

No. 692,816.

Patented Feb. 11, 1902.

G. F. BELL.

KNIFE FOR CUTTING ROPES USED IN BORING ARTESIAN OR OIL WELLS.

(Application filed July 2, 1901.)

(No Model.)

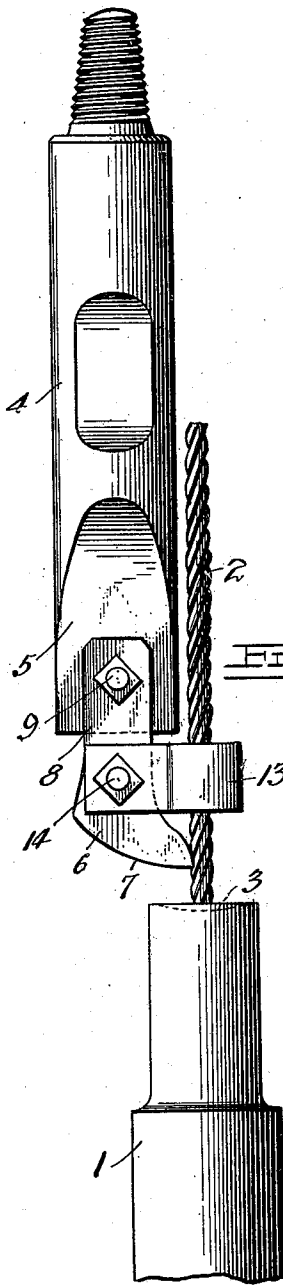


Fig. 1.

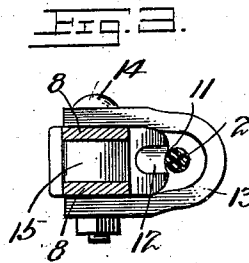


Fig. 3.

Fig. 2.

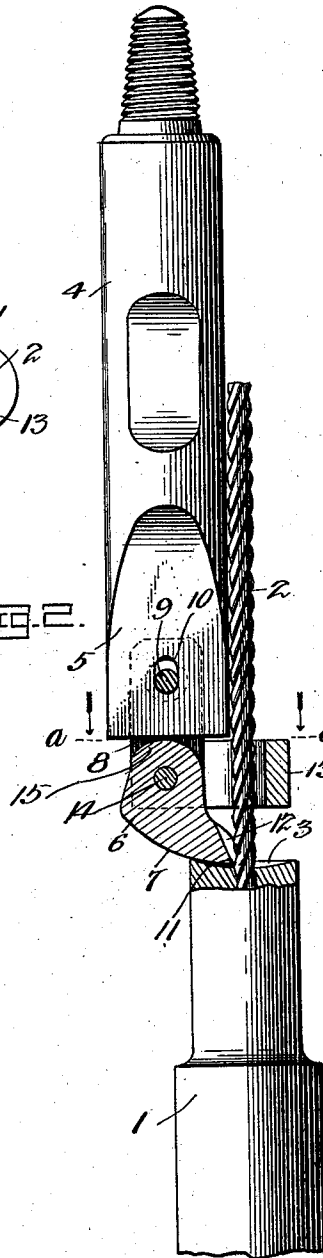
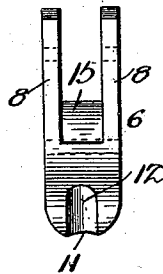


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE F. BELL, OF SISTERSVILLE, WEST VIRGINIA.

KNIFE FOR CUTTING ROPES USED IN BORING ARTESIAN OR OIL WELLS.

SPECIFICATION forming part of Letters Patent No. 692,816, dated February 11, 1902.

Application filed July 2, 1901. Serial No. 66,868. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. BELL, a citizen of the United States, residing at Sistersville, in the county of Tyler and State of West Virginia, have invented a new and useful Knife for Cutting the Rope Used in Boring Artesian or Oil Wells, of which the following is a specification.

My invention is an improved knife for cutting the rope used in boring Artesian and oil wells; and it consists in the peculiar construction and combination of devices herein after fully set forth and claimed.

The object of my invention is to provide an improved knife of the class described which is efficient for cutting a wire rope when the same becomes necessary in boring an Artesian or other well.

In the accompanying drawings, Figure 1 is a side elevation of a knife embodying my improvements, showing the same in relation to the rope-socket and the wire rope and in operative position. Fig. 2 is a similar view, partly in section, showing the knife in the act of cutting the wire rope. Fig. 3 is a horizontal sectional view taken on a plane indicated by the line *a a* of Fig. 2. Fig. 4 is a detail view of the knife.

The rope-socket 1, to which the rope 2, known as the "main" rope, is attached, is provided in its upper side with a curved countersink 3. Usually the main rope 2 is a wire rope, and it becomes necessary under certain conditions to provide means whereby the main rope may be cut at a point close to the rope-socket. To this end I provide the knife which I will now describe.

The knife-head 4 is of the form here shown and is adapted for the attachment thereto of a rope, (not shown,) commonly called the "sand-line." The lower end of the knife-head is cut away on opposite sides, as at 5. The knife 6 is of the form shown and has the curved lower side 7, the radius of which is similar to that of the countersink 3 in the upper end of the rope-socket, and the said knife is provided on its upper side with a pair of lugs 8, between which the lower end of the knife-head is inserted. The said knife is pivotally connected to the lower end of the knife-head by a bolt 9, which passes through openings in the lugs 8 and through a vertically-elongated

opening 10 in the knife-head. Thereby the knife while suspended from the knife-head is permitted to play vertically to a slight extent independently of the knife-head. The cutting edge 11 of the knife is on the inner side thereof at the lower end of a groove 12, which is adapted to receive the main rope 2. When the knife-head descends, the knife travels on the main rope, the latter operating in the groove 12. In order to guide the knife on the main rope on the descent thereof and of the knife-head, I provide a guide-loop or keeper 13, which is of the shape shown in Fig. 3, is adapted to embrace the main rope, and is connected to the knife by a bolt 14. Thereby when it becomes necessary to cut the main rope the knife may be attached thereto and adapted to slide downwardly thereon. The knife is attached to the main rope at a point above the well. The guide 13, which by means of the bolt 14 is detachable from the knife, admitting of the ready attachment of the knife to the main rope, as shown in the drawings, and the sand-line being attached to the upper end of the knife-head the latter and the knife are permitted to drop in the well. The guide 13 in addition to guiding the knife with relation to the rope weights the knife on one side thereof to keep the cutting edge thereof from biting into the rope. When the knife reaches the rope-socket, it is caught by the countersink 3 in the head thereof and is, by the impact of the knife-head and the cooperating curved surfaces formed by the countersink 3 and the lower side of the knife, driven inwardly transversely across the rope 2, thereby severing the same at the upper end of the rope-socket, as will be understood. Owing to the slots 10 the upper portion 15 of the knife, which is curved, as shown, abuts directly against the lower end of the knife-head on the descent of the latter, the said curved upper end 15 of the knife admits of the axial movement of the knife in cutting the rope, and the slot 10 entirely relieves the bolt 9, which connects the knife to the knife-head, of stress.

My improved knife is efficient not only in cutting hempen and other ropes of like character, but is also efficient for cutting wire ropes, which is not true of the knives heretofore employed in this connection.

Having thus described my invention, I claim—

1. An implement of the class described, comprising a knife-head, a knife pivotally suspended therefrom and adapted to engage and coact with a rope-socket, said knife having a guide on one side thereof to engage the main rope, the center of gravity of said knife being below the pivot and between the said pivot and the main rope, whereby, the knife by gravity tends to swing from the main rope, to maintain its cutting edge out of engagement with the main rope during the descent of the implement, substantially as described.
2. An implement of the class described, comprising a knife-head, a knife pivotally suspended from the lower end thereof and adapted to engage and coact with a rope-socket, and a guide projecting from the inner side of said knife, at a point below the pivotal connection thereof, and adapted to engage the main rope, said guide forming a weight-lever to keep the edge of the knife from engage-

ment with the main rope during the descent of the implement, substantially as described. 25

3. An implement of the class described comprising a knife-head, a knife pivotally suspended from the lower end thereof having a guide-groove on its inner side to engage the main rope and a cutting edge at the lower end of said guide-groove, and a guide to engage the main rope, said guide projecting from the inner side of said knife, below the pivotal connection thereof and forming a weight-lever to keep the cutting edge of the knife from engagement with the main rope during the descent of the implement, substantially as described. 30 35 40

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE F. BELL.

Witnesses:

R. L. GREGORY,
CHAS. F. BIRMINGHAM.