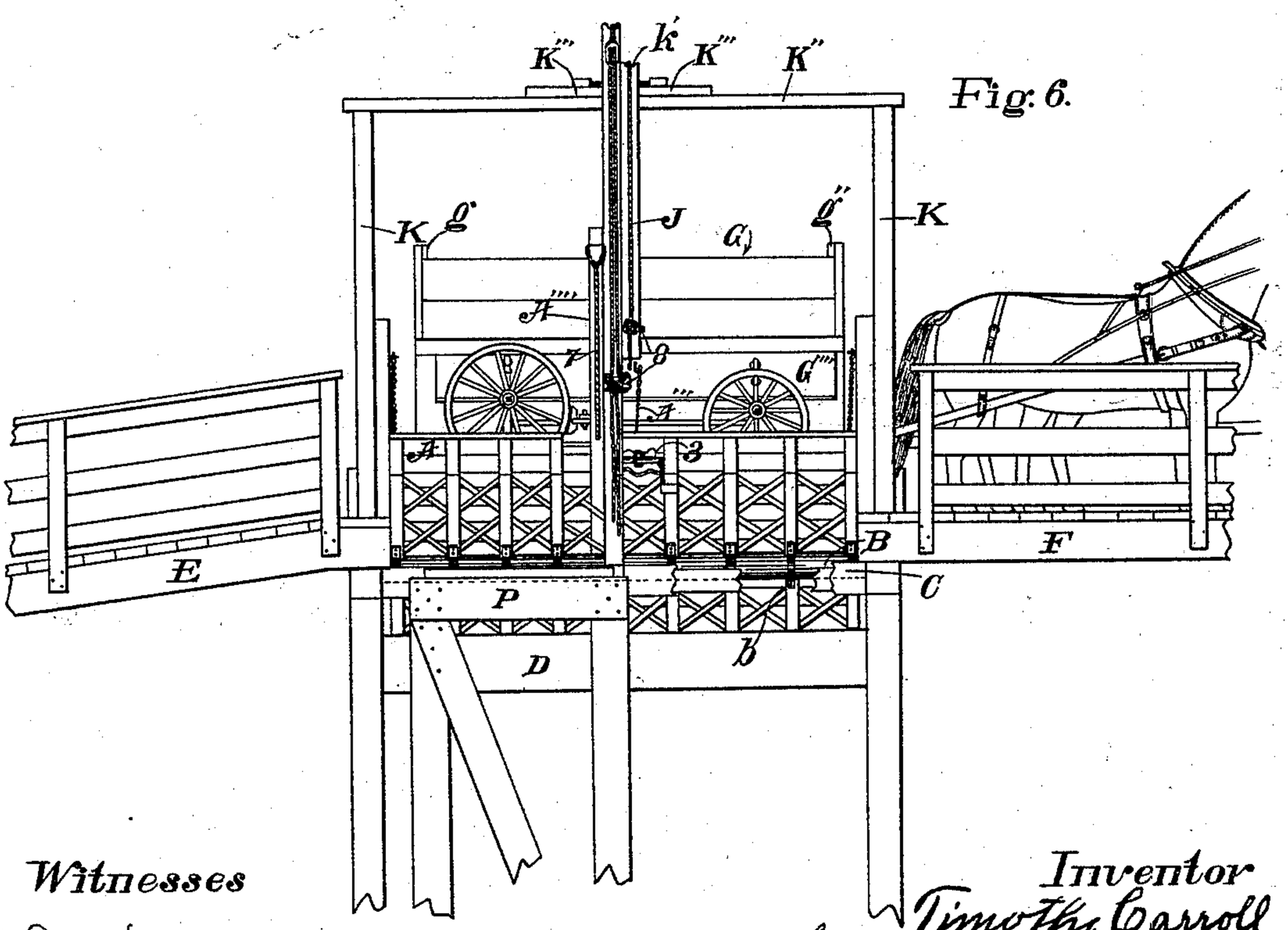


Fig. 6.

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(No Model.) 4 Sheets—Sheet 4.

# T. CARROLL.

## LOAD DUMPING APPARATUS.

No. 561,485. Patented June 2, 1896.

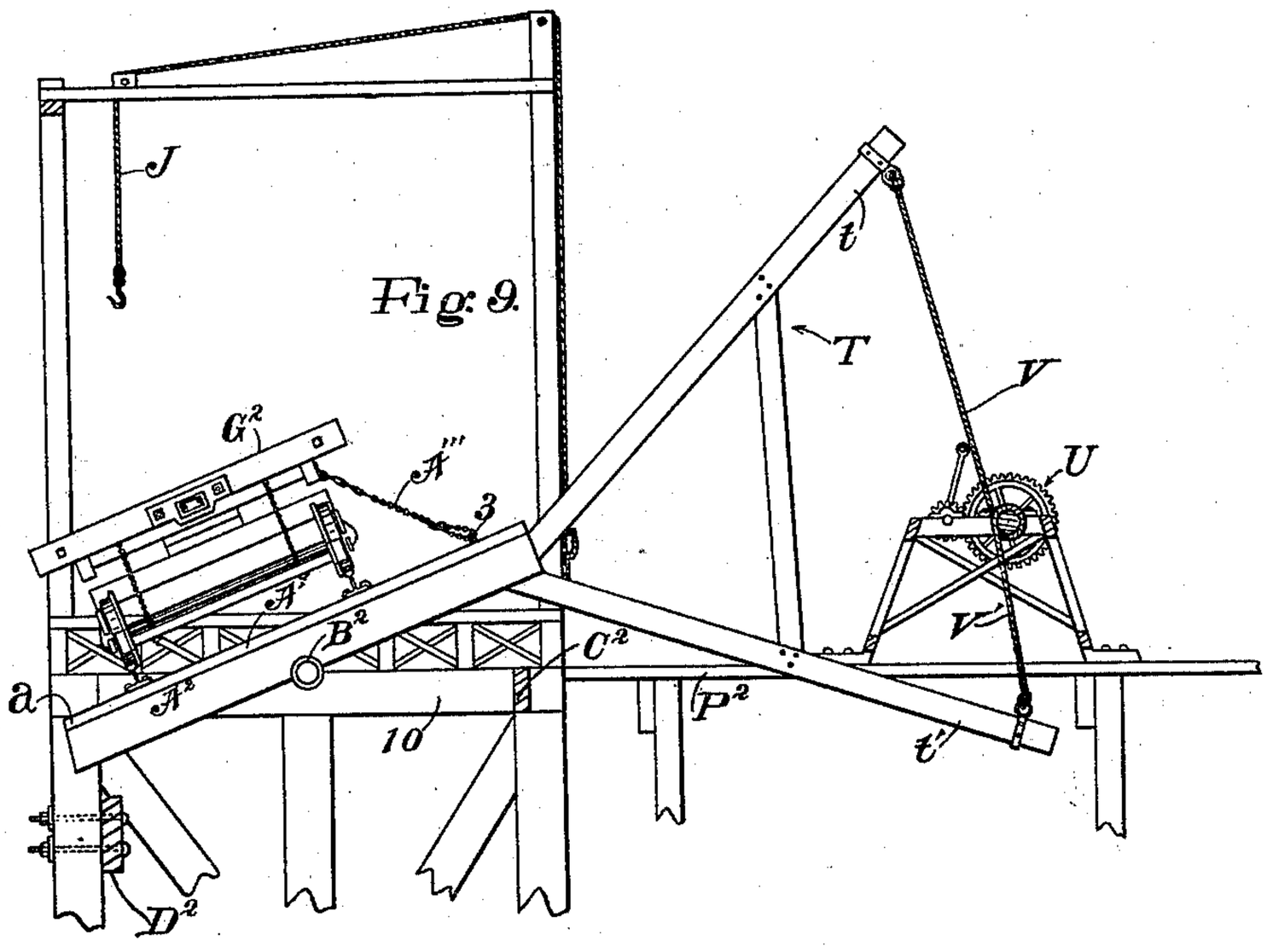
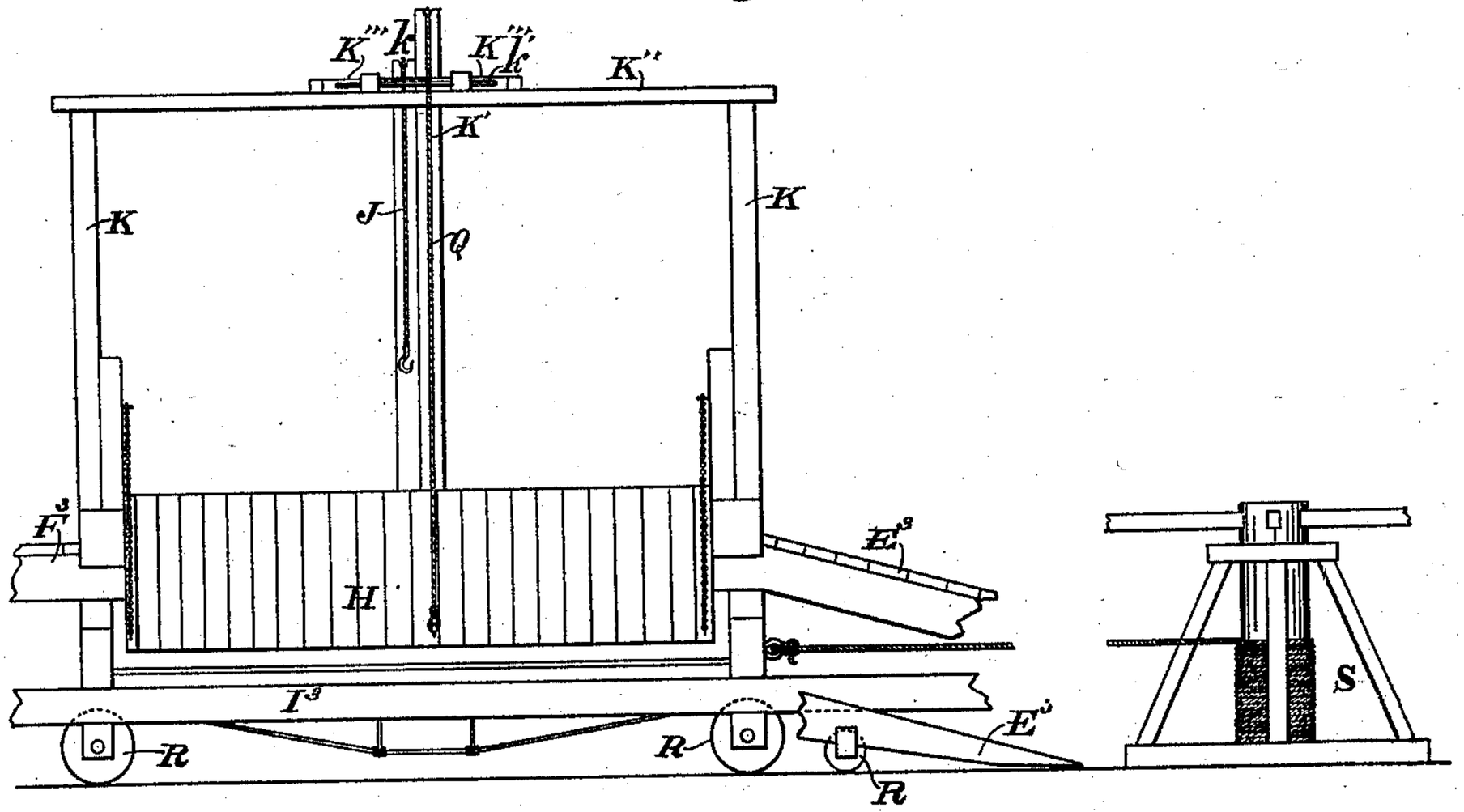



Fig: 10.




Witnesses
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Inventor
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# UNITED STATES PATENT OFFICE.

TIMOTHY CARROLL, OF ANAHEIM, CALIFORNIA.

## LOAD-DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 561,485, dated June 2, 1896.

Application filed August 9, 1895. Serial No. 558,728. (No model.)

*To all whom it may concern:*

Be it known that I, TIMOTHY CARROLL, a citizen of the United States, residing at Anaheim, in the county of Orange and State of California, have invented a new and useful Load-Dumping Apparatus, of which the following is a specification.

In Southern California the raising and shipping of beets for manufacturing sugar requires the rapid unloading of large numbers of wagon-loads of beets, for the reason that the beets must be weighed and sampled by the sugar-manufacturers, and it is impracticable to unload except at the place where the sampling is done, because the samples must be taken at the time of unloading each load in order to get a fair average of each load. In order to handle these beets it has heretofore been customary to place a net in the wagon-bed and to then load the beets upon the net, and at the place of unloading the net was lifted by a derrick and the load drawn out of the wagon and brought over the car and one side of the net then released; but this system was not sufficiently rapid, and great inconvenience and delay resulted, it frequently occurring that thirty teamsters would have to leave their wagons loaded all night and wait their turn next morning to unload.

One object of my invention is to avoid all this inconvenience and loss of time, and to provide means whereby a farm-wagon loaded with beets can be dumped in a very short period of time.

With my invention as high as twenty-seven wagon-loads of beets, weighing in the aggregate nearly forty tons, have been dumped from one dump into railroad-cars, thus loading two cars, in thirty minutes. The actual work of dumping a four-horse-wagon load of five tons can be done easily in half a minute. In practice I have found thirty seconds to be sufficient for dumping the load after the wagon has stopped in place on the dump-platform.

My invention relates more particularly to the appliances and combinations of parts by which I am enabled to so rapidly unload heavy and light wagons loaded with beets.

It is very important that the apparatus shall work rapidly, that the team remain hitched to the wagon during the dumping, that the apparatus be so constructed and arranged that the wagon can be jolted, if required, to jar loose any beets that do not readily slide out of the wagon-bed, and that the parts be so arranged that the wagon can be easily and quickly put into shape to be driven away as soon as the load is dumped. A further and very important consideration is to so construct and arrange the apparatus as to avoid any injurious strain on the wagon, and a peculiar and valuable feature of my invention is that I dump the load sidewise and fasten the vehicle to the tilting support by a chain or other suitable tie extending between and fastened to the tilting support and the bed of the vehicle. By this feature I make it possible to rapidly dump the load and not rack the wagon. In fact, by reason of this arrangement, the operation of dumping a load from a wagon does not rack or strain the vehicle in any part except that strain comes upon that part of the bed to which the chain is fastened, and that part of the bed can easily be made strong enough to withstand the strain. No severe strain comes on the running-gear, and this is of great importance. So far as I am aware, in all other appliances proposed for dumping-wagons the vehicle is to be held by the running-gear, and such appliances are not adapted for the work which my apparatus does.

It is an object of my invention to accomplish the desired work of unloading wagon-loads of beets as above stated, and to do it without straining or racking the wagon. This I have fully accomplished by my invention.

My invention is also applicable for dumping car-loads of beets and is also adapted for dumping from cars, wagons, and other vehicles bulk-loads, such as coal, corn, &c., in loading vessels and for other purposes.

My invention comprises the combination of a tilting vehicle-support for the loaded vehicle, pivoted longitudinally to tilt sidewise, a longitudinal axis upon which the vehicle-support is pivoted, means fastened to the tilting support and to the bed of the vehicle for holding the vehicle on the vehicle-support, a lever for tilting the vehicle-support sidewise and returning it to its horizontal position, a team-support at the front of the vehicle-support, on which the team can stand hitched to the

vehicle while it is dumping, and a stop arranged to stop the tilting support on a slant and prevent it from tilting far enough to materially interfere with the team hitched to the vehicle. It also includes the vehicle-support and various parts and combinations of parts hereinafter more fully specified.

My invention also comprises the combination of a vehicle-support arranged to tilt sidewise, a vehicle having a bed provided with a hinged side and adapted and arranged to allow its load to be dumped off sidewise, and means extending between and fastened to the tilting support and the vehicle-bed for holding the vehicle on the vehicle-support when it is tilted, a lever fastened to and projecting from the side of the tilting support opposite that toward which the support tilts, and the stop arranged to stop the support when it has tipped sufficiently to cause the load to slide off sidewise. This is applicable either for railway-cars, wagons, sleds, or any vehicle having a bed from which a load can slide sidewise when the vehicle is tipped.

A distinctive feature of my invention as applied to wagons is the hinged side of the bed arranged wholly above the wheels and the dumping of the vehicle sidewise and stopping the tilting support on an incline and thus dumping a large load without the necessity of unhitching the team, for by this means I avoid all the necessity of backing and of all other slow or complicated ways or means for dumping the load, which are necessary and which consume time in the case of wagons that dump endwise. By tilting the wagon sidewise I have made it much easier, quicker, and less expensive to unload the loads than is possible by any other means heretofore known. The driver of the team can drive across the tilting support and stop with his team upon the team-support, and the dumpman can then dump the load while the team is hitched thereto, and the teamster can then drive on at once, so that there is but little stoppage of the team to dump the load.

In carrying out my invention for dumping a wagon-load of beets I raise the wagon-bed above the wheels or arch the floor over the hind wheels, and I provide the wagon-bed with a drop side and provide such drop side wholly above the wheels with supports to hold it extended from the bed when dropped, so that the drop side serves as an apron to shoot the load onto the stationary apron which is provided at the side of the dump to shoot the load into the car.

The accompanying drawings illustrate my invention.

Figure 1 is a fragmental plan of a dump adapted for carrying out my invention. Fragments of the approach, the team-support, and of a railroad car and track are shown. Parts are broken away to show the axis for the vehicle-support. Fig. 2 is a fragmental end elevation, partly in section, looking at the rear end of the vehicle-support. A wagon is shown in place ready to be dumped. Fig. 3 is an end elevation, partly in section, showing the vehicle-support and wagon in their dumped position. Fig. 4 is a side elevation showing the wagon in place ready for dumping. This view is taken from the side toward which the wagon dumps. Fig. 5 is a side elevation showing the wagon dumped. This view is from the same side as Fig. 4. Fig. 6 is a view from the opposite side and shows the vehicle-support dumped. Fig. 7 is a detail of the means for holding the wagon on the vehicle-support. A grip-link is also shown detached. Fig. 8 is a detail of the support for the end latches. Fig. 9 is a fragmental view showing an appliance for dumping railway-cars. Fig. 10 is a fragmental view showing a portable dump adapted to be moved from place to place for use in beet-factories, wharves, and jetties and in other places where it is desired to change the place of dumping.

A indicates a vehicle support or platform pivoted to tilt sidewise.

B indicates an axle arranged longitudinally underneath such support, which is thus pivotally mounted so that it can be tilted sidewise.

C indicates a supporting-stop against which one side of the vehicle-support rests when the platform is not tilted.

D indicates a stop upon which the other side of the tilting vehicle-support rests when tilted. Such support is preferably so arranged on its axle that its weight will hold it in its level position, and preferably the tilting support is sufficiently overbalanced to hold it from tilting when an unloaded wagon is driven upon it along the track A′, which is provided thereupon for the vehicle; but is not sufficiently overbalanced to hold it from tilting when a loaded wagon is driven on the track A′, which is located with its mid-line between the axle and the dump edge *a* of the tilting support, so that when a loaded wagon is upon the support the weight of the wagon will overbalance the support in the other direction and tend to tip the support toward the dump side.

A″ indicates a wheel-guide and stop-rail against which the wheels on one side of the vehicle may engage when the vehicle is upon the support.

A‴ indicates suitable means on the opposite side of the wagon for holding the wagon firmly upon the track.

A⁗ indicates a lever projecting from the upper side of the vehicle-support—that is, the side from which the wagon dumps. This lever is designed for tipping and returning the support.

A⁗′ indicates a pin or other suitable fastening for holding the lever in its depressed position, thus to prevent the tilting vehicle support or platform from prematurely tipping when the wagon is driven thereupon.

E indicates the approach to the tilting

platform, and F indicates the team-support or platform upon which the team stands while the wagon is being dumped.

G indicates the wagon, the running-gears of which are the same as that of any ordinary wagon. The bed $G^2$ is provided with a smooth bottom G′ and with a hinged side G″.

*g*, *g′*, and *g″* indicate latches which engage the hinged side when it is raised and hold it in place. These several latches hook down upon the top of the hinged drop side G″, and when they are lifted they release such side and allow it to drop out and down. It is desirable that the drop side shall not drop until the wagon is sufficiently tipped to allow the beets to run out upon the apron H, which is provided at the side of the frame I of the machine. The middle latch *g′* is sufficient to hold the drop side while the wagon is standing upon the dump, and in practice the two end latches *g g″* are released from the side before the platform is tipped, and I provide automatic means for releasing the other latch at the proper time. Such means consists of a line, rope, chain, or cord J, which is held above the wagon and is hooked into an eye *g‴* on the free end of the latch *g′* and is so adjusted that when the wagon is tipped sufficiently to allow the beets to discharge from the drop side G″ onto the apron H the latch will be withdrawn from the drop side and thus release it. The line-support which I have shown in the drawings consists of uprights K K′ and braces K″ K‴ and a pulley *k*, located substantially vertically above the place where the middle latch will come when the wagon is brought to a stand upon the platform.

In my first machine, which I built and used at Anaheim in the month of August, 1894, the latch-drawing rope J was led directly over the upright K′, and this operates to draw the latch more satisfactorily than when the rope is supported more nearly over the end of the latch, but is not so convenient for hitching to the latch.

The means for holding the wagon upon the platform consist of a chain A‴, fastened to the platform at the upper edge thereof and provided at one end with one or more large links 1, adapted to hook upon a coil-hook 2, which is fastened to the wagon-bed. The chain is preferably adjustably attached to the tilting support, so that it can be moved along the support to bring it to the middle of the wagon.

3 indicates a slide-bar fixed to the tilt-support, and the chain is looped around such slide-bar and the loop is adjustably fastened by a grip-link 4, by means of which the slack of chain between the wagon and the tilting support can be taken up after the large link has been hooked over the coil-hook 2. The coil-hook is fastened to the frame of the wagon-bed and extends downward therefrom and curves downward, inward, upward, and outward, so that when the chain is hooked thereupon there will be no danger of its becoming released when the wagon is tilted. The guide-rail A″ will hold the wheel of the wagon if the wagon should slip upon the platform, but ordinarily when the chain has been properly tightened the wagon will dump without slipping. Sometimes the driver will drive the wheels against the rail A″, but it is not necessary to do so. Care should be taken to draw the chain taut before the wagon is dumped, in order that there may be no jerking upon the chain, which is liable to break the hook. The hook, the portion of the bed to which it is fixed, the chain, and the slide-bar must be strong, so as to stand the strain.

My invention is applicable for use at a railway-station for loading cars or it can be used at the factory for dumping the cars, and the dump can be made portable, if desired, as shown in Fig. 10, so as to be drawn to different places in the factory or on jetties or wharfs, where it may be desirable to change the place of dumping. In the portable device the framework $I^3$, which supports the tilting vehicle-support and the approach and the team-support is mounted on wheels or rollers R.

S indicates a capstan for drawing the apparatus from place to place.

In order to make the wagon-dump tilt more easily, the top of the tilting support is raised at the upper side, as shown at 5, Figs. 1, 2, and 3, so that when the wagon stands upon the tilting support it is tilted toward the dumping side. The difference in level of the lower and upper sides of the track should be three or four inches.

6 indicates a counterweight on the upper side of the tilting support to assist in returning the support and the empty wagon to the upright position after the load has been dumped. The lever A‴″ is provided with a rope 7, by which it can be pulled down after the load has been dumped.

M indicates a railway-car for receiving the load, and O a railway-track.

P is a platform for the workmen who operate the lever A‴″. The latch-operating rope or line J is led over suitable pulleys *k* and *k′*, and a belaying-pin 8 is provided for fastening the same.

9 indicates a chock-block for chocking the front wheel of the wagon when the wagon has reached the proper place upon the platform.

*f* indicates a wheel-guide on the team-support to guide the wheels when the wagon is driven off of the tilting support.

*e* indicates a guide-rail on the approach, and *e′* indicates a raise on the upper side of the track to lift the wagon-wheel to the height of the upper side of the track on the tilting support.

The pivot or axle B upon which the tilting support is mounted may be made of one or more joints of gas-pipe or a straight rod or any other suitable device for pivoting, and

the support may be fastened to the axle by bands *b*, and the axle may be fastened to the framework 10, which supports the tilting support.

Q indicates a rope for handling the apron H.

Suitable means are provided for holding the end latches *g g''* up preparatory to dumping the load. In Fig. 8 a leg or catch 11 is shown pivoted to the latch, so as to drop into place and rest on the top of the end board of the bed $G^2$ when the latch is lifted.

I will now describe the operation of dumping a five-ton load of beets from a wagon.

The wagon is driven up the approach E and onto the tilting support A, and when it has reached the proper place the attendant places the chock-block 9 in front of one of the front wheels, preferably the one on the upper side, so that the tongue will be thrown slightly in that direction by the turning of the front axle. Then the teamster dismounts from the wagon, the end latches *g g''* are raised from the drop side and are held up by the catches 11, which swing down and rest on the end-boards, respectively, of the bed, and then the line J is hooked into the eye of the middle latch *g'*. One of the large links 1 of the chain A''' is slid along the slide-bar until it is even with the coil-hook on the wagon, and then one of the large links of the chain is hooked upon the coil-hook and the slack is then taken up by means of the grip-link, which is slid up the small part of the chain until the chain is drawn taut. The pin A'''' is then withdrawn and the weight of the loaded wagon will tip the tilting support, and as the wagon tilts the line J holds the latch from following the drop side of the wagon, and the drop side is released and the load discharges over the same and over the apron H into the car. The stop D prevents the support from tilting too far, and when the load is discharged the attendants pull the lever A'''' into the horizontal position and replace the pin above it. If from any cause the beets do not readily dump, the lever can be worked up and down until the load is shaken out of the wagon. The platform will strike upon the stop D and thus jar the wagon to release the beets that may have stuck. The movement of the wagon-tongue is very slight and is not sufficient to interfere with the horses. As soon as the wagon has been righted the drop side is raised into place and the end latches are dropped into place, the legs or catches 11 of the end latches are raised and the middle latch is released from the line J and dropped into place, at the same time the attendants have unhooked the chain A''' and the teamster drives forward with his team, leaving the dump ready for the next wagon.

In order to easily operate the apparatus for dumping a railroad-car, I provide the tilting vehicle-support with a bifurcated lever T, the separate arms *t t'* of which extend on opposite sides of a windlass U and are respectively connected with the windlass by ropes V V', one of which is wound upon the windlass in one direction, while the other is wound upon the windlass in the other direction, so that the rotation of the windlass in one direction will wind the rope which leads from the lower arm of the lever and will pull the lower arm of the lever up and at the same time will unwind the rope which leads to the upper arm of the lever to thus release the upper arm, and the reverse movement of the windlass will pull the upper lever down and release the lower one. By this means the car can be easily handled.

G'''' indicates sills between the axles and the wagon-bed to raise the wagon-bed above the hind wheels, thus to allow the load to slide off over the wheels.

I have not illustrated the form of wagon-bed in which the floor is arched over the hind wheels, as that will readily be understood by any mechanic. The arch should extend from side to side of the bed, the purpose being to avoid any projections which would hold the load from slipping off sidewise.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a vehicle-support arranged to tilt sidewise; means for tilting the support and returning it to a level position; a stop arranged to stop the support on a slant; a vehicle having a bed provided with a drop side wholly above the wheels and adapted to allow its load to be dumped off sidewise; means extending between and fastened to the tilting support and the vehicle-bed for holding the vehicle on the vehicle-support when it is tilted; a latch for holding the drop side in place and adapted to be released when the wagon is tilted; and means for supporting the drop side when it is dropped.

2. The combination of a vehicle-support arranged to tilt sidewise; means for tilting the support and returning it to a level position; a stop arranged to stop the support on a slant; a vehicle having its bed adapted to allow its load to be dumped off sidewise; means extending between and fastened to the tilting support and the vehicle-bed for holding the vehicle on the vehicle-support when it is tilted; and a team-holding support arranged at the front end of the tilting vehicle-support and independent thereof and adapted to allow the team to stand thereon hitched to the vehicle while the vehicle is being dumped.

3. The combination of the tilting support; means for tilting the support and returning it to a level position; the stop for holding such support on a slant; the vehicle having the drop side wholly above the wheels; a latch arranged to hook down upon the drop side to hold it in its upright position; means for holding the vehicle upon the tilting support; a stationary line-support above the vehicle; and the line connected with the free end of the latch and led upward therefrom and fastened

to the stationary line-support to draw the latch when the vehicle is tipped.

4. The combination of the tilting vehicle-support; means for tilting the support and returning it to a level position; the slide-bar thereon; the vehicle provided with the coiled hook; the chain having a grab-link and small links at one end looped around the slide-bar and passed through the grab-link and provided at the other end with large links hooked upon the hook.

5. The combination of the vehicle-support arranged to tilt sidewise and provided with a bifurcated lever; the windlass arranged between the arms of such lever; a rope leading over one arm of the lever and wound around the windlass in one direction; and another rope leading over the other arm and wound around the windlass in the other direction.

Signed at Los Angeles, California, July 31, 1895.

TIMOTHY CARROLL.

Witnesses:
JAMES R. TOWNSEND,
F. M. TOWNSEND.