

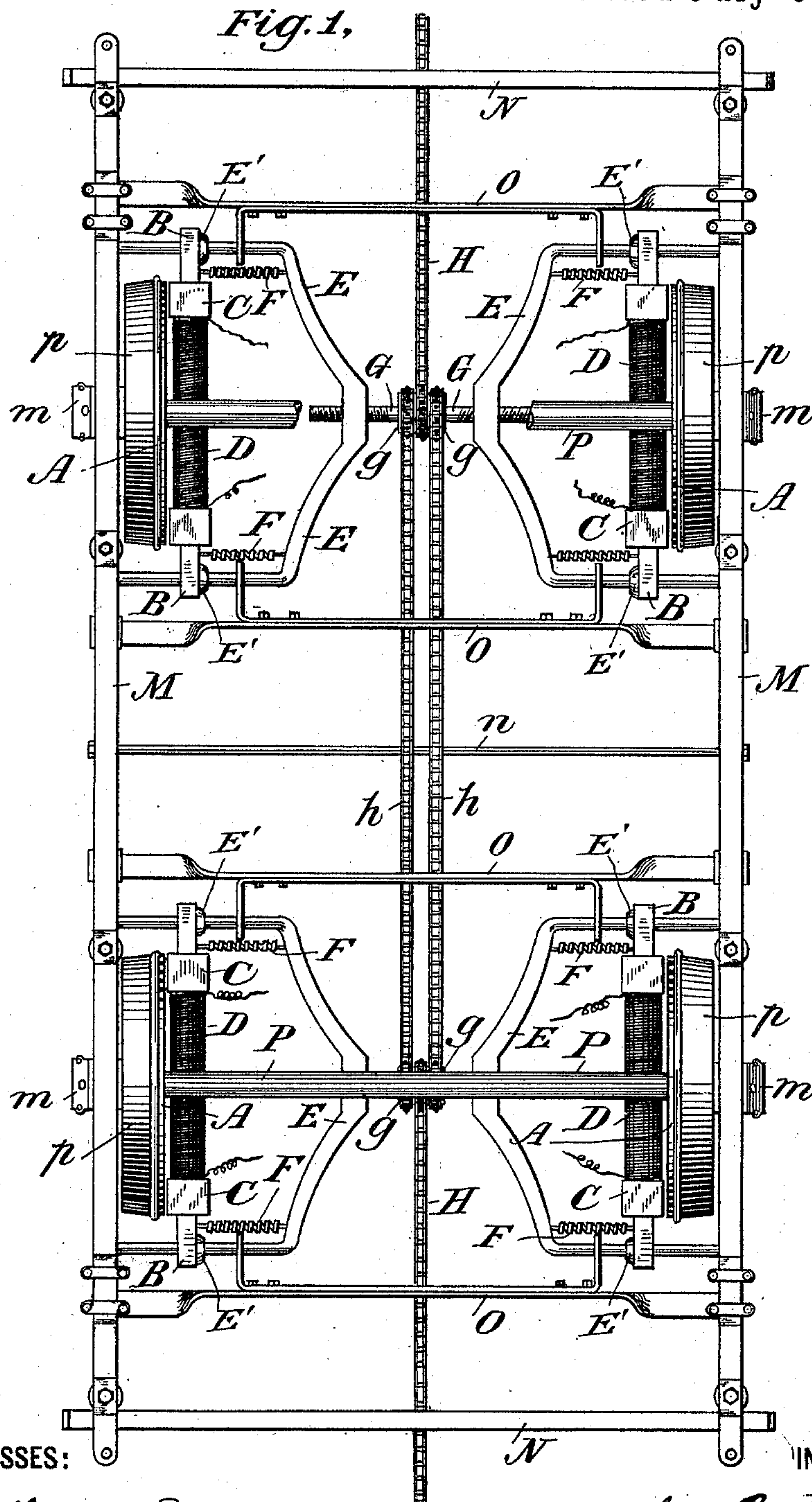
(No Model.)

2 Sheets—Sheet 1.

J. E. PARKER.
ELECTROMAGNETIC AND MECHANICAL BRAKE.

No. 585,937.

Patented July 6, 1897.



WITNESSES:

A. H. Haywood
E. M. Barnes

INVENTOR

John Edw. Parker

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2,

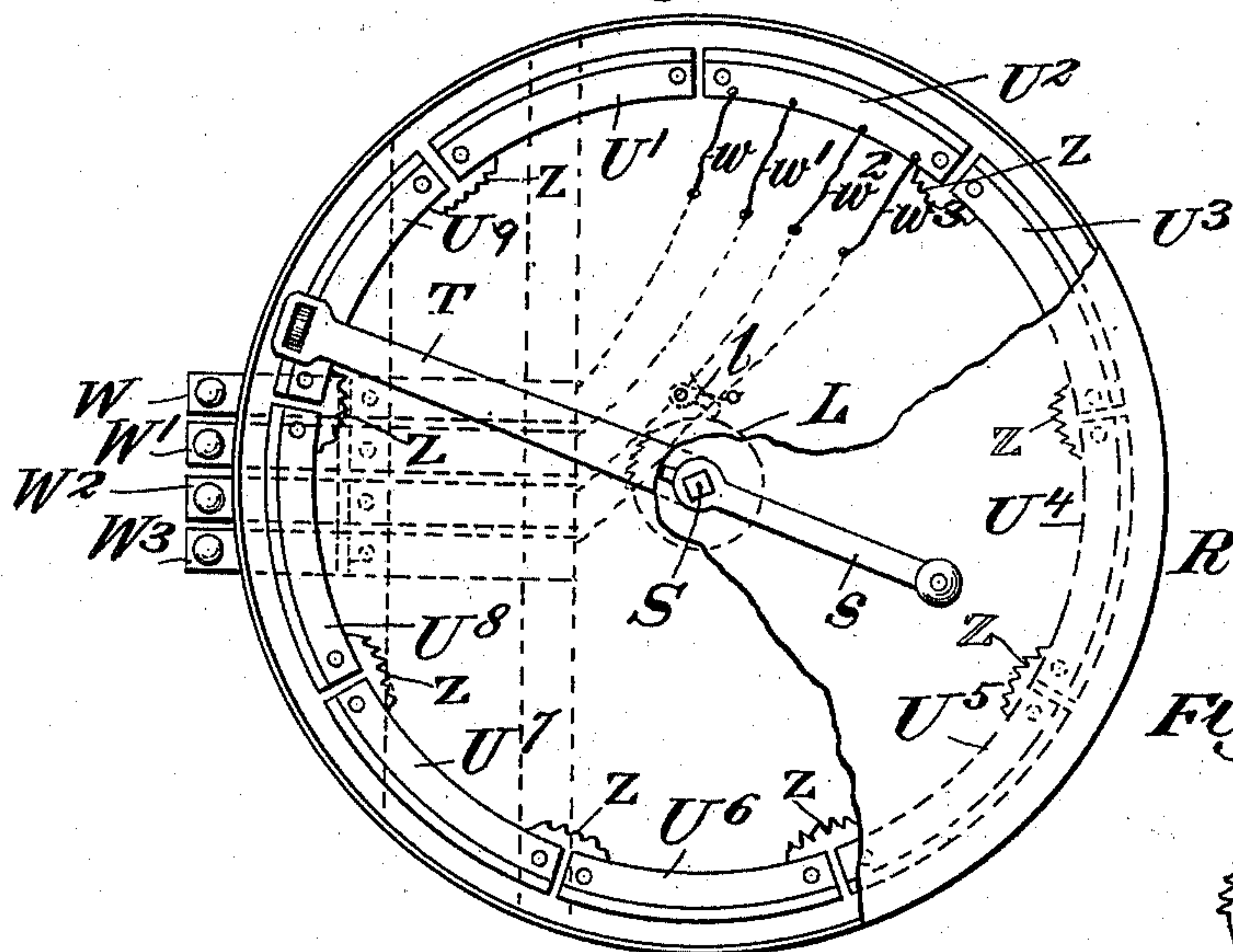


Fig. 2a,

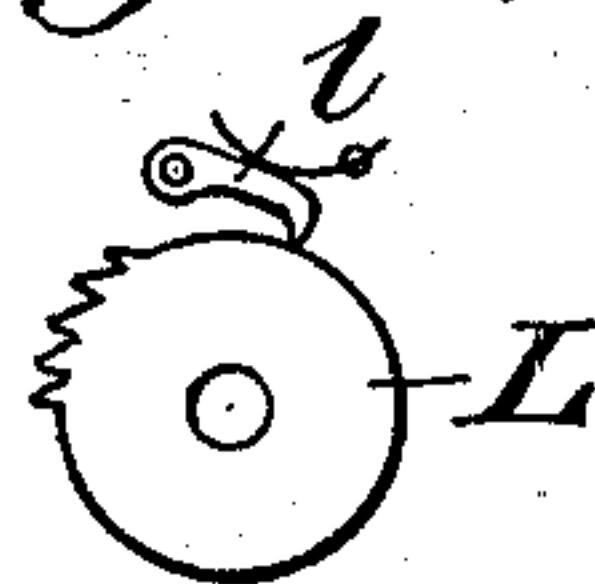


Fig. 3.

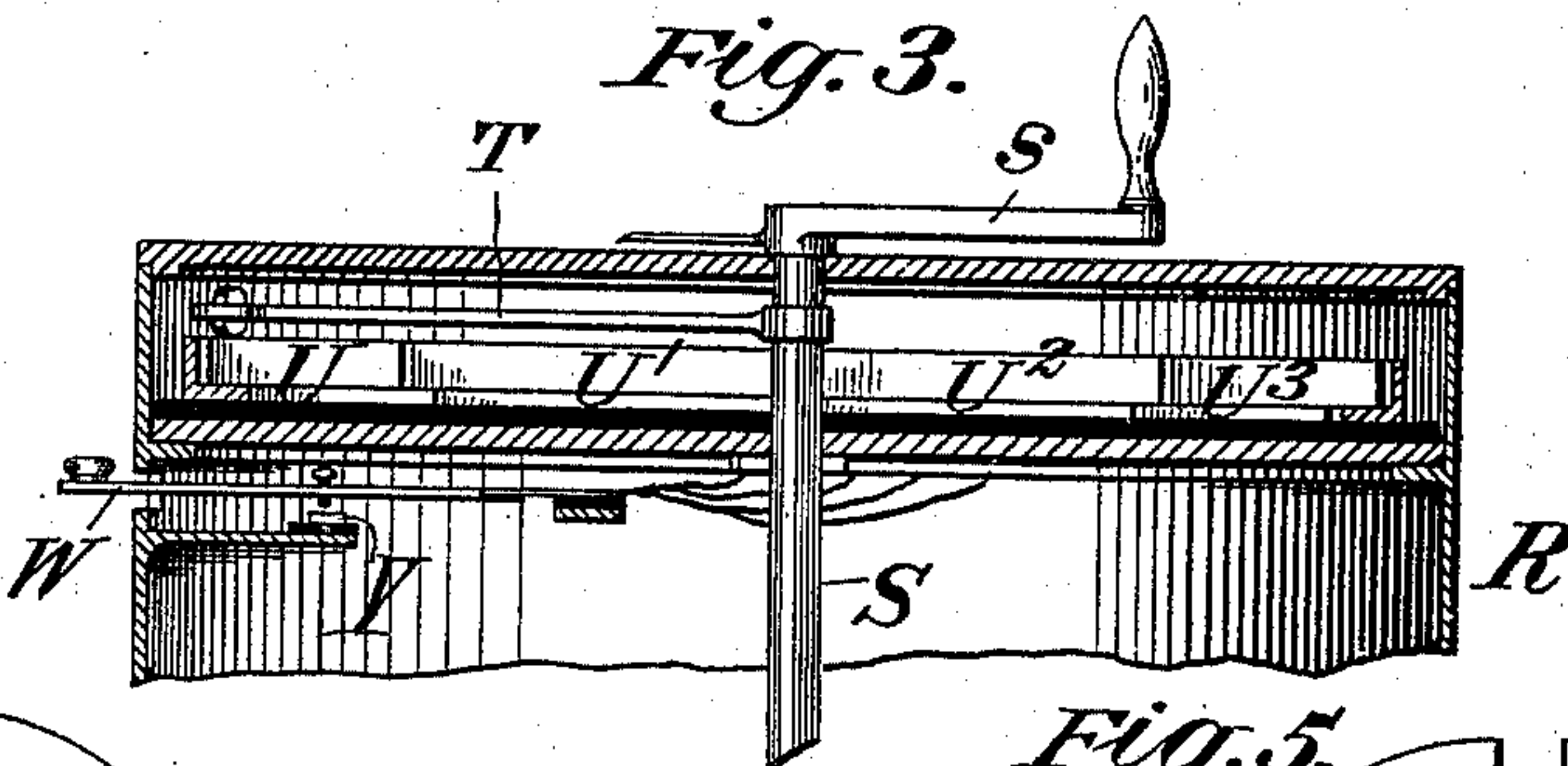


Fig. 4,

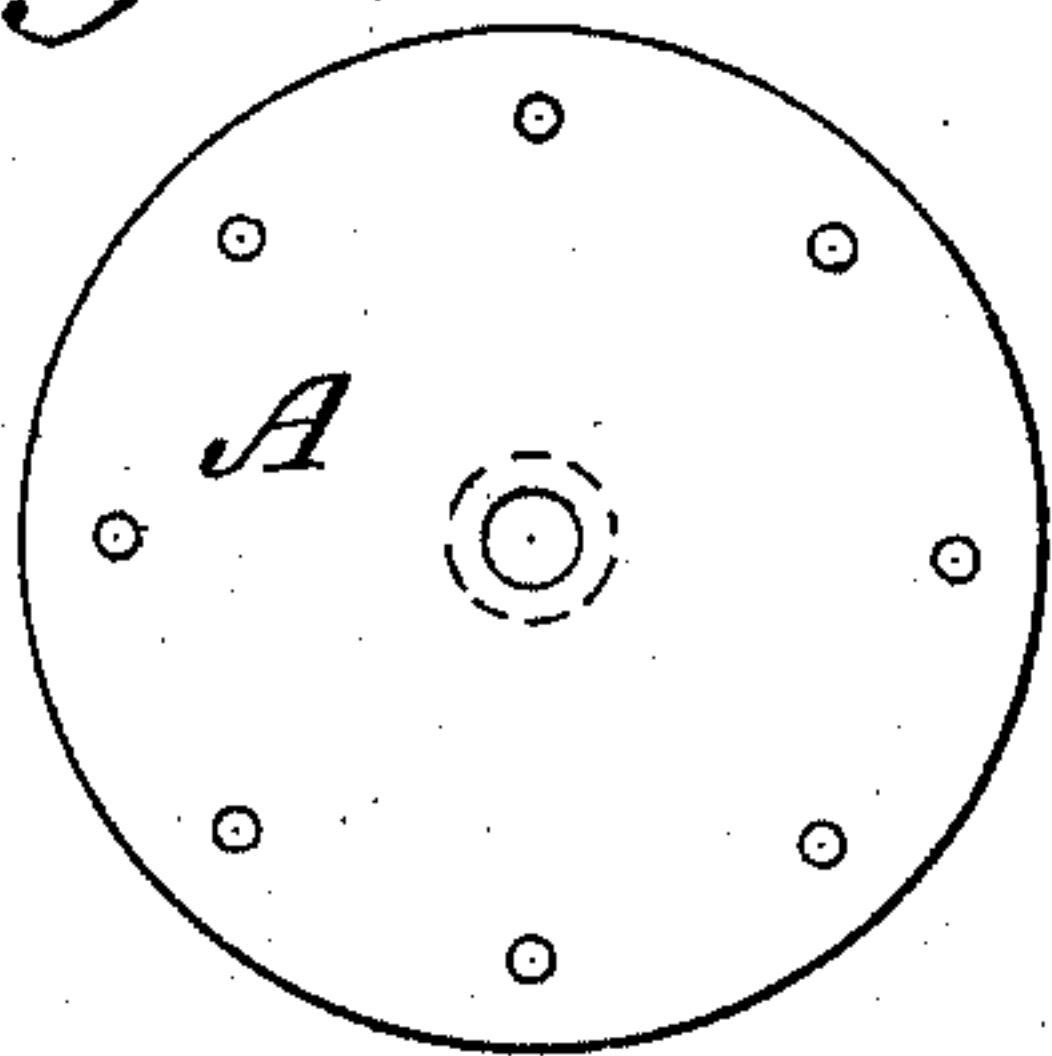


Fig. 5,

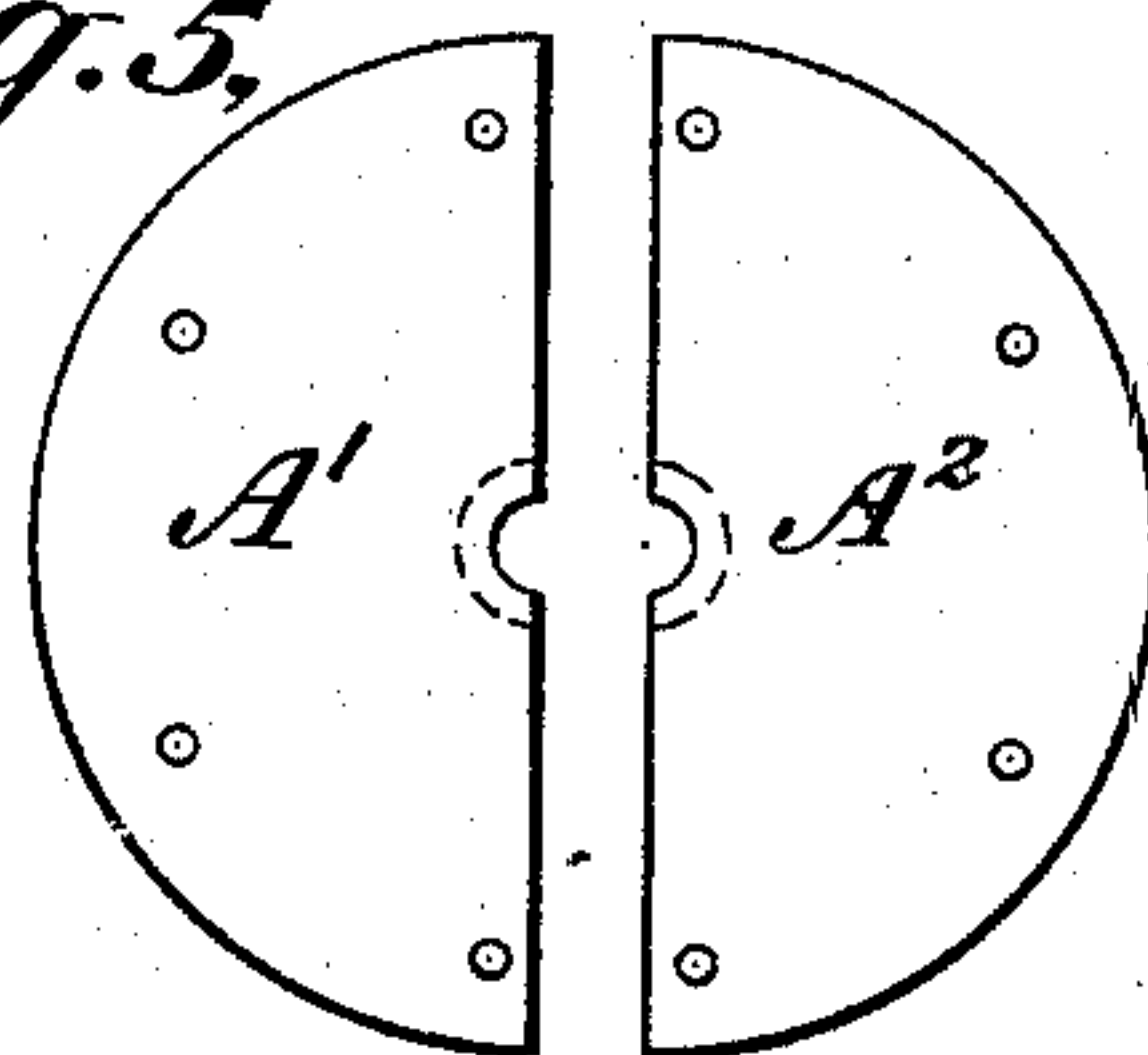


Fig. 6,

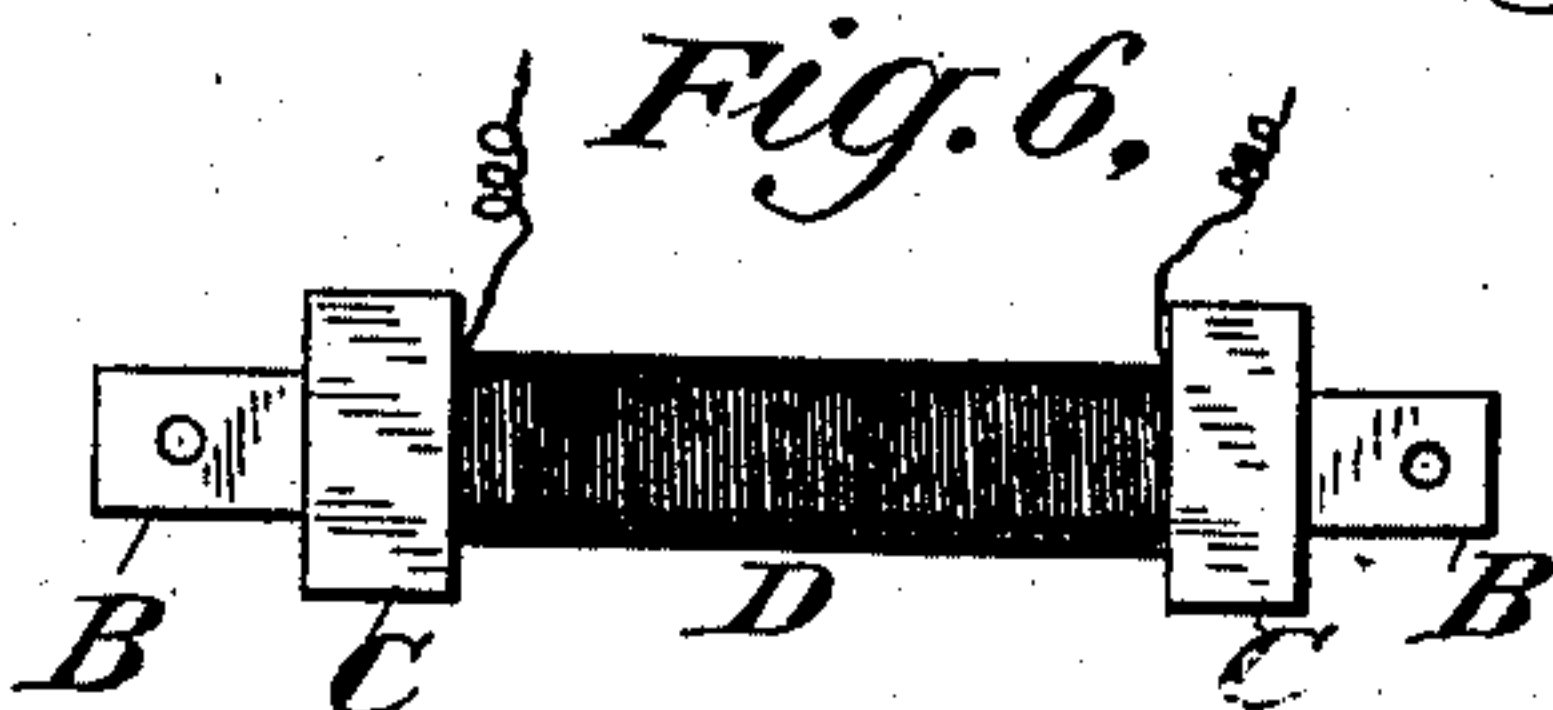
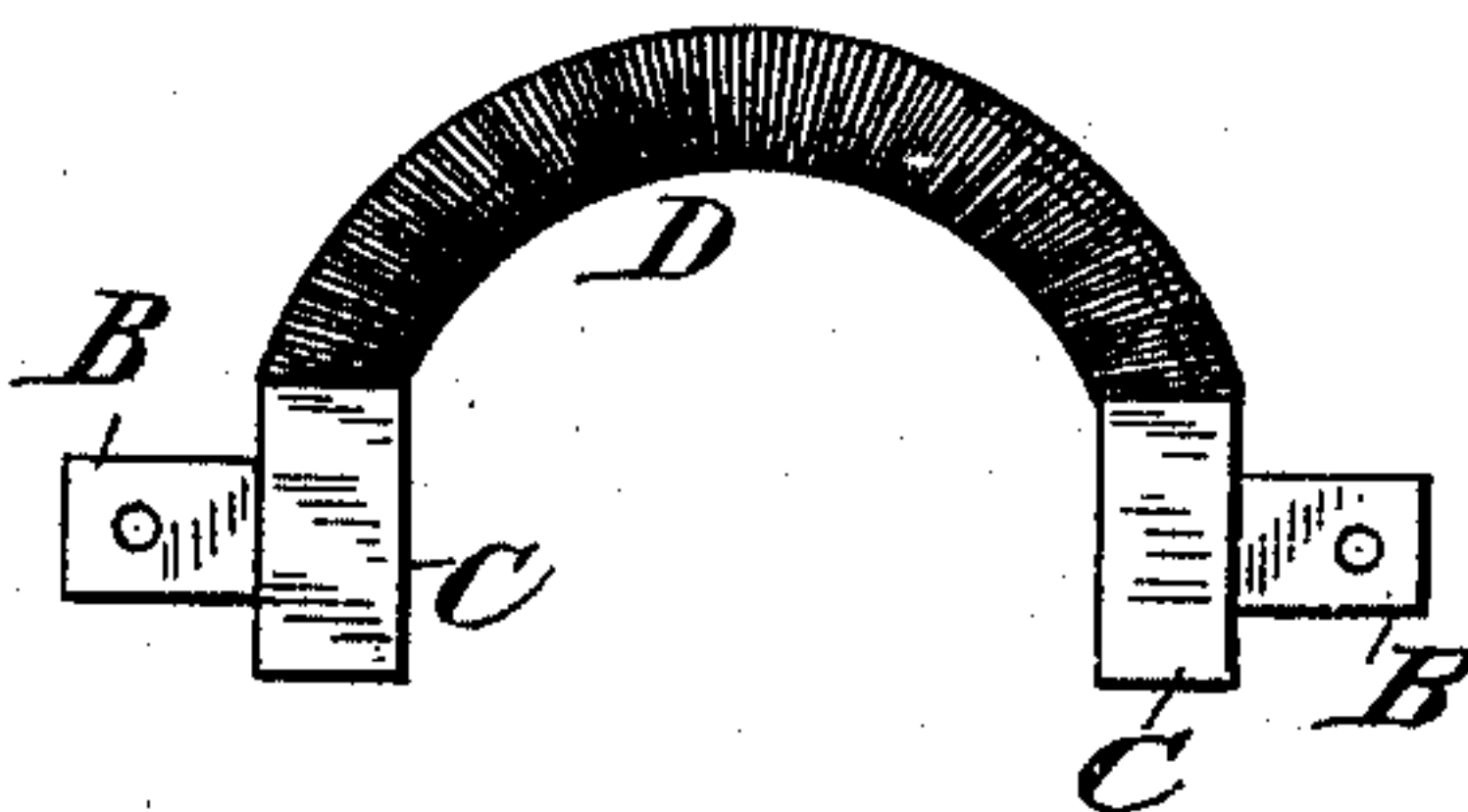


Fig. 7,



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JOHN E. PARKER, OF BAYONNE, NEW JERSEY.

ELECTROMAGNETIC AND MECHANICAL BRAKE.

SPECIFICATION forming part of Letters Patent No. 585,937, dated July 6, 1897.

Application filed December 17, 1895. Serial No. 572,444. (No model.)

To all whom it may concern:

Be it known that I, JOHN EDWARD PARKER, a resident of the city of Bayonne, county of Hudson, and State of New Jersey, have invented new and useful Improvements in Electromagnetic and Mechanical Brakes for Street-Cars and other Cars Driven by an Electric Current, of which the following is a specification.

10 The object of my invention is to design a simple and inexpensive electric brake for cars operated by electricity.

My design consists in using the brake-bar and brake-blocks as an electromagnet, which 15 when actuated by an electric current shall cause the said brake-bar and brake-blocks to be forcibly attracted to the inner surface of the car-wheel, thus retarding it.

20 The invention consists, further, in bolting or otherwise fastening a disk (or two half-disks) of steel upon the inner surface of the car-wheel which acts in conjunction with the electromagnetic brake-bar and brake-blocks, as aforesaid, presenting the necessary metallic surface for the attractive action of said 25 electromagnetic brake bar and blocks when actuated by a current of electricity.

30 The invention also consists of parts for operating said device and for applying the brake by hand-power and also a novel apparatus for controlling and applying the electric current for the operation of the device.

Reference is to be had to the accompanying drawings, forming part thereof.

35 Figure 1 is a top view of a car-truck fitted with my device in detail. Fig. 2 is a top view of the apparatus for controlling the application of the current, a portion being broken away to better illustrate other portions. Fig. 40 2^a is a detail of Fig. 2, showing a ratchet-and-pawl arrangement and used as a stop to prevent the backward movement of the handle after the brake has been applied. Fig. 3 is a central vertical section through Fig. 2. Figs. 45 4, 5, 6, and 7 are details of the brake mechanism.

It is understood that the plan for the bearings and minor parts of Fig. 1 may be altered in form to suit the various designs of car-trucks.

Referring to Fig. 1, a a' a^2 are disks or half-disks of steel having a smooth surface and

which are bolted or otherwise fastened to the inner surface of the car-wheel. B C show the electromagnetic brake bar and blocks, which 55 is a bar of soft iron wound with insulated wire D, having holes at each extremity for the bearings. This bar may be wound in sections, if found desirable, in order to give it quicker action.

60 E is a metal frame forming in front the bearings for the electromagnetic bar, which is movably placed on said bearing, and F shows the spiral springs which draw the brake-bar back to its position after the electric current releases it.

70 G is a bar of metal having a right and left handed screw-thread at each extremity, so that the action on the advancing and retreating brakes when it is manipulated by hand may be in unison. Said threads fit into the frame and move the brakes for each wheel forward or backward at the will of the operator. Said metal bar carries a sprocket-cylinder G on its center, provided with sprocket 75 or other description of chains H, which connect not only the two frames actuating each set of wheels, but also places the apparatus under the control of the operator.

80 P is the axle of the car-truck, m the axle-box, and p the car-wheel.

Referring to Fig. 2, R is a base upon which is placed a circular raised rim of brass (or other metal) U, made in sections insulated 85 from each other, U' U^2 , &c.

90 T is a metal arm or pointer, at the end of which is a grooved wheel designed to run on the upper edge of the sectional metal rim and carrying the main current from the line. It is operated by means of the insulated metal handle S' outside the covering.

95 U^2 is that section of the circular sectional rim which carries the brake connection and is connected by wire underneath the base to the graduated brake-keys W W' W^2 W^3 . These keys are put into connection with graduated electrical shunts placed under the base by depressing the key, so that any desired power may be placed on the brake at the will 100 of the operator. L and l are parts of a ratchet-and-pawl wheel placed on the apparatus at S for the purpose of preventing the operator from turning the pointer backward after putting on the brake, as such an act would place

the full current at once on the motor, which is not desirable, as there would be danger of burning the fuse-plug. Therefore it is necessary it should be turned forward, where it
 5 meets connection with $U^3 U^4 U^5$, &c. These sections carry graduated electrical shunts placed under the base and are connected with the motor, so that in turning the arm forward the current is returned to the motor
 10 gradually. The arm can, however, be turned backward from full motor power to a lesser power and to full power again, but after the brake-section is used it must go forward; hence the ratchet-wheel and pawl.

15 It will be understood that the above-mentioned parts and also the number of brake-keys and shunts and the motor-shunts may be increased or decreased as experience may dictate, and also that any other device instead of finger-keys for bringing the brake-shunts into operation (such as a sliding arm similar to the brake-arm) may be used if it is found more convenient in practice than keys.

20 The steel disks $a a' a^2$ may be made to fit into the hollow space between the hub and the inner ring of the wheel and may be thick enough to project slightly above the level of the inner surface of the wheel-rim, so as to present a clear smooth surface for the operation of the brake-blocks.

30 A is made in two pieces, if wished, so that the disks may be fitted to the wheel without removing it from the axle.

35 $U^3 U^4 U^5 U^6 U^7 U^8 U^9$ are those sections of the circular sectional metal rim which are in connection with the motor through graduated electrical shunts underneath the base and serve to place the current on the motor by graduated steps.

40 Z represents the resistances for regulating the current in returning it to the motor; V, the resistances for regulating the strength of the brake-current; Y, the earth-terminal.

45 E', Fig. 1, is a regulator-screw placed on the frame in the rear of the brake-bar B for regulating said bar in respect to its distance from the inner surface of the wheel, and also provides a stop to the backward motion of the bar when it is thrust forward by the shaft G.

50 Having now described my invention, what I claim is—

1. In an electromagnetic and mechanical

brake, and in combination, an electromagnetic brake bar and blocks placed horizontally in juxtaposition to car-wheels and a metal frame supporting said bar and blocks, engaging with
 55 a shaft placed transversely across the car and having a screw-thread at each extremity and controlled by hand by means of a sprocket-cylinder and sprocket-chains causing the
 60 brake-blocks to advance or retreat in respect to the inner surface of the car-wheels, substantially as described.

2. In an electromagnetic and mechanical brake, an apparatus for controlling the brake
 65 electrically consisting of a movable arm or pointer radiating from a center and carrying the main current from the line, and in movable connection with sectional metallic pieces placed on a base and forming a circular sectional conductor, said metallic sections being
 70 in connection with graduated resistances placed underneath the base and bridging the metallic sections $U^3 U^4 U^5 U^6 U^7 U^8 U^9$, said resistances being used to return the current
 75 to the motor by graduated steps after its use on the brake-circuit, and further, a device by means of finger-keys or the like, for graduating the application of the current to the
 80 brake-circuit by placing the main current in connection with the brake through graduated resistances V, substantially as described.

3. In an electromagnetic and mechanical brake, placed horizontally and movably in juxtaposition to the inner surface of car-
 85 wheels and attracted thereto when energized by an electric current and an apparatus consisting of an arm or pointer of metal radiating from a center and carrying the main current, and a circular sectional conductor of
 90 metal placed on a base, said arm being in movable connection therewith, the metallic sections being bridged by resistances for graduating the return of the current to the motor after its use on the brake-current, and further
 95 of a device, which by the use of finger-keys or the like the main current is brought into connection with the brake through resistances for the purpose of graduating its application to the brake, substantially as described.

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Witnesses:

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 C. E. RICE.