

C. E. PEARSON.
INTERRUPTER.

APPLICATION FILED JULY 10, 1907.

903,745.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

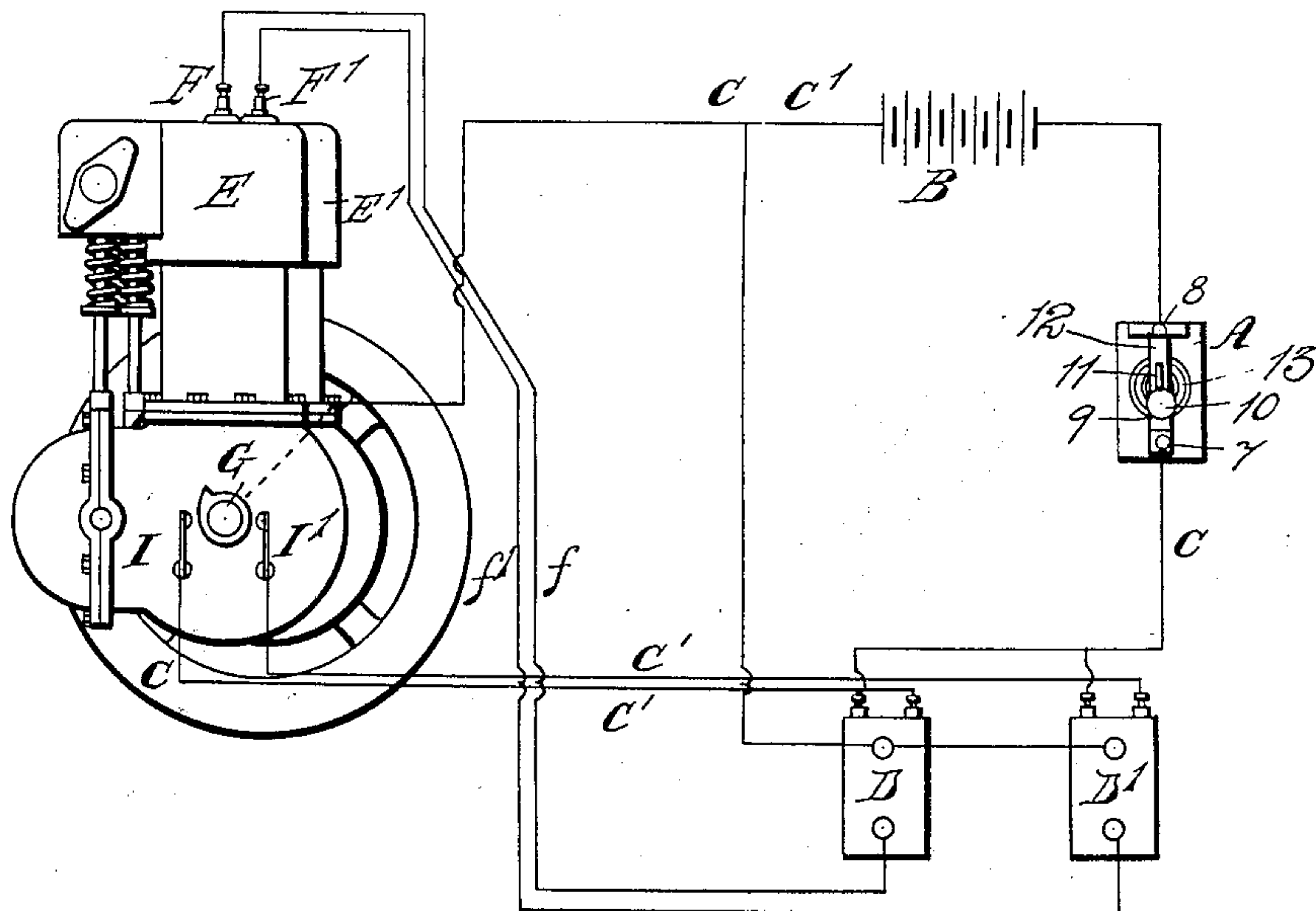


Fig. 1.

WITNESSES

May E. Kott.
Alice Townsend

INVENTOR

Carl E. Pearson

By

Parker & Burton

Attorneys.

C. E. PEARSON.
 INTERRUPTER.
 APPLICATION FILED JULY 10, 1907.

903,745.

Patented Nov. 10, 1908.

2 SHEETS—SHEET 2.

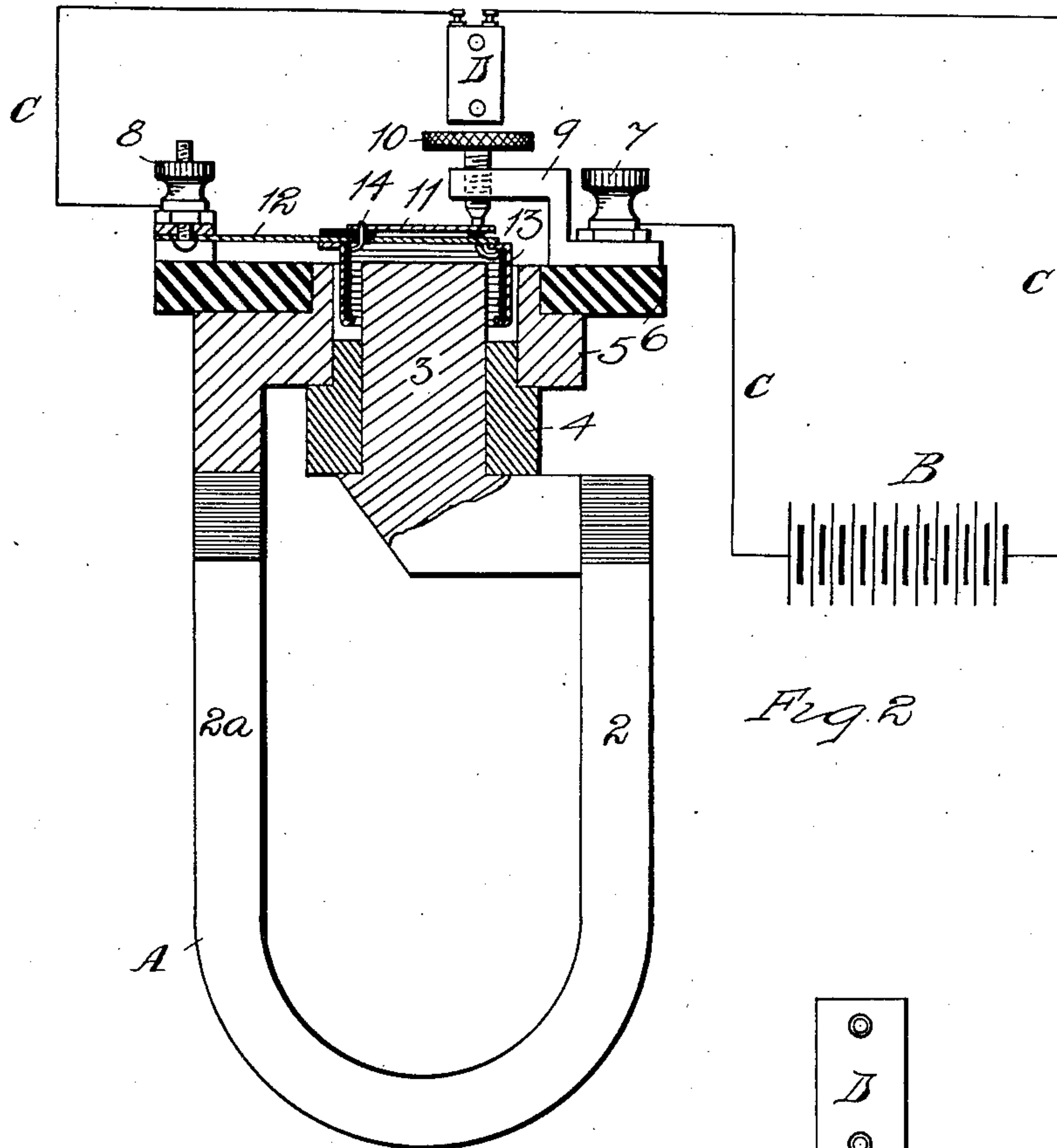


Fig. 2

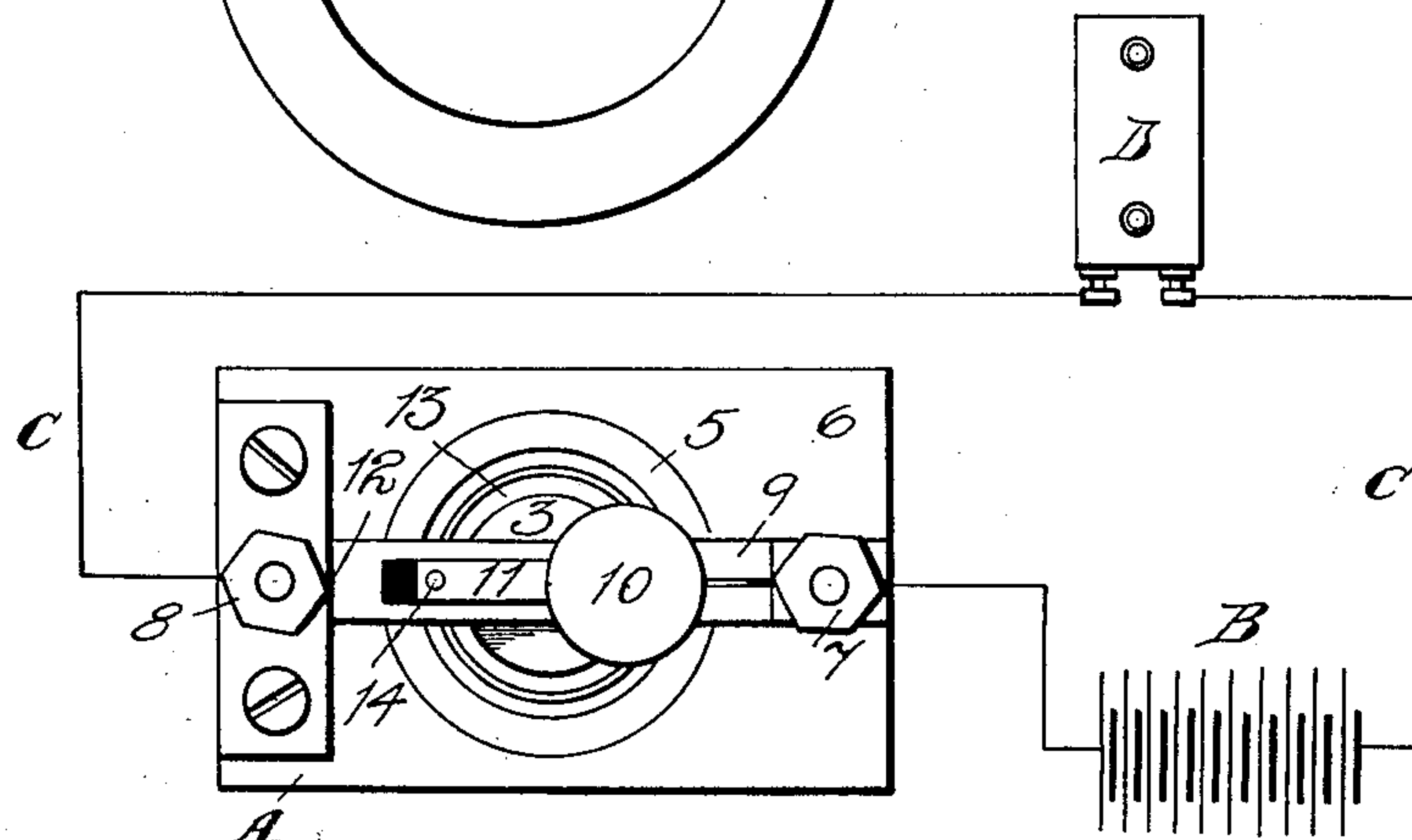


Fig. 3

WITNESSES

May E. Kott
 Alice Townsend

INVENTOR

Carl E. Pearson

By

Parker & Burton

Attorneys.

UNITED STATES PATENT OFFICE.

CARL E. PEARSON, OF LANSING, MICHIGAN, ASSIGNOR TO CHARLES H. BATES AND JAMES H. WELLINGS, OF LANSING, MICHIGAN.

INTERRUPTER.

No. 903,745.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed July 10, 1907. Serial No. 383,010.

To all whom it may concern:

Be it known that I, CARL E. PEARSON, a citizen of the United States, residing at Lansing, county of Ingham, State of Michigan, have invented a certain new and useful Improvement in Interrupters, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an interrupter, especially to interrupters to be used with sparking coils for gas engines.

In the accompanying drawing:—Figure 1, is a diagrammatic view of an apparatus embodying my invention, in connection with a two cylinder gas engine and the ignition apparatus therefor. Fig. 2, is an elevation, partly in section, of the interrupter. Fig. 3, is a plan view of the same.

The reference letter A designates the interrupter as a whole.

B is the battery, C and C¹ the circuits, in which circuits are sparking coils D and D¹ the primaries of said coils being interposed in the circuits.

E, E¹, indicate the two cylinders of a gas engine, and F and F¹ the sparking plugs therefor.

f, f¹, indicates the secondary circuit from the sparking coils D and D¹.

G is a cam of conducting material adapted to be rotated by the engine.

I, I¹, are brushes in the circuits C, and C¹ respectively. The cam G is adapted to contact the brush I, to complete the circuit C, and the brush I¹ to complete the circuit C¹.

The interrupter A forms a part of the circuit C or the circuit C¹. Only one of said circuits is complete at the same time. I have shown two circuits, though any number within reasonable limits might obviously be used.

2, 2^a, Fig. 2, are the legs of a permanent magnet. 5 is an annular pole piece on the leg 2^a, and 3 is a cylindrical extension from the leg 2, forming a pole piece of opposite polarity to that of the pole piece 5 within and concentric with the pole piece 5. By this arrangement a strong, permanent magnetic field is produced between the annular

pole piece 5 and the inclosed cylindrical pole piece 3.

4 is a piece of non-magnetic material, as brass, sleeved over the pole piece 3, and passing within the pole piece 5, to secure a definite and fixed relative position of said pole pieces.

6 is a plate of insulating material supported upon the pole piece 5.

7 is a binding post upon one end of the plate 6, and 8 is a binding post upon the other end of said plate.

9 is a goose neck secured in position upon the plate 6, and connected with the binding post 7.

10 is a thumb screw having a contact point at its lower end adapted to be adjusted longitudinally in its support in the goose neck 9 by screwing it up or down.

12 is a tongue or plate of resilient material secured to the plate 6 and in connection electrically with the binding post 8.

11 is a small resilient plate of metal secured upon or near the free end of the plate or tongue 12, parallel thereto and insulated therefrom. The plate 11 is secured to the plate 12 at its left hand end, as shown in Fig. 2, and is free at its other end, at which end it is adapted to be contacted by the lower end of the thumb screw 10.

13 is a light coil or solenoid of insulated conducting wire. One terminal of said solenoid is connected, as indicated at 14 with the plate 11; the other end of the conductor of said solenoid is connected electrically with the plate 12. The solenoid 13 is supported by the plate 12, so as to extend between the pole pieces 3 and 5.

The operation of the above described device is, as follows:—The thumb screw 10, being in contact with the plate 11, a circuit is established through the battery B, the primary of the coil D, binding post 8, tongue or plate 12, solenoid 13, plate 11, binding screw 10, goose neck 9, binding post 7, and thence returning to the battery. When the current flows through the solenoid 13, the interaction between the pole pieces 3 and 5, and said solenoid, draws the tongue or plate 12 downward, causing an induced current to flow in the secondary of said induction coil, and a spark to occur at the sparking points of the plug F. As soon as the circuit

is interrupted, the interaction between the solenoid and the permanent magnet 2, 2^a and the resilience of the plate 12, reestablishes contact between the plate 11 and thumb screw 10, remaking the circuit.

In the above described apparatus, I avoid the use of a heavy armature and the necessity of creating a magnetic field at each break of the circuit, the inductance is also negligible, and therefore does not interfere with the action of the coil, or the flow of the current thereto, and the action of the vibrator or interrupter is not dependent upon the degree, or fact, of the magnetization of the core of the coil.

What I claim is:—

1. In a make-and-break apparatus, the combination of means for creating a permanent magnetic field, a contact point, a tongue adapted to make connection with said contact point, a conductor secured to said tongue and located in the magnetic field, and means for passing a current through

said conductor, said conductor being so arranged that it shall act to draw said tongue away from said contact point when the current is passing through it.

2. In a make-and-break apparatus, the combination of means for creating a permanent magnetic field, a contact point, a tongue having a contact plate secured thereto at one end and adapted to make contact with said contact point at the other end and insulated from said tongue, a conductor secured to said tongue and connected at one end to said plate and at the other end to said tongue, and means for sending a current through said tongue, conductor, and plate, for the purpose described.

In testimony whereof, I sign this specification in the presence of two witnesses.

CARL E. PEARSON.

Witnesses:

CHAS. W. NICHOLS,
BEULAH PRATT NICHOLS.