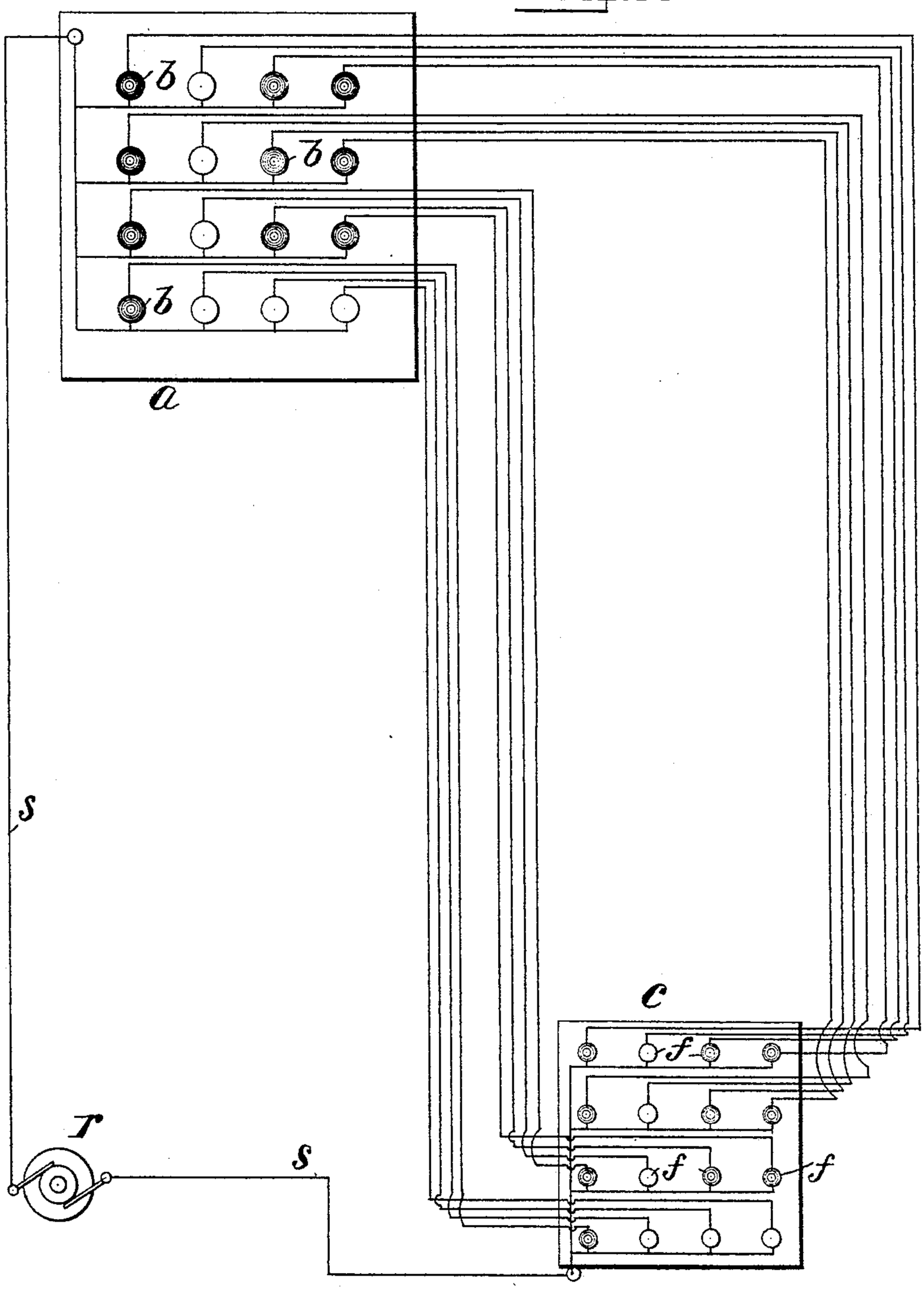
(No Model.) 3 Sheets—Sheet 1.

D. McF. MOORE & C. M. JACOBS.

ELECTRIC LIGHT DISPLAY SYSTEM.

No. 496,366. Patented Apr. 25, 1893.

Fig. 1.



Witnesses
Wm. A. Courtland
Levcadia M. Lennan

Inventors:
David McF. Farlan Moore,
Charles Mattathias Jacobs
By their Attorney,
Edward P. Thompson

(No Model.) 3 Sheets—Sheet 2.

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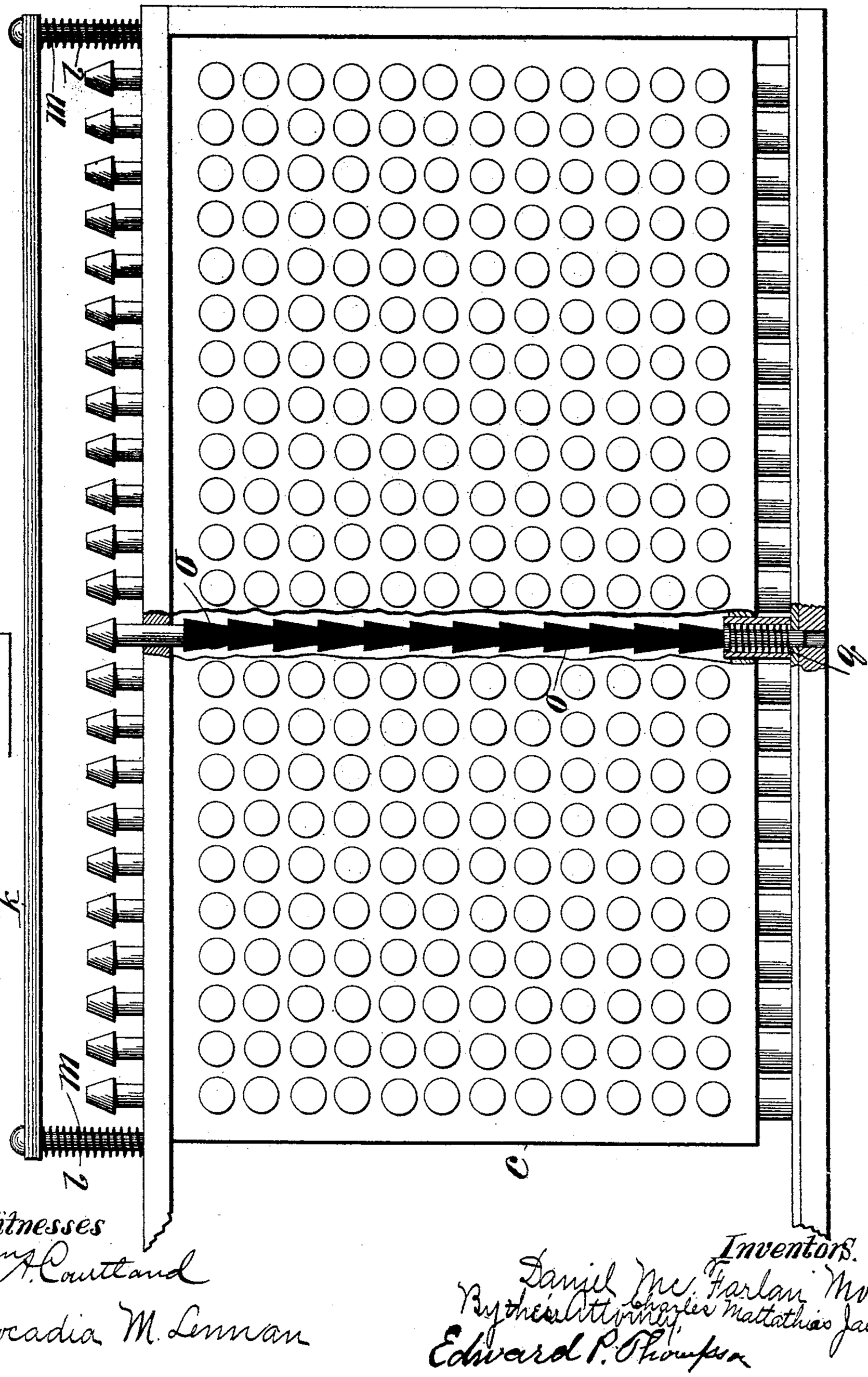

FIG. 2.

Witnesses
Wm. A. Courtland
Leocadia M. Lennan

Inventors.
Daniel McFarlan Moore
Charles Mattathias Jacobs
By their Attorney,
Edward P. Thompson

(No Model.) 3 Sheets—Sheet 3.

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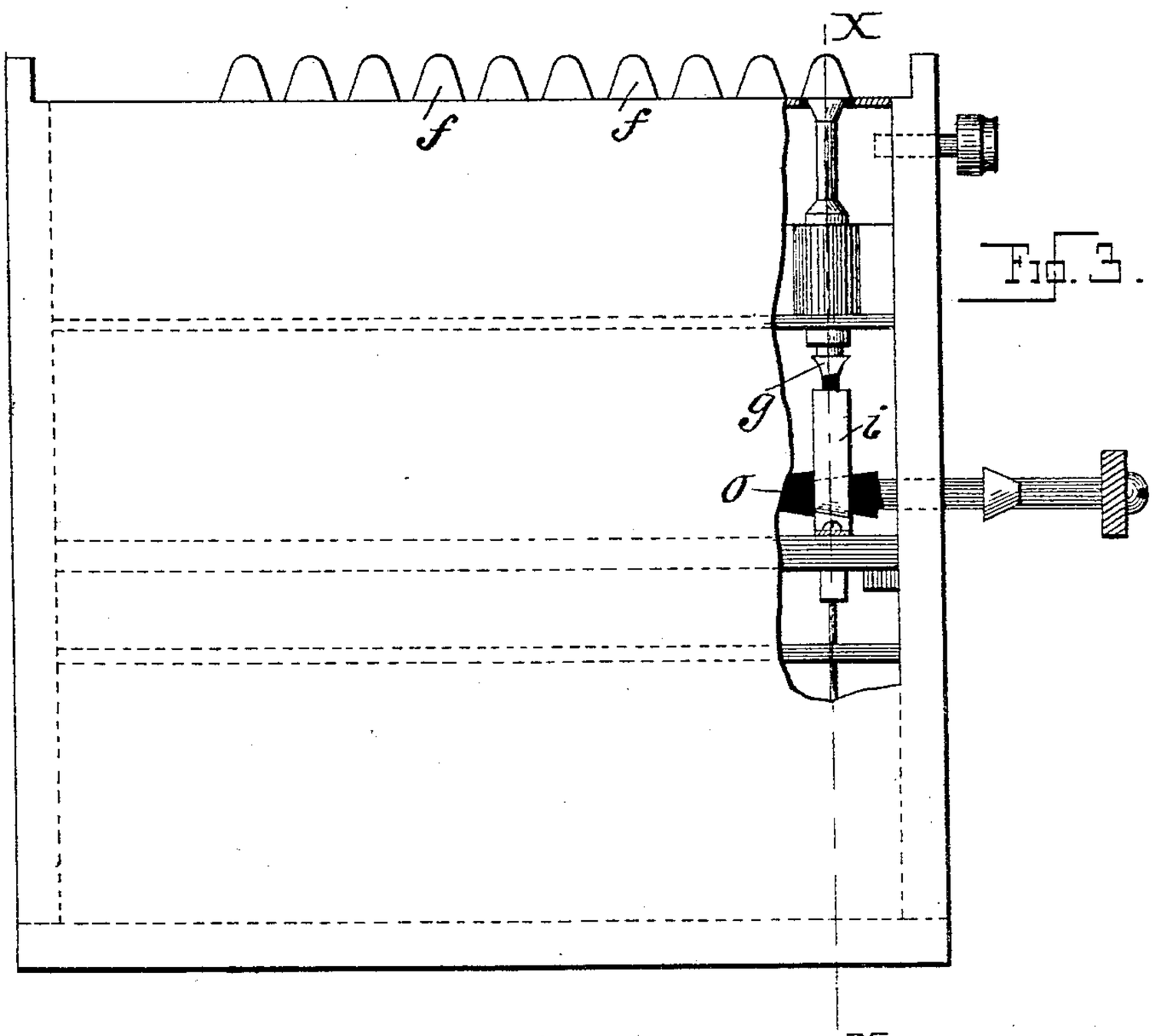

Fig. 3.

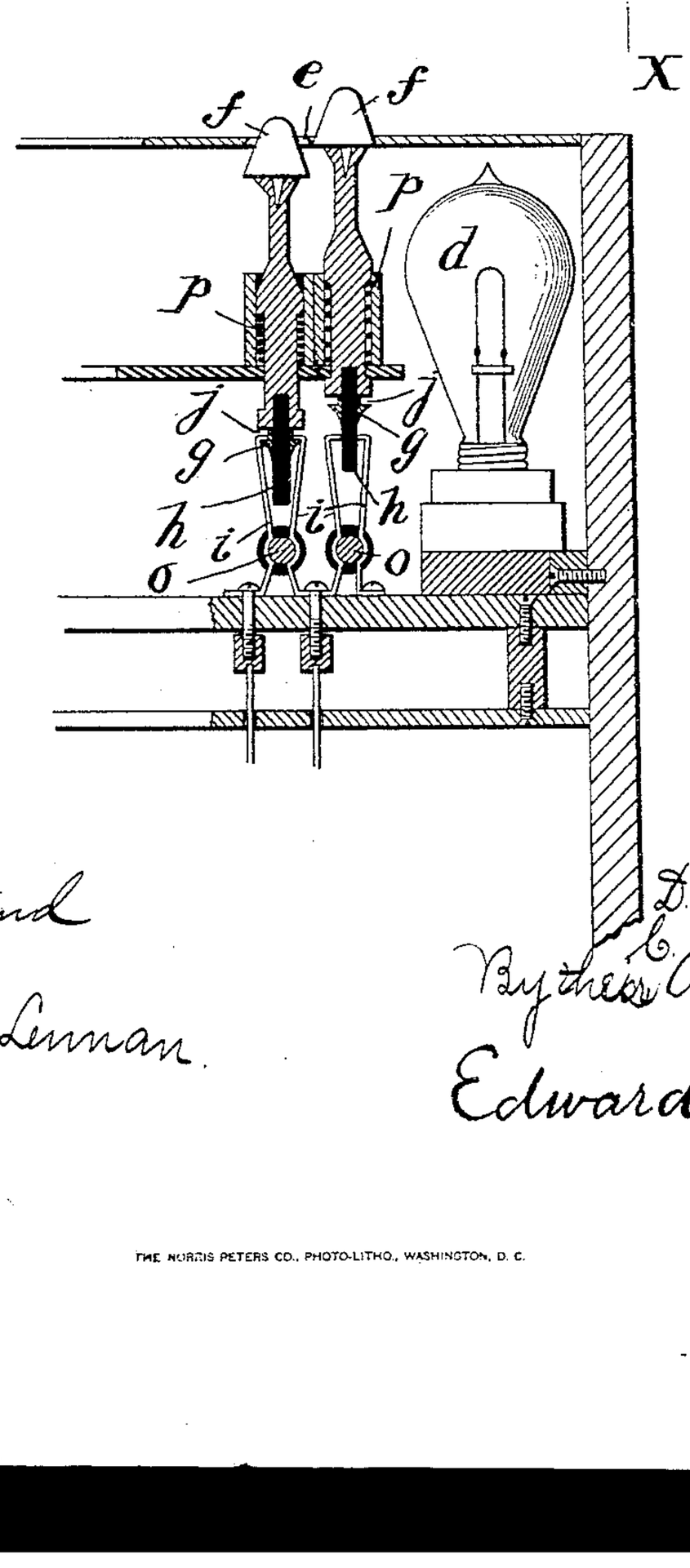

Fig. 4.

Witnesses
Wm. A. Courtland

Lovcadia M. Lennan.

Inventors:
D. McF. Farlan Moore
C. Mattathias Jacobs
By their Attorney,
Edward P. Thompson

UNITED STATES PATENT OFFICE.

DANIEL McFARLAN MOORE AND CHARLES MATTATHIAS JACOBS, OF NEW YORK, N. Y.

ELECTRIC-LIGHT DISPLAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 496,366, dated April 25, 1893.

Application filed November 22, 1892. Serial No. 452,803. (No model.)

To all whom it may concern:

Be it known that we, DANIEL MCFARLAN MOORE, a citizen of the United States of America, and CHARLES MATTATHIAS JACOBS, a subject of the Queen of Great Britain, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Electric-Light Display Systems, (Case No. 1,) of which the following is a specification.

Herefore it has been proposed to produce illuminated letters, words, pictures, &c., by close circuiting certain of many lamps arranged over a given surface. It is unnecessary to enumerate the advantages and uses of such an invention as they are well known to those versed in the art. It is necessary to state however, that business men who use such an invention for advertising purposes, and bulletins are apparently not sufficiently satisfied with the same from the fact that the formation of the characters or groups thereof involve the use of numerous corresponding specific mechanical constructions either of an apparatus or of a stencil. The system is therefore not sufficiently flexible. As there are thousands of words in the English and other languages, and an infinite number of pictures and other characters possible, it would be necessary to have a similar number of stencils or special devices to represent all predetermined words and pictures.

By our invention any word, of any language and any picture, numeral or number may be represented without any change in the mechanical construction and without any stencil.

The drawings illustrate the construction of the apparatus.

Figure 1 shows in elevation, the sign board and the operating board, and the electric circuits; also, the generator. Fig. 2 is an elevation of an operating board of large capacity and on an enlarged scale over that of Fig. 1, and also shows details of construction. Certain parts are broken away. Fig. 3 is an end elevation of the board in Fig. 2, the interior being partly represented. Fig. 4 is a section of the operating board at the line X. Some small details are not in section.

a is a sign board or bulletin, and has numerous lamps *b* arranged thereon as closely together as advisable. For best effects it is preferred that they be arranged at equal intervals in parallel rows equally displaced.

c is the operating board having a permanently lighted lamp *d* behind it and holes *e* normally closed by stoppers *f*. These holes and stoppers are arranged in exactly a similar manner as the lamps *b* on the board *a*, except that the former may be closer together for mere convenience. The sign board and operating boards are fac-similes of each other as to the relative arrangements of the lamps *b* and stoppers *f*.

The general idea is that if the stoppers are pushed in so as to outline the letter N on the operating board, corresponding lamps will be lighted on the sign board so as to outline the same letter of exactly the same proportions, and differing only in size if at all. This is accomplished because a circuit closer *g* is connected to and operative by each stopper *f*. The stoppers are conical and located in the holes and when pushed downward allow the light from the lamp *d* to exit so that the operator may see a faint fac-simile image of that which is being formed simultaneously upon the sign board. The circuit closers *g* are mounted upon insulators *h* at the lower ends of the stoppers. Each insulator normally separates the two springs or terminals *i*. These springs hold the terminals, when pushed in, as long as it is desired that the lamps *b* be kept in circuit, because the bent ends of the springs *i* spring into notches *j* in the circuit closers.

When the characters are once formed upon the sign board, it becomes necessary to destroy the same to make room for more. This is done rapidly by means of the rods *k* which when pushed inwardly against the action of the springs *l* on the rods *m*, also push in the rods *n*, formed of a series of conical insulators *o*, which separate the spring terminals *i* and the stoppers snap upward and close the holes *e* through the action of the retractile springs. The insulators *o*, will immediately resume their original positions in view of the retractile springs *q*.

The circuits may be easily traced in Fig. 1.

r is the generator and the terminal wires or main lines are s. The lamps b are in multiple arc and so are the circuit closers g, and each circuit closer will close a corresponding lamp with which it is in circuit.

Suppose that the operating board is in the reporter's room of a newspaper and the sign board or bulletin a is on the street. A certain item of news comes by telegraph. The operator pushes in the stoppers to spell the item on his board. Immediately a facsimile of the item appears in the street on the bulletin. The operation will be much more rapid than by writing it by hand upon the bulletin. Again, the growth of any spelling by lights will be watched with interest by spectators even in the case of advertisements, depending upon the mental principle of curiosity, which becomes very much excited by brilliant, and to the public, mysterious appearance of beautifully colored lights. The sign board usually in practice covers a number of square feet of surface while the operating board is small enough to be reached as to all its circuit closers, by a man standing in front thereof.

We claim as our invention—

1. An electric light display system, consisting of the combination of a sign board at a given point and of a given size, carrying a given number of electric lamps equally spaced in parallel rows equally spaced, an operating board at a distant point and of smaller size carrying the same number of circuit closers equally spaced in parallel rows equally spaced, the circuit closers being in circuit with the respective lamps in such a manner that any given lamp in any given row is in circuit with the corresponding circuit closer in the corresponding row, and means for illuminating the operating board at the points of location of the circuit closers, said means consisting of a lighted lamp behind the operating board and stoppers attached to the circuit closers and normally closing the holes which are provided in the said operating board.

2. An electric light display system, consisting of the combination of lamps equally spaced and of a given number in rows also equally spaced, an operating board provided with holes equally spaced, and of the same number, in rows equally spaced, stoppers normally closing said holes, circuit closers connected to said stoppers, and respectively in circuit with the lamps so that any lamp in a given location in a given row is in circuit with the circuit closer connected to that stopper which has the corresponding position in a corresponding row, and means for reopening two or more circuit closers simultaneously, said means consisting of a series of conical insulators between the terminals of the circuit closers, and a movable rod k opposite the insulators which are in the path of the said rod.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 17th day of November, 1892.

DANIEL MCFARLAN MOORE.
CHARLES MATTATHIAS JACOBS.

Witnesses:
E. G. DUVALL, Jr.,
CHAS. M. REYNOLDS.