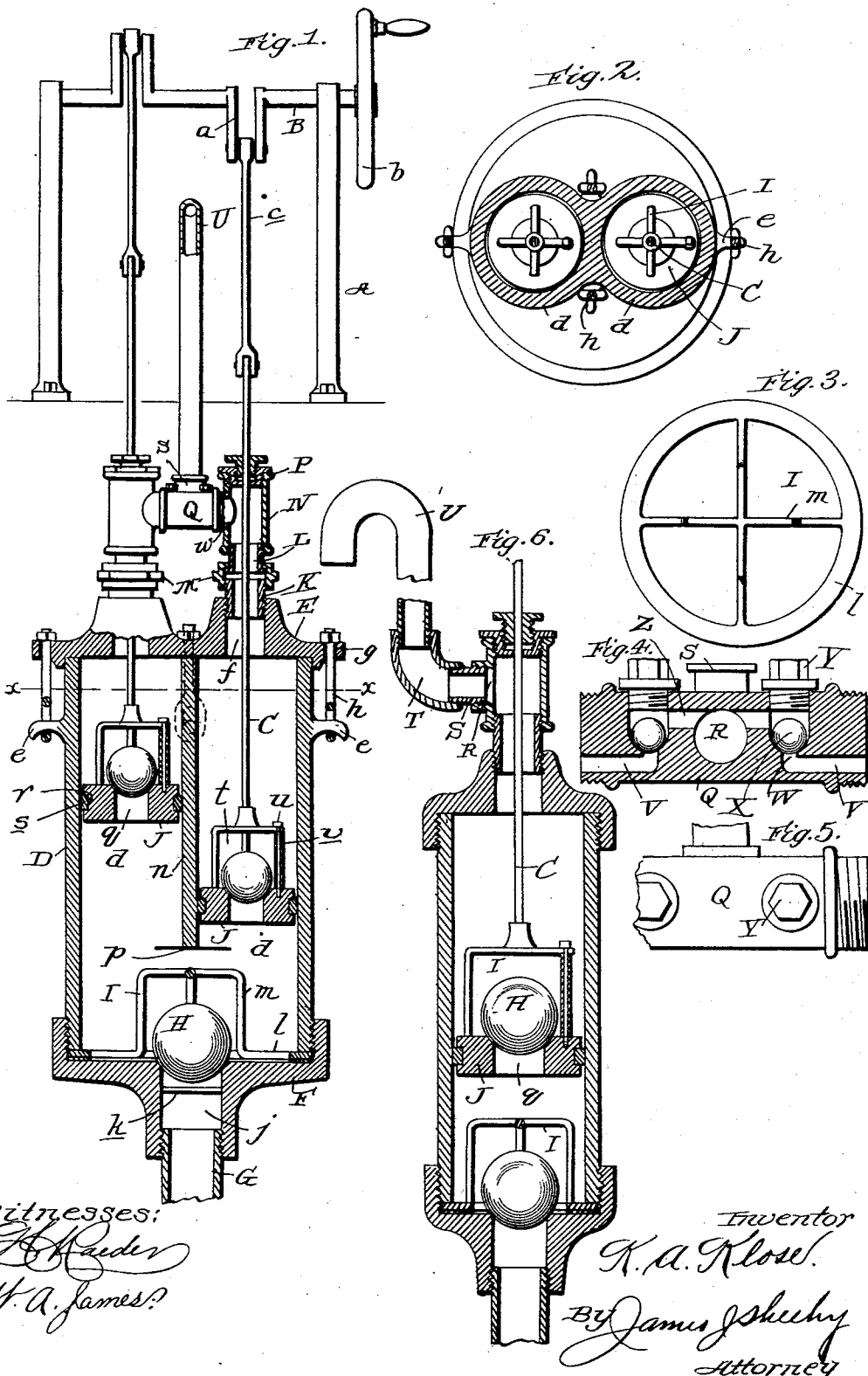


(No Model.)

K. A. KLOSE.
PUMP.

No. 568,909.

Patented Oct. 6, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

KARL AUGUST KLOSE, OF RICHFIELD, MINNESOTA, ASSIGNOR OF ONE-HALF TO WILLIAM K. SEWARD, OF BUTTE, MONTANA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 568,909, dated October 6, 1896.

Application filed March 9, 1896. Serial No. 582,437. (No model.)

To all whom it may concern:

Be it known that I, KARL AUGUST KLOSE, a citizen of the United States, residing at Richfield, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in force and lift pumps, and the novelty will be fully understood from the following description and claims, when taken in connection with the annexed drawings, in which—

Figure 1 is a front elevation, partly in section, of a double-acting pump constructed according to my improvements. Fig. 2 is a horizontal sectional view taken in the plane indicated by the dotted line *xx* of Fig. 1. Fig. 3 is an inverted plan view of one of the yokes or valve-casings. Fig. 4 is a vertical longitudinal sectional view of the coupling for the water-tubes mounted on the barrels or cylinders. Fig. 5 is a side view of the same with parts broken away; and Fig. 6 shows a modified construction illustrating my improvements as applied to a single-acting pump.

An important desideratum in this class of machines has been to provide a pump which will work effectively at the start, after remaining idle for a long period, and which, owing to the valves becoming dry, must be saturated or well moistened to get the parts to work tightly, so as to lift or force liquid. To do this effectively and reduce the cost of the pump is the main object of my invention.

Referring by letter to the drawings, A indicates a frame which may comprise standards or other suitable supports for a horizontally-disposed rotatable shaft B, having loops or cranks *a*, disposed at right angles in opposite directions, and this shaft, while shown with a wheel *b*, carrying a handle for rotating the shaft, it is obvious that the wheel may be adapted to receive a belt or gear by which suitable power may be employed. Depending from these cranks *a* are rods *c*, which are connected at their opposite or lower ends with plunger-rods C, as shown.

D indicates the pump barrels or cylinders,

which are shown in Fig. 1 as of the twin-type or double-acting construction and in Fig. 6 as of the single-acting type. The cylinders, when a double-acting pump is used, are formed entire, having the barrels *d d*, provided at a suitable point in their lengths and diametrically opposite points with hook-lugs *e e*, and said barrels are also provided externally with similar hook-lugs, as shown. These barrels are covered with a plate E, which is provided with central vertical passages *f*, designed to receive from the barrels, and said plate is also provided with peripheral projections having eyes *g* to receive vertical bolts *h*. These bolts have eyes at their lower ends to receive the hook-lugs *e* and are threaded at their upper ends to receive nuts or other suitable devices whereby the cap-plate may be drawn tightly down upon the barrels or cylinders. The lower ends of the barrel or barrels are closed by a plate F, having an upwardly-directed marginal flange which is internally threaded to engage the external threads at the lower end of the barrel or barrels, as shown. This plate is also provided with a central inlet-aperture *j*, which is screw-tapped to receive a pipe G, and within this aperture may be a guard *k*, as shown. At the upper end of this aperture is formed a seat for a ball-valve H, and which valve is formed of solid rubber.

I indicates a yoke or frame for the lower valve. This frame comprises a ring or annulus *l*, which is secured in position by being placed between the lower end of the barrel or barrels and the lower plate F, and rising from this ring are branches *m*, which meet or cross each other horizontally at right angles, a packing-ring being interposed, as shown. This yoke is of a sufficient height to allow the ball-valve to rise and properly seat itself.

In a double-cylinder pump this valve is placed beneath the division-wall *n*, and said wall is cut away at a suitable altitude, as shown at *p*, so as to afford a passage into each barrel or cylinder, while in a single-acting pump the valve is placed directly beneath the plunger-head, as shown in Fig. 6 of the drawings.

J indicates the plunger-heads, having a central aperture *q* and a peripheral groove *r*,

within which grooves are placed metallic rings *s*, designed to tightly pack or wipe the barrels.

Rising from each annular head is a yoke 5 or frame *t*, of a skeleton form, and to which the plunger-rods *C* are suitably connected. These skeleton frames are secured to the plunger-heads by bolts *u*, which are screw-threaded at their lower ends and pass through 10 tubes *v*, depending from said yokes or frames and take into threaded apertures in the rings or heads.

The passages *f* of the top plate *E* are screw-tapped and receive tubes *K*, which in double- 15 acting pumps are in turn connected with short tubes *L* by means of a union *M*, and these latter tubes are in turn connected with pipes or tubes *N*, which are covered with a cap *P*, having a suitable packing and an 20 aperture for the passage of the plunger-rods *C*. These tubes *N* are each provided with an alined aperture *w* and receive the opposite threaded ends of a section *Q*. This section *Q* is of a peculiar construction, being designed 25 to receive from both barrels or cylinders and discharge through a lateral aperture *R* into a pipe *S*, which may have a lower gooseneck *T* and an upper gooseneck *U* or pipe of other suitable character.

30 The section *Q* has a horizontal passage *V* leading from each end to suitable points, where they meet upper branches *W*, having suitable seats to receive ball-valves *X*, which are also composed of solid rubber. These 35 passages *W* terminate in screw-tapped apertures, which are closed by screw-caps *Y*, whereby ready access may be had to the valves, and said passages intersect a horizontal passage *Z*, which leads to the dis- 40 charge-aperture communicating with the outlet-pipe *S*.

In applying my improvements to a single-acting pump I dispense with the eyebolts or rods depending from the top plate, and also

the lugs on the barrels or cylinders, as well 45 as the series of sections of pipe or tubing above the top plate.

From the foregoing description, taken in connection with the accompanying drawings, the operation of my invention will be obvious. 50 It will be seen that I have a pump which is very effective in operation, not likely to get out of order, and should any of the parts become worn or injured they can be readily removed and replaced by others.

Having described my invention, what I claim is— 55

1. The pump-barrels having the bottom closing-plate provided with the inlet-aperture and the vertical marginal internally-threaded 60 flange, said barrels having the division-wall cut away at its lower end, as shown, in combination with the valve-yoke *I*, composed of the ring or annulus secured between said plate and the lower edge of the barrels, and 65 a skeleton frame rising therefrom, and the ball-valve arranged over the inlet and within said yoke, substantially as specified.

2. In a pump, the combination with the two barrel-cylinders having the central division- 70 wall cut away at its lower end, the base-plate having the inlet-aperture, the valve-yoke or frame secured over said aperture and the rubber ball-valve arranged in said yoke, the plungers carrying ball-valves and having 75 yokes for said valves, the top plate for the barrels, the tubes rising therefrom, the section connecting said tubes and having the endwise passages, and ball-valves therein, and the lateral passage to receive a discharge- 80 pipe, substantially as specified.

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

KARL AUGUST KLOSE.

Witnesses:

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M. F. HANLEY.