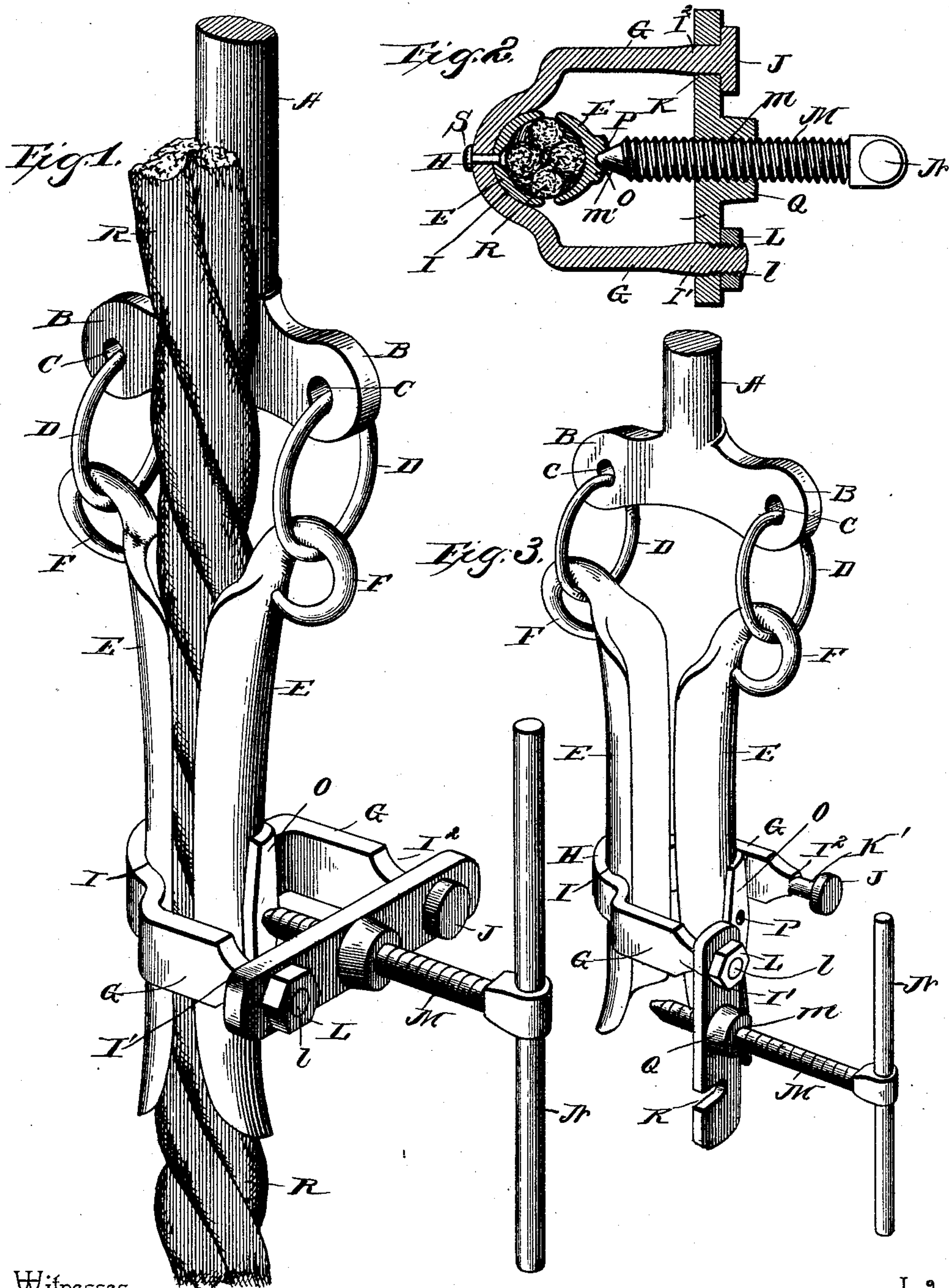


(No Model.)

R. M. DOWNIE.
ROPE CLAMP.

No. 480,810.

Patented Aug. 16, 1892.



Witnesses

Inventor

E. C. Wurdeman,
L. P. H. Schaeffer,

By *his* Attorneys, *Robert M. Downie*

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

ROBERT M. DOWNIE, OF NEW BRIGHTON, ASSIGNOR TO THE KEYSTONE DRILLER COMPANY, OF BEAVER FALLS, PENNSYLVANIA.

ROPE-CLAMP.

SPECIFICATION forming part of Letters Patent No. 480,810, dated August 16, 1892.

Application filed November 9, 1891. Serial No. 411,306. (No model.)

To all whom it may concern:

Be it known that I, ROBERT M. DOWNIE, a citizen of the United States, residing at New Brighton, in the county of Beaver and State of Pennsylvania, have invented a new and useful Rope-Clamp, of which the following is a specification.

This invention relates to temper-screw clamps; and it has for its object to provide a rope-clamp connected with the temper-screw carried by the walking-beam of ordinary well-drilling apparatus, which will be so constructed as to avoid all tendency to bulge or break under the strain during the drilling, and a clamp having all the parts thereof securely connected with the head of the temper-screw, thus obviating the liability of loose parts dropping into the well, and, further and principally, to provide a clamp which will rigidly hold the rope fast between the clamping-jaws thereof, effectually prevent slipping, and at the same time to provide means whereby the unclamping of the rope while in rapid motion is greatly facilitated.

With these and many other objects in view, which will be quite apparent to those skilled in the art as the nature of the invention is fully understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a temper-screw clamp constructed in accordance with my invention, illustrating the same attached to the lower head of the temper-screw and a section of the cable clamped therein. Fig. 2 is a horizontal transverse section through the clamping yoke and shackle. Fig. 3 is a perspective view of the invention, illustrating the clamp as unshackled and in a position which frees the rope or cable.

Referring to the accompanying drawings, A represents the lower portion of an ordinary temper-screw that is connected with the walking-beam of an ordinary well-drilling apparatus and is designed to be reciprocated thereby. The said temper-screw A terminates at its lower end in the oppositely-extending heads B, each of which is provided with the transverse perforation C, that accommodates

the suspending-rings D, loosely mounted therein and engaging the eyes F at the extreme upper ends of the opposing elongated clamping-jaws E and E', respectively. The said clamping-jaws E and E' are identical in shape and of a preferable semi-cylindrical form, so that when the rope or cable R is clamped therebetween the same approximate to the circular contour of said rope or cable, and thus present a greater clamping-face. At approximately the center of the loosely-suspended clamping-jaw E is secured the clamping yoke or shackle G, U-shaped in cross-section and provided with a rounded seat I, within which snugly fits the semi-cylindrical clamping-jaw E, and said shackle or yoke is rigidly and securely fastened to said swinging jaw by means of a securing bolt or rivet S, passing through the jaw and yoke. To the extreme outer end of the arm I' of said yoke or shackle is pivotally secured the swinging clamping-arm Q. The said clamping-arm Q is held in place upon the end of the arm I' by means of the securing-nut L, engaging the extreme threaded end l of said arm, and is provided near its opposite end with the locking-notch K, formed in the under side of the same and adapted to engage the reduced shank K' near the extreme outer end of the arm I' of said yoke or shackle, and said arm terminates in a flanged boss or head J, which prevents the swinging clamping-arm Q from being forced out of position when the clamping-screw throws the clamps together. The swinging arm Q is also provided with a central threaded perforation m, that is designed to receive the right-hand threaded clamping-screw M, that passes therethrough and which is provided at its outer end with the operating-handle N and terminates at its inner end in a conical or tapered bearing-point m', that is adapted when the swinging clamping-arm connects the outer ends of the yoke or shackle to engage the tapered socket P, formed in the elevated bearing-plate O, located upon the swinging clamping-jaw E' directly opposite the connection between the opposing clamping-jaw E and said yoke or shackle. Thus when the bearing end of said screw is placed in said socket and the same turned, the jaw E is drawn toward the jaw E', while said jaw is

forced in the opposite direction, thus forming a clamp which firmly grasps the interposed cable or rope.

It is thought that the operation and use of the herein-described clamp will be readily apparent. In the first place, after adjusting the clamps E and E' to the cable and temporarily holding them thereto with the hand, the screw-handle N is grasped and by a twisting motion the swinging cross or clamping arm is thrown over upon its pivot and the locking-notch thereof drops over the engaging end K' at the terminal of the opposite arm of the yoke or shackle, in which position the weight of the screw and said arm will hold the same locked, while by a continued turning of the screw the bearing-point of the same engages the socket in the clamp E' and forces the same tightly against the cable. The threads of the screw are so disposed that when the screw is being tightened it will turn toward the locking-notch K, and thus have the tendency to force the cross-arm downward, which serves to securely and firmly hold said cross or clamping arm in engagement with the engaging end of the shackle or yoke, whereas if the threads of the screw were disposed so as when tightened the same would be turned away from the notch end of the said arm the force necessary to tighten the clamp would lift the notch out of its seat and allow the clamps to come loose. It is immaterial whether the tightening-screw is provided with either right or left handed threads; but in order to have the clamp operate as described it is necessary that the screw in tightening should turn toward the notch end of the swinging arm Q, and in loosening vice versa. In releasing the cable the operation is reversed, and the operator turns the screw to the left or away from the notch in the swinging clamping-arm, and as soon as the clamps become slackened the same motion which releases the screw throws the swinging arm out of engagement with the opposite arm of the yoke or shackle and into the position shown in Fig. 3, thus entirely releasing the cable when desired. The releasing of the cable is very often done while the same is in rapid motion, and by the use of my invention the same is accomplished more effectively and securely, inasmuch as there are no loose pieces which could be thrown into the well, as all the parts of said clamp are so connected that none can become wholly detached.

One of the rope-clamps now on the market is made by using a very heavy C-shaped piece open at one side, to receive the rope. The construction of this style of clamps is necessarily cumbersome and unwieldy, being made of a large casting or forging, which under extraordinary strain will spring or buckle backward, allowing the clamps to jump out, while by my invention all these obstacles are overcome by the construction described, in which the entire resistance of the screw is evenly distributed to both arms of the yoke or shackle,

and thus the force of the same is always fairly directed against the opposing clamp-jaw E'.

My clamp is much lighter to handle, the old C-shaped clamp weighing, usually, forty pounds and made heavy for the sole purpose of overcoming the natural tendency to "buckle." Therefore it is quite an object sought for in the production of a light clamp, and this feature alone, aside from the great simplicity of operation and sureness of action, ought to commend itself to those familiar to this art.

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

1. In a temper-screw clamp, opposing clamping-jaws loosely suspended from the lower end of a temper-screw, a yoke or shackle rigidly secured to one of said clamping-jaws, leaving the other jaw entirely free, the two arms of the yoke projecting from the rigid jaw on opposite sides of the movable jaw, a straight swinging clamping-arm pivoted at one end to one arm of said yoke and adapted to removably engage the other arm thereof, and a clamping-screw mounted at or about the center of the arm and adapted to bear against the movable jaw, substantially as set forth.

2. In a temper-screw clamp, independent opposing clamping-jaws, a yoke or shackle rigidly secured to one of said clamping-jaws and projecting beyond the same, a straight swinging clamping-arm pivoted to one of the arms of said pivoted yoke and adapted to removably engage over the other arm, and a clamping-screw passing centrally through said clamping-arm intermediate of its pivotal connection and its locking end and having the threads thereof so disposed with relation to the free swinging end of the same that the tightening of the screw will tend to keep it in locking engagement with the yoke-arm and the loosening thereof will unlock and throw the said arm out of engagement with the locking-arm of said yoke, substantially as set forth.

3. In a temper-screw clamp, elongated semi-cylindrical clamping-jaws loosely connected to the lower end of the temper-screw, a U-shaped yoke or shackle having a rounded seat within which is rigidly secured one of said clamping-jaws and terminating at the end of one arm in a reduced locking-shank having a flanged head, the other clamping-jaw being entirely free to move within said yoke, a swinging clamping-arm pivoted to the opposite arm of said yoke and provided with a notch adapted to engage said shank behind said head and with a centrally-located threaded perforation, and a clamping-screw engaging said threaded perforation and bearing directly against the movable clamping-jaw inclosed within the yoke, substantially as set forth.

4. In a temper-screw clamp, opposing elongated semi-cylindrical clamping-jaws loosely

connected to the lower end of a temper-screw, a bearing-plate raised from the outer face of one of said jaws and provided with a conical socket, a U-shaped yoke or shackle having a rounded seat within which is rigidly secured the other clamping-jaw, said yoke terminating at the end of one arm in a reduced locking-shank having a flanged head, a swinging clamping-arm pivoted at one end to the opposite arm of said yoke and provided at its other end with a notch adapted to engage said locking-shank behind said head and with a centrally-located threaded perforation, and a clamping-screw engaging said threaded perforation and provided with a tapered or conical end adapted to bear directly in the conical socket of the jaw inclosed within the yoke, substantially as set forth.

5. In a temper-screw clamp, the opposing clamping-jaws loosely suspended from a tem-

per-screw, an approximately-U-shaped yoke or shackle made of a single piece arranged horizontally and secured rigidly to one of the jaws, leaving the other jaw free and movable, a swinging clamping-arm pivoted at one end to one arm of the yoke and adapted to have its other end removably engage the other arm of the yoke, so as to bridge the space between the two arms of the same, and a single clamping-screw mounted in the arm intermediate of its ends and adapted to engage and bear against the movable jaw of the clamp, substantially as set forth.

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

ROBERT M. DOWNIE.

Witnesses:

JNO. H. SIGGERS,

S. E. MARTIN.