

O. J. BALDWIN.

OIL WELL PUMP AND SCRAPER.

No. 355,675.

Patented Jan. 11, 1887.

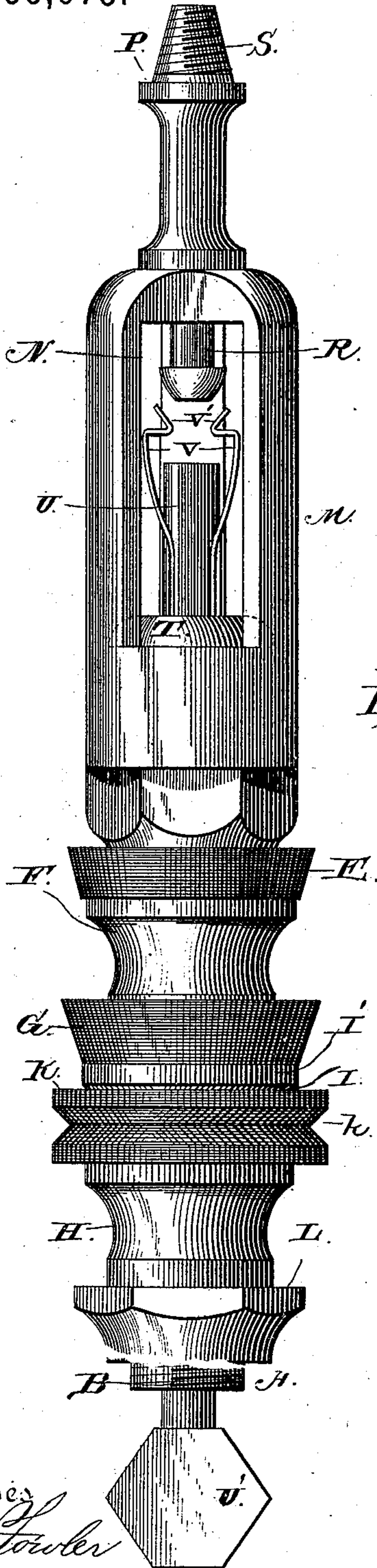


Fig. 1.

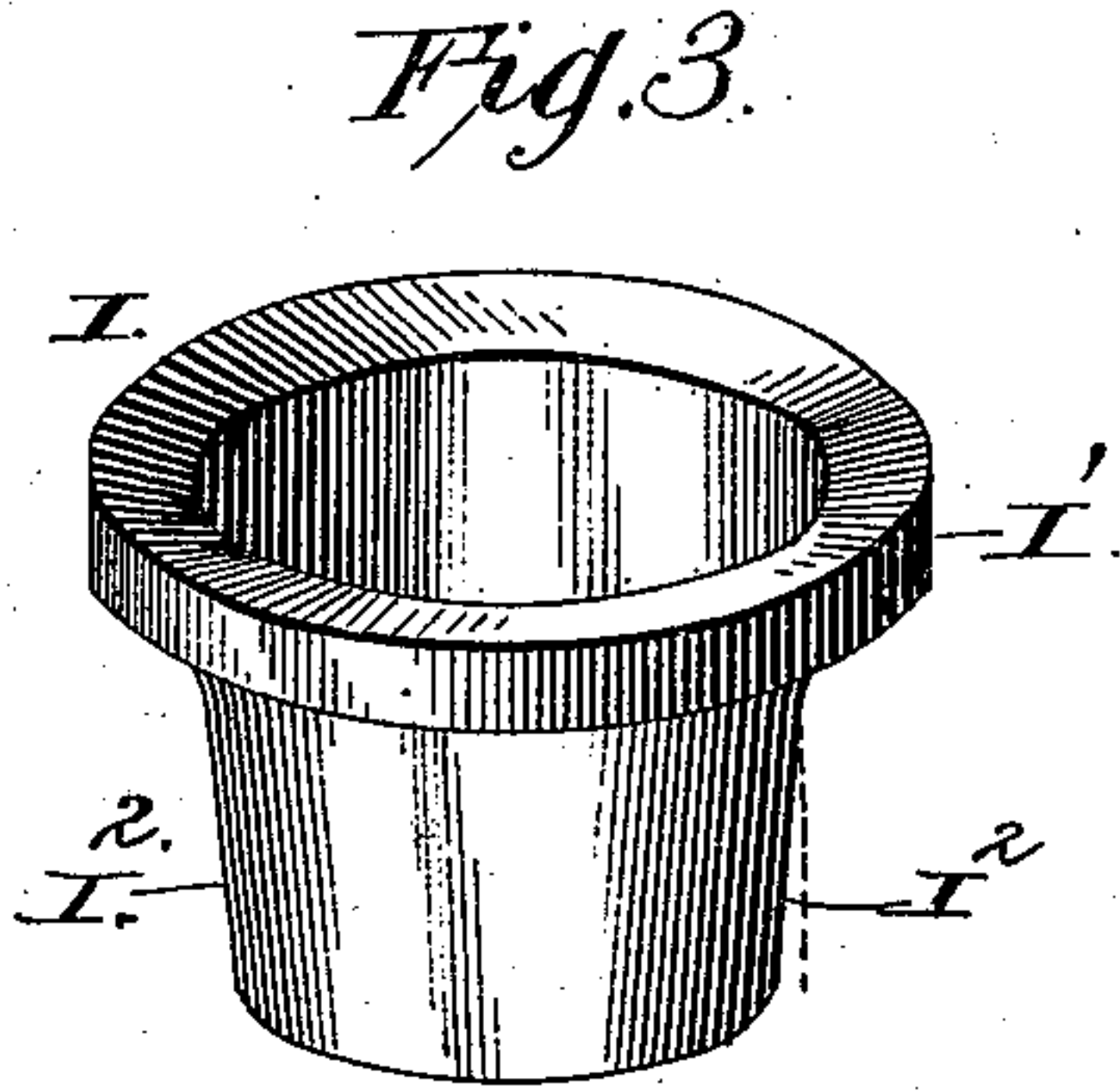


Fig. 3.

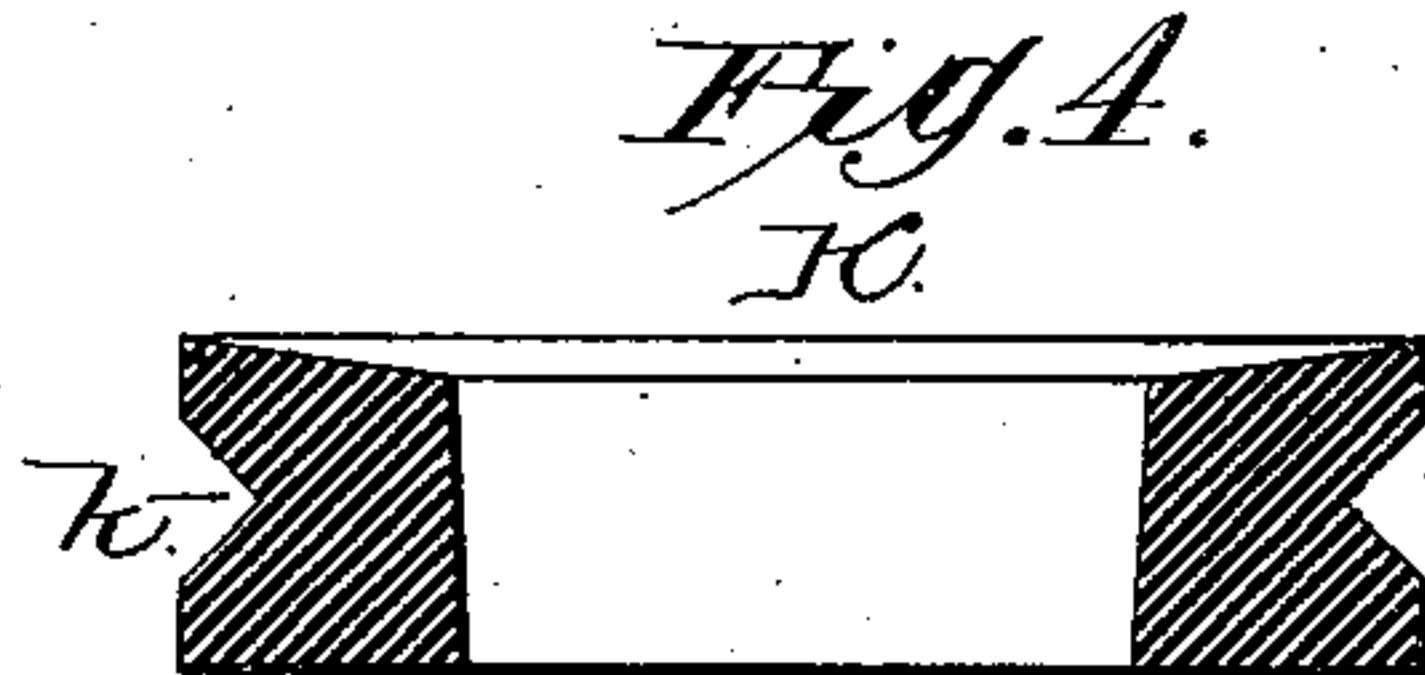


Fig. 4.

Witnesses  
*M. E. Fowler*

*J. W. Garner*

Inventor  
*O. J. Baldwin*

By *his* Attorney

*C. A. Snowdon*

(No Model.)

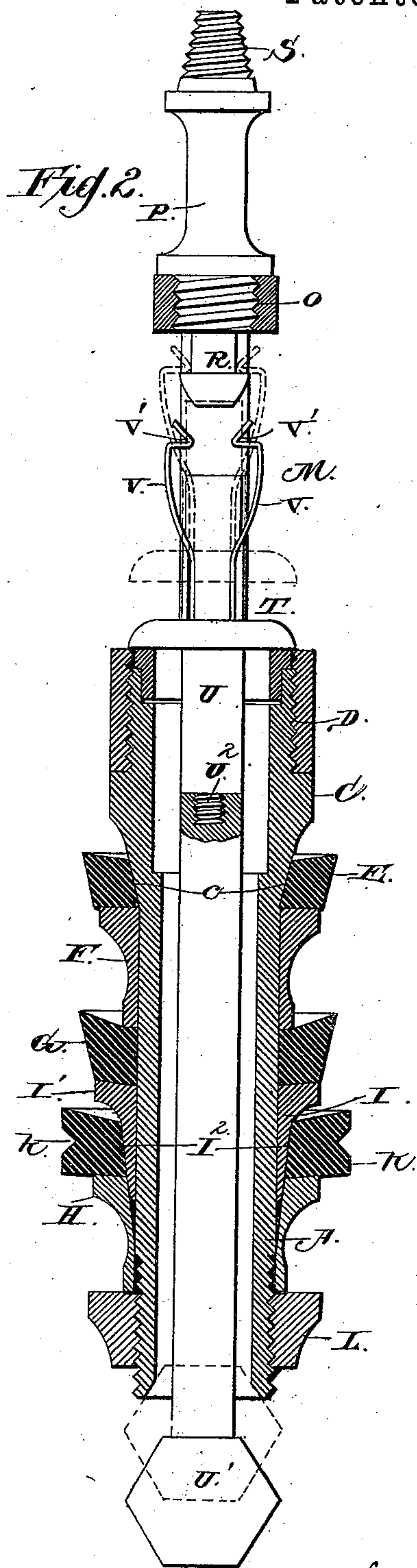
2 Sheets—Sheet 2.

O. J. BALDWIN.

OIL WELL PUMP AND SCRAPER.

No. 355,675.

Patented Jan. 11, 1887.



Witnesses  
*M. C. Fowler*  
*John H. Siggers*

Inventor  
*O. J. Baldwin*

By his Attorneys  
*C. A. Howland*



# UNITED STATES PATENT OFFICE.

OZRO J. BALDWIN, OF NORTH CLARENDON, PENNSYLVANIA.

## OIL-WELL PUMP AND SCRAPER.

SPECIFICATION forming part of Letters Patent No. 355,675, dated January 11, 1887.

Application filed April 9, 1886. Serial No. 198,378. (No model.)

*To all whom it may concern:*

Be it known that I, OZRO J. BALDWIN, a citizen of the United States, residing at North Clarendon, in the county of Warren and State of Pennsylvania, have invented a new and useful Improvement in Oil-Well Pumps and Scrapers; of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in devices for exhausting the fluids from and scraping the walls of oil and other wells; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is an elevation of the annular collar I. Fig. 4 is a sectional view of ring K.

The object of my invention is to provide an apparatus for exhausting the fluid in the "big hole," as it is called, of an oil-well before the casing is put into the well, and for exhausting the fluid through the casing before the tubing is put into the well, and for exhausting the fluid through the tubing after the latter is in place, without the aid of a working barrel and valve, such as has been heretofore commonly employed for this purpose.

A represents a hollow cylinder, which forms the lower portion of the barrel, which cylinder is screw-threaded at its lower end, as at B, and provided near its upper end with an enlarged head, C, the said cylinder above the head C being screw-threaded, as at D. The sides of the cylinder below the head C are inclined or tapered, as at c, for a suitable distance, and on the said cylinder is placed an expansible ring, E, which is made of rubber or other suitable elastic material. Below the ring E is an annular collar, F, which fits on the cylinder A, and at the lower end of the collar F is an expansible ring, G, which is likewise made of india-rubber, and which is somewhat larger in diameter than the ring E.

I represents an annular collar, which is provided at its upper end with the flange I', and the outer sides of the said collar, for a suitable distance below the said flange, are curved

or tapered, as at I<sup>2</sup>. On the tapered portions of the collar I is placed an expansible ring, K, which is larger in diameter than the ring G, and is provided with a peripheral groove, k. The peripheries of the rings E and G are inclined or tapered, as shown, the diameter of the said rings being less on their lower sides than on their upper sides. The collar I is placed on the cylinder, and bears against the lower side of the ring G.

H represents an annular collar, which is placed on the cylinder below the ring K, the said collar being free to slide over the screw-threads on the lower end of the cylinder, and its central opening being large enough to enable it to clear the lower portion of the collar I, and thereby move upwardly over the said collar and bear against the lower side of the ring K. On the lower threaded end of the cylinder is screwed a clamping-nut, L, the function of which is to bear against the lower side of the collar H, and thereby compress the rings E, G, and K and expand the latter and cause it to fit tightly against the sides of the well.

M represents the upper section of the barrel, which is interiorly screw-threaded at its lower end, to receive the thread D on the upper end of the lower section, A, whereby the two sections may be coupled together. The said section M is provided with vertical slotted openings N in its sides, and the upper portion of the said section is closed and is provided with a threaded opening, O. Through the said opening passes the lower threaded end of a section, P, which is provided with a depending headed stud, R, at its lower end, which extends for a suitable distance downwardly in the upper end of the section M, and the upper end of the section P is provided with a conical threaded projection, S, by means of which the apparatus may be attached to the lower end of the usual auger-stem.

T represents a valve, which works in the upper section, M, and is provided with a vertical stem or rod, U, the upper portion of which extends for a suitable distance above the valve in the section M, and the lower portion of which extends downwardly through the lower section, A, and is provided with an enlarged head, U', which is of too great diameter to



pass through the bore of the said lower section. This renders it necessary to form the lower portion of the valve-stem in two sections, coupled together by a screw-coupling, 5 U', as shown in Fig. 2, whereby the lower section carrying the head U' is secured to the upper section of the valve-stem after the upper section of the barrel has been coupled to the lower section thereof, as will be very 10 readily understood. To the upper portion of the valve-stem, above the valve, is secured a pair of spring-arms, V, which have their upper ends bent to form hooks V', adapted to pass over the enlarged head of the depending 15 stud R and secure the valve-stem thereto when the valve is raised to the position shown in dotted lines in Fig. 2.

The operation of my invention is as follows: In order to exhaust the fluid from the well 20 and to scrape the sides thereof, the apparatus is attached to the lower end of the auger-stem, in lieu of the usual boring-bit, and is lowered to the bottom of the well by the usual rope or cable, and is then worked vertically in the 25 bottom of the well. As the barrel descends the valve rises, thereby permitting the fluid to pass through the lower section, A, and flow through the openings N above the valve. The expansible ring K, which is in contact 30 with the sides of the well, prevents the fluid which is raised from descending. When the barrel reaches the lower limit of its movement, the valve drops by its own gravity and by the superincumbent weight of the fluid, and the 35 barrel is again raised and then lowered, as before, thereby forcing the fluid in the bottom of the well above the valve and causing it to rise in the well. When a sufficient quantity of the fluid has been thus raised, the barrel is 40 drawn slowly upwardly in the well by the rope or cable, thus carrying the fluid with it and causing it to overflow when it reaches the surface, and thus entirely exhausting it from the well. As the barrel is being raised in the well the 45 ring E clears an opening in the center thereof. The succeeding ring, G, which is of greater diameter, extends nearer the sides of the well and enlarges the cleared opening, and the ring

K, which fits in the bore of the well, finishes the process of scraping the sides thereof of ad- 50 hering matter, thereby effectually clearing the well.

Should the apparatus be operated in the bottom of the well so long as to cause the weight of the fluid above it to be likely to 55 break the rope or cable, and thereby cause the exhausting apparatus to be left in the bottom of the well, the latter is dropped forcibly to the bottom of the well and is impact there- 60 with, causing the valve-stem to be forced upwardly, carrying the valve with it, until the spring-arms become engaged with the headed stud R, thereby securing the valve in an elevated position, as shown in dotted lines in 65 Fig. 2, and enabling the fluid to pass downwardly through the bore of the lower section of the cylinder, and thus permit the apparatus to be readily withdrawn from the well.

Having thus described my invention, I claim— 70

1. The combination, with the barrel having the packing or expansible rings and the open- 75 ings N at its upper end, of the vertically-movable valve having the depending stem extending below the lower end of the barrel, and means for securing the valve in an elevated position when the said depending stem strikes the bottom of the well, for the purpose set forth, substantially as described.

2. The combination, with the barrel having 80 the packing-rings, the openings N, and the depending headed stud R in its upper end, of the vertically-movable valve having the depending stem extending beyond the lower end of the barrel, and provided with the spring-arms 85 G, for engaging with the headed stud R, and thereby securing the valve in an elevated position, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 90 presence of two witnesses.

OZRO J. BALDWIN.

Witnesses:

C. A. PETERSON,  
H. E. BROWN.