May 7, 1963 C. D. JOHNSTON 3,088,417

APPARATUS FOR PUMPING FLUIDS

Filed Sept. 14, 1961 3 Sheets-Sheet 1

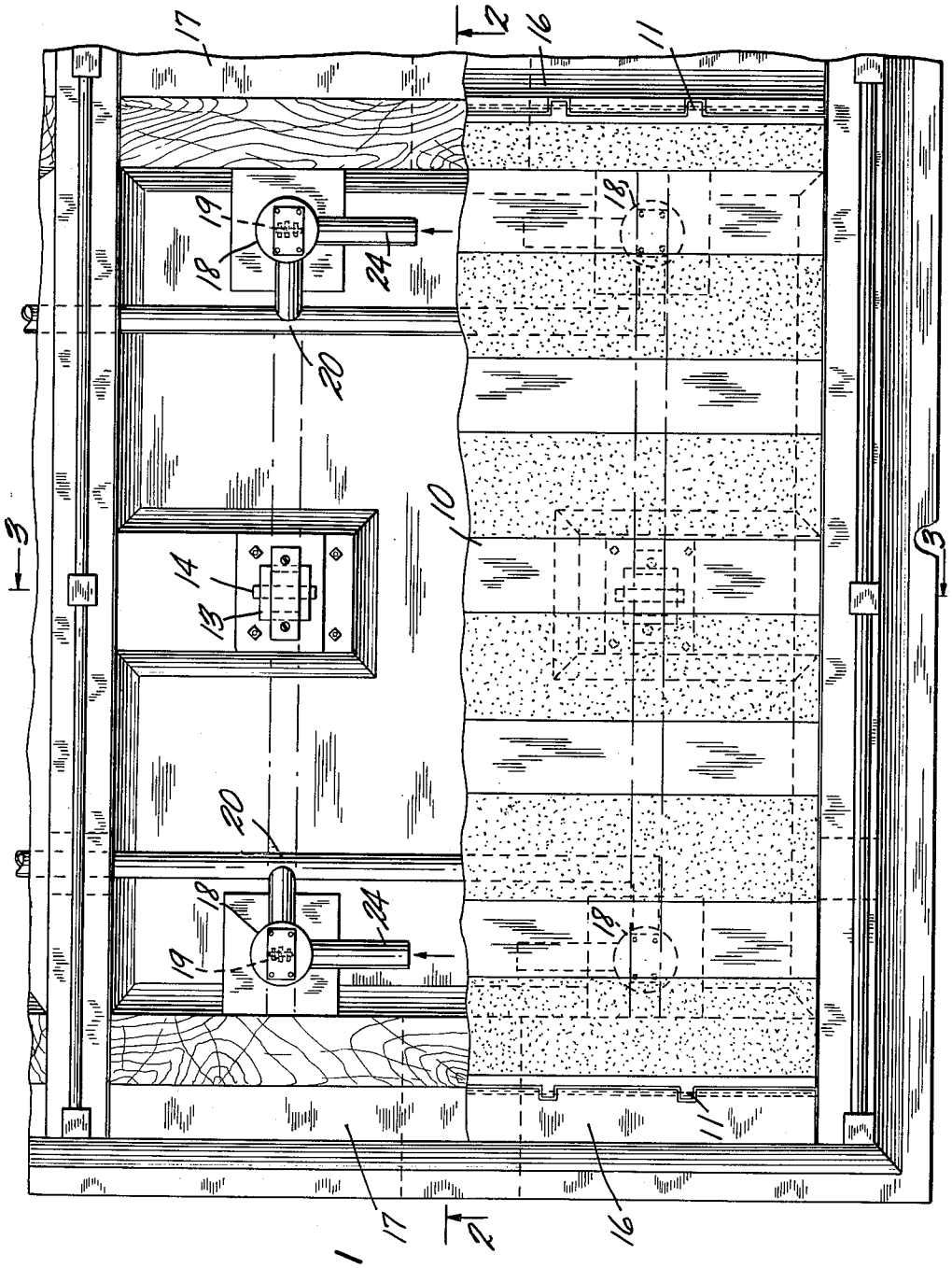


FIG. 1

May 7, 1963 C. D. JOHNSTON 3,088,417

APPARATUS FOR PUMPING FLUIDS

Filed Sept. 14, 1961 3 Sheets-Sheet 2

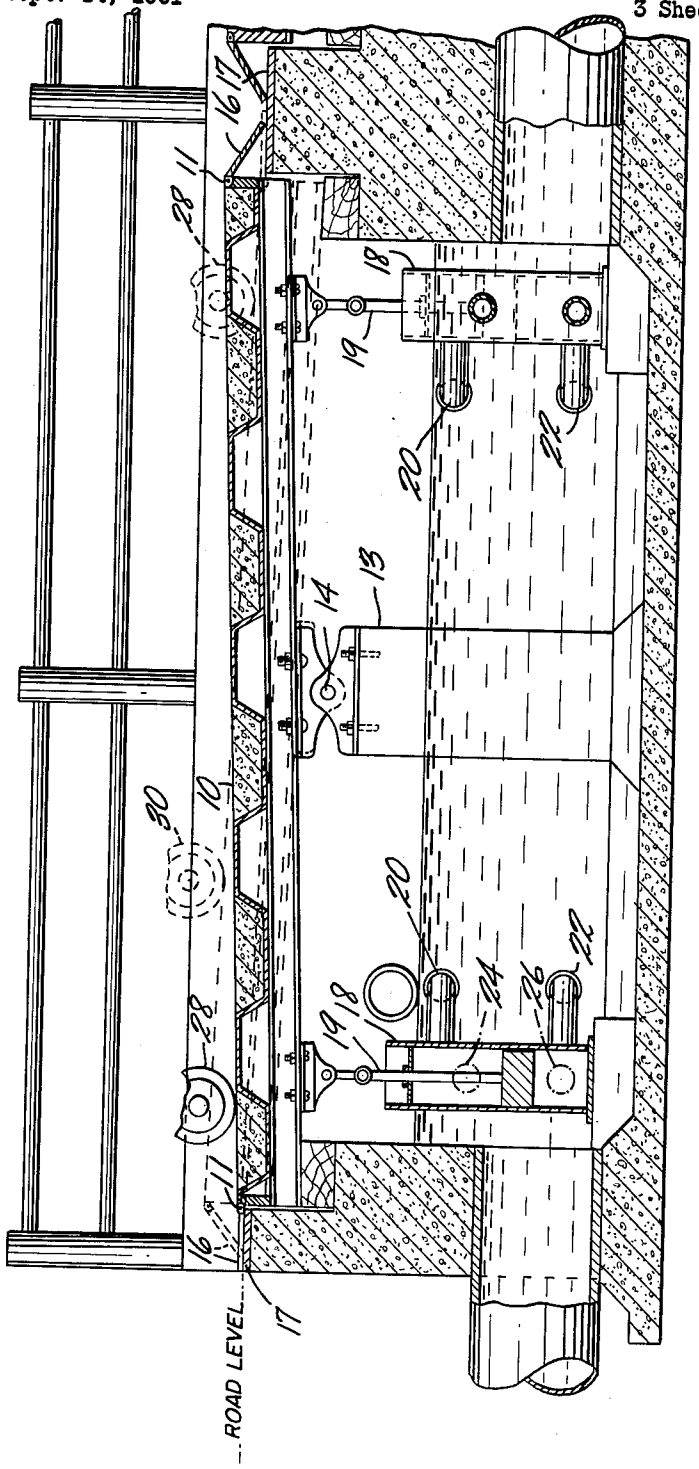


FIG. 2

May 7, 1963 C. D. JOHNSTON 3,088,417

APPARATUS FOR PUMPING FLUIDS

Filed Sept. 14, 1961 3 Sheets-Sheet 3

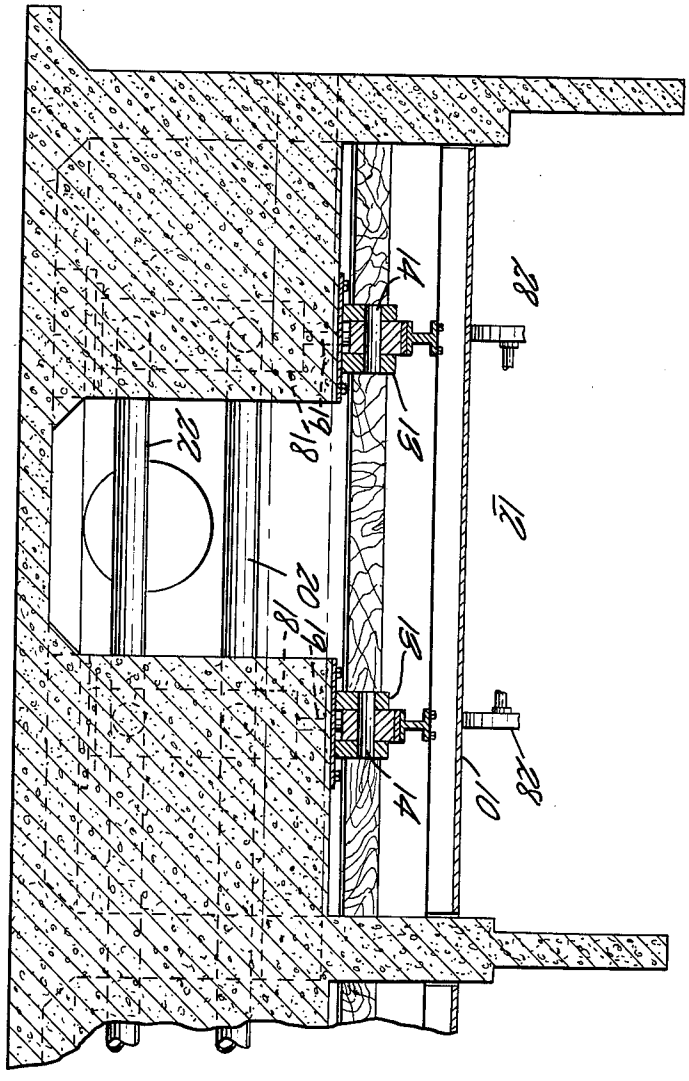


FIG. 3

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APPARATUS FOR PUMPING FLUIDS

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The invention generally concerns a pumping device and more particularly a pumping device operable by the weight of passing vehicular traffic.

It is the object of the invention to provide a device for pumping liquid from one place to another by means of a double acting pump operated by the weight of vehicular traffic passing over a rocking platform.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a plan view of the invention installed in a traffic lane of a roadway,

FIGURE 2 is a longitudinal cross-section of the invention taken along section lines 2—2 of FIG. 1 showing partially the wheels of a vehicle variously positioned with respect thereto, and,

FIGURE 3 is a vertical cross-section taken along section line 3—3 of FIG. 1.

Referring to the drawing, a rocking platform **10** having oppositely disposede ends **11** is mounted in a traffic lane of a roadway **12** on a vertical support **13** positioned intermediate the oppositely disposed ends. The rocking platform **10** extends longitudinally along the roadway **12** and is trasversely pivoted to the vertical supports **13** by a pivot member **14**. The pivot members **14** act as a fulcrum and support the fulcrumed portion of the rocking platform **10** above the roadway so that the ends **11** of platform **10** are alternately flush with the roadway **12** and above the roadway as the platform is pivoted about its pivot member **14** to the alternate positions shown in full and dotted lines respectively. Hinged steel ramps **16** attached to the ends **11** of the platform **10** form an incline up to the raised end of the platform and lie flat on the roadway at the lowered end. Friction plates **17** are fastened in the roadway on which the hinged plates **16** slide as the ends are raised and lowered. Mounted adjacent each end **11** of the platform **10** double acting pumps **18** are operably attached thereto by their plungers **19**. Each pump has upper and lower delivery pipes **20** and **22** with upper and lower intakes **24** and **26** which are connected respectively to wherever liquid is desired and to a source of liquid. The double acting pumps **18** may be of any design known to the art, for example, reciprocating, whereby each pump simultaneously draws liquid in on one side of its plunger as it delivers liquid on the other side of the plunger for movement of the plunger in both directions of its reciprocating motion.

In operation, a vehicle having a front wheel **28** and a rear wheel **30** traveling along a traffic lane in a roadway runs up the steel ramp on the raised first end of the platform. The pressure of the wheel **28** pivots the platform around its pivot members to depress the first end on which the vehicle is traveling and to raise the other second end. These movements of the respective platform ends, which are directly attached to the respective plungers of the double acting pumps, actuate each of the plungers one stroke to pump liquid through the respective lower and upper delivery pipes of the respective pumps. When the vehicle passes over the fulcrumed portion of the platform toward the farther and now raised second end of the oppositely disposed ends of the platform, the pressure of wheel **28** depresses this raised second end and thereby raises the depressed first end for actuations by the wheels of the next vehicle. These movements of the respective

ends of the platform again actuate their respectively attached plungers one stroke to pump liquid through the respective upper and lower delivery pipes of the respective pumps to complete an up and down reciprocating pumping cycle for each pump.

If the platform is designed to have a total length of more than the longitudinal distance between the wheels of a vehicle or its wheelbase and the distance between each platform end and the pivot members are less than said wheelbase, each pair of front and rear wheels of a four wheeled vehicle will alternately actuate the platform to pivot about its pivot members and complete 3 cycles of up and down reciprocation. Thus the front wheels **28** will initially depress the first end and raise the second end. As the distance between the first end and the pivot members is less than the wheel base, the front wheels will travel beyond the pivot member and depress the second end and raise the first end of the platform before the rear wheels **30** engage the first end thereby completing one cycle of up and down reciprocation for each end. As the rear wheels pass on to the first end, this first end is depressed and the second end raised by the greater leverage exerted by the rear wheels on its side of the pivot members relative to that exerted by the front wheels on its side of the pivot member. As the vehicle travels farther on the platform the relative leverage of the front and back wheels is reversed and the second end is depressed and the first end raised to complete the second cycle. As the front wheels leave the platform the rear wheels have not reached the pivot member and the first end is depressed and the second end raised. When the rear wheels pass over the pivot member to the second end this is finally depressed and the first end raised to complete the third cycle.

Although the invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What I claim and desire to secure by Letters Patent is:

1. A pumping device for pumping liquid from one place to another in combination with a traffic lane of a roadway, said pumping device operable by the successively applied pressures of passing vehicles utilizing said roadway, said vehicles having longitudinally spaced wheels, support means mounted below said traffic lane, platform means having oppositely disposed ends and pivotally supported intermediate said ends on said supporting means to extend congruent with said traffic lane, with one said end flush with said roadway and the other said end raised thereabove; steel ramps hinged to each end of said platform means and extending slidably over adjacent portions of said traffic lane for forming alternate inclines up to the alternately raised ends of said platform means; friction plates mounted on said adjacent portions of said roadway for providing a smooth non-friction surface on which said steel ramps respectively slide; double acting reciprocating pump means for pumping fluid operably connected to one of said oppositely disposed ends, said pump having a reciprocating plunger mounted thereon and a pair of intake and delivery pipes on each of the opposite sides of said plunger for simultaneously effecting intake and delivery of liquid respectively on said opposite sides for movement in each direction of said plunger's reciprocation, whereby said vehicles passing from one said end to the other of said platform alternately applies weight to said ends to solely drive said platform, pivotally supported between said ends, to solely reciprocate up and down to drive said plunger of said double

acting pump means in both directions of said plunger's reciprocation.

2. A pumping device as described in claim 1 wherein said platform means is pivotally supported equidistant from both its ends, and each said end is operably connected to a double acting pump means, thereby doubling the pumping action of said pumping device.

3. A pumping device as described in claim 1 wherein said platform means is pivotally supported equidistant from both its oppositely disposed ends, and each said end is operably connected to a double acting pump means, and the distance from each said end to said support means is less than the distance between said longitudinally spaced

wheels of said vehicles with the distance between said ends more than said distance, whereby each said oppositely disposed end of said platform means completes three cycles of an up and down reciprocation to sextuple said pumping action.

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