

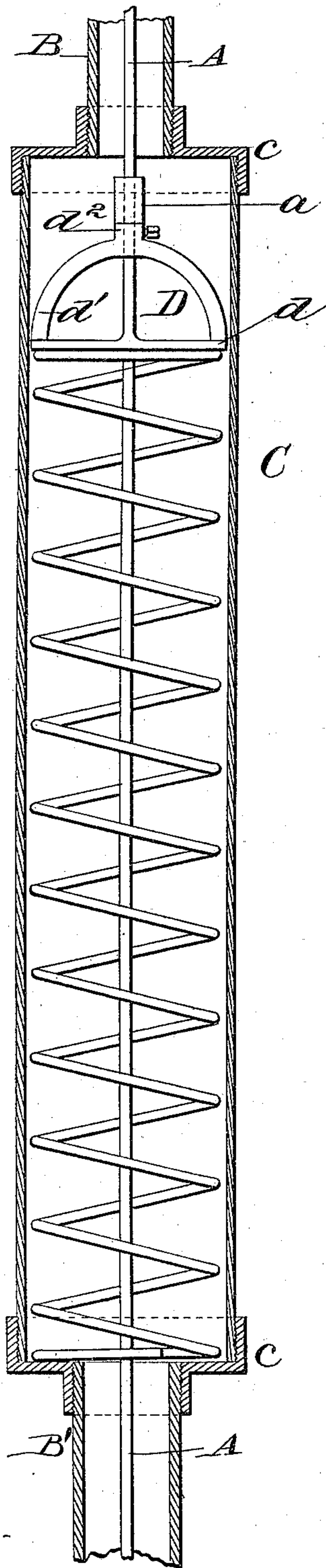
(No Model.)

J. W. WELCH.  
PUMP.

No. 555,985.

Patented Mar. 10, 1896.

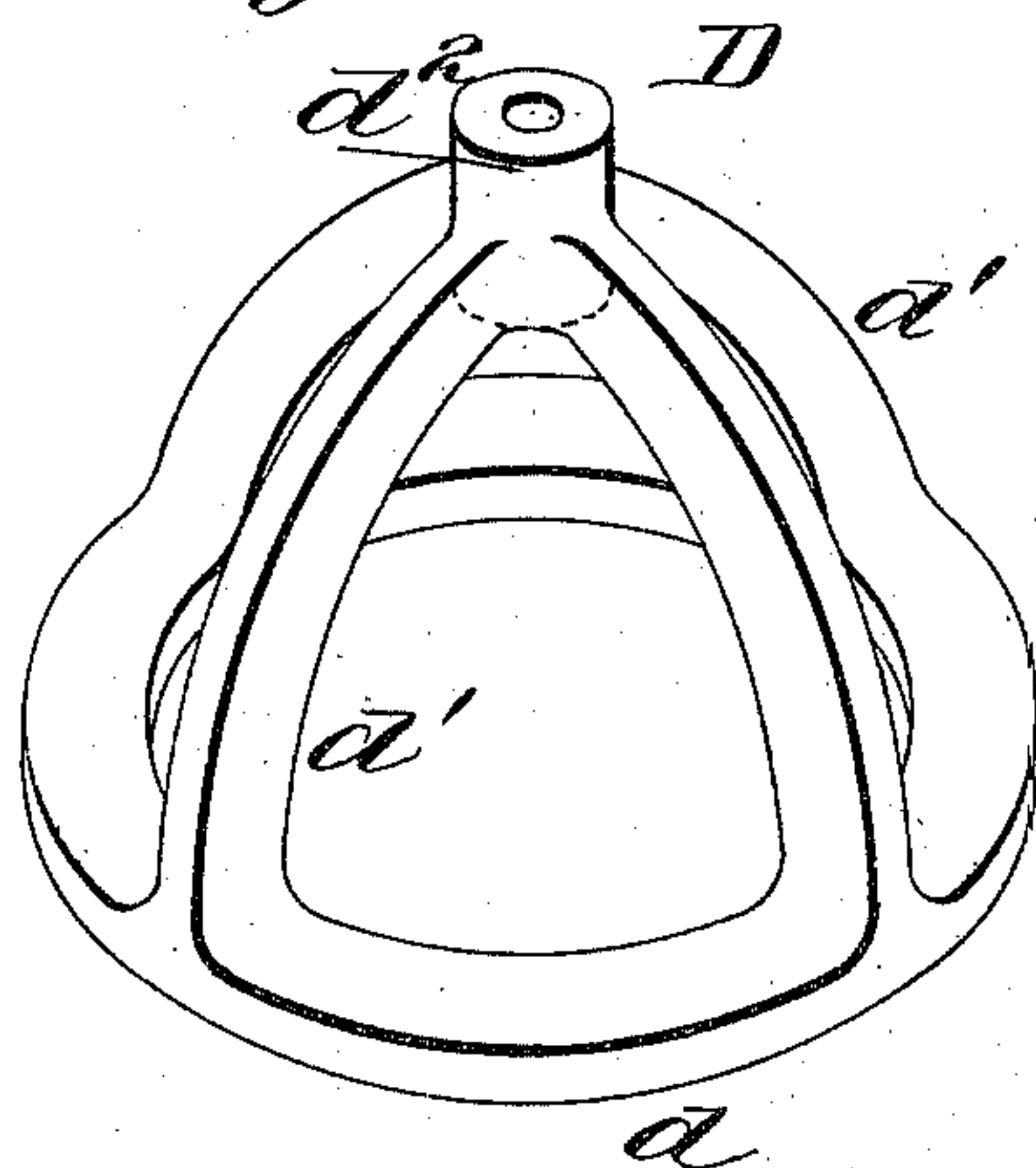
*Fig. 1*



Witnesses.

*J. F. Coleman*  
*Henry Jones.*

*Fig. 2*



*Joseph W. Welch*  
*By*  
*J. C. Fitzgerald.*  
*Atty.*



# UNITED STATES PATENT OFFICE.

JOSEPH W. WELCH, OF POTTER, NEBRASKA.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 555,985, dated March 10, 1896.

Application filed June 3, 1895. Serial No. 551,563. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH W. WELCH, a citizen of the United States, residing at Potter, in the county of Cheyenne, State of Nebraska, have invented certain new and useful Improvements in 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 appertains to make and use the same.

My invention relates to an improved device for guiding pump-rods and storing the power exerted during the downstroke of the rod.

The invention consists in the features, details of construction, and combination of parts which will first be described in connection with the accompanying drawings, and then particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical central section through a device embodying my invention. Fig. 2 is a detail view.

Referring to the drawings, A is a pump-rod provided at *a* with a collar or coupling.

B B' are sections of pipe which form the conductor for the water of the pump-cylinder below, said pump-cylinder not being shown, as it forms no part of my present invention.

C is a spring-casing which is connected at the top and bottom to the pipe-sections B B' by means of suitable reducer-unions *c*, the said casing forming a connection between said pipe-sections, the water flowing through it, as will be plain from the drawings.

Within the casing C is placed a spring, preferably helical and of metal, the end of this spring in this case resting upon the lower reducing-union *c*. The upper end of the spring bears against a suitable stop-device carried by the pump-rod A, the stop-device D preferably consisting of an annular ring *d*, carried by spider-arms *d'* which are united at their inner ends by a hub or collar *d*<sup>2</sup> placed on the rod and preferably secured to the same just below the collar or coupling *a*.

The device of the above described apparatus may be inserted at any point along the pump-rod and may be in the pump-head. On deep wells any number of such apparatus may be employed.

The operation of my device may be briefly described as follows: On the downward stroke of the rod the spring is compressed, and when

the rod is raised the spring expands, thereby assisting in raising the weight of the rod, piston and water. By this arrangement, which is especially intended for use with windmill-pumps and the like, the energy usually lost by the downward stroke when no water is being raised, as with all single-acting pumps, is stored in the spring and is employed to assist in raising the water on the upward stroke of the rod. In this way the motion of the motor is more nearly equalized, whereby the said motor runs steadier, and at the same time all jarring is diminished or entirely avoided. Furthermore, when employed with hand-operated pumps, the weight of the rod and piston are taken off the operator and the handle or brake is more nearly balanced, whereby it operates easier.

By moving the stop device D up or down on the pump-rod the tension of the spring may be adjusted.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the pipe-sections A, of a casing connecting said sections, a pump-rod extending through said sections and casing, a coiled spring surrounding the pump-rod within the casing and bearing against the bottom thereof, and a tension device D adjustably connected to the pump-rod and bearing against the upper end of the spring, substantially as set forth.

2. In a pump the combination with the pipe-sections A, of the enlarged casing C connected at its ends with the pipe-sections, a pump-rod extending through such casing, a coiled spring surrounding the rod within the casing and bearing against the bottom thereof, and a tension device D provided with a portion *d*<sup>2</sup> adapted to be clamped to the pump-rod and with the enlarged ring-base *d* which rests upon the upper end of the spring and whose outer edge contacts with the inner wall of the casing substantially as set forth.

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

JOSEPH W. WELCH.

Witnesses:

JOHN BENSON,  
CANUTE THOMPSON.