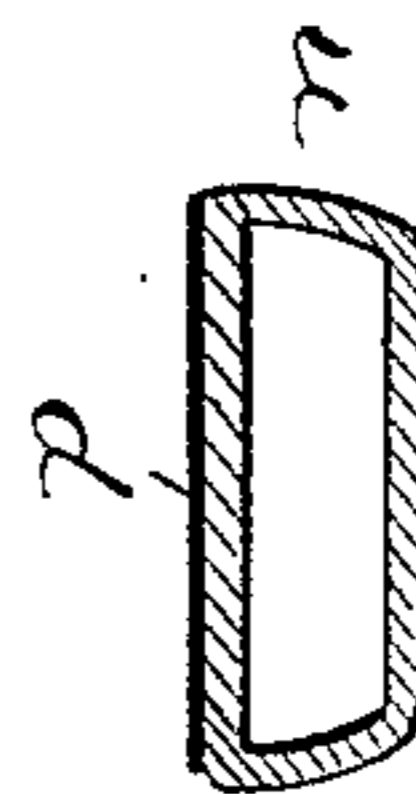
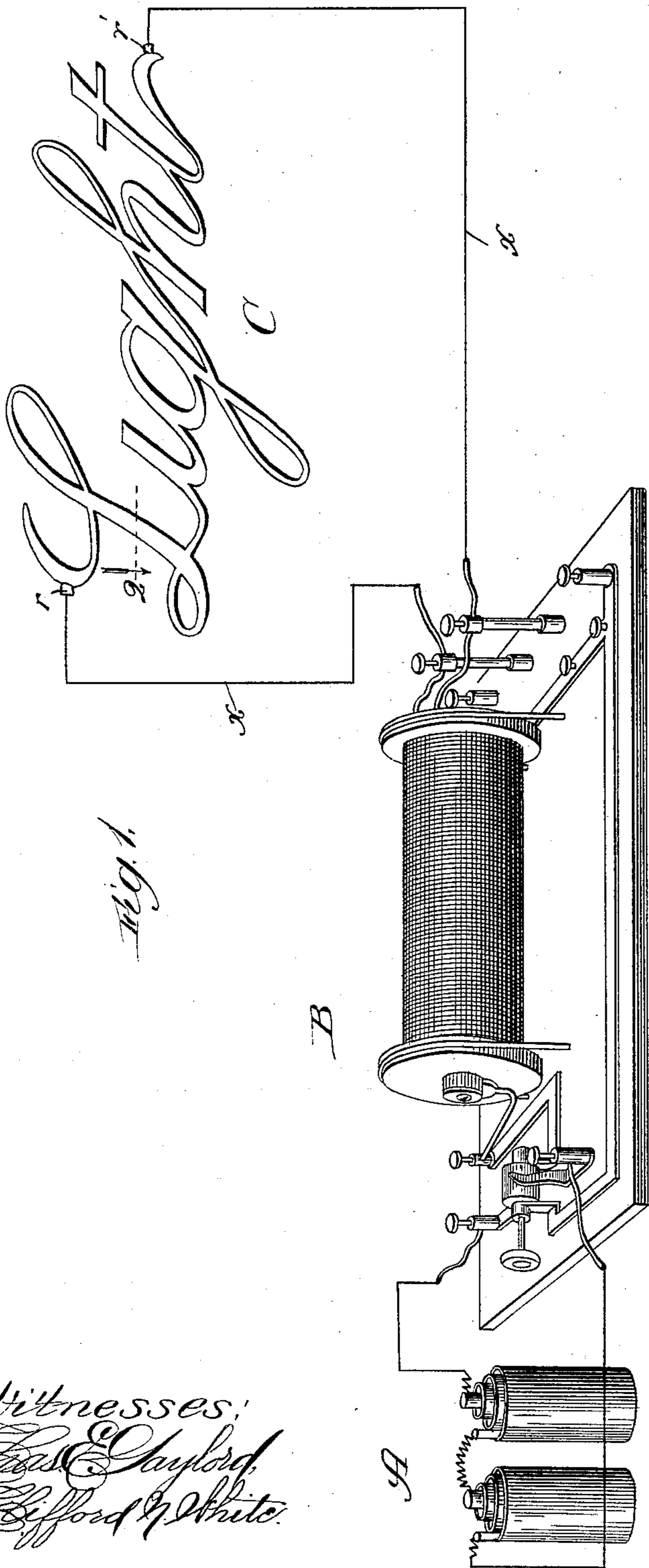


(No Model.)

C. BECK.
LUMINOUS SIGN.

No. 452,514.

Patented May 19, 1891.



Witnesses:
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UNITED STATES PATENT OFFICE.

CARL BECK, OF CHICAGO, ILLINOIS.

LUMINOUS SIGN.

SPECIFICATION forming part of Letters Patent No. 452,514, dated May 19, 1891.

Application filed December 15, 1890. Serial No. 374,766. (No model.)

To all whom it may concern:

Be it known that I, CARL BECK, a subject of the Emperor of Austria, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Luminous Signs, of which the following is a specification.

The object of my improvement is to provide an electro-luminous sign, or a sign (the term being employed in its broad sense, and therefore signifying any signal or notice in the form of a designating character or characters to be conspicuously displayed) adapted to be rendered refulgent by electricity.

My improvement involves the application to the aforesaid practical purpose of the well-known principle of electricity demonstrated by the Geissler tube—namely, that when an induced current is passed through a tube of transparent or translucent material containing a rarefied vapor or gas, forming the conductor between the poles of the inductor-coil, the electrical impulses of the induced current produce sparks in the tube which illuminate the fluid contents and thereby the tube, the color of the light varying according to that of the material forming the tube to change in the current, or to a degree of rarefaction or kind of fluid employed.

My improvement involves, particularly stated, the employment of letters, numbers, and the like, (as for signs and house-numbers,) formed of glass or analogous transparent or translucent material and hollow, and of a color to render them adequately conspicuous by day or in other light, a suitable electric generator coupled to an induced-current conductor, the poles of which project into the hollow characters which have been suitably exhausted of air and supplied, preferably, with a desired gas other than air.

My improvement is demonstrated in the accompanying drawings, in which—

Figure 1 is a view in the nature of a diagram, showing a battery form of electric generator in elevation with an inductorium, shown in perspective, in its circuit, containing, also, my improvement in the form of a sign composed of a series of intercommunicating hollow transparent letters, into opposite ends of the continuous chamber of which the electrodes of the inductorium project.

Fig. 2 is a section taken on the line 2 of Fig. 1, viewed in the direction of the arrow, and showing a preferred construction for a character.

A is an electric generator, represented as formed of two battery cells, though other kinds of generator may be used for my purpose, such as a static machine.

B is an induced-current conductor, that shown being the well-known Ruhmkorff coil or "inductorium," as the instrument is commonly designated.

C is a sign constructed in accordance with my improvement, being formed of a series of hollow glass letters, the chambers in the series intercommunicating to render them a continuous chamber, in which the atmospheric contents are adequately rarefied by exhaustion, and which preferably contains hydrogen gas or other fluid than the air exhausted. The platinum electrodes r and r' of the inductorium project into the chamber of the hollow sign near its opposite ends, where it is, of course, hermetically sealed.

As will be readily understood, with the parts thus described in the battery-circuit, the sparks in the hollow sign resulting from the action will illuminate its interior according to the conditions therein hereinbefore alluded to.

In order that the greatest illuminating effect may be attained with the least current, I prefer to provide the characters or letters of the sign, preferably at the backs thereof, with a reflector p , (indicated in Fig. 2,) which may be provided by rendering the back of each a mirror in the common manner of producing a mirror—namely, by applying quicksilver to the surface. By connecting the hollow characters of the sign as represented in Fig. 1, so that their chambers will intercommunicate and be rendered a continuous chamber, I am enabled to avoid the use of more than the two electrodes r and r' , though obviously the hollow characters need not so intercommunicate, when, however, a separate pair of the electrodes would be projected into each.

A desirable construction of hollow character n , which may be a letter, numeral, or other figure, is that represented by Fig. 2, showing the back, to which the reflector p is applied, to be flat, whereby it is adapted to be readily secured, by cementing, to the surface to which

it is to be applied, as to a window-pane, sign-board, clock-dial, and the like.

The electrical apparatus A B may be rendered more compact than illustrated and may be housed in a suitable box, (not shown,) and obviously it may be located in any desired or out-of-the-way place, whence the conductors x and x' may be connected with the electrodes at the location of the sign.

I am aware that it is not broadly new to employ so-called "Geissler tubes" for illuminating signs, that having hitherto been done by vibrating in front of a reflector a series of such tubes behind a glass plate on which sign-characters are imposed and also behind a plate of opaque material having the sign-characters cut out of it and affording the openings through which the refulgent effect of the illuminating medium is observable. Thus the characters for the sign and the illuminating means form two separate and distinct media for producing a luminous sign. My improvement is essentially different from the foregoing, inasmuch as the character or each character is self-illuminating.

What I claim as new, and desire to secure by Letters Patent, is—

1. A self-luminous sign comprising, in combination, the hollow sign character or characters of transparent or translucent material and exhausted of atmospheric contents, an electric generator, and an induced-current

conductor in circuit therewith and having its poles inserted into opposite ends of the said hollow character or characters, substantially as described.

2. As a new article of manufacture, a sign comprising, in combination, a series of hollow intercommunicating characters composed of transparent or translucent material and exhausted of atmospheric contents, and metal terminals inserted into opposite ends of the chamber, extending continuously throughout the said series, and adapted to be connected in an electric circuit containing an induction-coil to form the poles of the latter, substantially as and for the purpose set forth.

3. As a new article of manufacture, a sign comprising, in combination, a series of hollow intercommunicating characters composed of transparent or translucent material and formed with a reflector on their rear surfaces, the hollow series being exhausted of atmospheric contents, and metal terminals inserted into opposite ends of the chamber extending continuously throughout the said series and adapted to be connected in an electric circuit containing an induction-coil to form the poles of the latter, substantially as and for the purpose set forth.

CARL BECK.

In presence of—

J. W. DYRENFORTH,

M. J. FROST.