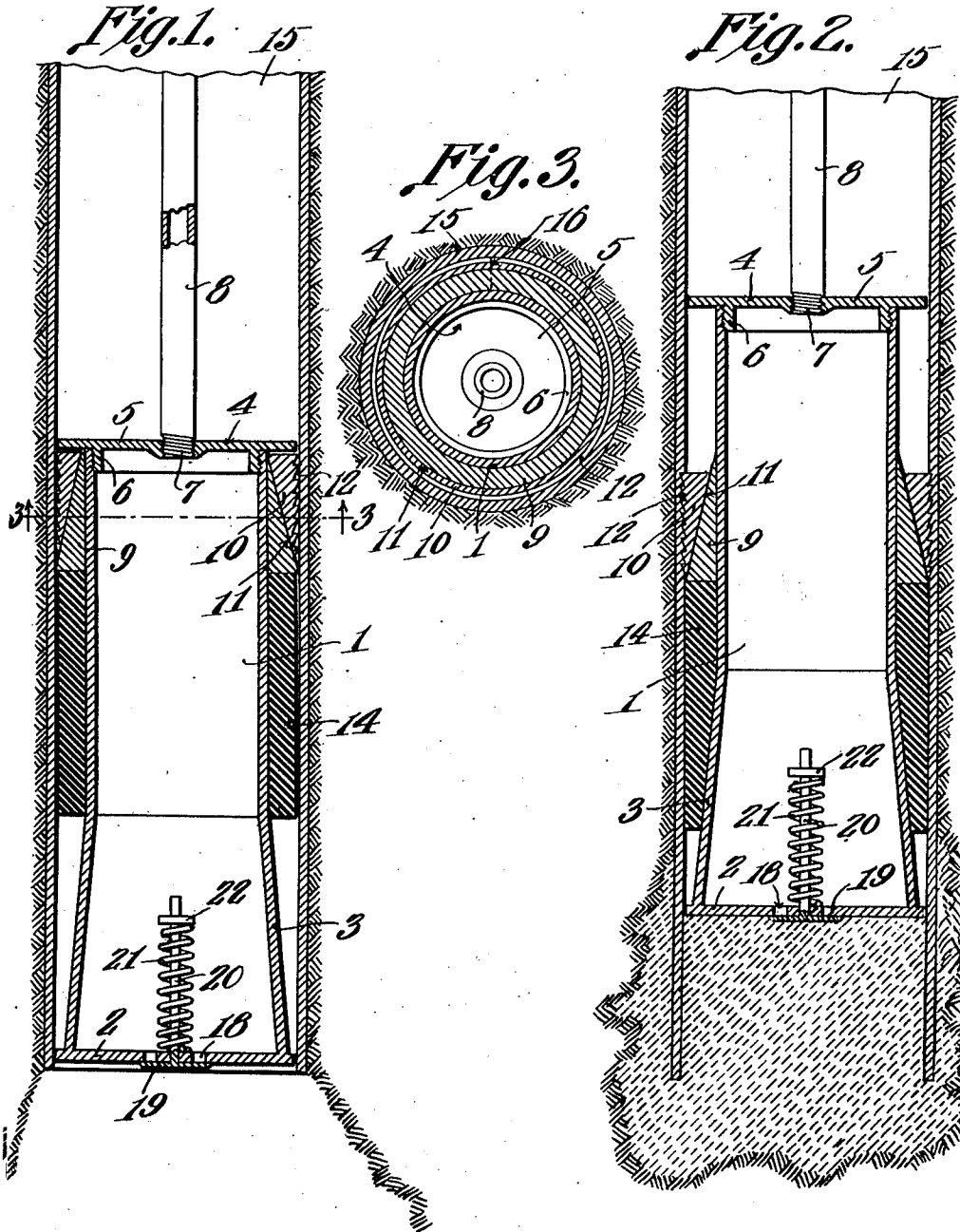


R. C. BAKER.
CEMENT RETAINER.
APPLICATION FILED JAN. 29, 1912.

1,035,674.

Patented Aug. 13, 1912.



Witnesses

J. P. Dominick
J. H. W. Chow.

R. C. Baker,

Inventor

by

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

REUBEN C. BAKER, OF COALINGA, CALIFORNIA.

CEMENT-RETAINER.

1,035,674.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed January 29, 1912. Serial No. 674,065.

To all whom it may concern:

Be it known that I, REUBEN C. BAKER, a citizen of the United States, residing at Coalinga, in the county of Fresno and State of California, have invented a new and useful Cement-Retainer, of which the following is a specification.

By way of explanation, it may be stated that in the operation of drilling and piping a well, the tubing occasionally becomes lodged in the bore, before the bore has been tubed to the bottom, under such circumstances, the tubing may be flooded by water derived from an intermediate source, and not from the bottom of the well, presupposing that the well has been sunk for the purpose of obtaining water from a lower level than that at which the water enters. Under such circumstances it is necessary to seal the space between the tubing and the bore of the well, and to that end, cement must be introduced between the tubing and the bore.

The present invention aims to provide a barrel which may be lifted to cause a surrounding, expansible structure, to engage with the tubing, whereupon cement may be pumped into the well, below such structure, thereby to effect a sealing.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows in longitudinal section, a device constructed in accordance with the present invention, the same being located within the well tubing, the view depicting the parts as they will appear previous to the elevation of the barrel; Fig. 2 is a similar view, showing the barrel elevated and the cement in position about the barrel; and Fig. 3 is a transverse section upon the line 3—3 of Fig. 1.

In carrying out the invention there is provided a barrel 1 closed at the lower end, as shown at 2. The lower extremity of the barrel 1 flares, as shown at 3. A closure 4 is provided for the upper end of the barrel 1, the closure 4 consisting of a top plate 5 and a flange 6, the flange 6 being right-hand

threaded into the barrel 1. The top plate 5 projects beyond the periphery of the barrel 1. Left-hand threaded as shown at 7, into the top plate 5 of the closure 4, is a supply pipe 8. Surrounding the barrel 1 is an inner conical sleeve 9, and surrounding the inner conical sleeve 9 is an outer conical sleeve 10. The base of the sleeve 9 is downwardly disposed, and the base of the sleeve 10 is upwardly disposed, the inner and outer faces of the sleeves 9 and 10, respectively, being approximately parallel, while the adjacent faces of the sleeves 9 and 10 engage wedge-wise, as shown at 11. The outer face of the outer sleeve 10 is provided with a series of ribs or projections 12. A yieldable, and preferably resilient, annular packing 14 surrounds the barrel 1.

In practical operation, the parts are positioned as shown in Fig. 1, the sleeves 9 and 10 being disposed beneath, and engaged by, the top plate 5 of the closure 4. The packing ring 14 surrounds the cylindrical portion of the barrel 1, above the flaring portion 3 thereof. The device is lowered within the tubing 15, to the desired point, whereupon the barrel 1 is raised, by means of the tubing or pipe 8, as shown in Fig. 2. The upward movement of the barrel 1 will cause the inner conical member 9 to force the outer conical member 10 outwardly, so that the projections 12 thereof will engage with the tubing 15, it being noted that the outer conical member 10 is yieldable, this result being acquired, when desired, by splitting the member 10, as shown at 16. As the barrel 1 moves upwardly, within the inner conical member 9, to cause the outer conical member 10 to expand radially, as hereinbefore described, the tubular packing 14 will be pressed against the butt end of the conical member 9, and the flaring end 3 of the barrel 1 will enter the packing 14, expanding the same against the tubing 15, and effecting a closure between the barrel 1 and the tubing 15.

When the parts are positioned as hereinbefore described, the cement, preferably in the form of a thin grout is forced downwardly through the supply pipe 8, into the interior of the barrel 1, and out of the barrel 1 through an opening 18 in the bottom 2, which opening 18 is closed by a valve head 19, carried by a stem 20, the valve head 19 being forced into a closed position by means of a spring 21, bearing at one end

against the bottom 2 of the barrel, and at the other end bearing against a suitable head 22, outstanding from the stem portion 20 of the valve, in which spring 21 the valve stem 20 is slidable. The valve head 19 closes toward the supply pipe 8, and obviously permits the cement to pass downwardly through the device, without permitting the cement to pass in an opposite direction. When the cement is hardened sufficiently, the supply pipe 18 is unthreaded from the closure 4. The device is preferably fashioned from cast iron, and consequently may be drilled out readily when desired.

It will be readily understood that should it be desired to close the tubing 15, above the barrel 1, a mass of cement may be deposited upon top of the closure 4. This operation is peculiarly desirable when, as is often the case, there exists at the bottom of the well gas, rapidly flowing water or the like, preventing a proper hardening of the cement, when the same is deposited at the bottom of the tubing, as shown in Fig. 2.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, a barrel provided at its lower end with a downwardly flared portion; cooperating inner and outer wedges upon the outside of the barrel, the outer wedge having its wider end disposed upwardly and the inner wedge having its wider end disposed downwardly; and a resilient packing surrounding the barrel; the inner wedge being actuatable by

the barrel, when the barrel is lifted, to expand the outer wedge radially of the barrel, and to cause the wider end of the inner wedge to engage the packing, thereby to crowd the packing downwardly upon the flared lower portion of the barrel, and to expand the packing radially.

2. In a device of the class described, a barrel; a supply pipe entering the top of the barrel; a valve in the bottom of the barrel, opening away from the supply pipe; and mechanism upon the outside of the barrel and operable when the barrel is moved by means of the supply pipe to effect a sealing of the space surrounding the barrel.

3. In a device of the class described, a barrel provided with a flaring lower end; a supply pipe entering the top of the barrel; a valve in the bottom of the barrel, opening away from the supply pipe; inner and outer conical sleeves surrounding the barrel; a yieldable packing surrounding the barrel; the barrel being liftable, by means of the supply pipe, to cause the inner sleeve to expand the outer sleeve radially, and to cause the inner sleeve to engage the packing, to force the packing upon the flared end of the barrel, thereby to expand the packing radially.

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

REUBEN C. BAKER.

Witnesses:

J. A. STEELE,
W. L. HAZEN.