

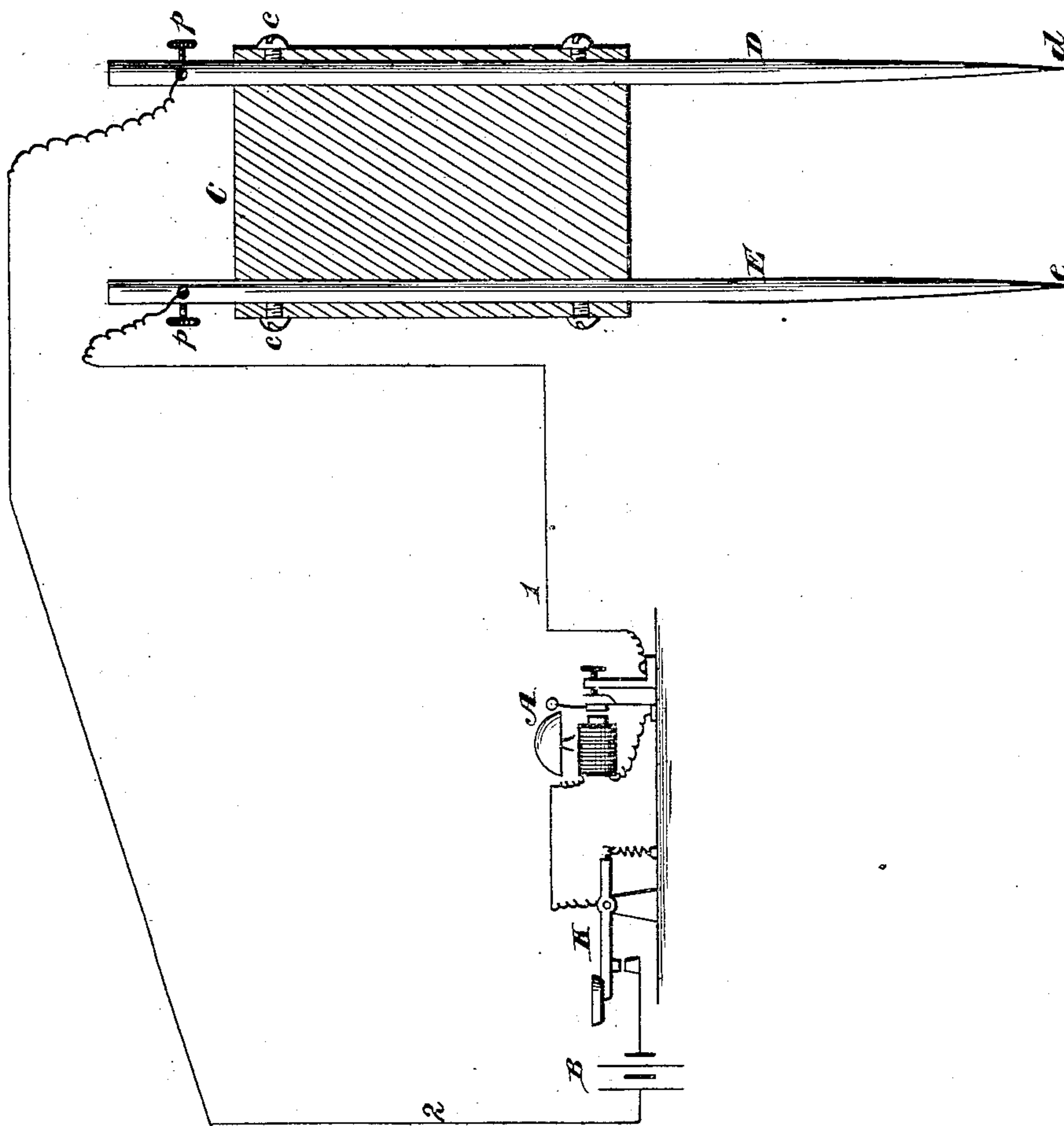
(No Model.)

J. PRINCE.

MEANS FOR ELECTRICALLY LOCATING AND FOLLOWING VEINS
OF METAL IN THE EARTH.

No. 293,518.

Patented Feb. 12, 1884.



WITNESSES

Robert Everett.
J. A. Rutherford.

INVENTOR

Jerome Prince.

By James L. Norris.
ATTORNEY

UNITED STATES PATENT OFFICE.

JEROME PRINCE, OF MILFORD, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO AUGUST P. LIGHTHILL, OF BOSTON, MASSACHUSETTS.

MEANS FOR ELECTRICALLY LOCATING AND FOLLOWING VEINS OF METAL IN THE EARTH.

SPECIFICATION forming part of Letters Patent No. 293,518, dated February 12, 1884.

Application filed May 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, JEROME PRINCE, a citizen of the United States, residing at Milford, Worcester county, Massachusetts, have invented new and useful Improvements in Mode and Means for Electrically Locating and Following Veins of Metal in the Earth, of which the following is a specification.

In searching for metallic veins or deposits the ordinary method has been to dig or bore shafts at the points beneath which it was suspected metallay. Of course this is expensive, both in cost and time, and it is desirable that some simple method involving comparatively inexpensive devices, sure of operation, and easy of use should be had. In doing this I take advantage of the fact that metals and their various compounds are of greater electrical conductivity than ordinary earth, which is non-metallic. In an electric circuit are arranged a battery or other source of electricity, an alarm apparatus, which may be an electric call-bell, and a key or other suitable circuit-controller. The terminals of this electric circuit are made of metallic poles or posts sharpened at their lower ends, so that they may be driven into the ground, and they are of any desired length, which poles or posts are secured at their upper ends to an insulating block or bridge, which keeps them apart and insulates them from each other. The battery and electric alarm are so adjusted relatively to each other that if a circuit between the posts of some considerable resistance be made the strength of the current, owing to such resistance, is not sufficient to operate the alarm, the alarm being operated only when the resistance of such a circuit is considerably reduced. Thus arranged, the posts are driven into the ground where it is desired to test for metallic substances and the key closed. If the posts have not contacted with a metallic substance, the circuit is *via* earth only between the posts, and of too great resistance to allow the alarm to act. If, however, they have contacted with metallic matter, the circuit is of low resistance and the alarm acts. After testing one point, the posts may be withdrawn and driven in at another point. By this means a large extent

of territory may be rapidly and cheaply tested for metallic veins, and if veins be found they may be as rapidly and cheaply followed up.

In the accompanying drawing the figure shows an elevation, partly in section, of an apparatus embodying my invention.

B is a battery or other source of electric current, from which lead the circuit-wires 1 2. In the circuit a key, K, and an alarm, A, are placed. The alarm here shown is an ordinary vibrating electric call-bell, though any other form of electric alarm or indicator may be used.

E D are the terminal posts, made of metal and sharpened, as at *e d*, or otherwise adapted to be readily driven into the ground. By means of ordinary binding-posts, *pp*, the circuit-wires are attached to them—one to each—so that they form the terminals of the metallic circuit. By means of screws *cc* these posts are secured to an insulating bridge-block, C, which keeps them separated and in the same relation to each other.

In use, the posts E D are driven into the ground to any desired depth and the key K closed. As before stated, B and A are so adjusted relatively to each other that if the circuit between E and D is of ordinary non-metallic earth the resistance thereof is so great that the active force of B cannot operate A. If, however, E D contacted with a metallic vein, the resistance in the circuit between them is quite low and B operates A. After testing a point, E D are pulled up and are then driven down at a new point.

Having thus described my invention, what I claim is—

1. In a device for testing, locating, or following metallic veins, the combination of metallic circuit-terminals adapted to be forced into the earth at different points, and an insulating bridge-block rigidly holding the terminals apart and in fixed relation to each other, with an electric circuit, a battery, and an alarm in the circuit, substantially as described.

2. In a device for testing, locating, or following metallic veins, the combination of metallic posts adapted to be forced into the earth

at different points, and an insulating bridge-
block, through which the posts pass, and are
thereby held separated and in fixed relation
to each other, with an electric circuit con-
5 nected with the posts, a key, a battery, and
an alarm in the circuit, substantially as de-
scribed.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses.

JEROME PRINCE.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.