

(No Model.)

G. K. BURLEIGH.
ILLUMINATED ELECTRIC SIGN.

No. 591,369.

Patented Oct. 5, 1897.

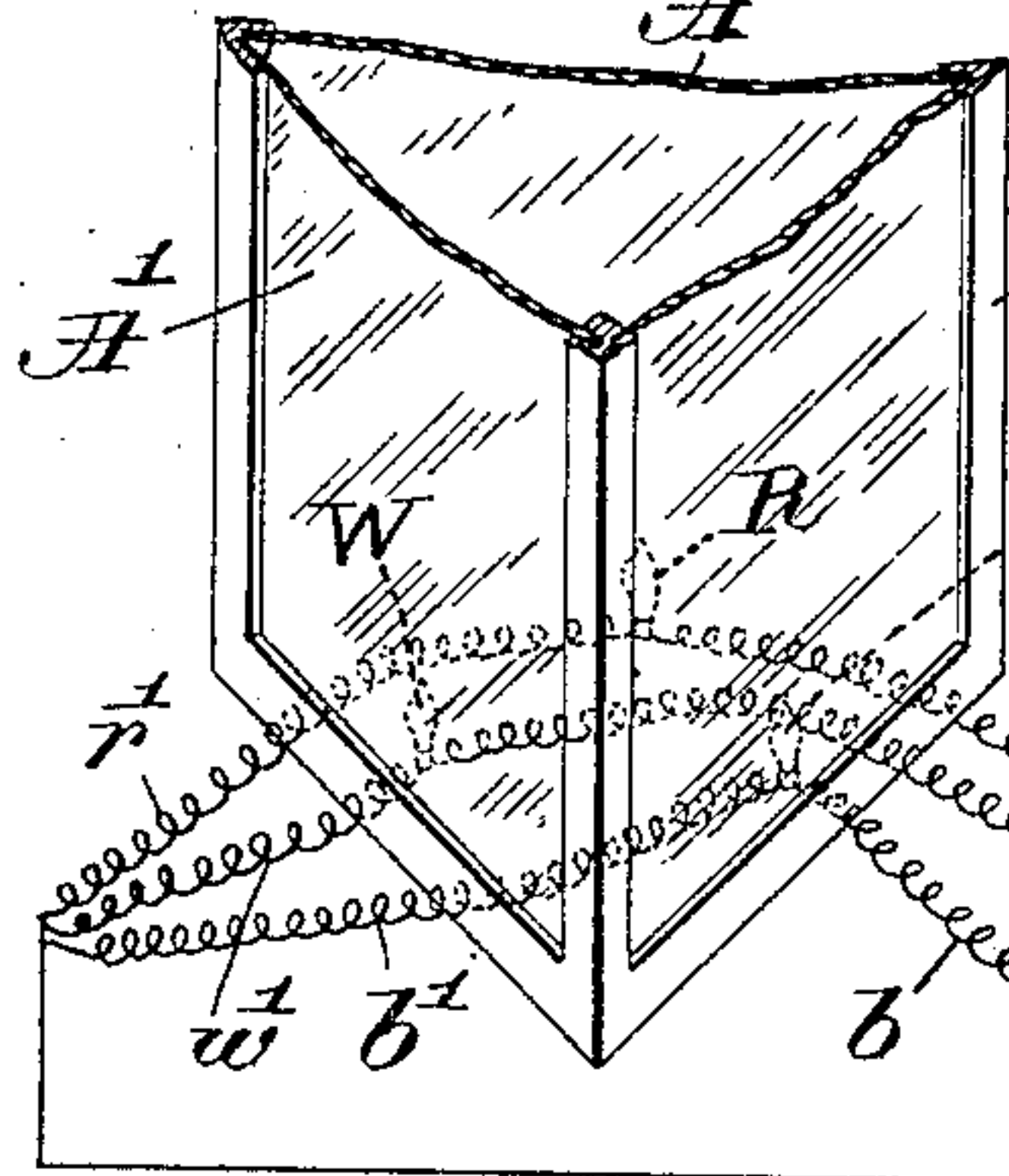
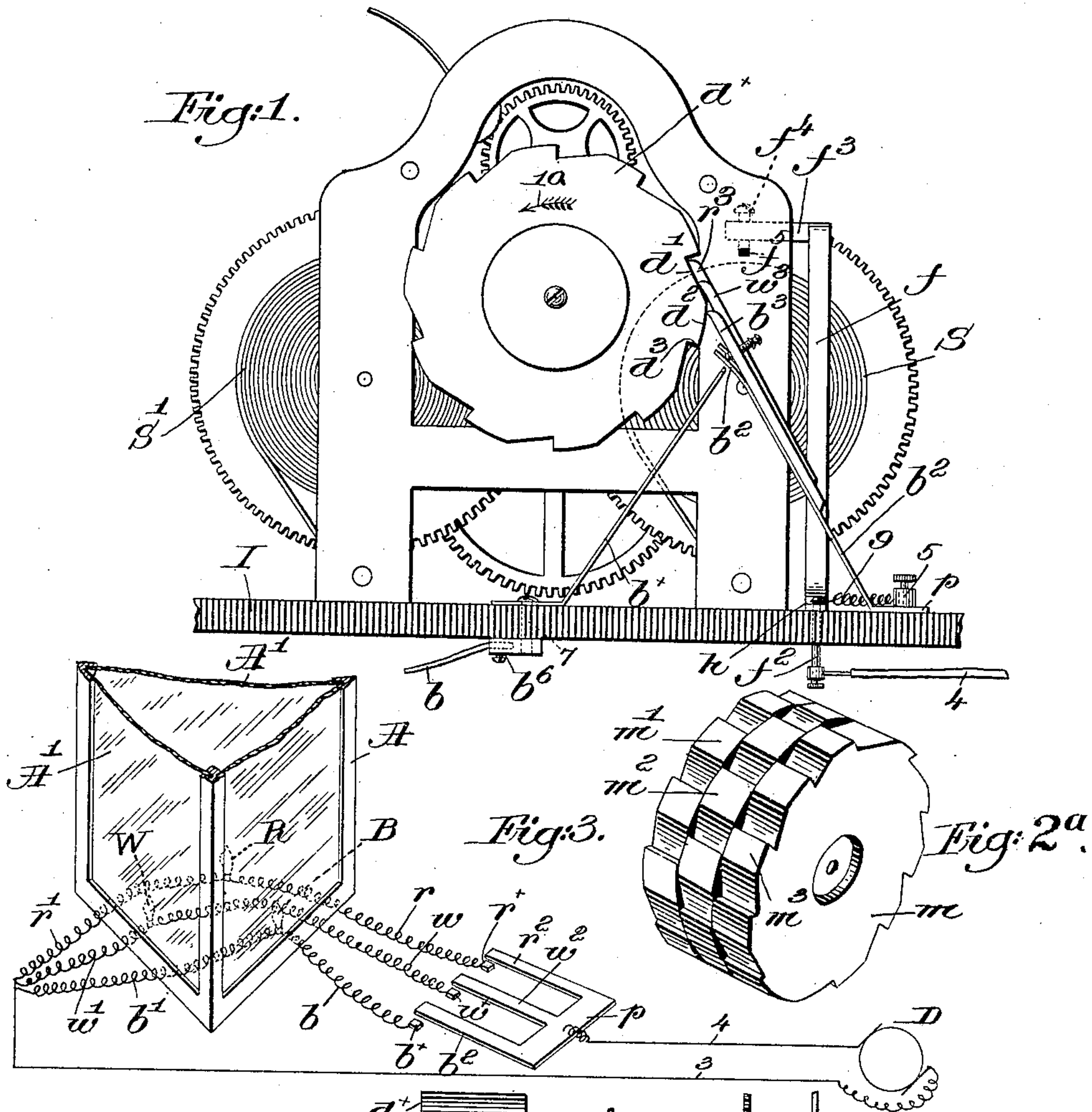
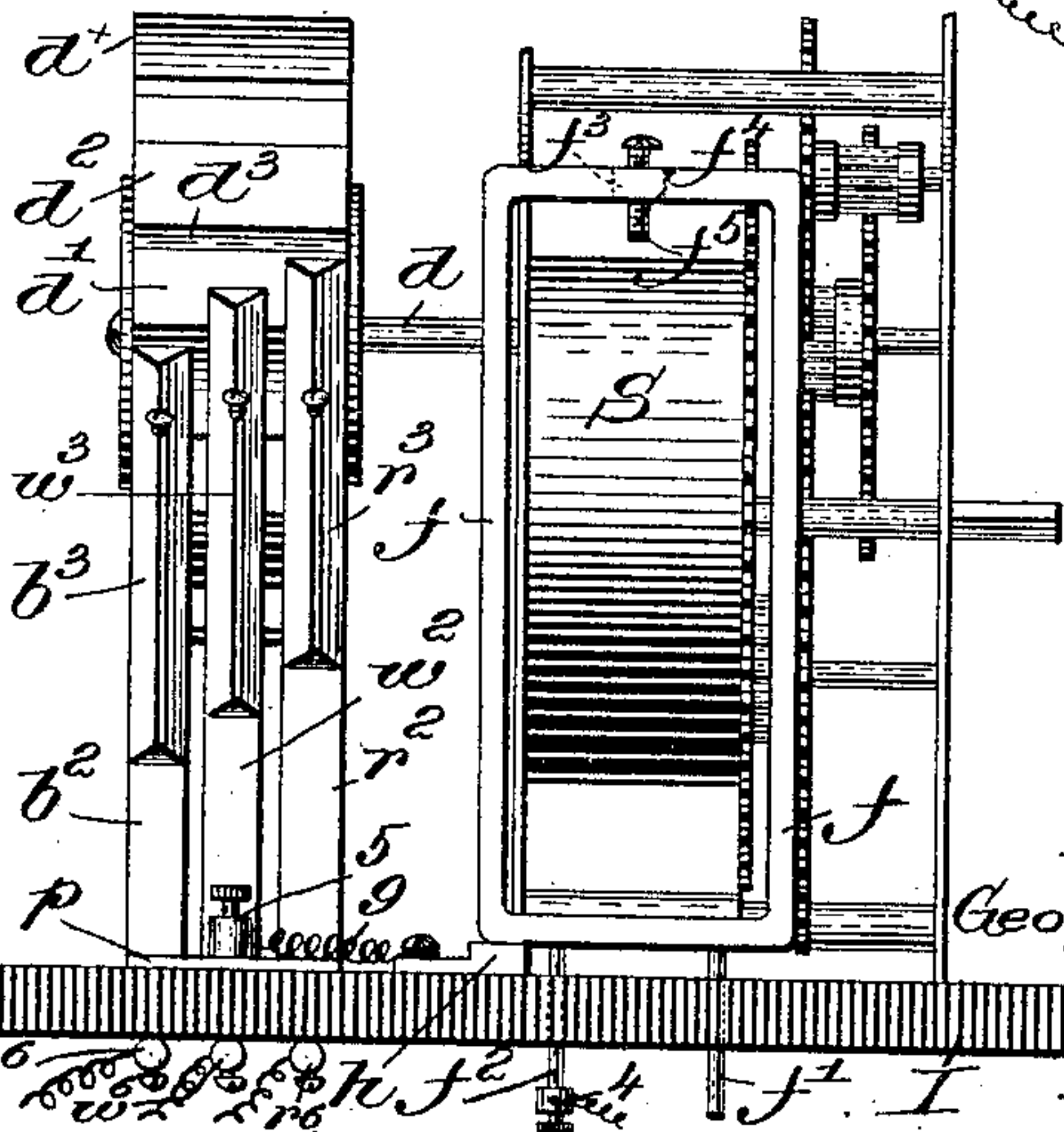


Fig. 2.



witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE K. BURLEIGH, OF NORTHFIELD, NEW HAMPSHIRE, ASSIGNOR
TO THE FLASH LIGHT AND CYCLOMETER COMPANY, OF TILTON,
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ILLUMINATED ELECTRIC SIGN.

SPECIFICATION forming part of Letters Patent No. 591,369, dated October 5, 1897.

Application filed October 31, 1896. Serial No. 610,733. (No model.)

To all whom it may concern:

Be it known that I, GEORGE K. BURLEIGH, of Northfield, in the county of Merrimac and State of New Hampshire, have invented an
5 Improvement in Illuminated Electric Signs, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 Very novel and striking effects may be attained in signs or advertisements by displaying suitable matter upon a more or less transparent ground behind which a plurality of incandescent lamps of various colors are
15 placed, the lamps being lighted singly or in various combinations, the sign or advertisement being thus displayed in various changing colors. The changes are effected by operating suitable switches preferably actuated
20 by a suitable motor, and my present invention has for its object the production of an electric sign of novel construction and capability and of very cheap construction, requiring little power to operate it.

25 Figure 1 in elevation represents a circuit-changer or switch for the light-circuits and a motor for operating it. Fig. 2 is a right-hand end view of the apparatus shown in Fig. 1. Fig. 2^a is a perspective view of a
30 modified form of brake-wheel, and Fig. 3 is a partially diagrammatic view of the light-circuits, circuit-changers, and a form of sign, partially broken out, the switch-actuator being omitted.

35 I have herein shown a three-light system, and referring first to Fig. 3 the sign itself is of any suitable construction, (shown as a box-like frame A, having suitable transparent walls A', upon which the desired matter is displayed.) Within the sign proper are shown
40 by dotted lines three incandescent lamps R, W, and B, colored, respectively, red, white, and blue, for instance, wires r , w , and b leading from the lamps to terminals r^x , w^x , and
45 b^x , the return-wires r' , w' , and b' being connected by a line-wire 3 with the source of electricity, as a dynamo D. The line-wire 4 from the dynamo is connected with three
50 movable contact pens or members r^2 , w^2 , and b^2 , and it will be obvious that by completing

any of the lamp-circuits thereby the lamp will be lighted to illuminate the sign.

Referring now to Figs. 1, and 2, a base I, of slate or other suitable insulating material, is provided, upon which I secure the switch-
55 actuator, shown as a spring-actuated train of gears or a clockwork, having actuating coiled springs S S', which through suitable gears, forming no part of my invention, rotate a shaft d , extended beyond the frame of the
60 motor. Upon this shaft a brake-wheel d^x is secured, the periphery of which is notched or toothed, the teeth having each a gradually-inclined portion d' , a peripheral face d^2 , and a radial edge, as d^3 . (See Fig. 1.)
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The three pens or movable contact members r^2 , w^2 , and b^2 , made of suitable spring metal, are shown as forming prongs of a plate p , suitably attached to the base I and provided
70 with a binding-post 5, the pens being upwardly inclined toward the brake-wheel d^x .

Extensions r^3 , w^3 , and b^3 , of insulating material—or the brake-wheel itself may be of such material—are secured to the three pens, respectively, said extensions being adjust-
75 able to their pens by means of set-screws b^0 , resting upon the periphery of the brake-wheel and being herein shown of different lengths, Figs. 1 and 2, so that as the wheel rotates in the direction of arrow 10 they will be raised,
80 held, and dropped one after another. I have also secured to the base three terminals b^x , w^x , and r^x , which are to coöperate with their respective pens, the terminals being upturned, as shown in Fig. 1, below the pens, so that
85 rotation of the brake-wheel will open and close one circuit after another, the terminals being preferably made of different lengths to better coöperate with their pens.

The face d^2 of each tooth maintains the circuit open, the edge d^3 permits a quick closure thereof, and the incline d' acts to open it, the resiliency of the pen retaining it in contact with its terminal until the dwell d^2 is reached.
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Each terminal is held in place by a screw, as 7, Fig. 1, and binding-posts b^6 , w^6 , and r^6 (see Fig. 2) for each hold the branch wires b , w , and r , respectively, and when the apparatus is to operate as long as the motor runs
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the line-wire 4 is attached to the binding-post 5 on the plate *p*. It is sometimes desirable, however, to completely cut out the current after a predetermined time—as, for instance, when the owner of a store using such a sign shuts his store for the night it is desirable to stop the operation of the apparatus after an hour or more. For this purpose I have provided a convenient independent cut-out, the same being herein shown as a metal yoke *f*, having a supporting-pin *f'* loosely extended through a hole in the base, the yoke embracing one of the operating-springs, as *S*, of the motor. A second pin *f*², secured to the bottom of the yoke and loosely extended through the base *I*, is provided at its under side with a binding-post, to which the line-wire 4 is connected.

On the base a metallic block *h* is mounted, electrically connected, as by wire 9, with the post 5 of plate *p*, the yoke normally resting on the block, so that the current passes from wire 4 through the yoke, block *h*, and wire 9 to the plate *p* and the pens.

The upper end of the yoke has an offset or arm *f*³ at its upper end, through which is passed a screw *f*⁴, having a tip *f*⁵ of rubber or other insulation and adapted to be engaged by the outer coil of the spring *S* as it unwinds. After setting the screw *f*⁴ the motor will run until the spring-coil engages its insulated end, and then slight continued expansion or unwinding of the spring will act to lift the yoke, thus breaking the circuit completely and finally between the bottom of the yoke *f* and the block *h*. By adjusting the screw *f*⁴ the time for finally breaking the circuit may be regulated to take place after the motor has run for a given time without further care on the part of the owner or user of the apparatus. A clockwork-motor is most convenient and by far the cheapest for actuating the switch mechanism, but obviously the brake-wheel may be operated by some other form of motor, and while I have shown three lights the invention is not restricted to the number, colors, or sequence in which the lights are thrown into and out of circuit.

In Fig. 2^a the brake-wheel *m* has a notched or toothed periphery, but the teeth are arranged in three series *m'* *m*² *m*³, respectively, the teeth in one series being set or located slightly ahead of the teeth in the next series. If such a brake-wheel be substituted for the

one shown in Figs. 1 and 2, the movable contact members or pens coöperating therewith would be the same in length.

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

1. In an apparatus of the class described, the main circuit, a plurality of branch lamp-circuits, circuit-closers intermediate the main and branch circuits, a spring-motor to operate the circuit-closers, and a cut-out, one member of which is connected with the main circuit and the other member with the circuit-closers, the yoke-like movable member of said cut-out being engaged and moved by the expansion of the motor-spring, to finally cut out the lamps, substantially as described.

2. In an apparatus of the class described, a plurality of pens extending from a plate *p*, each pen being provided at its free end with an extension of insulating material fixed thereon, circuit-terminals to engage said pens, a break-wheel operating on said insulated extensions beyond said pens, and an actuator therefor, substantially as described.

3. In an apparatus of the class described, a plurality of pens extending from a plate *p*, each pen being provided at its free end with an extension of insulating material fixed thereon, means to adjust the free ends of said pens relatively to the insulated extensions, circuit-terminals to engage said pens, a break-wheel operating on said insulated extensions beyond said pens, and an actuator therefor, substantially as described.

4. In an apparatus of the class described, the main circuit, a plurality of branch lamp-circuits, circuit-closers intermediate the main and branch circuits, a spring-motor to operate the circuit-closers, and a cut-out, one member of which is connected with the main circuit and the other member with the circuit-closers, the yoke-like movable member of said cut-out having an adjustable member engaged and moved by the expansion of the motor-spring, to finally cut out the lamps, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE K. BURLEIGH.

Witnesses:

A. L. KNOWLTON,
C. E. BURLEIGH.