A. M. PRINCE & L. COSCIA.

PUMP PISTON.

APPLICATION FILED MAY 13, 1911.

1,018,208. Patented Feb. 20, 1912.

FIG. 1.

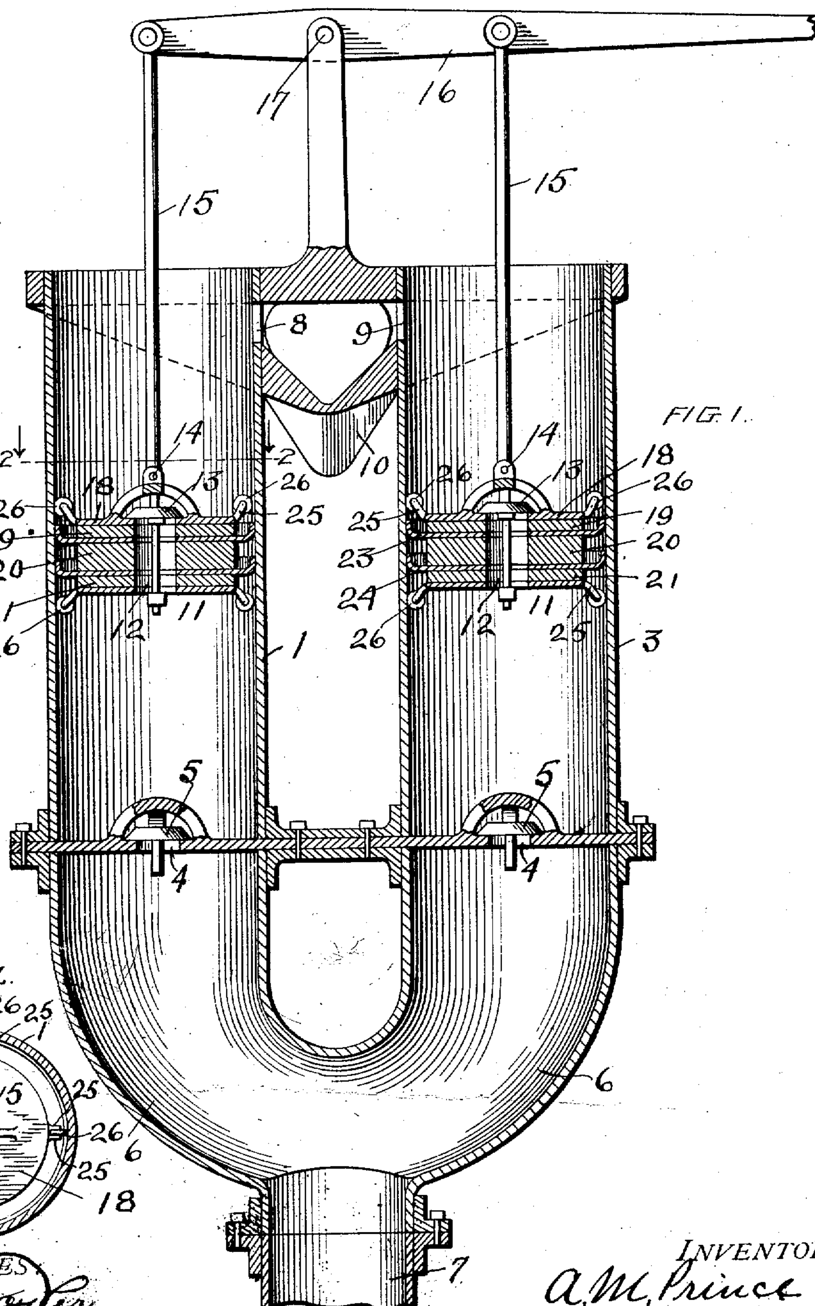
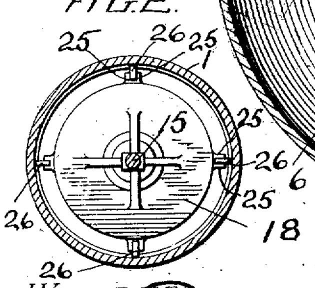


FIG. 2.



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PUMP-PISTON.

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To all whom it may concern:

Be it known that we, ADONIS M. PRINCE and LOUIA COSCIA, citizens of the United States, residing, respectively, at Wilmington, county of New Hanover, State of North Carolina, and Memphis, county of Shelby, State of Tennessee, have invented certain new and useful Improvements in Pump-Pistons, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to pumps and has for its object to provide means by which the travel of the piston in the pump cylinder shall be facilitated and the piston be prevented from twisting or jamming in the cylinder.

With this object in view our invention consists in the construction and combination of elements hereinafter described and claimed.

Referring to the drawings: Figure 1 is a vertical sectional view of a double action pump having pistons embodying our invention and Fig. 2 is a horizontal cross-sectional view on line 2—2 of Fig. 1.

In the drawings 1 and 3 are the cylinders of a double action pump the cylinders each having at its lower end an inlet opening 4 controlled by an upwardly opening valve 5 of usual construction. To the inlet valves passages 6 lead from a pipe 7 leading to the well or other source of supply. In the pump cylinders 1 and 3 near their upper ends are discharge openings 8 and 9 leading to a discharge spout 10.

The construction thus far described is usual in pumps.

Each cylinder is provided with a piston 11 having a central opening 12 controlled by an upwardly opening valve 13. Each of the pistons has connected to it by a pivot 14 a piston rod 15, the upper ends of the piston rods being connected to a walking beam 16 pivoted at 17 on an upright between the two pump cylinders. Each piston 11 comprises a series of disks 18, 19, 20, 21 and 22 of which the upper and lower disks 18 and 22 are of metal while the intermediate disks 19, 20, and 21 may be of metal or of other material. The disks 18, 19, 20, 21 and 22 are of considerably less diameter than the interior diameter of the pump cylinder. Between disks 19 and 20 is a disk 23 of flexible material such as leather or rubber and between disks 20 and 21 is a similar disk 24. The disks 23 and 24 are of somewhat larger diameter than the interior diameter of the pump cylinder and their outer edges are turned upward as shown. The upper and lower disks 18 and 22 are provided at points on the periphery with pairs of radial arms 25 and between each pair of arms is journaled a roller 26. Four or more pairs of arms 26 are preferably provided on each of the disks 18 and 22. The arms 26 of disk 18 are preferably inclined upward and the arms 26 of the disk 23 are preferably inclined downward. The rollers 26 bear against the interior walls of the pump cylinder as the piston is reciprocated and reduce the friction of the piston to the least possible and by reason of the separation of the disks 18 and 22 and the inclination of the arms 25 of these disks the piston is prevented from turning or twisting in the pump cylinder.

It will of course be understood that our invention is not limited to its use in connection with double action pumps or even to use with lift pumps, but is applicable to any pump in which a reciprocating piston is used. And it should also be understood that the invention is not limited to a piston having two flexible disks as more or less than two may be used.

Having thus described our invention what we claim is:—

1. A piston adapted to reciprocate in a cylinder, rollers distributed about the periphery of the upper and lower faces of said piston and adapted to bear against the interior walls of said cylinder.

2. A piston adapted to reciprocate in a cylinder, rollers distributed about the periphery of the upper and lower faces of said piston and adapted to bear against the interior walls of said cylinder, a disk of flexible material, of greater diameter than that of the cylinder, located between the upper and lower faces of said piston.

3. A piston adapted to reciprocate in a cylinder, comprising a series of disks of less diameter than that of the interior of the cylinder, radial arms carrying rollers distributed about the periphery of the upper

and lower disks of said piston, and adapted to bear against the interior walls of the cylinder.

4. A piston adapted to reciprocate in a cylinder, comprising a series of disks of less diameter than that of the interior of the cylinder, radial arms carrying rollers distributed about the periphery of the upper and lower disks of said piston and adapted to bear against the interior walls of the cylinder, and disks of flexible material, of greater diameter than that of the interior of the cylinder held between the disks of less diameter than that of the interior of the cylinder.

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