

No. 728,823.

PATENTED MAY 26, 1903.

F. ADAMS.
ELECTRIC CANAL SYSTEM.
APPLICATION FILED JULY 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

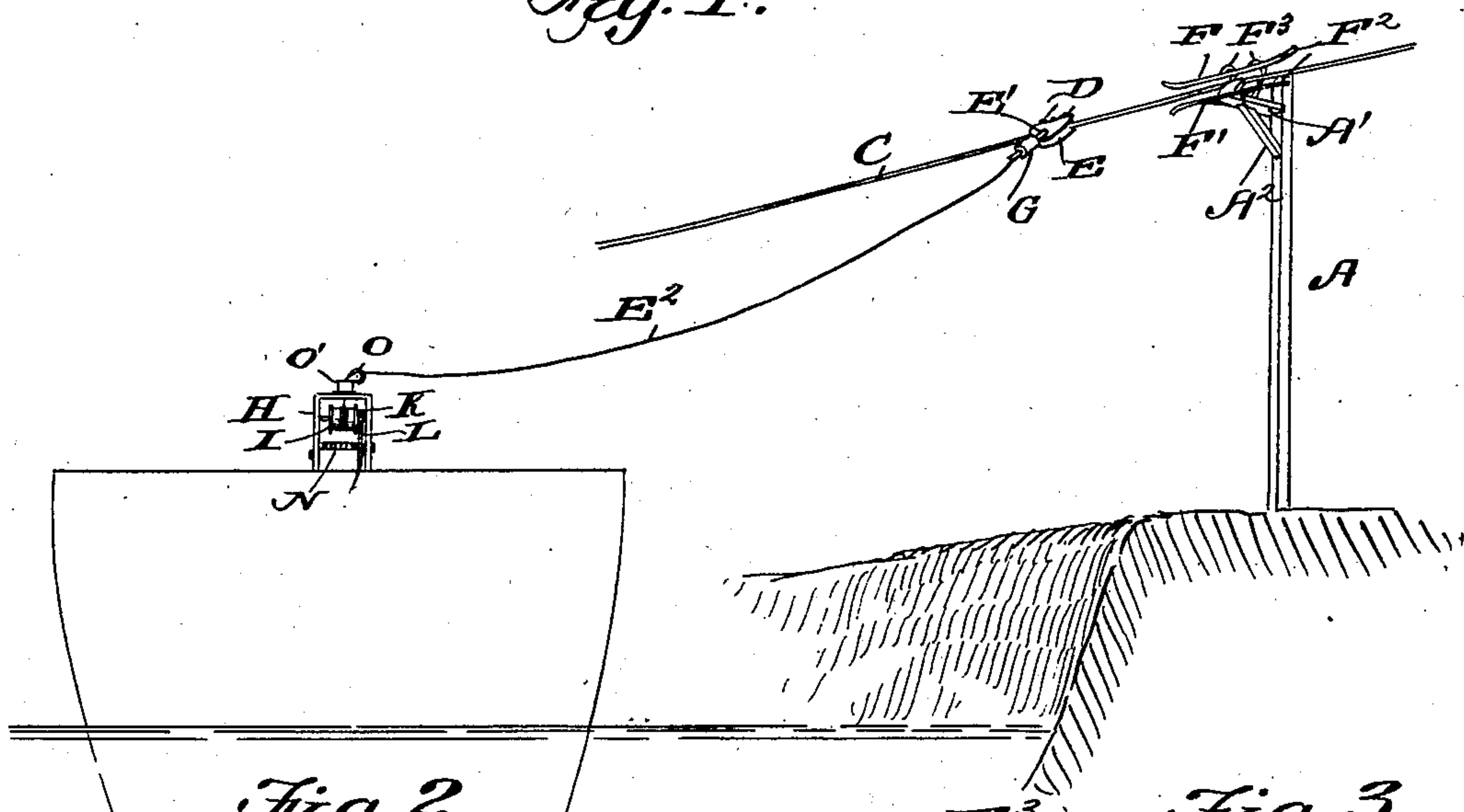


Fig. 2.

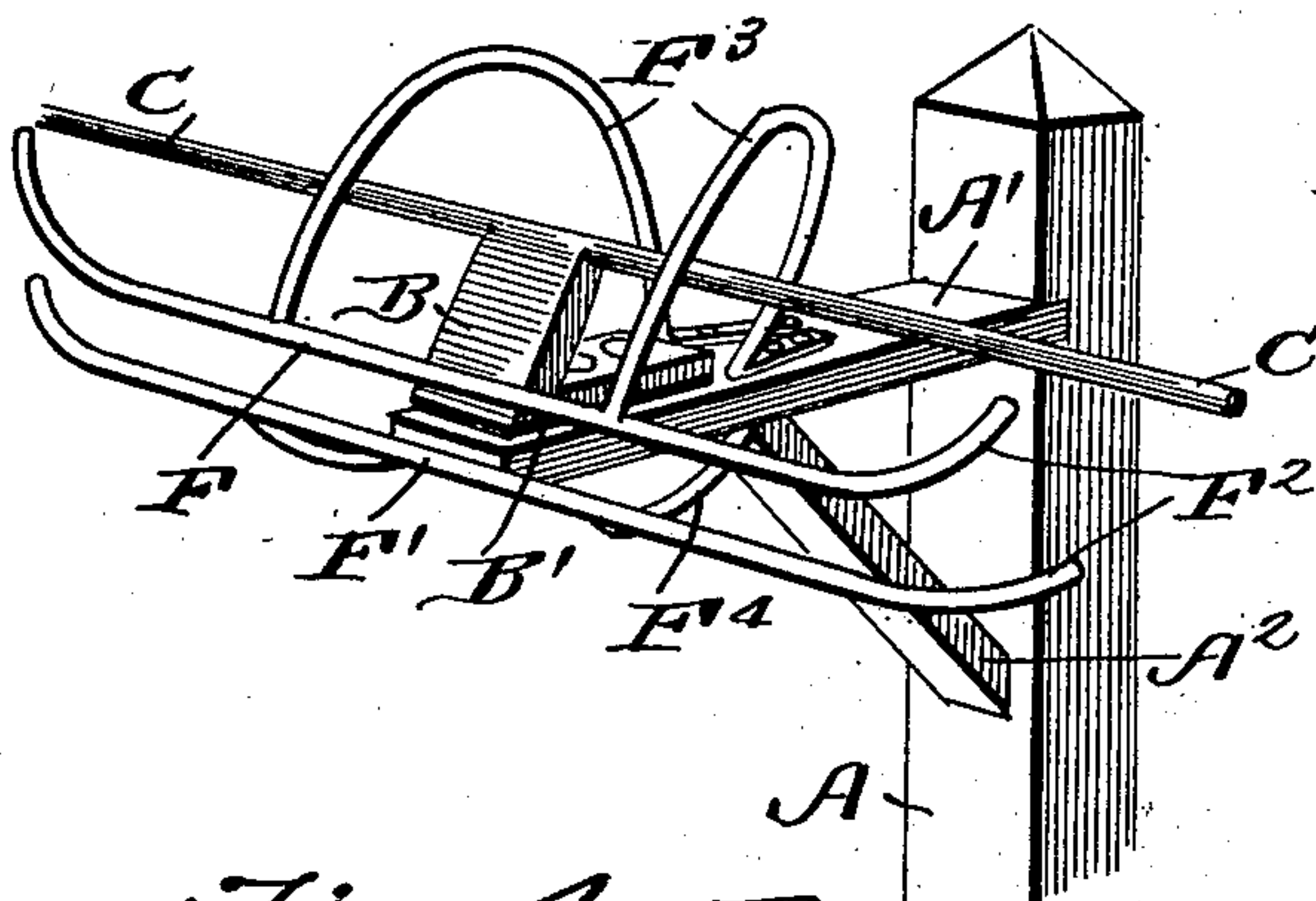


Fig. 3.

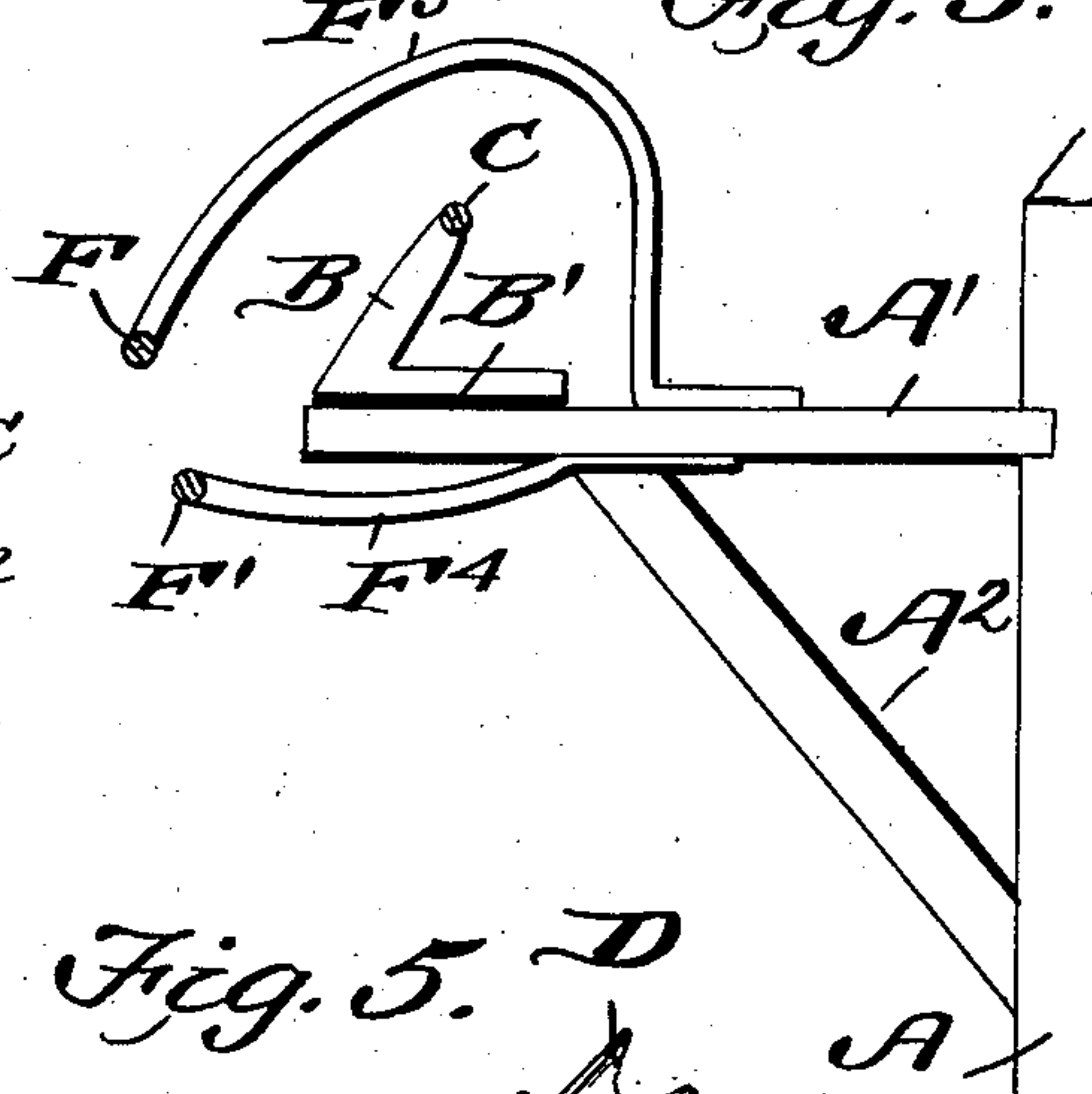


Fig. 4.

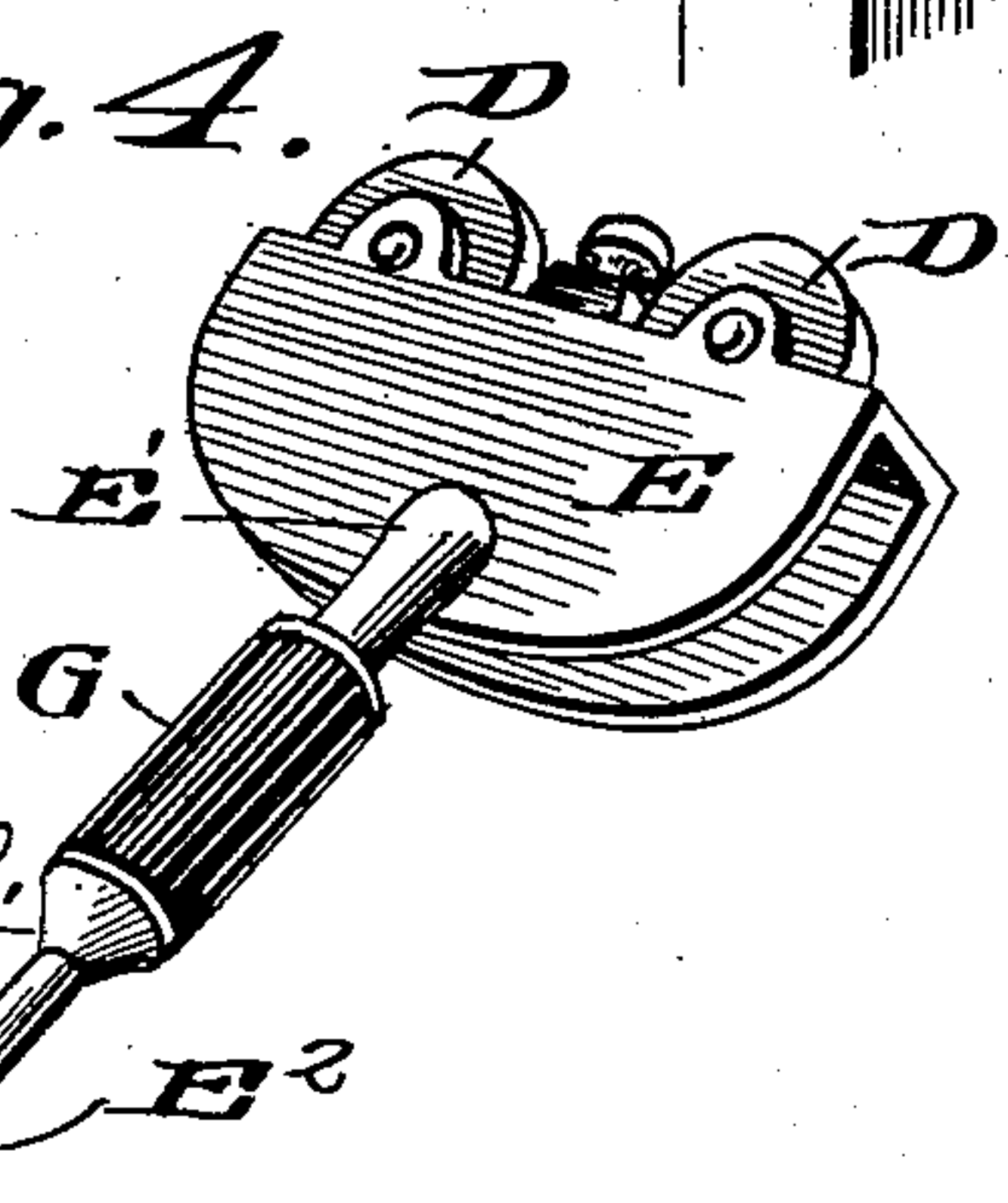
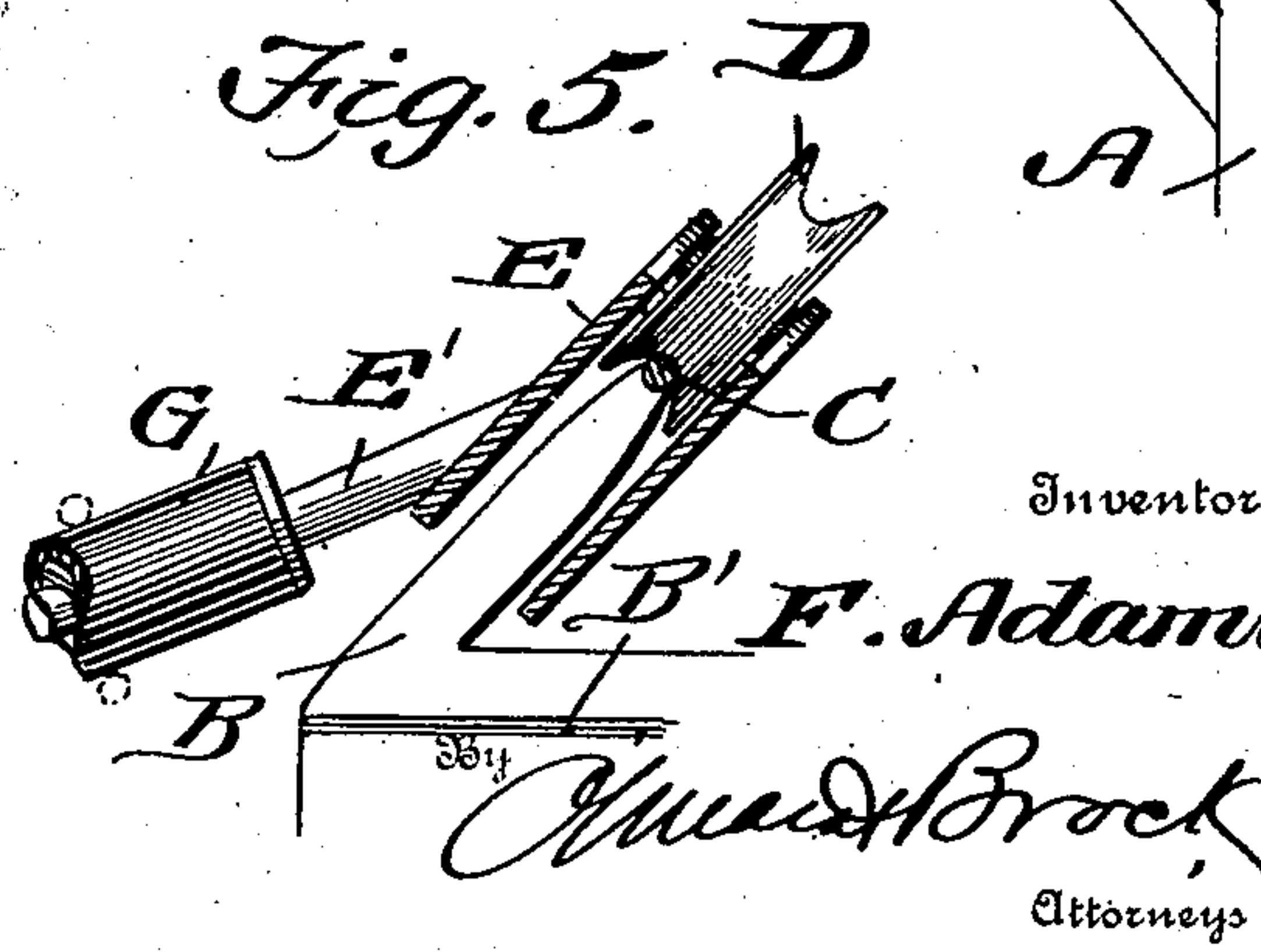


Fig. 5.



Witnesses
M. A. Ronald,
C. Shaw

Inventor
F. Adams.
M. A. Brock
Attorneys

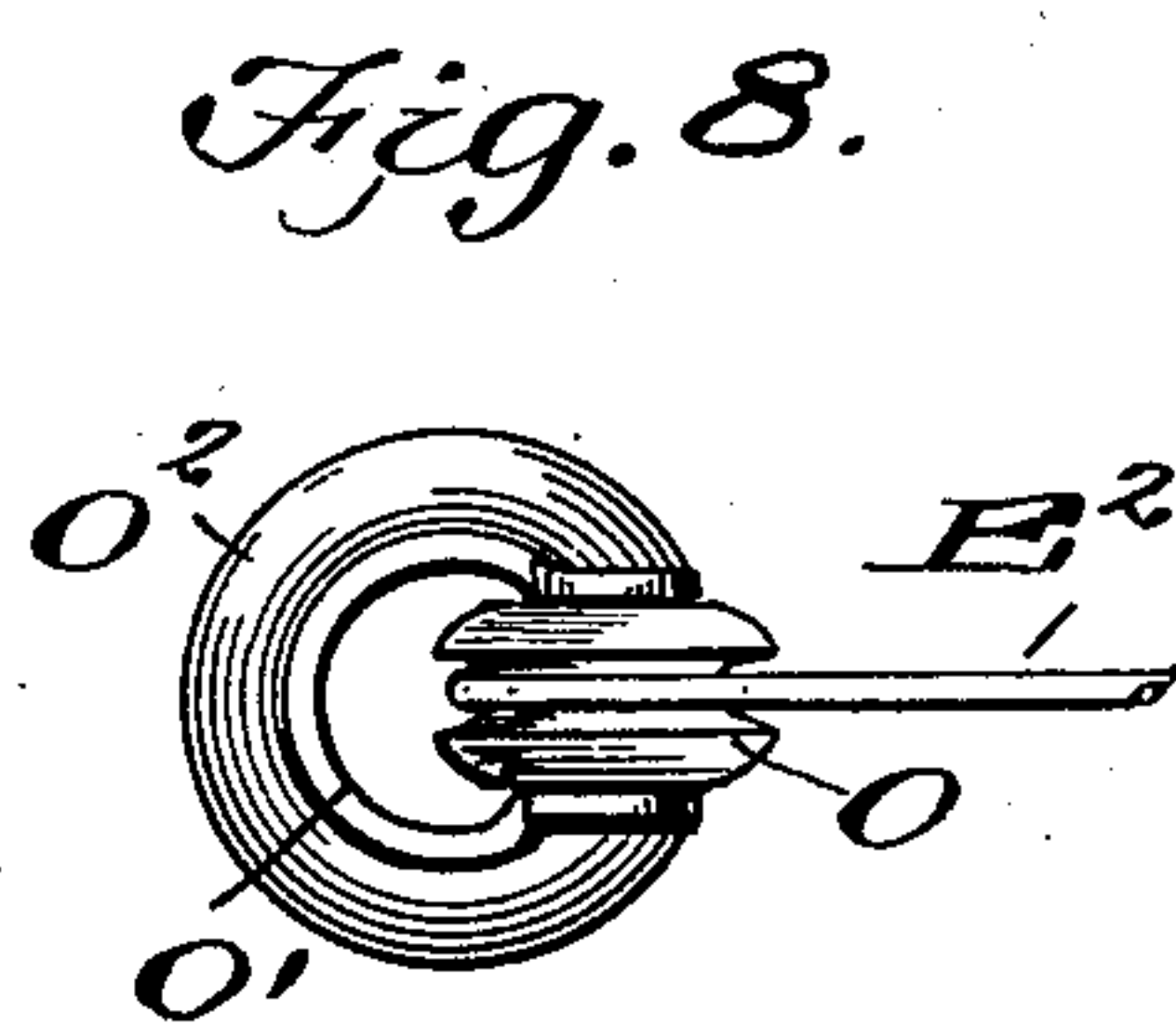
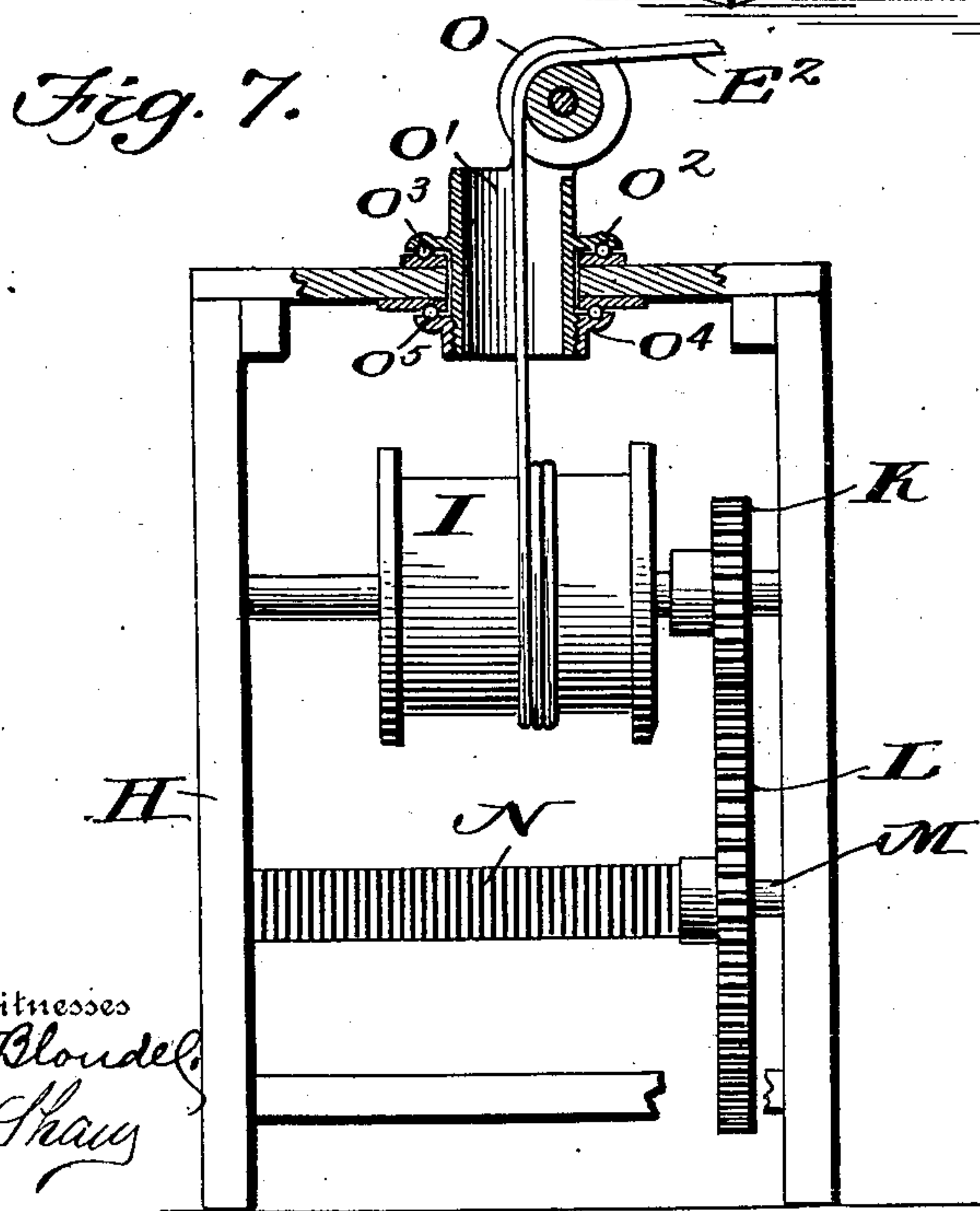
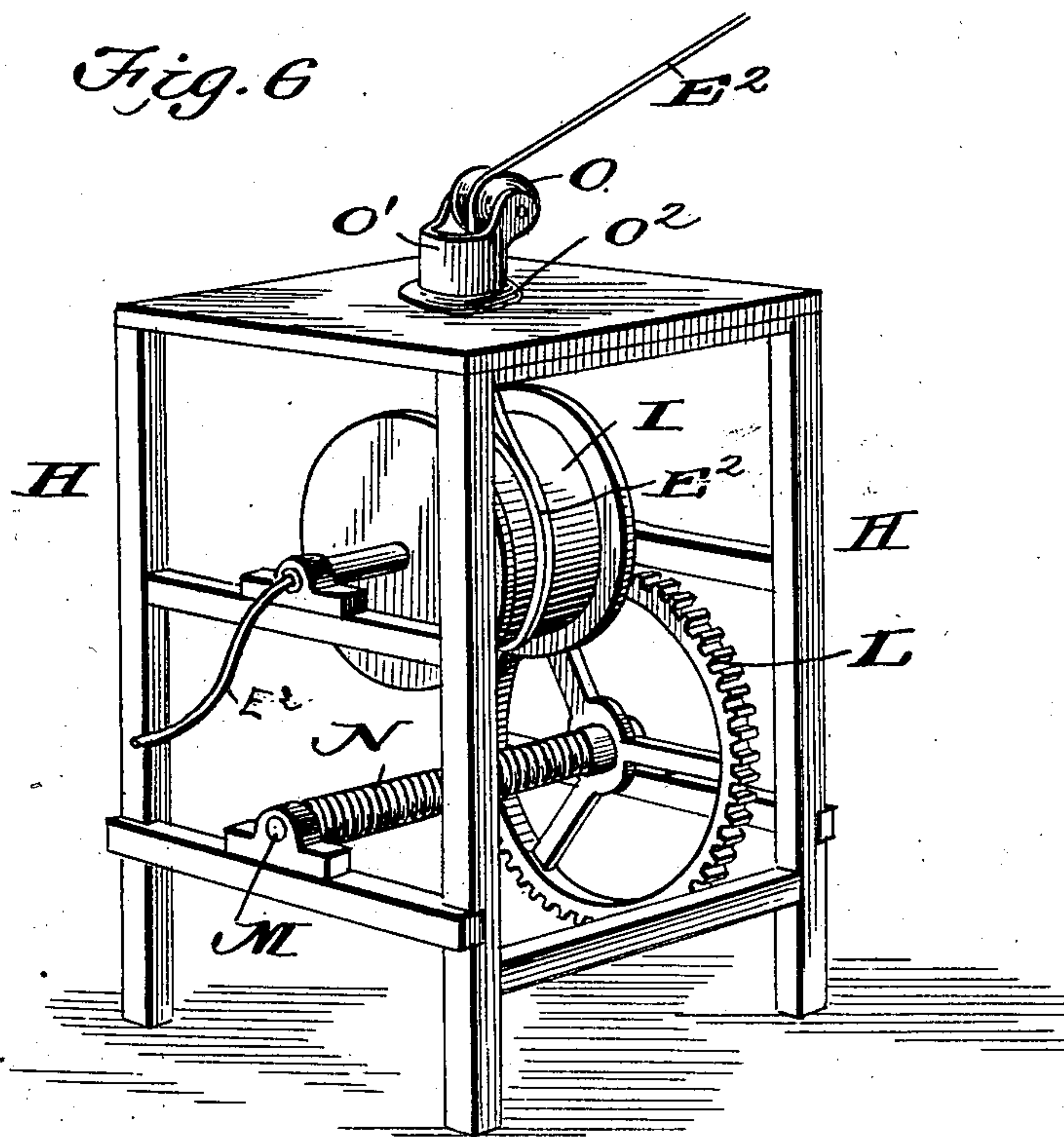
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2 SHEETS—SHEET 2.



Witnesses
M. J. Blondel
C. Haug

Inventor
F. Adams
By *Wm. A. Brock*
Attorneys

UNITED STATES PATENT OFFICE.

FRANK ADAMS, OF NORTH ADAMS, MASSACHUSETTS.

ELECTRIC CANAL SYSTEM.

SPECIFICATION forming part of Letters Patent No. 728,823, dated May 26, 1903.

Application filed July 29, 1902. Serial No. 117,545. (No model.)

To all whom it may concern:

Be it known that I, FRANK ADAMS, a citizen of the United States, residing at North Adams, in the county of Berkshire and State of Massachusetts, have invented a new and useful Electric Canal System, of which the following is a specification.

This invention is an electric propulsion system for the purpose of propelling canal-boats by utilizing the current carried by the trolley-wire arranged upon the bank of the canal.

One object of the invention is to provide a cheap, simple, and efficient construction of trolley-wire support capable of withstanding a considerable lateral and downward strain; and another object is to provide an improved construction of trolley for traveling upon the said trolley-wire upon the upper side thereof in contradistinction of running out upon the under side.

Another object of the invention is to provide guards at each trolley-wire support for the purpose of guiding the trolley over the said support; and a still further object is to provide an improved take-up and let-out mechanism, whereby the conductor-wire can be fed out and taken up as the boat moves away from or toward the bank of the canal.

Another object of the invention is to utilize the water of the canal as the conductor for the return-current, though special conductors may be employed, if found desirable.

With these and certain other objects in view the invention consists in the novel features of construction, combination, or arrangement, all of which will be fully set forth in the specification and specifically pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a view showing the practical application of my invention. Fig. 2 is a perspective view of the trolley-support and guard arranged at the support. Fig. 3 is a side view of the same, the trolley-wire being shown in section and likewise the guide-wires of the guard. Fig. 4 is a detail perspective view of the trolley proper. Fig. 5 is a sectional view showing the position of the trolley upon the wire when passing the support. Fig. 6 is a detail perspective view

of the take-up mechanism. Fig. 7 is an elevation, partly in section; and Fig. 8 is a top plan view of the sleeve carrying the pulley over which the wire passes.

In carrying out my invention I employ a trolley-pole A, having a horizontal arm A' projecting therefrom toward the canal, said arm being braced by a timber A². A bracket B is arranged upon the end of the arm A', said bracket being angular in shape, the supporting member being arranged at an acute angle to the base, and the trolley-wire C is rigidly secured to the upper end of the said supporting member, and it will of course be understood that suitable insulation B' is arranged between the base of the bracket and the arm A'. This method of supporting the trolley-wire is very effective, as the weight of the wire between the poles is a direct upward support.

The trolley comprises grooved rollers D, which are journaled in the bracket E, the side members of said bracket projecting a considerable distance below the rollers, as most clearly shown, and projecting from the inner side of the bracket is the pole or stick E', carrying the wire E². The rollers D are intended to travel upon the trolley-wire C, and in order to prevent the bracket carrying the rollers coming in contact with the supporting-bracket I employ a guard at each pole, said guard comprising the upper and lower guiding-wires F and F', which extend in substantially parallel and horizontal positions upon both sides of the bracket-support, the ends of said wires being curved away from each other, as most clearly shown at F², in order to enlarge the entrance to the said wires.

The upper wire F is supported by curved arms F³, connected to the upper side of the arm A' and straddling the trolley-wire C, and the lower wire F' is supported by the arms F⁴, which are connected to the under side of the arm A'.

The pole or stick E' has a roller or sleeve G, of non-conducting material, arranged thereon and which is adapted to contact with the guide-wires F and F', thus preventing any possible short-circuiting.

It will be seen that as the trolley is carried

along the wire it is guided over each and every supporting-bracket by means of the guard arranged at that point.

The wire E^2 is led to the vessel or boat and
5 connected to the motor, and in order to compensate for the movement of the boat toward or away from the bank of the canal and in order to avoid lateral strain upon the trolley-wire I provide an improved let-out and take-up mechanism, which I arrange upon the
10 boat and interpose between the trolley and the motor, such construction of take-up and let-out mechanism being most clearly illustrated in Figs. 6 and 7, in which I have illustrated all the essential elements of the said
15 mechanism and which comprises the supporting-frame H, in which is journaled a drum I, having a pinion K upon one end of its shaft, which pinion meshes with a gear L, mounted
20 upon a shaft M, around which is arranged a spiral spring N, the tendency of which is to rotate the shaft and its gear in such direction that motion will be imparted to the gear K, thereby placing a constant winding tension
25 upon the drum I.

The wire E^2 , leading from the trolley, is wound several times around the drum I and is then passed out through the shaft of the same to the motor. The conductor-wire E^2 as
30 it passes to the drum I is carried over a guide-pulley O, mounted upon the upper end of a sleeve O' , which projects down through an opening produced in the top of the frame, said sleeve having an annular flange O^2 , beneath which are arranged the antifriction-balls O^3 , and the flanged collar O^4 is secured
35 upon the lower end of the sleeve, and antifriction-balls O^5 are adapted to cooperate with the said flanged collar O^4 , it being understood the bearing-plates are connected to
40 the upper and lower sides of the top or frame and upon which the antifriction-balls travel. This construction reduces the friction and permits a limited lateral movement of the
45 conductor-wire E^2 .

The operation of my invention will be readily understood by every one skilled in the art to which it pertains, it being obvious that
50 the trolley will travel upon the trolley-wire, and at each and every support the guide-wires will serve to guide the trolley-bracket over the wire-supporting bracket, and it is also obvious that the automatic spring-actuated take-up and let-out mechanism will automatically
55 operate and take up the slack in the

conductor-wire whenever the boat approaches the bank of the canal and will operate in the reverse manner to feed out the conductor-wire as the boat moves away from the bank of the canal. 60

In case it should be found inconvenient to use the water as a return-conductor any suitable construction of conductor could be employed and arranged upon the bottom of the canal, if so desired. It will thus be seen
65 that I provide an exceedingly cheap, simple, and efficient system of propelling canal-boats and similar vessels by means of electric power.

Having thus fully described my invention, 70 what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A device of the kind described, comprising a trolley, a trolley-wire, a bracket adapted to support said wire, guards arranged above
75 and below the bracket and adapted to guide the trolley over same, a flexible conductor-wire, adapted to extend to a boat and means located on the boat for taking up slack in
80 said conductor-wire.

2. The combination with a trolley, of a trolley-wire the bracket for supporting said wire, and the guards arranged adjacent to said
85 bracket for the purpose of guiding the trolley over the said bracket, as specified.

3. The combination with a trolley, of the trolley-wire, the angular bracket supporting said wire, the guard comprising the guide-wires, and the arms supporting the said guide-wires, the pole or stick extending from the
90 trolley-bracket, and the insulated roller carried by the said pole or stick, for the purpose specified.

4. The combination with the trolley-wire, of the angular brackets supporting the same, 95 guards comprising the guide-wires and supporting-arms, the trolley-wheels mounted in a bracket, a pole or stick extending from one side of the bracket, an insulated roller carried by said pole or stick, the drum journaled
100 in a suitable frame and around which the conductor-wire is wound, the spring-actuated mechanism for winding the said drum, and the guiding-sleeve having antifriction-bearings and carrying a guide-pole at its upper
105 end for the purpose specified.

FRANK ADAMS.

Witnesses:

JOHN H. MACK,
JAMES W. MACK.