A. D. WESTBROOK.

VALVE-CUPS FOR OIL-WELLS.

No. 194,279. Patented Aug. 14, 1877.

Fig. 1.

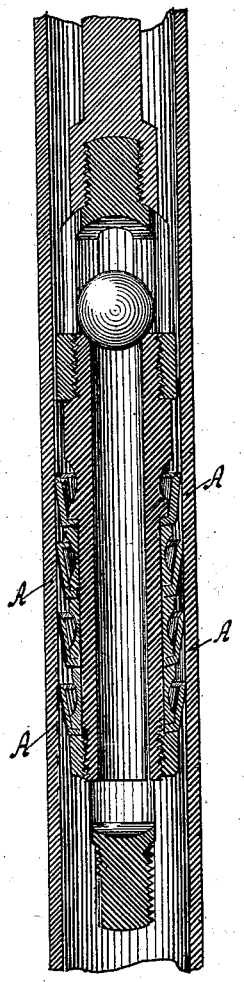
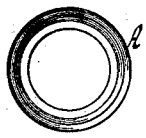


Fig. 2.



Witnesses.

Otto Schupland.

Chas. Wahlers.

Inventor:

Abraham D. Westbrook.

by

Van Santwood & Hauff

his attorneys.

UNITED STATES PATENT OFFICE.

ABRAHAM D. WESTBROOK, OF LAMBERTVILLE, NEW JERSEY.

IMPROVEMENT IN VALVE-CUPS FOR OIL-WELLS.

Specification forming part of Letters Patent No. **194,279**, dated August 14, 1877; application filed May 31, 1877.

To all whom it may concern:

Be it known that I, ABRAHAM D. WESTBROOK, of Lambertville, in the county of Hunterdon and State of New Jersey, have invented a new and useful Improvement in Valve-Cups for Oil-Wells, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a sectional side view of the plunger of an oil-pump provided with my valve-cups. Fig. 2 is a detached plan of one of the valve-cups.

Similar letters indicate corresponding parts.

In pumps for oil-wells the packing of the plungers consists of a series of valve-cups, which are secured one above the other in the manner shown in Fig. 1 of the drawing, said plunger being hollow, and provided with an ascension-valve in its upper part.

The valve-cups are usually made of leather, which is pressed or stamped up to the required form; but these leather cups are a constant source of trouble and annoyance, since the sand or grit mixed with the oil is liable to cut up said leather cups in a short time, so that the plungers have to be drawn at short intervals for the purpose of inserting fresh valve-cups.

The time consumed in the operation of drawing the plunger, supplying it with fresh valve-cups, and placing it back into the pipe which forms the pump-barrel, is absolutely lost, and, furthermore, the expense for the requisite number of fresh valve-cups is not trifling.

These difficulties and disadvantages have been overcome in a great measure by my invention, which consists in a valve-cup for oil-wells, made of gutta-percha.

Gutta-percha can easily be molded into the required shape and secured to the plunger of the pump in the same manner as the ordinary leather cup. Furthermore, I have tried my gutta-percha cup A side by side with leather cups in the same plunger, and I have found that one gutta-percha cup outlasts three leather cups. The gutta-percha is not softened by the oil, the sand mixed with the oil does not affect my gutta-percha cups half as bad as it does the leather cups; the operation of the pump need not be interrupted for a comparatively long time, and much time, labor, and expense are saved.

The valves are made of gutta-percha, so as to secure a substance that will retain a sufficient degree of hardness and be comparatively insoluble when subjected to the action of the products of petroleum, the result being, after actual test, that said valves as thus constructed perform admirably the functions, and can be longer used than when india-rubber is employed, for, even if india-rubber valves were vulcanized, they would soon become soft and be partially dissolved in the products of petroleum, and hence are entirely unfit for use in oil-wells. This fact will be apparent, since it is well known that belts made of vulcanized india-rubber are softened and rendered useless by common lubricating oil in connection with the friction to which said belts are exposed. A valve-cup made of vulcanized india-rubber being exposed to constant friction in the pump-barrel, and being, furthermore, immersed in a hydrocarbon liquid much more liable to attack the india-rubber than ordinary lubricating oil, cannot last for any length of time.

What I claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture, the plunger for oil-wells, consisting of a series of gutta-percha cup-shaped disks secured around the hollow plunger, as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of May, 1877.

A. D. WESTBROOK. [L. S.]

Witnesses:

J. VAN SANTVOORD,

E. F. KASTENHUBER.