A. J. PURVIANCE.

CHAIN-PUMP.

No. 181,475. Patented Aug. 22, 1876.

Fig. 1.

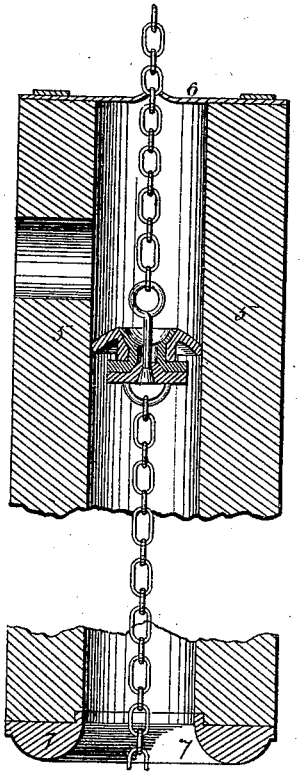


Fig. 2.

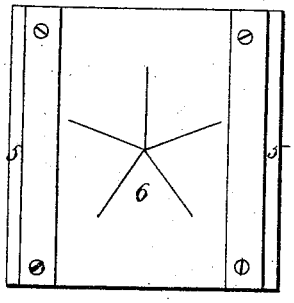
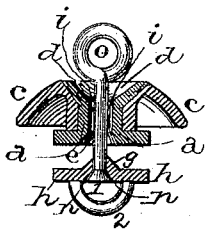


Fig. 3.



WITNESSES.

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per

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UNITED STATES PATENT OFFICE.

ALFRED J. PURVIANCE, OF KEOKUK, IOWA.

IMPROVEMENT IN CHAIN-PUMPS.

Specification forming part of Letters Patent No. **181,475**, dated August 22, 1876; application filed June 13, 1876.

To all whom it may concern:

Be it known that I, A. J. PURVIANCE, of Keokuk, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Chain-Pumps; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in chain-pumps; and it consists in the arrangement and combination of parts that will be more fully described hereinafter, whereby each bucket is provided with a compound swivel-valve, and with a valve to close the drainage. It also consists in a slitted sheet of some material that is secured to the top of the stock to prevent water from being carried upon the chain.

The accompanying drawings represent my invention.

a represents the metallic frame, around which the rubber *c* is placed. This frame has a wide flange around its lower edge to support the rubber, while its upper end flares outward, as shown. In the top of this frame is made a tapering recess, *d*. In the lower side of this frame is made a smaller recess, *e*, into which fits the valve *g* on the upper side of the plate *h*, for the purpose of closing the lower end of the opening *i*, through the frame to stop the leakage of water as the bucket is being drawn upward. The link *o* of the chain that supports each bucket has a loop formed in its upper end, while its lower end consists of a straight rod that passes down through the opening *i*, leaving sufficient room for the free drainage of water when the opening is not closed by the valve *g*. Upon the lower end of the link *o* is pivoted the plate *h*, which revolves freely around, and which has a recess, *n*, formed in its lower side, to receive the valve 1 formed by the head on the lower end of the link *o*. This valve 1 is made cone-shaped, as shown, so as to prevent leakage at this point, as long as the chain is taut; but as soon as the chain is slackened in the least, the water above the bucket at once begins to leak through this valve. Not only does this valve serve for leakage, but as a pivot upon which the valve *h* turns. Projecting from the under side of this plate is a link, 2, to which the other part of the chain is to be attached.

By means of this double swivel-valve, the chain is made much more flexible, and is not so liable to bind upon itself, catch in the tube, or break, and by means of the opening through the center of the bucket and the valves a free full draining of the tube is obtained as soon as the chain is slackened, so that the water cannot freeze in the tube.

Upon the top of the stock 5 is placed a sheet, 6, of rubber, leather, or other material, which is slit and cut, as shown. The chain and buckets pass freely up through this sheet, but the sheet prevents the upward passage of water to the lifting-wheel, so as to prevent freezing in cold weather, and the wetting of the curb.

On the lower end of the stock is placed a metal casting, 7, which serves to protect the stock, and at the same time dispenses with the usual guide-wheel.

Having thus described my invention, I claim—

1. A bucket for chain-pumps, having a double swivel-valve, as described.

2. A bucket for chain-pumps, having an opening through its center, and two or more metal valves to close the same, substantially as shown.

3. The combination of the frame *a*, rubber *c*, link *o*, valve *g*, plate *h*, opening *i*, and valve 1, substantially as specified.

4. In a bucket for chain-pumps, the combination of a double swivel-valve and an opening, *i*, for drainage through the center, substantially as set forth.

5. The slitted sheet 6, placed upon the top of the stock, as shown.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of February, 1876.

ALFRED JAMES PURVIANCE.

Witnesses:

SAML. M. MILLS,

J. W. KITTLE.