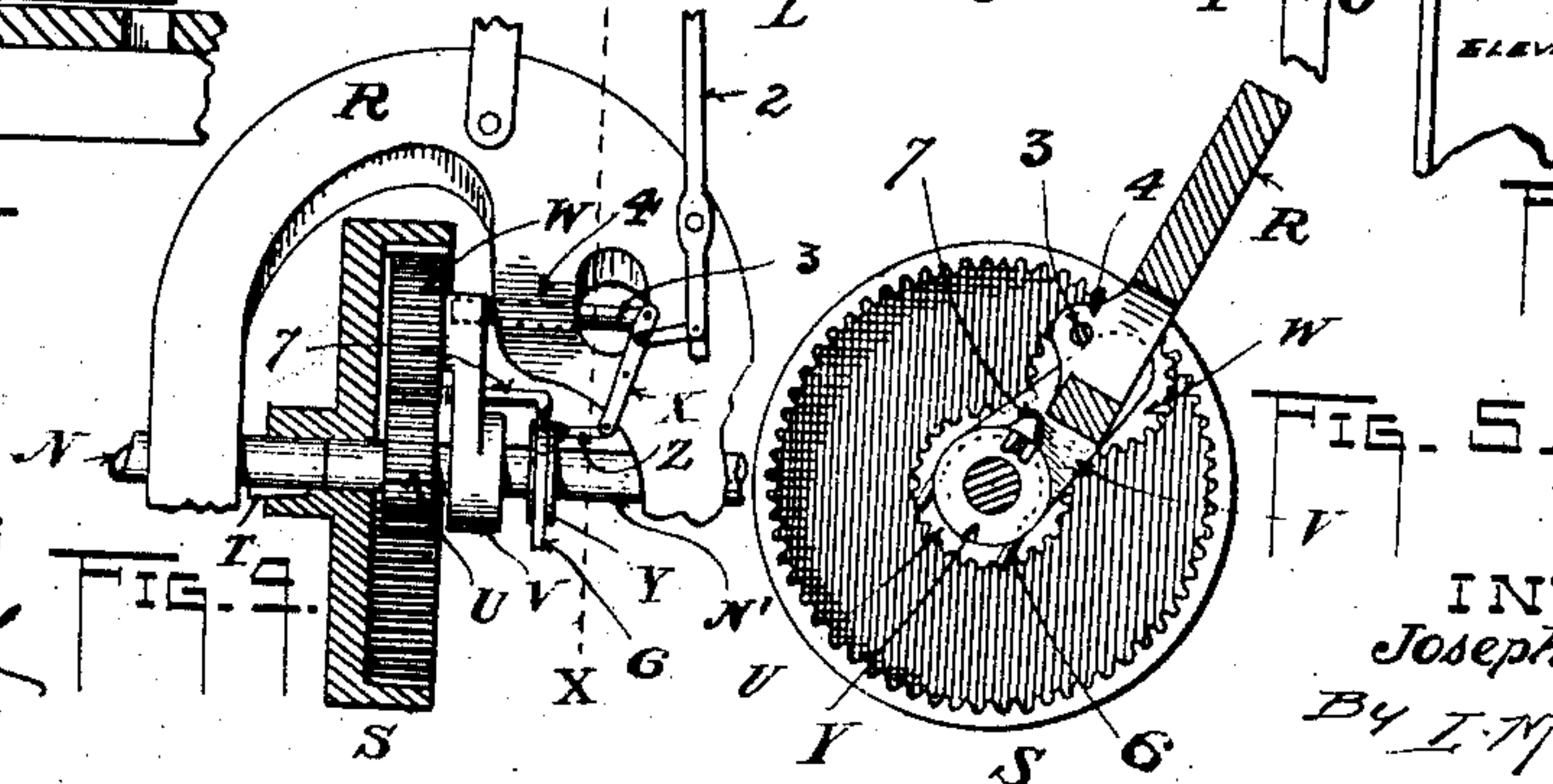
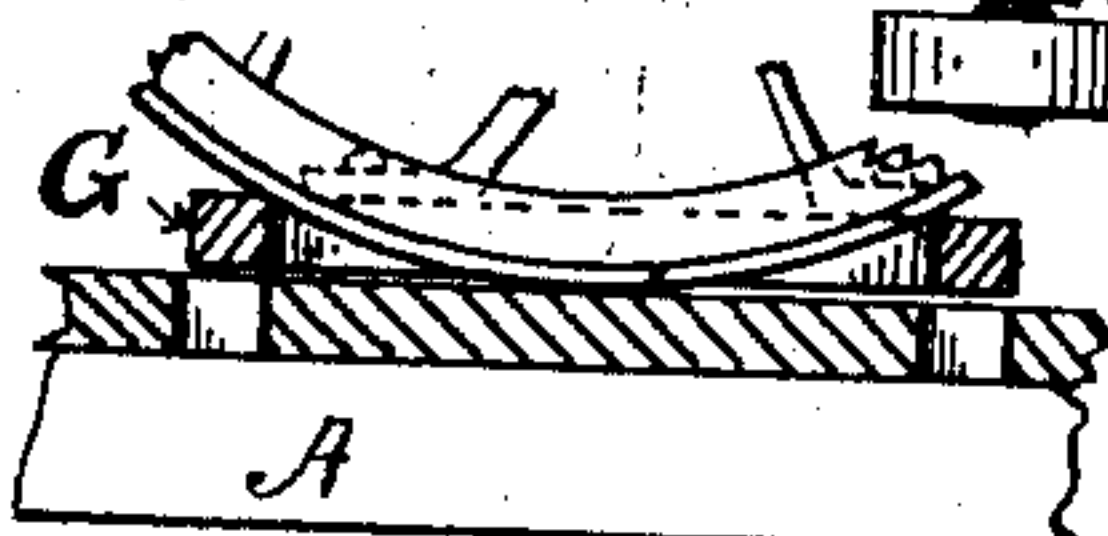
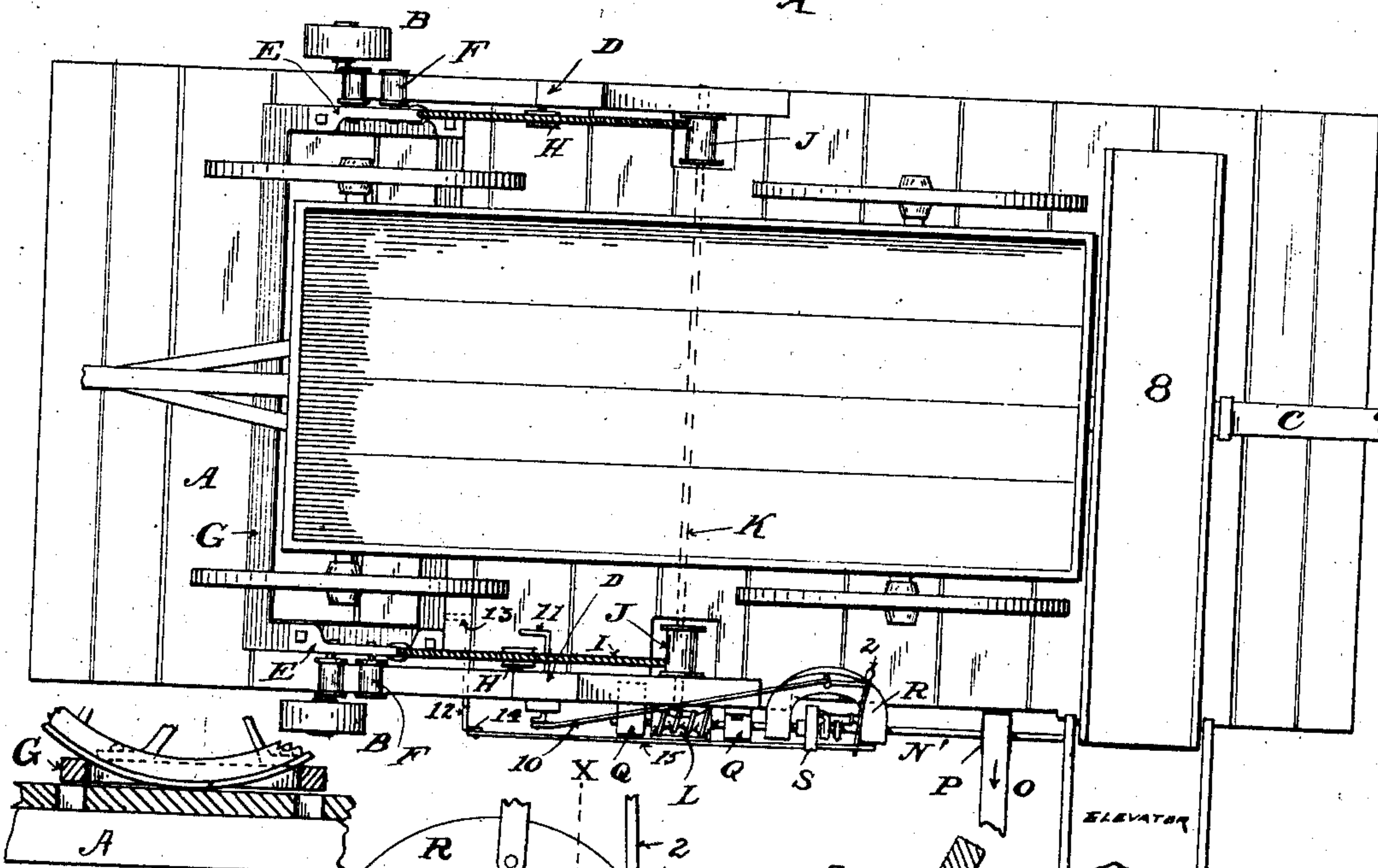
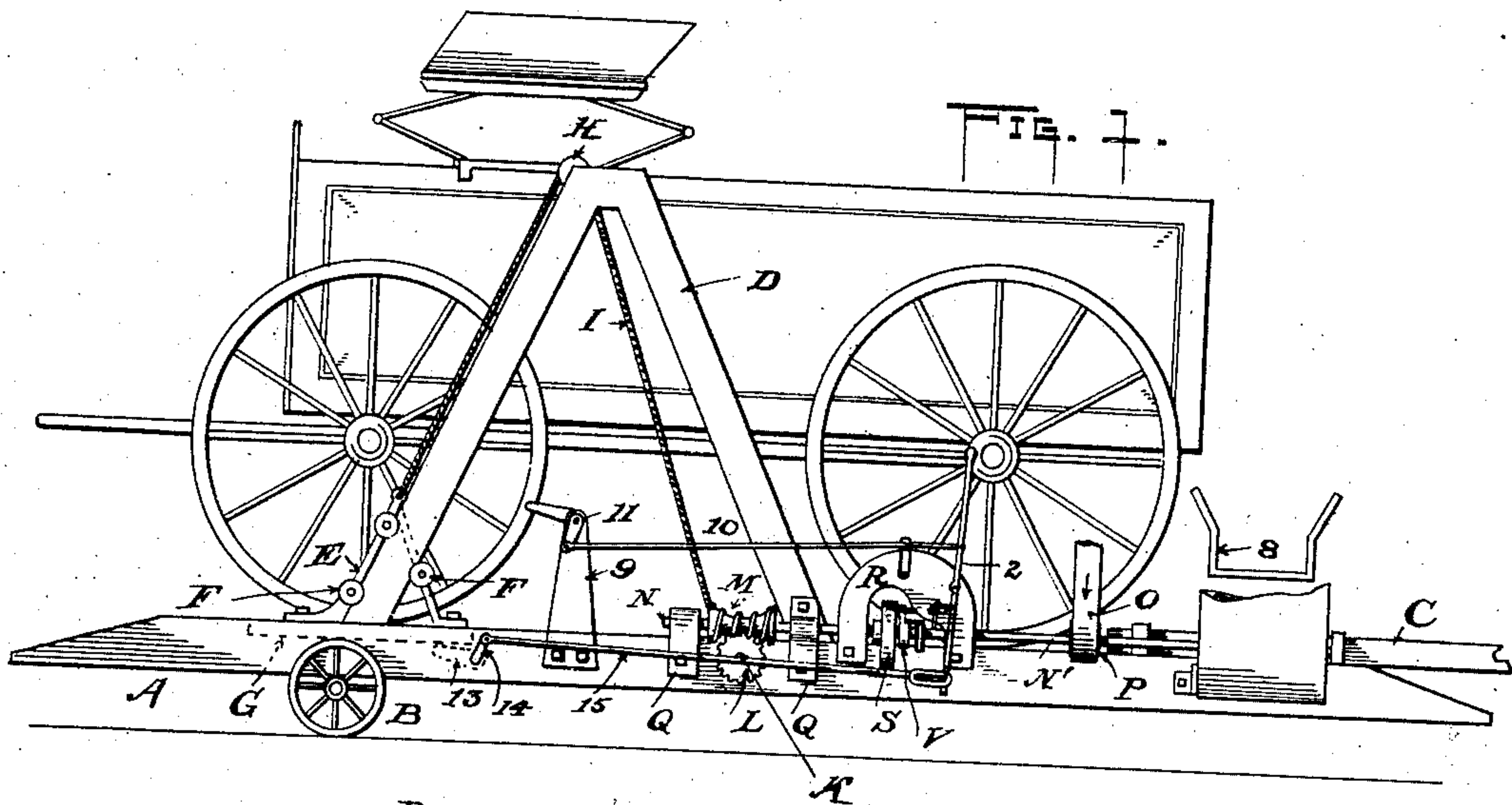


No. 837,907.

PATENTED DEC. 4, 1906.

J. E. CAMP.
PORTABLE GRAIN DUMP.
APPLICATION FILED MAR. 4, 1904.



WITNESSES

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JOSEPH E. CAMP, OF WASHINGTON, ILLINOIS.

PORTABLE GRAIN-DUMP.

No. 837,907.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed March 4, 1904. Serial No. 196,628.

To all whom it may concern:

Be it known that I, JOSEPH E. CAMP, a citizen of the United States, residing at Washington, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Portable Grain-Dumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in portable grain-dumps.

The object of the invention is to provide a light, inexpensive, but efficient grain-dump of the portable kind which will be under perfect control while in use.

In the appended drawings, Figure 1 is a side elevation of the dump with a wagon shown thereon. Fig. 2 is a plan view of the same. Fig. 3 is a sectional elevation of the platform of the dump, showing a portion of a wagon-wheel resting thereon and a frame in contact with the wheel and used to raise the front end of the wagon. Fig. 4 is a view of a gearing used with the dump, part being shown in section. Fig. 5 is a face view of an internally-toothed gear-wheel, showing other gears used therewith.

The platform of the dump is indicated by the letter A, the same being provided near one end with wheels B, the other end with a tongue C, to which horses may be hitched for transportation purposes. Erected upon the platform at each edge is a derrick-frame D, on the forward limb of each of which a frame E, carrying rollers F, is designed to travel. Said frames E are attached to a wagon-raising frame G, normally seated in the platform A, flush with the upper surface of the same. At the top of each derrick-frame is a grooved pulley H, over which runs a cable I, one end of which is attached to the frame E, the other end having connection with a drum J on a shaft K, having bearings in the sills of the platform, in any good manner, but not shown. One end of the shaft K is provided with a worm-wheel L, with which engages a worm M, carried on a two-piece shaft composed of two abutting portions N and N', journaled at one side of the platform at right angles to the shaft K. The part shaft N' is driven from the power (not shown) by means of a bolt O and pulley P. Secured to the part shaft N is an internally-toothed drum S—for instance as by a key T, as shown. The end of the

other shaft portion N' terminates within the hub of the drum S adjacent to the end of the shaft N, as clearly shown in Fig. 4. This end of said shaft N' is provided with a pinion-gear U, affixed thereto in any suitable manner—for instance, as by a key—and adjacent to said pinion and loose on the shaft is an arm V, whose extremity carries a gear W, engaging the teeth of the drum S and the pinion U. Adjacent also to the arm is a loose sleeve Y, adapted to shift along the shaft, for the purposes to be hereinafter described. Pivoted on a yoke R, secured to the platform A, is an arm X, whose lower end is connected to the said shifting sleeve Y by a link Z. The upper end of the arm X has loose connection with a hand-lever 2, pivoted on said yoke R or to any other part of the machine desired. Said arm X also pivotally connects with a push-rod 3, guided in a raised portion 4 of the yoke, as shown in Fig. 5. A fork 6 is loosely carried by the sleeve Y and has an arm 7 at right angles to its length parallel to the shaft N, as shown. Said arm passes through and is held by the arm V, as will be understood presently.

In operation the shaft N' is driven toward the observer, as indicated by the dart on the belt O, and when the dump is at rest the pinion U must also revolve continually, thereby transmitting motion to the gear W. The latter, being in mesh with the gear-drum S, will travel within said drum without moving the shaft N, since less force is used in turning the arm V about the shaft N' than raising the dumping-frame G. If now a wagon to be unloaded is placed upon the platform with its front wheels on the frame G and the hand-lever 2 is moved to the right as viewed in the drawings, the result is to push the pin or rod 3 into the path of said revolving arm V, as shown by dotted lines in Fig. 4. As the arm makes its circuit it meets the said pin 3 and stops. Since the arm is brought to a stop and the gear W must still revolve, due to pinion U, while still in mesh with the gear-drum S, said drum is then made to revolve in a direction opposite to that of the gear W and imparting revolution to the worm, and consequently the worm-wheel L. The shaft K is thus revolved to turn the drums J and take up the cables I. In so doing the frame G rises out of its seat in the platform, as shown in Fig. 3, and meets the wheel lodging between the members thereof, so that the wagon cannot shift its position with refer-

ence to the conveyer or drag 8, located behind it. When the wagon is raised to the desired height, it is stopped by throwing the lever 2 back to its initial position, thereby withdrawing the pin 3 and releasing the arm V, which is again free to revolve as before, the wagon remaining in the raised position. The movement of the lever 2 may be shifted either automatically or by hand, as desired.

10 Erected on the platform is an upright 9, having a rock-arm 11 thereon, one end of which is designed to be met by the frame G in its upward movement, the other end having connection with the hand-lever 2 through a rod 10, as shown in Fig. 1. Evidently as the said member G rises it will strike the arm 11, and the rod 10 will be drawn to move the pin 3 in an opposite direction to release the said arm V, as described. When desired to return the wagon to its normal position, the lever 2 is moved still farther toward the left, with the result that the pin 7 of the fork 6 is entered between the teeth of the pinion U and gear W, thereby stopping the revolution of the latter, as well as the orbital movement of the arm V, locking it and the gears S W and pinion U rigidly together, making the part shafts N and N' as an undivided member, so that the portion N will then revolve in the same direction as N', thereby reversing the direction of movement of the worm wheels and shaft K from that before resulting and unwinding the cables to lower the frame G. When the latter member has reached its position of rest, the lever 2 may be moved to withdraw the pin 7, or this may be done automatically by providing a short rock-shaft 12 under the platform, one end having an arm 13, with which the frame G contacts when lowered, the other end having an upwardly-extending arm 14, connected by a pull-rod 15 to an extension of the lever 2 below its pivot. Said rod 15 is slotted at its end, so that the lever may be moved by hand without being hindered by said rod when again throwing the mechanism in position to again raise the frame G.

In showing my invention I have not attempted to illustrate any of the mechanism for driving the conveyer 8 or its elevator, as these parts are too well known to require description. It is, however, the intention to operate them from the shaft N' in any good manner, so that they will be in constant operation even though the wagon and the raising mechanism may be at rest. The object in providing the gear members is that the main power-driven shaft N' may revolve at a uniform speed and also that the shaft N will revolve at a much slower speed in raising the loaded wagon in order to gain power by so doing; furthermore, that when the wagon is empty and returning to its normal position the movement will be fast, the shaft portion N running as fast as the portion N'.

It will be noted that the device is entirely automatic after starting the frame G up or down, since the means described is tripped by the said frame G in its movements. However, the various movements may be effected by hand, if desired.

I do not wish to limit myself to the particular means herein shown and described, since various changes may be readily made.

Having described my invention, I claim—

1. In a portable grain-dump, the platform thereof, a raisable platform therefor for the front wheels of the wagon to be unloaded, cables attached to the latter platform, winding-drums for taking up and paying out the cables, a shaft for the drums, a worm-wheel thereon, a worm for engaging and driving the worm-wheel, a shaft for carrying the worm, a drive-shaft adjacent to the worm-shaft, connection between both the latter shafts for driving the worm-shaft in the same direction as the said drive-shaft, said connection also adapted to reverse the direction of movement of the worm-shaft while the said drive-shaft is in continuous revolution.

2. In a device of the class described, the combination with a base, a pair of standards extending up from opposite sides of the base, one of the standards of each pair inclined slightly out of the vertical line, a platform adapted to be raised and lowered, guide-wheels secured thereto engaging opposite sides of and guided by the standards positioned slightly out of the vertical line, differential gearing, connections between said gearing and said platform to facilitate in raising and lowering the platform at different speeds, means for actuating the gearing, and means actuated automatically by the said platform when it reaches a desired height or when lowered for cutting out the gearing with its connections with said platform, substantially as specified.

3. In a portable grain-dump, a platform for the wagon to be unloaded, a raisable platform for the front wheels of the wagon, cables for attachment to the said raisable platform, winding-drums for the cables, a shaft for carrying the drums, a worm-wheel on the said shaft, a worm for engaging the worm-wheel, a shaft for the worm, a drive-shaft adjacent to the worm-shaft and adapted to revolve in one direction only in a continuous manner, an internally-toothed drum on the worm-shaft and affixed thereto, a pinion on the drive-shaft within the drum, an arm loosely carried on the drive-shaft adjacent to the pinion, an idler-gear carried by said arm and meshing with the teeth of the drum and the teeth of the pinion, said idler adapted to travel around the drum when the latter and the worm-shaft are at rest, an adjustable stop for intercepting the arm which carries the idler and sustaining it in a fixed position to at once transmit movement to the drum

in a direction opposite to the movement of the drive-shaft to raise the wagon, means for withdrawing the stop to bring the worm-shaft to rest when the wagon is at the desired height and for locking the entire gear mechanism together when desired to drive the worm-shaft in the same direction as the drive-shaft to lower the wagon at a faster speed than that at which it was raised.

4. In a portable grain-dump, a platform for the wagon to be unloaded, a raisable platform thereon for raising the front wheels of the wagon, cables for raising said platform, winding-drums for taking up the cables, a shaft for the drums, a worm-wheel on the shaft, a worm for engaging the worm-wheel, a shaft for carrying the worm, a drive-shaft having its end abutting against the worm-shaft, an internally-toothed gear-drum affixed to the end of the worm-shaft, a pinion-gear affixed to the end of the drive-shaft within the gear-drum, an arm loosely carried on the said drive-shaft adjacent to the pinion, a gear carried by the arm and meshing with both the pinion and the gear-drum, said gear and arm adapted to travel around within the gear-drum when the latter and the worm-shaft are at rest, an adjustable stop for arresting the orbital movement of the arm and gear, said gear then transmitting motion to the gear-drum and its shaft in a direction opposite to that of the drive-shaft when raising the wagon, means for withdrawing the stop to permit the gear-drum to come to rest and the gear and its arm to again take up their orbital movement and afterward lock the entire gear mechanism together to drive the worm-shaft in the same direction as the drive-shaft for lowering the wagon and means for automatically interrupting the ascent and descent of the wagon-platform.

5. A wagon-dump of the class described comprising a platform for vertically moving the front wheels of a wagon, a winding-shaft, flexible means between the said shaft and platform, the winding of such means upon the shaft causing the raising of the platform, a second shaft for driving the first, a third shaft adjacent to the second, the axes of both shafts coinciding, an internally-toothed drum secured to one of the said last-named shafts, a pinion affixed to the other of the said last-named shafts within the said drum, a second pinion positioned within the drum in engagement with the teeth thereof and those of the first said pinion, means for carrying the second pinion and permitting a circular orbital movement thereof within the drum in the circular space between the teeth of the drum and the teeth of the first pinion, means for interrupting such orbital movement and other means for locking the two pinions and drum together for the purposes described.

6. A wagon-dump of the class described comprising a platform for vertically moving

the front wheels of a wagon, a winding-shaft, flexible means between the said shaft and platform by which the latter is raised and lowered, a second shaft for driving the first, a third shaft adjacent to the second, the axes of both shafts coinciding, an internally-toothed drum secured to one of the said last-named shafts, a pinion affixed to the other of the shafts within the said drum, a second pinion positioned within the drum in engagement with the teeth thereof and those of the first said pinion, means for carrying the second pinion and permitting a circular orbital movement thereof within the drum in the circular space between the teeth of the drum and the teeth of the first pinion, such orbital movement being due to the continued motion of the latter, the wagon remaining stationary during such orbital motion, means for interrupting said movement of the pinion and holding said pinion in a fixed position while revolving on its axis thereby imparting movement to the drum in a direction opposite to the rotation of the first said pinion, and means for locking the two pinions and drum together for driving the drum in the same direction as the first said pinion substantially as described.

7. A wagon-dump comprising a raisable platform for the front wheels of a wagon, cables connected to the platform, a winding-shaft for taking up and paying out the cables, a worm-wheel on the shaft, a second shaft having a worm for engaging and driving the worm-wheel, a third shaft the axis of which coincides with that of the said second shaft, an internally-toothed gear-wheel secured to one end of the second shaft, a pinion secured to the end of the third shaft within such internally-toothed wheel, a second pinion in engagement with the first within the internally-toothed gear and also in engagement with the teeth of the latter, means for carrying the said second pinion, the latter traveling in a circular orbital path with its carrying means, the path of travel being within the internally-toothed gear around the first pinion, with both of which it is in engagement, means for interrupting such orbital movement and locking the traveling pinion in a fixed position while still rotating on its axis, motion from the first said pinion being thus transmitted through the second to the internally-toothed gear to cause the latter to revolve in a direction opposite to that of the first pinion, and means for locking both pinions and the internally-toothed drum together for driving the said second and third shafts together in the same direction.

8. In a portable grain-dump, a platform for the wagon to be unloaded, a raisable platform for the front wheels of the wagon consisting of a skeleton frame seated on the main platform flush with its top surface, and adapted to engage and prevent movement of the

wheels when raised to dump, a derrick-frame for guiding the raisable platform in its vertical movements, a transverse shaft beneath the main platform, a pair of drums thereon, 5 cables attached to the raisable platform and adapted to wind on the drums, there being pulleys above the platform and drums over which the cables run, a worm-wheel on the end of the shaft, a worm for engaging the 10 worm-wheel, a shaft for carrying the worm, an internally-toothed drum secured to and carried by the shaft, a continuously-moving drive-shaft the axis of which substantially coincides with the axis of the worm-shaft carrying the drum, a pinion affixed to the drive- 15 shaft within the drum, a loose drum on the drive-shaft, an idler-pinion carried thereon and engaging both with the first pinion and the teeth of the drum, a pin carried in the 20 arm and adapted to enter between the said first pinion and idler-pinion to stop revolution of the idler-gear on the arm and to drive the drum within the same direction as the first pinion to operate the worm-shaft in the 25 same direction as the drum-shaft, the arm and pinion adapted to travel around the drum when not held by the pin, a second pin for arresting the orbital movement of the said arm to transmit movement from the first 30 pinion to the drum through the idler-pinion in a reverse direction, a lever for entering one or the other of the pins during a continued revolution of the drive-shaft and means in connection with the lever and operating by 35 the raising of the raisable platform for stopping the revolution of the worm-shaft at the upper and lower limits of movement of said platform.

9. In a portable grain-dump, the platform 40 A for the wagon, a raisable platform G for the front wheels of the wagon, a pair of derrick-frames upon the platform A one at each side of the platform G, a frame E on the latter, a series of guide-rollers F on the frame arranged 45 in triangular form, a wheel H at the top of each derrick, a transverse shaft K beneath the platform A, a pair of drums J on the

shaft, cables I connected at one end to the drums, and running over the wheels H and connected at their other ends to the frame E 50 of the platform G, a worm-shaft N at right angles to the shaft K, a worm M on said shaft N, a worm-wheel L on the shaft K, a driving-shaft N' in line with the shaft N, means between the two shafts for transmitting move- 55 ment from the driving-shaft to the driven in either direction, the driving-shaft turning in one direction continuously, manually-operated means for connecting and disconnecting the shafts, and other means for automatically 60 disconnecting the shafts by the movements of the raisable platform G.

10. In a portable grain-dump, the platform A, the platform G thereon, the drum- 65 shaft K, drums J thereon, cables I on the drums connected to the platform G for the purposes set forth, the worm-wheel L on the shaft K, the worm-shaft N, the worm M thereon engaging with the worm-wheel L, the shaft N' 70 in line with N, the internally-toothed wheel S affixed to the shaft N, the pinion U affixed to the end of the shaft N' within the wheels S, the loose arm V on the shaft N', the pinion W thereon engaging the pinion U and the gear- 75 wheel S, the sliding sleeve Y on shaft N', the fork 6 carried by the sleeve Y and carrying the pin 7 to enter between pinions U and W, the pin 3 engaging the arm V, the link X piv- 80 oted between its ends and having one end connected to the pin 3 and the other to the fork 6, the lever 2 connected to the link X, the rod 10 connected to the lever 2, the rock- 85 arm 11 having the rod 10 attached thereto, the rocking arms 13, 14 under the platform and the rod 15 connected between the arm 14 and the lever 2 all being arranged substan- 90 tially as and for the purposes set forth.

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

JOSEPH E. CAMP.

Witnesses:

E. J. ABERSOL,
L. M. THURLOW.