

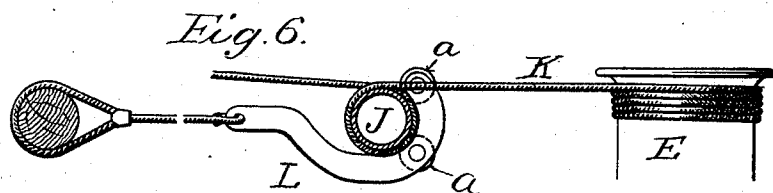
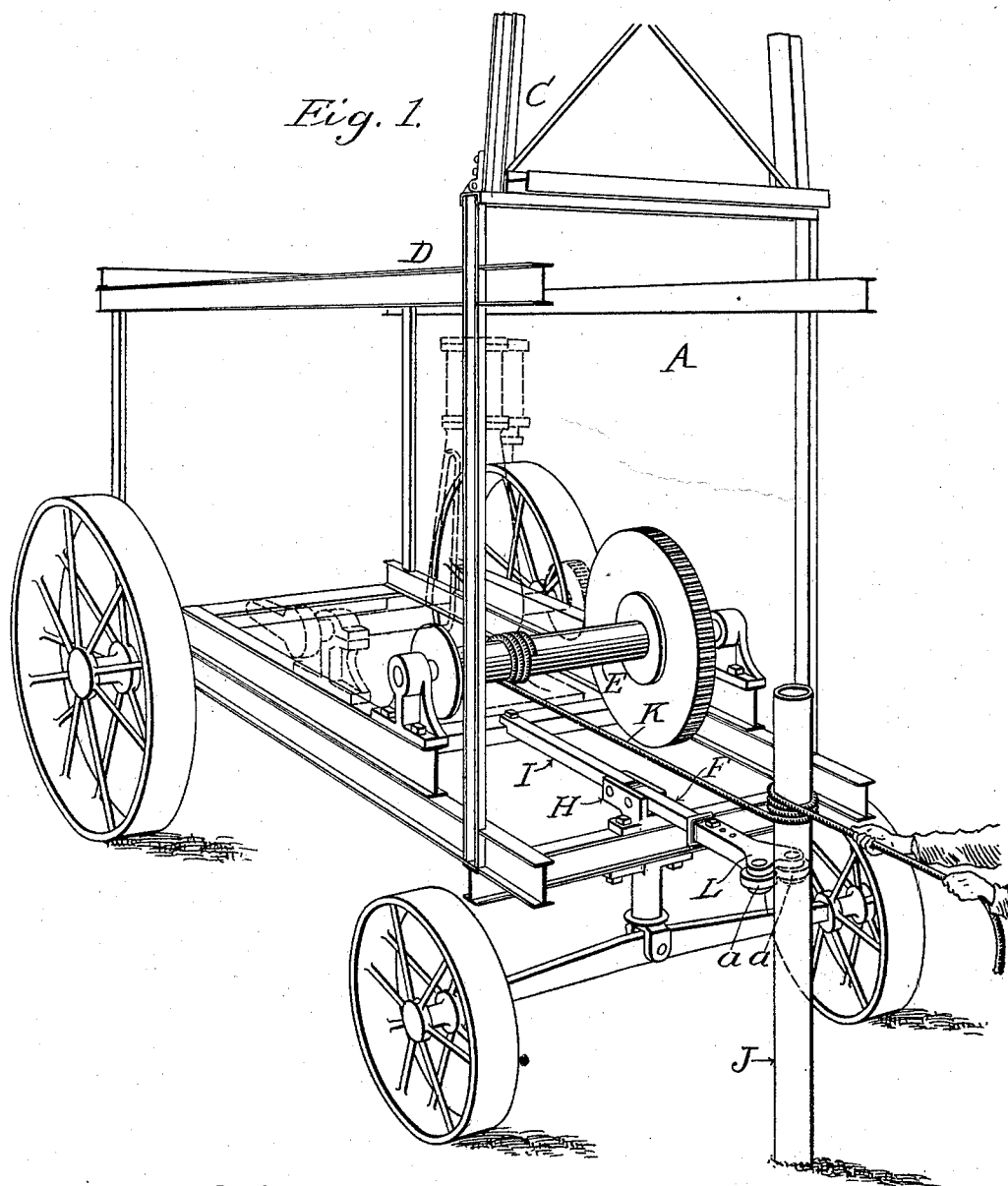
(No Model.)

2 Sheets—Sheet 1.

H. S. & C. E. GLENN.
WELL DRILLING MACHINE.

No. 585,668.

Patented July 6, 1897.



Attest
W. C. Burdine
D. C. Burdine

Inventors:
H. S. & C. E. Glenn,
by Dodge & Sons,
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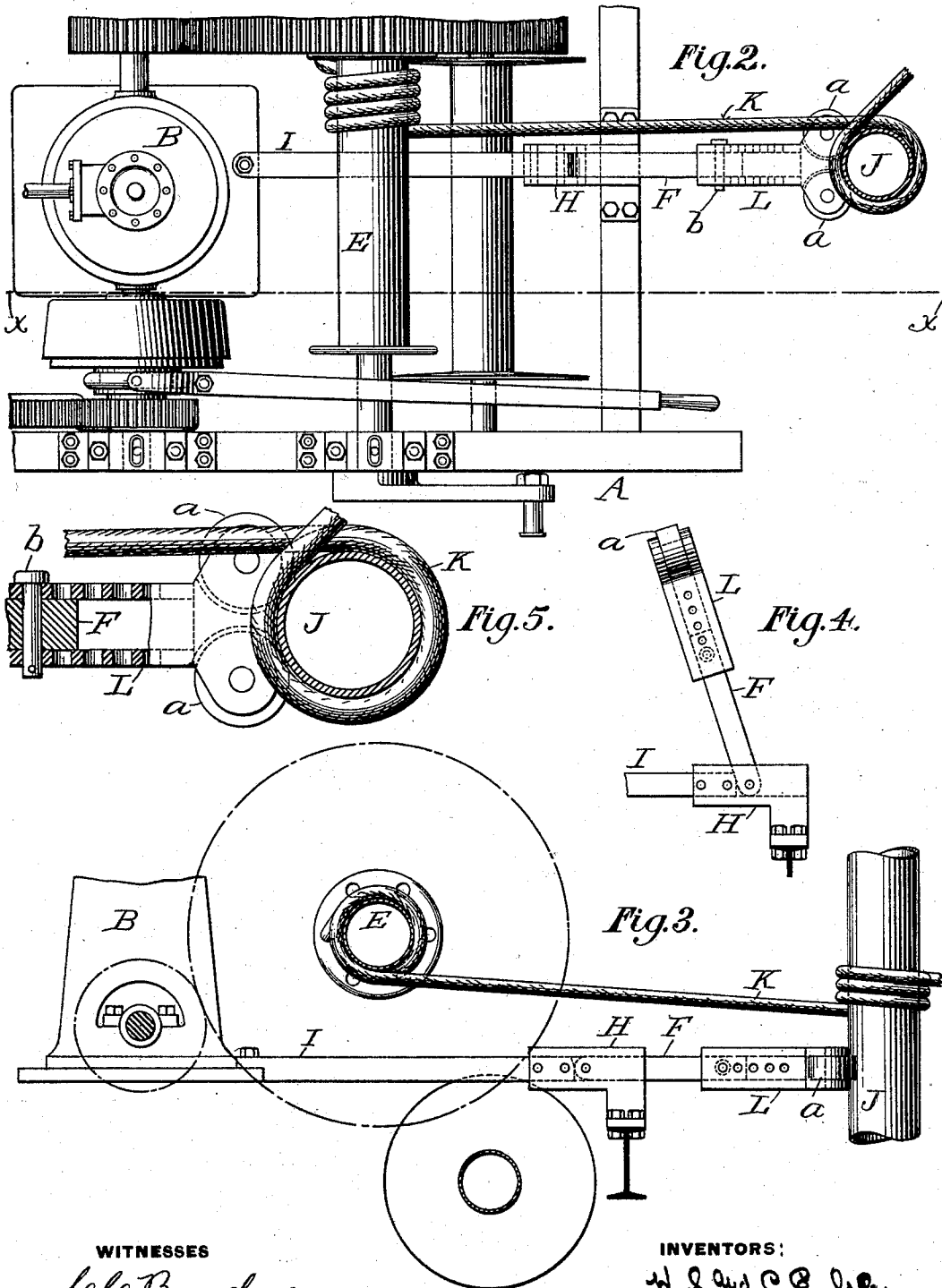
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WITNESSES

W. B. Burdine.
D. C. Burdine

INVENTORS:

H. S. and C. E. Glenn,
By Dodge & Sons, Attys.

UNITED STATES PATENT OFFICE.

HARVEY S. GLENN AND COULTER E. GLENN, OF NEW BRIGHTON,
PENNSYLVANIA.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 585,668, dated July 6, 1897.

Application filed May 23, 1896. Serial No. 592,804. (No model.)

To all whom it may concern:

Be it known that we, HARVEY S. GLENN and COULTER E. GLENN, citizens of the United States, residing at New Brighton, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Well-Drilling Machines, of which the following is a specification.

This invention pertains to well-drilling machinery, and particularly to means for turning well-casings.

In the accompanying drawings, Figure 1 is a perspective view of a drilling-machine illustrating the mode of turning the casing; Fig. 2, a top plan view of so much of the machine as is necessary to a proper understanding of the invention; Fig. 3, a vertical sectional view on the line *xx* of Fig. 2; Figs. 4 and 5, detail views; Fig. 6, a view illustrating a modification.

As is well known, very considerable power is required to turn the metallic tubing or piping employed in casing wells, and various means are resorted to to facilitate the work.

The present invention renders the operation easy and requires the services of but one attendant.

Briefly stated, the apparatus employed comprises simply a winding-drum, a cable to wind thereon, and a support to sustain the casing or pipe against the pull of the cable, which is coiled about the pipe or casing, has one end wound upon the drum, and is held taut and payed out at the other end by the attendant.

Referring to the drawings, A indicates a drilling-machine, here represented as a portable wheeled structure, bearing a steam-engine B, a derrick C, walking-beams D, and a winding-drum E, geared to or driven by the engine in any convenient way.

F indicates a bar, advisably of metal, one end of which is made fast to the framework or other rigid part of the drilling-machine, while the other end projects outward somewhat beyond the front beam or sill of the main frame. At its outer end the bar F is provided with an adjustable head or end block L, of bifurcated or crotch form, to receive and sustain the pipe or casing to be turned. The power required to turn the pipe or casing being very

considerable and the casing being drawn with great force against the support, it is advisable to provide its arms with antifriction-rollers *a a*, as shown in the several figures. 55

It is desirable that the supporting-head be made to bear against the pipe or casing without shifting or adjusting the machine away from the position in which its drilling work is begun, yet it is impracticable or quite inconvenient to have the bar F or its end block G stand normally in such supporting position. To meet these conditions, the bar is preferably hinged to the main frame of the machine or otherwise adapted to be swung or moved into and out of working position. 60

In the drawings the bar F is represented as hinged between the vertical side plates or cheeks of a guide-block or support H, bolted to the front sill or beam of the machine, said guide-block being braced and stayed by a second bar or brace I, attached at one end to the block H and at the other end to some rigid part of the machine, here shown as the engine-base. 65

The bar F may be swung up to the position indicated in Fig. 4 and held there while the drilling is in progress and dropped to the position shown in Fig. 3 when required for use. To permit ready adjustment of the head G to be made, it is formed with a socket to receive the bar F, to which it is secured by a pin or bolt *b*, passing through both, a series of holes being formed in one of the parts. 70

If it be desired to couple or to uncouple two sections of casing or tubing, the head or block G is dropped to the position indicated in Fig. 3 and adjusted to bring its rollers *a* into contact with the pipe or casing J. A rope or cable K then has one end secured upon drum E and after being passed several times about the casing in the proper direction is drawn and kept taut by an attendant, thus insuring the necessary grip and friction to turn the casing. The drum being rotated, the attendant pays the cable to the drum as required, keeping it at all times taut and thus insuring proper action. 75

While it is deemed preferable to mount the head G upon the machine, it will be seen that a yoke or bail L may be employed, being secured to a post, stake, tree, or other suitable 80

support. Such arrangement is open to the objection, however, that the machine may in some cases draw itself forward instead of drawing the rope toward itself, and in other ways is deemed less satisfactory than the bar F.

It is particularly to be noted that the supporting-head G is out of the way at all times when not in use and that it consequently does not interfere with the operation of the drilling machinery, the rope, clamp, temper-screw, &c., as it would do if left permanently in operative position. So, too, it will be observed that the supporting-head can be thrown into and out of working position in an instant without disturbing other parts.

The supporting-head may obviously be employed for any analogous work and may be varied in form and detail without departing from the spirit of the invention.

It has heretofore been proposed to turn a drill tube or pipe by means of two ropes running from the pipe in opposite directions, so that the application of power on opposite sides might tend to overcome any bending or springing of the tube toward one side. The elasticity of rope, the varying degrees of such elasticity, the impracticability of keeping the ropes at all times equally taut, and the liability of overwinding all involve liability of lateral deflection of the pipe or tube. We find it important, therefore, to employ a practically rigid support for the pipe or tubing to sustain it against the pull or pressure of the rope. By the term "practically rigid," however, we refer to the condition of the support while in active use, it being understood from the foregoing description that the rest is adapted to be moved out of its operative position when not required, and that antifric-

tion bearing-rolls are ordinarily used. The invention being thus set forth, what is claimed is—

1. In combination with a winding-drum, a practically rigid support to sustain a pipe or casing against the winding strain; and a rope or cable to wind about the drum and about the pipe or casing, substantially as and for the purpose set forth.

2. In combination with the drum of a well-drilling machine, a practically rigid support to sustain a pipe or casing; a rope or cable passing about the drum and adapted to encircle and to grip the pipe or casing; and means for turning the drum.

3. In combination with the winding-drum of a well-drilling machine, a rope or cable; and a practically rigid support carried by the drilling-machine and adapted to be moved to position to bear against and to support a pipe or casing in axial alinement with the well; and to be withdrawn to permit the drilling mechanism to operate.

4. In combination with frame A, having drum E; bar F provided with a forked or crotch-shaped head or end, substantially as and for the purpose set forth.

5. In combination with a drilling-machine, a supporting block or head to sustain a pipe or casing against lateral pressure, said block or head being provided with antifric-tion-rollers to facilitate the turning of the pipe or casing while resting against the support.

6. In combination with a drilling-machine and its drum, a guide-block secured to the frame or body of said machine; and a pipe or casing support hinged or jointed to said guide-block and adapted to be thrown into and out of operative position at will.

In witness whereof we hereunto set our hands in the presence of two witnesses.

HARVEY S. GLENN.
COULTER E. GLENN.

Witnesses:

A. DUFF,
E. H. THOMAS.