

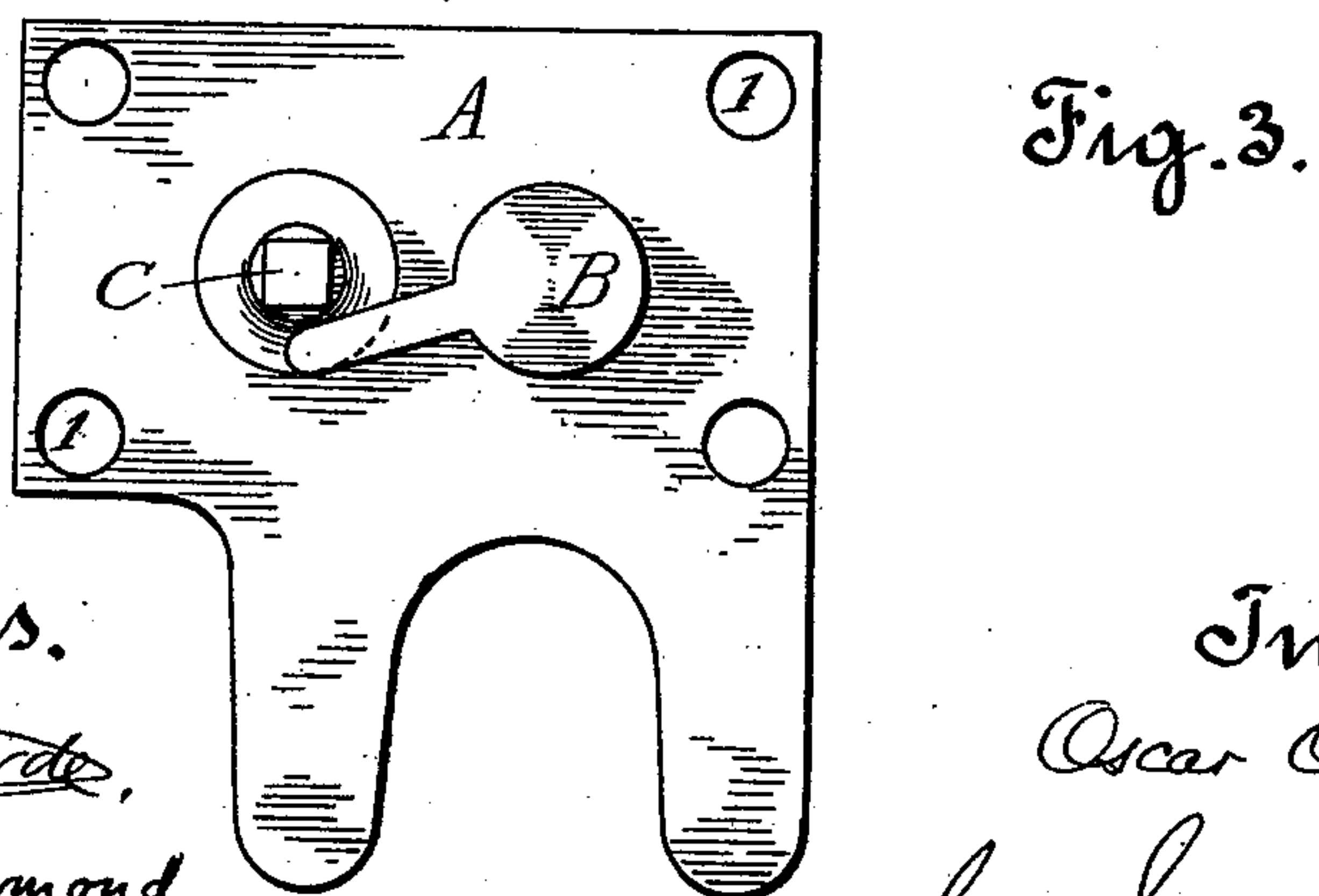
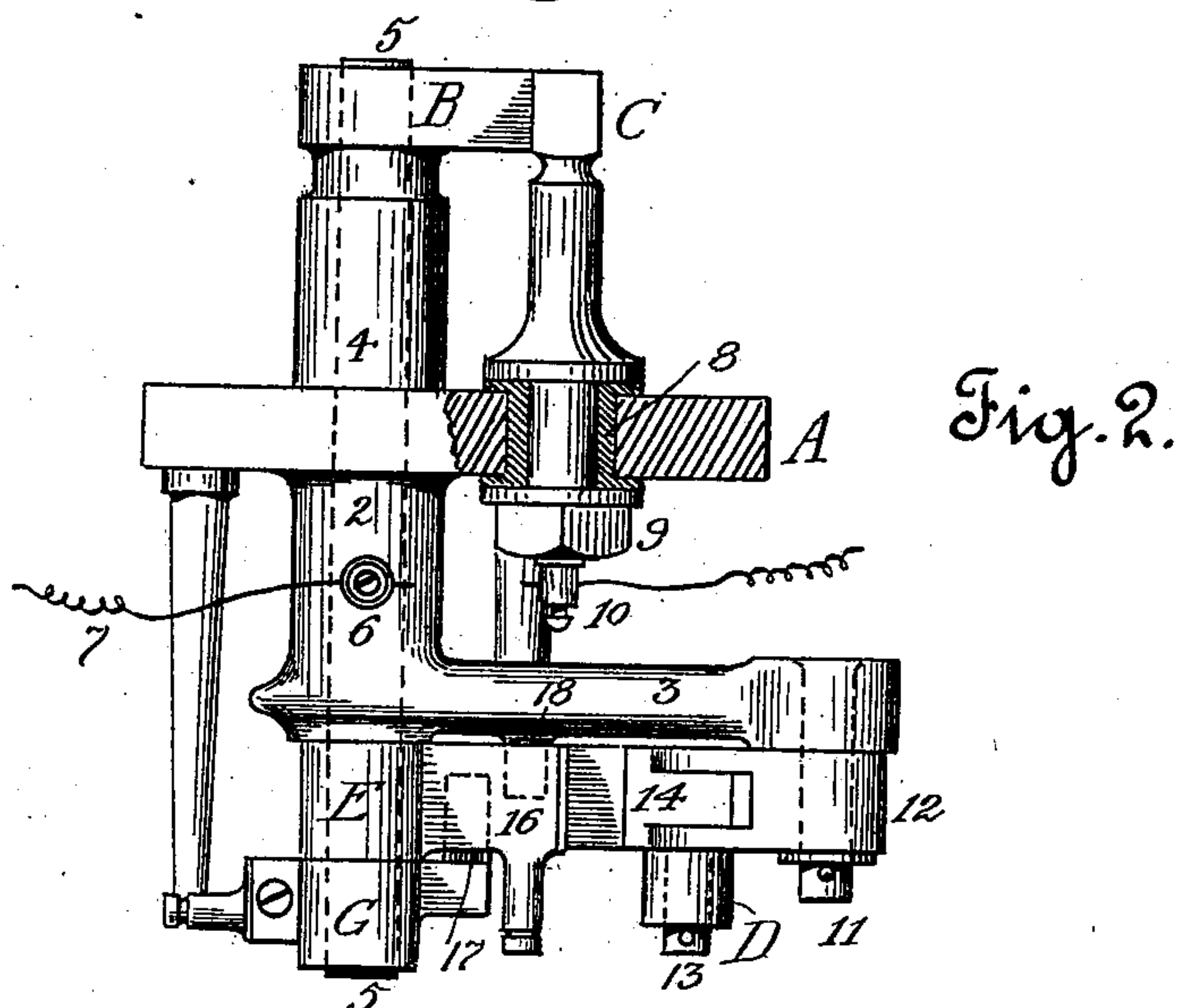
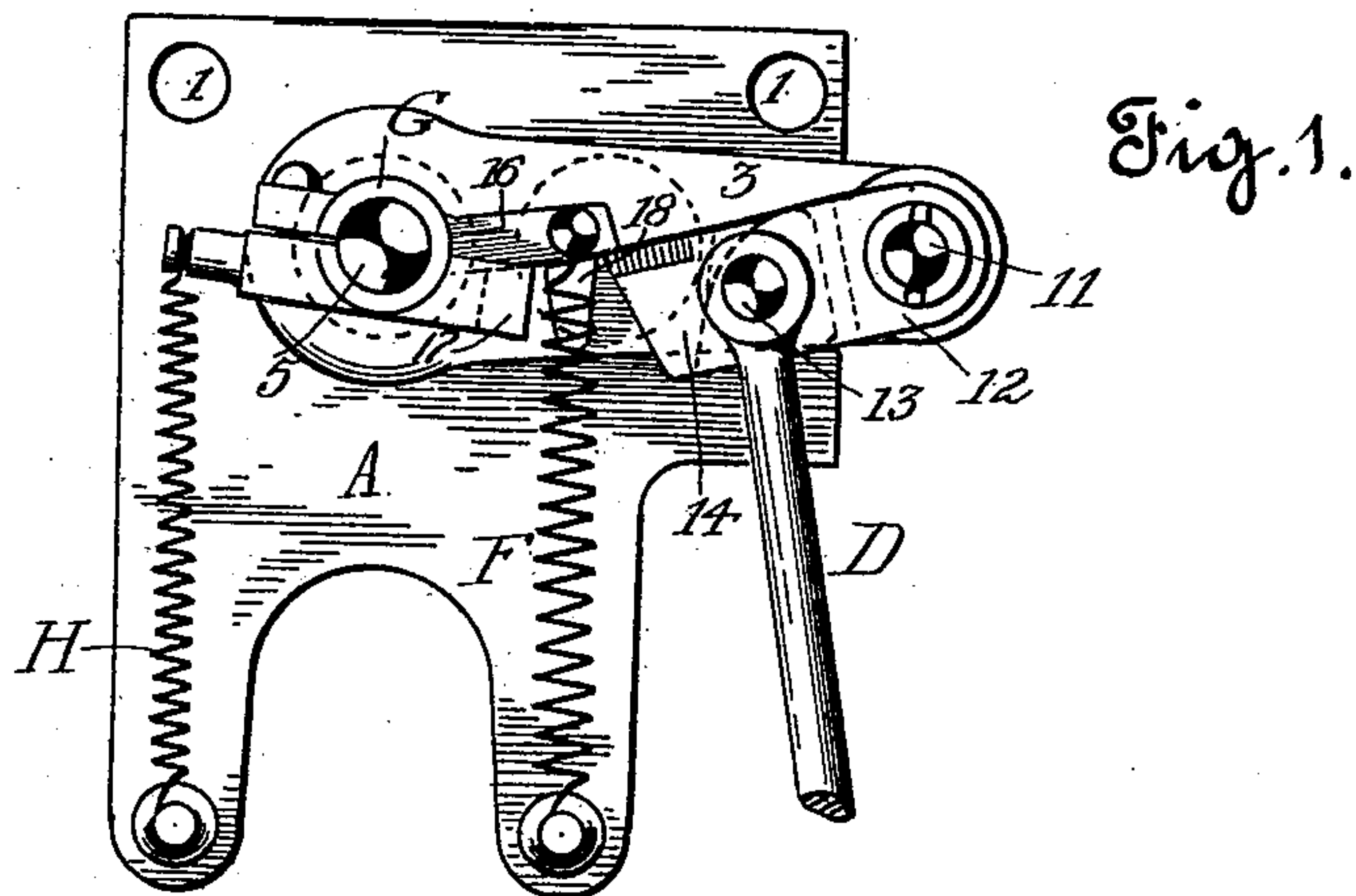
**No. 646,867.**

**Patented Apr. 3, 1900.**

**O. OWENS.**  
**IGNITER FOR GAS ENGINES.**

(Application filed Feb. 6, 1899.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

OSCAR OWENS, OF SAN FRANCISCO, CALIFORNIA.

## IGNITER FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 646,867, dated April 3, 1900.

Application filed February 6, 1899. Serial No. 704,729. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR OWENS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Igniters for Gas-Engines, of which the following is a specification.

My invention relates to electrical igniters for engines operated by the explosion of charges of a combustible mixture successively admitted to a combustion-space.

The object of my invention is to provide a simple construction for the igniter which will be certain in operation and will produce a long contact and a sharp sudden break, resulting in a large spark.

Part of the invention relates to the construction of the terminal electrodes within the combustion-space and part to the construction of external devices for controlling their operation.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the external parts of the igniter. Fig. 2 is a plan view. Fig. 3 is a rear elevation to illustrate the terminal electrodes.

A represents a plate which supports the entire mechanism of the igniter and which is bolted to the engine, as shown at 1. A hollow boss 2 is formed with or secured to the plate, which has a bracket 3 projecting at right angles from its end in line with this boss; but on the opposite side of the plate is another boss 4. Bosses 2 and 4 are in line with an opening through the plate and form a bearing for the stem 5 of the movable electrode B, which stem projects forwardly beyond the boss 2. The binding-post 6 connects one battery-wire 7 with the engine. The fixed electrode C is a pin insulated from the plate, as shown at 8, and secured in a hole in the plate by a nut 9. The operative end of the electrode C is of polygonal cross-section, so that it may be turned in its seat to present new angles to the movable electrode. As shown in the drawings, it is of square cross-section, giving four changeable angles. It may, however, have as many sides and angles as may be desired.

The movable electrode B has a contact-sur-

face projecting from and secured to the stem 5 and is oscillated into and out of contact with the electrode C in order to make and break the circuit and produce the spark. The other battery-wire is connected to the insulated electrode by the post 10.

The movable electrode is controlled by a peculiar and novel mechanism on the outer side of the supporting-plate, the object of which is to cause a long contact and a very sharp sudden break, resulting in a large spark. Of course a spark can be produced by a connection from the engine, which directly oscillates the igniter-stem into contact and then permits it to break contact; but I have found that such a spark is feeble when compared to that produced by the connections I am about to describe. These connections produce a longer contact and compel a very sharp break. Pivoted upon a pin 11, fixed in the bracket 3, is a block 12. A rod D is connected to a wrist-pin 13 on the block and is supposed to derive motion by being in any suitable way connected to the engine-shaft—ordinarily from the geared-down shaft which operates the valves. Pivoted in a recess in the block 12 is a steel-faced gravity-tumbler 14, having a beveled edge 15. This tumbler operates the igniter-stem through specially-constructed connections. On its upward movement it bears upon and lifts an arm 16, which forms part of a sleeve E, loose on the igniter-stem, but held down by a strong spring F, connected to the supporting-plate. Next to the sleeve E, but adjustably fixed on the igniter-stem, is a clamp G, having a lug 17, projecting beneath the arm 16. This clamp is connected by a relatively-weak spring H to the supporting-plate. The spring H tends to move the electrode B into contact, but is prevented from doing so by the superior tension of the spring F. As soon as the tumbler 14 commences to lift the arm 16 and loose sleeve E the spring H is permitted to act, causing a contact and holding it until the tumbler has raised arm 16 far enough to slip over its edge. The spring F then takes effect sharply, overcoming the spring H and causing the arm 16 to strike lug 17, breaking the contact and putting spring H again under tension. The arm 16 drops against a stop 18, and the pivoted tumbler falls back by gravity as the connecting-rod D makes its return



stroke toward the engine-shaft. The arm 16 is therefore a controlling device for the actual contact-maker, and the construction evidently produces a longer contact than would be the case were the rod D connected directly to the igniter-stem. The increased length of contact is secured without causing any delay in operation. All the parts work at normal and regular speed; but by the interposition of the controller with its stronger spring the weaker spring is enabled to act and hold the contact by causing the igniter-stem to follow the controller up until the contact is made and then to hold the contact until the controller has completed the upward movement imparted to it.

The adjustment of the clamp G on the igniter-stem enables me to take up any wear which may occur between the electrodes.

The springs being situated entirely outside the cylinder are not exposed to injury from heating. The simplicity, strength, and durability of the construction and the ease with which all parts can be removed and replaced are apparent even in a drawing, as well as the absence of delicate parts liable to get out of order and need repair.

I do not limit myself to the precise construc-

tion herein described and shown, as I desire to avail myself of such modifications and equivalents as fall properly within the spirit of my invention.

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

1. In an igniter, terminal electrodes, one of which has a contact-surface, while the other is a rod of polygonal cross-section having a plurality of angles, the axes of the said electrodes being parallel and one of them having movement in a direction transverse to the axes to engage the different angles of the polygonal electrode, substantially as described.

2. In an igniter, terminal electrodes, one of which has a contact-surface, while the other is of polygonal cross-section and adjustable to present its separate angles to the contact-surface.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 28th day of January, 1899.

OSCAR OWENS.

Witnesses:

L. W. SEELY,  
JOHN E. DOAK.