

No. 713,668.

Patented Nov. 18, 1902.

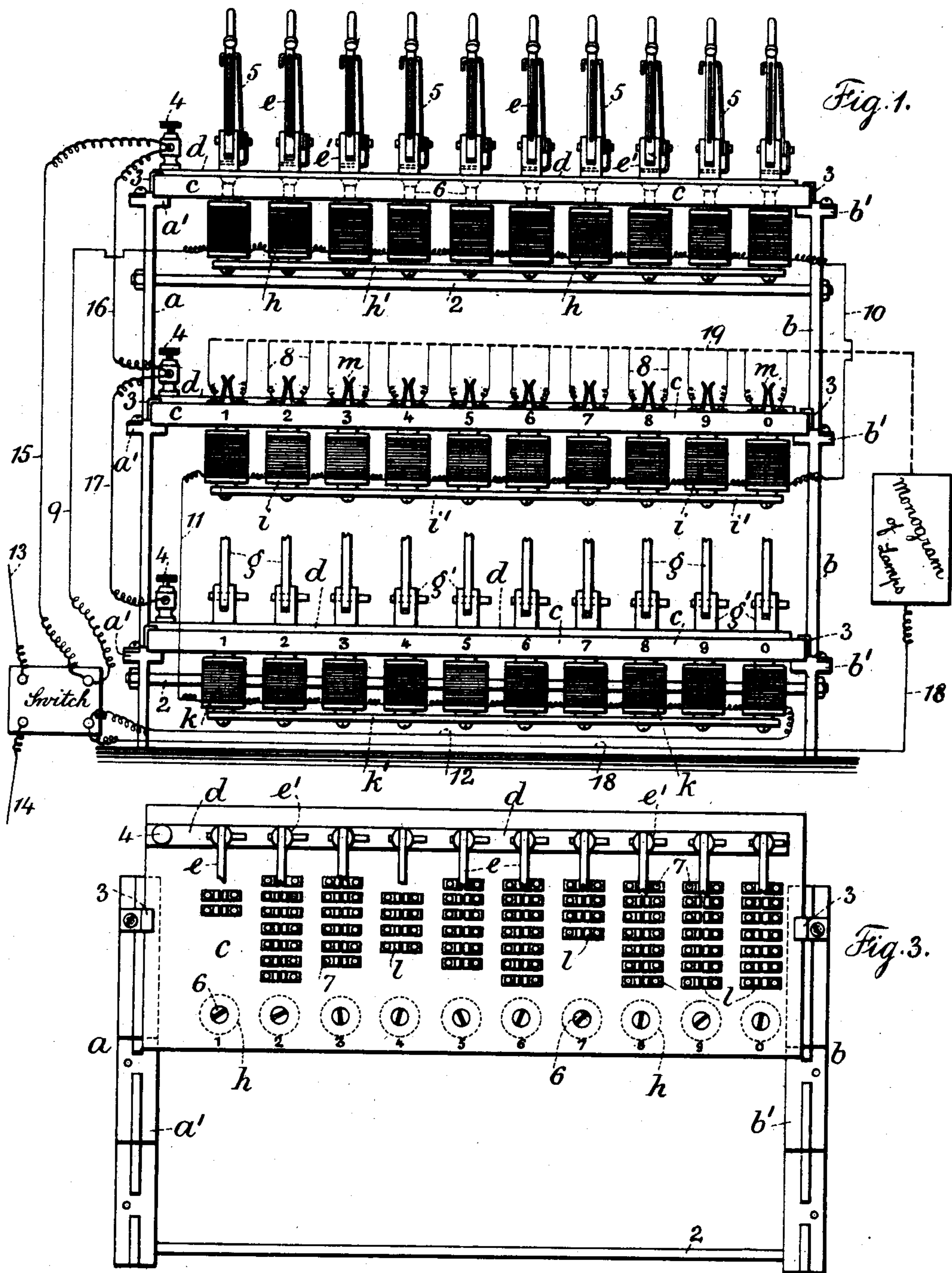
M. NORDEN.

SWITCHBOARD FOR ILLUMINATING ELECTRIC LIGHT SIGNS.

(Application filed Mar. 11, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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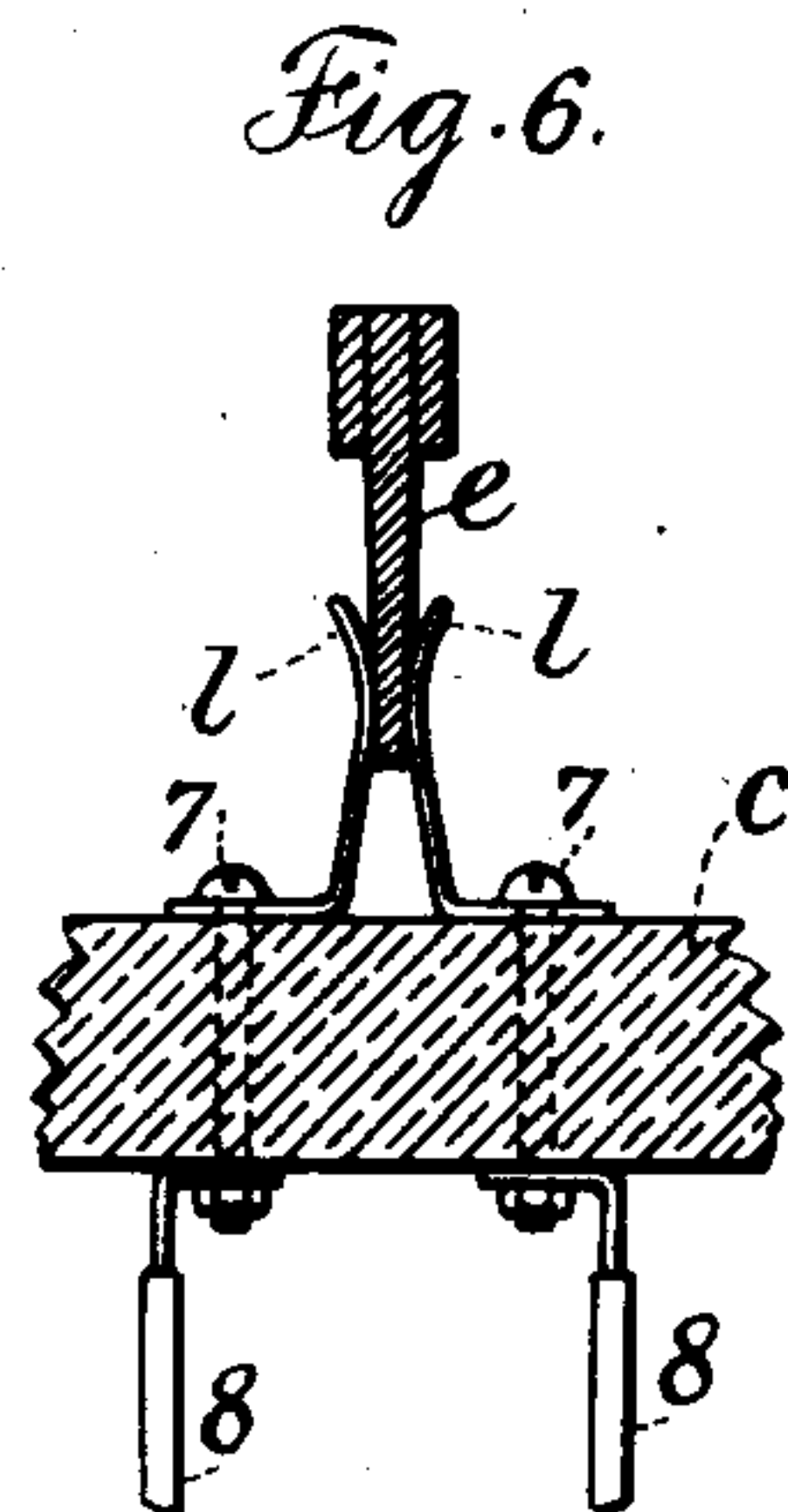
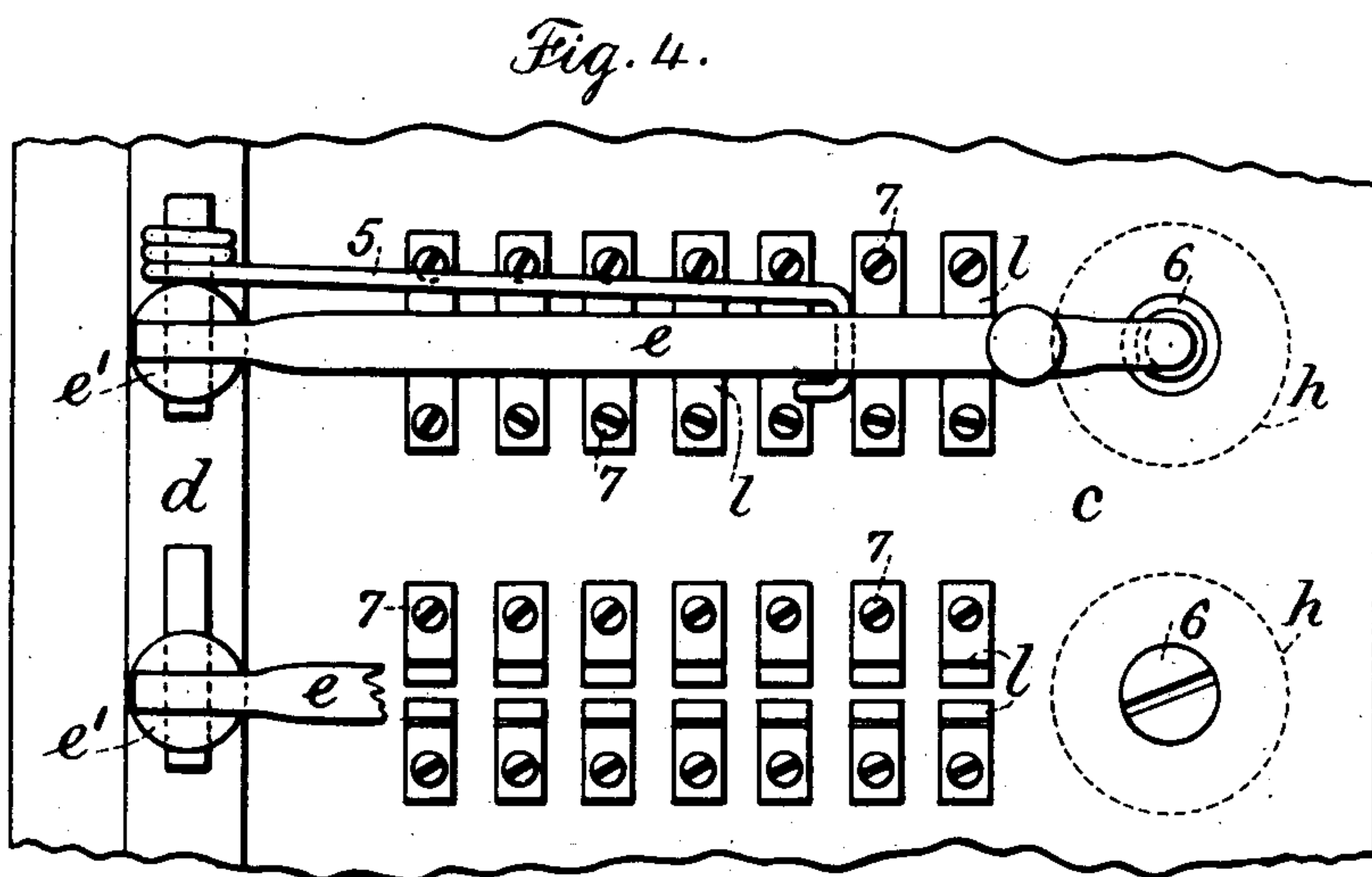
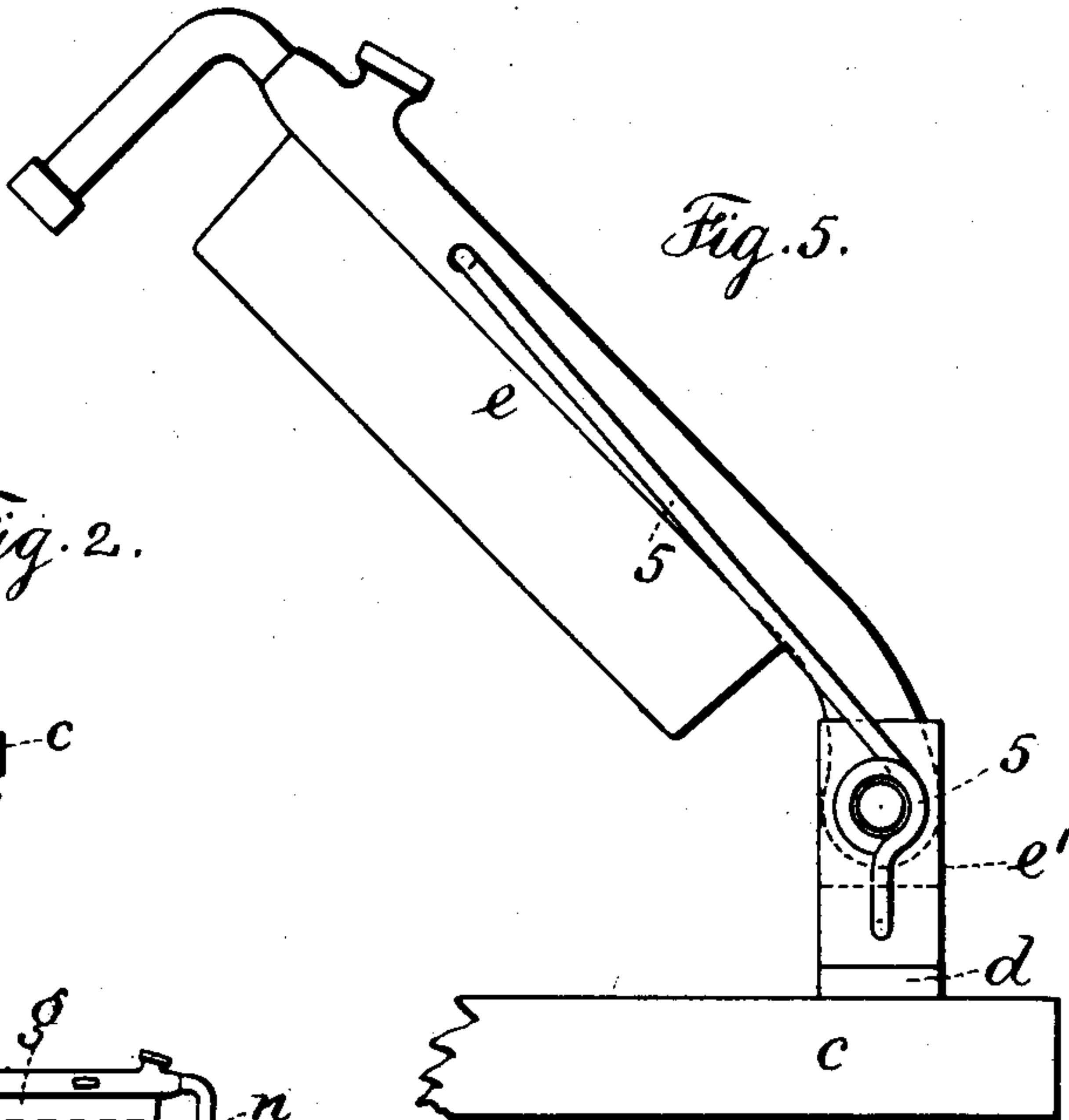
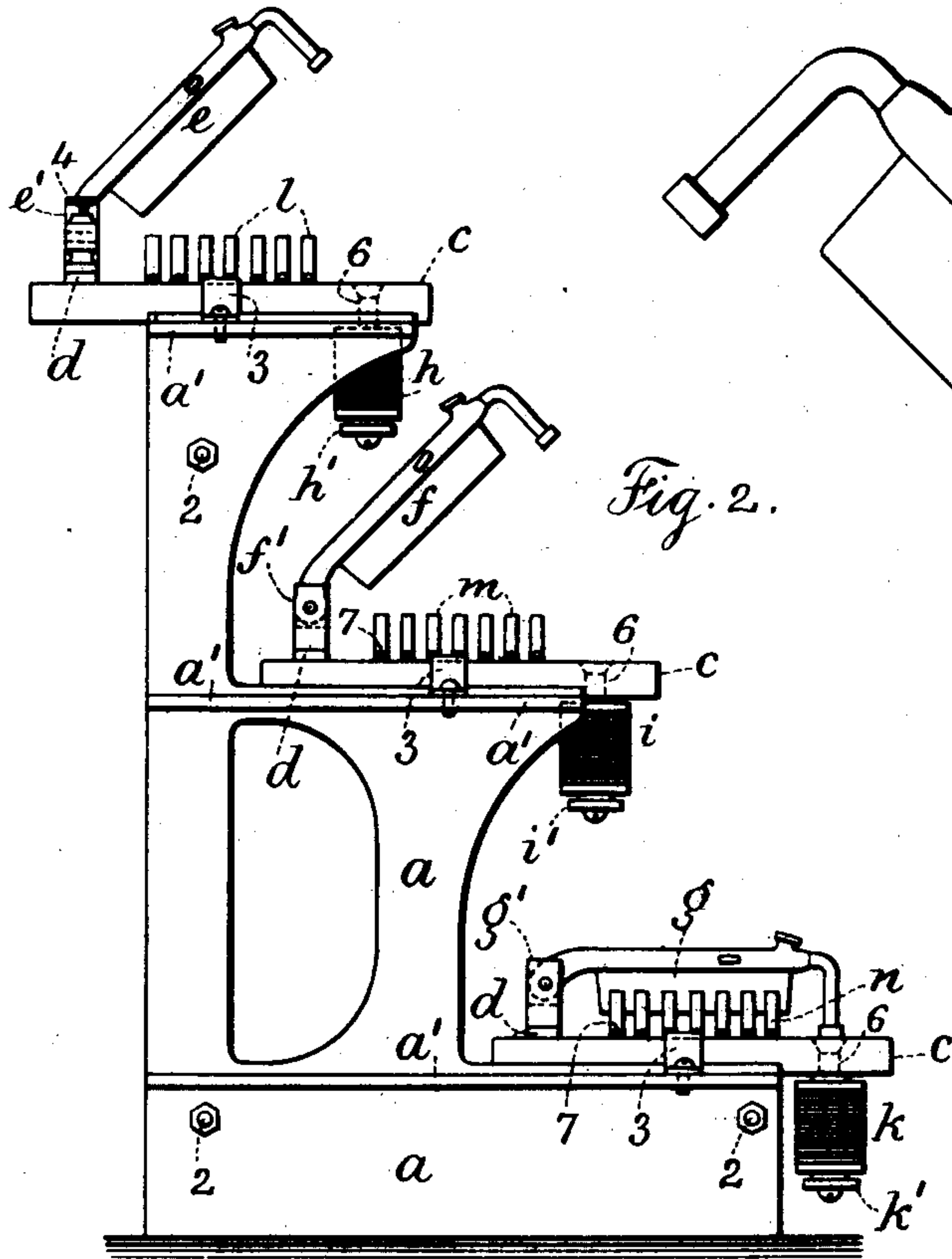
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(Application filed Mar. 11, 1902.)

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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

MORTIMER NORDEN, OF NEW YORK, N. Y., ASSIGNOR TO THE NORDEN-BITTNER ELECTRIC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SWITCHBOARD FOR ILLUMINATING ELECTRIC-LIGHT SIGNS.

SPECIFICATION forming part of Letters Patent No. 713,668, dated November 18, 1902.

Application filed March 11, 1902. Serial No. 97,712. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER NORDEN, a citizen of the United States, residing at the borough of Manhattan, city, county, and State of New York, have invented an Improvement in Switchboards for Illuminating Electric-Lamp Signs, of which the following is a specification.

My invention is designed as an improvement upon the device illustrated and described in Letters Patent granted to me September 22, 1896, No. 568,204.

The devices of my present invention are applicable to the electric-light signs illustrated and described in Letters Patent for designs granted to me July 23, 1901, Nos. 34,848 and 34,849.

In my former patent hereinbefore recited the circuit-selectors were arranged in groups circularly disposed and the magnets were also disposed in a circle about the circuit-selectors, and in operating the device one handle was employed, turning upon a central pivot and swinging around said pivot to progressively engage the various groups of circuit-selectors, according to the letters or numerals to be shown in the electric-light sign. With this device it was therefore only possible to show a single letter or numeral at a time and necessary to show them progressively either to spell out a word or to produce a given figure.

The object of my present invention is to progressively display letters or numerals in a group of electric-light signs, so as to spell out a word or indicate a number, the entire word or the entire number showing at one time. With the device of my present improvement the letters or numerals can be shown successively or the letters or numerals composing the word or number can be simultaneously shown at one place.

In my present improvement I employ elevated stepped banks of circuit-selectors or groups of springs, which are arranged in parallel form, and I arrange pivoted movable contact-bars having blades engaging the said circuit-selectors and magnets with which contact is simultaneously made and the operation of which simultaneously indicates a word or a number, either of which is composed of several letters or numerals. I do not in any

respect limit myself to the number of banks of circuit-selectors, contact-bars, and magnets or to the number of said parts employed in each bank, as the same is governed entirely by the group of numerals or letters to be produced in the electric-light sign.

In the drawings, Figure 1 is a diagrammatic elevation representing my improvements. Fig. 2 is a side elevation. Fig. 3 is a partial plan. Fig. 4 is a partial plan in larger size. Fig. 5 is a side elevation of one of the pivoted movable contact-bars; and Fig. 6, a cross-section through said bar and through the platform and an elevation of the circuit-selector or spring-blades and electrical connections therefrom, Figs. 5 and 6 also being of larger size and upon the same scale as Fig. 4.

The device for the elevated stepped banks of circuit-selectors, &c., comprises the side frames *a b*, preferably connected by tie-rods 2, and provided with horizontal stepped edges *a' b'* with central ribs. The platforms *c* are preferably of slate or other non-conducting or insulating material, and they extend across between the frames *a b* and rest upon the horizontal stepped edges *a' b'* between the central ribs, and they are secured in place to the said side frames by clips 3, and from Fig. 2 it will be noticed that the lowermost platform is the nearest to the right-hand or front portion of the stepped bank, that the platforms above overhang one another slightly, and that the same are free of one another, so that the parts connected thereto and supported thereby are adapted for free movement in going through their respective operations.

On each of the platforms *c* is a bar *d* longitudinally therewith and adjacent to and parallel with the back edge, secured to the platform in any desired manner. On one end of each of these bars is secured a binding-post 4. I provide pivoted movable contact-bars *e f g*, having blades formed integral therewith and pivoted to posts *e' d' g'* upon the bars *d*, said bars and posts also being of metal and the outer ends of each of said contact-bars being turned downward and terminating in a form of knob with a flat face and advantageously being provided on the

upper edge with a raised portion and finger-knob.

Springs 5 are provided, and each spring is advantageously made as a coil with diverging-arm ends, the coil portion surrounding the pivot connecting the bars *e f g* with the posts *e' f' g'* and one arm of each spring passing into an opening in its post and the end of the other arm passing into an opening in its arm, the function of each spring being to raise its contact-bar and hold the same in a normally elevated position.

I provide series of magnets *h, i, and k*, having bars *h', i', and k'* secured thereto by screws upon their under surfaces, and screws 6, forming prolongations of the cores of the magnets, pass through openings in the platforms *c* into the cores of the magnets to suspend the series of magnets in line from and beneath said platform. Spring-blades *l, m, and n* are secured in pairs and in parallel series to the upper surfaces of the platforms *c* in line with the pivoted movable contact-bars *e f g* and in such position that when the contact-bars are turned down their blades come between the spring-blades of the pairs and the series upon the platforms. These spring-blades form the circuit-selectors, and they are grouped in varying numbers according to and agreeing with the number of electric lamps to be associated in producing a letter or numeral in an electric-light sign.

In Fig. 2 all of the parts are shown except the wiring and binding-posts upon the two lowermost platforms. In Fig. 1 I have segregated the parts for clear illustration—that is, the central platform *c* shows the spring-blades, but without the contact-bars or their springs. The uppermost platform shows the contact-bars and their springs in their raised position, while the lowermost platform shows the posts for the contact-bars and only a portion of the bars. In Fig. 3 only one platform is shown, and the contact-bars are broken off for clearness, this figure showing especially the pairs of spring selector-blades in series, and it will be noticed that the edges of the platforms in Fig. 1 are for the purpose of illustration numbered consecutively from “1” to “0.” The circuit-selectors, or, in other words, the spring-blades in pairs *l, m, and n*, are preferably secured by screws 7 to the platforms *c*, said screws passing through the platforms, and the conducting-wires 8 are secured to the lower ends of the screws to provide a path for the electric current from the wires by the screws to the spring-blades. This is illustrated especially in Fig. 6, wherein the blade of the contact-bar *e* is illustrated as between the spring-blades *l*.

In the diagrammatic view, Fig. 1, I have illustrated a rectangular figure marked “Monogram of lamps” and another rectangular figure marked “Switch,” and in this figure it will be noticed that the groups of magnets *h, i, and k* are connected together in series and to the switch by the wires 9, 10, 11, and 12.

In this view, Fig. 1, the lead-wires 13 and 14 are connected to the switch and the wires 15, 16, and 17 extend from the switch to the binding screws or posts 4 and from one post to the other; that there is a wire 18 from the switch to the monogram of lamps and a wire 19 to the monogram of lamps from the circuit-selectors or spring-blades *l, m, and n*. This wire 19 is dotted and is simply illustrative, as the wires 8 from the respective spring-blades are advantageously connected in a cable and run to the monogram of lamps, where they are separated and connected to their incandescent-lamp sockets.

In the operation of the device and with the downward position of any one or more of the contact-bars *e f g* it will be noticed that the free end of said bars comes into metallic contact with the screws 6, connected to the magnets, and the current passing through the magnets in series is sufficient to hold such bars in their lowermost position, with their blades between the spring-blades of the pairs of circuit-selectors. This lowermost position of the bars *e f g* establishes a circuit from the switch through the wires 15 16 17, binding-posts 4, bars *d*, posts *e' f' g'*, bars *e f g*, pairs of circuit-selector spring-blades *l m n*, wires 8, wire or cable 19 to the monogram of lamps, the return to the switch being through the wire 18.

As an illustration we will suppose that there are three electric-light signs, such as shown in my design patents herein referred to, placed side by side, and the operator desires to give the number “258” upon the electric sign, he will depress number “2” of contact-bars *e*, number 5 of contact-bars *f*, and number “8” of contact-bars *g*, one after the other, and the same will be held down by the magnets, showing the illuminated sign “258,” as desired. By the operation of the switch the current through the series of magnets will be broken and the springs 5 will return the contact-bars *e, f, and g* to their raised normal position preparatory to a repetition of the operations in giving any other number desired.

I do not herein limit myself to the number of platforms, the number of contact-bars, magnets, or circuit-selector spring-blades, or to the length of the platforms, or to the use of the devices for producing numerals, as the same may be arranged in any number to indicate letters or spelling out a word through the same operation.

I claim as my invention—

1. The combination with side frames and connecting devices and stepped platforms secured thereto, of series of pivoted movable contact-bars and series of magnets connected to said platforms, and spring-blades in pairs and in series forming circuit-selectors, and electric conducting-wires connected to said parts, substantially in the manner and for the purposes set forth.

2. The combination with side frames and connecting devices and stepped platforms secured thereto, of series of pivoted movable

contact-bars, and series of magnets connected to said platforms, and spring-blades in pairs and in series forming circuit-selectors, a switch device and conducting-wires therefrom to the groups of magnets in series, conducting-wires from the switch to the groups of pivoted movable contacting-bars, a monogram of lamps and electric conducting-wires from the pairs of spring-blade circuit-selectors to the monogram of lamps, and a return-wire therefrom to the switch, substantially as set forth.

3. In a switchboard for illuminating electric-lamp signs, the combination with a platform of insulating material and a support therefor, of a series of pivoted movable contact-bars and electrical connections therefor, a series of magnets connected to and supported from said platform and electrical connections therefor and spring-blades in pairs forming circuit-selectors and the pairs arranged in series and adapted for electric connection with the pivoted movable contact-bars, substantially as and for the purposes set forth.

4. In a switchboard for illuminating electric-lamp signs, the combination with a platform of insulating material and a support therefor, of a bar secured to the said platform, a binding-post at one end and electric connections therefrom, a series of posts and pivoted movable contact-bars arranged upon said bar, springs for normally holding said contact-bars in an elevated position, a series of magnets secured to and suspended from the said platform adjacent to its opposite edge, and electric connections therefrom, spring-blades in pairs forming circuit-selectors and the pairs arranged in series and in line with the pivoted movable contact-bars, and electric connections from the spring-blades, substantially as and for the purposes set forth.

5. In a switchboard for illuminating electric-lamp signs, the combination with a platform of insulating material, and a support therefor, of a metal bar *d* secured to the surface of said platform along one edge, a binding-post at one end of the said bar and electric connections therefrom, a series of posts secured to said bar, a series of movable contact-bars pivoted to said posts, said contact-bars having blades, a free end terminating in a flat-faced knob and a rising finger-knob from the back thereof, springs *5* having ends respectively connected to the posts and to the bars and supported from the pivots of said parts, spring-blades in pairs forming circuit-selectors and the pairs arranged in series and connected to said platform in line with the blades of the contact-bars and electrically engaged by said blades, and electric connections extending from said blades, and a series of magnets connected to and supported by the said platform, electric connections therefor and parts thereof extending through the platform and with which the knob ends

of the contact-bars come into electric connection, substantially as set forth.

6. In a switchboard for illuminating electric-lamp signs, the combination with a platform of insulating material and a support therefor, of a metal bar *d* secured to the surface of said platform along one edge, a binding-post at one end of the said bar and electric connections therefrom, a series of posts secured to said bar, a series of movable contact-bars pivoted to said posts, said contact-bars having blades, a free end terminating in a flat-faced knob and a rising finger-knob from the back thereof, springs *5* having ends respectively connected to the posts and to the bars and supported from the pivots of said parts, spring-blades in pairs forming circuit-selectors and the pairs arranged in series parallel and in line with the blades of the contact-bars and electrically engaged by said blades passing between the circuit-selectors, screws securing the circuit-selector blades to the platform and electric conductors connected to said screws at the under sides of said platform and extending therefrom, a series of magnets arranged in line, a bar for connecting the same at their under portion, and screws *6* passing through the said platform into and forming prolongations of the cores of the magnets and adapted for electric contact with the flat knob ends of the contact-bars when the same are depressed and electric-circuit connections for the magnets, substantially as set forth.

7. In a switchboard for illuminating electric-lamp signs and in combination, a plurality of series of contact-bars, a plurality of series of magnets, a plurality of spring-blades forming circuit-selectors in pairs and the pairs in series, a switch, a monogram of electric lamps, circuit connections from the switch to the plurality of magnets in series, circuit connections from the switch to the plurality of contact-bars in series; circuit connections from the plurality of circuit-selectors in series to the monogram of lamps and therefrom to the switch, whereby letters or numerals can be simultaneously shown to produce a predetermined number or word, substantially as set forth.

8. In a switchboard for illuminating electric-lamp signs and in combination, pivoted movable contact-bars having integral blades disposed in parallel series, a series of magnets in line and at right angles to the parallelism of the contact-bars, and circuit-selectors comprising spring-blades in pairs and in parallel series arranged in line with the said contact-bars and engaged thereby, substantially as set forth.

Signed by me this 28th day of February, 1902.

MORTIMER NORDEN.

Witnesses:

GEO. T. PINCKNEY,
BERTHA M. ALLEN.