

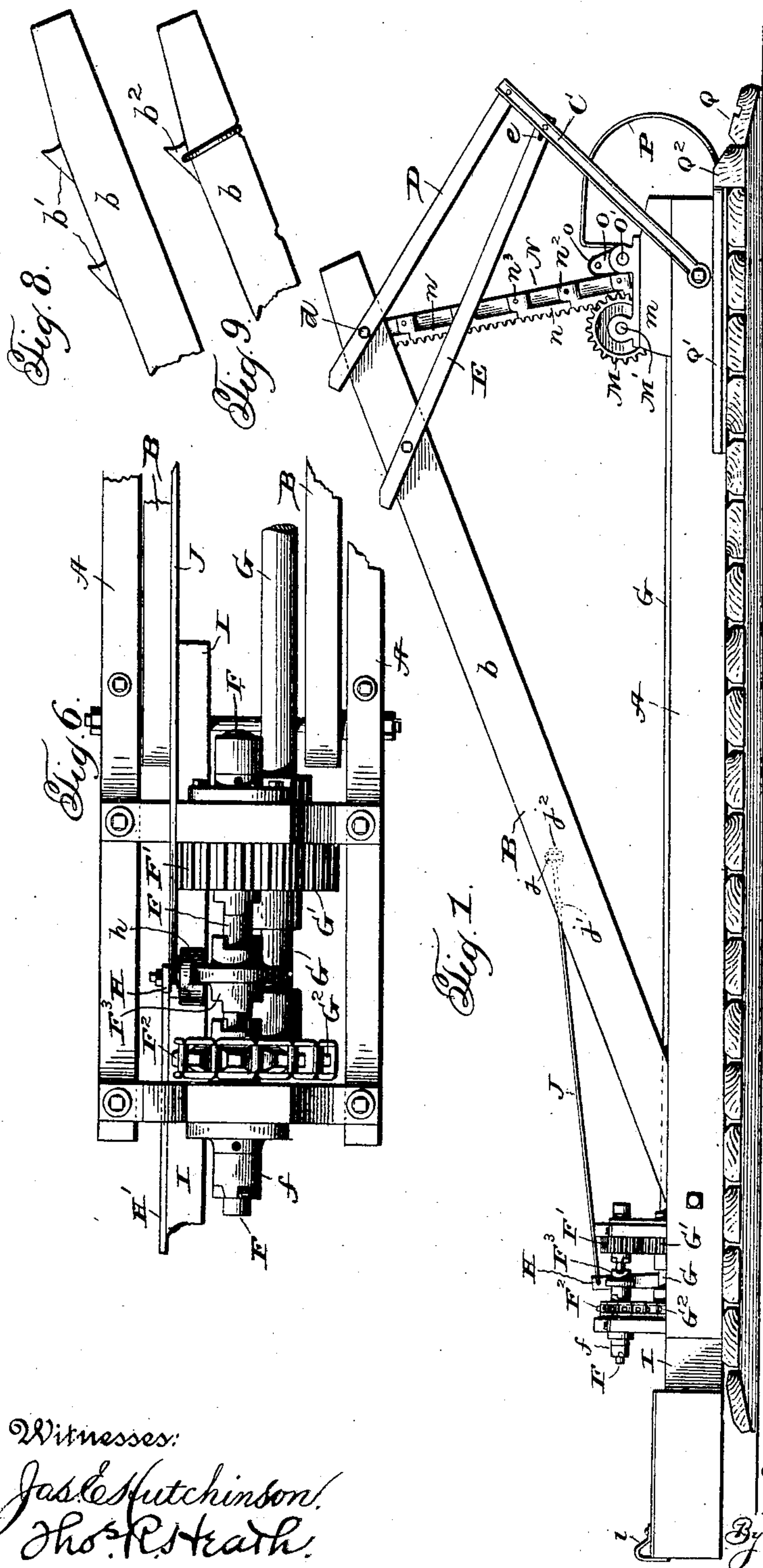
No. 865,667.

PATENTED SEPT. 10, 1907.

J. F. WHITE.  
WAGON DUMP.

APPLICATION FILED JUNE 18, 1906.

4 SHEETS—SHEET 1.



Witnesses:

Jas. E. Hutchinson.  
Thos. R. Strath.

Inventor:

John F. White

By *Wm. Milam*  
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No. 865,667.

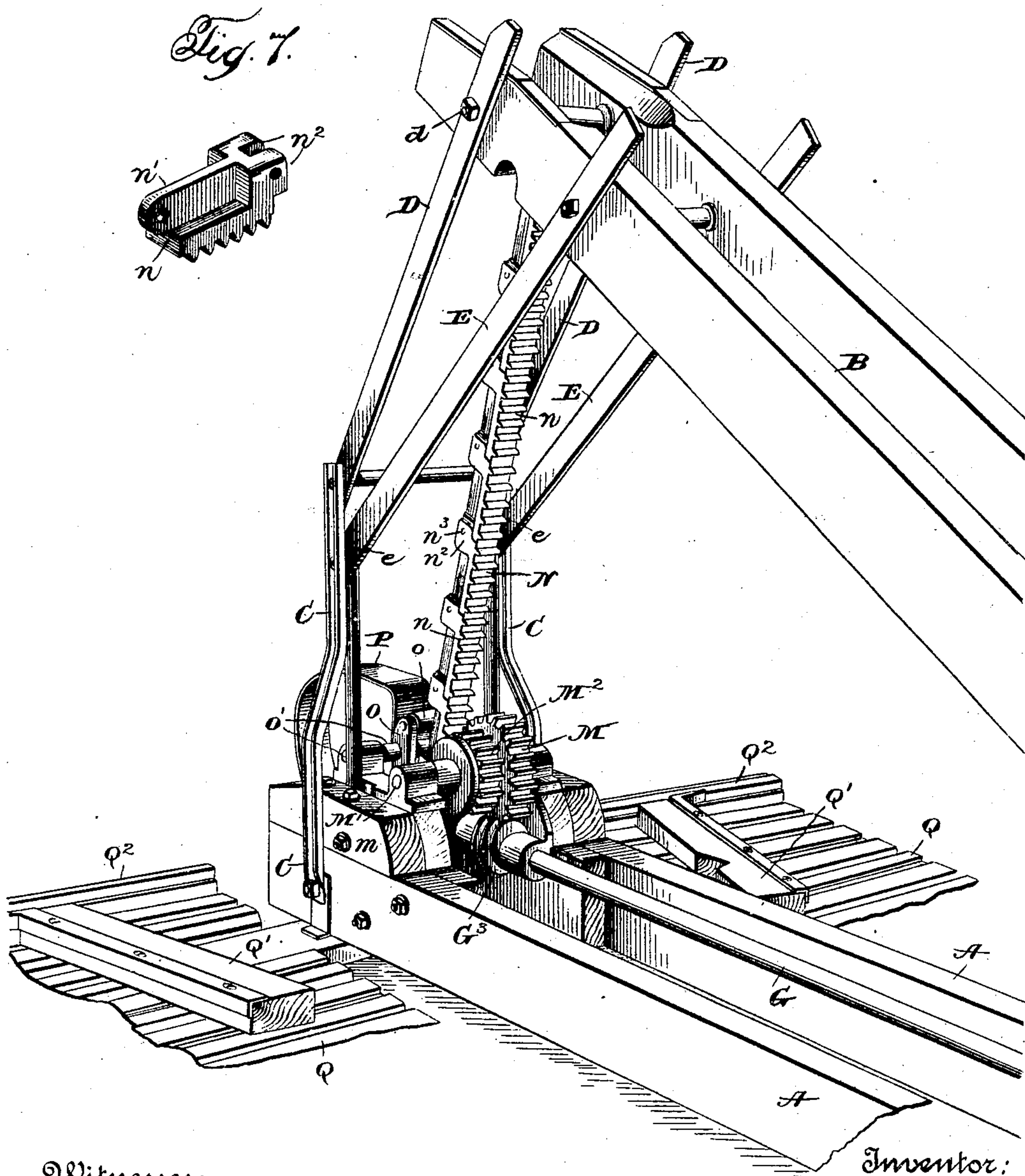
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4 SHEETS—SHEET 2.

Fig. 2.



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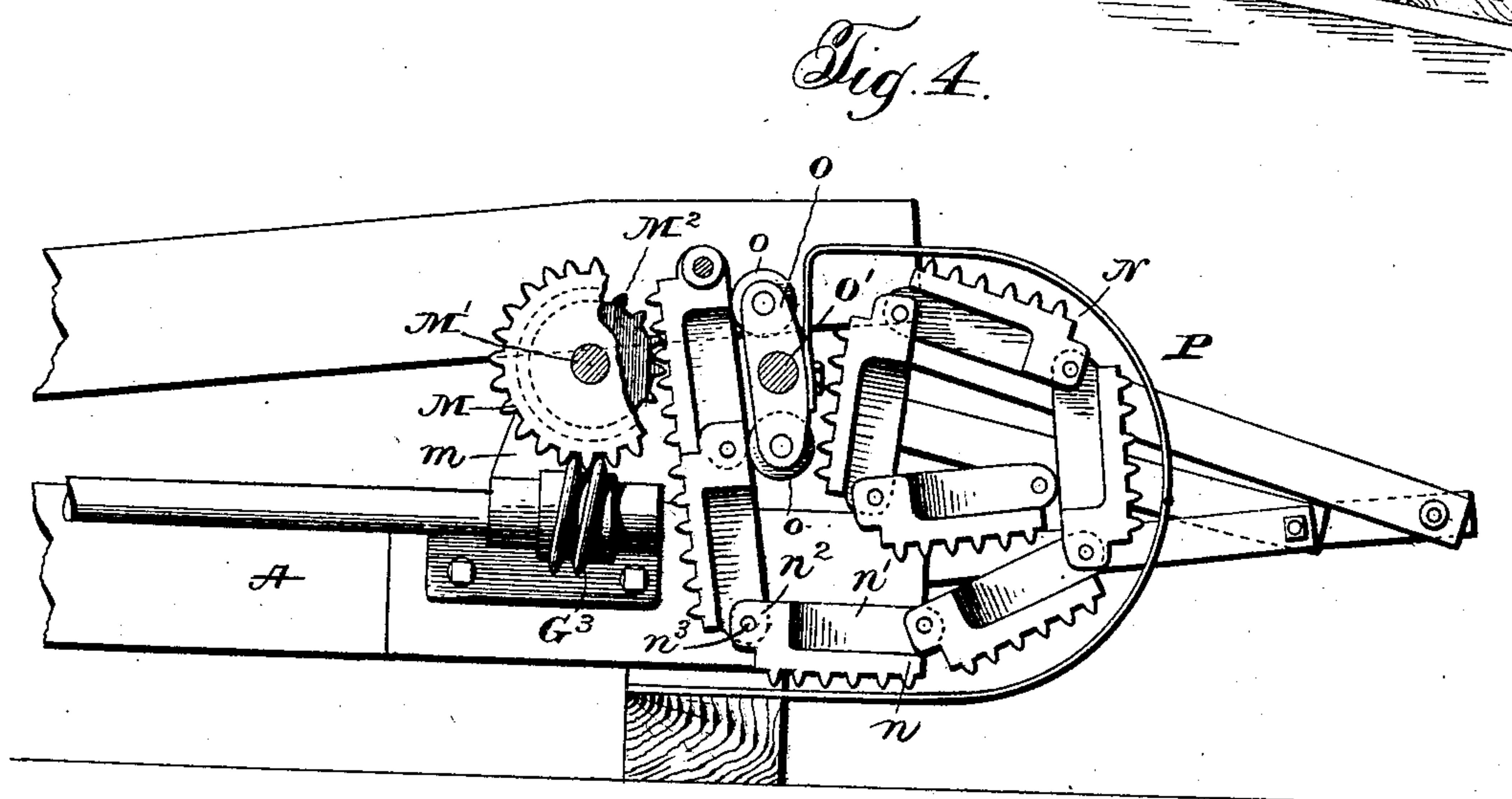
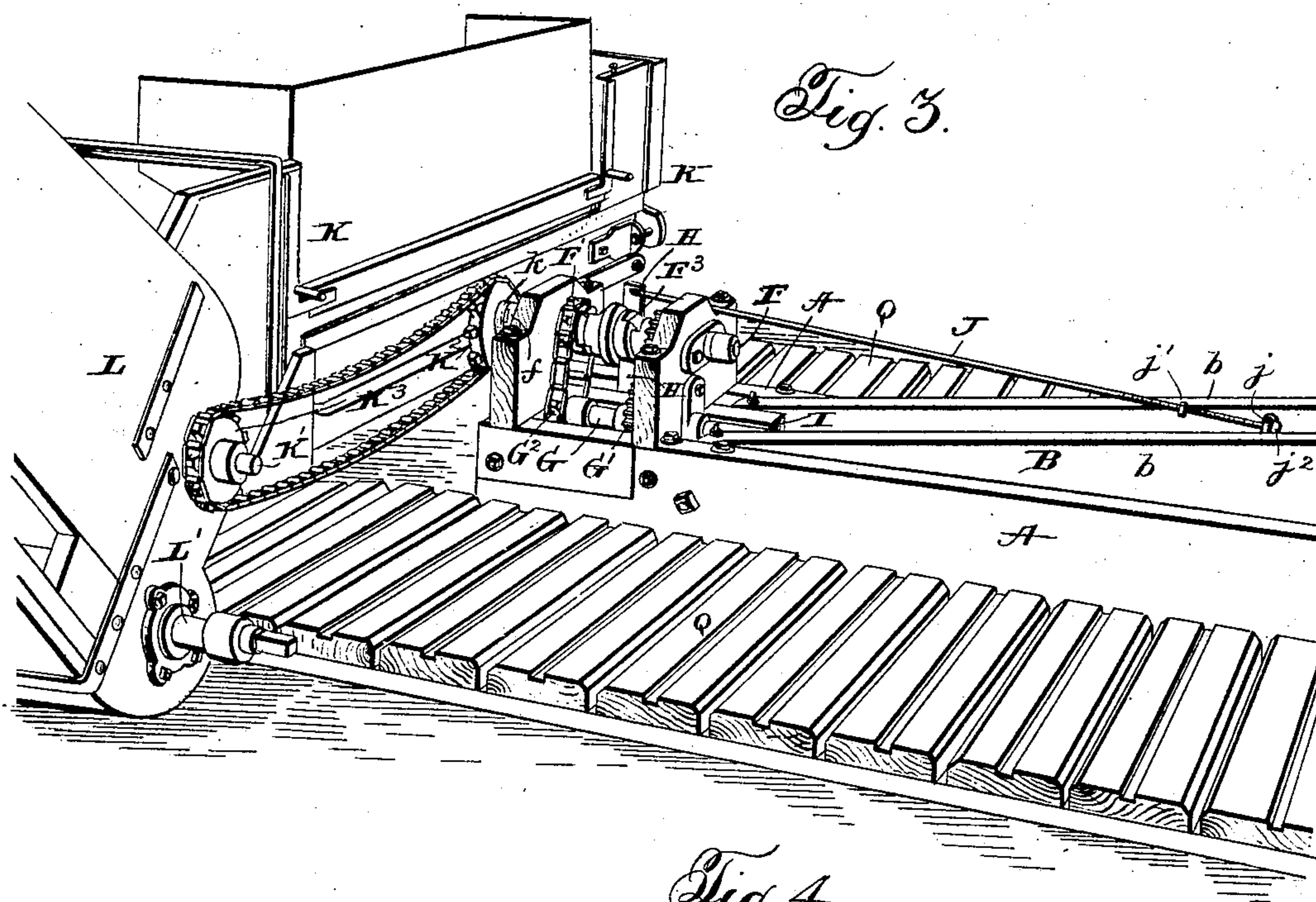
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

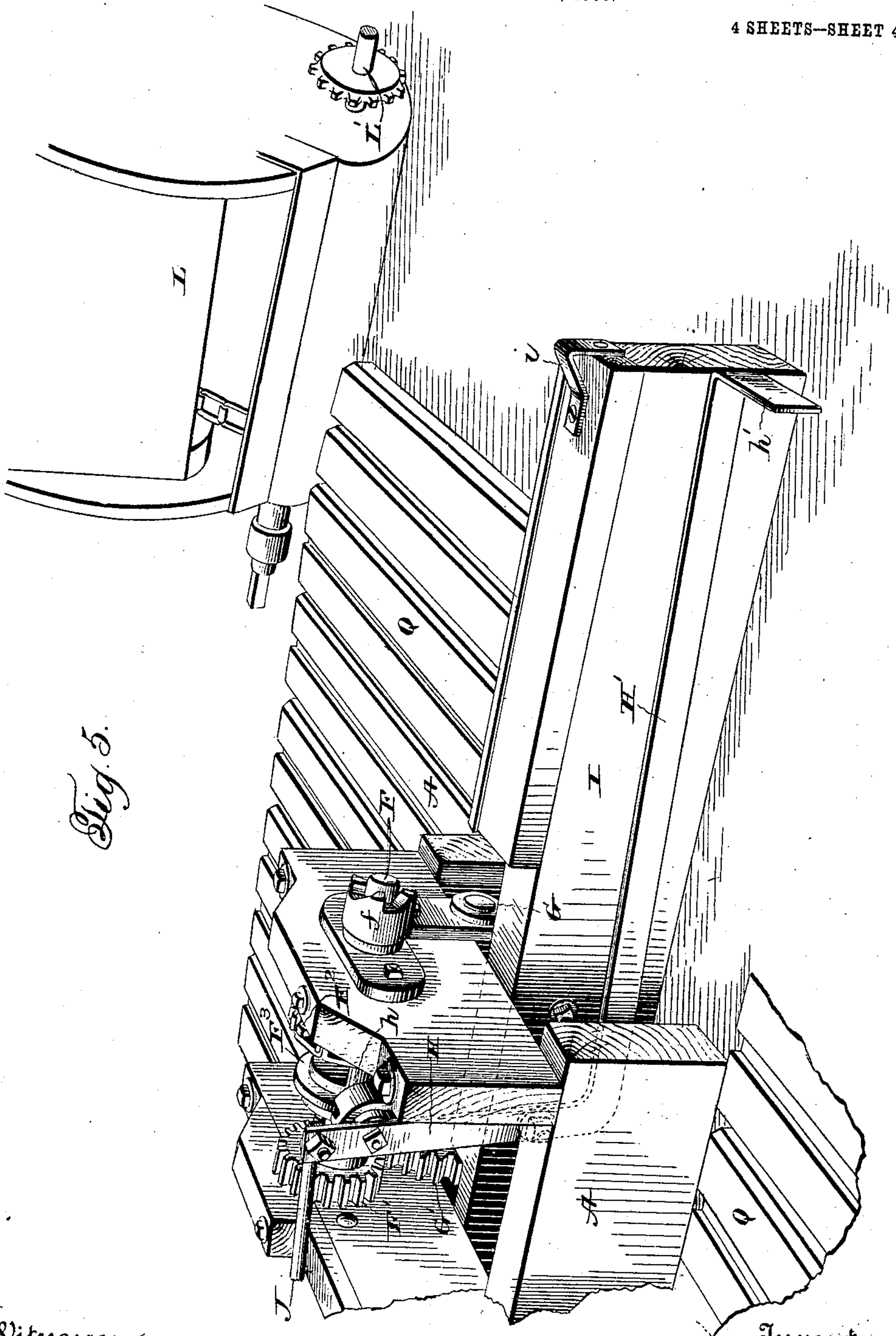


Fig. 5.

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# UNITED STATES PATENT OFFICE.

JOHN F. WHITE, OF BLOOMINGTON, ILLINOIS, ASSIGNOR TO PORTABLE ELEVATOR MFG. CO.,  
OF BLOOMINGTON, ILLINOIS, A CORPORATION OF ILLINOIS.

## WAGON-DUMP.

No. 865,667.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed June 18, 1906. Serial No. 322,352.

*To all whom it may concern:*

Be it known that I, JOHN F. WHITE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Wagon-Dumps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in wagon dumps or jacks designed to elevate the forward end of a wagon to discharge the load contained therein into a drag or feeder and more particularly to that type of jack disclosed in my co-pending application filed Feb. 12, 1906, Serial No. 300,828, and known as "straddle" jacks, in which the jack and the elevating mechanism therefor are fashioned to rest between the wheels of the wagon to be dumped.

The object of the present invention is the provision of improved means for effecting the raising and lowering of the jack.

A further object of the invention is the provision of means whereby a jack of this character may be readily adapted for use with wagons of varying lengths.

Other objects of the invention will be apparent from the detailed description hereinafter when read in connection with the accompanying drawing forming a part hereof, wherein a preferable embodiment of my invention is shown and wherein like numerals of reference refer to similar parts in the several views.

In the drawings: Figure 1 is a side elevation of my improved jack. Fig. 2 is a perspective view of the forward end of the jack. Fig. 3 is a perspective view of the rear end of the jack showing the drag in its lowered position. Fig. 4 is a detail view showing the sectional rack in its housed position. Fig. 5 is a perspective view of the rear end of the jack. Fig. 6 is a top plan view of the same, and Fig. 7 is a detail view of one of the links of the sectional rack. Figs. 8 and 9 are detail views showing modified forms of stop blocks for engaging the wagon axle.

Referring now more particularly to the drawings, A A designate a pair of longitudinally spaced supporting beams, which are supported upon and secured in any suitable manner to cross pieces which are adapted to rest upon the ground.

Secured to the supporting beams A A is the jack B, which is similar in construction to the jack disclosed in my pending application hereinbefore referred to, consisting of a pair of beams *b b*, the lower ends of which extend between the spaced supporting beams A A adjacent one end thereof and are connected thereto by a suitable pivot bolt passing therethrough. As in my former application, the upper surfaces of the beams *b b* forming the jack B are slightly beveled at their

outer ends to form a seat for the forward axle of the wagon to be dumped.

C C designate a pair of links, the lower ends of which are pivotally secured to the forward ends of the supporting beams A A, by a suitable pivot bolt passing therethrough and the upper ends of which are pivotally connected in any suitable manner to the lower ends of a pair of links D, the upper ends of which are pivotally secured to the forward ends of the jack beam *b b* by means of a suitable pivot bolt *d* passing therethrough. The upper ends of the links D project above the upper surfaces of the jack beams *b b* when the same are elevated and constitute a stop to prevent the axle of the wagon supported thereon from slipping downwardly along the upper surface of the jack as the same is elevated.

E E designate a pair of links similar in construction to the links D D, the upper ends of which are pivotally secured to the jack beam in rear of the links D D and the lower ends of which are pivotally connected to the links C C below their connection with the links D D. The lower ends of the links E E are provided with elongated slots therein *e* at the point of their connection with the links C C, in order to permit the slight longitudinal movement which will be imparted to said links when the jack is raised and lowered. The upper ends of the links E E extend above the upper surfaces of the jack beam when the jack is raised and lowered and the purpose of employing said links is to provide means whereby wagons of different lengths may be dumped without the necessity of adjusting the jack so that when the wagon is elevated its rear end will be properly positioned to discharge the load contained therein into the drag or feeder. Instead of providing the jack with the several sets of links for engaging the forward axles of wagons of different lengths, the same purpose may be subserved by providing the forward ends of the jack beams with a plurality of stop blocks *b'* or with stop blocks *b''* which may be adjusted longitudinally of the jack beams.

Journaled between suitable bearing blocks secured to the upper surfaces of the rear ends of the supporting beams A A is a drive shaft F, one end of which projects rearwardly beyond the bearing block and has secured thereto a collar *f* provided with a clutch face of any suitable construction.

Loosely mounted on the shaft F are a gear wheel *F'* and a sprocket wheel *F''* and keyed upon said shaft between said gear and sprocket wheels is a clutch member *F'''* which may be moved longitudinally to cause either the gear wheel or the sprocket wheel to rotate with the shaft.

G designates a shaft which is journaled in suitable

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bearings below the shaft F between the supporting beams A A and which extends substantially the entire length of said supporting beams, the forward end thereof being journaled in a suitable bearing secured to the inner

5 side of the forward end of one of said supporting beams.

Secured to the shaft G is a gear wheel G', which meshes with the gear wheel F' secured upon the shaft F and a sprocket wheel G<sup>2</sup>, which is connected by a suitable chain with the sprocket wheel F<sup>2</sup> upon the

10 shaft F. From this construction it will be apparent that by shifting the clutch member F<sup>3</sup> to cause either the gear wheel F' or the sprocket wheel F<sup>2</sup> to rotate with the shaft F, the direction of rotation of the shaft G can be governed. The clutch member F<sup>3</sup> is shifted by means

15 of an arm H which is pivotally secured to one side of a beam I which is secured to the under sides of the bearing blocks for the shaft F and projects rearwardly therefrom to form a support for the forward end of the drag when the same is in its lowered position.

20 Pivotally secured to the arm H is a stud h which is provided with a recess therein adapted to loosely receive an annular flange formed on the clutch member F<sup>3</sup>.

Secured to the lower end of the arm H below the

25 fulcrum thereof is an arm H' which extends rearwardly beyond the drag when in its lowered position and terminates in a foot piece h', which is easily accessible to the operator.

J designates a trip rod, the rear end of which is pivotally connected to the upper end of the arm H and the forward end of which is loosely supported in an eye j secured to the inner side of one of the jack beams b b. The forward end of the trip rod J is threaded and has adjustably secured thereon on opposite sides of the

30 eye j, for a purpose to be hereinafter more particularly set forth, nuts j' and j<sup>2</sup>.

K designates a drag, which is of the usual construction and is pivoted in the usual manner to the lower end of a suitable conveyer L. The drive shaft K' of

40 the drag K is, as is usual in devices of this character, driven by a suitable chain from the drive shaft L' of the elevator or conveyer L.

K<sup>2</sup> designates a sprocket wheel, which is carried by a shaft journaled in a suitable bearing secured to the

45 sides of the frame of the drag K and is provided with a laterally projecting sleeve k which is adapted to receive the projecting end of the shaft F, when the drag is in its lowered position, said sleeve being provided with a ratchet face adapted to cooperate with the

50 ratchet face on the collar f secured to the projecting end of the shaft F. The sprocket wheel K<sup>2</sup> is connected by a suitable chain with a sprocket wheel K<sup>3</sup> secured to the drive shaft K' of the drag K.

The beam I which extends rearwardly of the supporting beams A A to form a support for the drag K is provided with a stop i having an inner beveled face which is adapted to contact with the rear edge of the drag when the same is lowered, thereby forcing the same inwardly and causing the sleeve k of the sprocket wheel

55 K<sup>2</sup> carried thereby to engage the projecting end of the shaft F and the ratchet face of said sleeve to interlock with the ratchet face of the collar f secured to the projecting end of said shaft F. From this construction it will be apparent that upon the lowering of the

60 drag to its proper position, the power shaft L' of the

conveyer L will be automatically connected with the shaft F.

I will now describe the mechanism for raising and lowering the jack. The forward end of the shaft G has secured thereto a worm G<sup>3</sup>, which meshes with a

70 worm wheel M keyed to a shaft M', which is journaled in bearings m of any suitable construction secured to the forward ends of the supporting beam A A.

M<sup>2</sup> designates a pinion, which is keyed to the shaft M' at one side of the worm wheel M.

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Meshing with the pinion M<sup>2</sup> is a rack bar N, which is made up of a plurality of sections so that the same may be collapsed in the manner hereinafter set forth. The sections of the rack bar each comprise a flat portion n having a plurality of teeth extending transversely

80 thereacross and a rib n' disposed in rear of said flat portion and medially thereof, one end of said rib projecting beyond the end of the flat portion n and the opposite end of said rib being formed with a pair of separated ears n<sup>2</sup>, which also project beyond the end of the flat

85 portion n and are adapted to receive the projecting end of the rib n' of the next adjacent section, which is pivoted therebetween by a suitable pivot bolt n<sup>3</sup>, which passes therethrough. The adjacent ends of the flat portion n of the sections are provided with squared

90 shoulders which abut when the flat portions of the several sections are brought into alinement and form knuckle joints to prevent the rearward collapse of the rack bar, and as the rack bar N is rearwardly inclined, when the jack is in its elevated position it will be ap-

95 parent that the weight of the wagon will hold the squared shoulders of the flat portions n of the sections thereof in engagement and thereby prevent the collapse of the bar. The topmost section is provided with a laterally disposed sleeve formed integral therewith

100 through which the pivot bolt d which connects the links D D to the forward end of the jack passes.

O designates a frame in the upper and lower ends of which are journaled rollers o, which contact with the rear face of the ribs n' of the sections of the rack bar and

105 hold the teeth thereof in engagement with the pinion M<sup>2</sup>. The frame O is carried by a shaft O', which is journaled in suitable bearings secured to the upper surface of the forward ends of the supporting beams A A, so that the same may accommodate itself to the

110 change in the angle of the rack bar N caused by the elevation of the jack.

P designates an open frame, which is secured in any suitable manner to the forward ends of the supporting beams A A and is designed to constitute a housing for

115 the collapsed sections of the rack bar N, said frame in the present embodiment of the invention being formed of a metallic strap which has its lower end secured in any suitable manner to the supporting members A A directly below the pinion M<sup>2</sup>, the opposite end of said

120 strap extending forwardly beyond the ends of the supporting beams and being bent upwardly and around and secured to the back of the frame O. From the construction it will be apparent that when the rack bar is lowered, the sections thereof will contact with the

125 frame P and as they are free to collapse forwardly they will follow configuration of said frame and be stored in a convolute form.

I prefer to use in conjunction with the jack platform sections Q upon opposite sides thereof, the forward ends

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of which are provided with forwardly diverging centering rails Q', similar in construction to those illustrated in my application filed Feb. 12, 1906, Serial No. 300,829. The platform sections are also provided with stop rails Q<sup>2</sup> extending transversely thereacross which limit the movement of the front wheels of the wagon thereon.

Having described the construction of my improved device I will now set forth the operation thereof. The wagon is first driven into position onto the platform section Q so that the front axle thereof will be engaged by the forward end of the jack beams when the jack is elevated; the clutch member F<sup>3</sup> is then moved to connect the pinion F' with the shaft F; the drag K is then lowered, which automatically connects the shaft F with the power shaft, thereby causing the rotation of the shaft G and consequently the elevation of the rack bar N. The upward movement of the jack continues until the eye j in one of the beams thereof contacts with the nut j' carried by the trip bar and forces the same rearwardly a sufficient amount to disengage the clutch member F<sup>3</sup> from the gear wheel F' which will stop the movement of the jack. To effect the lowering of the jack, the clutch member is moved into engagement with the sprocket wheel F<sup>2</sup>, which will obviously cause the reversal of the direction of rotation of the shaft G and consequently the lowering of the rack bar and the jack. When the jack reaches its lowermost position the eye j will contact with the nut j<sup>2</sup> and move the trip J a sufficient extent to disengage the clutch member F<sup>3</sup> from the sprocket wheel F<sup>2</sup>. It will be obvious that by adjusting the nuts j' and j<sup>2</sup> on the trip bar J that the movement of the jack may be limited as desired.

I claim:

1. In a straddle wagon dump, means for elevating the front end of a wagon, and actuating mechanism therefor including a sectional rack bar.
2. In a straddle wagon dump, means for elevating one end of a wagon, and actuating mechanism therefor including a flexible rack bar.
3. In a straddle wagon dump, means for elevating one end of a wagon, and actuating mechanism therefor including a rack bar formed of a plurality of pivoted sections.
4. In a wagon dump, a supporting member, a jack movably secured thereto, and means interposed between said jack and supporting member for effecting the elevation thereof, including a flexible rack bar said jack and supporting member being fashioned to rest between the wheels of the wagon to be elevated.
5. In a straddle wagon dump, a supporting member, a jack movably secured thereto, a flexible rack bar operatively connected to said jack, and a gear wheel carried by said supporting member and meshing with the rack.
6. In a wagon dump, a supporting member, a jack movably secured thereto, said supporting member and jack being fashioned to rest between the wheels of the wagon to be dumped a sectional flexible rack bar operatively connected to said jack, and means carried by the supporting member for raising and lowering said rack bar.
7. In a wagon dump, a supporting member, a jack movably secured thereto, said supporting member and jack being fashioned to rest between the wheels of the wagon to be dumped a flexible rack bar operatively connected to said jack, a gear wheel carried by said supporting member, and means for holding said rack in mesh with said gear wheel.
8. In a straddle wagon dump, a pivoted jack, and means for raising and lowering said jack, said means including a flexible rack bar.
9. In a straddle wagon dump, a pivoted jack, and means for raising and lowering said jack, said means including a sectional flexible rack bar.

10. In a wagon dump, a supporting member, a jack pivotally secured thereto, said supporting member and jack being fashioned to rest between the wheels of the wagon to be dumped a flexible rack bar connected to one of said members, and a gear wheel carried by the other of said members and meshing with said rack bar.

11. In a wagon dump, a supporting member, a jack pivotally secured thereto, said supporting member and jack being fashioned to rest between the wheels of the wagon to be dumped a flexible rack bar pivotally connected at its upper end to said jack, a gear carried by said supporting member and arranged to mesh with said rack bar.

12. In a wagon dump, a supporting member, a jack pivotally secured thereto, said supporting member and jack being fashioned to rest between the wheels of the wagon to be dumped a flexible rack bar pivotally connected at its upper end to said jack, a gear carried by said supporting member, and means for holding said rack bar in mesh with said gear.

13. In a wagon dump, a supporting member, a jack pivotally secured thereto, said supporting member and jack being fashioned to rest between the wheels of the wagon to be dumped a rack bar formed of a plurality of pivoted sections having its upper end pivoted to the jack, a gear carried by the supporting member, and a pivoted frame arranged to engage the rack bar and hold the same in mesh with said gear.

14. In a wagon dump, a supporting member, a jack pivotally secured thereto, links connecting the jack and supporting member and independent means for raising and lowering the jack.

15. In a wagon dump, a supporting member, a jack pivoted thereto, links connecting the jack and supporting member, and means for raising and lowering the jack, said means including a rack bar.

16. In a wagon dump, a supporting member, a jack pivoted thereto, links connecting the jack and supporting member, a rack bar pivoted at its upper end to said jack, and a gear carried by the supporting member and meshing with said rack bar.

17. In a wagon dump, a supporting member, a jack pivoted thereto, links connecting said jack and supporting member, a flexible rack bar secured at its upper end to the jack, and a gear carried by the supporting member and meshing with said rack bar.

18. In a wagon dump, a supporting member, a jack pivotally secured thereto, an inclined rack bar pivotally connected to said jack, and a gear carried by the supporting member and meshing with the rack bar, said rack bar consisting of a plurality of pivoted sections which are free to collapse in one direction only.

19. In a wagon dump, a supporting member, a jack pivoted thereto, an inclined rack bar pivotally connected to said jack, and a gear carried by the supporting member and arranged to mesh with the rack bar, said rack bar being formed of a plurality of pivoted sections, the adjacent ends of which are provided with shoulders designed to abut when the sections are brought into alinement.

20. In a wagon dump, a supporting member, a jack pivotally secured thereto, an inclined rack bar connected to said jack, a gear carried by the supporting member and meshing with the rack bar, said rack bar being formed of a plurality of pivoted sections which are free to collapse in one direction and are held against collapse in the opposite direction by the weight of the jack.

21. In a wagon dump, a supporting member, a jack movably secured thereto, a rack bar connected to said jack, a pinion carried by the supporting member and meshing with the rack bar, said rack bar being formed of a plurality of pivoted sections, which are free to collapse in one direction and are held against collapse in the other direction by the weight of the jack, and means positioned below the gear on the supporting member and above the plane of the lower edge of the supporting member for deflecting the rack bar and causing the collapse of the sections thereof.

22. In a wagon dump, a supporting member, a jack movably secured thereto, a collapsible sectional rack bar connected to said jack, a gear carried by the supporting member and arranged to mesh with said rack bar, and a hous-



ing positioned below said gear and above the plane of the lower edge of said supporting member, said housing being fashioned to deflect said rack bar and effect the collapse of the sections thereof.

23. In a wagon dump, a supporting member, a jack pivotally secured thereto, a rack bar connected thereto, said rack bar being formed of a plurality of sections free to collapse in one direction and held against collapse in the opposite direction by the weight of the jack, a gear carried by the supporting member and arranged to mesh with said rack, and a housing carried by the supporting member and positioned below said gear and above the plane of the lower edge of said supporting member, said housing being fashioned to effect the deflection of the rack bar and the collapse of the sections thereof.

24. In a device of the character described, means adapted to engage the forward end of a wagon to effect the elevation thereof, hoisting mechanism therefor including a drive shaft having a laterally extending portion, a power shaft, a transverse conveyer arranged to swing upward and downward to permit a wagon to pass into position to be elevated, a shaft carried by said conveyer, gearing between said shaft and the power shaft, and means for imparting a lateral movement to said conveyer when the same is lowered to cause the shaft carried thereby to engage the laterally extending portion of the drive shaft of the hoisting mechanism.

25. In a device of the character described, means adapted to engage the forward end of a wagon to effect the elevation thereof, hoisting mechanism therefor including a drive shaft having a laterally extending portion, a power shaft, a transverse conveyer arranged to swing upward and downward to permit a wagon to pass into position to be elevated, a shaft carried by said conveyer and having a portion adapted to engage with the laterally extending portion of the drive shaft of the hoisting mechanism, and an inclined stop adapted to be engaged by said conveyer when the same is moved to its operative position.

26. In a device of the character described, a supporting member, a jack movably secured thereto, a rack bar connected to said jack, actuating mechanism for said rack bar including a shaft and two sets of gearing therefor, a clutch member arranged for engagement with either set of gearing, means for moving said clutch member into engagement with either set of gearing, and means automatically operable by the movement of the jack for moving said clutch member out of engagement with both sets of gearing.

27. In a device of the character described, a conveyer, and a jack adapted to engage the under side of a wagon and elevate the same to effect the discharge of its contents into the conveyer, said jack having means adjustable thereon for engaging wagons of varying lengths.

28. In a device of the character described, a conveyer, and a jack adapted to engage the forward end of a wagon to elevate the same, said jack having means thereon for engaging wagons of varying lengths.

29. In a device of the character described, a conveyer, and a jack adapted to effect the elevation of a wagon to cause its discharge into said conveyer, said jack being fashioned to rest between the wheels of the wagon to be elevated and having means thereon for engaging wagons of varying lengths.

30. In a device of the character described, a longitudinally disposed supporting member, a longitudinally disposed jack movably secured thereto, said jack and supporting member being fashioned to rest between the wheels of the wagon to be dumped, a shaft journaled in said supporting member and extending substantially the entire length thereof, driving means for said shaft positioned at one end of said supporting member, and means actuated by said shaft for raising and lowering the jack position at the opposite end of said supporting member.

31. In a device of the character described, a longitudinally disposed supporting member, a longitudinally disposed jack movably secured thereto, said jack and supporting member being fashioned to rest between the wheels of the wagon to be dumped, a shaft journaled in said supporting member and extending lengthwise thereof, two sets of gearing positioned at one end of said supporting member, means for connecting either set of gearing with said shaft, and means actuated by said shaft for raising and lowering the jack.

32. In a wagon dump, a supporting member, fashioned to rest between the wheels of the wagon to be dumped, a jack pivotally secured thereto, a rack bar secured to said jack, a gear wheel carried by the supporting member and meshing with said rack bar, and actuating mechanism for driving said gear wheel in either direction carried by said supporting member.

33. In a wagon dump, a supporting member, a jack pivotally secured thereto, a rack bar connected to the jack, a gear carried by the supporting member and meshing with said rack bar, and actuating mechanism carried by the supporting member for driving said gear wheel, said supporting member, jack, and actuating mechanism being fashioned to rest between the wheels of the wagon to be elevated.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. WHITE.

Witnesses:

LUELLA E. WHITE,  
GEORGE W. MONROE.