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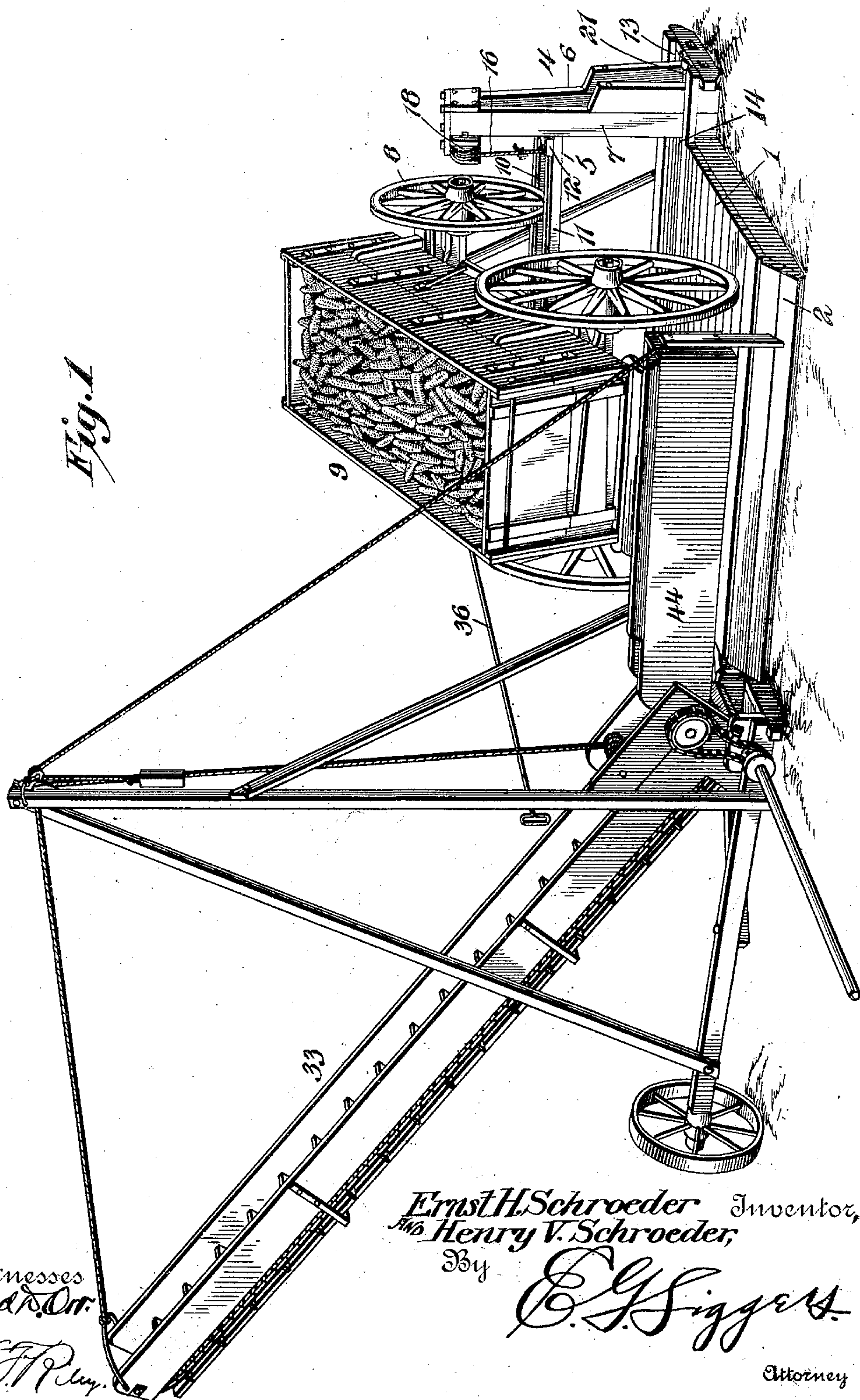
PATENTED JAN. 29, 1907.

E. H. & H. V. SCHROEDER.

WAGON JACK FOR PORTABLE GRAIN DUMPS AND ELEVATORS.

APPLICATION FILED APR. 27, 1904.

3 SHEETS—SHEET 1.



Ernst H. Schroeder Inventor,
By Henry V. Schroeder,

By E. J. Sigger,

Attorney

Witnesses
Howard D. Orr,

J. H. Pley,

No. 842,714.

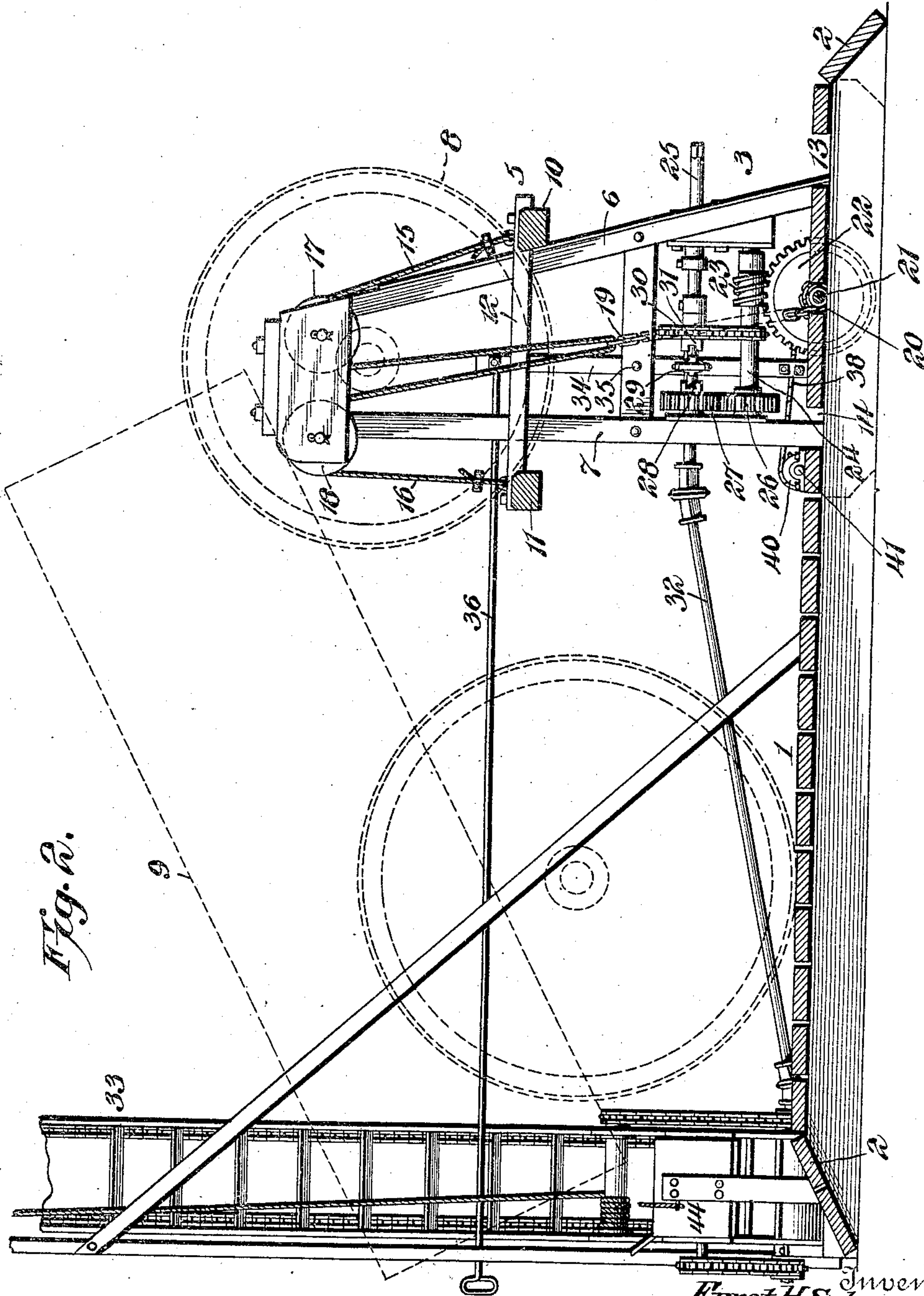
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Witnesses
Howard W. Orr.
J. F. P. May.

By

Inventors
Ernst H. Schroeder
and Henry V. Schroeder,
C. G. Siggers.

Attorney

No. 842,714.

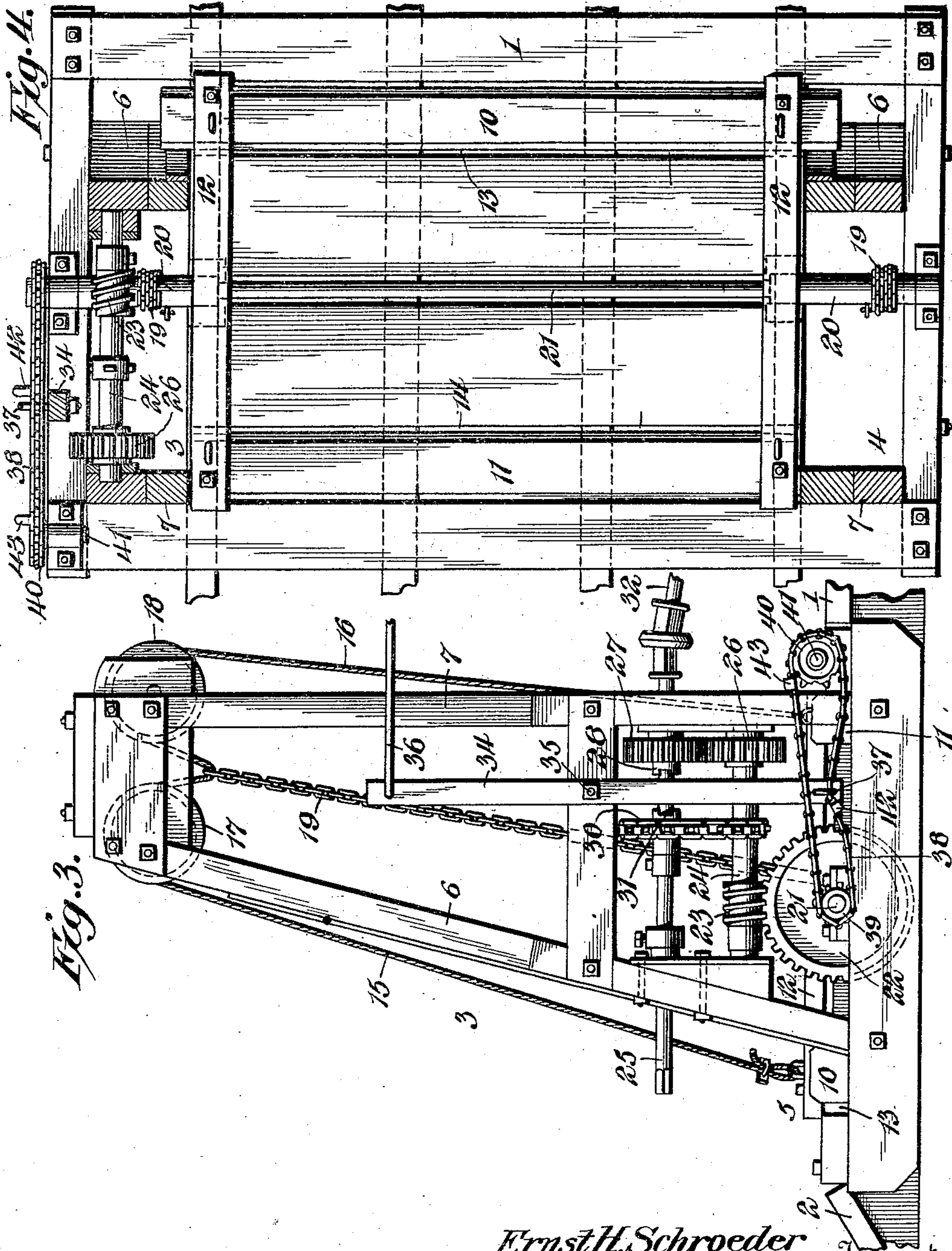
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Ernst H. Schroeder
and Henry V. Schroeder, Inventors

By

C. G. Siggel

Attorney

Witnesses

Howard W. Orr

J. J. Piley

UNITED STATES PATENT OFFICE.

ERNST H. SCHROEDER AND HENRY V. SCHROEDER, OF MINIER, ILLINOIS.

WAGON-JACK FOR PORTABLE GRAIN DUMPS AND ELEVATORS.

No. 842,714.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed April 27, 1904. Serial No. 205,217.

To all whom it may concern:

Be it known that ERNST H. SCHROEDER and HENRY V. SCHROEDER, citizens of the United States, residing at Minier, in the county of Tazewell and State of Illinois, have invented a new and useful Wagon-Jack for Portable Grain Dumps and Elevators, of which the following is a specification.

The invention relates to improvements in wagon-jacks for portable grain dumps and elevators.

The object of the present invention is to improve the construction of wagon-jacks for portable grain dumps and elevators and to provide a simple and comparatively inexpensive one of great strength and durability adapted to be operated by the gearing for operating the elevator and capable when the front portion of a wagon has been raised sufficiently to discharge the contents of the wagon into the conveyer of automatically stopping the wagon-jack.

A further object of the invention is to provide a wagon-jack of this character which will be capable of reversing the motion of the gearing of the hoisting mechanism, whereby after the contents of a wagon have been discharged into the conveyer the wagon will be gradually lowered to a horizontal position.

Another object of the invention is to provide a wagon-jack which as the wagon-receiving platform is raised will permit the said platform to move rearward gradually, whereby the platform will be moved substantially in an arc of a circle to permit the hind wheels of the wagon to remain stationary and also to relieve the wagon-jack of strain resulting from any tendency to move the wagon longitudinally.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a grain dump and elevator provided with a wagon-jack constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is an end

elevation of the wagon-jack, illustrating the construction for automatically throwing the hoisting mechanism out of operation. Fig. 4 is a horizontal sectional view.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a base, having inclined or slanting end portions 2 for enabling a wagon to be readily driven onto the base. The base is provided at opposite sides of one end with upwardly-extending frames or supports 3 and 4, on which is mounted the hoisting mechanism for raising and lowering a wagon-receiving platform or carriage 5. Each of the frames is composed of two sides 6 and 7, connected by suitable cross-pieces, the side 6, which is located at the adjacent end of the base, being inclined for a purpose hereinafter described. The other side 7 of the frame is preferably arranged in a vertical position, as clearly shown in Fig. 2 of the drawings.

The platform or elevating-frame which receives the front wheels 8 of a wagon 9 is preferably composed of parallel inner and outer bars 10 and 11 and connecting-bars 12, the parallel bars 10 and 11 being spaced apart to receive the front wheels of the wagon, whereby the wheels will be prevented from slipping backward or forward. The platform is provided with suitable openings 13 and 14 for the reception of the bars 10 and 11, so that when the receiving-frame is lowered it will complete the floor of the base and lie substantially flush with the same.

Cables 15 and 16 of hoisting mechanism are connected with the platform at the corners thereof, and they extend upward from the corners to pulleys 17 and 18, the pulley 17 being located in rear of the outer or end bar 10 of the platform, whereby when the platform is raised it will lie against the inclined side face of the upright frames and moved gradually rearward as it is raised to accommodate itself to the rearward movement of the front wheels of the wagon and to prevent any tendency of the wagon-jack to move the wagon longitudinally in raising or lowering the front of the same. The cables extend over the pulleys 17 and 18 from the outer sides thereof, and they depend at the inner sides of the pulleys, and each pair of cables is preferably constructed of a single piece of material, as clearly shown in Fig. 2. The cables are connected with chains 19, which are secured to and adapted to be

wound upon spools 20 of a drum-shaft 21 of power mechanism disposed transversely of the base 1 and journaled in suitable bearings of the same and located at the bottom of the upright frames. When the shaft is rotated, these chains will be simultaneously wound up on or unwound from the spools 20, according to the direction of the rotation.

The transverse bottom shaft has keyed or otherwise secured to it a worm-gear 22, which meshes with a worm 23 of a horizontal shaft 24, journaled in suitable bearings of the upright frame 3 and arranged at right angles to the transverse shaft 21. This worm-shaft 24 is connected with a continuously-driven power-shaft 25 by differential spur and sprocket gearing arranged as clearly shown in Fig. 2 and adapted to be driven by either the spur or sprocket gearing, whereby the shaft 24 is adapted to be rotated in either direction to raise or lower the wagon-receiving platform. The spur-gear 26 is fixed to the shaft 24, while the spur-gear 27 is loosely arranged on the shaft 25, being provided at its inner face with a clutch-section 28, adapted to be engaged by a movable clutch member 29, which is located between the spur-gear 27 and the sprocket-wheel 30. The sprocket-wheel 30 is provided at its inner face with a clutch-section 31, and the movable clutch member 29 is adapted to be shifted longitudinally of the shaft 25 to engage it with either the spur-gear 27 or the sprocket-wheel 30. The movable clutch member is slidably interlocked with the shaft 25 by a key and a keyway or other suitable means, and when it is in engagement with one of the gears the same will be locked to the shaft 25 and will communicate motion to the counter-shaft 24. The spur-gearing which raises the elevating frame or platform is composed of members or wheels of substantially the same size, so that the counter-shaft 24 travels at the same rate of speed as the power-shaft 25. The sprocket-gearing has its lower sprocket-pinion, which is mounted on the counter-shaft, of considerably less diameter than the upper sprocket-wheel, which is mounted on the power-shaft, whereby the counter-shaft will be rotated at a higher rate of speed than the power-shaft. The sprocket-gearing is employed for lowering the elevating-platform, and as the counter-shaft rotates at the same rate of speed as the power-shaft in raising the elevating-frame and at an increased speed when lowering the elevating-frame it will be clear that the said elevating-frame moves downward at an accelerated speed.

The shaft 25, which is disposed horizontally and which constitutes a power-shaft, is connected by a tumbling rod or shaft 32 with the gearing for operating the elevator 33.

The movable clutch member is connected with the lower arm of an upright shifting-lever 34, fulcrumed between its ends at 35

on the upright frame 3 by a bolt or other suitable means. The upper arm of the lever 34 is connected with an operating-rod 36 for enabling the clutch member to be shifted by hand, as hereinafter explained. The lower end of the shifting-lever is provided with a staple 37, forming a guide and receiving one flight of a sprocket-chain 38, arranged on sprocket-pinions 39 and 40. The sprocket-wheel 39 is mounted on one end of the transverse shaft 21, and the other sprocket-wheel is mounted on a suitable stub-shaft 41, located near the adjacent end of the base, as clearly shown in Fig. 4. The sprocket-chain, which is approximately horizontal, is provided at two of its links with projecting portions 42 and 43, arranged to alternately engage the lever 34 for shifting the same to throw the clutch member out of engagement, and thereby stop the wagon-jack. The links which are provided with the projections are otherwise constructed similar to the other links of the sprocket-chain, and they may be readily arranged at the desired point to secure the proper operation of the shifting-lever. This construction constitutes adjusting means for varying the extent of the movement of the wagon. The motion of the wagon-jack is communicated to the sprocket-chain 38, and when the same has traveled a predetermined distance one of the projecting portions thereof will engage the guide of the shifting-lever and throw the clutch member out of operation, which will stop the wagon-jack. The worm will lock the wagon-receiving frame in its elevated position and will prevent the gearing from being rotated by the weight of a wagon and its contents. The spur-gearing is employed for hoisting the front portion of the wagon, and after the contents of the latter have been discharged into the transverse conveyer 44 the shifting-lever is moved by hand to carry the movable clutch member into engagement with the clutch-section of the adjacent sprocket-wheel. This will reverse the rotation of the shaft 24 and will lower the wagon to a horizontal position. When the wagon-platform reaches the limit of its downward movement, the other projecting portion of the sprocket-chain 38 will shift the lever and stop the wagon-jack.

While it is preferred to employ the spur and sprocket gearing for communicating motion from the shaft 25 to the shaft 24 owing to the simplicity of the operation of the same, yet it will be apparent that any other arrangement of differential gearing for reversing motion and for lowering the elevating-platform at an accelerated speed may be substituted for that shown and described.

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

1. In a device of the class described, the combination of a wagon-receiving platform

composed of connected inner and outer bars, upright frames at each end extending between the inner and outer bars and provided with inclined sides receiving the platform, cables arranged in pairs on each frame and connected with the platform at the ends thereof, and forming the support for the same and arranged to permit the platform to shift rearwardly as it is elevated, and hoisting mechanism connected with the cables for raising and lowering the platform, substantially as described.

2. In a device of the class described, the combination of a wagon-receiving platform, upright frames arranged at the ends of the platform, a pair of spaced pulleys arranged at the top of each of the frames, a pair of cables connected with each end of the platform at different points and passing over the said pulleys, a transverse shaft extending entirely across the device and arranged beneath the platform, chains connected with each pair of the cables and with the shaft, and means for rotating the shaft, substantially as described.

3. In a device of the class described, the combination of elevating means having a clutch, a shifting-lever connected with the clutch and provided with a guide, and sprocket-gearing operated by the said means and provided with a sprocket-chain passing through said guide and provided with means for operating the lever to shift the clutch automatically, substantially as described.

4. In a device of the class described, the combination of a wagon-receiving platform, a transverse shaft, means for connecting the said shaft with the platform, a pair of longitudinal shafts, worm-gearing connecting one of the longitudinal shafts with the transverse shaft, two sets of gearing connecting the longitudinal shafts for communicating motion from one to the other and for reversing such motion, an intermediate clutch member for engaging either gearing, a shifting-lever connected with the clutch member, and an end-

less connection operated by the said gearing and provided with means for shifting the lever to operate the clutch automatically, substantially as described.

5. In a device of the class described, the combination of upright tapering frames provided with front inclined guiding-faces, an elevating frame or platform provided with front and rear bars embracing the upright frames and fitting the same snugly when the elevating frame or platform is in its lowermost position, the spaces between the front and rear bars of the elevating frame or platform being greater than the width of the said frames when more or less elevated, the front bar being adapted to swing rearwardly against and slide on the inclined faces of the upright frames when the elevating frame or platform is raised, and hoisting mechanism connected with the frame or platform.

6. In a device of the class described, the combination of hoisting mechanism, spur and sprocket gearing for differentially operating the hoisting mechanism, an intermediate clutch member for engaging either gearing, and means operable by the said gearing for automatically shifting the clutch member.

7. In a device of the class described, the combination of hoisting mechanism, power mechanism embodying shafts, differential spur and sprocket gearing connecting the shafts, one of the shafts having a clutch member for engaging either gearing, a shifting-lever connected with the clutch member, and means operable by the power-gearing for automatically shifting the lever.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

ERNST H. SCHROEDER.

HENRY V. SCHROEDER.

Witnesses:

VALENTIN IMIG, Sen.,

ERNEST C. IMIG.