

G. A. ROCKOLA.

PUMP.

APPLICATION FILED SEPT. 7, 1910.

1,012,917.

Patented Dec. 26, 1911.

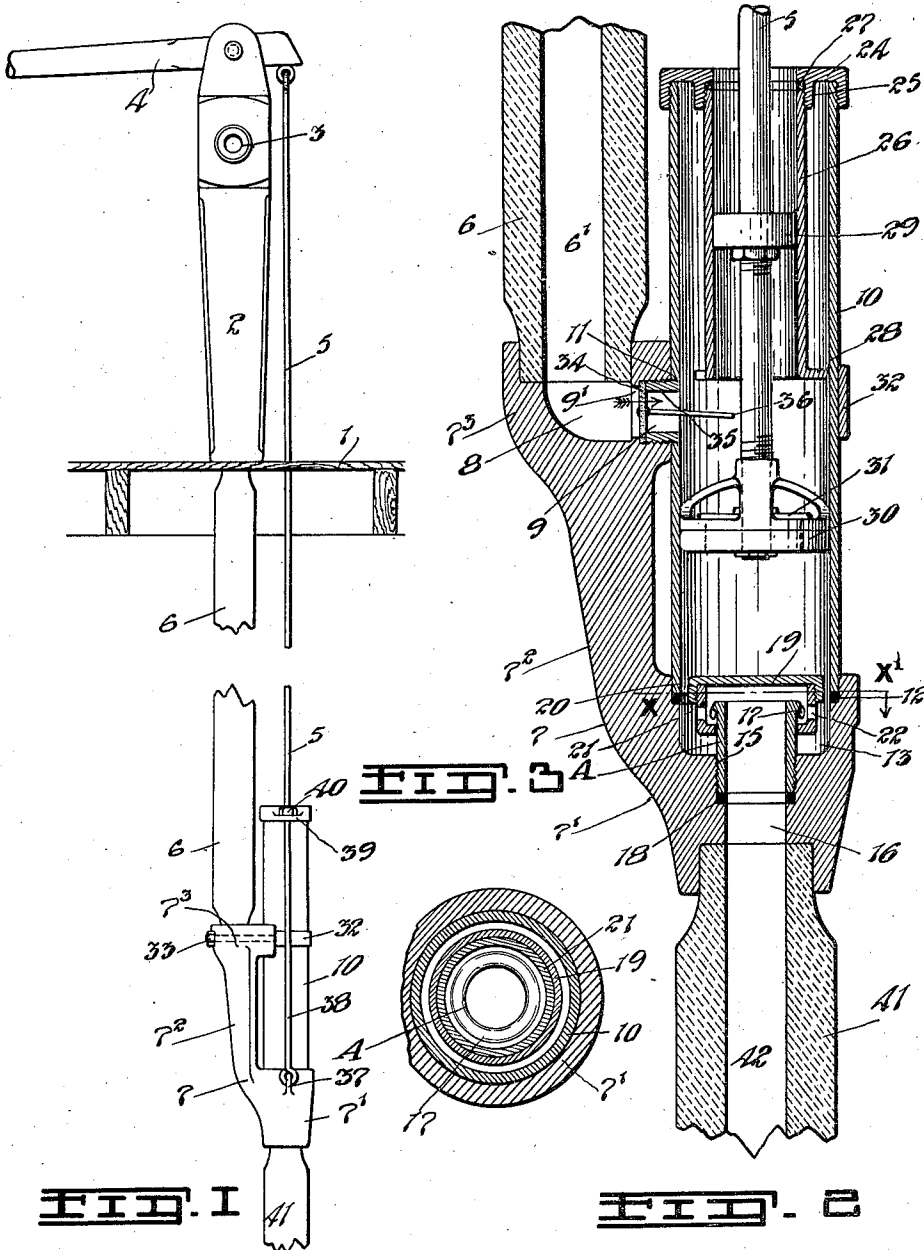


FIG. 1

FIG. 2

WITNESSES

Jas. M. Laphay
J. D. Foxburgh.

INVENTOR

G. A. ROCKOLA

By

Arthur J. Laphay ATTY

UNITED STATES PATENT OFFICE.

GEORGE ADAM ROCKOLA, OF BIRTLE, MANITOBA, CANADA.

PUMP.

1,012,917.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Application filed September 7, 1910. Serial No. 580,922.

To all whom it may concern:

Be it known that I, GEORGE ADAM ROCKOLA, of the village of Birtle, in the Province of Manitoba, Canada, have invented certain
5 new and useful Improvements in Pumps, of which the following is the specification.

My invention relates to improvements in pumps, more especially to double acting force pumps and the object of the invention
10 is to provide an efficient, durable, simply constructed pump which can be quickly put together and in which the parts can be easily taken apart when desired.

The invention consists in certain novel
15 features in construction and arrangement of parts as hereinafter more particularly described and clearly pointed out in the appended claims.

Figure 1 is a side elevation of my complete pump fitted to a platform. Fig. 2 is
20 an enlarged detailed vertical sectional view passing centrally through the pump cylinders and the cylinder supports, certain parts being shown in side elevation. Fig. 3 is a
25 horizontal sectional view through one of the pump valves, the section being taken in the plane denoted by the line X X', Fig. 2.

In the drawing like characters of reference indicate corresponding parts in each
30 figure.

1 is any suitable support or platform on which is carried the usual head piece 2 provided with an internal channel which communicates with a spout 3 in the regular way.
35 The head piece is provided with a handle 4 to which is secured a plunger or bucket rod 5 which passes downwardly into the well as later described.

A hollow wooden pipe 6 passes from beneath the platform downwardly into the well, which wooden pipe is secured to the lower end of the head 2 in the usual way. A casting 7 is firmly secured to the lower end of the pipe 6, which casting carries the pump
40 cylinders as later explained. The casting comprises a body portion 7' and a neck or shank 7² which is enlarged at its upper end at 7³ to receive a valve. The portion 7³ is secured to the lower end of the pipe 6 and the opening 6' in the pipe communicates
45 with a basin 8 formed in the top of the shank, from which basin there extends a duct 9 which enters a large open ended cylinder 10 through an opening 11 in the side
50 thereof. The lower end of the large cylinder 10 rests on a washer 12 which rests on

a ledge formed in the body 7' of the casting. The body portion is hollowed out at 13 immediately adjoining the lower end of the cylinder, and a valve is located at A within
60 the cavity so formed, which valve is now described. An open ended cylindrical member 15 has its lower end threaded into the upper enlarged end of the duct 16 passing through the body of the casting and forms the valve
65 seat, it being noticed that the upper end of the member is flanged outwardly at 17 so as to prevent the valve disk from escaping upwardly. A washer 18 is located at the lower end of the member 15.
70

19 is the valve disk which is in the form of a circular plate having its edges turned downwardly at 20 and internally screw threaded. A cup-shaped member 21 has its
75 upper end threaded to the plate and is provided with suitably arranged openings 22 at its sides. The cup-shaped member is arranged to slide or work loosely upwardly or downwardly on the upwardly extending
80 end of the member 15. When the valve is seated it rests on the upper end of the latter member.

The upper end of the cylinder 10 is provided with a removable cap 24, which cap carries an internal annular flange 25 provided with a thread to which is screwed the
85 upper end of the small or inner cylinder 26. A washer 27 is placed between the end of the inner cylinder and the cap. The lower end of the cylinder has portions 28 thereof flared outwardly to center it in the cylinder 10. The plunger or bucket rod 5
90 passes downwardly through the cap 24 into the cylinders and is supplied with a small plunger 29 which operates in the cylinder 26 and with a large plunger 30 which operates within the cylinder 10. The plunger
95 30 carries a valve 31 which opens when the plunger passes downwardly and seats when it passes upwardly. 32 is a U-shaped strap passing around the cylinder 10 and having
100 its ends formed into bolts which pass into and through the upper end 7³ of the casting where they are supplied with nuts 33. In this manner the cylinder is firmly held
105 to the casting.

The duct 9 has an internal shoulder 9' formed in the wall thereof, against which shoulder rests a valve 34 held in position by a short screw threaded nipple 35. The
110 valve is constructed so as to close when forced in the direction indicated by the ar-

row and to open when pressure is applied in the opposite direction. A stem 36 extends from the valve and passes through the opening 11 into the cylinder 10 and is adapted to engage with the plunger 30 at the upper end of its stroke. This latter attachment to the valve is provided for priming purposes.

The body of the casting carries two diametrically opposing eyes 37 which receive the hooked ends of rods 38 which pass upwardly and through diametrically opposing lugs 39 formed in the cap 24. The rods have their upper ends threaded and are provided with nuts 40 which screw down on the lugs and tighten the rods, thereby drawing the cylinder tightly to the head of the casting.

A pipe 41 fits in to the body of the casting and has the opening 42 therein communicating with the opening 16 already referred to. This latter pipe extends downwardly to the water in the well.

The operation of the pump is now described,—upon the handle being initially forced down, the plungers are raised in the cylinders and as the plunger 30 passes upwardly it opens the valve 14 and draws water up the pipe 41 through the valve into the cylinder beneath the plunger. On the upstroke of the handle 4 the plungers pass downwardly and the water now entrapped by the seating of the valve A passes upwardly through the valve 31 to the upper side of the plunger 30. On the next stroke of the plungers in the opposite direction the water above the plunger is forced through the valve 34 into the pipe 6 where it passes to the spout. After the pump has been working for some time it becomes more or less filled with water, which water rises between the cylinders during the upstroke of the plungers and compresses air between the upper ends of the cylinders, which air expands when the plungers pass down and causes water to pass up the pipe 6, so that there is a continuous flow of water through the pipe at all times.

In order to avoid the necessity of priming the pump in the usual way, I have provided the stem 36 on the valve 34 which engages with the plunger 30 when the plunger is raised. In pumps of this class it is found that the valve holding the water in the pipe corresponding to that 41 wears considerably and leaks, so that it is necessary to pour water into the cylinder prior to pumping, in order to prime it. With my pump it will be seen that it is primed automatically by the plunger engaging the stem of the valve 34 thereby unseating it so that a small flow of water is admitted to the cylinder from the pipe 6. The water so admitted remains on top of the plunger 30 and allows any air which may have

leaked into the cylinder through the valve 14 to escape through the valve 31 to the upper side of the plunger, while preventing any air from passing from the upper side of the plunger to the under side thereof. Consequently the air in the bottom of the cylinder and in the pipe 41 is quickly pumped out, and the water rises to the top of the valve when a vacuum is formed.

It will be noticed that the valve when seated will form a water seal at the lower end of the cylinder as the water will always be trapped in the basin 13 so that water will close the opening 22. This water seal will prevent air, which may leak past the piston, from passing into the pipe 41.

What I claim as my invention is:

1. The combination with a supporting casting having a suitable outlet duct therein, a cylinder carried by the casting and provided with an opening communicating with the duct and a reciprocating plunger operating within the cylinder, of a valve located in the duct at a point above the plunger and means extending from the valve engageable with the plunger, as and for the purpose specified.

2. The combination with a supporting casting and having a suitable outlet duct therein, a cylinder carried by the casting and provided with an opening communicating with the duct and a reciprocating plunger operating within the cylinder, of a valve located in the duct and a stem extending from the valve through the opening into the cylinder and adapted to engage with the plunger, as and for the purpose specified.

3. The combination with a supporting casting having a suitable outlet duct therein, a cylinder carried by the casting and provided with an opening communicating with the duct and a reciprocating plunger operating within the cylinder, of a valve fitted within the duct and bearing against an internal shoulder formed therein, a nipple screwing into the duct and holding the valve through the opening into the cylinder and engageable with the plunger, as and for the purpose specified.

4. The combination with a supporting casting and a cylinder carried by the casting, said casting having a duct therein communicating with the cylinder, of an open ended cylindrical member threaded into the casting and continuous with the duct forming a valve seat, a cup-shaped member having openings therein slidable on the cylindrical member, and a valve disk carried by the cup-shaped member and located above the valve seat, as and for the purpose specified.

5. In a pump, the combination with a casting having an inlet duct therein and a basin continuous with the duct, and a cylinder carried by the casting and communicat-

ing with the basin, of an open ended cylindrical member having an outwardly flared upper end, such member being screwed into the casting and continuous with the duct, a
5 cup-shaped member having openings in the side thereof slidably secured to the cylindrical member and extending upwardly within the basin, and a valve disk secured to the cup-shaped member and adapted to seat on
10 the upper end of the cylindrical member, as and for the purpose specified.

6. In a pump, the combination comprising a casting having a body portion and a neck formed with an enlarged end, there being an
15 inlet duct in the body portion communicating with a lower basin, and an outlet duct in the enlarged end of the neck communicating with an upper basin, said body portion being provided further with eyes to the sides

thereof, a cylinder carried by the casting 20 and having its lower end resting on an internal shoulder formed in the lower basin, said cylinder having an opening in the side thereof communicating with the outlet duct, a cap screwed to the upper end of the cylinder 25 and provided with lugs, rods hooked into the eyes and having their free ends passing through the lugs and provided with nuts and a U-shaped strap passing around the cylinder and secured to the upper end 30 of the casting, as and for the purpose specified.

Signed at Winnipeg in the Province of Manitoba, this 3rd day of June, 1910.

GEORGE ADAM ROCKOLA.

In the presence of—

G. S. ROXBURGH,

J. K. ELKIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."