

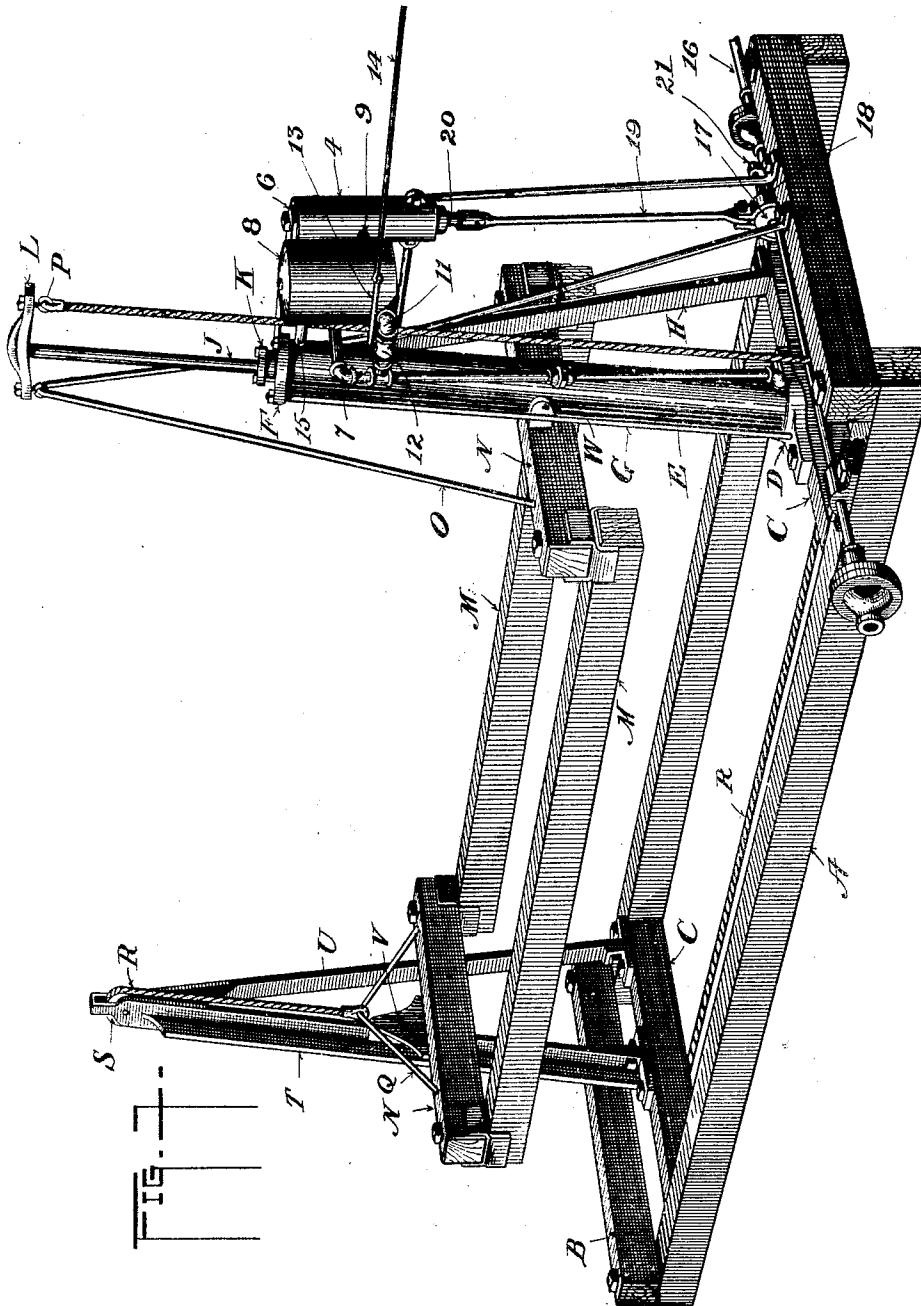
J. E. CAMP.
WAGON DUMP.

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909,281.

Patented Jan. 12, 1909.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

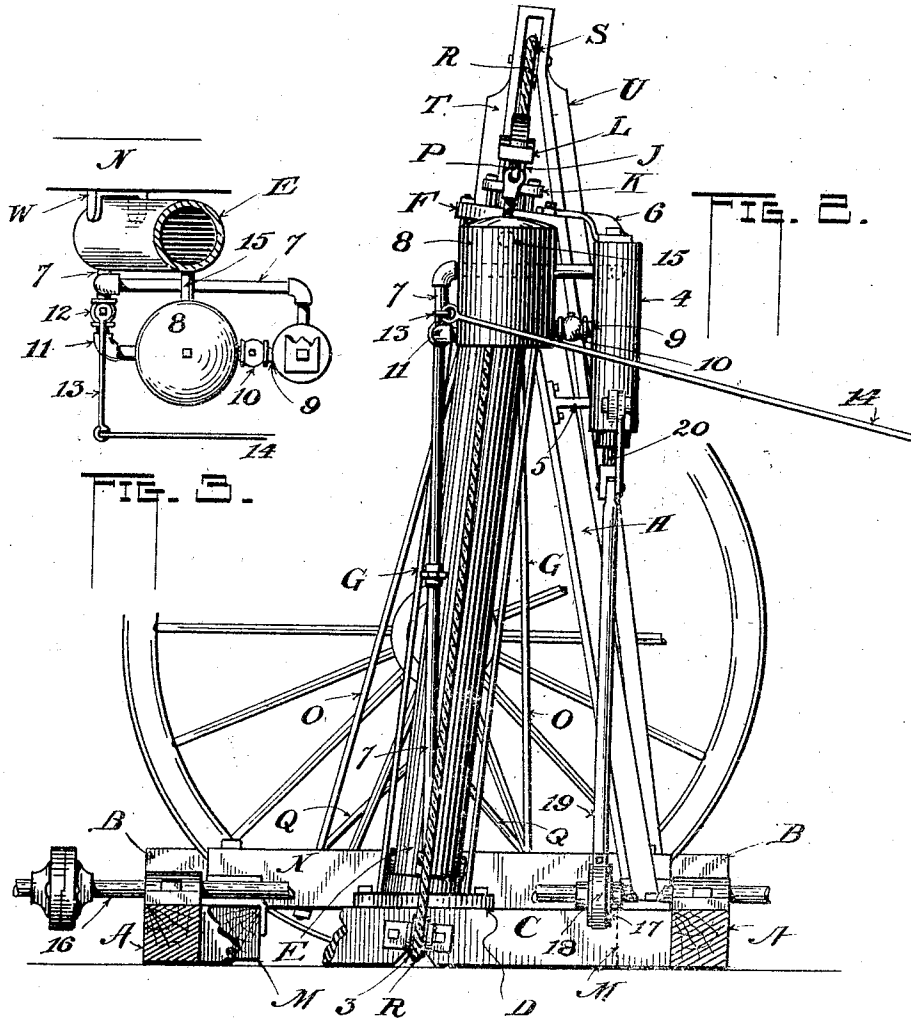


FIG. 1.

FIG. 2.

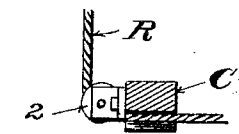


FIG. 3.

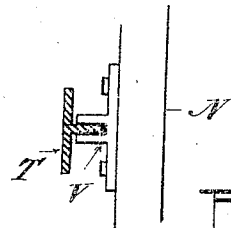


FIG. 4.

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WAGON-DUMP.

No. 909,281.

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To all whom it may concern:

Be it known that I, JOSEPH E. CAMP, 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 Wagon-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 pertains to a wagon dump in which a new structural arrangement is employed.

I include in my present device a platform for raising a wagon and a hydraulic jack and although this idea of combining these is not new yet I believe the particular arrangement herein is new and novel.

In the drawing presented herewith Figure 1 is a perspective view of my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a plan of certain parts of the apparatus showing a portion however in horizontal section. Fig. 4 is a detail view of a sheave and cable. Fig. 5 is a plan of a part of the apparatus showing a guide therefor in horizontal section.

In embodying my invention in its preferred form I employ first, a frame consisting of the sills A A which form the longest members of the said frame, and are designed to rest upon the ground, and these are connected near their ends by cross sills B B and flush cross sills C C. Upon one of the sills C is mounted a cylinder E. The cylinder E is provided at its top with a head F which is clamped in position by means of the rods G extending therethrough and extending downward at opposite sides of the cylinder, said rods being suitably secured at their lower ends and serving to hold the cylinder firmly in position, the latter being inclined at an angle substantially as shown, the purpose of which will be described presently. A piston (not shown) and piston-rod indicated at J are provided for the cylinder all of which is well understood, being old in this art. The upper end of the piston-rod is provided with a cross-head L used in raising a raisable frame consisting of parallel members M, which, as indicated in Fig. 2, are adapted to enter between the sills A A and lie flush therewith. These sills M are connected at their ends by means of cross members N which

serve to properly space them apart and to form a rigid frame. Secured in suitable manner in one of the cross members N, is a bail O, one end of which is suspended from one end of the cross head L hereinbefore described. On the opposite cross member N is a bail Q to which is attached a cable R which passes over a sheave S carried in the top of a standard T mounted upon one of the cross sills C of the main frame. Said cable extends downward beneath a sheave 2 secured to the sills C as shown in Fig. 4, and thence extends toward and beneath the opposite cross sill C and over a sheave 3 secured to the latter as shown in Fig. 2, thence extending upward to the cross head L to which it is secured.

I have hereinbefore referred to the angle of inclination of the cylinder E. It is my purpose to so incline the cylinder that its axis will substantially coincide with a line drawn through the extremities of an arc described from the rear axle, such extremities being the extremes of up and down travel of the front axle. When inclined, as in the present case, the cylinder constitutes the chord of this arc. The purpose of this is that in raising the front end of the wagon the rear end will move as little as possible. This may be better understood by the following:— If the front end of a wagon were raised in a perfectly vertical line the rear end would necessarily have some considerable movement, but if said front end is moved in an arc described from the rear axle the said rear end would remain practically in a fixed position. Since in the present instance it is not practicable to describe this arc in the raising movement the cylinder is inclined at an angle as is also the standard T so that practically the same result is obtained.

Upon one of the cross members N of the frame M is secured a U-shaped member W which incloses the cylinder as clearly shown in Fig. 3, and the opposite cross member N carries a slide V of some length which engages the limb of the inclined standard T. The slide V being long and inclosing the said limb serves to keep the platform or frame M in a horizontal position while both the slide and the member W cause said frame to move upward at the same angle as the inclination of the cylinder and the standard T.

The angle of inclination of the cylinder and the angle through which the lifting-

frame moves is such, with respect to the length of the wagon, that in the height at which the front end of the latter is raised the amount of movement of the rear end is negligible and as most all wagons measure about the same between their axles the angles at which the lifting platform is raised can be made the same in all jacks constructed.

An advantage of inclining the cylinder, also, is that the weight is directly downward upon the piston rod whereas if the lift were a vertical one it is evident that the thrust upon the piston-rod would not be directly downward but rather one such as would tend to spring or bend said rod.

As it is my purpose to raise the piston by means of hydraulic power I provide fluid pumping mechanism which consists for instance, of a pump 4 of any approved form, suitably and firmly held. A pipe 7 connects the top of the pump with the bottom of the cylinder while a fluid containing tank 8 is provided which has connection with the pump through a pipe 9 having a check-valve 10 therein. A pipe 11 also connects the tank with the pipe 7 between the pump and the cylinder at any convenient point, and in said pipe 11 is a controlling valve 12 operated through a lever arm 13 and a rod 14 connected with the free end thereof, the said rod extending to any convenient position within reach of the operator. A pipe 15 also connects the vessel 8 with the top of the cylinder as shown. Journaled in bearings on the sills A A is a shaft 16 provided with an eccentric at 17, which, through an eccentric strap 18 and a pitman 19, the pump-piston (not shown) is operated through the piston-rod indicated at 20.

The front wheels of the wagon to be dumped rest upon the lifting-frame between the sills M M as indicated in Fig. 2, the sills forming a lodgment and lock for said wheels. By means of a suitable clutch mechanism indicated at 21 in Fig. 1, but not shown in detail, the shaft 16 is driven from any source of power and this imparts motion to the eccentric 17 resulting in drawing fluid from the upper end of the cylinder through the tank 8 into the pump through pipe 9 which is then forced through the pipe 7 into the bottom of the cylinder E beneath the piston to raise the latter. The cross head L is thereby raised resulting also in raising the lifting-frame through the bail O at one end, and the bail Q at the other through a cable R. The passage of oil to the pump from the tank 8 is through the pipe 9 as described, the check-valve 10 therein preventing the fluid passing from the pump back to the said tank. The pressure from the pump, therefore, must be relieved through the said pipe 7 to raise the piston. Oil in the cylinder upon the top of the piston is forced into the tank 8 by the rising piston through the pipe

15, thence to the pump and down into the cylinder beneath the piston. It is evident that the wagon may be raised as high as desired or within the limit of the height of the cylinder so that it will be tipped at the desired angle to discharge all of its load. When raised to the desired height farther movement of the wagon may be interrupted by throwing out the clutch mechanism or by partially opening the valve 12 which relieves the pressure from the pump through the pipe 11 back into the tank and again through the pump in a continuous flow, the opening of the valve being just sufficient to permit said flow without allowing the piston to lower by the weight of the wagon the pump pressure sustaining the piston in the raised position through the pipe 7. This operation, however, has been described in a former application and will not be further dwelt upon. When the wagon has been relieved of its load the valve 12 is opened wide thus permitting the entire bulk of oil beneath the piston to arise through the pipe 7 into the vessel 8 and thence into the top of the cylinder upon the piston, this resulting from the weight of the wagon and the lifting-platform. The wagon has at this time lowered to its normal position.

The tank 8 is employed for holding the oil displaced by the piston-rod J. When the piston-rod J is entirely outside of the cylinder the amount of oil that the tank will hold is sufficient to fill the space that the rod would occupy. It will be seen, therefore, that when the piston-rod is raised the tank will be empty, but on the other hand when the rod is entirely within the cylinder the tank will be full, but this has also been described in one of my former applications. The tank likewise, of course, constitutes a conduit for the passage of fluid between the pump and cylinder. The pump may be permitted to continue its action when the valve 12 is open so that the fluid will circulate through said pump and the pipes 7, 11 and 9, without passing to the bottom of the cylinder.

Although I have described the pumping mechanism I attach no claim to it herein, considered by itself. As arranged my wagon dump is of exceedingly simple form since there are but few parts employed and it can, therefore, be built at small cost and at the same time it is light and easily portable.

Having thus described my invention, I claim:

1. In a wagon jack, a support, a lifting member for the front end of the wagon, a cylinder mounted on end on the support and inclined at an angle toward the rear end of the wagon, a standard erected on said support and also inclined rearwardly, guiding members on the lifting member to engage the cylinder and the standard, a piston and

piston-rod for the cylinder, means for suspending the lifting member from the said piston-rod, and pumping means for entering fluid to the cylinder against the piston to impart movement to the same to raise the said lifting member.

2. A wagon jack, the combination of a support, a cylinder mounted on end thereon and inclined at an angle, a standard also mounted on the support and also inclined at an angle substantially parallel to the inclined cylinder, a piston and piston-rod for the cylinder, a cross head for the piston rod, a raisable frame for supporting the front wheels of a wagon, means attached to the raisable frame and engaging the cylinder and the standard for guiding said frame in the vertical movement, and means attached to the said raisable frame and connected to the cross head, and fluid pumping apparatus for raising the piston.

3. In a wagon jack the combination of a portable support, a lifting member for the front wheels of a wagon, a hydraulic cylinder mounted on end on the support, and inclined toward the rear end of the wagon, a standard erected on the support also inclined toward the rear, a piston and piston-rod for the cylinder, the said piston-rod having a free upper extremity, means connected at one side of the same and having direct attachment to one end of the lifting member below it, a cable connected at the opposite side of the piston-rod and extending downward, and then upward and over the standard and having attachment to the opposite end of the lifting member, means carried by the latter for engaging the standard and the cylinder

and by which said lifting member is guided rearwardly in its upward movement by said standard and cylinder, and means for entering fluid under pressure into the cylinder against the piston to move the piston to raise the lifting member.

4. In a wagon jack the combination of a portable support, a lifting member for the front wheels of a wagon, a hydraulic cylinder mounted on end on the support, and inclined toward the rear end of the wagon, a standard erected on the support and also inclined toward the rear, a piston and piston-rod for the cylinder, the said piston-rod having a free upper extremity, means connected at one side of the same and having direct attachment to one end of the lifting member below it, a cable connected at the opposite side of the piston-rod and extending downward, and then upward and over the standard and having attachment to the opposite end of the lifting member, means carried by the latter for engaging the standard and the cylinder and by which said lifting member is guided rearwardly in its upward movement by said standard and cylinder, means for entering fluid under pressure into the cylinder against the piston to move the piston to raise the lifting member, and other means for liberating the fluid from the cylinder to permit the wagon and lifting member to lower.

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

JOSEPH EDWARD CAMP.

Witnesses:

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B. F. NAFZIGER.