M. T. McCORMICK.

Drop-Weights for Oil-Wells.

No. 200,144. Patented Feb. 12, 1878.

FIG.1.

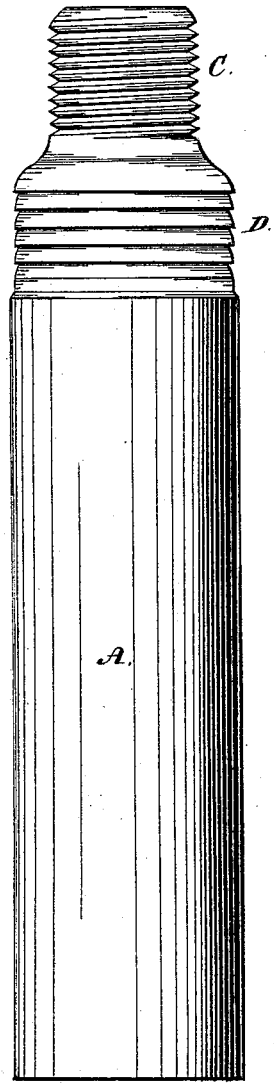
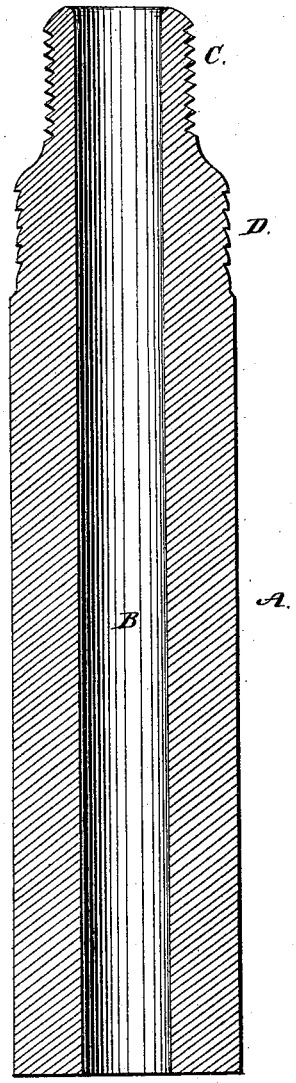



FIG.2.




WITNESSES

R. H. Lacey

Saml. R. Turner

INVENTOR

Mark T. McCormick

By R. S. & A. Lacey

ATTORNEYS

# UNITED STATES PATENT OFFICE.

MARK T. McCORMICK, OF PETROLIA, PENNSYLVANIA.

## IMPROVEMENT IN DROP-WEIGHTS FOR OIL-WELLS.

Specification forming part of Letters Patent No. **200,144**, dated February 12, 1878; application filed July 28, 1877.

*To all whom it may concern:*

Be it known that I, MARK T. McCORMICK, of Petrolia, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Drop-Weights for Oil-Wells; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in drops for oil-wells of the class described in Letters Patent issued to me November 14, 1876, No. 184,254, and March 27, 1877, No. 188,746.

I have been long experimenting in the matter of reviving or renewing old wells in which the oil has ceased or partially ceased to flow. My earlier experiments led me to conclude that a heavy weight so constructed and dropped onto the oil or fluid in the bottom of the well as to cause a forcible movement of said fluid would open the closed pores in the oil-rock, and, as a consequence, there would follow an increased flow of oil. These experiments led me to take out Letters Patent No. 184,254, and later experiments led to the taking out of Letters Patent No. 188,746. Since the issue of the last-named patent I have continued my experiments, which have been attended with success, and have shown me that the devices described in the above-named patents, while partially successful, were not wholly satisfactory.

My present device, a perspective of which is shown in Figure 1, and a vertical section in Fig. 2, consists of a heavy weight, A, having a clear unobstructed channel, B, through its center.

In Letters Patent No. 188,746, when the plug was removed there was left an inwardly-projecting shoulder, which was an obstacle to the free passage upward of the fluid, and on comparative experiments with that and the device shown in this application, I found that this gave far better results.

When the weight A (shown in the drawings) is dropped into a well, the fluid will sometimes be thrown through the unobstructed channel B with such force as often to reach to the top of the well. This result I account for on the hypothesis that the air or gas is compressed before the descending weight, and when the latter reaches the oil or fluid, it acts on the principle of the air-gun, and, exploding through the channel B, carries portions of the fluid before it to the surface of the ground.

The weight, when it descends through the oil, has a rapid motion, which gives that agitation necessary to open the pores in the oil-rock.

I obtain my best results when there are from fifty to one hundred feet of fluid in the well. In some wells, where the quantity of oil or fluid was small, I have found it of great advantage to fill the well up fifty to one hundred feet with benzine or other suitable fluid before I dropped in my weight.

The weight A, after being dropped into the well, can be raised by any ordinary spear, well known in the oil-regions, and employed for raising tubing from wells.

In order to adapt my weight to the various kinds of grabs employed, I have constructed it with a threaded pin, C, on its upper end, which is adapted to receive the pin-socket of ordinary construction. The pin C is made hollow, as shown, so as to present no obstruction to the channel B.

In dropping the weight into very deep wells, the concussion on the oil is so great as often to cause the pin C to break. To provide against this contingency, I have formed around the upper end of the weight a series of grooves or channels, D. A collar-socket may be passed, and the weight be thus grappled and raised from the well. There may be formed but one of these channels D; but I prefer a number of them, as shown, to insure better results.

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

1. A drop-weight for oil-wells, with a clear unobstructed channel through its center, substantially as set forth.

2. A drop-weight for oil-wells, formed with a central bore, B, and provided with a hollow pin, C, on its upper end, substantially as and for the purpose set forth.

3. A drop for oil-wells, constructed with a

central vertical bore, B, and with an annular groove or series of grooves, D, formed around its upper end, substantially as and for the purpose set forth.

4. A drop, A, for oil-wells, constructed with a central vertical bore, B, and with a hollow pin, C, on its top, and groove or grooves D formed around its upper end, substantially as and for the purposes set forth.

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

MARK T. McCORMICK.

Witnesses:
P. B. TURPIN,
N. J. OSGOOD.