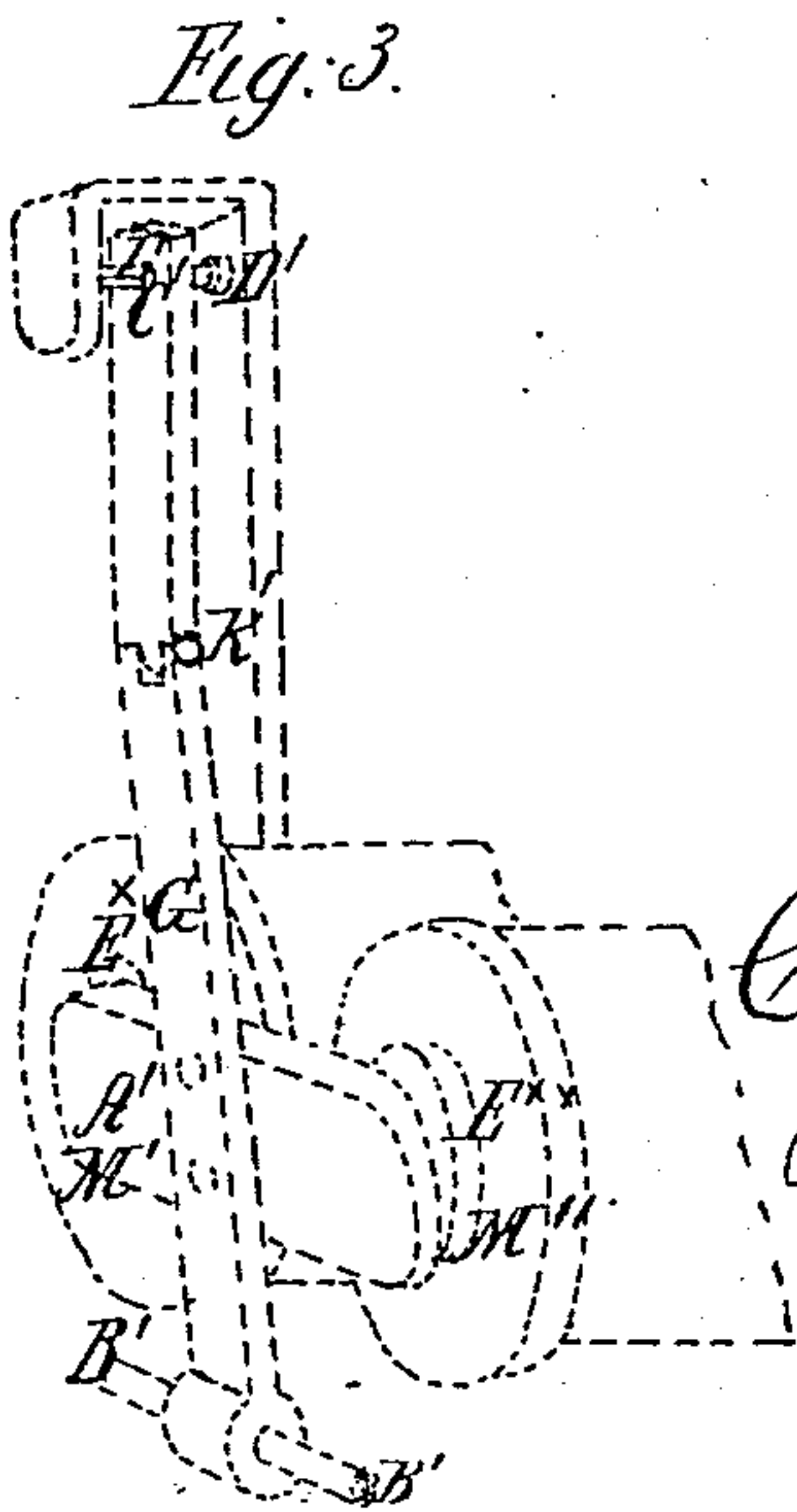
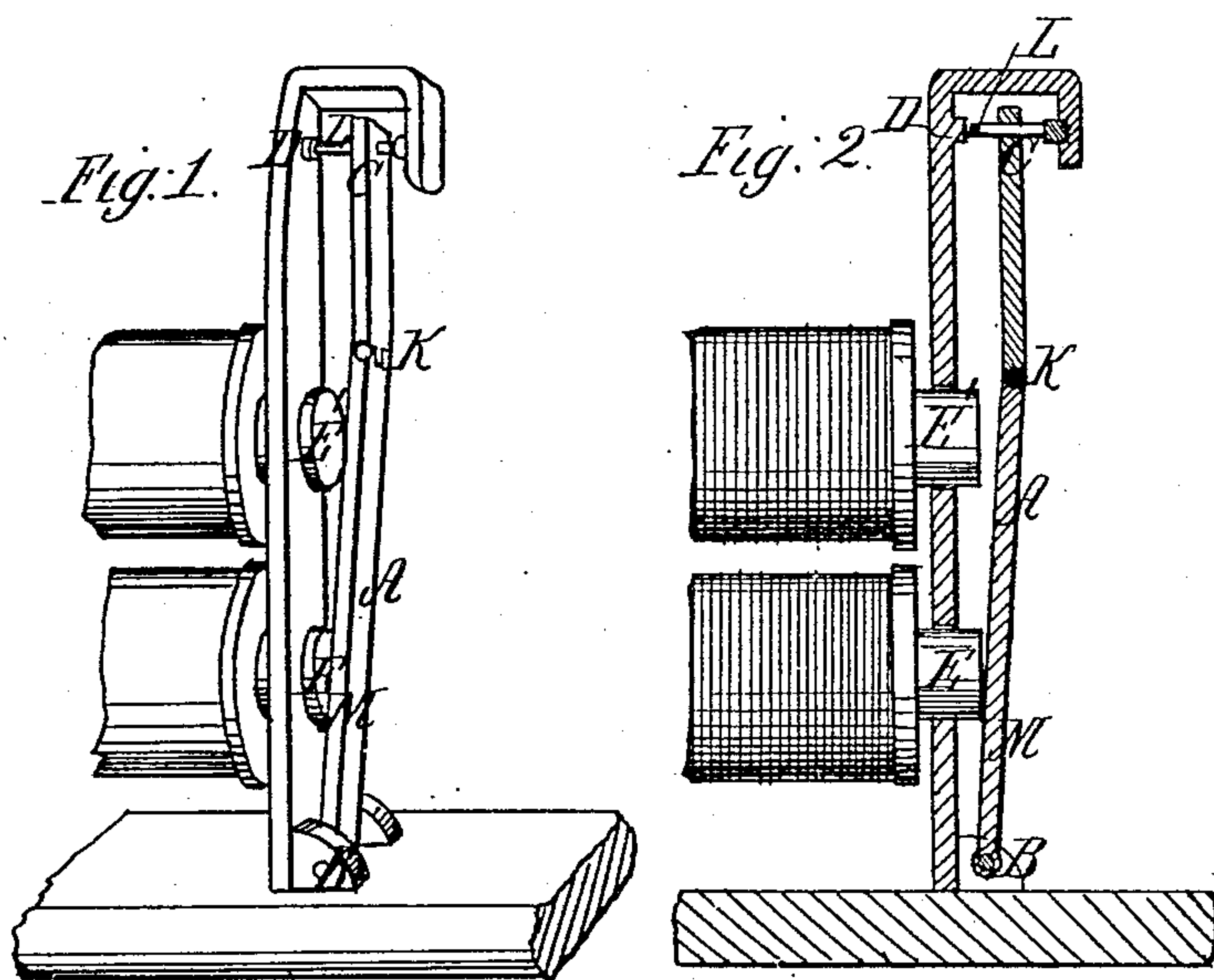


ELECTROMAGNETIC RELAY MACHINE.

No. 78,076.

Patented May 19, 1868.



Witnesses;
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Letters Patent No. 78,076, dated May 19, 1868.

IMPROVEMENT IN RELAY-MAGNETS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES DURANT, of Jersey City, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in the Electro-Magnetic Relay-Machine used in operating the electro-magnetic telegraph; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention consists, first, in so placing the armature or armature-lever pressing against one or both cores of the magnet, or against any unyielding substance as a fulcrum, that the elasticity alone of the extended armature or armature-lever shall constitute an efficient and the only spring required in recoil on opening or breaking the circuit; second, in constructing the extended armature or armature-lever with a flexible joint, by which means the platina point now used to open and close the local circuit may be restrained to move and operate over any space, however small, while the armature itself or armature-lever, below the joint, is free to move over greater or less space incident to varying strong and feeble electric currents; and third, in dispensing with the fixed platina point used for opening and closing the local circuit, and now firmly fastened to the extended armature or armature-lever, and substituting therefor a shifting or sliding bolt to move freely through and upon the extended armature or armature-lever, and thereby self-compensating for the varying greater or less motion incident to the armature or armature-lever.

The advantages of my invention consist in greater simplicity and economy in construction, and operating more efficiently without further adjusting in wider range from feeble to strong currents and escapes, than any relay heretofore used or invented.

The difference between my invention and all others in construction and operation, is, first, I convert the elasticity of armature or of the armature-lever, which latter being firmly united or fastened to becomes a part of the armature, into an efficient and only spring for recoil, while all others indispensably use a spring or springs independent of and outside of, and pressing against or pulling on the armature or armature-lever for the same recoil; second, I use a flexible joint in the extended armature or armature-lever, whilst in all others the extended armature or armature-lever is without flexible joint; third, I use a shifting or sliding bolt, to move freely through and upon the extended armature or armature-lever, for operating the local circuit, and entirely dispense with the fixed platina point firmly united or fastened to extended armature or armature-lever, and which is indispensably used by all others for the same purpose. In the accompanying sheet of drawings—

Figure 1 is a perspective view of a portion of an electro-magnetic-relay machine showing my invention.

Figure 2 is a vertical section of the same.

Figure 3 is a perspective view of a modification of fig. 1.

Similar letters in the accompanying drawings indicate corresponding parts.

To enable those skilled in the art to make and use my invention, I will describe its construction and operation, thus:

Figures 1 and 2 show the extended armature A, on an axle or pivots at B, with the flexible joint K, and sustaining the bolt L, which rests upon it, and is allowed to move freely through the opening at C, whilst operating the local circuit at D, and the armature A impinging on or fixed against the edge of magnet-core E, or against any unyielding fulcrum at or near the point M, but not allowed to touch any part of the core E', and thereby converting its own elasticity into a recoil-spring at each break of the circuit.

Figure 3 shows the armature-lever G on an axle or pivots at B' B', with the flexible joint K', and sustaining the bolt L', which rests upon it, and is allowed to move freely through the opening at C' whilst operating the local circuit at D', and the armature A' impinging on or fixed against the edges of the magnet-cores E^x and E^{xx}, at the points M' and M'', but not allowed to touch any other part of said cores E^x and E^{xx}, or the armature A' may impinge on or be fixed against either of the said cores E^x or E^{xx} separately, at or near the points

M' or M'' respectively, or the armature-lever G may impinge on or be fixed against any unyielding fulcrum, nearly between the points M' and M'', thus converting the elasticity of the armature A', as well as that of the armature-lever G into a recoil-spring at every break of the circuit.

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

1. The jointed armature or armature-lever A or G, in combination with the magnet-cores E or E', or E×E××, or either of them, substantially as herein shown and described.
2. I claim the flexible joint in extended armature or armature-lever, substantially as and for the purpose herein fully set forth and described.
3. I claim the shifting or sliding bolt in the extended armature or armature-lever, substantially as and for the purpose herein fully set forth and described.

Witnesses:

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