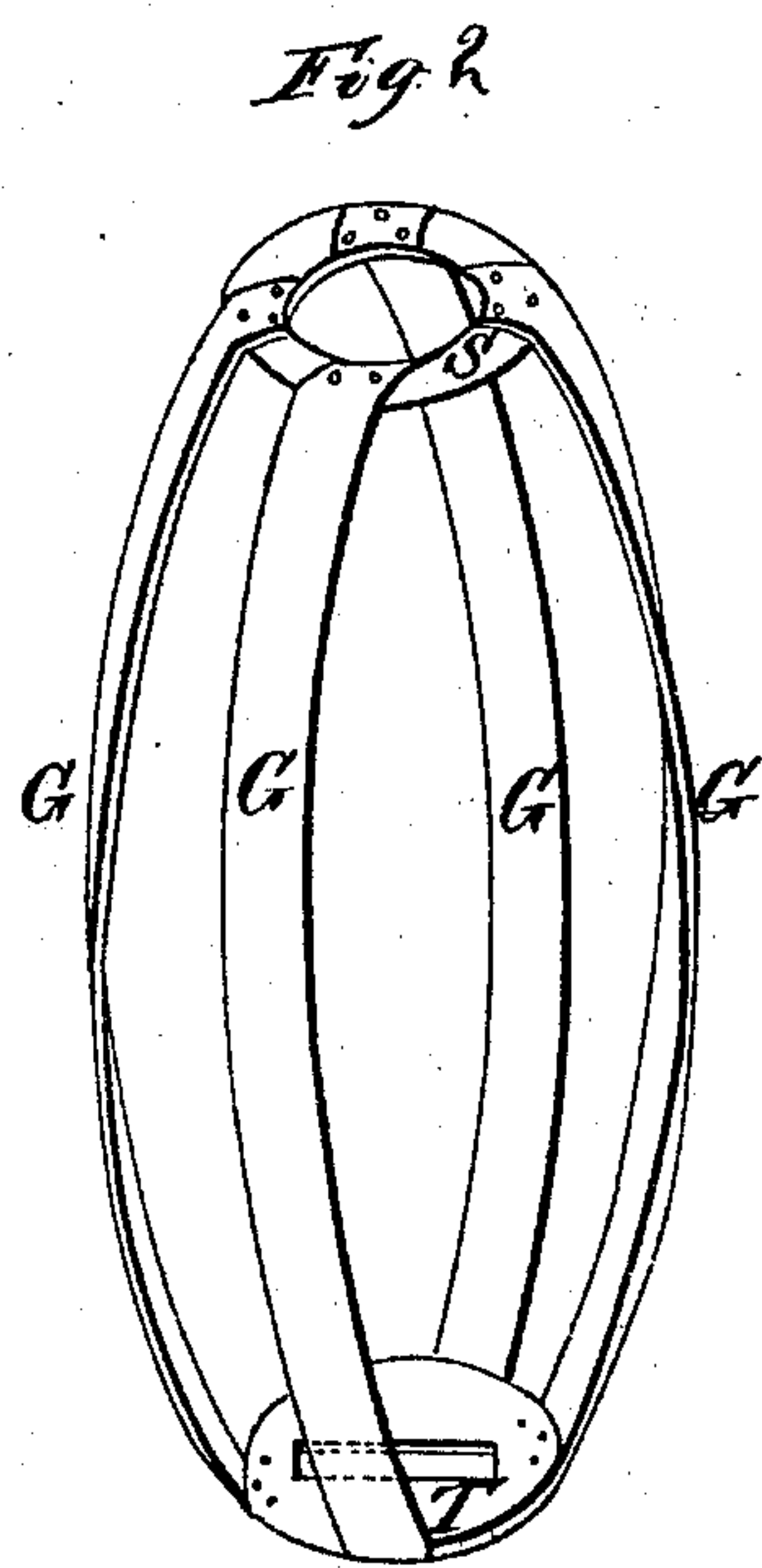
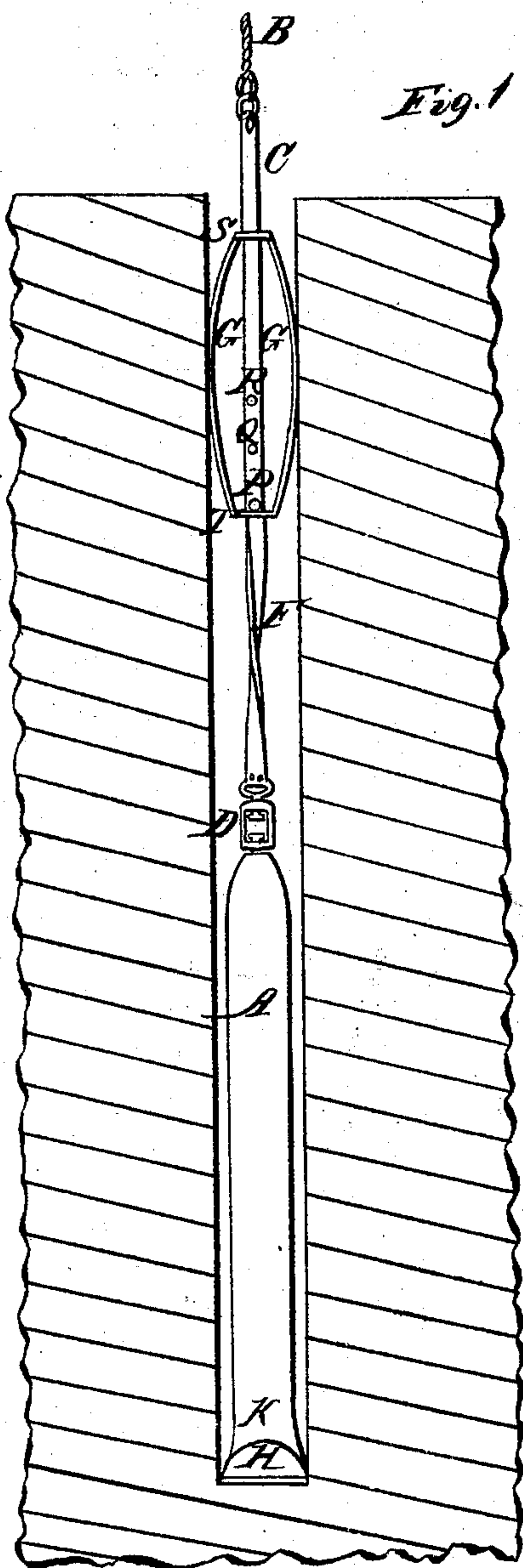


J. Thomson,
Boring Artesian Wells.
N^o 8,847. Patented Mar 30, 1852.



UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR BORING ARTESIAN WELLS.

Specification of Letters Patent No. 8,847, dated March 30, 1852.

To all whom it may concern:

Be it known that I, JOHN THOMSON, of the district of Kensington, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Machine for Boring the Earth in Search of Water or Minerals; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a front view of the machine, as at work, and Fig. 2 an enlarged perspective view of the brace, shown in Fig. 1 at G G the letters of reference being the same in both figures.

A is the boring weight, which I purpose to be an iron tube, of three inches or any suitable diameter, and ten or fifteen feet long, less or more as the case may be, and to be filled with lead for its greater specific gravity, the lower end of which is furnished with a cutter, or chisel, represented at H fitted or screwed in at K as in common rod boring instruments. This weighted borer A is suspended from the surface of the ground by the rope B. C F is a flat bar of iron or steel, four feet or thereabout in length, reaching from B to D a swivel, which connects the weight A to the bar C F. Thus we have connected, first, the rope B suspending the bar C F, which terminates in the swivel D, that sustains the weight A.

G G is a set of four less or more elliptical steel springs, combined together at their several ends to T and S two plates, forming when thus combined a single spring, which I call a brace. This brace has a circular hole in its upper end S for the free play of the flat bar C F, which passes right through, and the under end T is furnished with only a slit. The use of that slit, is to act upon the twisted flat bar in its passing and repassing through the brace, while in the act of working. The brace, by pressing upon the sides of the bore-hole, keeps itself firm all the while. The pin P by catching on either of the plates S or T inside of the brace, will carry said brace either downward or up to the surface when required.

At P Q R in the flat bar, are three holes, suitable to admit the pin P, and by this means the proper quantity of turn is given to the boring instrument, as by that means

less or more of the twist, on said bar, will pass through the brace. This twist it will be observed, is confined to that portion betwixt the point P and its connection with the swivel.

Having thus described the several parts of my machine, I shall proceed to its action, and mode of working. Suppose then the workmen to have proceeded with the boring, and that the instrument appears in the position shown in Fig. 1. The first thing to observe is the brace G G which has descended the bore-hole from the surface, pulled down by the pin P catching on the lower plate T, the weight being represented by A. This brace remains now comparatively fixed in the hole, while all things else are movable up and down when in the act of working. Imagine the workmen on the surface with the rope B in hand to lift the weight by pulling: The result of that act is the gentle turning of the flat bar, bearing along the weighted borer, with a twofold motion: for the brace being fixed, the flat bar slides through it, and the plate T having a slit and not a round hole, the bar in being pulled through, receives a turning motion, in addition to its upward one, which of course is given to the borer A by being suspended thereto. This is the rising stroke, which having been taken; the positions stand thus: The brace is exactly where it was, but the weight A is nearly up to it: and the pin P (which should determine the length of stroke, although a shorter may be taken,) will be near to S through which it cannot pass. The descent of the borer will now take place by the workmen giving full liberty to the rope to descend; I emphatically say perfect freedom to descend, when down it (the borer) comes to the bottom, with all its weight, but in a different position from that in which it rose; for in rising it turned a little to the left, on account of the twist upon the flat bar being in that direction, and now in its descent it falls perpendicularly, without deviation, independent of the twisted bar which carried it around in the rising: for be it observed, in the descent there is no weight, and consequently no bite, or strain upon the swivel, causing friction, and therefore the swivel singly makes the counter or retrograde turn, demanded by the flat bar, while the weight is descending. Again commences the ascent of the weight, as in the first in-

stance for a second stroke, when around again goes the borer, in the same direction as in the former instance just described.

The extracting of the broken pounded 5 rock, and dirt, from the bottom, is accomplished by the usual gouge, instead of the chisel H, modifying the working but not the principles of the apparatus.

According to the nature of rock through 10 which they are boring, this machine may be regulated by the pin P to four, six, eight or ten strokes, to one revolution of the chisel; thereby attaining a perfection never before arrived at by any other rope-boring appa-

ratus, and insuring a perfectly perpendicular bore-hole. 15

What I claim as new, and wish to secure by Letters Patent is—

The spring, or brace, as above described, or its equivalent, with the twisted flat bar or 20 other device, turning systematically the boring instrument, while using a rope, instead of rods, while sinking a bore-hole in the earth, in search of water or minerals.

JOHN THOMSON.

Witnesses:

JOHN ALLEN SMITH,
JOHN MOONEY.