

D. W. WITMER.

EXPANSION BUCKET FOR CHAIN PUMP.

No. 170,926.

Patented Dec. 7, 1875.

FIG. 1.

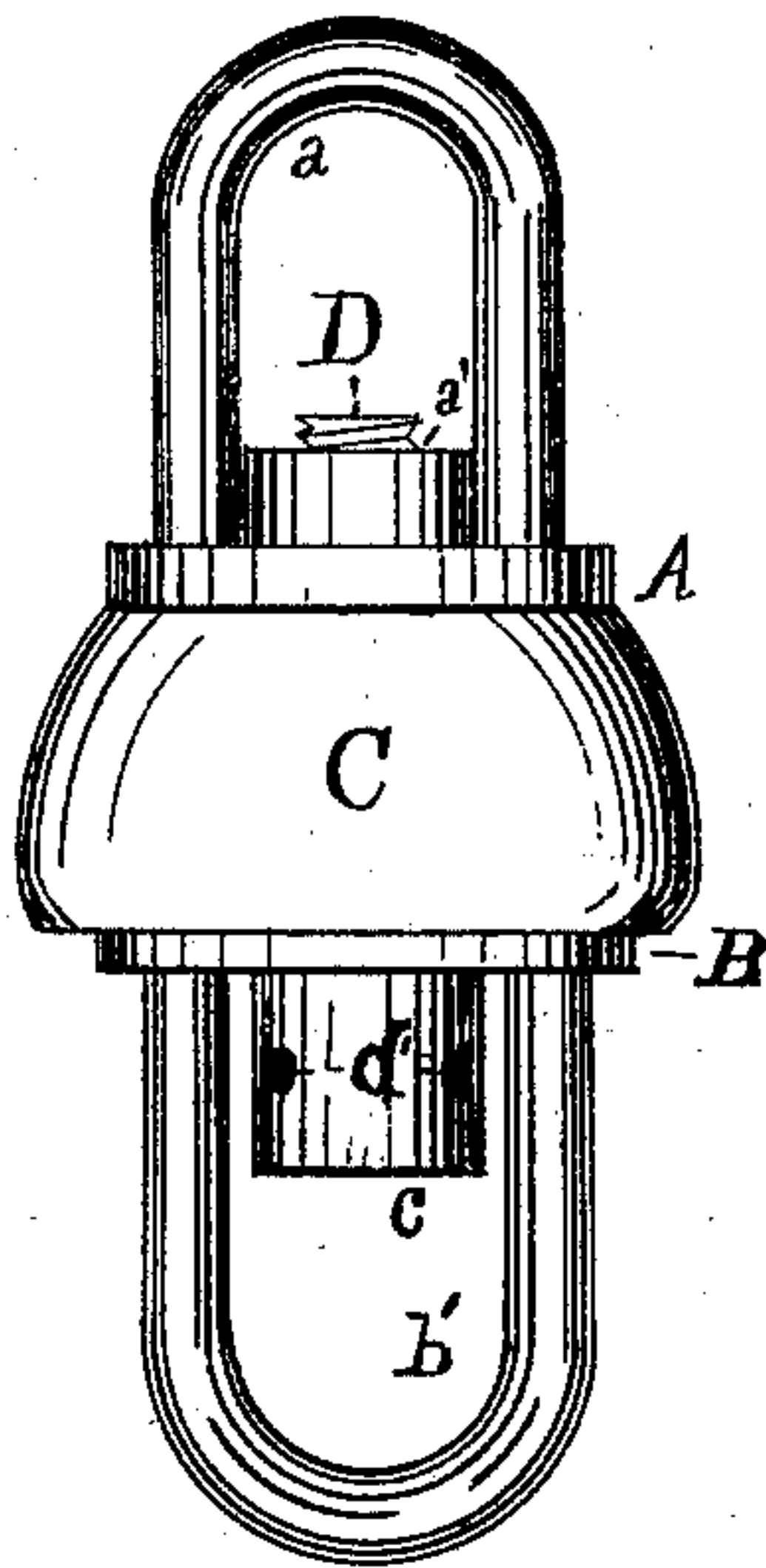


FIG. 4.

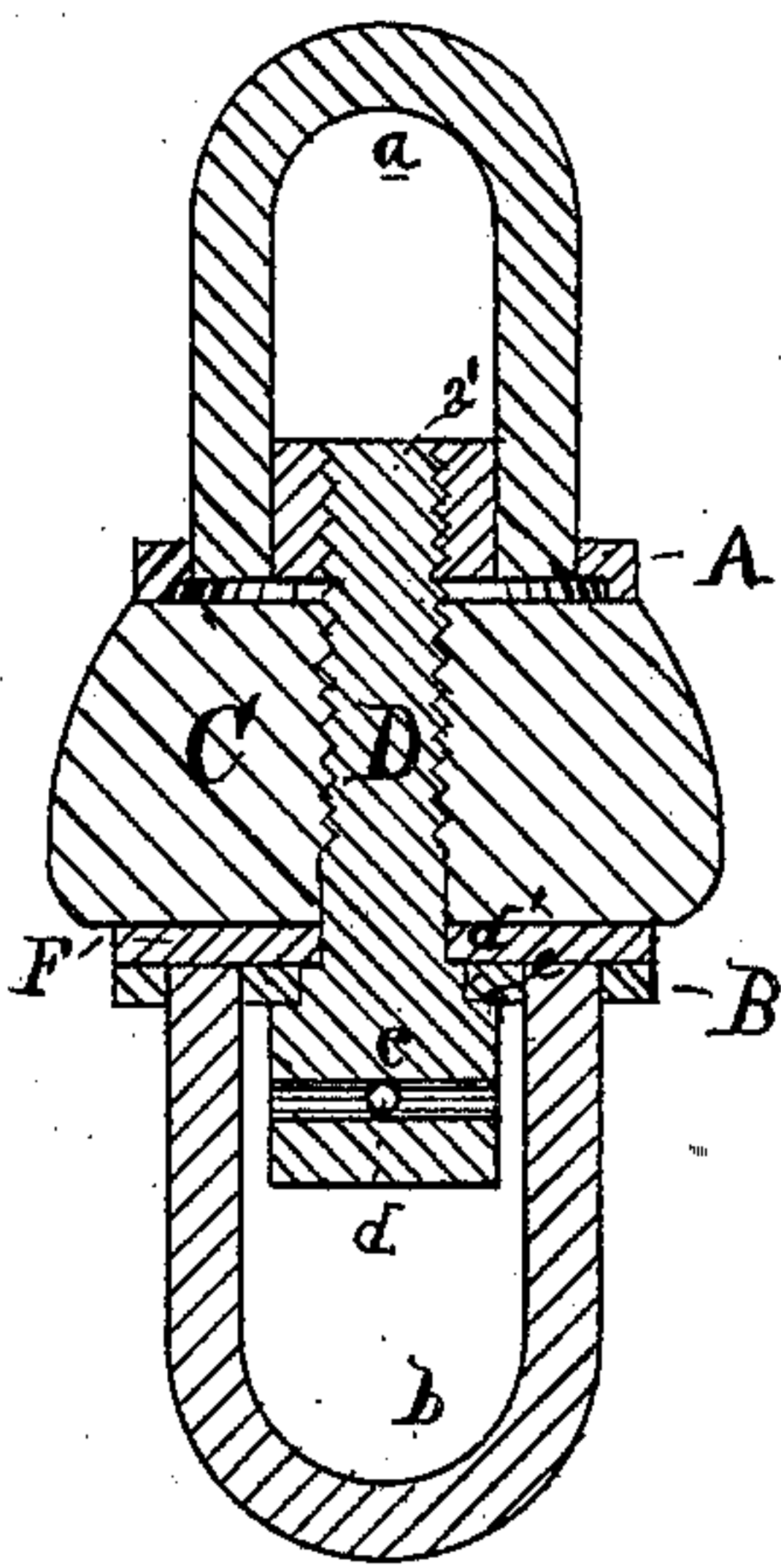


FIG. 2

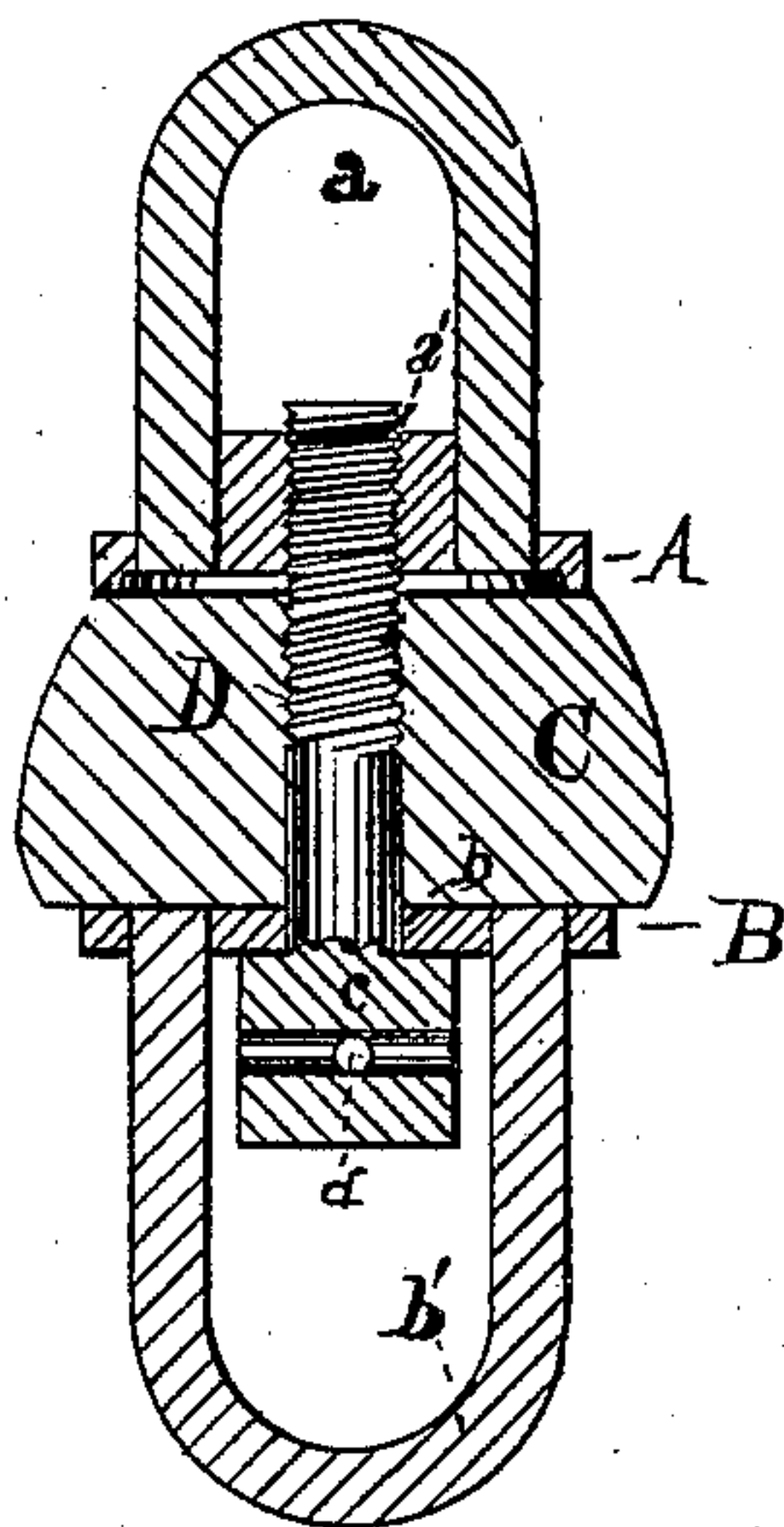


Fig. 3.



ATTEST:  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN EXPANSION-BUCKETS FOR CHAIN-PUMPS.

Specification forming part of Letters Patent No. **170,926**, dated December 7, 1875; application filed June 9, 1875.

*To all whom it may concern:*

Be it known that I, DANIEL W. WITMER, of Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Improvement in Expansion-Buckets for Chain-Pumps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The object of my invention is to produce an expansible bucket for chain-pumps, whereby, as the bucket wears, it can be expanded to fit closely the bore of the pump without detaching it from the chain, and without twisting such chain; and my invention therein consists, principally, in the combination of two plates, provided with eyes for attaching them to the chain, a rubber packing placed between said plates, and a screw-threaded bolt that passes through the center of one of the plates and the rubber packing, and engages in a screw-threaded hole in the opposite plate, all as more fully hereinafter described.

To enable others skilled in the art to make and use my invention, I now proceed to describe the same in connection with the drawings, in which—

Figure 1 is a side elevation of my device; Fig. 2, a central vertical section of the same; Fig. 3, a separate view of the tightening-lever; and Fig. 4 represents, in section, the device provided with a swivel attachment.

Like letters denote corresponding parts in each figure.

A represents the upper metallic plate of the bucket provided with an eye, *a*, for attaching it to the chain, and with a screw-threaded hole, *a'*, tapped through its center. B is the lower metallic plate, having a hole, *b*, through its center, and provided with an eye, *b'*, similar to the eye *a* of the upper plate for attaching it to the chain. It may, however, be larger than the eye *a* to accommodate the head of the bolt and allow it to play freely. C is the rubber packing placed between the plates A B, and made large enough to project beyond the edges of the said plates. The packing has a hole also made through its center. D is a screw-threaded bolt that plays loosely through the hole in the packing and the hole *b* in the lower plate, and engages with the threads in the hole *a'* in the upper plate. The screw D

is provided with a head, *c*, which head has holes *d* for the reception of a small iron rod or lever, E, for turning the bolt.

The operation of my device is as follows: The buckets, either before or after securing them to the chain, are, by turning the bolt D, expanded to the proper size of the bore of the pump. When the packing commences to wear, and allows the water to leak through, the bolt is turned by the lever E, and the plates brought closer together, and the packing necessarily expanded. This is done without detaching the buckets from the chain, and without twisting the chain.

This bucket is also made with a swivel attachment, as shown in section in Fig. 4. In this case an additional plate, F, is interposed between the lower plate B and the rubber packing, the bolt is formed with a shoulder, *d'*, resting on such plate, and with another shoulder, *e*, to prevent the plate B from slipping off.

The plate B has its hole *b* large enough to play loosely around the bolt, so that when the bolt is turned and the packing expanded the screw, by its shoulder *d'*, presses on the plate F and allows the plate B to turn freely.

It has heretofore been the practice to construct these buckets so that it was necessary to remove them separately from the chain to give them proper expansion. By my device this is entirely avoided.

Having thus described my device and some of its advantages, what I claim as new and my invention therein, is—

1. The bucket for chain-pumps described, consisting of the plate A, having the screw-threaded hole *a'* and eye *a*, the plate B having the hole *b* and eye *b'*, the packing C and bolt D having a head, *c*, resting on the plate B, so that the said bolt can be turned independently of either of the said plates, substantially as described and shown.

2. The combination, with the plates A B and packing C, of the bolt D, having the shoulders *d'*, *e*, and the plate F, the several parts operating substantially as described.

This specification signed and witnessed this 14th day of May, 1875.

DANIEL W. WITMER.

Witnesses:

SAML. D. SCHOLES,  
T. C. MATHER.