

No. 611,850

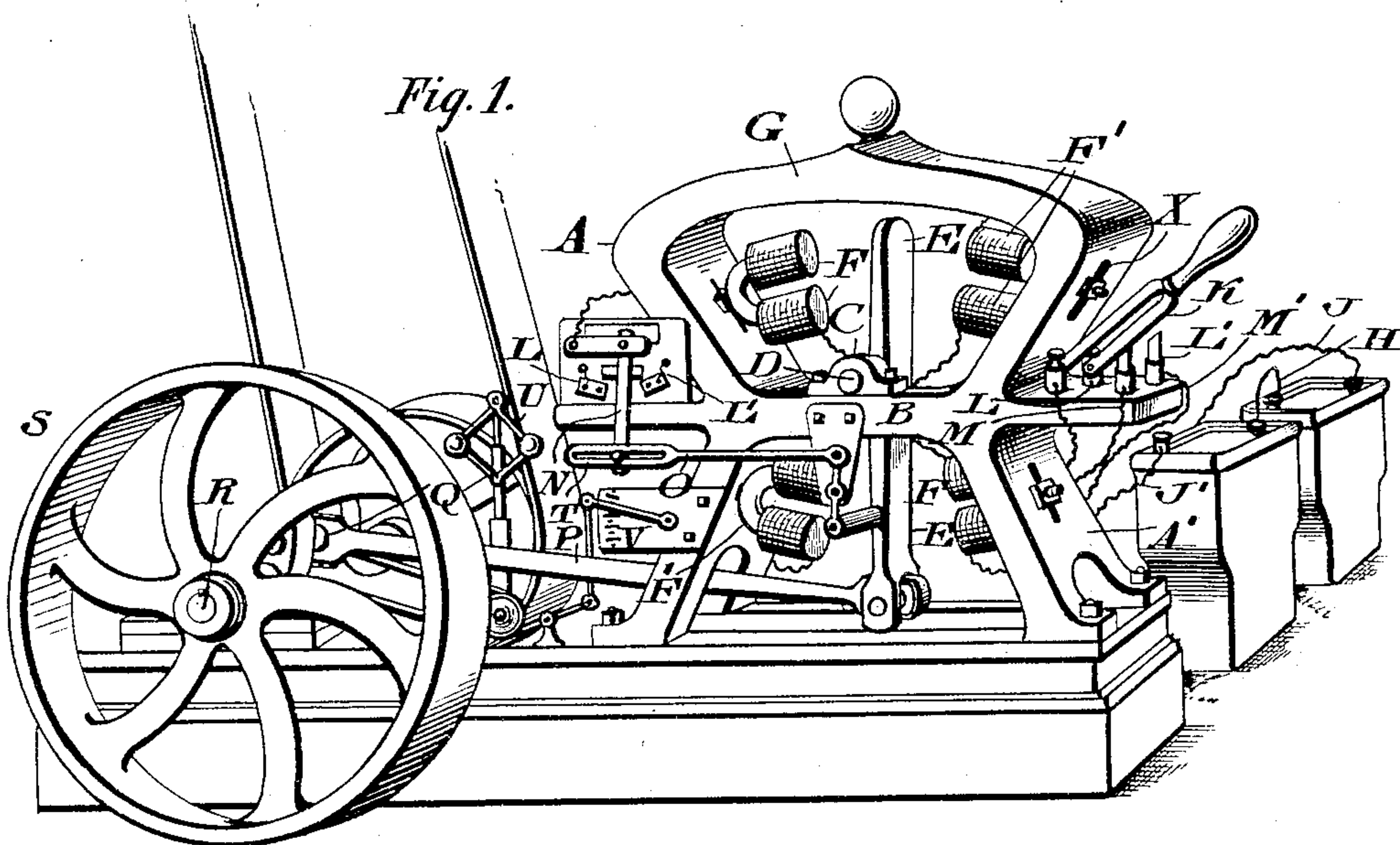
Patented Oct. 4, 1898.

P. B. WATSON.  
ELECTROMAGNETIC ENGINE.

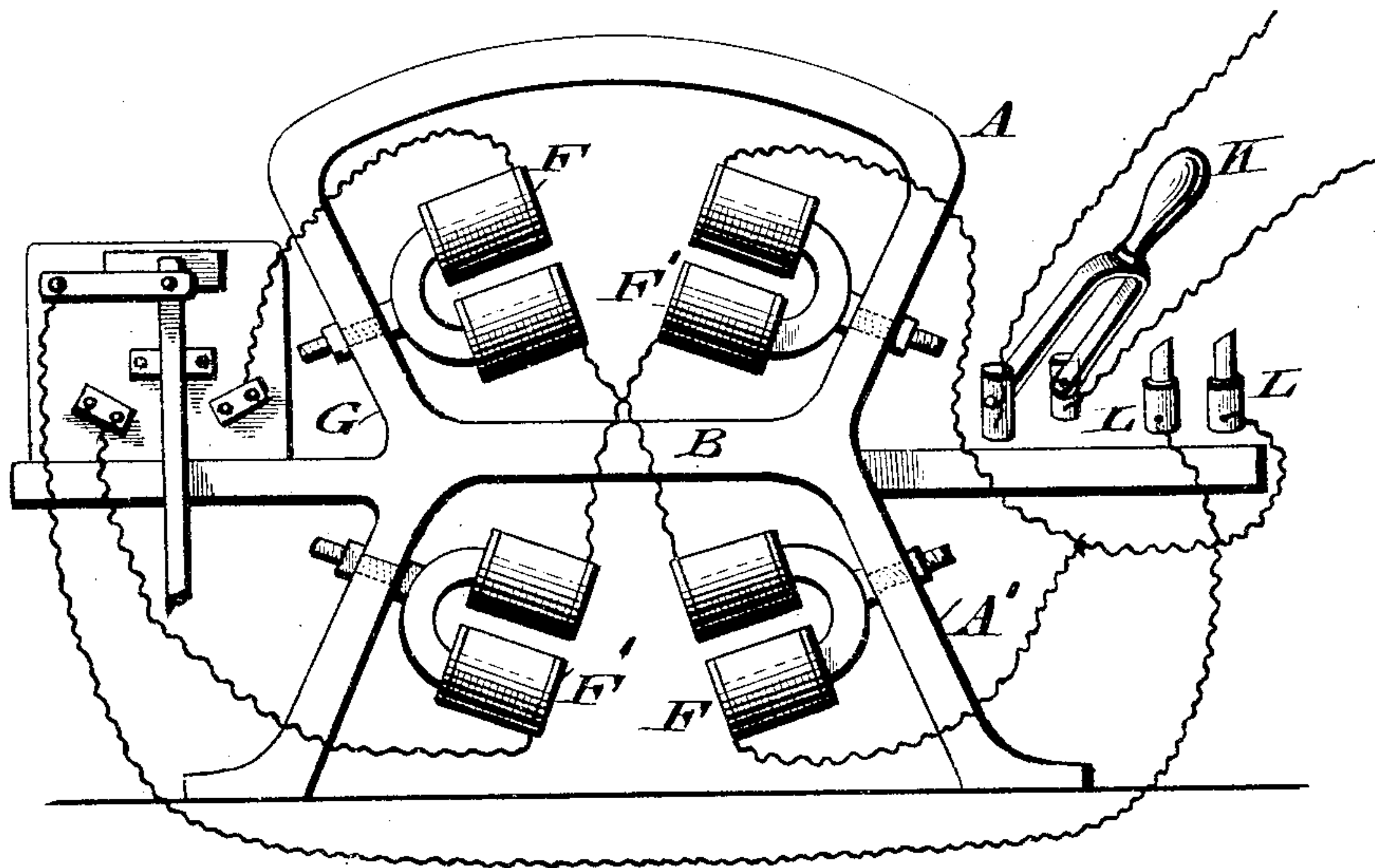
(Application filed May 9, 1898.)

(No Model.)

2 Sheets—Sheet 1.



*Fig. 2.*



WITNESSES:

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*David P. Moore.*

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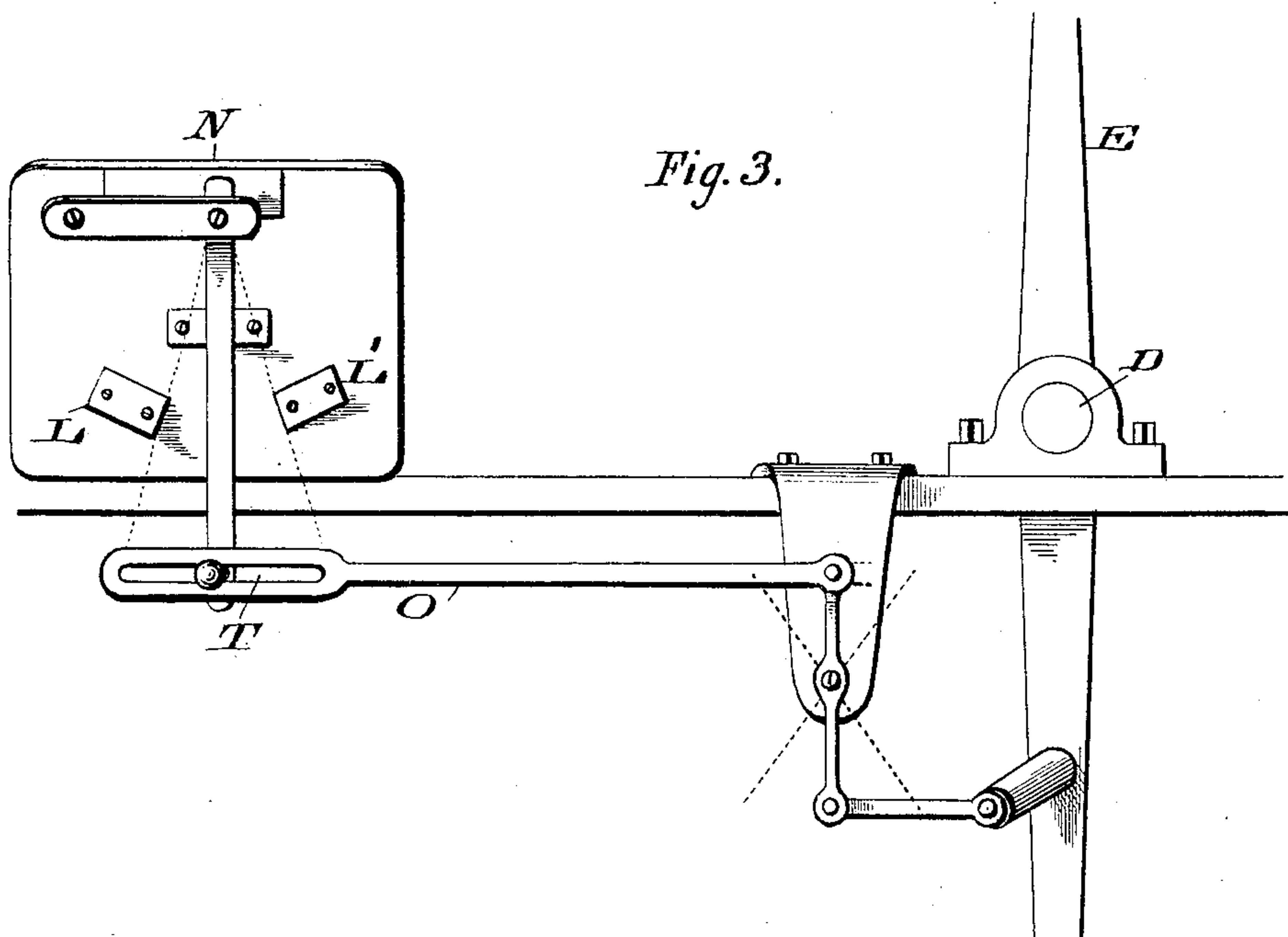
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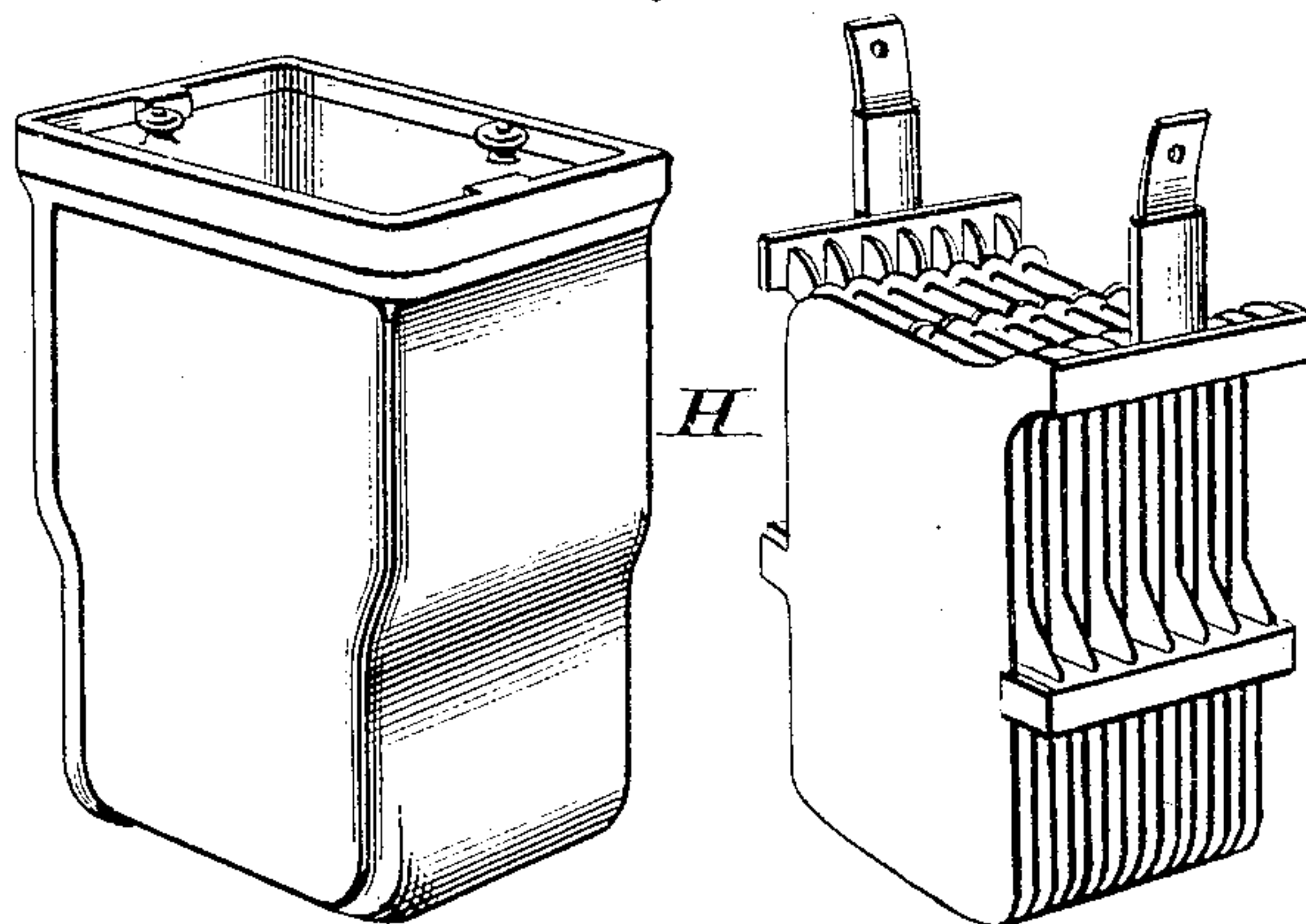
(Application filed May 9, 1898.)

(No Model.)

2 Sheets—Sheet 2.



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

PETER B. WATSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
ROBERT M. ROBINSON, OF SAME PLACE.

## ELECTROMAGNETIC ENGINE.

SPECIFICATION forming part of Letters Patent No. 611,850, dated October 4, 1898.

Application filed May 9, 1898. Serial No. 680,186. (No model.)

*To all whom it may concern:*

Be it known that I, PETER B. WATSON, a citizen of the United States of America, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electromagnetic Engines, of which the following is a specification.

My invention relates to improvements in electromagnetic engines; and the leading object of my invention is the provision of a compact, simple, durable, and cheap engine which will be particularly adapted for running light machinery and which can be operated by an ordinary battery.

To attain the desired objects, my invention consists of an electromagnetic engine embodying novel features of construction and combination of parts, substantially as disclosed herein.

Figure 1 is a perspective view of my engine. Fig. 2 represents a side view to illustrate the method of connecting the magnets. Fig. 3 represents the switchboard and switch operated by the armature. Fig. 4 represents a primary or storage battery for producing the electricity.

The casing or housing of my engine consists of an upper compartment or box A and a lower compartment or box A', the horizontal central division-wall or partition B having bearings C, in which is mounted shaft D, which carries the double rocking or swinging armature E, which is acted upon by the field-magnets F and F', arranged in two or more sets.

The magnets are made of suitable material and of any shape or form desired and are mounted in the X-shaped frame or support G, with their heels or ends arranged at an incline in order that the armatures will be attracted from one set of magnets to the other, and thus impart a swinging or oscillating motion to the armature.

The magnets are adjustable by means of a screw-shank and nuts, as shown with reference to the armature, the shank passing through a slot in the frame, thus permitting an increase or diminution of the distance between the magnets of the armature, thereby increasing or diminishing the leverage, as

may be desired, on an adjustable crank-pin on the pulley-shaft.

I preferably use a battery or batteries H, which are connected and from the posts of which lead the wires J and J' to the sets of magnets, and I also employ a suitable switch K from the poles or contacts L and L', from which lead the wires M and M' to the magnets, thus completing the circuit. The switch or cut-off is provided with the lever N, which engages contacts L and L' alternately, and the lever N is connected by a link or pitman O to the armature E and so adjusted by reason of the slot T that the current of electricity is withdrawn from magnets F to F' at the moment the crank-pin of the connecting or pitman rod P has reached either extremity of its motion, which it does without coming in contact with the magnets. To the lower end of the armature E is connected one end of the pitman P, the other end of said pitman P being connected with the crank Q on a shaft R, which carries a pulley or wheel S, from which power may be transmitted by means of band to any mechanism to be driven.

To the shaft R is connected a suitable governor U to operate by leverage an aerostat V or controller of the volume of electrical current needed to give a steady motion or uniform speed to the driving-shaft of the engine.

From the foregoing description, taken in connection with the drawings, it is evident that I provide an engine which will occupy a small space, rendering it compact and easy of transportation, which is simple, durable, and cheap and thoroughly efficient and practical.

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

1. In an electromagnetic engine, a housing, consisting of an upper and lower compartment, an intermediate division-wall or partition therefor, said wall having bearings thereon, in which is mounted a shaft, the latter having an oscillatory armature carried thereby, a plurality of field-magnets located in each of said compartments and oppositely to each other, the heels or ends of said magnets being arranged at an incline to each other, in order that the extremities of said armature



will be attracted from one set of magnets to the other, a switch or cut-off provided with a lever, contacts on either side of said lever and a slotted link or pitman having a connection  
 5 common thereto and to said lever, said pitman being actuated in unison with said armature, a pitman extending from said armature to a crank-shaft, and electrical conductors common to said switch, magnets and bat-  
 10 teries.

2. In an electromagnetic engine, a casing or housing consisting of upper and lower compartments, an intermediate division or partition having bearings thereon, a shaft mounted  
 15 in said bearings, an oscillatory armature mounted on said shaft, field-magnets contained in said compartments above and below said partition, said magnets being located on either side of the extremities of said ar-  
 20 mature and having their heels or ends arranged on an incline in order that the extremities of said armature may be attracted from one set of magnets to the other, conductors common to said magnets and battery, a suit-  
 25 able switch interposed between said magnets and battery, a cut-off having conductors common thereto, to said magnets and to said battery, through the medium of said switch, said  
 30 cut-off having a lever, contacts on either side thereof, said lever having a link adapted to be actuated in unison with said armature, said link having a slot therein, a pin common  
 35 to said lever and the walls of said slot, a pitman having one end suitably attached to an armature, while its other end is adapted to engage a crank-shaft, a governor adapted to be rotated in unison with said crank-shaft  
 and an aerostat or controller operated by said governor.

40 3. In an electromagnetic engine, a battery, wires leading therefrom to binding-posts, a switch adapted to contact with said binding-posts, conductors leading from said switch  
 45 to a plurality of magnets, said magnets being connected by conductors to each other, to said binding-posts and to a cut-off, the latter having a lever pivotally mounted, con-  
 50 tacts located on either side of said lever, a conductor leading from said contacts to said magnets, the latter being located in upper and lower compartments of an X-shaped  
 55 frame and having their heels or ends arranged at an incline to each other, an oscillatory armature supported in said frame, the extremities of said armature being adapted  
 60 to swing alternately toward the heels or ends of said magnets, a pin mounted in the lever of said cut-off, said pin engaging the walls of a slot in a pitman suitably supported, said  
 pitman being actuated in unison with said armature, a pitman connecting the lower ex-

tremity of said armature with a crank-shaft and a governor for said engine.

4. In an electromagnetic engine, a casing or housing, consisting of an upper and lower  
 65 compartment, a horizontal intermediate division-wall or partition therebetween, bearings on said partition, a shaft mounted in said bearings, an armature adapted to rock  
 70 in unison with said shaft, field-magnets F F' arranged in pairs in said upper and lower compartments, the heels or ends of said magnets being inclined to each other, the heels  
 75 of the upper pair of magnets diverging upwardly and the heels of the lower pair of said magnets diverging downwardly, a cut-off having connections common thereto, to said  
 80 batteries and magnets, said cut-off having a lever, a contact on either side of said lever, conductors leading from said contacts to said magnets, the latter having conductors com-  
 85 mon thereto, a slotted link or pitman adapted to be actuated in unison with said armature, the reciprocation of said link being imparted to said lever and crank-shaft, and a pitman  
 common to said crank-shaft and to an ex-

5. In an electromagnetic engine, a housing, consisting of an upper and lower compart-  
 90 ment, an intermediate division-wall or partition therefor, said wall having bearings thereon, in which is mounted a shaft, the latter having an oscillatory armature carried there-  
 95 by, a plurality of field-magnets located in each of said compartments and oppositely to each other, the heels or ends of said magnets being arranged at an incline to each other, their distances from each one's opposite mag-  
 100 net corresponding to the sweep of the armature, in order that the extremities of said ar-  
 105 mature will be proportionally attracted from one set of inclined magnets to the other set, a switch or cut-off provided with a lever, con-  
 110 tacts on each side of said lever and a slotted link or pitman having a connection common thereto and to said lever, said slot in said  
 pitman being of suitable length to govern the time of transmission of the current from one set of magnets to the opposite set, said pit-  
 115 man being actuated in unison with said ar-  
 mature, a pitman extending from said armature to a crank-shaft, and electrical conduc-  
 tors common to said switch, magnets and batteries.

In testimony whereof I affix my signature, 115  
 in presence of two witnesses, this 6th day of April, 1898.

PETER B. WATSON.

Witnesses:

WILLIAM L. TETER,  
 LLOYD C. STALNAKER.