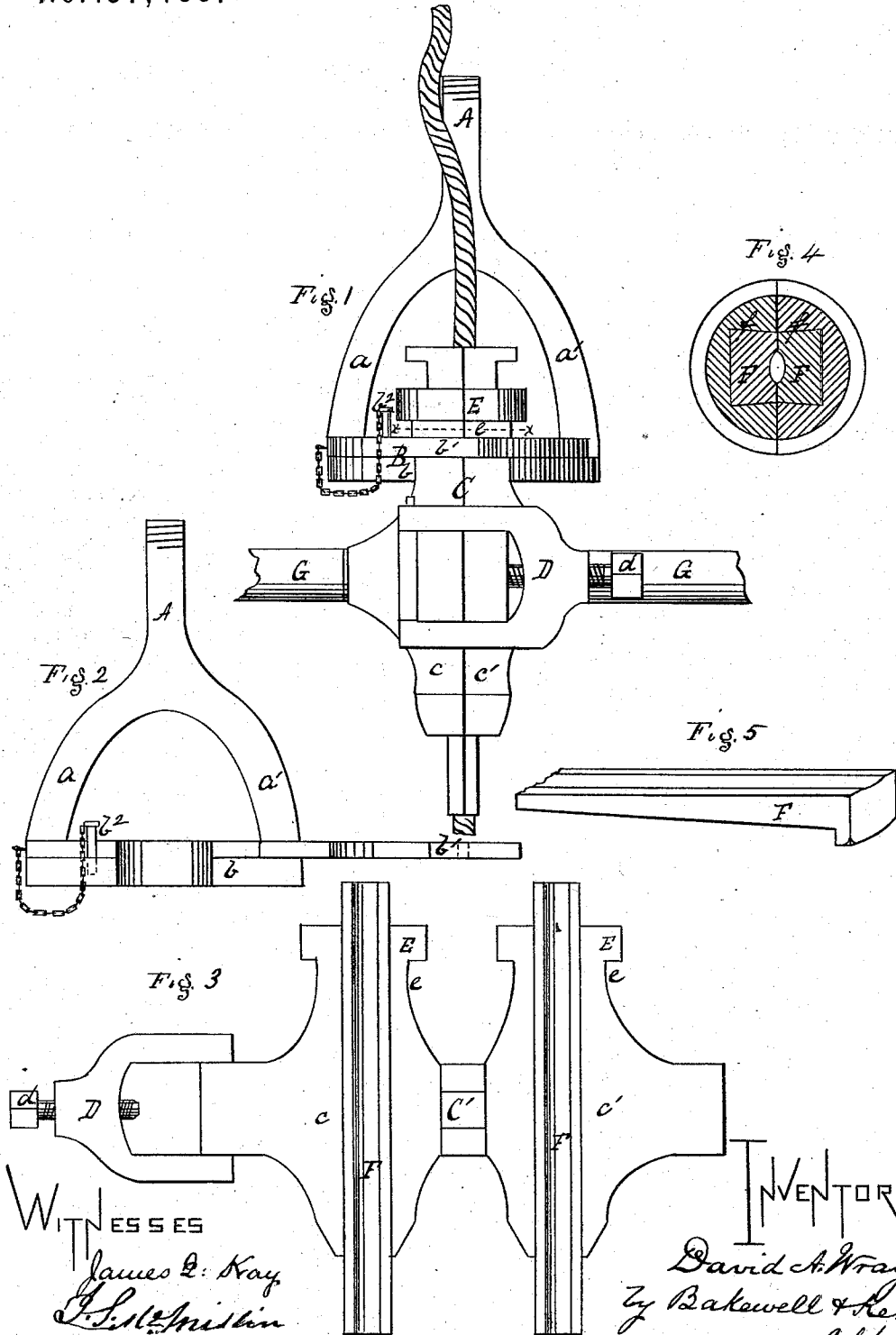


D. A. WRAY.

Combined Clamp and Swivel Attachments for Holding and Turning the Rope in Artesian and Other Wells.

No. 157,435.

Patented Dec. 1, 1874.



UNITED STATES PATENT OFFICE.

DAVID A. WRAY, OF TITUSVILLE, PENNSYLVANIA.

IMPROVEMENT IN COMBINED CLAMP AND SWIVEL ATTACHMENTS FOR HOLDING AND TURNING THE ROPE IN ARTESIAN AND OTHER WELLS.

Specification forming part of Letters Patent No. **157,435**, dated December 1, 1874; application filed November 3, 1874.

To all whom it may concern:

Be it known that I, DAVID A. WRAY, of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Combined Clamp and Swivel Attachment for Holding and Turning the Rope in Drilling Oil, Artesian, and other Wells; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is an elevation of my improved device. Fig. 2 is a view of the yoke detached. Fig. 3 is a view of the clamp open. Fig. 4 is an enlarged section of the clamp on line *x x*, Fig. 1; and Fig. 5 is a perspective view of the wedges used in connection with the clamps.

Like letters of reference indicate like parts in each.

My invention relates to that class of devices known as rope-clamps for drill-tools; and it consists in a detachable swivel or yoke in combination with the rope-clamp, whereby the rope may be readily and quickly attached to and detached from the temper-screw; and in combining with clamping-jaws, having swivel connections with the temper-screw, a set of sliding wedges dovetailed into the clamps, so as to retain their places at all times, and also to have a progressive bite upon the rope. In the mode generally adopted of drilling oil and other wells, a hemp cable is used, to which the drilling-tools are attached. As the wells become deeper or the tools advance a great amount of time is lost by the stretch or spring of the hemp cable, the stretch of the cable preventing the tools from being lifted and dropped sufficiently to give a good and effective cutting blow to the rock. I propose to overcome this difficulty by employing a wire cable instead of the hempen cable in common use; but, in order to do this effectively, some different devices for seizing and holding the wire rope, and turning the tools while drilling, must be adopted. In the generally-adopted mode of drilling with a hemp rope it is necessary to have considerable slack or free cable to permit of the drill-tools being turned. This free

cable hangs loosely in a derrick, and lies upon the floor, coiling around and uncoiling from the perpendicular portion of the cable in the well with every movement of the drill-tools, being constantly in the way of and an annoyance to the operator. In using a wire cable it is difficult to turn or coil this slack as is now done with the hemp cable; besides, the wire cable being more rigid and stiff, there would be danger of unstranding it or placing permanent wave-lines or kinks in it. This difficulty I overcome by forming a combined clamp and swivel, whereby I am enabled to turn the wire cable without coiling or twisting the slack around the perpendicular portion of the cable in the well. I preferably combine a clamp and swivel, forming a complete swivel, by making the neck of the swivel in the head of the clamp and the yoke out of or upon the end of the temper-screw. By this means I am enabled to throw the twist of the cable upward into the derrick, and avoid the necessity of having much slack hanging loose in the derrick.

I will now proceed to describe my devices with reference to the accompanying drawing, so that others skilled in the art may be enabled to make and use the same.

In the drawing, A represents the lower end of the temper-screw, which may be divided or bifurcated, as at *a a'*, so as to give attachment to the yoke B. B is a yoke, preferably formed upon the lower end of the temper-screw, but which may be made separately and secured thereto. It is generally formed in two parts, *b* and *b'*, *b'* being a gate pivoted to *b* at one end, and secured at the other by a pin, *b''*, or other suitable device, so that the gate may be swung back to permit the introduction or removal of the clamp. C represents the clamp, composed of two jaws, *c' c*, hinged or otherwise movably connected, as at *C'*, and closed by means of a clevis, D, and set-screw *d*. The upper portion of clamp C is enlarged to form a head, as at E, beneath which is the rounded portion or neck *e*, which is clasped by yoke B, and secured when working by the shut gate *b'*. The inner faces of the clamps C are recessed, as at *f f*, said recesses being dovetailed to receive sliding wedges F F, which correspond

in form with the recesses, and are therefore incapable of being displaced except intentionally. G G are the handles for turning the rope and tools, and may either be cast with the jaws C or formed of a piece of gas-pipe, and screwed into the clamps.

The devices above described are employed as follows: The drill-rope or wire cable having been passed from the drum or bull-wheels over the sheave at the top of the derrick, the tools are attached and lowered into the well. As soon as the jaws are adjusted the operator closes the clamp C around the wire cable, and secures it by means of the clevis D and set-screw d, and allows the wedges F F to drop into place. The form of the pieces F F is such that the increased drawing or tension of the rope causes the pieces to bite or gripe it more firmly, and at the same time the inner faces, being conformed to the shape of the wire rope, do not mar or injure it. The clamp is then secured to the temper-screw by inserting the head E within the yoke B, and closing and securing the gate b¹. Being now ready to commence drilling, the tools being

suspended to the temper-screw, a small amount of slack rope to allow for the motion of the walking-beam is released from the bull-wheel or drum, and the operator, by means of the handles G G, turns the clamps C, which move within the yoke B, and the twist of the rope passes directly up into the derrick.

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

1. The yoke B, having the gate b¹, in combination with the clamp C, having a head, E, substantially as and for the purpose specified.

2. The rope-clamp, its upper portion forming the head and neck of the swivel, provided with a yoke for attachment to the temper-screw, and having the sliding-wedge clamping-surfaces, substantially as and for the purpose specified.

In testimony whereof I, the said DAVID A. WRAY, have hereunto set my hand.

DAVID A. WRAY.

Witnesses:

F. W. RITTER, Jr.,

J. LUDEWIG KOETHEN, Jr.