

A. H. HOBART.
AUTOMATIC SWITCH.

No. 540,443.

Patented June 4, 1895.

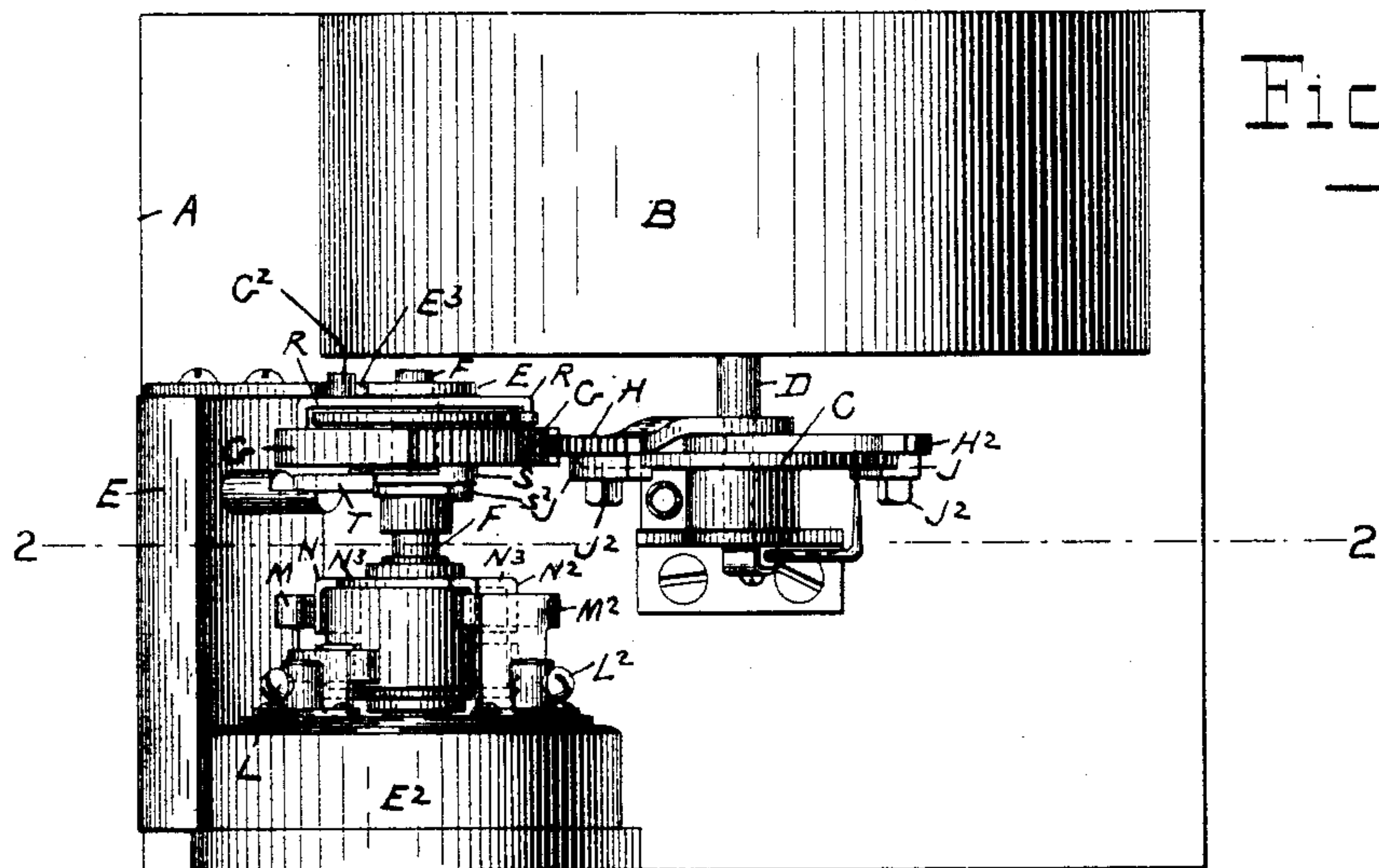


Fig. 1.

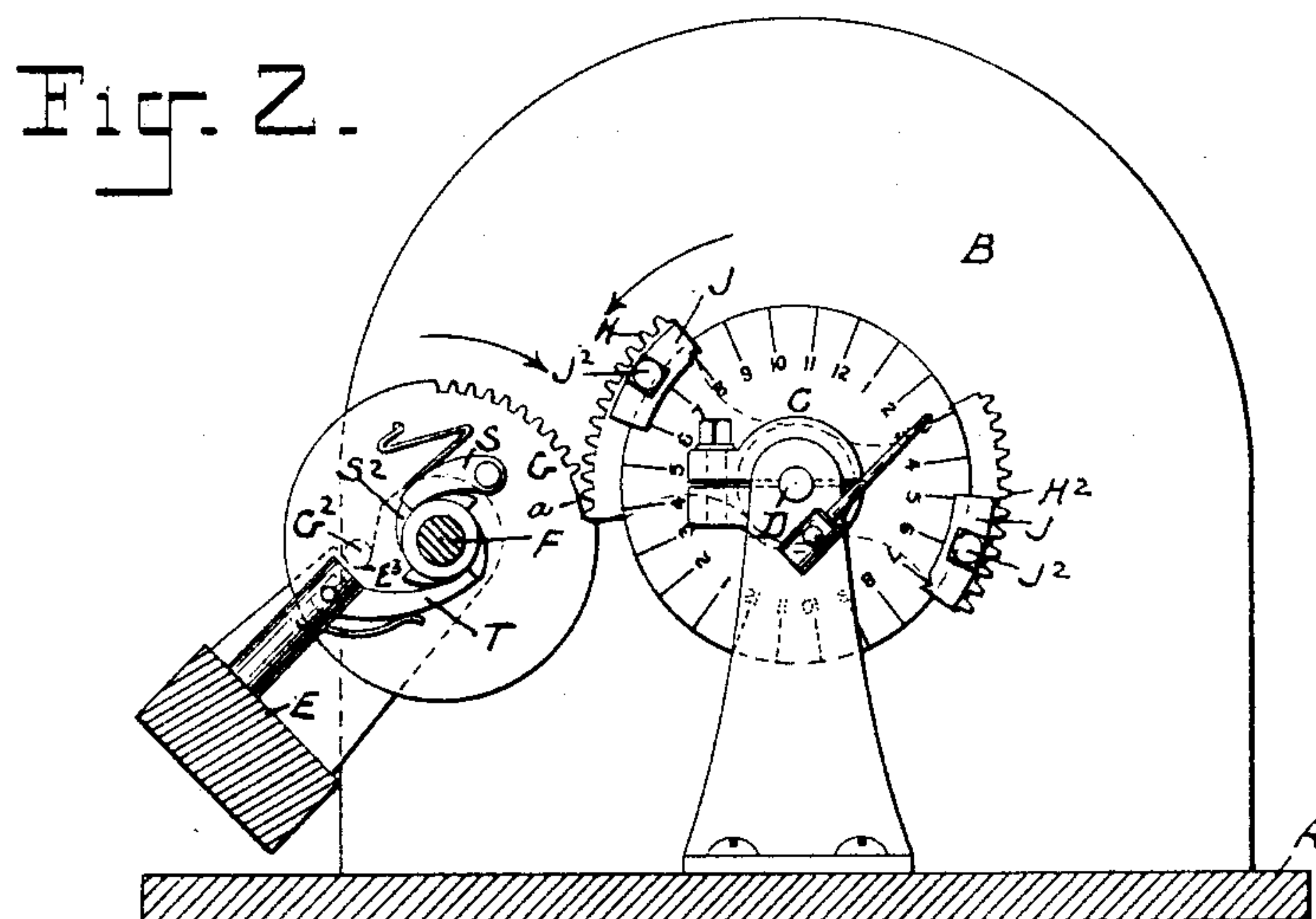


Fig. 2.

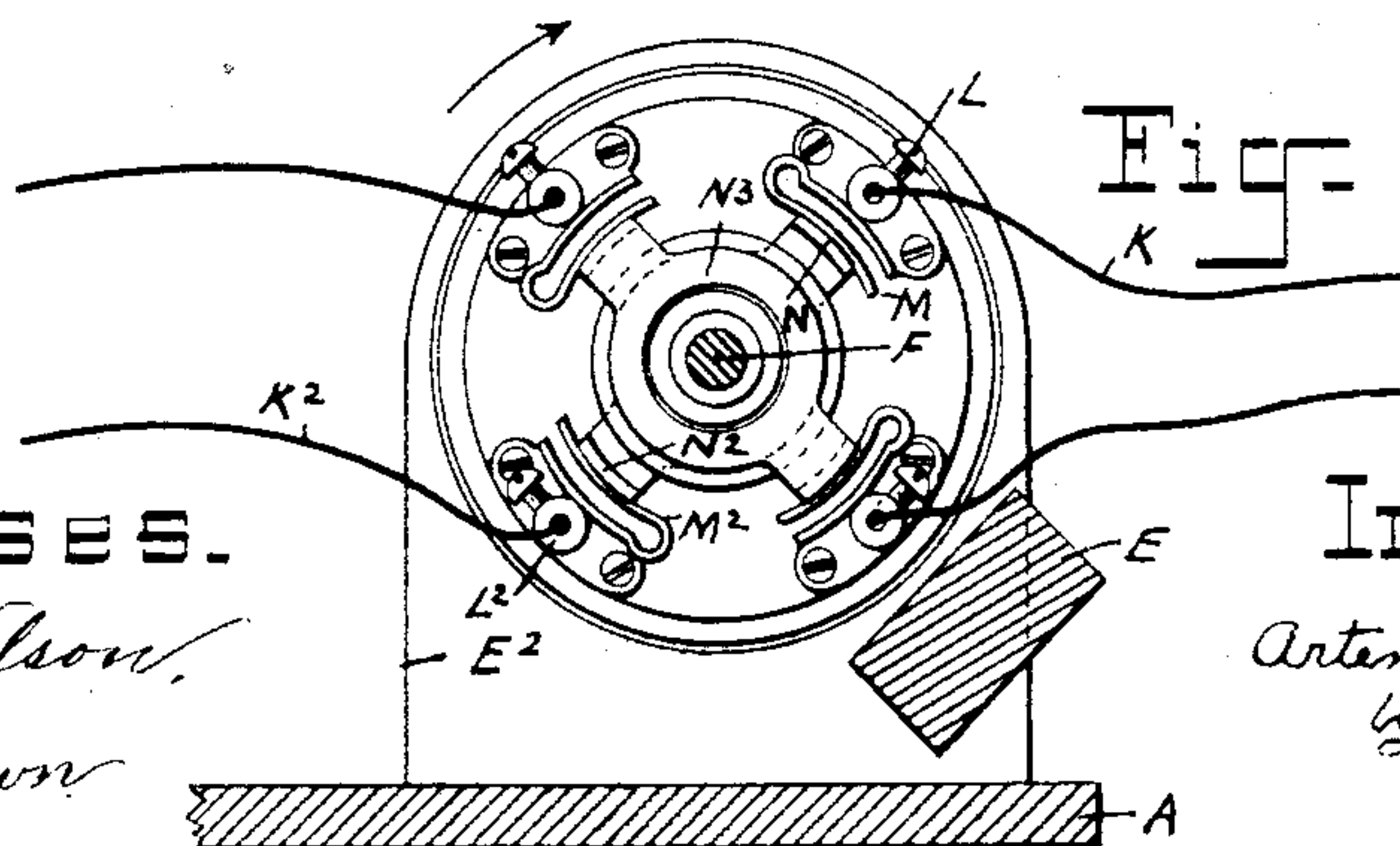


Fig. 3.

Witnesses.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

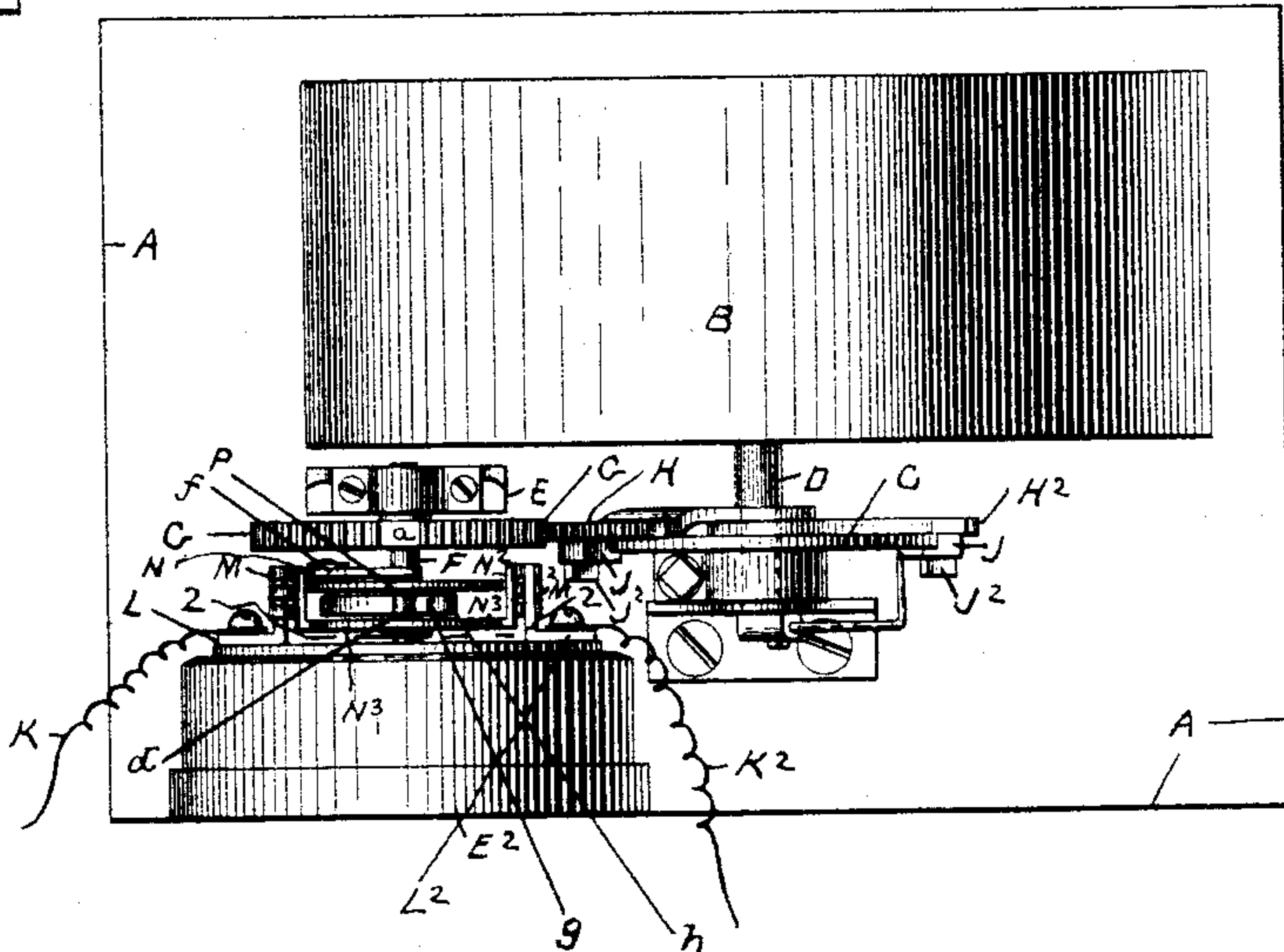


Fig. 5.

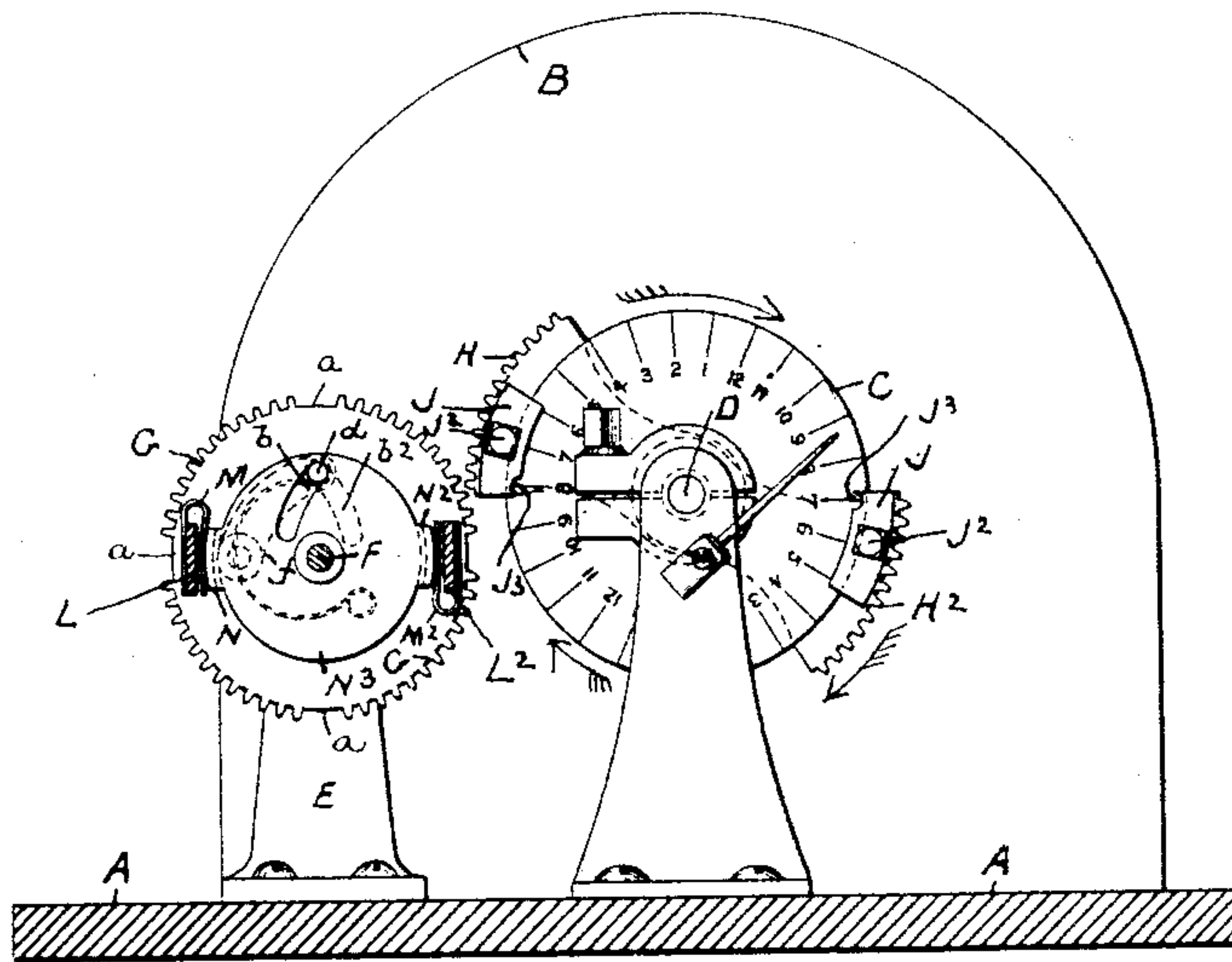
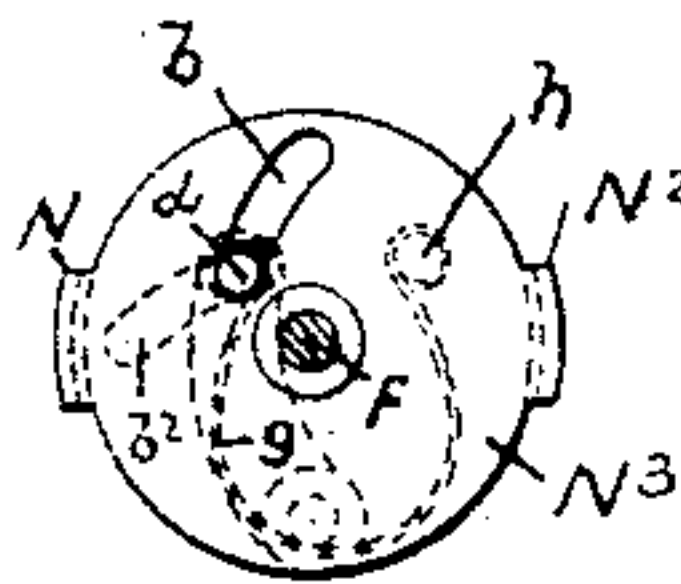


Fig. 6.

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UNITED STATES PATENT OFFICE.

ARTEMAS H. HOBART, OF BRIDGEWATER, MASSACHUSETTS.

AUTOMATIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 540,443, dated June 4, 1895.

Application filed October 6, 1894. Serial No. 525,153. (No model.)

To all whom it may concern:

Be it known that I, ARTEMAS H. HOBART, a citizen of the United States of America, and a resident of the town of Bridgewater, in the county of Plymouth and State of Massachusetts, have invented a certain new and Improved Automatic Switch, of which the following is a full, clear, and exact description.

This invention in automatic electric switches is more especially designed for electric lighting circuits and the appliances of the invention are to be used in combination with a clock or other like movement, all as hereinafter fully described and pointed out in the claims.

In the drawings forming part of this specification, two forms of carrying out this invention are illustrated, and one constitutes a specific feature.

Figures 1 and 4 are plan views of the two forms, respectively, Fig. 1 being of the specific form of the invention. Figs. 2 and 5 are vertical sections, line 2 2, Fig. 1, and line 5 5, Fig. 4, respectively. Fig. 3 is a detail section, line 2 2, Fig. 1; and Fig. 6 is a detail view, as hereinafter appears.

In the drawings, A is a base-board of wood, or other suitable material, supporting a casing B, in which is an ordinary clock or other such like movement (not shown) to regularly rotate a horizontal arbor or shaft D.

C is a disk held on the clock-arbor D, and graduated on its face in representation of the twenty four hours of a day, and in two series, numbered consecutively from 1 to 12, both inclusive, and all, so that, in a rotation of the disk, each graduation represents an hour division of a day, the same substantially as the stationary dial of a clock-movement with moving hands on the clock-arbor D.

H, H² are two sector-gears on and carried by the rotating dial-disk C. The sector-gears are hung on the clock-arbor back of the dial-disk. J is a clamp-plate for each sector-gear H, H². Each clamp-plate J sets over the front part of the gear and the edge and the front face of the dial-disk and a headed screw-stud J² is entered through it and into the sector-gear and so clamping the two together and the gear to the dial-disk. On loosening a screw-stud J², the sector-gear to which it belongs is then freed to be swung around on the clock-

arbor D and being then adjusted as desired, it is made fast by turning up the screw-stud J².

J³ is a notch on each clamping-plate J, to serve, registering it with a graduation or between graduations of the dial C, as a guide in setting the sector-gears.

F is a horizontal shaft, at one side of the clock-movement and at its opposite end-positions held in suitable supports E, E².

G is a gear held on the shaft F and in position to be meshed by the sector-gears H, H² of the rotating clock-dial C, as they in turn come into, and continue in position therefor.

As shown, (Figs. 2 and 5,) the sector-gear H is set on the dial C, at the evening hour eight, and the sector-gear H² at the morning hour seven, and all, so that in the rotation of the clock-dial C, a rotary movement of the gear G is had, to the extent of the length of each sector-gear, at the time of night and day stated, on which the sector-gear passes from the gear G leaving it to its own action, or inaction as the case may be, until again coming into mesh with it.

In the form of this invention, Figs. 1, 2 and 3, the gear G, is rotated as described against the tension of a spring R, suitably applied and by the reaction of that spring, the gear G is returned to position, being arrested by the abutment of its stud G³ against a stationary stop E³.

In the form of this invention, Figs. 4, 5 and 6 the gear G is rotated as described, step by step, as each sector-gear meshes and is meshed with it.

a is a cut away portion of the teeth of the gear G to facilitate the proper mesh of the sector-gears with the gear G.

Each rotation of the gear G, either closes or opens, as the case may be, an electric circuit, because of the operation thereby of an electric switch which intervenes in the circuit and is suitable therefor.

K, K² are the circuit-wires on opposite sides of the support E, E² before referred to, and respectively connected to stationary metal pieces L, L² having spring metal contacts M, M², respectively for contact with diametrical contacts N, N² of a disk N³, rotated either by or because of the movement of the gear G and axially coincident with and on the shaft F, all else being suitable therefor.

Referring to Figs. 1, 2 and 3, the disk N^3 is rotated directly from the rotating gear G , which by its spring-pawl S engaged with a ratchet S^2 of the disk N^3 acts on the disk, 5 which is held against accidental return by the spring stop-pawl T suitably located therefor.

In Figs. 1, 2 and 3, two electric circuits and a similar electric switch for each are shown, 10 but only one set is lettered.

With the metal contacts M , M^2 and N , N^2 in contact the circuit is closed and when out of contact the circuit is broken or open and as is plain all as the result of the rotation of the 15 disk N^3 .

Referring to Figs. 4, 5 and 6, the disk N^3 has a cam or curving slot b , that extends from a point near the periphery of the disk to a point near or at one side of the gear-shaft F , 20 and another disk P turning with said gear-shaft F also has a cam curving slot b^2 similar to the slot b before referred to, but extending in a direction opposite thereto and with the two disks N^3 , P , in the position shown, Fig. 5, 25 which is with the circuit closed. The ends of both said cam-slots which are toward the peripheries of said disks, are in line with each other and they have a pin d entered into both of them, thereby joining the two disks. This 30 pin d is fixed on one end of an arm f that, at its other end, is fulcrumed on the disk P turning with the shaft, and between the disks said pin engages the hook-end of a curving spring-band g , that partially encircles the 35 shaft of said disks and, at its opposite end, is held on a pin h , which is fixed on the disk P , and at the opposite side to that of the ends of the cam-slots of said disks which are near to the peripheries of said disks, as has been before explained. The sector-gear H^2 , for the 40 opening of the circuit, in mesh with the gear G rotates said gear and its shaft and the disk P fixed on said shaft severally in one direction, and all so that the cam-slot of said disk 45 P travels for its whole length over the pin d engaged with it, and said pin travels for the

whole length of the cam-slot of the loose disk N^3 on said shaft, but without rotating it, all against the tension of the spring-band g until, on said pin and said cam-slot having reached 50 the extreme limits of their said movements and with the sector-gear still in but just about to pass from mesh with the gear G , by the then reaction of the spring-band, the loose disk is given a quarter turn, placing its contact- 55 arms out of contact with the stationary contact-pieces of the switch, and so the electric circuit is opened, or broken, and so remains until the gear-wheel G is operated by the sector-gear next following. With this posi- 60 tion of the parts of the electric switch on the then mesh of the sector-gear for the closing of the electric circuit said parts in operation bring about the necessary movement to close the electric circuit, all as is obvious without 65 further description.

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

1. In an electric switch, in combination, a 70 rotating disk, a sector-gear or gears adjustably held on said disk, a gear to be meshed by said sector-gear or gears, and an electric switch in part carried by said gear, all substantially as described and for operation as 75 specified.

2. In an electric switch, in combination, a rotating disk, a sector-gear or gears held on said disk, again to be meshed by said sector-gear or gears, and an electric switch, com- 80 posed of a rotating carrier having metal contacts and adapted to be rotated by said gear, and of stationary contacts, substantially as described and for the operation specified.

In testimony whereof I have hereunto set 85 my hand in the presence of two subscribing witnesses.

ARTEMAS H. HOBART.

Witnesses:

ALBERT W. BROWN,
MARY W. STORER.