No. 688,785. Patented Dec. 10, 1901.

R. H. KNIGHT.

JOINT LOCK.

(Application filed June 17, 1901.)

(No Model.)

Fig. 1.

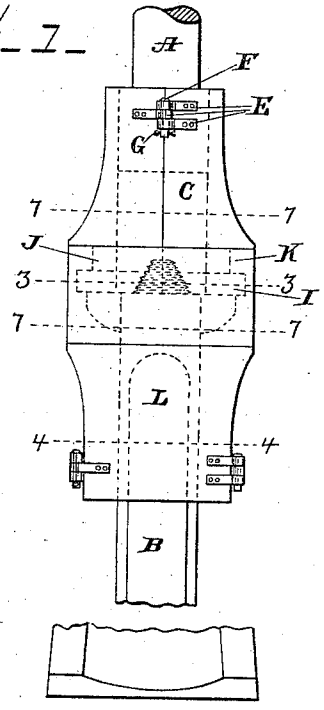


Fig. 2.

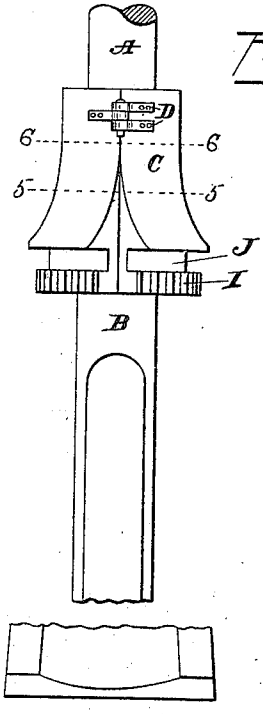


Fig. 3.

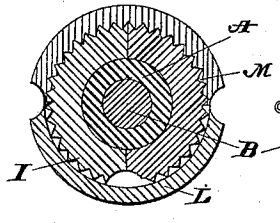


Fig. 4.

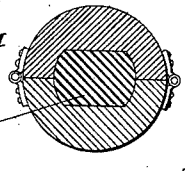


Fig. 5.

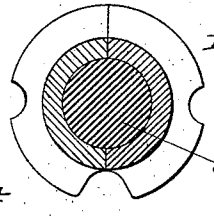


Fig. 6.

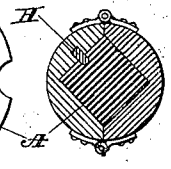
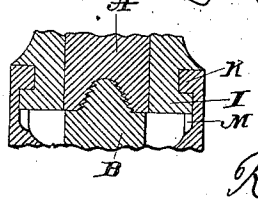


Fig. 7.



WITNESSES

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

REUBEN HUSTON KNIGHT, OF PASADENA, CALIFORNIA.

JOINT-LOCK.

SPECIFICATION forming part of Letters Patent No. 688,785, dated December 10, 1901.

Application filed June 17, 1901. Serial No. 64,957. (No model.)

To all whom it may concern:

Be it known that I, REUBEN HUSTON KNIGHT, a citizen of the United States, residing at Pasadena, in the county of Los Angeles, State of California, have invented new and useful Improvements in Joint-Locks, of which the following is a specification.

My invention relates, primarily, to locks for locking a drilling-bit or other tool used in drilling an oil or a water well to the bit-stock; and the objects thereof are to provide a lock for the joint between the drill or other well-tool and stock which can be easily put on and taken off and which will prevent the drill or other tool from unscrewing from the stock and which will hold the drill or other tool so that it can be drawn up out of the hole in case the threaded top portion, which screws into the stock, should break, and thereby prevent the bit or other tool from being lost in the hole, and thus save the time and expense entailed in fishing for lost tools. I accomplish these objects by the device described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a portion of a drill-bit and stock with my lock in place thereon. Fig. 2 is a similar view of the other side with the lower portion of the lock removed. Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Fig. 4 is a cross-section on the line 4 4 of Fig. 1. Fig. 5 is a cross-section on the line 5 5 of Fig. 2. Fig. 6 is a cross-section on the line 6 6 of Fig. 2. Fig. 7 is a central vertical section taken between the lines 7 7 of Fig. 1.

In the drawings I have illustrated my lock applied to lock the joint between the stock and drill.

A is the bit-stock, and B is the drill, which are screwed together in the usual manner, the same being shown in dotted lines in Fig. 1.

The upper portion C (which for distinction I will call the "female" member) of my lock is preferably made in halves, which are united together on one side by hinge D and when clasped upon the bit-stock are fastened by hasps E, through which is passed bolt F, which is locked therein by cotter-pin G. The interior of the female member is of the same configuration as the lower end of the bit-stock, which is usually round at the extreme lower end, with a square portion just above to provide a bearing for the wrench. The female member in the portion which fits upon the square portion of the bit-stock is provided with a pin H, (shown in Fig. 6,) which enters a hole in the bit-stock to prevent the female member from sliding up on the stock while the lock is being put in place. It may be omitted, if desired, but is a great convenience. The lower outer edge of the female member is provided with a row of serrations I, while just above these teeth is an annular groove J for the reception of an inwardly-projecting annular flange K on the upper part of the lower half L (which for distinction I will call the "male" member) of my lock, which locks the two members together. Below this flange is an interior row of serrations M, which intermesh with the serrations on the female member. In Fig. 3 I have shown these serrations as extending half-way around; but they may extend all the way around, if desired. I have shown these serrations in shape like saw-teeth; but they may be of any suitable shape, their purpose being to prevent the turning of one member around on the other member. The serrations of the male member are preferably longer than those on the female member. Below the teeth the configuration of the male member should approximate that of the drill-bit, which is usually round in the upper portion where it joins the stock, with a square or flattened portion immediately below for the reception of the wrench used in screwing it into the stock. The male member is preferably constructed in two parts, hinged together and fastened in the same manner as the female member, portions of each being cut away at the hinge-line to permit the halves to be swung apart to be put on and taken off. Any other suitable means to fasten the parts of the female and male members to each other may be used instead of that shown.

In the operation of my device the drill is first screwed firmly into the stock. The female member is then placed on the stock and fastened thereon. The male member is then placed on the female member and the drill, the flange K thereof entering the groove J of the female member, and is fastened thereon, which securely locks the members together. The serrations of the two members intermesh-

ing prevents one part rotating in or on the other, and as the female member cannot rotate on the stock nor the male member rotate on the drill the stock and drill are securely locked together and the drill is thereby prevented from being unscrewed from the stock until the lock is removed. Should the threaded shank of the drill break, the lock would hold the drill attached to the stock until it could be removed from the hole.

It will be seen that the male member may be placed on the female member at whatever point the drill may stop at and that it is not necessary that the flattened portion of the drill shall come under any particular portion of the stock.

The external configuration of the lock should be that which will offer the least resistance in drilling. The groove in the female member may be omitted if the serrations are heavy enough to carry the male member.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A joint-lock for locking a drilling-tool to the bit-stock, comprising a female member adapted to be fastened upon the bit-stock at its end in which the tool is fastened, said member having external serrations around its lower exterior, and a groove above such serrations and being non-rotative on said stock; a male member having an inwardly-projecting flange around its upper portion, adapted to project into the groove on the female member and prevent the members from separating; said member having below said flange serrations adapted to mesh with the serrations of the female member, and having an internal configuration to fit upon the tool to prevent its rotation thereon and means to fasten the parts of said male member together.

2. A joint-lock for securing drilling-tools to the bit-stock, comprising a removable upper casing, adapted to inclose the end of the bit-stock in which the tool is screwed, having exterior serrations projecting from the lower part thereof, and having an interior configuration to prevent its rotation on the bit-stock; a lower removable casing having an internally-projecting flange, adapted to fit over the serrations of the upper casing and to prevent the separation of the two parts when locked in place, said lower casing having below said flange serrations adapted to mesh with the serrations of the upper casing and having an internal configuration that will prevent its rotation on the drill-tool and means to lock said lower casing upon the tool and upper casing.

3. A joint-lock for locking drilling-tools to the bit-stock, comprising casing C having external serrations I around the lower part thereof and casing L having internal flange K and serrations M and means to lock the parts of casing L upon the tool and casing C.

In witness that I claim the foregoing I have hereunto subscribed my name this 10th day of June, 1901.

R. HUSTON KNIGHT.

Witnesses:
G. E. HARPHAM,
MATTIE MCGINNIS.