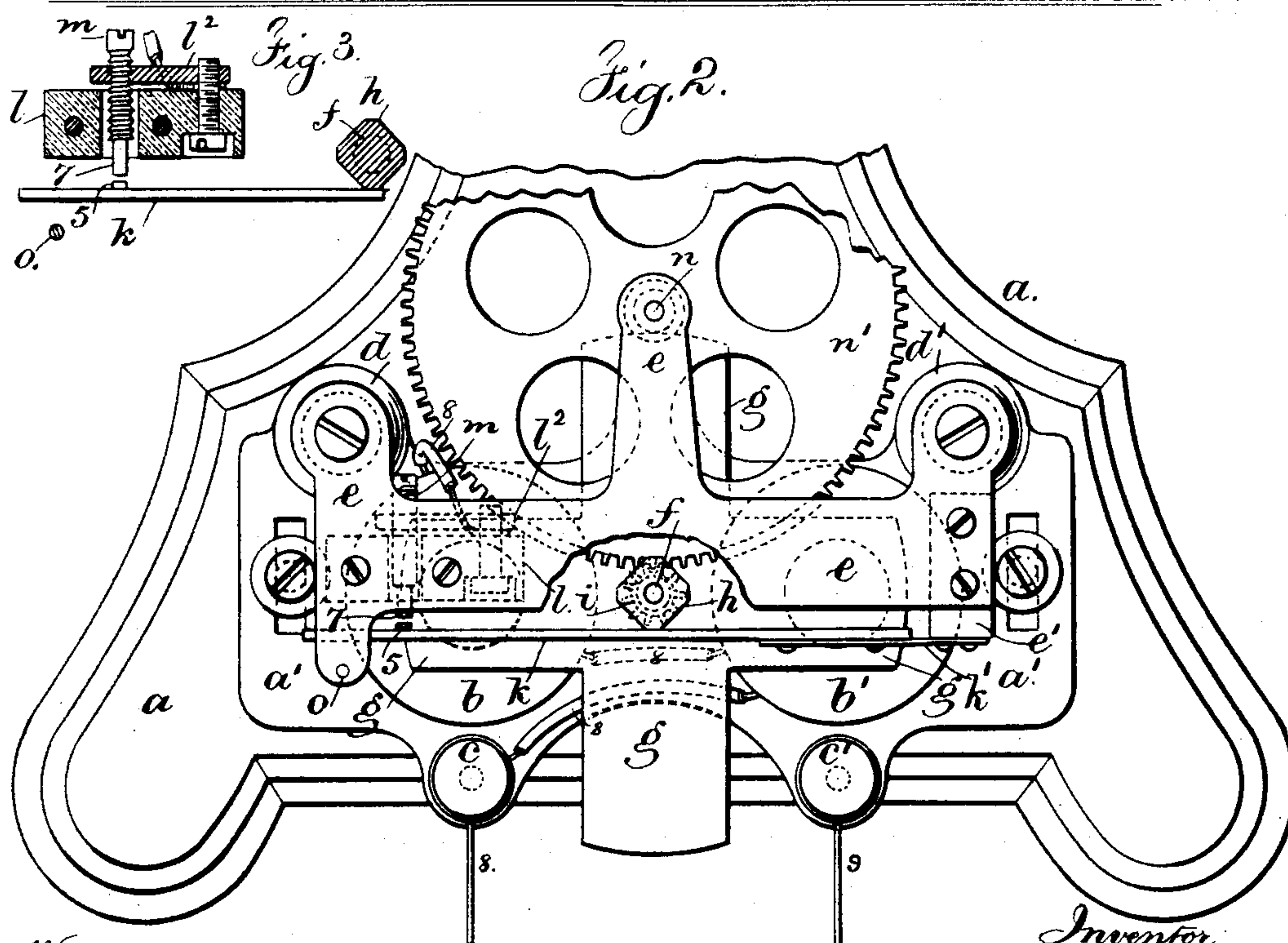
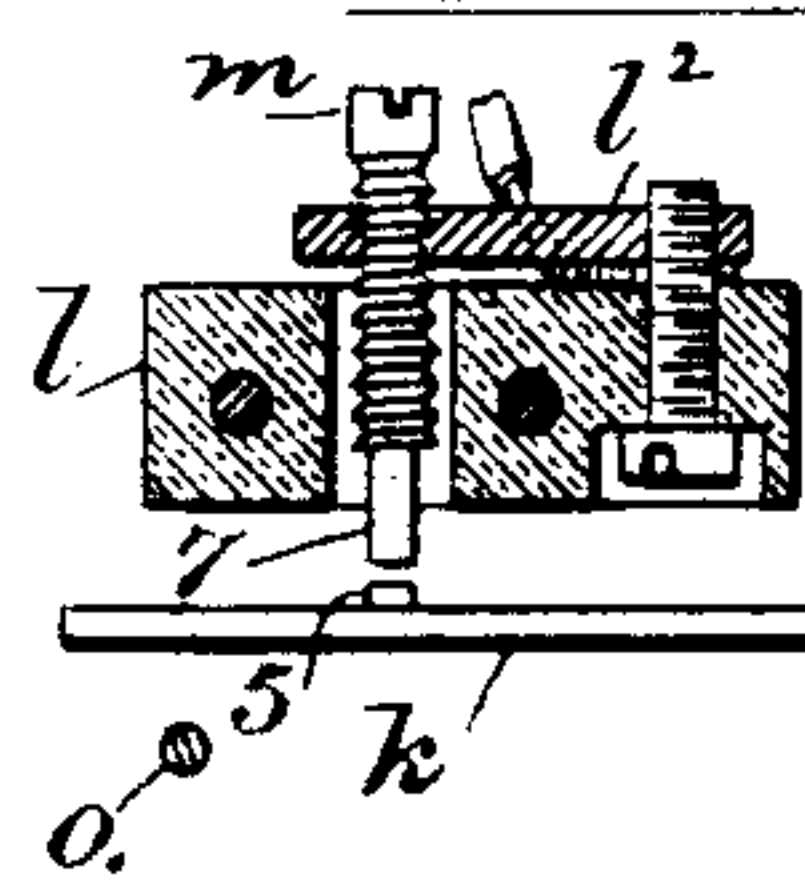


Patented June 4, 1895.



Witnesses
Chas H. Smith
J. Staib

Inventor
Frederick Pearce
per Lemuel W. Perrell atty

UNITED STATES PATENT OFFICE.

FREDERICK PEARCE, OF NEW YORK, N. Y.

ELECTRIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 540,456, dated June 4, 1895.

Application filed December 3, 1890. Serial No. 373,424. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK PEARCE, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Electric Motors, of which the following is a specification.

My invention relates to electric motors wherein the electric current acts through a pair of electro-magnets and a rotatable armature moving across the projecting ends of the cores of said magnets. Heretofore in these devices the electric circuit has been made and broken by a commutator upon the rotatable armature shaft and brushes bearing thereon. My invention consists in a mechanism for making and breaking the electric circuit in such electric motors, dispensing with the commutator and brushes.

My improvement consists of a spring vibrating arm connected at one end to the frame of the machine and set at right angles to the armature shaft. This vibrating arm is operated by a square or many sided hard metal block upon the rotatable armature shaft. The free end of the vibrating arm carries one contact point and an insulating block connected to the frame carries the other contact point. The electric current passes from the line through the electro magnets exciting the armature, thence to the insulated contact, and through the vibrating arm to the frame of the machine and to the line.

My improvements are especially adapted to light motors for operating rotating show stands in store windows, and other devices.

In the drawings, Figure 1 is an elevation of my improved motor. Fig. 2 is a plan of the same, and Fig. 3 is a sectional plan at the line xx of Fig. 1.

a represents a base of metal to which an auxiliary base plate a' is connected.

The electro-magnets $b b'$ and their connecting base bar b^2 are secured to the base plate a' and the binding posts $c c'$ are also secured to the plate a' .

The vertical posts $d d'$ of the frame are secured at their bases to the plate a' and a bridge bar e extending above the electro mag-

nets $b b'$ is connected to the top of the posts $d d'$ to form the frame.

The vertically placed rotatable shaft f is pivoted at its ends in the plate a' and bridge bar e respectively and said shaft carries the four armed armature g which moves over the projecting ends of the cores of the electro magnets $b b'$. The shaft f above the armature g carries a square or many sided hard metal block h and a pinion i to be hereinafter described.

The vibrating arm is composed of the arm k and spring plate k' at one end, and this is connected to a bracket e' on the bar e and the free end of the arm k carries one contact point 5. An insulating block l of hard rubber or similar material is connected to the under side of the bar e adjacent to the free end of the arm k . A plate l^2 is secured to the back of the block l by a screw passing through the block l , and passing through this plate and through an opening in the block l is an adjustable screw m the reduced end of which projects from the face of the block l and makes the second contact point 7.

The line and conductor wires 8 are connected to the insulated binding post c and pass to and through the electro magnets and from them to the plate l^2 of the block l and the electric current passes by this path to the plate l^2 and screw m and by the contacts and 5 through the vibrating arm k to the frame parts $e d' a'$ and to the second binding post c' and to the line wire 9.

The electric current is broken by the rotation of the block h the rounded corners of said block forcing the arm k outwardly separating the contact points 5, 7 the spring k' returning the arm k to a normal position and bringing the points 5, 7, together. I have shown in the drawings a four sided block h and a four bar armature and the parts are so positioned that the circuit is made and broken four times in each complete revolution of the armature. The number of sides to the block h and the number of bars to the armature must in all cases agree.

I have shown a shaft n pivoted at its ends in the plate a' and bar e and this shaft n car-

ries a toothed wheel n' meshing with the pinion i and said shaft and wheel are rotated by the armature shaft and in turn operate devices to which motion is to be given, such
5 for instance as rotating show stands for store windows and on which stands goods are displayed. A pin o prevents the accidental outward movement of the vibrating arm to too great an extent.

10 I do not claim a rotary shaft and armature with four arms, nor a circuit closing spring and commutator wheel, as these have been used. I am also aware that contact points
15 have been used in finger keys and other electric devices. In the present invention the vibrating arm acts by its leverage and inertia to promote the uniformity of action in closing and breaking the circuit, and the block

h , simply keeps the arm in vibration and this circuit closing arm acts similar to a pendulum 20 in regulating the speed of rotation.

I claim as my invention—

The combination with the electro magnets, armatures and rotating shaft, of a circuit breaking arm and contact points, a spring 25 fastened to one end of the arm and to a rigid support and a block on the armature shaft for vibrating the circuit breaking arm substantially as specified.

Signed by me this 1st day of December, 30
A. D. 1890.

FREDERICK PEARCE.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.