

E. A. VAN SANT.
CHAIN-PUMP.

No. 178,208.

Patented May 30, 1876.

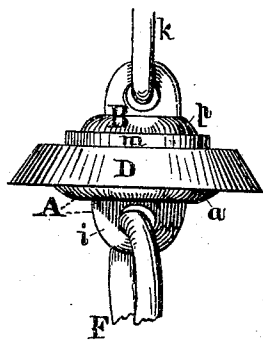


Fig. 1.

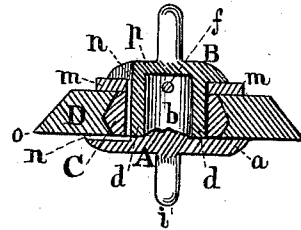
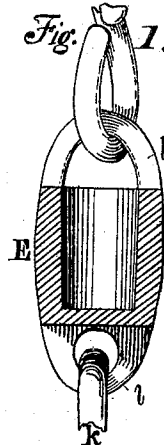


Fig. 2.

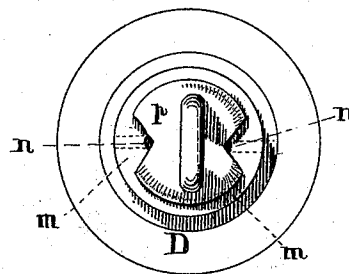


Fig. 3.

Witnesses
John Adams
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UNITED STATES PATENT OFFICE.

ELIAS A. VAN SANT, OF PEORIA, ILLINOIS.

IMPROVEMENT IN CHAIN-PUMPS.

Specification forming part of Letters Patent No. **178,208**, dated May 30, 1876; application filed April 20, 1876.

To all whom it may concern:

Be it known that I, ELIAS A. VAN SANT, of Peoria, in the county of Peoria, in the State of Illinois, have invented an Improvement in Chain-Pumps; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents an elevation of the bucket as followed by link or links and air-vessel; Fig. 2, a vertical ideal section near the center of the bucket D; Fig. 3, a superficial view of the latter, exhibiting the draining-groove.

The objects of this invention are, first, to obviate the difficulty commonly met in replacing the worn-out rubber suction-buckets (in chain-pumps) with new rubbers, in doing which, ordinarily, a link of the chain must be opened, at the risk of breaking the chain, and then a greater difficulty is encountered in getting the rubber off of the neck of the metal holder. I do this by dividing the metal holder (or valve) at said neck, between the flanges, and unite the parts separated by means of a socket-coupling and "pin-keeper." Second, to obviate freezing of water above the bucket, which is done not by notching the edge of the rubber bucket, but by sinking a vertical groove in the surface of the flange (upper) and the neck, and thence horizontally outward along the surface of the lower flange. Third, to provide a device for compensating the wear on the edge of said rubber suction-buckets, to save the cost of frequent renewal of the same, which I do by inserting (when the rubber becomes too much worn away at its circumference) between the metal neck, which passes through said bucket and the latter (*i. e.*, in the perforated center of the rubber bucket) a ring or "expander," which enlarges the diameter of the same, and saves the cost of a new rubber. Fourth, to provide an independent air-bucket, or "aerator," easily attachable and changeable from below the water-bucket, to any place above the latter, but particularly meant to follow each valve.

In the drawings, which represent the best

form of my invention, A is the lower division of the valve; B, the upper one; *a p*, their respective flanges; *b*, the dowel of the joint; *d*, the socket which receives said dowel *b*; *f*, the keeper or uniting-pin, passing through the socket *d* and dowel *b*, which is secured in place by the rubber ring *m*.

The water-drain *n* is cut vertically in the surface of the upper flange *p*, and along the neck *d* of the part B, and thence horizontally outward along the surface of the lower flange *a*, under the rubber bucket D.

E is the independent air-bucket, having a bail, *l l*, above and below, united to the bucket or valve A B by one or more links, F.

C represents the rubber bucket-expander, which rests upon the lower flange *a*. It is a ring whose cross-section is a depressed pyramid, its apex directed outward against the inner surface of the perforation of the bucket D. This ring is only introduced when the circumference of the rubber D is worn away, for the purpose, as said before, to obviate the expense of a new rubber bucket.

The operation of this invention is as follows: The core A B is coupled together by socket *b d* and pin *f*, with encircling rubber keeper *m*, so divided for the easy introduction of the rubber valve D, when it is necessary to put on a new one, without the necessity of opening a link in the chain, so making it easy for a child or woman to repair such a valve. Said parts, also, are so coupled in order to slip the rubber expanding-ring C into the central perforation of said rubber valve D, between the latter and the neck *d* of the core A B. Water standing above the bucket D is drained off by means of the duct *n*, next to the core.

The independent air-bucket E lessens the weight of the valve A B D, by being now separated from said water-carrier.

What I claim as my invention is—

1. The combination of the metal cores A B, keeper *m*, and annulus C, substantially as and for the purposes described.

2. The combination, with the core or valve-holder, and the rubber valve D, of the annulus C, substantially as and for the purposes described.

3. The drip-groove *n*, placed in the periphery of the upper core B, and continued verti-

cally down to the core A, and outward over the horizontal surface of the latter, substantially as described.

4. The combination, with the chain, of a pump, F, or the bucket A B C D, the independent air-bucket E, substantially as described.

In testimony that I claim the foregoing improvement in chain-pumps I have hereunto set my hand this 11th day of April, A. D. 1876.

ELIAS A. VAN SANT.

Witnesses:

HENRY W. WELLS,
JAMES M. MORSE.