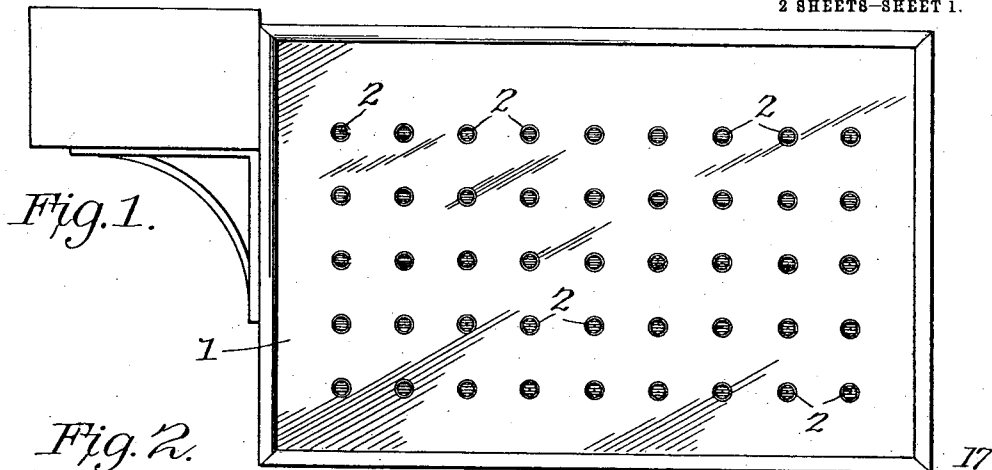
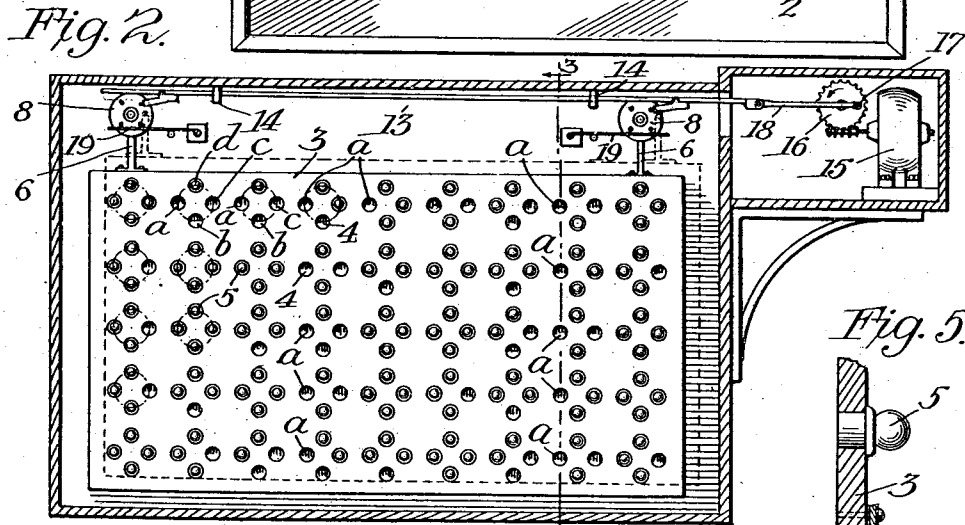
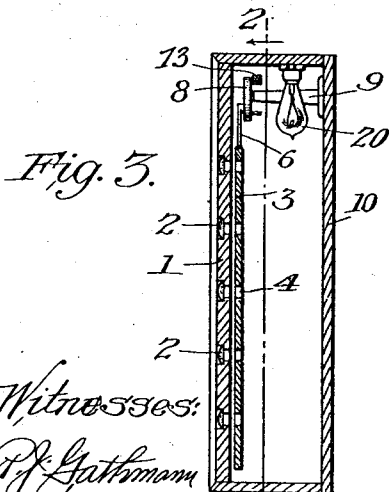
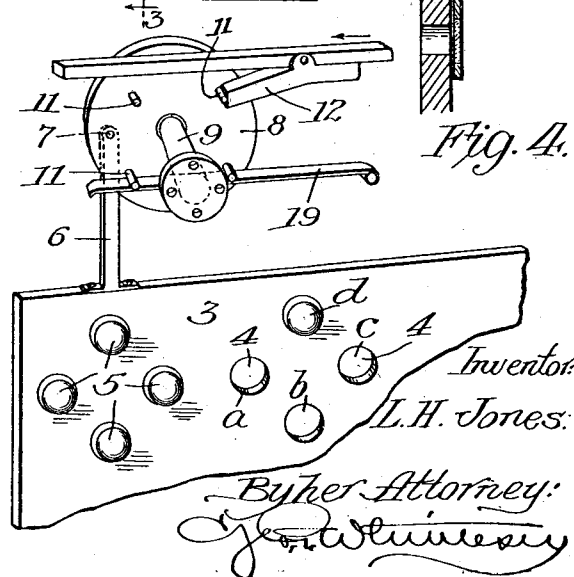


L. H. JONES.
ILLUMINATED CHANGEABLE SIGN.
APPLICATION FILED MAY 27, 1913.

1,114,267.

Patented Oct. 20, 1914.

2 SHEETS-SHEET 1.



Witnesses:

R. J. Gathmann

John W. Tucker

Inventor:

L. H. Jones

By her Attorney:

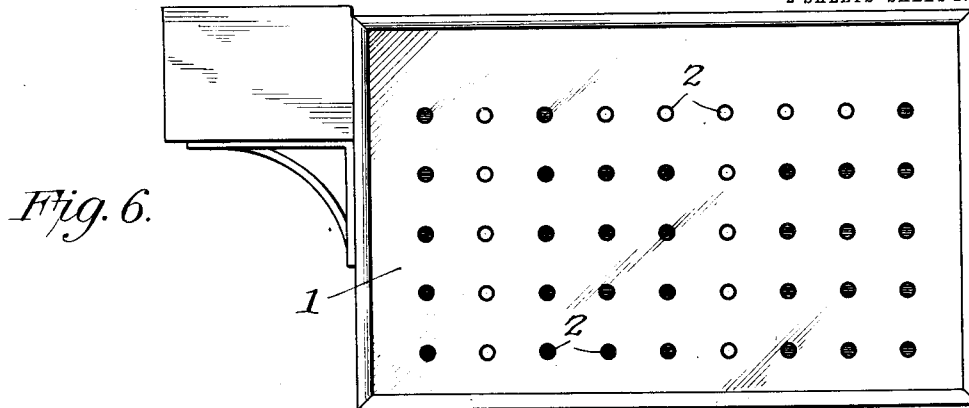
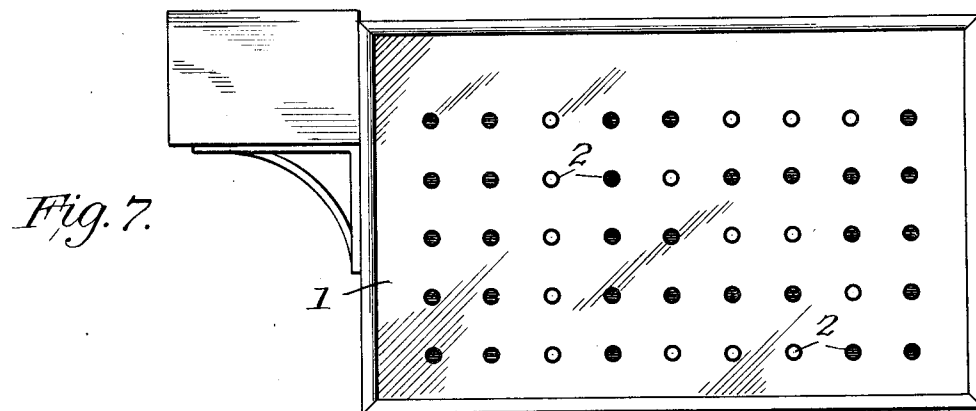
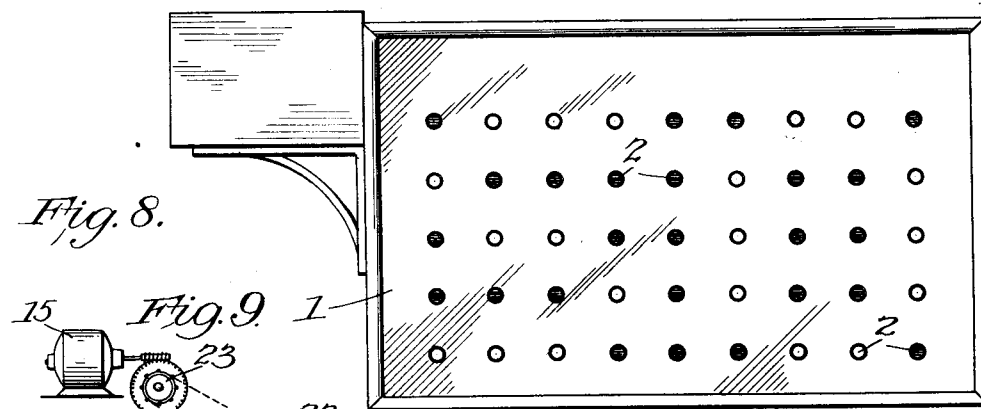
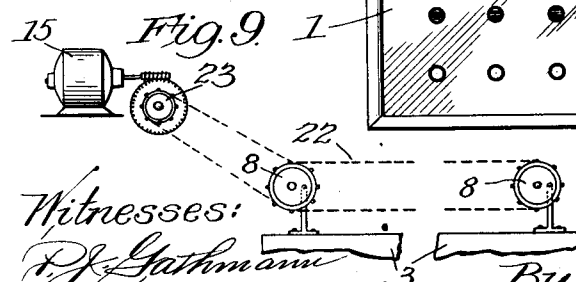
J. W. Williams

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2 SHEETS—SHEET 2.



Witnesses:

R. J. Gathmann
John W. Lucas

Inventor:

Lenora H. Jones.

By her Attorney:

Geo. W. Sturges

UNITED STATES PATENT OFFICE.

LENORA H. JONES, OF WICHITA, KANSAS.

ILLUMINATED CHANGEABLE SIGN.

1,114,267.

Specification of Letters Patent.

Patented Oct. 20, 1914.

Application filed May 27, 1913. Serial No. 770,165.

To all whom it may concern:

Be it known that I, LENORA H. JONES, citizen of the United States, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Illuminated Changeable Signs, of which the following is a specification.

This invention relates to illuminated signs, and its object is to provide a simple and efficient "talking sign" which is capable of a great variety of uses and can be arranged to show a large number of different words and sentences, designs, pictures and the like. I am aware that such results have been heretofore produced by means of banks of electric lamps controlled by rotary switches which close the circuits of different groups of lamps in succession so as to light up those necessary to show the desired letters or designs. My invention differs from these devices in that no elaborate system of circuits is necessary, but only two perforated plates, one movable with respect to the other in order to bring certain perforations into alinement and permit light from a suitable source to shine through the alined perforations, thus producing in outline a letter, word or device.

In carrying my invention into practical effect, I preferably make the front plate stationary, and arrange the rear plate to move relatively thereto, preferably in such a manner as to revolve without rotation so that all points on said plate describe small circles, all of the same diameter. A plurality of these circles can be selected, corresponding with the plurality of holes in the front plate, and by making perforations in said circles at suitable points, they will coincide with the holes in the front plate at certain points in the revolution of the rear plate, and thus permit the light to shine out.

The details of one embodiment of my invention are shown in the accompanying drawings, in which—

Figure 1 is a front elevation of the sign. Fig. 2 is a rear elevation partly in section, taken on the line 2—2, Fig. 3. Fig. 3 is a cross section, taken on the line 3—3, Fig. 2. Fig. 4 is a perspective view showing the operating mechanism. Fig. 5 shows one of the plugs for shutting up those perforations that are not needed. Fig. 6, Fig. 7 and Fig. 8 are front elevations showing the holes in the front plate through which the light is

permitted to shine in producing the words "It is so," and Fig. 9 shows a modified driving mechanism.

The working parts are inclosed in a suitable casing, which has a front plate 1 containing a plurality of holes 2, regularly spaced apart in rows, and preferably provided with lenses as shown. In the drawing I have shown five rows of nine holes each, but it is evident that the number is limited only by the size of the sign and the area of displacement of the movable rear plate 3. This lies close to the front plate and is provided with a plurality of perforations 4, which are seen to be arranged in small groups, one for each of the holes 2. The perforations in each group are arranged in a circle, as shown. In the drawings, each circle has four perforations 4, but it is evident that this number may be increased up to eight, ten or even more, if the dimensions of the sign permit. The number of perforations determines the number of changes which can be made in one cycle of operations of the sign. Thus in the sign illustrated, four changes are possible, but the fourth position preferably shows a blank to indicate the end of the sequence. Each small circle of perforations is complete, but those perforations which are not needed to spell the selected words can be blanked off by any suitable shutter, such as the stoppers 5. The rear plate shown in Fig. 2 has a proper number of perforations left open to enable it to spell the words "It is so," in its three positions succeeding the one in which it is shown, which is the dark or blank position following the word "So." The arrangements of dark and light holes producing these words are shown respectively in Figs. 6, 7 and 8.

The rear plate is suspended in any suitable manner, as by means of the hangers 6 from crank pins 7 on two wheels 8 suitably journaled on the studs 9 projecting from the back 10 of the casing. In order to rotate these wheels synchronously, step by step, each wheel is provided with a pawl and ratchet device, preferably consisting of four pins 11 set equidistant in the rear face of the wheel, and engaged by a pawl 12 pivoted to a rod 13 which reciprocates in guides 14 and is actuated by some suitable motor, such as an electric motor 15 driving by worm gearing a disk 16 carrying a wrist pin 17 connected by a pitman 18 to the rod 13. A

detent spring 19 bears against the underside of two of said pins to hold the wheels and rear plate steady during its periods of rest. As the motor slowly revolves the disk, the
 5 pawls will engage the pins on the wheels and give them a quarter revolution, the wheels remaining stationary while the rod is being drawn back to enable the pawls to engage the next pins. The pawls being pivoted
 10 will rise and slide over the pins when the rod is retracted after completing its actuating stroke. It is evident that other equivalent means could be substituted for the rod, pawls and pins to effect the intermittent rotation of the wheels.

The rear plate, being hung from the crank pins on the wheels, partakes of their movement, so that each point thereon is thus moved in a circle of the same diameter as
 20 that described by said crank pins, which corresponds with the circles in which the perforations 4 are grouped. During each period of rest, one of the perforations in each of the small circles will register with its hole in the front plate, and if there is no stopper in said perforation, the light from a row of electric lamps 20 will shine out through said perforation and hole. The back of the casing can be painted white or
 30 provided with a reflecting surface, such as white paint, so as to intensify the light passing out through the holes in the front plate.

Now let the perforations in the rear plate be designated by the reference letters *a*, *b*,
 35 *c*, *d*, similar perforations in each circle being designated by the same letter. Suppose all the perforations lettered *a* are in alinement with the holes in the front plate, and that all the "*a*" perforations are closed except
 40 those shown as left open in Fig. 2. Under these circumstances, the word "It" will be seen by any one looking at the front plate, the word being outlined by the light coming through the holes 2 which are alined
 45 with the open perforations "*a*". Let the motor be started, and reciprocate the rod so as to cause a quarter revolution of the wheels and a shift of the rear plate to a position in which all the "*b*" perforations will aline
 50 with the holes in the front plate. With all the "*b*" perforations closed except those shown open in Fig. 2 the observer will see the word "Is" shining through the front plate. The rear plate rests in this position
 55 until the motor causes the rod to shift it another quarter revolution in its circle of movement. This brings all the "*c*" perforations in line with the holes in the front plate, and if only those perforations are left open which appear in Fig. 2, the word "So" will be seen. The next actuation of the plate brings it to the position shown in Fig. 2 in which all the "*d*" perforations aline with the holes in the front plate. As all these
 65 perforations are closed, no effect will be

produced in this position of the rear plate, but the interval of rest between the last word "So" and the repetition of the word "It" will be three times as long as between
 70 the other words, which makes it easier for an observer to determine the beginning and ending of the sentence.

By opening the proper perforations in the rear plate any other words of two letters may be shown, or some design or designs
 75 may be substituted for the words, if desired. If a three times interval between the words is not desired, some of the "*d*" perforations may be utilized to spell a fourth word; or all the "*d*" perforations might be thrown
 80 open at the end of the three word sentence. The change from one sentence to another can be quickly effected by shifting the stoppers or other closing devices which control the passage of light through the perforations in the rear plate.

By a slight modification of the driving mechanism the rear plate can be caused to move continuously instead of intermit-
 90 tingly; in which case it can be used to display designs having parts which apparently are in motion. Such a modification is indicated in Fig. 9 where the wheels 8 are provided with sprocket teeth and are engaged by an endless chain belt 22 driven by a
 95 sprocket 23 geared to the motor.

It is thus apparent that by simple devices I have produced a talking sign capable of a vast variety of changes, which entirely
 100 avoids the necessity for an expensive and complicated rotary switch for lighting and extinguishing electric lamps; a sign which is comparatively cheap to build, and which can be easily operated and kept in repair. It can be used as a street sign, or in shop
 105 windows.

Colored effects may be obtained by using colored lenses in the holes 2 or by providing colored transparent shutters 24 for closing
 110 said holes in place of the stoppers, as shown in the lower part of Fig. 5, the shutter being a frame pivoted to the plate 3 adjacent to the hole and carrying a transparent colored center portion which will register with said hole when said shutter is swung over it.

What I claim as new and desire to secure by Letters Patent in the United States is:—

1. An illuminated sign comprising two relatively movable plates, one provided with a plurality of holes, and the other provided
 120 with perforations arranged in a plurality of similar groups, means for closing any one or more of said perforations at will, and means for causing corresponding perforations in the several groups to come simultaneously into alinement with the holes in the first named plate.

2. An illuminated sign comprising a stationary plate provided with a plurality
 130 of holes, a movable plate adjacent thereto

and provided with perforations arranged in a plurality of similar groups, one group for each of the holes in the stationary plate, and means for giving said movable plate a revolving movement to bring said perforations successively into alinement with said holes.

3. An illuminated sign comprising a front plate provided with a plurality of holes equally spaced apart, a rear plate adjacent thereto and provided with a plurality of similar groups of perforations equally spaced apart in circles of the same diameter, and means for giving said rear plate a revolving motion in a circle of the same diameter as the groups.

4. An illuminated sign comprising a

stationary plate provided with a plurality of holes, a movable plate arranged adjacent thereto and provided with perforations arranged in circles of the same diameter, and means for giving said movable plate an intermittent revolving motion, to bring said perforations successively into alinement with said holes, and to allow an interval of rest between every two positions of said plate.

In testimony whereof I affix my signature in presence of two witnesses.

LENORA H. JONES.

Witnesses:

GEO. H. BURNS,

M. S. C. MORIARTY.