

No. 780,023.

PATENTED JAN. 17, 1905.

J. CLEGG.  
ILLUMINATED SIGN.  
APPLICATION FILED APR. 20, 1901.

Fig. 1.

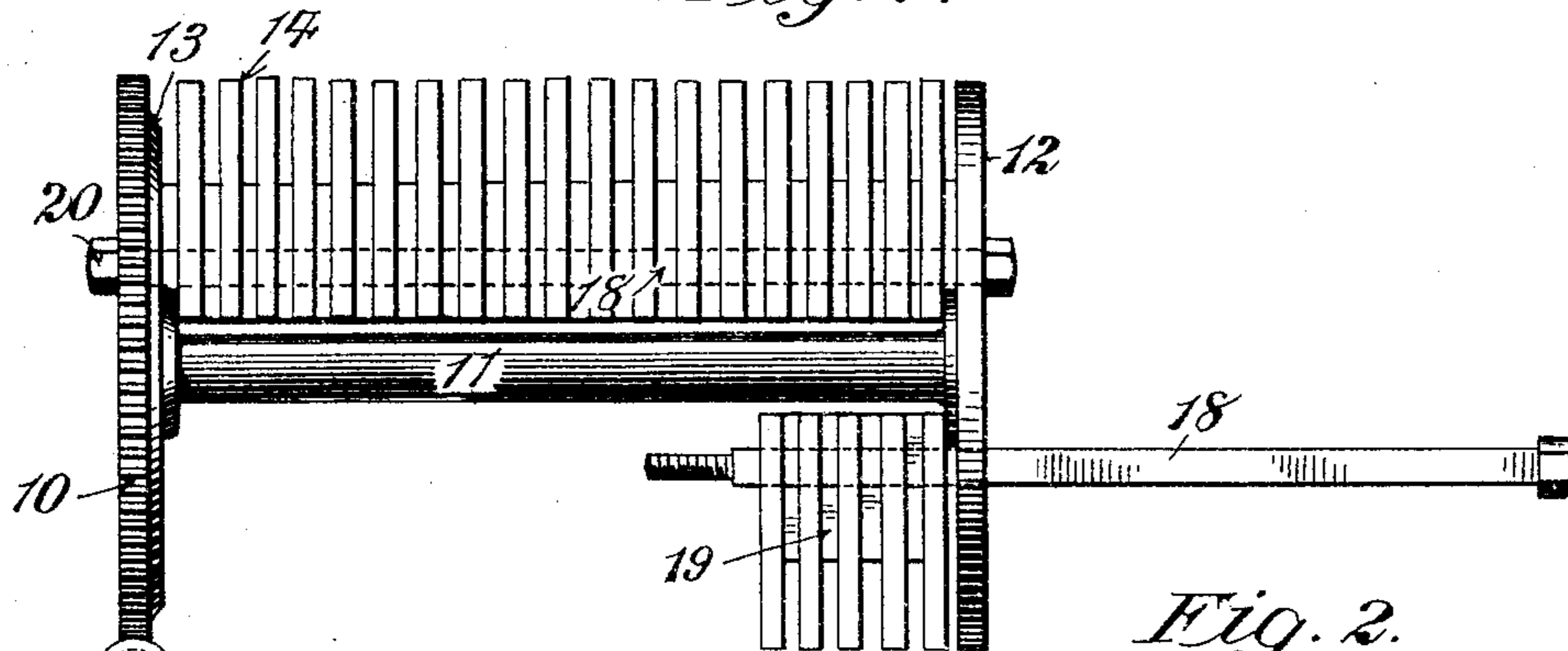


Fig. 2.

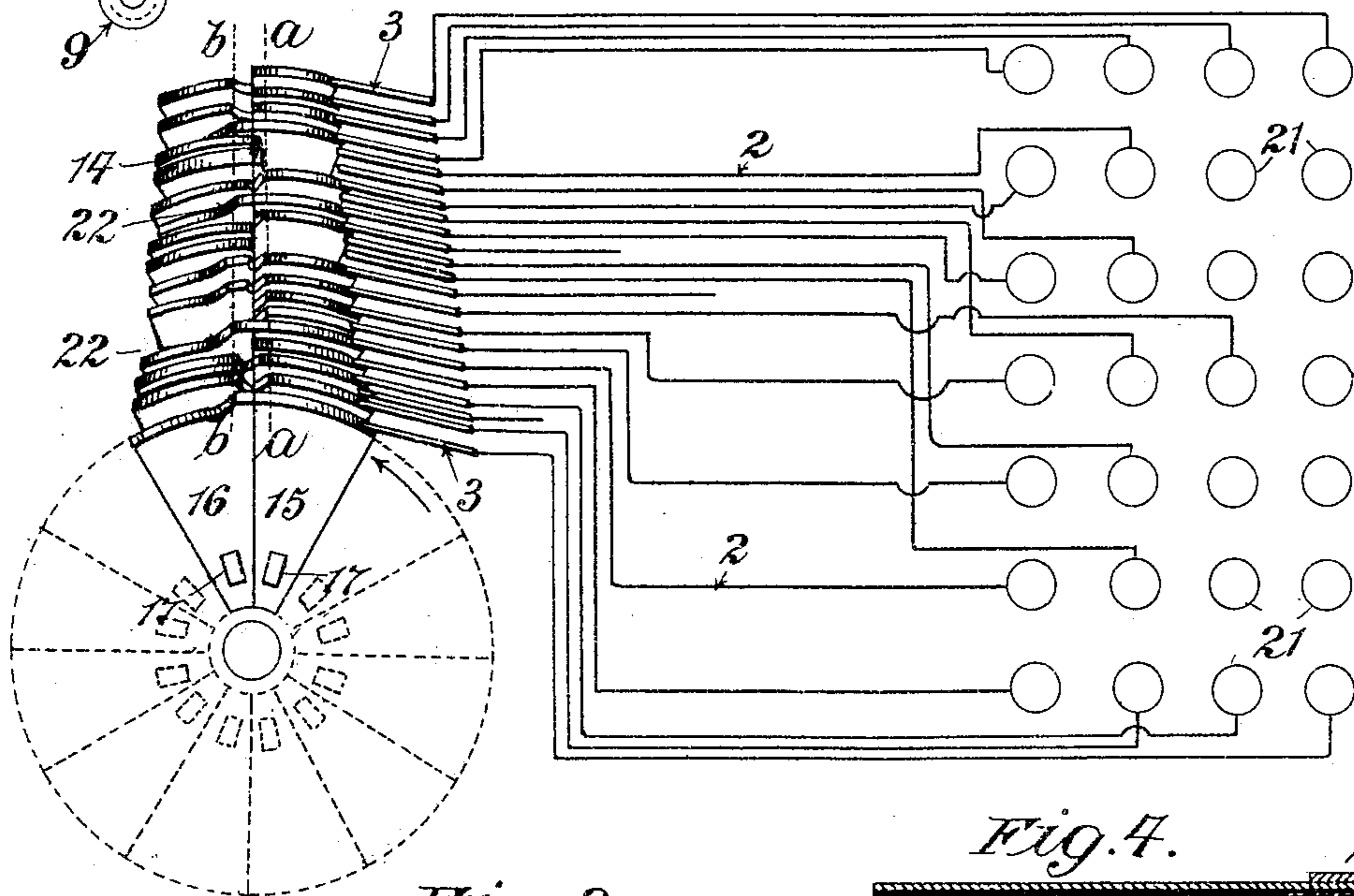


Fig. 3.

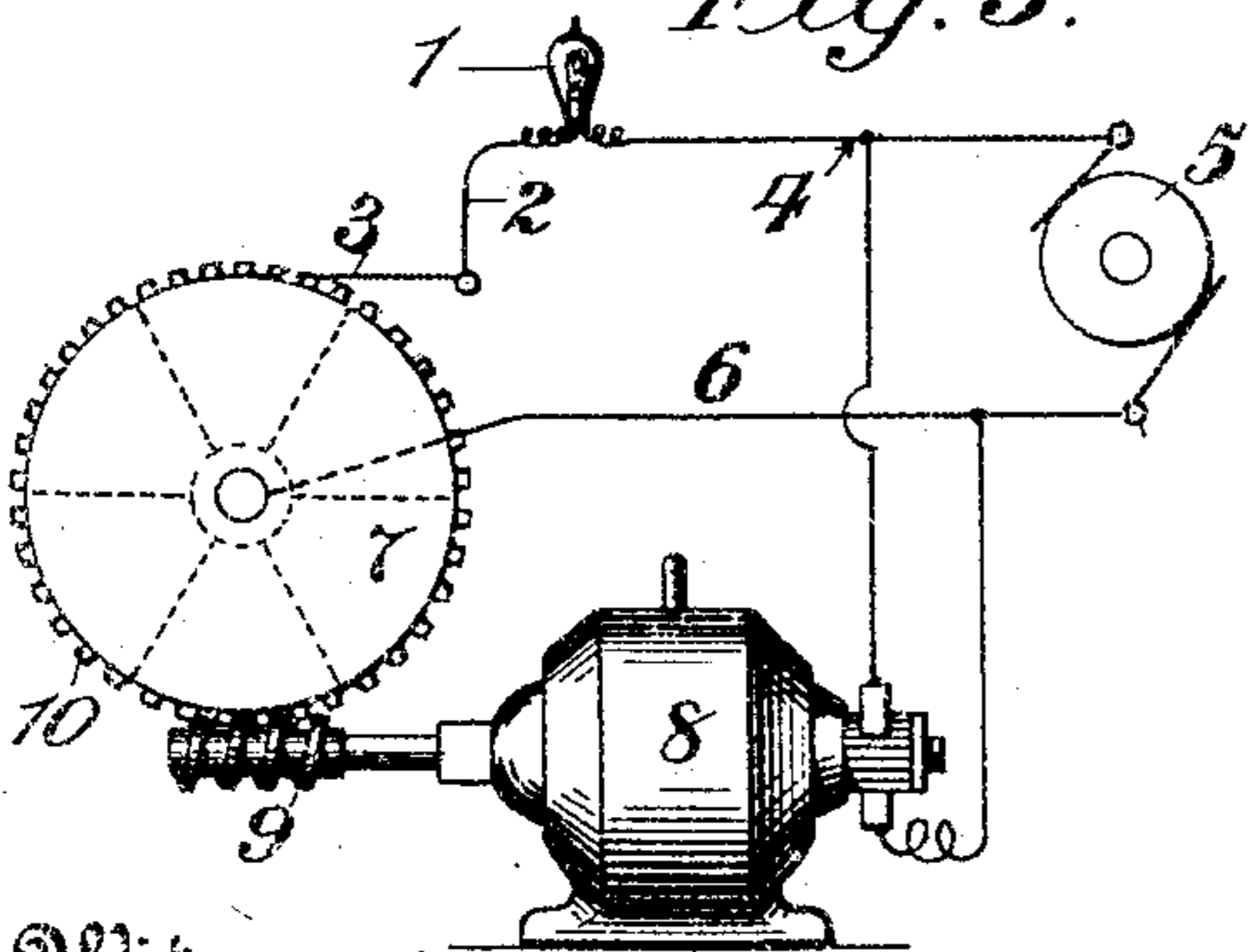
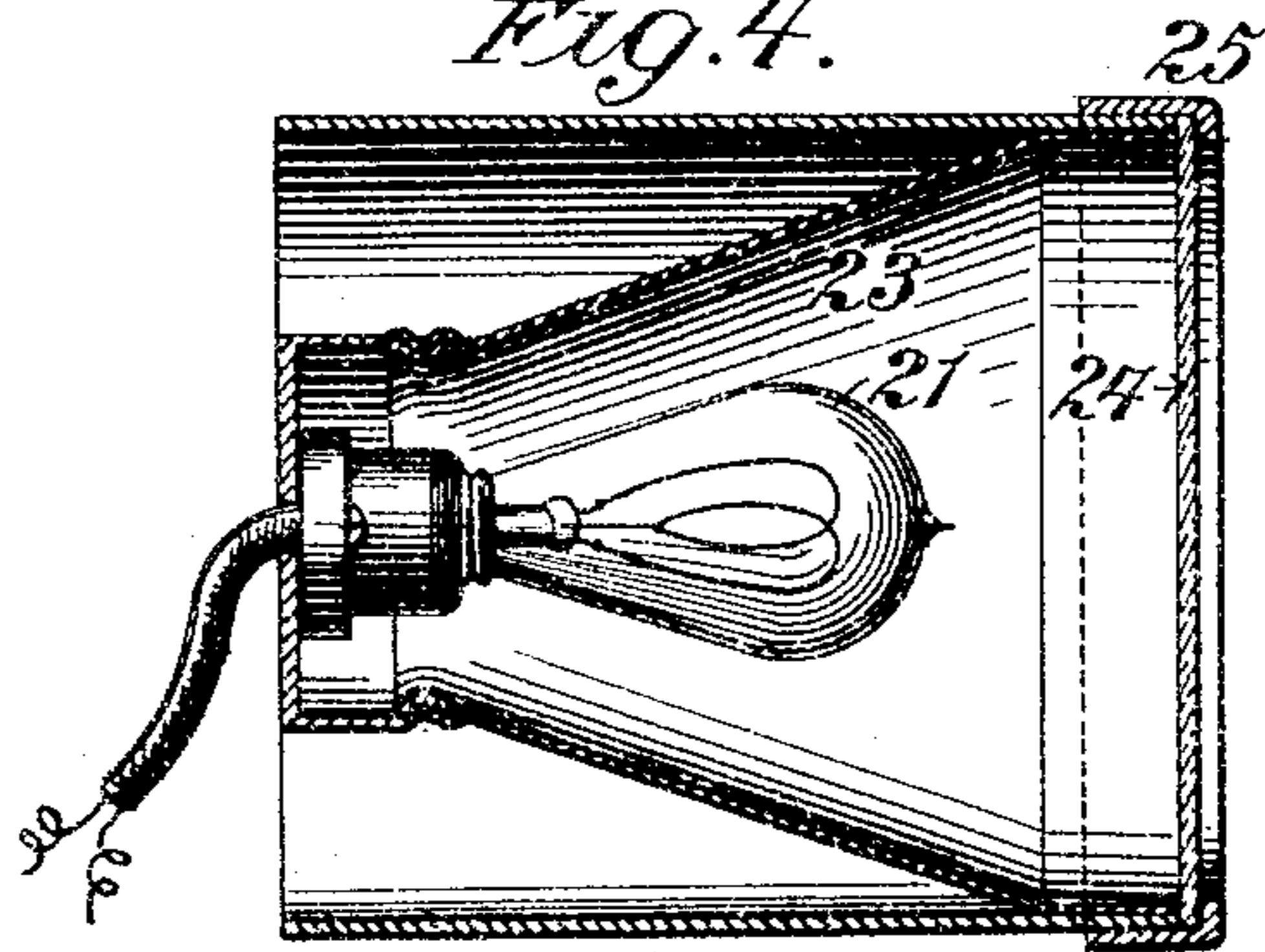


Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## ILLUMINATED SIGN.

SPECIFICATION forming part of Letters Patent No. 780,023, dated January 17, 1905.

Application filed April 20, 1901. Serial No. 56,713.

*To all whom it may concern:*

Be it known that I, JAMES CLEGG, a citizen of the United States, residing in the city, county, and State of New York, have invented a certain new and useful Improvement in Illuminated Signs, of which the following is a specification.

One principal object of my present invention is the provision of improved means for producing distinct and at the same time uniform light effects in illuminated advertising-signs employing groups of lights arranged to form words or otherwise.

Another principal object of my invention is the provision of improved contact-making devices for changeable electric signs of the above class facilitating rapid and easy transformation of the main commutator where the series of expressions provided is to be changed.

Another object of my invention is the provision of means whereby a novel and attractive treatment of light groups is attained in signs of the above-named character.

In the accompanying drawings, Figure 1 is a side elevation of one form of skeleton commutator, showing one removable selecting-contact group in position and another being adjusted in place. Fig. 2 is a diagrammatic view showing the relation of the lamps in a portion of a sign with the stationary brushes and commutator. Fig. 3 exhibits a general scheme of circuits, including a motor for said commutator; and Fig. 4 is a vertical median section of my improved lighting unit as used in groups to constitute a sign.

It is to be understood that the commutator as shown in Figs. 1 and 2 is greatly shortened in proportion to its diameter and the number of selecting-contacts is lessened, all with the end in view of attaining a simple and clear exposition in said drawings of the principles involved in my invention.

Advertising-signs employing groups of electric lights in combination with a selecting-commutator acting to vary the expressions produced by said lights are already well known. I have therefore refrained from setting forth or illustrating herein the construction of such signs save to the extent necessary to make my present improvement clear.

In Fig. 3 the group of lights is represented by the lamp 1, each lamp of the group having one terminal connected, as by the wire 2, to its own corresponding stationary brush 3, while the other terminal connects, as by the wire 4, with one terminal of any appropriate generator 5. This generator feeds the wires 4 and 6, the latter of which is connected to the rotatable selecting-commutator 7. This commutator can be rotated by any desired means—as, for instance, the electric motor 8 and the worm and pinion 9 and 10. These elements are commonly employed, and as so used the commutator is usually either made up once and for all with selecting-contacts in a certain desired order or changes in the order and arrangement of such contacts are tedious and difficult. By the use of my improvement a skeleton commutator can be quickly transformed for the purpose of changing the nature or order, or both, of the expressions produced by its rotation. For this purpose I employ a skeleton frame comprising a shaft and supports, upon which different removable selecting groups may be mounted without difficulty.

My preferred construction is shown in the drawings, wherein the shaft 11 is provided with supports in the form of end disks or spiders 12 and 13, one of these preferably carrying the gear 10, driven by the worm 9. This shaft and its end pieces are preferably connected to one side of the operating-circuit. Between the end pieces are supported the groups of selecting-contacts, two successively-operating specimens of which are shown in Fig. 2. As shown in Figs. 1 and 2, each selecting group comprises peripheral strips arranged to make contact with corresponding brushes 3, the spaces between said strips being filled with air or other insulation. The current may be carried to said strips in any desired manner; but I prefer to build up each group of plates 14 (see Figs. 1 and 2) made of metal and separated by plates which either do not come out to the periphery of contact, as shown, or are made of insulating material, or both. Where these spacing parts do not reach the contact-periphery, they may be made of either metal or insulation.

In Fig. 2 are shown two successively-acting groups 15 and 16 in perspective. As shown, there is a perforation 17 in each group. This accommodates the securing-bar 18, whereby the groups are supported on the end pieces 12 13 and which carry current to all the metal sectors so supported. This bar should fit fairly tightly into all the sectors of simultaneously-operative groups. Thus each group producing a given expression on the advertising-sign is carried by its own securing-bar. As shown in dotted lines in Fig. 3, the successive groups lie side by side around the entire cylinder, their size and number depending upon the dimensions of the skeleton frame and the number of expressions desired. It is obvious that blank or dummy sectors may be used with operative ones, if desired. It is also clear that the shape of the plates and of the groups built up of them is immaterial as long as the selecting-strips are properly arranged for effective coöperation with the stationary brushes 3.

Where signs bearing lettered expressions are to be employed, I prefer to use groups, as 19, Fig. 1, each comprising the proper metal parts properly spaced for producing a single letter on the advertising-sign. Thus like groups can be stored together, and when the commutator is to be prepared for any given expressions the operator can go to the "A," "B," or "C," &c., box and draw out groups of contacts ready for use, just as a printer selects his types in setting up a word or sentence. To adjust these groups in place, it is only necessary to partly withdraw the appropriate bar 18, as in the lower part of Fig. 1, and string the letter groups on it in the desired succession. In Fig. 1 one of these letter groups is illustrated at 19. All the groups being in place, the bar 18 is adjusted as shown in the upper part of Fig. 1 and is secured by the nut 20 or otherwise.

It is to be understood that my invention is broad enough to cover the use of single plates and spacers threaded onto bars 18 instead of groups; but the latter arrangement is preferred for the reasons given.

I have found it advantageous to produce transformations from one expression to another through an intermediate confused or unintelligible grouping of lights, as this condition tends to produce in the beholder's mind a sense of curiosity as to what is coming. Fig. 2 illustrates my preferred means for attaining this end. Here four vertical rows of electric lamps, seven to the row, are indicated by the circles 21. From each of these a wire 2 leads to a distinct stationary brush 3, and under the row of twenty-eight brushes corresponding to these lamps there turns the commutator shown in part in perspective. Assuming the commutator to be turning with the arrow in the figure, the selector-plates 14

on the left of the dotted line  $\bar{b} \bar{b}$  are supposed to have passed under the brushes 3, thus closing circuit in one vertical row of lamps and producing the letter "I." Between the lines  $\bar{b} \bar{b}$  and  $a a$  the contacts are so arranged as to maintain circuit in certain irregularly-arranged lamps, and on the line  $a a$  passing the brushes 3 the plates 14 to the right of the said line are brought into play to light lamps arranged in the form of an "E." For this purpose certain irregularly-shaped plates, as 22, are shown; but this is not an absolutely essential construction for production of the effect described. I prefer, however, to so treat the lamps 21 as that at no time between intelligible expressions is the sign entirely dark. This would be the result in the use of the contacts as shown in Fig. 2. My invention further includes such a construction of illuminating units as will produce both distinctness and uniformity of effect. By the use of my units a result for night effects is produced which has the advantages of pigment in daylight. My result may therefore be fairly called "light-painting."

Where incandescent or other lamps are simply fastened upon a flat surface and are grouped as shown, for instance, in Fig. 2 at 21, the result is very unsatisfactory, since the rays emanating from the various lamps mingle so as to blur and confuse the desired expression. To avoid this interference by cross-lights, I provide an isolating-partition, preferably a reflector 23, surrounding each lamp 21, as in Fig. 4, and so shaped as to give the rays a general forward direction. The light from each unit is thus kept from mingling with that from other units, which with direct radiant light is destructive of that distinctness of outline so necessary in this art. On the other hand, it is obvious upon slight reflection that where groups of parallel rays are thus projected from lamps arranged in a single plane an observer's eye can never be so placed as to be substantially equally affected by all the lamps. If the eye be placed opposite the middle of the sign, the two ends are fainter than the middle, and if at one end the other end is far from clear. I have overcome this difficulty by converting the direct radiations into diffused rays, these being well known to be visible impartially in all directions and at the same time to enable the eye to refer them to a distinct and certain local origin. With this end in view I close in the forward end of the reflector 23 with a piece of translucent glass or equivalent translucent material 24. This may be ground glass or glass treated in any well-known manner to produce translucence and so convert the direct radiations into diffused light. The cover 25 may be used to hold the glass in place, or other means may be employed at will. A sign made up

of units in which are thus joined isolating and diffusing elements or functions gives the effect of a sign made up of painted spots being without confusion or blur and at the same time substantially uniform in intensity of effect whatever the observer's position with relation to the sign.

A number of modified forms of this apparatus will occur to those skilled in this art and may be made without departing from the scope of my invention, and I do not wish to be understood as limiting myself to the precise details herein shown and described.

What I claim is—

1. In an advertising means, banks of electric lamps, circuits therefor and a selecting-commutator in said circuits for controlling the same, said commutator having operative contacts so arranged as to produce the following succession when said commutator is operated, viz: first, an intelligible grouping; second,

a confused intermediate grouping, and third, an intelligible grouping.

2. In an advertising means, banks of electric lamps, circuits therefor and a selecting-commutator in said circuits for controlling the same, said commutator having operative contacts so arranged as to produce successive intelligible groupings separated by continuous illumination by lamps unintelligibly arranged.

3. In a means for automatically producing successive expressions in an illuminated electric sign, a perforated sector-shaped contact-plate having a conducting periphery and a supporting-bar therefor adapted to pass through the perforation in said contact-piece and in electric connection with said periphery.

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Witnesses:

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