

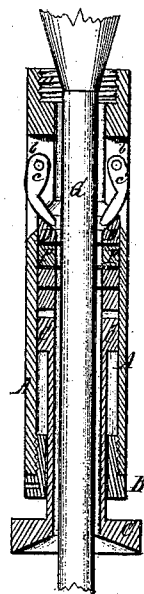
*J. H. Luther,*

*Rod Cutter.*

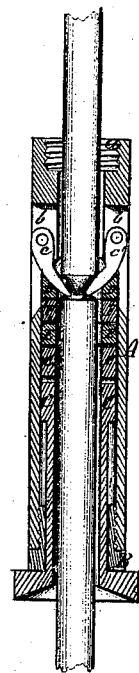
*No. 111,221.*

*Patented Jan. 24. 1871.*

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*

*R. Ball*  
*H. G. Smith*

*James H. Luther, Inventor*

*by A. D. McEntire & Co*

*his Attorneys.*

# United States Patent Office.

JAMES H. LUTHER, OF PETROLEUM CENTRE, PENNSYLVANIA.

Letters Patent No. 111,221, dated January 24, 1871.

## IMPROVEMENT IN TOOLS FOR CUTTING OFF AUGER-STEMS IN OIL-WELLS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, JAMES H. LUTHER, of Petroleum Centre, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Tools for Cutting Off Auger-Stems, &c., in Oil-Wells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making a part of this application.

My invention has for its object the production of a tool for cutting off auger-stems in oil-wells, and consists in a hollow tool adapted to be passed over and around the stem to be cut, and so constructed as to have the cutters pressed against the stem by the contact of the bottom of the tool with any resisting object, as will be hereinafter more fully set forth.

It is well known that, in the boring of oil and other wells, the tools employed often become "stuck," and are incapable of being drawn out at all, or else, in the attempt to do so, are broken off, and, in either case, have to be cut and taken out above the obstruction, and then the obstruction removed and the balance removed. The means heretofore employed have been primitive and ineffectual. By the use of a tool embracing the features of my invention I am enabled to accomplish the ends successfully.

To enable others skilled to make and use my improved tool, I will proceed to describe the construction and operation of the same, referring by letters to the accompanying drawing, in which—

Figure 1 is a central vertical section, showing located within the tool an ordinary piece of pipe and the parts in position as they would be during the descent of the tool within the well;

Figure 2 is a similar section, showing the position of the parts during the cutting operation; and

Figure 3 is a perspective view of one of the pressers.

Similar letters of reference denote like parts in the several views.

A is a hollow tube or cylinder, having a screw-thread, at *a*, for connecting it with the power-shaft; it has, at its lower extremity, also, a screw-thread for retaining a collar or nut, B.

Near the top of this tube four or more equal numbers of slots, *b*, are cut entirely through, in which are pivoted two pressers and two cutters, the former represented by *c* and the latter by *c'*, (being opposite to each other or in the same diameter.)

C is a collar, having its upper end *C'* of about the same diameter as the bore of the tube A, and its lower end enlarged to something more than the outside diameter of the tube. These enlargements are

made by securing rings to the solid central portion, so that square shoulders are left, as seen. The lower one is secured by means of a screw-thread, so that the collar may be placed in position within the nut B, where it is free to move vertically, and prevented from dropping out by the shoulder formed at the upper end. The bottom of this collar is beveled inwardly to guide the tool over the end of the stem to be cut.

Within the tube A, and above the collar C, are arranged two or more loose rings, (three being shown.) The upper one D has its face reamed out toward the center, at an angle corresponding to the backs of the cutters and pressers, which are beveled.

E and F are friction-rings, which relieve the upper ring D from too much wear during the revolution of the tool.

The pressers are located directly opposite the cutters, and serve to support the stem centrally while it is being cut by the cutters.

G is an ordinary piece of piping or a round rod, enlarged at its top, (to prevent its dropping through,) and intended to prevent the inward movement of the cutters and pressers until the proper time.

H, in fig. 2, is intended to represent an auger-stem being operated upon.

The operation of my improved tool is as follows:

The parts being in position shown at fig. 1, with the piece of pipe or rod between the points of the pressers and cutters, and the collar C resting upon the nut B, and the rings D, E, and F on top of the collar, the tool is lowered by sections of the driving-shaft being added. When the top end of the stem to be cut is reached, it strikes the flared bottom of the collar C, and is guided to its center and passes within its bore, coming in contact with the rod or piece of pipe, which it forces up out of the way, and passes in between the points of the pressers and cutters, and the tool continues to descend until it meets an obstruction, when the collar C is forced up, and in turn carrying up the rings D E F, the former having its inclined face forced up behind or against the backs of the cutters and pressers, and thus forcing them inwardly toward the stem to be cut. The weight is now partially removed to prevent too great a pressure against the cutters, and the tool revolved, when the cutters begin their work and continue while the weight is gradually allowed to force them in until the stem is cut sufficiently far through to admit of its being easily wrenched or pulled in twain.

If the first obstruction met should be above the bottom of the well, the tool and the piece cut off are removed, and a spud sent down and the obstruction

cleaned away, when the tool is again lowered and its operation renewed, and so on until the stem is entirely recovered.

The pieces of stem cut off are removed by the use of what is known as a "grab."

Having described the construction and operation of my improved tool,

What I claim as new, and desire to secure by Letters Patent, is—

The cutter-cylinder or tube A, provided with the

internally-arranged cutters and pressers O O' and retaining-nut B, in combination with the rings D E F and collar C, all constructed and operating substantially in the manner and for the purposes set forth.

Witness my hand and seal to the foregoing specification this 9th day of June, A. D. 1870.

J. H. LUTHER. [L. S.]

Witnesses:

WM. C. MCINTIRE,

J. H. SYPHERD.