

J. BISHOP.

ELECTRO MAGNETIC ENGINES.

No. 171,087.

Patented Dec. 14, 1875.

Fig. 1

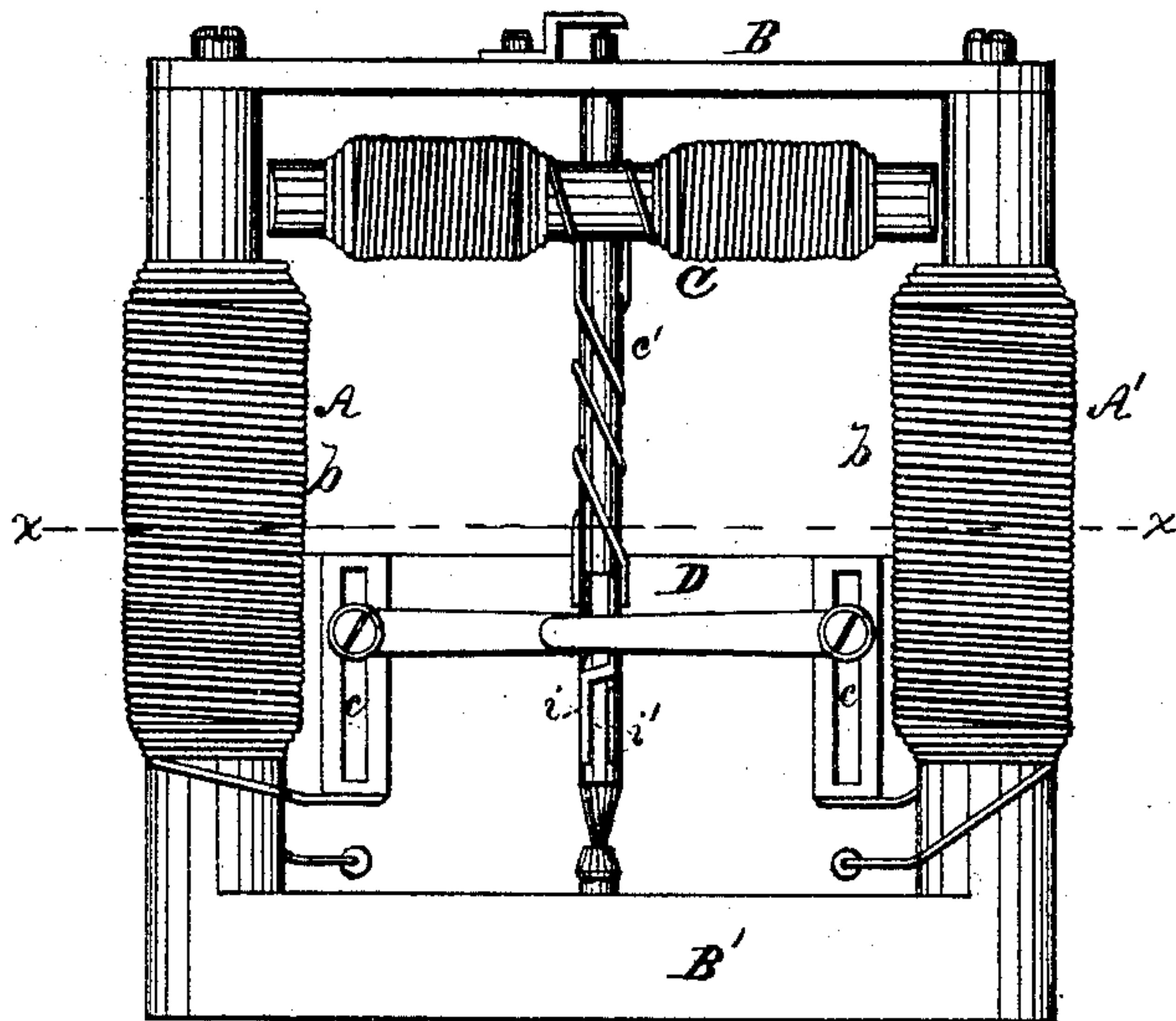
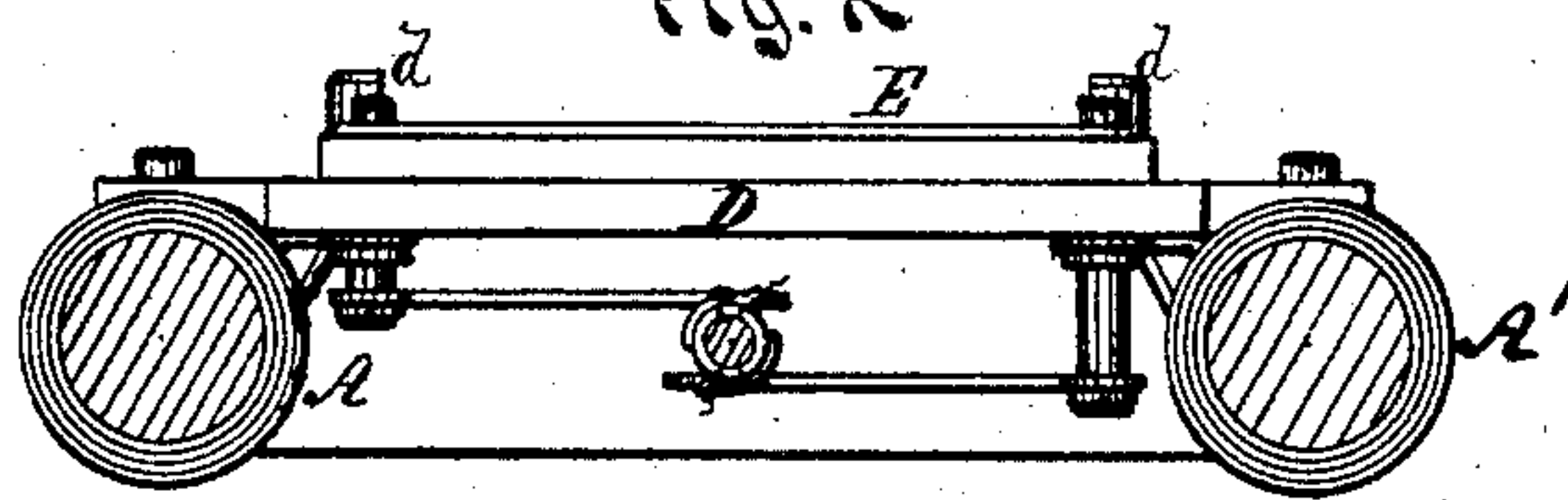


Fig. 2



Witnesses.

E. Davidson

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UNITED STATES PATENT OFFICE.

JOAQUIM BISHOP, OF SUGARTOWN, ASSIGNOR TO SAMUEL S. WHITE, OF
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IMPROVEMENT IN ELECTRO-MAGNETIC ENGINES.

Specification forming part of Letters Patent No. **171,087**, dated December 14, 1875; application filed
August 6, 1873.

To all whom it may concern:

Be it known that I, JOAQUIM BISHOP, of Sugartown, in the county of Chester and State of Pennsylvania, have invented certain Improvements in Electro-Magnetic Engines, of which the following is a specification:

My invention relates to electro-magnetic engines of that class in which an armature revolves between electro-magnets.

The subject-matter claimed will hereinafter specifically be set forth.

In the accompanying drawings, Figure 1 shows a back view of so much of my improved apparatus as is necessary to illustrate the invention herein claimed, and Fig. 2 a horizontal section therethrough on the line *x x* of Fig. 1.

Two poles, *A A'*, are connected by cross-pieces *B B'*, thus constituting a frame, in which an armature, *C*, revolves in suitable bearings. The wires of the battery are attached to the hooks *d d* on a bar, *D*. One end of each coil *b* of the electro-magnets is connected with one of these hooks, while the other is connected with a slotted plate, *c*, in the bar *D*, in which slot pins on a shifter-bar, *E*, slide. These pins are of metal to keep up the circuit, project through or beyond the bar, and carry springs, which bear on what I term a spiral break, *i*, on the spindle *c'* of the armature. This break is a spiral strip of metal connected with the wires of the armature, but is insulated from its spindle. The break is divided

vertically on two opposite sides, and at each end, by insulated spaces *i'*, so as to break the circuit at each semi-revolution. One pole of each magnet is always positive and the other negative. The current passes continually from each to the armature, the power of both being thus utilized. To reverse the direction of the rotation of the armature, the shifter-bar is moved vertically in the slots, so as to bring the spring-arms to bear upon the opposite end of the break, when the current is instantly reversed.

I disclaim the devices shown and described in the application of George F. Green, filed January 13, 1871, for improvements in electro-magnetic dental implements.

I claim as my invention—

1. The combination of the spiral break and spindle of the armature, substantially as set forth.

2. The combination of the shifter-bar *E*, provided with pins and springs, as described, bar *D*, slotted plate *c*, and spiral break, substantially as set forth.

3. The combination of the spiral break and shifting mechanism with the electro-magnets and armature, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

JOAQUIM BISHOP.

Witnesses:

BALTIS DE LONG,
E. C. DAVIDSON.