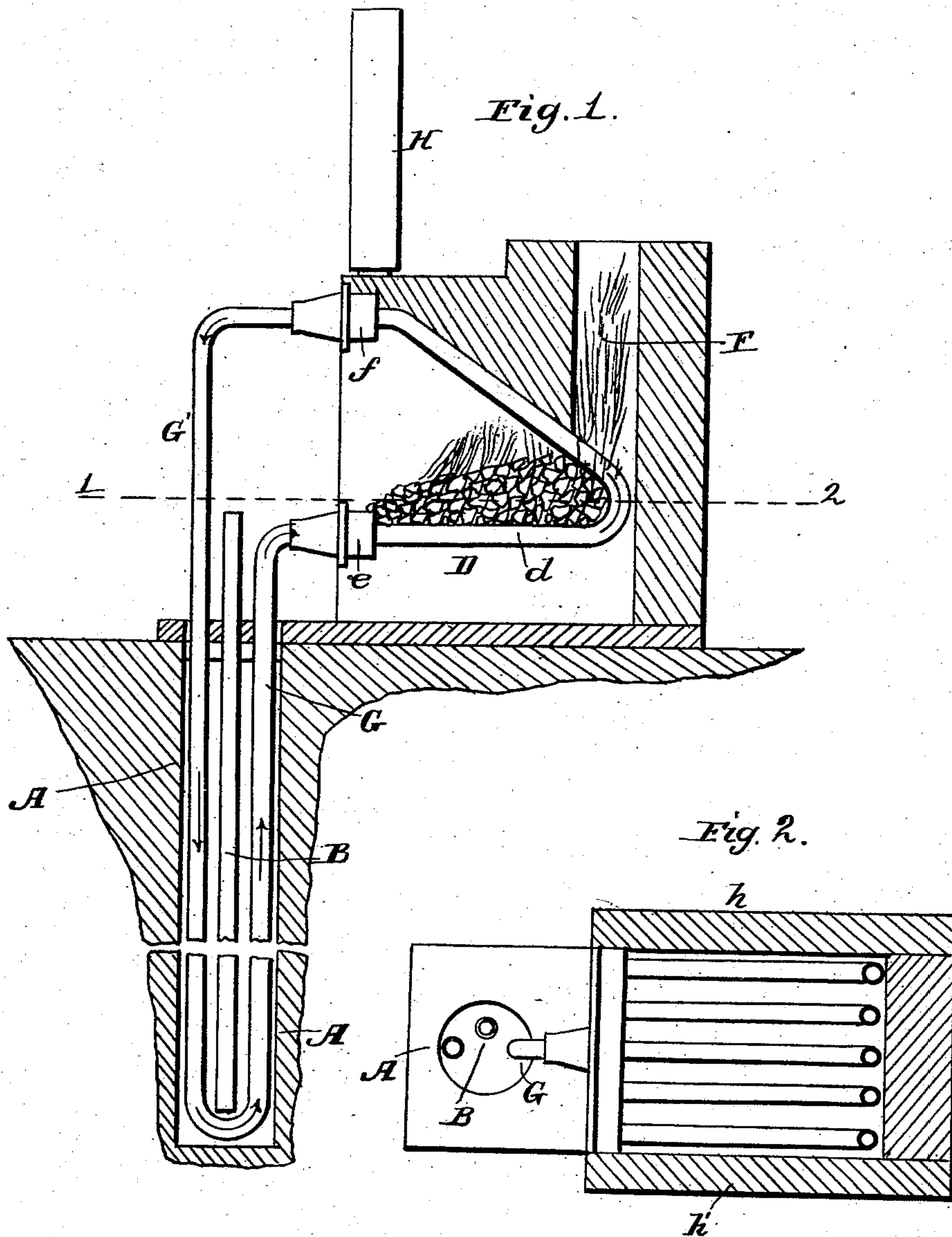


PHLEGER & LOBDELL.

Obtaining Oil from Wells.

No. 56,989.

Patented Aug. 7, 1866.



Witnesses:
 Wm. Albert Steel.
 John Parker

Inventors:
 L. Phleger and
 J. G. Lobdell
 By their Attys.
 W. Howson

UNITED STATES PATENT OFFICE.

L. PHLEGER, OF PHILADELPHIA, PENNSYLVANIA, AND GEORGE G. LOBDELL,
OF WILMINGTON, DELAWARE.

IMPROVEMENT IN OBTAINING OIL FROM WELLS.

Specification forming part of Letters Patent No. **56,989**, dated August 7, 1866; antedated August 2, 1866.

To all whom it may concern:

Be it known that we, L. PHLEGER, of Philadelphia, Pennsylvania, and G. G. LOBDELL, of Wilmington, Delaware, have invented a Mode of Reopening Obstructed Crevices in Oil-Wells; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention consists in the application to an Artesian oil-well, substantially in the manner described hereinafter, of a pipe through which a continuous circulation of hot water is maintained for the purpose of imparting sufficient heat to the oil or water in the well to melt the paraffine which frequently obstructs crevices in the oil-bearing strata.

In order to enable others to make and apply our invention, we will now proceed to describe the manner of constructing and using the same.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of our apparatus for reopening the crevices of Artesian oil-wells, and Fig. 2 a sectional plan view of the same.

It has been ascertained that the crevices through which petroleum flows from oil-bearing strata into Artesian wells are frequently obstructed by paraffine, which become separated from the oil and lodges in the said crevices.

The object of our invention is to melt the paraffine which thus obstructs the flow of oil, and to thereby reopen the crevices and render the wells more-productive.

A represents an ordinary Artesian oil-well, and B the usual tube through which the oil is pumped to the surface. D is a fire-grate composed of any desired number of tubes *d* bent to the form or approximating to the form represented in Fig. 1, the end of the lower portion of each tube being secured to and communicating with a metal box, *e*, and the end of the upper portion of the tube being secured to a similar box, *f*.

The opposite ends of these boxes are built into the side walls, *h* and *h'*, of the fire-place, at the rear of which is built a chimney, F. One end of a pipe, G, communicates with the lower box, *e*, and extends down the well, at

or near the bottom of which it is bent upward, is continued above the surface of the ground, and communicates with the upper box, *f*.

The pipe G, as well as the tubular grate and the boxes *e* and *f*, are filled with water, as is also the reservoir H, which communicates with the upper box, the contents of this reservoir serving to supply any deficiency which may occur through the leakage of the pipes, &c.

Fuel is placed on the grate D, as seen in Fig. 1, and when ignited imparts such a heat to the tubes *d* and boxes *e* and *f* as to cause a continuous circulation of hot water in the direction of the arrows. Heat is consequently imparted to whatever water or oil there may be in the well, and this heat melts the paraffine which has lodged in the crevices, thereby clearing the latter and permitting the oil to flow freely into the well.

We are aware that pipes in which a current of heated steam is maintained are used for heating liquids, &c.; and we are also aware that hot water and steam have been discharged into oil-wells for the purpose of melting the paraffine.

Steam, however, could not be substituted for water in the above-described apparatus, as the length of the pipe G is such that the steam would be condensed, and, collecting in a liquid form in the bend of the pipe, would obstruct the circulation.

The direct discharge of hot water or steam into the well is objectionable, as it is expensive to heat the large quantity of water required, while the water collects in the well in such quantities that it cannot be maintained for any length of time at the required temperature, and must be pumped out, an operation requiring considerable time and labor.

It will be seen that in the above-described apparatus the water, instead of being mixed with the oil, is returned to the heating apparatus, so that the oil only has to be pumped from the well, while a considerable saving of fuel is effected by the reuse of the return-water, which is already partly heated.

We do not desire to claim, broadly, melting the paraffine in an oil-well by the application of either hot water or steam; nor do we desire to confine ourselves to a furnace and tubular grate constructed as described, inas-

much as a differently-constructed furnace and boiler might be used for effecting the desired purpose; but

We claim as our invention and desire to secure by Letters Patent—

Inducing the flow of oil from a well by melting the paraffine by the application of heat from hot water conveyed in a circuit through a pipe, substantially as shown and described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

L. PHLEGER.
GEORGE G. LOBDELL.

Witnesses:

W. I. MORROW,
H. M. HAUGHEY.