

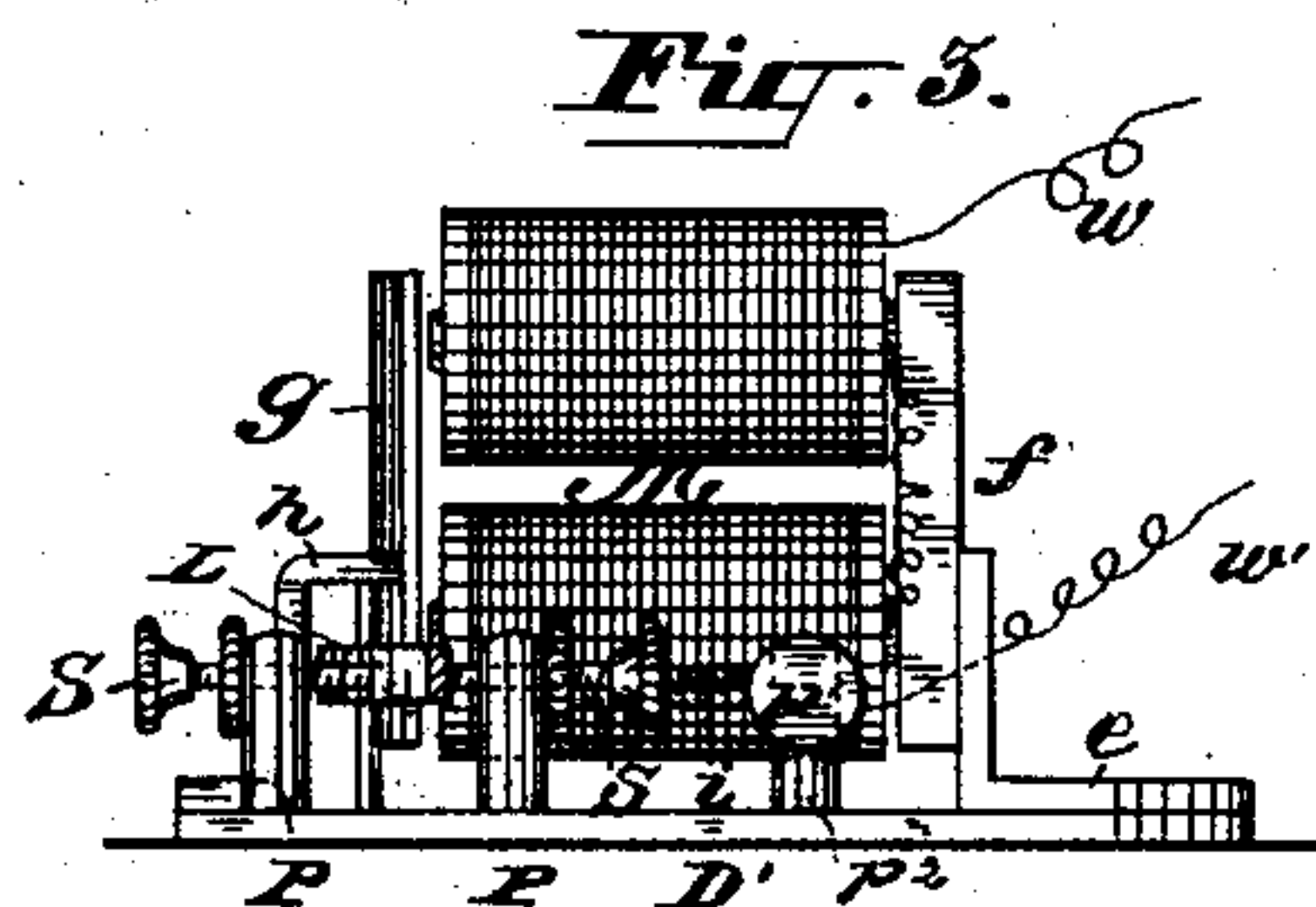
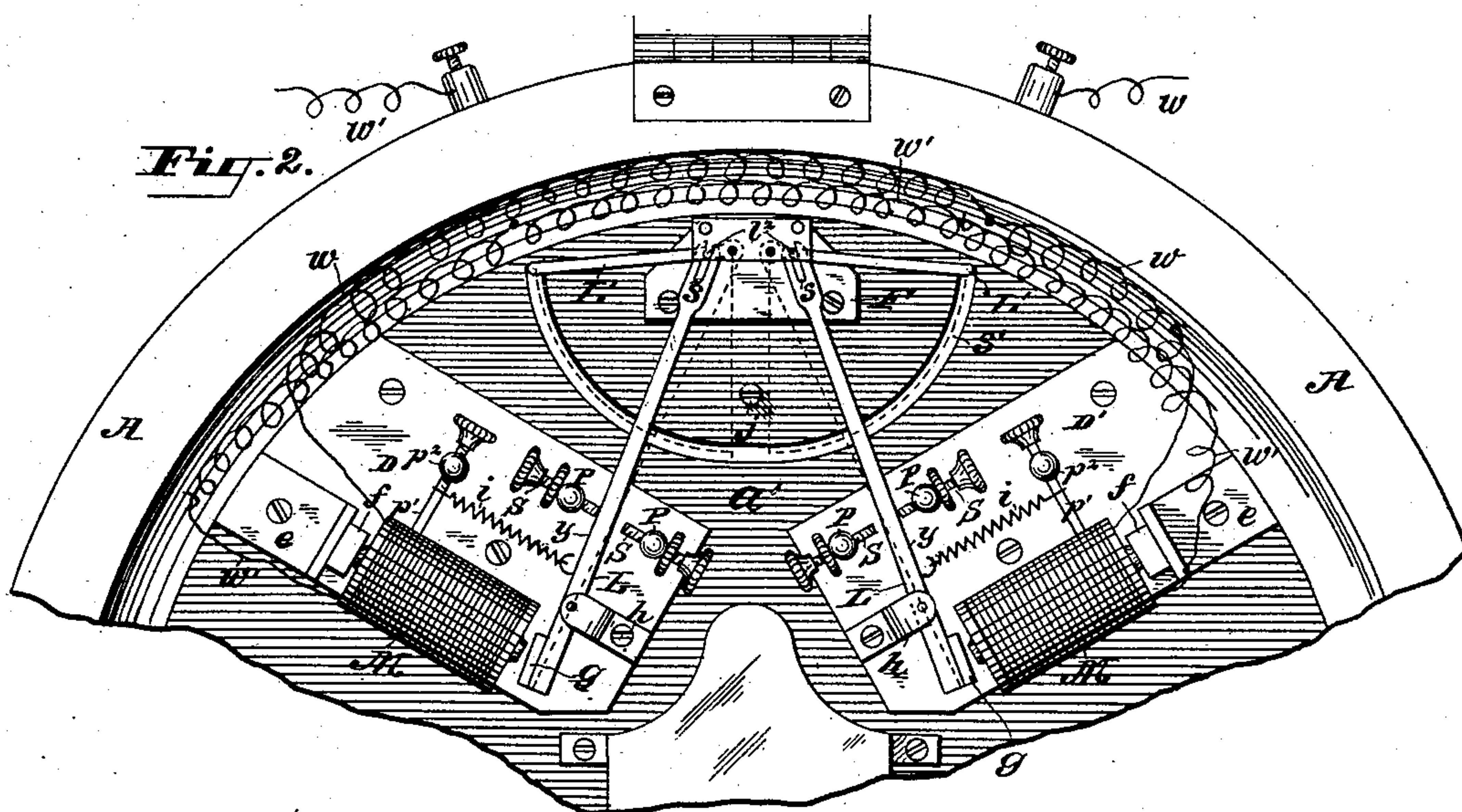
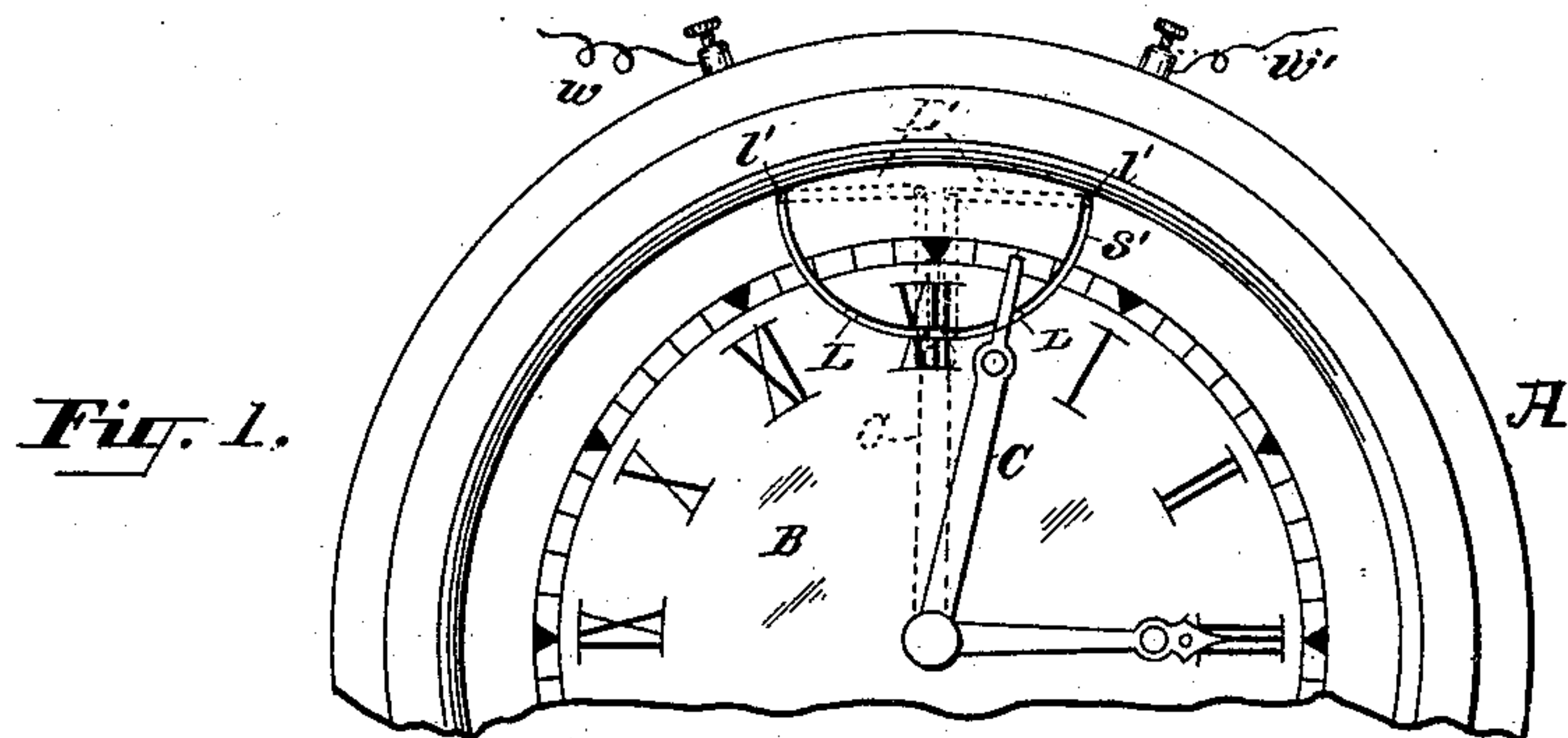
(No Model.)

C. J. HEXAMER.

CLOCK SYNCHRONIZING APPARATUS.

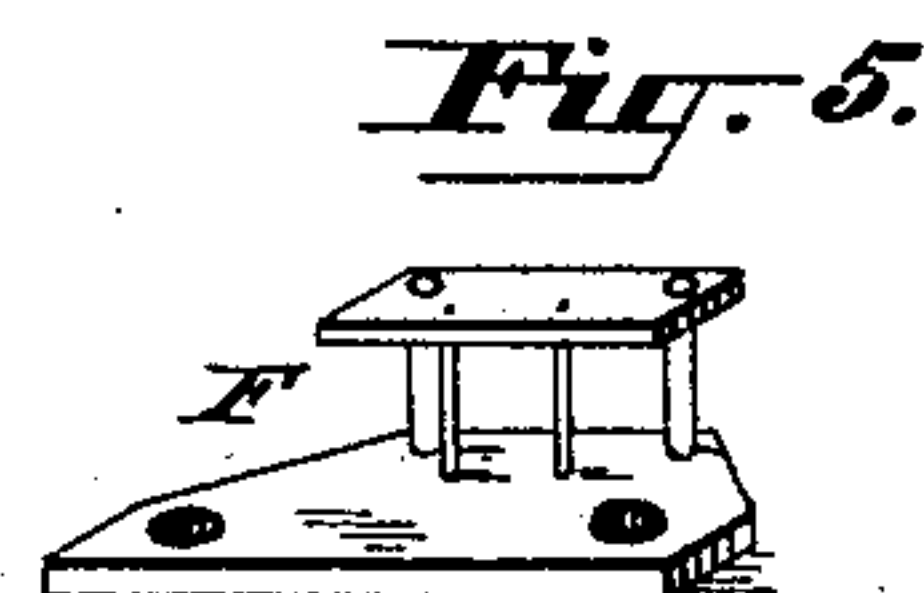
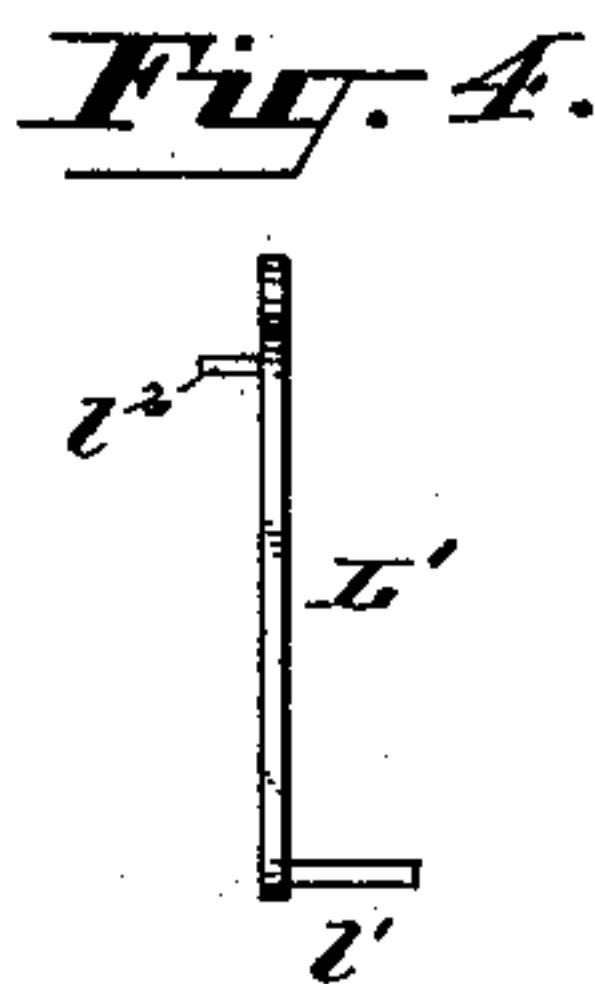
No. 373,138.

Patented Nov. 15, 1887.



WITNESSES:

Yours truly,
Wm. H. Carson.



INVENTOR

Charles John Hexamer
per Joshua Pusey
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES JOHN HEXAMER, OF PHILADELPHIA, PENNSYLVANIA.

CLOCK-SYNCHRONIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 373,138, dated November 15, 1887.

Application filed December 15, 1886. Serial No. 221,586. (No model.)

To all whom it may concern:

Be it known that I, CHARLES JOHN HEXAMER, a citizen of the United States, residing at the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Clock-Synchronizing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a face view of a portion of a clock provided with my invention. Fig. 2 is a rear view, enlarged, the back being removed. Fig. 3 is a side view of one of the electro-magnets and connections, the forward end of the lever L being broken off. Figs. 4 and 5 are detail views.

This invention relates to that class of devices for synchronizing or regulating clocks, wherein the minute-hand of the clock, whether behind or ahead of time, is correctly set hourly, by means of mechanism acting thereupon and controlled electrically or pneumatically by a primary time-piece or regulator.

The invention consists, generally, in the combination, with the clock, of a pair of pivoted levers having their shorter arms connected to the armatures of a pair of magnets, respectively, and their longer arms freely connected with a pair of pivoted arms, provided at their outer ends with pins projecting beyond the dial-plate and adapted to swing within an arc of a circle intersecting the path of the minute-hand adjacent to the hour-point, whereby, when the circuit is completed by the primary regulator and a current of electricity sent therefrom to said magnets, the armatures, and consequently the levers, will be attracted by the latter, and the said arms be simultaneously thrown down and across the path of the minute-hand, and the latter set to the correct point, whereupon, the current being broken, the said armatures, levers, and arms, respectively, are returned automatically to their former positions.

The invention consists, also, in certain details which will be hereinafter specified.

Referring to the annexed drawings, A marks a clock, B the dial thereof secured to the face-plate a' , and C the minute-hand. Within the clock-frame, upon each side of the plate a'

thereof, there are secured plates D D', respectively. Upon each of the latter there is screwed or otherwise secured a bracket, e , to which is attached a bar, f , that supports an electro-magnet, M, the armature g thereof being secured to the short arm of a lever, L, pivoted in a bracket, h , adjacent to the magnet. These levers converge upwardly and are provided at their free extremities with longitudinal slots s , respectively.

Secured to plate a' , at the top thereof, is a frame, F, within which on each side of the vertical diameter, are pivoted arms L', on the forward ends of which are lateral studs l' , which project through and beyond a semi-circular slot, s' , in the face-plate and dial. This slot intersects the path of the upper part of the minute-hand on each side of the meridian XII, as seen in Fig. 1. Upon each of the arms L', near the pivotal point thereof, is a stud, l'' , which enters the slot s in the end of the adjacent lever L. The armatures g , to which the short arms of said levers are secured, are held normally out of contact with the respective magnets by means of springs i , which are connected to the longer arms y of said levers, and to pins p' , extending from posts p'' , arising from the plates D D' respectively. Projecting from the latter, on each side of the arms y , respectively, are posts P, through which pass adjusting-screws S, for regulating the throw of the levers, as shown.

Now, it will be observed that upon the electrical connection or circuit being made (at the meridian XII) by any well-known standard regulator, the current passing through the wires $w w'$, leading to the magnets, will cause the latter to attract thereto, against the stress of the springs i , the armatures g , and consequently the short arms of the levers L, respectively, thus throwing the forward arms thereof inwardly, and with them the arms L', until the latter stop against a projection, j , in line vertically with the hour-point, and the longer arms of the levers against the adjusting-screws, either stud l' in its motion striking against and drawing the minute-hand into the correct position, according to whether the clock be fast or slow, as shown by the dotted lines in Figs. 1 and 2. The circuit is then immediately broken by the regulator, when the

springs i return the parts to their former position. The like poles of both magnets are connected by the same wire, respectively—that is to say, the positive-poles are connected by one wire, w , and the negative-poles by the other wire w' .

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

1. In a clock-synchronizing apparatus, the combination, with the clock, of the semicircular slot, the pivoted arms L' , provided, respectively, with pins l^2 , studs projecting through said slot across the path of the minute-hand, the pivoted levers having one arm thereof freely connected to the pins l^2 , and the other arm thereof having thereon an armature, adjustable stops for said arms, as described, the springs i , and the magnets with conductor-wires adapted to be connected with the primary regulator, substantially as and for the purpose set forth.

2. In a clock-synchronizing apparatus, the combination, with the clock, of the semicircular slot, the pivoted arms L' , provided, respectively, with pins l^2 , studs projecting through said slot across the path of the minute-hand, the pivoted levers having one arm thereof freely connected to the pins l^2 , and the other arm thereof having thereon an armature, adjustable stops for said arms, as described, the springs, the adjusting screws, and the magnets with conductor-wires adapted to be connected with the primary regulator, substantially as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature, this 11th day of December, A. D. 1886.

CHARLES JOHN HEXAMER.

Witnesses:

JNO. NOLAN,
P. O'DONNELL.