M. T. McCORMICK.

OIL-WELL WALL CLEANER.

No. 188,746. Patented March 27, 1877.

Fig 1.

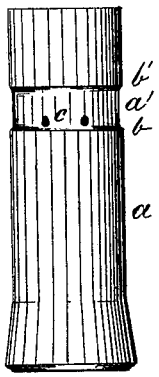


Fig 2.

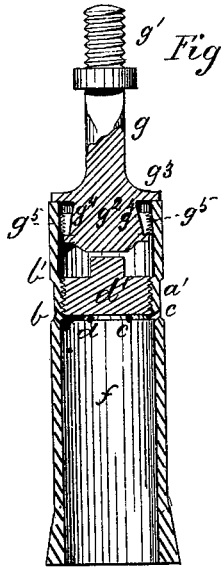
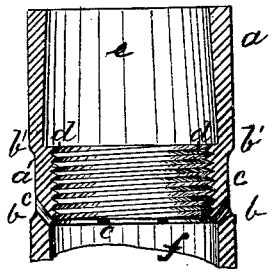


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

MARK T. McCORMICK, OF PETROLIA, PENNSYLVANIA.

IMPROVEMENT IN OIL-WELL-WALL CLEANERS.

Specification forming part of Letters Patent No. **188,746**, dated March 27, 1877; application filed November 23, 1876.

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 Oil-Well Renovator and Wall-Cleaner; 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.

My invention relates to improvements of the invention shown in Letters Patent No. 184,254, bearing date November 14, 1876, granted to me for oil-well-wall cleaner.

It consists in forming the weight of a hollow cylinder, in which is placed a removable plug, and having an external annular indentation or groove, with shoulders and perforations, as hereinafter fully explained.

In the drawings, Figure 1 is a side elevation. Figs. 2 and 3 are vertical sections of the weight.

A weight having a broad face on its under end will adhere to the bottom of the well, and be difficult to raise.

There is often an accumulation of gas above the fluid in an oil-well, which will seriously obstruct the descent of a solid weight.

A solid weight having projecting edges or shoulders below the point where the grappler takes hold, will often be difficult to raise, because of the interference between said projecting shoulders and the walls of the well.

These difficulties are overcome in this invention.

a is the weight, which is a hollow cylinder, having its lower end made slightly flaring by increasing the thickness of the metal, as shown. By means of suitable machinery an annular indentation, *a'*, with shoulders *b b'*, is made. Two or more of these indentations may be made, if desired, care being taken to place the upper one far enough below the top of the weight, so as to allow ample room for the operation of a suitable grappler in the upper end of the cylinder.

d is an internal annular projection, formed opposite, and corresponding to, the indentation *a'*. It is threaded, as shown, so as to receive the threaded plug *d'*, which, when inserted, is turned in till its under face is on a line with the shoulder *b*. The plug *d'* separates the cylinder into the two compartments *e* and *f*.

The compartment *e* is made slightly less in diameter at its top than at the bottom, in order to insure the perfect action of the grappler when the latter has been let down into the weight. The fluid surrounding the weight and filling the compartment *f* will hold the said weight steadily in an upright position on the bottom of the well.

From the under side of the projection *d* is formed a series of perforations, *c*, arranged around the weight and extending upward and outward, opening on top of the shoulder *b*, as shown.

The weight is made to fit loosely in the well, and when there is no gas above the fluid the plug *d'* is inserted, as shown in Fig. 2. It is dropped into the well, and, striking the fluid, the latter is forced up through the chamber *f* and out of the openings *c* in inclined jets, which strike the walls of the well at an acute angle, and are thrown inward and caught by the shoulder *b'*, and turned downward in the space *a'*, and form a forcible eddy which removes obstructions from the walls.

The bell-shaped lower end acts to cause a forcible movement of the fluid upward between its outer rim and the wall, which movement removes much of the obstructing substances.

When gas is accumulated above the fluid the plug *d'* is removed, in which case the fluid, being contracted or confined to the narrow opening, is thrown upward forcibly, and, spreading out over the top of the weight, is thrown into sufficient commotion to cleanse the walls with the aid of the action of the bell-shaped lower end of the weight.

The device is more effectual and rapid in its results when the plug *d'* is inserted, but with the plug removed it will secure the desired result by more frequent applications.

The weight, after being dropped into the well, is raised by any suitable grappler or tube-clamp.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

The hollow weight *a*, provided with an annular indentation or groove, *a'*, collars or shoulders *b b'*, perforations *c*, internal annular projection *d*, threaded, as shown, and the threaded plug *d'*, adapted to be screwed into the projection *d*, and having a bell-shaped lower end, substantially as and for the purpose set forth.

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

MARK T. McCORMICK.

Witnesses:
R. T. PETTIT,
GEORGE E. EMMONS.