

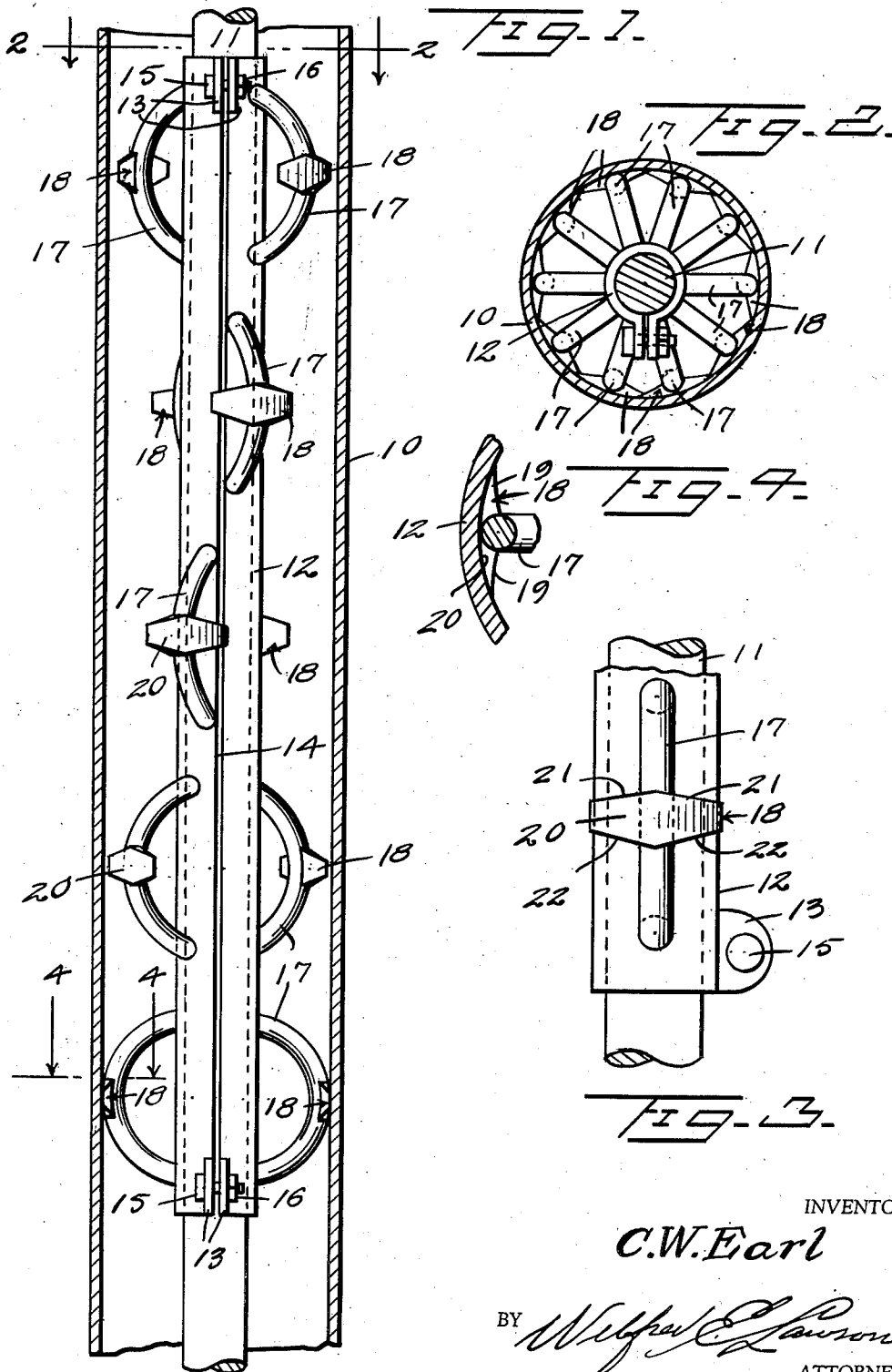
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C. W. EARL

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SCRAPER FOR REMOVING PARAFFIN FROM OIL WELL PIPES

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INVENTOR

C.W. Earl

BY

Wilfred E. Larson

ATTORNEY

UNITED STATES PATENT OFFICE

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SCRAPER FOR REMOVING PARAFFIN FROM
OIL WELL PIPES

Charles W. Earl, Seminole, Tex.

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3 Claims. (Cl. 166—18)

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This invention relates to tools for maintaining pipes in oil wells, through which the oil flows from the well, in good working condition. A hard sticky mass forms and accumulates inside the pipe of an oil well so that oil is prevented from flowing freely through the pipe.

Heretofore this hard sticky mass was removed from such pipes by a steaming process, which entails the removal of the clogged up pipe from the well and then treating it with hot solutions, which melt and wash out the paraffin collected inside the pipe.

The primary object of the invention is to provide a tool adapted to remove the accumulated hard sticky mass from an oil well pipe without having to pull said pipe out of the well.

Another object of the invention is to provide a tool of the character indicated above comprising a sucker rod adapted to be reciprocated axially in the pipe and a plurality of scraping knives removably secured about the sucker rod and fitting the inside contour of the pipe.

A further object of the invention is to provide a tool of the character indicated above, each scraping knife of which is mounted or formed on a bracket which in turn is secured on a means for clamping the bracket onto the sucker rod.

An additional object of the invention is to provide a tool of the character indicated above, the scraping knives of which are disposed on and in spiral arrangement about the sucker rod and equidistantly spaced from each other, so that they engage the entire interior surface of the pipe when the tool is reciprocated in the pipe.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved scraper for removing paraffin from oil well pipes whereby certain advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein:

Figure 1 is a front view in elevation of the tool in accordance with the invention shown located in an oil well pipe.

Figure 2 is a view in section taken on the line 2—2 of Figure 1.

Figure 3 is a side view in elevation of the lower portion of the tool as shown in Figure 1.

Figure 4 is a view in section taken on the line 4—4 of Figure 1.

The tool in accordance with the invention for removing accumulated sediment from the inside surface of an oil well pipe 10, or the like, com-

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prises a rod 11, commonly called a sucker rod. The diameter of this rod 11 may vary in accordance with the size of the pipe 10 in the well.

A split pipe 12 encases the sucker rod 11 and is provided with nearly radially extending clamping lugs 13 disposed adjacent to the edges of the longitudinal slot 14, and to the two ends of said pipe. A bolt 15 extends through each pair of oppositely arranged clamping lugs 13 and a nut 16 on each bolt, when tightened, urges the clamping lugs toward each other thereby securing the pipe 12 removably on the sucker rod.

A plurality of semi-circular brackets 17 are secured on the split pipe 12 in any suitable manner. The semi-circular brackets 17 are disposed on the split pipe 12 so that the ends of each bracket about the pipe and are located vertically above each other, when the split pipe 12 is in working position inside the well pipe 10. The brackets 17 are further arranged in pairs, that means so that two brackets are located diametrically opposite to each other and at the same level with other on the split pipe 12. The several pairs of brackets 17 are spaced equidistantly from each other at different levels and extend radially from the split pipe 12 so that adjacent pairs of brackets form equal angles with each other.

On the outermost portion of each bracket 17 a scraping knife 18 is formed or secured in any suitable manner and each scraping knife 18 has two blades 19 the outer surfaces of which form a continuous arc fitting against the inner surface 20 of the well pipe 10. The upper and lower outer edges 21 and 22 respectively of the blades 19 are the scraping edges and when the sucker rod 11 of an assembled tool in accordance with the invention is reciprocated upwardly and downwardly in the well pipe 10, the scraping edges 21 and 22 engage the mass accumulated on the well pipe and scrape it off. In order to push the removed broken portions of the mass sideways the blades 19 are tapering outwardly as shown best in Figures 1 and 3 so that the upper scraping edges 21 as well as the lower scraping edges 22 of each knife 18 form an obtuse angle with each other.

The broken and scraped off pieces of sediment are removed from the well pipe 10 either by the pressure of the gas or oil flowing through said pipe or by a fluid forced under pressure through the pipe and forcing said sediment pieces upwardly out of the pipe 10.

I claim:

1. A tool of the class described including a sucker rod adapted to be reciprocated in a well pipe, a split pipe fitting loosely on the rod, a pair of oppositely disposed clamping lugs on and

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extending diametrically from the split pipe in the same direction, a bolt extending through the lugs and adapted to clamp the split pipe securely but removably onto the rod, a plurality of pairs of brackets secured on the split pipe at different equidistantly spaced levels, the brackets of each pair extending diametrically opposite to each other from the split pipe and the brackets of adjacent bracket pairs forming equal angles with each other, and a scraping knife secured to each bracket.

2. A tool of the class described including a sucker rod adapted to be reciprocated in a well pipe, a split pipe fitting loosely on the rod, a pair of oppositely disposed clamping lugs on and extending diametrically from the split pipe in the same direction, a bolt extending through the lugs and adapted to clamp the split pipe securely but removably onto the rod, a plurality of pairs of brackets secured on the split pipe at different equidistantly spaced levels, the brackets of each pair extending diametrically opposite to each other from the split pipe and the brackets of adjacent bracket pairs forming equal angles with each other, and a scraping knife secured to each bracket, each scraping knife having a continuous outer surface extending to both sides of the bracket and fitting against the inner surface of the well pipe.

3. A tool of the class described including a sucker rod adapted to be reciprocated in a well pipe, a split pipe fitting loosely on the rod, a pair of oppositely disposed clamping lugs on and extending diametrically from the split pipe in the

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same direction, a bolt extending through the lugs and adapted to clamp the split pipe securely but removably onto the rod, a plurality of pairs of brackets secured on the split pipe at different equidistantly spaced levels, the brackets of each pair extending diametrically opposite to each other from the split pipe and the brackets of adjacent bracket pairs forming equal angles with each other, and a scraping knife secured to each bracket, each scraping knife having a continuous outer surface extending to both sides of the bracket and fitting against the inner surface of the well pipe, the upper and lower edges of the outer surface of each scraping knife forming a scraping edge and the upper scraping edges as well as the lower ones forming an obtuse angle so that the outer surface of each knife tapers laterally.

CHARLES W. EARL.

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