July 9, 1929. N. O. MILLER 1,720,049

PARAFFIN SCRAPER

Filed Nov. 20, 1926

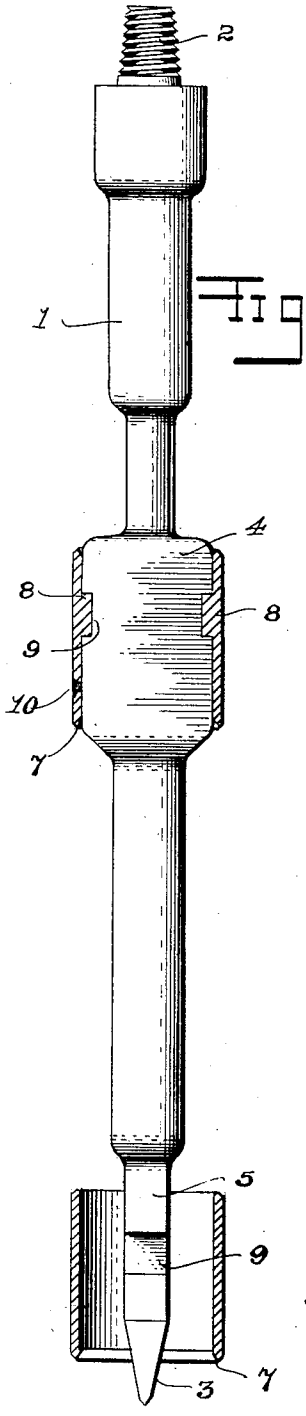


Fig. 1.

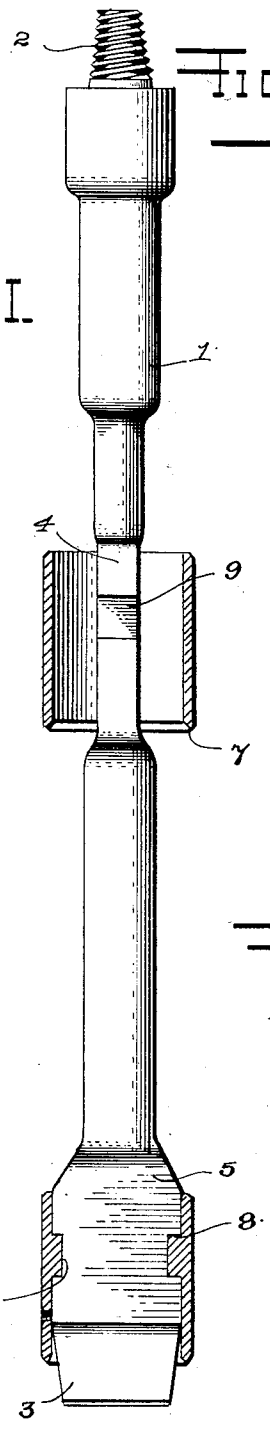


Fig. 2.

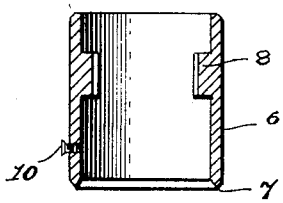


Fig. 3.

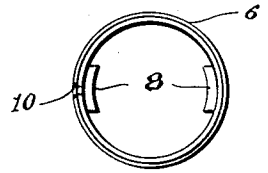


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PARAFFIN SCRAPER.

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This invention relates to oil well cleaners and has particular reference to the removal of paraffin and the like from the walls of the casing or tubing.

As is well understood by those skilled in the art paraffin collects on the various parts of well apparatus and frequently reduces if it does not entirely stop the flow of oil from the well. Many mechanical devices have been devised for eliminating this paraffin but they have generally been objectionable in that their use required that the flow of oil first be stopped, and the paraffin after being removed from the walls of the well would gravitate to the bottom of the well and present further obstruction to the oil flow. Other prior devices have been objectionable in that they were formed partly of rubber or other materials requiring frequent replacement; or else were too complicated or to frail for practical use.

Accordingly it is an object of the present invention to provide a paraffin scraper which is strong and durable in operation and composed of few parts.

Another object of the invention resides in the construction of a scraper which may be used without interrupting the natural flow of the oil, thereby permitting the oil flow to carry off the paraffin as rapidly as it is removed from the tubing walls.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawings, in which:

Figure 1 is a longitudinal section through the device, the stem being shown in elevation.

Figure 2 is a view similar to Figure 1 but at right angles thereto.

Figure 3 is a vertical section through one of the scraper elements, and;

Figure 4 is a plan view of one of the elements.

Referring to the drawing in greater detail the numeral 1 indicates an elongated rod preferably circular in cross section and provided at its upper end with a tool joint 2 by which it may be connected to the usual pumping rod of the well. The lower end of the member 1 is tapered as indicated by the numeral 3 to facilitate the flow of oil upwardly and also to avoid obstruction to the upward passage of the loosened paraffin.

Intermediate its ends the rod 1 is provided with a flattened portion 4 which is shown as substantially rectangular in outline although other shapes may be employed if desired. Adjacent the lower end of the rod a similar rectangular flattened portion 5 is also formed, but it should be noted that the two flattened portions 4 and 5 are formed in planes at right angles to each other, the purpose of which is to avoid weakening the rod as well as to permit a free contact of the scraping members on all parts of the well tubing as will be disclosed hereinafter.

The scraping members are indicated by the numeral 6 and are disclosed in detail in Figures 3 and 4. Each of these members comprises a cylindrical portion provided with a lower tapered edge 7 and diametrically opposed internal lugs 8. These cylindrical elements are slid over the rod 1 until their lugs 8 are in the plane of the notches 9 formed in the edges of the rectangular flattened portions when the members are rotated so as to bring the lugs 8 into these notches. When so positioned the set screw 10 shown in Figures 3 and 4 is tightened up so that the cylindrical members are firmly and securely fastened to the rod.

By having the lower end of the rod tapered as indicated by numeral 3 and also due to the tapered ends 7 of the cylinders, no obstruction is presented to the upward movement of the paraffin which is loosened from the walls of the well tube. Furthermore, by having the anchoring means for the cylindrical members; i. e., the flattened portions 4, arranged at right angles to each other it will be obvious that a clear and unobstructed portion of these cylinders is adapted to contact all parts of the well tubing and permit a thorough removal of all paraffin adhering thereto.

It will also be obvious that by the construction herein described the well may be thoroughly cleared of paraffin while the natural flow of oil continues upwardly thereby permitting the natural ejection of the loosened paraffin from the well which might otherwise settle to the bottom of the well cavity and close the fissures at the bottom thereof.

From the foregoing description taken in connection with the accompanying drawings, it will be observed that I have devised a simple and inexpensive paraffin scraper which is strong and durable in operation, is composed of relatively few parts which may

be readily and securely assembled, and that it permits cleaning of the well while still flowing without any obstruction whatever and thus allows the natural flow of the well to carry the loosened paraffin out through the top thereof.

In accordance with the patent statutes I have described what I now believe to be the best embodiment of the invention, but I do not wish to be understood thereby as limiting myself or the scope of the invention as many changes and modifications may be made without departing from the spirit of the invention; all such I aim to include within the scope of the appended claims.

I claim:

1. A paraffin scraper for oil well tubes and the like including a rod provided with a flattened portion having notches in the edges thereof, a cylindrical member encircling said rod, and lugs formed on the inner wall of said cylindrical member and positioned within said notches.

2. A paraffin scraper for oil well tubes and the like including a rod provided with a flattened portion having notches in the edges thereof, a cylindrical member encircling said rod, lugs formed on the inner wall of said cylindrical member and positioned within said notches and a set screw for locking said member against turning movement with respect to said rod.

3. A paraffin scraper for oil well tubes and the like including a rod provided with a substantially rectangular flattened portion having transverse notches in the longitudinal edges thereof, a cylindrical member encircling said rod, and lugs on the inner wall of said member and positioned within said notches.

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