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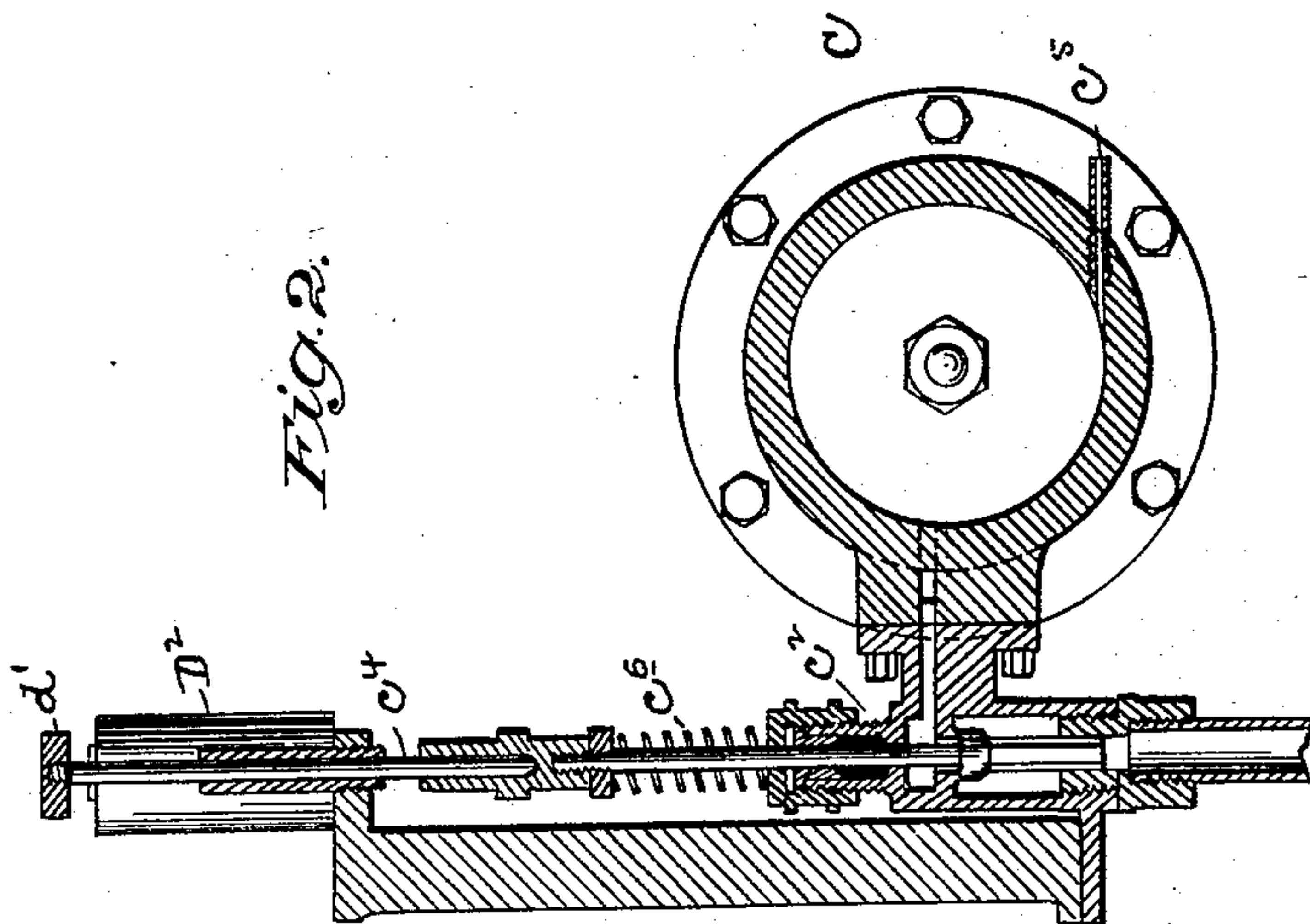
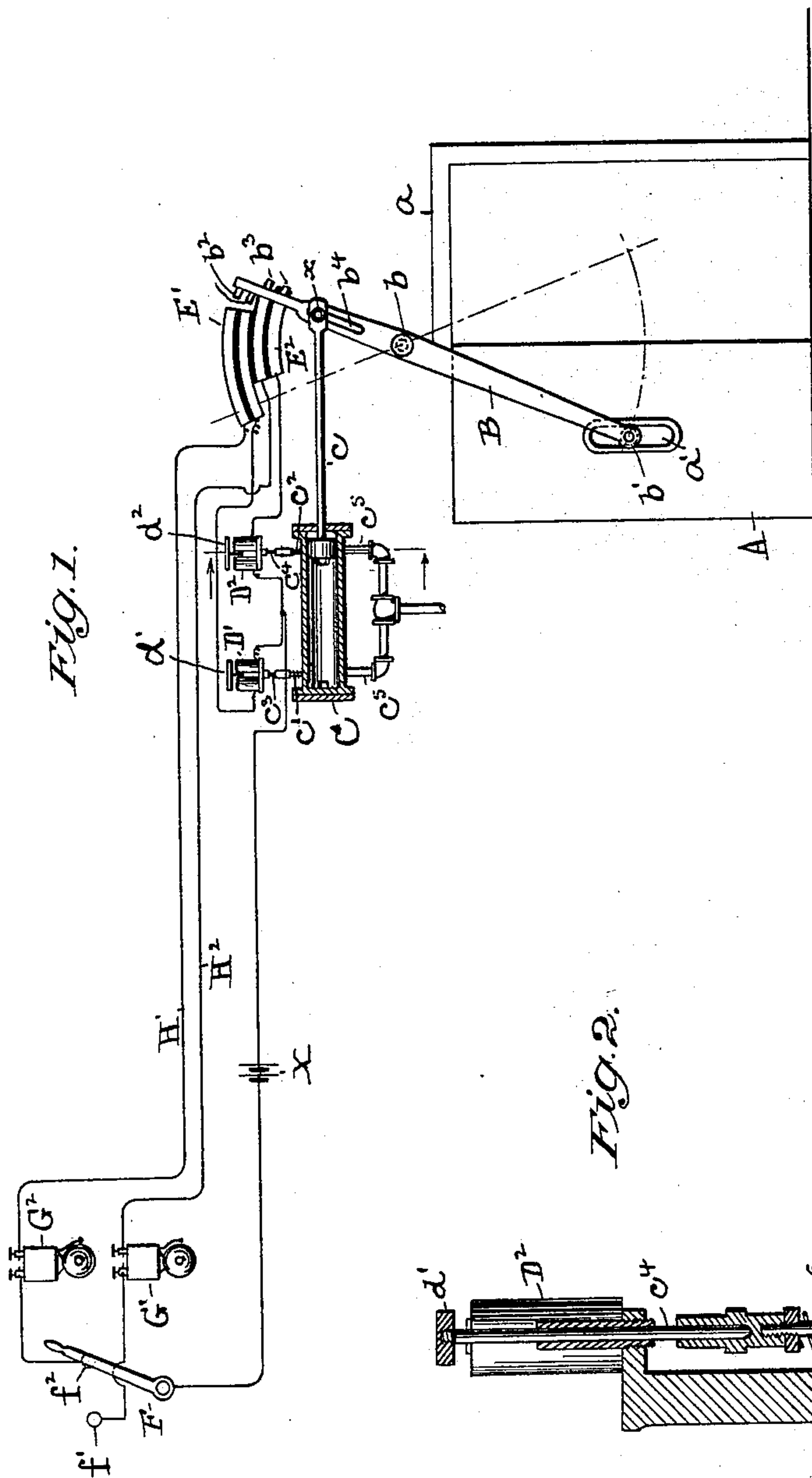
2 Sheets—Sheet 1.

C. E. ONGLEY.

APPARATUS TO CONTROL THE STROKES OF PISTON RODS ELECTRICALLY.

No. 513,051.

Patented Jan. 16, 1894.



WITNESSES:
Edward C. Rowland.
Eugene Douvan

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(No Model.)

2 Sheets—Sheet 2.

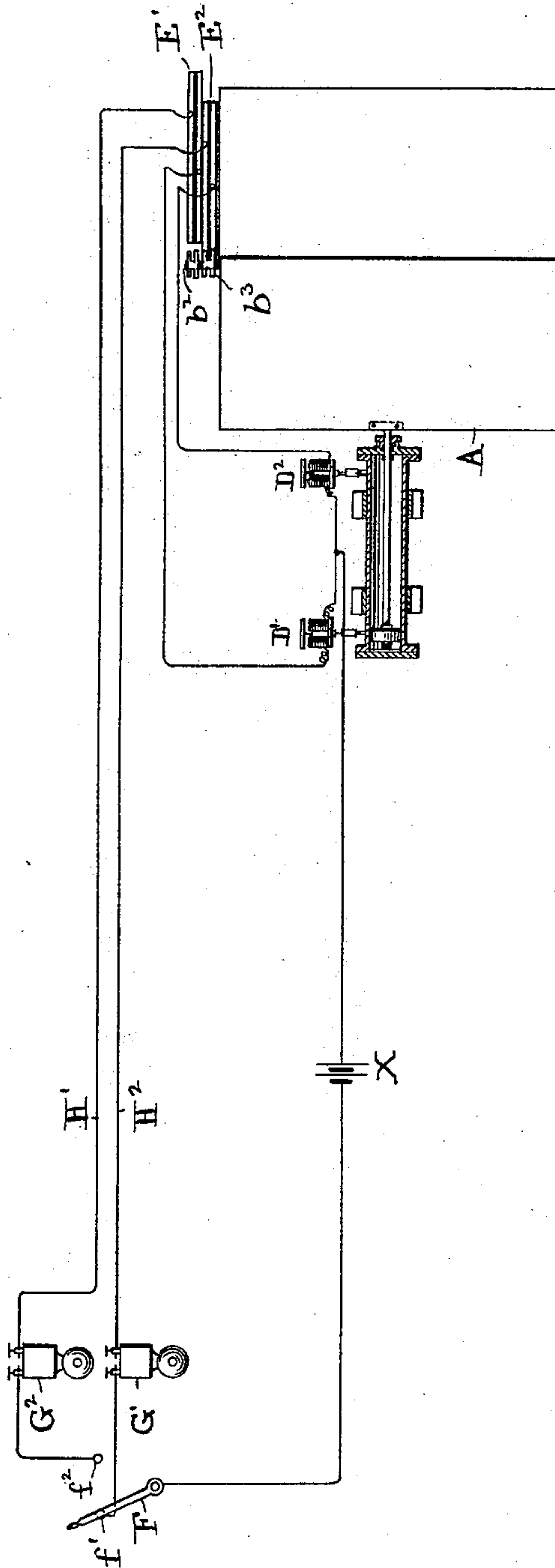
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Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES EDWARD ONGLEY, OF NEW YORK, N. Y., ASSIGNOR TO GEORGE J. SCHOEFFEL, OF SAME PLACE.

APPARATUS TO CONTROL THE STROKES OF PISTON-RODS ELECTRICALLY.

SPECIFICATION forming part of Letters Patent No. 513,051, dated January 16, 1894.

Application filed August 22, 1893. Serial No. 483,755. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDWARD ONGLEY, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Apparatus to Control the Strokes of Piston-Rods Electrically, of which the following is a specification.

My invention relates to apparatus controlled electrically to throw a piston rod the length of its stroke and by such action to make circuit connections, through which by the movement of a switch the piston may be thrown back to its first position, with each stroke making and breaking circuit connections, through which its operation is controlled, and particularly as the same may be applied to the opening and closing of a door.

I have illustrated my invention in the accompanying drawings as particularly designed to operate compartment doors of a ship, in which—

Figure 1 is an elevation, partly in section, of one form of the device showing also the circuit connection. Fig. 2 is a sectional view of the valve and its connections. Fig. 3 shows a second form of construction of the device with its circuit connections.

Like letters refer to like parts throughout the drawings which are particularly described as follows:

A is a sliding door moving in the frame a . In the construction showing Fig. 1, the door A is provided with the slot a' , and the lever B is pivoted at the point b , and is provided with the slot b^4 and at one end with a bolt b' arranged to reciprocate in the slot a' .

C is a cylinder.

c is a piston rod arranged to co-operate with the cylinder C and it is pivoted at one end to the lever B at x . The cylinder C is provided with valves c' and c^2 which control the supply of pressure to the cylinder. These valves are operated by the valve rods or stems c^3 and c^4 .

D' and D^2 are electromagnets having armatures d' and d^2 . One armature is secured to one valve stem and one to the other.

E' and E^2 are contact plates and b^2 and b^3 are pens secured to the lever B and arranged to engage the contact plates E' and E^2 .

F is an electric switch having contact points f' and f^2 .

X is a battery.

In Fig. 2 the details of the valve and its connections are shown together with a spiral spring c^6 which operates to close the valve when the electric circuit is broken.

c^5 and c^5 is the exhaust.

In the second form of construction shown in Fig. 3, the piston rod is illustrated as attached directly to the door A instead of through the medium of the lever B, and the contact plates E' and E^2 and their contact pens b^2 and b^3 are arranged to be operated by the movement of the door directly instead of through the agency of the lever B.

G' and G^2 are electric gongs.

The electric current connections are indicated by H' and H^2 and are made or broken by hand through the medium of the electrical switch F. and automatically by the movement of the lever B in Fig. 1 and the door A in Fig. 3. When the door is closed as in Fig. 1, the circuit connection is made through circuit H^2 , and when open through circuit H' , and the reverse in Fig. 3. In Fig. 1 when the door is closed and the switch F is brought in contact with the pin f' , the circuit is made through the battery X, the electromagnet D^2 , the contact plate E^2 , the pens b^3 , the electric gong G^2 and the contact pin f' the place of beginning. When the door is open and it is desired to close the same, the switch F is moved to the contact pin f^2 and the circuit is made through the battery X, the electromagnet D' , the contact plate E' , the pens b^2 , through the electric gong G' to the contact pin f^2 , the point of beginning. In Fig. 3 the course of the circuits is the reverse of the foregoing but the result is the same.

The valves c' and c^2 control the supply of operative pressure to the cylinder.

The battery X represents a supply of electricity to the circuits.

The operation of my device is as follows:

When I desire to open the door in the construction shown in Fig. 1, I bring the switch F in contact with the pin f' . This causes the current to pass through the battery X and electromagnet D^2 to the contact plate E^2 , and thence by the pens b^3 through the electric

gong G' to the point of beginning. This current energizes the electromagnet D^2 which causes the same to attract its armature d^2 which operates the valve stem or rod c^4 to open the valve c^2 and admit the pressure employed, into the cylinder. This pressure operates the piston rod to move the door A, through the agency of the lever B, and it will be noted that when the piston has completed its stroke, the contact pens b^3 will have left the contact plate E^2 and have broken the circuit H^2 , at the same time bringing the contact pens b^2 in contact with the contact plate E' , completing the circuit connections for circuit H' . When I desire to close the door I bring the switch F in contact with pin f^2 , thus making the circuit H' through the battery and electromagnet D' and contact plate E' and pens b^2 , thence through the electric gong G^2 to the point of beginning, thus energizing the electromagnet D' , and performing the same operation as that last described, except that the pressure is admitted from the other end of the cylinder.

I have shown the gongs G' and G^2 as a convenient means of sounding an alarm or warning that the mechanism is about to operate. Should the pressure employed be great and the operation rapid it would be necessary to arrange a supplemental circuit or shunt operated by the hand switch or otherwise to ring the bell for a short period prior to the operation of the device. The bell is supposed to be located near the compartment door. It will be manifest that I may use as the power to operate this mechanism either steam, water, air or other pressure, but I prefer to use water as it is more stable in its action.

What I claim is—

1. The combination with a cylinder provided with valves and a piston rod, of means

to control the valves electrically, and circuit connections to such valve-controlling devices, arranged to be made and broken with the stroke of the piston rod, and means to control the circuit, substantially as described.

2. A cylinder provided with valves and piston rod in combination with a door connected with the piston rod, the cylinder provided with valves controlled by electromagnets having armatures secured to the valve stems, and circuit connections to said magnets, arranged to be made and broken with the stroke of the piston rod, and means to control the circuit, substantially as described.

3. A cylinder provided with valves and piston rod in combination with a door connected with the piston rod by a pivoted lever, the cylinder provided with valves controlled by electromagnets having armatures secured to the valve stems, and circuit connections to said magnets, arranged to be made and broken with the stroke of the piston rod, and means to control the circuit connections, substantially as described.

4. A cylinder provided with valves and piston rod in combination with a door connected with the piston rod, the cylinder provided with valves controlled by electromagnets having armatures secured to the valve stems, and circuit connections to said magnets, arranged to be made and broken with the stroke of the piston rod, and electric gongs in the circuits and means to control the circuit, substantially as described.

This specification signed and witnessed this 15th day of August, 1893.

CHARLES EDWARD ONGLEY.

Witnesses:

WILLIAM FRANCIS MOODY,
ELLA LINCOLN ONGLEY.