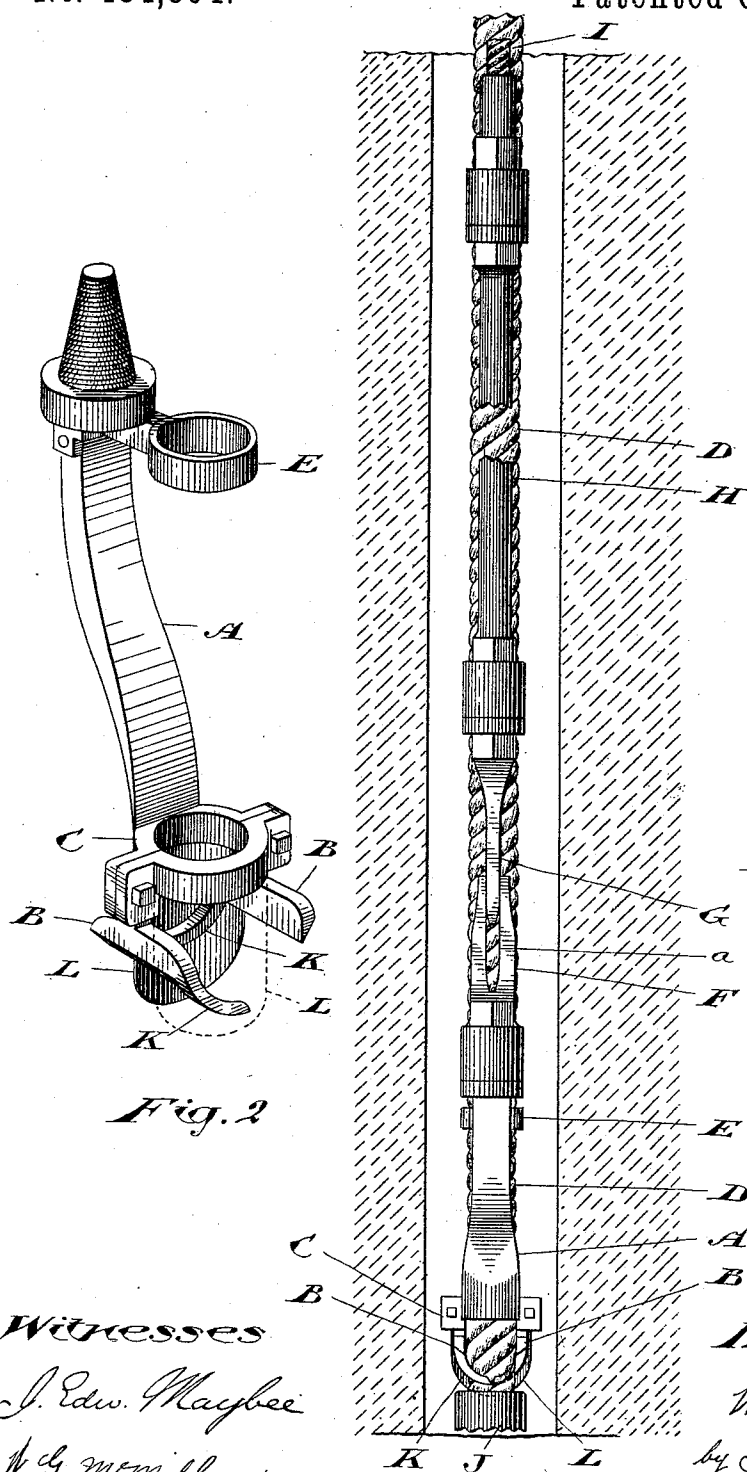


(No Model.)

W. A. LLOYD.
KNIFE FOR CUTTING THE ROPE USED IN BORING ARTESIAN AND OIL WELLS
No. 484,804.

Patented Oct. 25, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM A. LLOYD, OF PITTSBURG, PENNSYLVANIA.

KNIFE FOR CUTTING THE ROPE USED IN BORING ARTESIAN AND OIL WELLS.

SPECIFICATION forming part of Letters Patent No. 484,804, dated October 25, 1892.

Application filed January 21, 1892. Serial No. 418,830. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ALEXANDER LLOYD, of the city of Pittsburg, in the county of Allegheny, in the State of Pennsylvania, have
5 invented a certain new and Improved Knife for Cutting the Rope used in Boring Artesian and Oil Wells, of which the following is a specification.

The object of the invention is to construct
10 a knife by which the rope may without difficulty be severed close to the rope-socket; and it consists, essentially, of a knife-head connected to the end of a string of tools and loosely fitted upon the rope, and a pair of knives pivoted upon the end of the head, arranged to close
15 onto and sever the rope upon coming in contact with the rope-socket, substantially as hereinafter more particularly explained.

Figure 1 is a view showing my knife-head
20 connected to the end of a string of tools and fitted onto the rope which it is intended to sever. Fig. 2 is an enlarged perspective view of the knife-head and pair of knives.

In using the term "string of tools" I use a
25 trade name well known among well-borers; and it consists of a rope-socket, a stem, and a pair of jars, to which the knife-head is attached. I may explain that the stem is a heavy bar, which is used as a hammer, and
30 the pair of jars consists of two strong links connected together, so as to permit a free longitudinal movement between the two in order that the jar connected to the stem may be made to strike the jar connected to the knife-
35 head.

A is the knife-head, on the bottom of which two knives B are pivoted.

C is a circular guide formed on the knife-head A and designed to be a loose fit upon
40 the main rope D, which the knife is intended to sever. On the top of the knife-head A another guide E is formed, which likewise is a loose fit upon the main rope D.

F is a jar fixed to the knife-head A and
45 having a longitudinal slot *a* made in it to receive the jar G, through which a similar slot is made. This latter jar is connected to the bottom of the stem H, which is a heavy bar attached to the rope I, which extends to the
50 top of the well.

Should it become necessary to cut the main rope D, I place the knife-head A onto the

main rope D at the top of the well. I then drop it down the well, holding it by the rope I (commonly called the "sand-line") until the
55 hinged or pivoted knives B come in contact with the rope-socket J, when the knives B will be forced in against the rope D. The jars are then operated so as to impart a hammering or jarring pressure against the knives,
60 which quickly cut the rope, as desired. Although I show a pair of knives in the drawings, it will of course be understood that a single knife might be arranged to perform the service desired.

I may mention here that in all devices for
65 cutting the rope used in boring wells the knife or knives are pivoted upon a knife-head; but instead of hanging down from their pivots they stand above their pivots,
70 so that their cutting-edges lean toward or against the rope they are to cut, and the cutting is effected by pulling up the rope upon which the head is supported. It therefore follows that while the knife-head will
75 fall freely on the rope it cannot be raised without the knives cutting into the rope. By hanging my knife or knives upon their pivots the knife-head may be moved either up or down, as may be necessary, so that in the
80 event of their coming in contact with any temporary obstruction they may be moved up or down, so as to free themselves without cutting the rope before they reach the point where it is desired to sever it. In view of
85 their curved shape the knives when they come in contact with the rope-socket are closed toward the rope, and as they are hammered against the rope-socket they close in upon and force through the rope. It will be observed
90 that each knife B has a curved finger K projecting below it. This curved finger K is for the purpose of coming in contact with the rope-socket to force the cutting-edges of the knives into the rope before the cutting-edges
95 reach the rope-socket. Of course these fingers K are not absolutely necessary; but I prefer to form the knives with them on. In order to prevent the knives B being pulled toward the rope by coming in contact with some
100 projecting ledge in the hole, I provide a shield L, which projects below the fingers K, and thus fully protects the knives from the danger mentioned.

What I claim as my invention is—

1. An inwardly-curved knife hung upon a pivot on the end of a knife-head loosely held to the main rope and attached to a string of tools, substantially as and for the purpose specified.
2. A knife having an inwardly-curved finger extending below it, the said knife being hung upon a pivot on the end of a knife-head to the main rope and attached to the string of tools, substantially as and for the purpose specified.
3. An inwardly-curved knife hung upon a pivot on the end of a knife-head loosely held to the main rope and attached to a string of

tools, in combination with a shield attached to the knife-head and arranged to protect the knife, substantially as and for the purpose specified.

4. A pair of knives, each knife provided with an inwardly-curved finger and each knife hung upon a pivot opposite to each other on the knife-head, in combination with a shield or shields arranged to protect the said knives, substantially as and for the purpose specified.

Toronto, January 8, 1892.

WILLIAM A. LLOYD.

In presence of—

I. EDW. MAYBEE,
W. G. McMILLAN.