

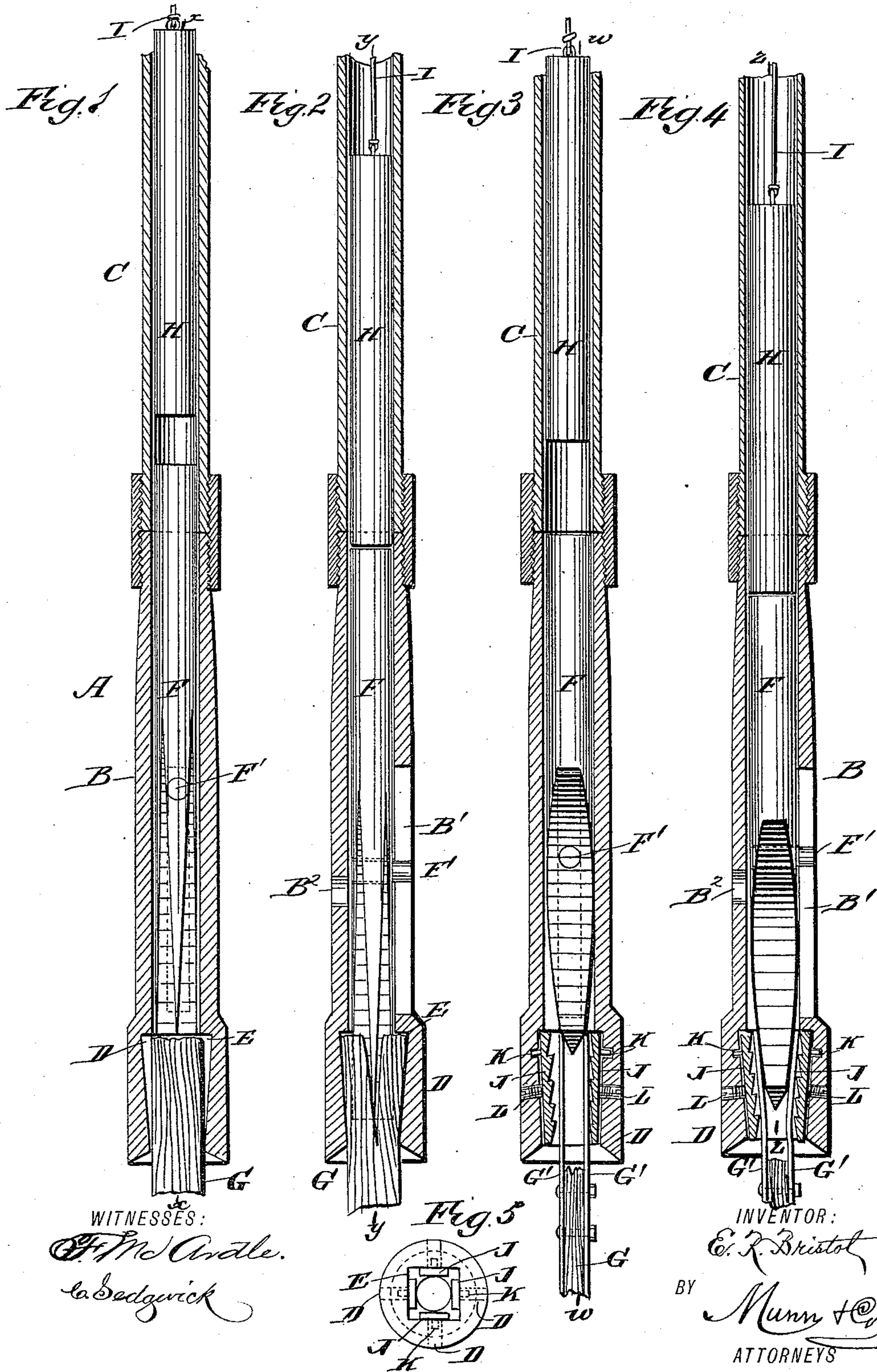
(No Model.)

E. R. BRISTOL.

DEVICE FOR REMOVING BROKEN PISTON RODS FROM WELLS.

No. 450,502.

Patented Apr. 14, 1891.



UNITED STATES PATENT OFFICE.

EDMUND ROGERS BRISTOL, OF JORDAN, MINNESOTA, ASSIGNOR OF ONE-HALF TO EDW. C. GRAN, OF SAME PLACE.

DEVICE FOR REMOVING BROKEN PISTON-RODS FROM WELLS.

SPECIFICATION forming part of Letters Patent No. 450,502, dated April 14, 1891.

Application filed July 16, 1890. Serial No. 358,924. (No model.)

To all whom it may concern:

Be it known that I, EDMUND ROGERS BRISTOL, of Jordan, in the county of Scott and State of Minnesota, have invented a new and Improved Device for Removing Broken Piston-Rods from Wells, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved device which is simple and durable in construction and serves for conveniently and rapidly removing broken or parted piston-rods from wells.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line *yy* of Fig. 2 and as applied for removing a broken piston-rod. Fig. 2 is a transverse section of the same on the line *xx* of Fig. 1. Fig. 3 is a sectional side elevation of the improvement on the line *zz* of Fig. 4 and as arranged for removing a piston-rod parted at a joint. Fig. 4 is a transverse section of the same on the line *ww* of Fig. 3, and Fig. 5 is an end view of the same.

The improved device A is provided with a tube B, coupled at its upper end by suitable means with a series of tubes C, extending to the outside of the well. On the lower end of the tube B is formed a head D, having a central opening E narrower on the bottom than on the top, so as to have diverging sides, as is plainly shown in the drawings.

In the tube B is fitted to slide a tool F, formed on its lower end in wedge shape, either single or double, and adapted to split and wedge the broken end of the piston-rod G into the opening E of the head D. On the tool F is held a pin F', engaging a vertically-arranged slot B' in the tube B, so that the tool F is guided in its up-and-down movement.

The upper end of the tool F is adapted to be engaged by a cylindrical weight H, fitted to slide in the lower part of the tube C and connected with a rope or cord I extending

upward to the outside of the well. By pulling on the rope or cord I the weight H is raised above the upper end of the tool F, and when the operator lets go of the rope the weight H drops and drives the tool F downward, so that the cutting or wedge-shaped end of the said tool passes into the end of the wooden piston-rod G, splits the end, and wedges it into the opening E of the head D.

When the piston-rod G is made in sections connected with each other by metallic plates G', as shown in Figs. 3 and 4, then the head D is provided in the opening E with a series of metallic plates J, fitting on the sides of the said opening and held in place by suitable dowels K and set-screws L. When the piston-rod has parted at the joint, then the said plates are used, so that the metallic coupling-plates G' of the piston-rod pass into the head, and are bent apart onto the metallic plates J by the lower end of the tool F, which is now shaped in pyramid form, as is plainly shown in Figs. 3 and 4. The plates J are preferably provided on their inner faces with teeth to firmly grip the coupling-plates G'.

It is understood that in removing the piston-rod from a deep well the tube B is let into the well, so that its head D engages the broken end of the piston-rod, after which the weight H is manipulated, as previously described, to drive the tool F into the broken end, so as to wedge the latter in the opening E of the head D. When the operator pulls up the tube C and the tube B, the broken piston-rod G, on account of being securely wedged to the head D, is brought up with the said tubes.

In order to conveniently exchange the tools F according to the work to be performed, the pin F' in the tool can be driven out through an opening B², formed in the back of the tube B.

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

1. The combination of a tube adapted to be passed into the well and provided on its lower end with a head having its central opening less in diameter on the bottom than on the top, the said head being adapted to pass with its central opening onto the end of the broken piston-rod, and a tool fitted to slide

in the said tube and formed at its lower end into a wedge adapted to pass into the said head to wedge the said broken end in the said head, substantially as shown and described.

5 2. The combination of a tube adapted to be passed into the well and provided on its lower end with a head having its central opening less in diameter on the bottom than on the top and provided with teeth, the said head
10 being adapted to pass with its central opening onto the end of the broken piston-rod, a tool fitted to slide in the said tube and formed at its lower end into a wedge adapted to pass into said head to wedge the said broken end
15 in the said head, and a weight adapted to be dropped onto the said tool to drive the latter downward into the said head onto the broken end of the piston-rod, substantially as shown and described.

3. The combination, with a tube adapted to 20 be passed into the well and provided on its lower end with a head having its central opening less in diameter on the bottom than on the top, the said head being adapted to pass with its central opening onto the end of 25 the broken piston-rod, of a tool fitted to slide in the said tube and formed at its lower end into a wedge adapted to pass into the said head to wedge the said broken end in the said head, and toothed metallic plates detachably 30 secured to the sides of the said central opening in the said head, substantially as shown and described.

EDMUND ROGERS BRISTOL.

Witnesses:

J. W. DE CAMP,
JOHN MALERITSCH.