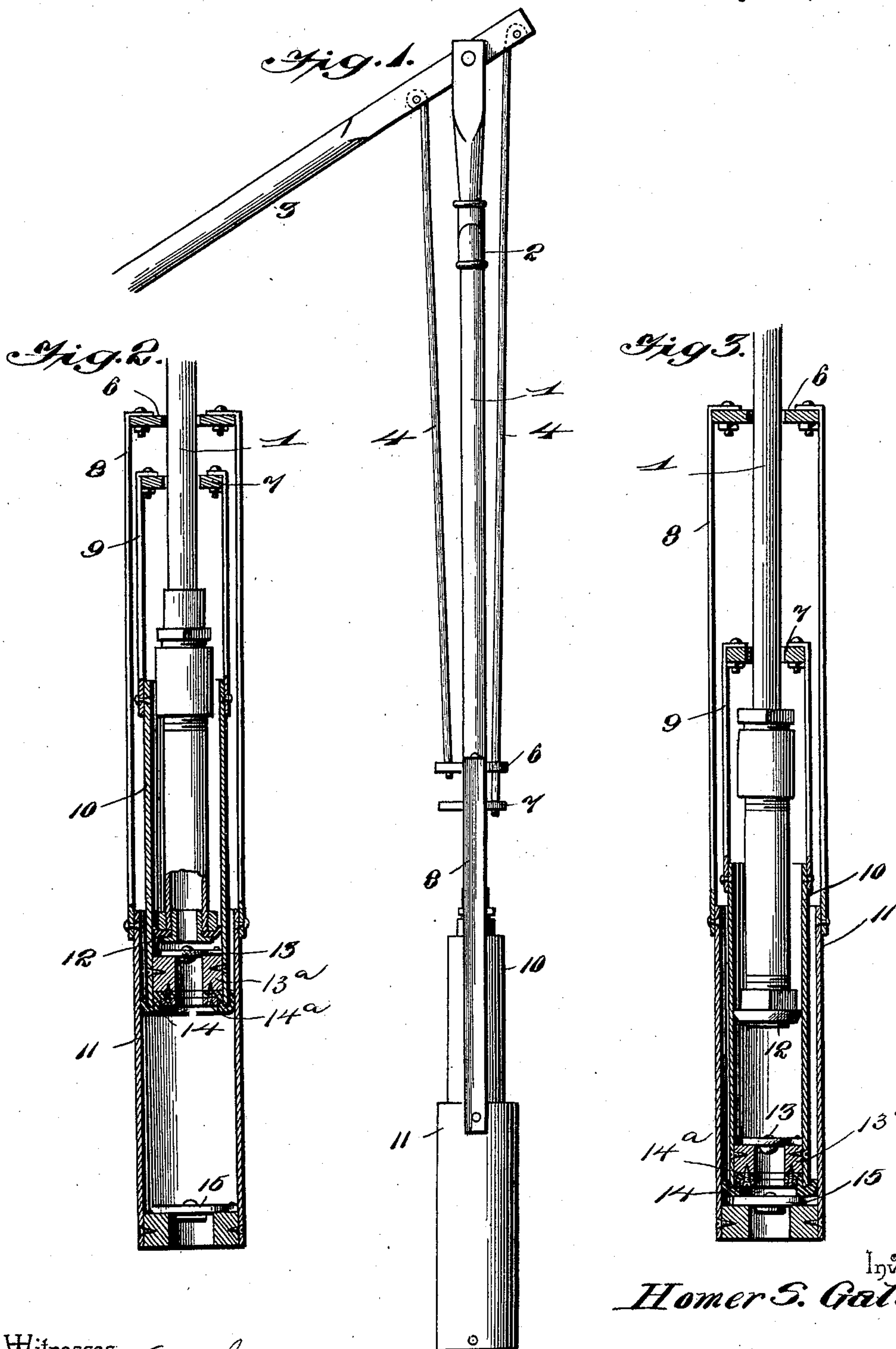


(No Model.)

H. S. GALLUP.  
PUMP.

No. 582,277.

Patented May 11, 1897.



Inventor  
*Homer S. Gallup,*

By *his* Attorneys,

Witnesses  
*H. Koerth*  
*E. R. Ryle*

Chenoweth.



# UNITED STATES PATENT OFFICE.

HOMER S. GALLUP, OF CLAY CENTRE, KANSAS, ASSIGNOR OF ONE-HALF TO  
E. L. GREEN, OF SAME PLACE.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 582,277, dated May 11, 1897.

Application filed May 6, 1896. Serial No. 590,470. (No model.)

*To all whom it may concern:*

Be it known that I, HOMER S. GALLUP, a citizen of the United States, residing at Clay Centre, in the county of Clay and State of Kansas, have invented a new and useful Pump, of which the following is a specification.

My invention relates to pumps, and has for its object to provide a simple direct double-acting pump adapted to be used in an Artesian well of small diameter, the parts being compactly arranged to economize space and reduce the power necessary for its operation.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a view of a pump constructed in accordance with my invention. Fig. 2 is a central section of the telescoping cylinders and contiguous parts, said cylinders being extended. Fig. 3 is a similar view showing the cylinders contracted.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a pump-stock or lift-pipe provided with an outlet-spout 2 or its equivalent and extended above the same to form a bearing for the operating-lever 3, to which are attached the operating-rods 4. This tubular pump-stock or lift-pipe forms a guide for rings or disks 6 and 7, which are mounted to slide thereon, and connected, respectively, to said rings or disks by means of connecting bars or straps 8 and 9 are the telescoping inner and outer cylinders 10 and 11.

The inlet end of the pump-stock or lift-pipe is fitted with an exterior plunger or piston-ring 12, which operates snugly in the bore of the inner cylinder, and the lower end of the inner cylinder is provided with an upwardly-opening valve 13 and with packing 14 to fit snugly in the interior of the outer cylinder. The outer cylinder is provided at its lower end with an inwardly-opening valve 15.

An important feature of the present invention is the manner in which the valve 13 and packing 14 are supported in place, whereby

the lower end of the inner cylinder 10 is made water-tight and a tight packing provided between the inner and the outer cylinders. To accomplish this important result, a valve-seat block 13<sup>a</sup> is fitted in the lower end of the inner cylinder 10 and is formed with a valve-opening therethrough, which is covered and uncovered by the valve 13, fitted to the upper side of said block. The packing 14 is in the form of a ring and is clamped at its inner edges directly to the under side of the valve-seat block 13<sup>a</sup>. From its point of attachment to the valve-seat block the said packing 14 extends outside of the inner cylinder 10 and is bent or folded around the lower edge of said inner cylinder so as to lie in the space between the two cylinders. This manner of arranging the packing-ring 14 provides a water-tight joint for the valve-seat block 13<sup>a</sup> and at the same time forms a tight packing between the two telescoping cylinders.

When the lever is operated, the exterior and interior cylinders are reciprocated simultaneously in opposite directions, one cylinder ascending during the descent of the other, and the result of this operation is that when the cylinders are in the extended positions shown in Fig. 2 the exterior cylinder is full and when the parts have been operated to contract the cylinders, as shown in Fig. 3, the contents of the exterior cylinder have passed into the interior cylinder and a portion of said contents has passed through the inner cylinder and has been elevated in the lift-pipe by reason of the inner cylinder being of smaller capacity than the outer cylinder—namely, approximately one-half the capacity. If the inner cylinder is made of half the capacity of the outer cylinders, it will be seen that upon the inward stroke of the cylinder, or the contracting stroke thereof, one-half the capacity of the exterior cylinder will be forced into the lift-pipe and during the spreading stroke of the cylinders the entire contents of the inner cylinder will be forced into the lift-pipe, thus equally dividing the contents of the exterior cylinder at each stroke. In other words, one-half the capacity of the exterior cylinder will be forced into the lift-pipe at each stroke of the cylinders.



The above construction provides for a compact arrangement of parts whereby a five-inch cylinder can be operated in a six-inch-tubed well, the connecting rods being spaced apart  
5 a distance not exceeding the diameter of the exterior cylinder.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit  
10 or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

In a pump of the class described, the combination of a stationary lift-pipe having a valveless passage therethrough and fitted at its lower end with an exterior annular piston-ring 12, inner and outer spaced telescoping cylinders inclosing the lower end of the lift-  
20 pipe, the inner of said cylinders snugly receiving in its bore said piston-ring of the lift-pipe, an inwardly-opening valve fitted in the

lower end of the outer cylinder, a valve-seat block fitted within the lower end of the inner cylinder, an inwardly-opening valve 25 mounted on the upper side of said valve-seat block, a packing-ring secured at its inner edges directly to the under side of the valve-seat block within the inner cylinder and bent or folded around the lower edge of said inner  
30 cylinder so as to lie in the space between the two cylinders and also form a water-tight packing for the valve-seat block, and means for communicating opposite reciprocatory movement to the inner and outer cylinders, 35 substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HOMER S. GALLUP.

Witnesses:

F. L. FLETCHER,  
B. E. GREEN.