

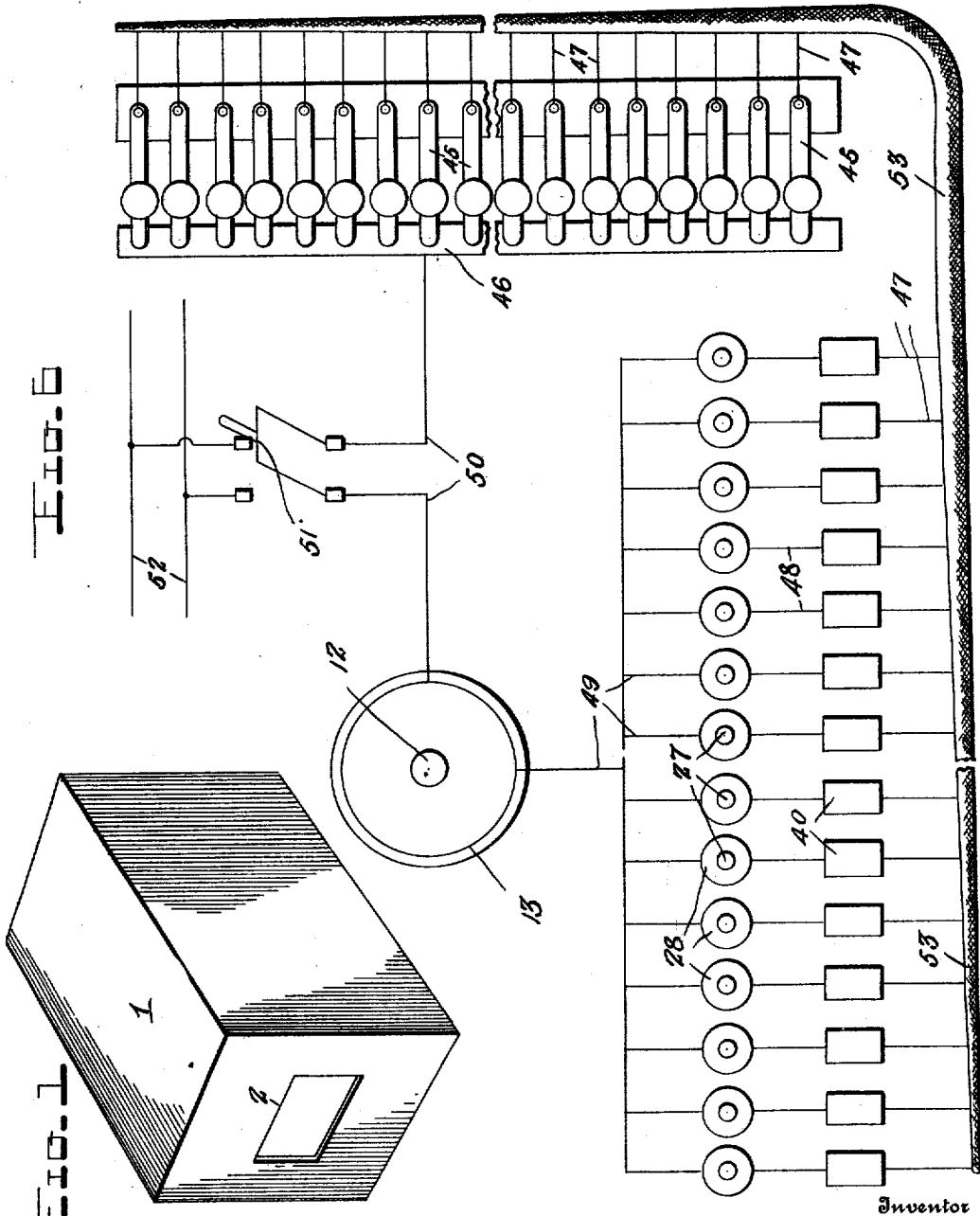
G. R. HOLLINGSWORTH.
CHANGEABLE EXHIBITOR.

APPLICATION FILED JULY 27, 1908.

Patented Sept. 7, 1909.

3 SHEETS—SHEET 1.

933,075.



Witnesses

Chas. L. Griebauer.
J. M. Turry

384

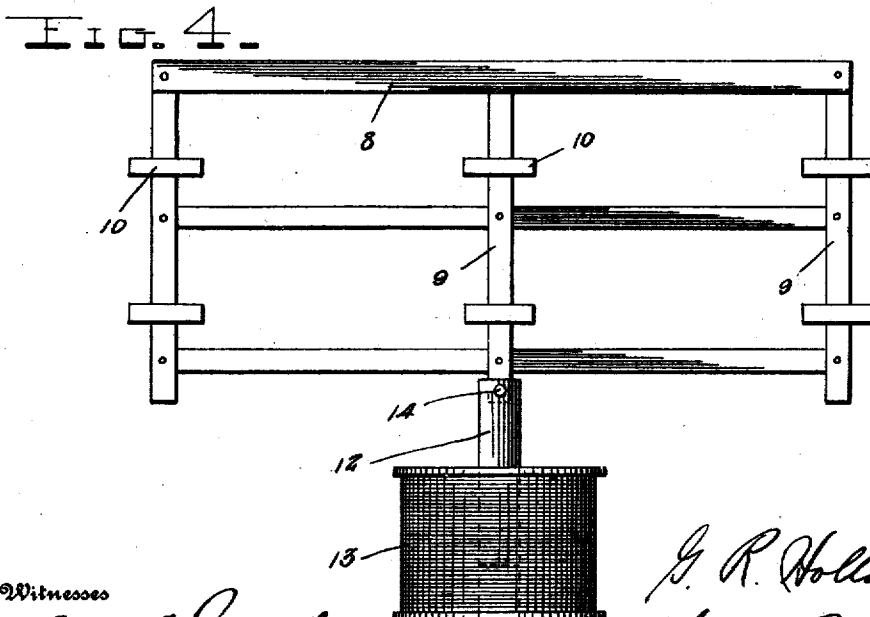
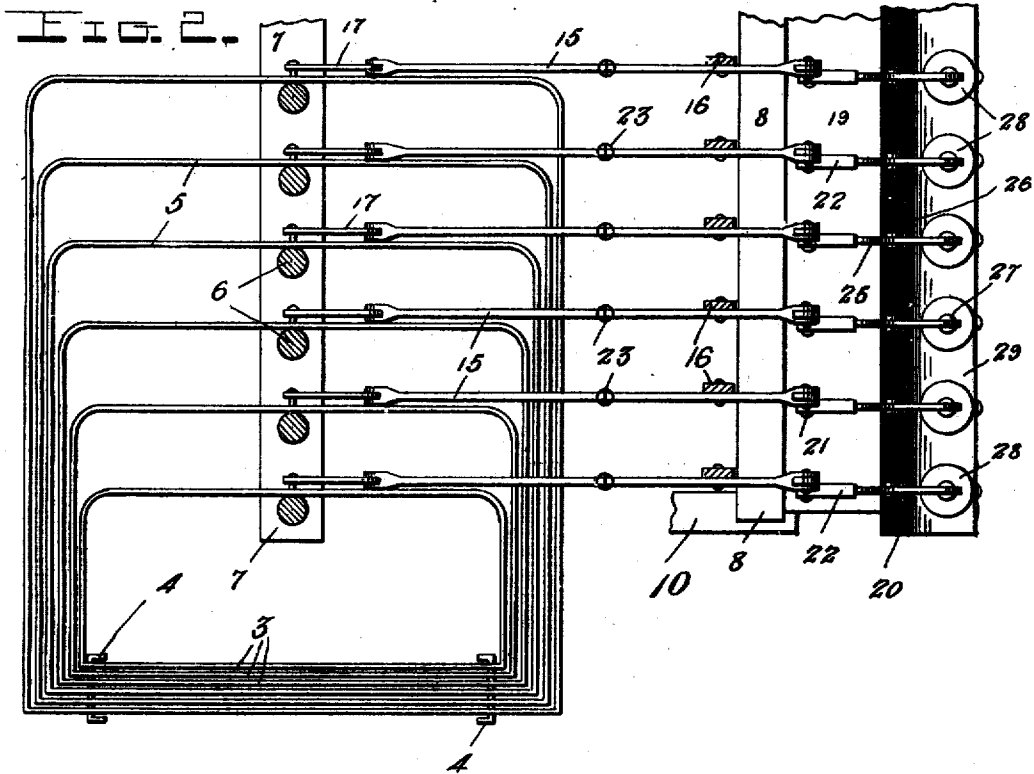
G. R. Hollingsworth
Nathan E. Coleman
Attorney

G. R. HOLLINGSWORTH.
CHANGEABLE EXHIBITOR.
APPLICATION FILED JULY 27, 1908.

933,075.

Patented Sept. 7, 1909.

3 SHEETS—SHEET 2.



Witnesses

Chas. L. Grubauer.
J. M. Perry

384

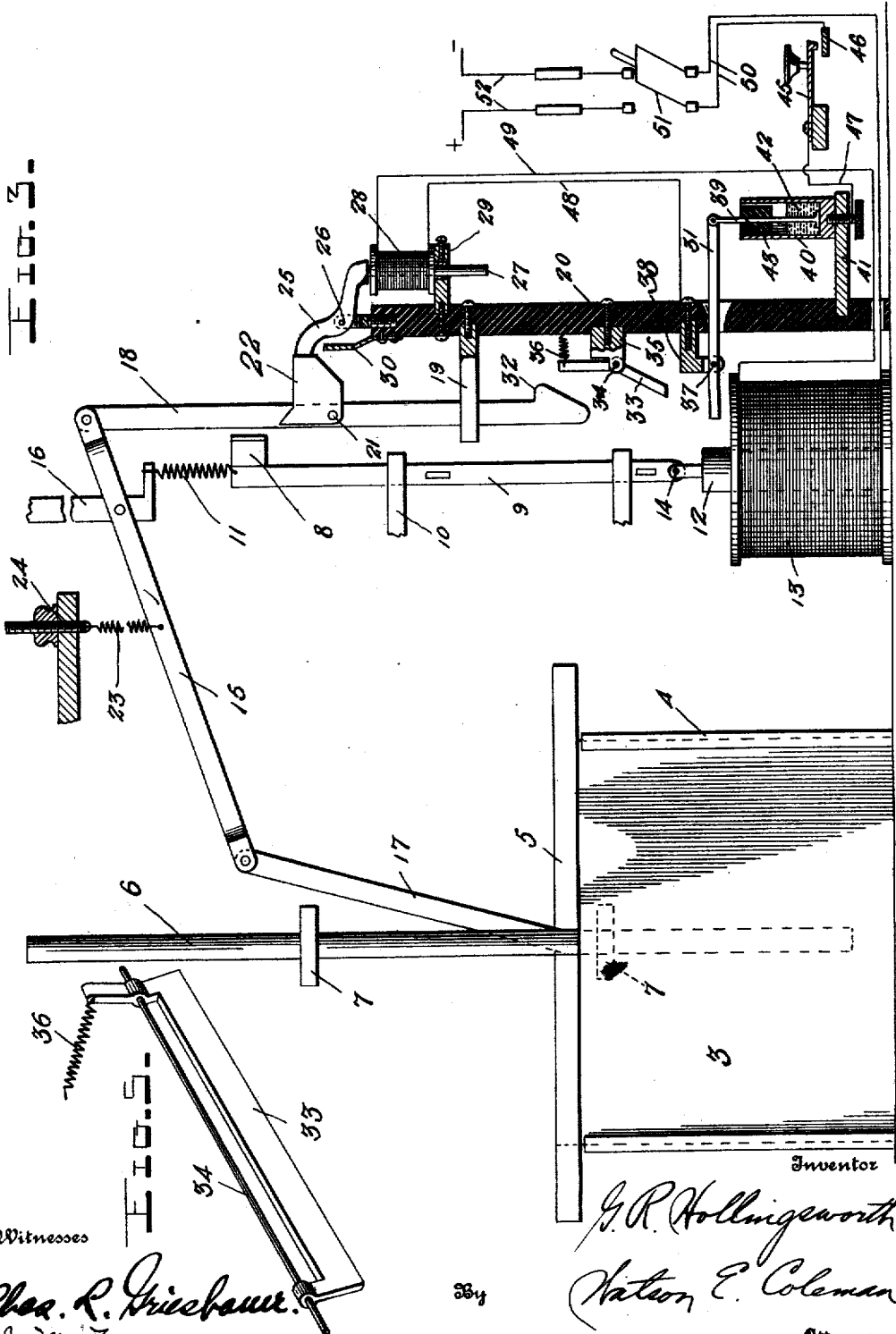
Inventor
G. R. Hollingsworth
Nation E. Coleman
Attorney

G. R. HOLLINGSWORTH.
CHANGEABLE EXHIBITOR.
APPLICATION FILED JULY 27, 1908.

Patented Sept. 7, 1909.

3 SHEETS—SHEET 3.

933,075.



Witnesses

Chas. R. Gricebauer.
J. M. Terry.

384

G. R. Hollingsworth
Nathan E. Coleman
Attorney

UNITED STATES PATENT OFFICE.

GEORGE R. HOLLINGSWORTH, OF CHICAGO, ILLINOIS.

CHANGEABLE EXHIBITOR.

933,075.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed July 27, 1908. Serial No. 445,643.

To all whom it may concern:

Be it known that I, GEORGE R. HOLLINGSWORTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Changeable Exhibitors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in changeable exhibitors or indicating devices of that class which are operated electrically.

The object of the invention is to provide an exhibiting or indicating device of this character by means of which sign plates may be brought into view by an operator at a key-board located at a distant point.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the box or casing of the improved changeable exhibitor; Fig. 2 is a detail plan view of certain of the sign plates and their guiding and operating means; Fig. 3 is a detail vertical section through the mechanism for actuating the sign plates; Fig. 4 is a detail view of the slidable actuating member; Fig. 5 is a detail view of the lock or latch bar; and Fig. 6 is a diagrammatic view illustrating the electric circuits.

The invention comprises a suitable box or casing 1 having a sight opening 2 in which any one of a plurality of sign plates 3 may be brought into view. While said sign plates may be of any suitable form and construction, they are preferably made of sheet metal and are arranged in parallel relation close to the sight opening 2 and are mounted for sliding movement in channeled guides 4 which receive their side edges. To permit any one of said plates to be raised to an operative position without interfering with the others, each one is provided at its top with a rearwardly extending substantially U-shaped loop or arm 5, as shown more clearly in Fig. 2. Said loop-like arms are of different sizes and have their forward ends connected to the upper corners of the plates 3, while the center of their rear or closed portions is fixed to rods 6 which are

slidably mounted in guide bars 7. It will be understood that the sign plates 3 may contain letters, numbers, pictures, or reading matter of any description.

In order to lift any one of the sign plates 3, I provide an actuating member 8 and means for operatively connecting any one of said sign plates to said actuating member. In the preferred embodiment of the invention illustrated, said member is in the form of a bar arranged at the top of a frame 9 mounted for vertical sliding movement in suitable guides 10 and shown more clearly in Fig. 4 of the drawings. Said frame is maintained in its elevated or normal position by one or more coil springs 11 and it is adapted to be depressed by the movement of the core 12 of a solenoid or magnet 13. The core 12 is freely slidable in the coil of the solenoid and is pivotally connected to the frame 9, as shown at 14.

Each of the sign plates 3 is provided with an operating lever 15 which is fulcrumed intermediate its ends at 16 and has one end connected by a link 17 to the rod 6 of one of the sign plates. To the other end of each of the levers 15 is pivoted the upper end of a controlling member or rod 18, the lower end of which latter is loosely mounted for sliding movement in a suitable guide 19 on a support 20 of fiber or other non-conducting material. Each of the rods 18 has pivoted upon it, at 21, a dog 22 adapted to be projected beneath and in the path of the actuating member or bar 8 so that when the latter is depressed by the solenoid the rod 18 will be moved downwardly and the lever 15 will be swung to elevate the sign plate 3 which it controls. To assist the solenoid in lifting the sign plate a coil spring 23 is preferably provided for each of the levers 15. Said springs have their lower ends connected to the levers and their upper ends connected to adjusting screws 24, as clearly shown in Fig. 3. The dogs 22 which are in the form of substantially rectangular plates pivoted at one of their corners are gravity actuated to their retracted positions and they are adapted to be projected into the path of the actuating bar 8 by members 25 in the form of angular arms or bell cranks pivoted at their angles, as shown at 26, upon the support 20 and adapted to have their upper ends bear against the free edges of the dogs 22 and their other ends disposed above the slid-

able cores 27 of small solenoids or magnets 28 arranged on a bracket 29 on the support 20. A spring 30 is provided for each of the actuating arms or bell cranks 25 for the purpose of tilting them so that their weighted lower ends will drop into contact with the slidable cores of the solenoids 28. The secondary solenoids 28 and the primary solenoid 13, as hereinafter explained, are included in an electric circuit which, when closed, causes one of the solenoids 28 and the solenoid 13 to be energized so that the arm 25 of the energized solenoid 28 will project its dog 22 into the path of the actuating member 8 so that when the core 12 of the solenoid 13 pulls the bar 8 downwardly the latter will depress the rod 18 and lift one of the sign plates 3.

In order to break such electric circuit and at the same time maintain the actuated sign plate in an elevated and exposed position the lower end of each of the rods 18 is adapted to depress a switch lever 31 and it is provided with a projection or shoulder 32 to engage a lock or latch bar 33. Said latch bar 33 is common to all of the rods 18 and is pivoted at 34 in suitable brackets 35 on the support 20. It is projected by a coil spring 36 arranged between the support 20 and an arm provided upon it so that said latch bar normally projects into the path of the projections 32. Each of the latter is substantially V-shaped so that its inclined or beveled lower portion will swing the latch bar and pass the same as the rod 18 moves downwardly in order that said latch bar may spring above the flat upper end or shoulder of the projection 32 and thereby retain the rod 18 in its lowered position and, consequently, hold the sign plate elevated. Since all of the projections 32 on the rods 18 are of the same size, it will be seen that after one of the rods 18 has been actuated and its projection 32 caught by the latch 33 such rod will be held down by said latch until the actuating member 8 is again operated to lower another one of the rods 18. This last mentioned rod in being depressed causes its projection 32 to actuate the latch 33 so that the latter releases the rod 18 already lowered but catches and retains the rod which was last lowered and which actuates it to release the first mentioned rod. Each of the switch levers 31 is pivoted intermediate its ends at 37 on a bracket 38 on the support 20 and has one of its arms or ends disposed in the path of one of the rods 18 and its other end projecting through a slot in the support 20 and connected to the contact member or stem 39 of an oil switch. The latter comprises a metal cup 40 arranged upon a supporting bracket 41 and containing oil 42. The stem or rod 39 projects into the cup 40 and its lower end is adapted to contact the bottom of the cup, which latter forms the other con-

tact member of the switch. The stem or member 39 contacts the cup or member 40 beneath the surface of the oil so as to prevent sparking and in order to prevent the upper portion of the stem 39 from contacting the cup a sleeve 43 of non-conducting material is arranged upon said stem, as shown.

The several solenoids are controlled by means of a key-board consisting of a plurality of circuit closing switches or keys, each of which comprises a resilient member 45 provided with a finger piece and having one end fixed and its other end adapted to engage a contact 46. The electrical connections are clearly shown in Figs. 3 and 6 and comprise a conductor 47 between each key 45 and one of the switch cups 40, a conductor 48 leading from each bracket 38 to one of the solenoids 28, a conductor 49 extending from the solenoid 13 and having a plurality of branches leading to the solenoids 28 and a conductor 50 extending from the solenoid 13 to the contact strip 46 of the several keys of the switch board. Said conductor 50 is adapted to include a suitable electric generator but in the present embodiment of the invention it contains a cut out switch 51 and is connected to the wires 52 of an ordinary direct current electric lighting circuit of from 110 to 125 volts. It will be understood that the key-board may be located at any point close to or distant from the casing 1 and that the conductors 47 between the switch board and casing may be inclosed in a cable, as indicated at 53.

Having thus described the invention what is claimed is:

1. The combination of a plurality of movable signs, an actuating member, an independent operating device for each sign, each of said operating devices including a dog movable into and out of the path of the actuating member, electrically operated means for actuating said dogs and means for operating said actuating member.

2. The combination of a plurality of movable signs, an actuating member, electrically operated means for operating said member, an independent operating device for each of said signs, each of said operating devices including a dog movable into and out of the path of the actuating member and means for actuating said dogs.

3. The combination of a plurality of movable signs, an actuating member, independent operating devices for each of said signs, each of said operating devices including a dog movable into and out of the path of the actuating member and means for actuating said dogs.

4. The combination of a plurality of movable signs, an actuating member, independent operating devices for each of said signs, means for operatively connecting any one of

said operating devices to said actuating member and a detaining means for said operating devices.

5 5. The combination of a plurality of movable signs, an actuating member, independent operating devices for each of said signs, each of said devices including a dog movable into and out of the path of said actuating member, independent actuating means for
10 each of said dogs, and a detaining and releasing latch device to co-act with all of said operating devices.

6. The combination of a plurality of movable signs, an electrically operated actuating member, independent operating devices for
15 each of said signs, electrically operated means for operatively connecting any one of said devices to said actuating member, and a detaining and releasing latch device to co-act with said sign actuating devices.
20

7. The combination of a plurality of movable signs, an actuating member, a primary solenoid for operating said member, independent operating devices for each of said
25 signs, each of said operating devices including a dog movable into and out of the path of said actuating member, a plurality of secondary solenoids for actuating said dogs, a detaining and releasing latch device to co-act with said sign actuating devices, a key-
30 board including a plurality of circuit closing keys, a plurality of normally closed switches adapted to be opened by said sign operating devices and electric circuits including the
35 primary and secondary solenoids, said switches, and said circuit closing keys.

8. The combination of a plurality of slidable signs, independent levers for actuating said signs, a slidable actuating member, controlling rods slidably arranged adjacent to
40 said member and operatively connected to said levers, dogs pivoted upon said controlling rods and adapted to swing into the path of the actuating member, swinging arms for
45 operating said dogs, solenoids for actuating said arms, a solenoid for operating said actuating member and a detaining and releasing latch device to co-act with said controlling rods.

9. The combination of a plurality of movable signs, an actuating member, controlling rods slidably arranged adjacent to the actuating member and adapted to operate said
50 signs, dogs carried by said rods and adapted to move into the path of said actuating member, latch projections upon said rods having
55 beveled faces and shoulders, a spring actuated and pivotally mounted latch bar to co-act with said latch projections and means

for operating said dogs and said actuating member. 60

10. The combination of a plurality of movable signs, an actuating member, a primary solenoid for operating said member, operating levers for said signs, controlling rods
65 slidably mounted adjacent to said actuating member and operatively connected to said levers, dogs pivoted to the controlling rods and adapted to move into the path of the actuating member, a plurality of secondary
70 solenoids for actuating said dogs, latch projections upon said controlling rods, a latch bar pivotally mounted and spring actuated to co-act with said latch projections, a plurality of normally closed switches having
75 actuating members arranged in the path of said controlling rods, a key-board including a plurality of circuit closing keys, and electric circuits including the primary and secondary solenoids, said switches and said circuit closing keys, substantially as described. 80

11. In a device of the character described, the combination of a plurality of movable signs, independent moving means for each of
85 the signs, a common actuating means for all of the moving means, an electrical device for operating said common actuating means, independent connecting means for each of the sign moving means to operatively connect them to the common actuating means,
90 electrical devices for actuating said connecting means, a holding means for maintaining any one of the signs in exposed position until another one is actuated to such position, a plurality of normally closed switches
95 adapted to be opened by said sign moving means, a key-board including a plurality of circuit closing keys, and electric circuits including said electrical devices, said switches and said circuit closing keys. 100

12. In a device of the character described, the combination of a plurality of movable signs, independent actuating levers for said signs, a reciprocatory actuating member, controlling rods slidably arranged adjacent
105 to said member and operatively connected to said levers, a dog on each of said rods to connect the same to said member, independent operating means for said dogs, a detaining and releasing latch device to co-act
110 with said rods and means for operating said actuating member.

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

GEORGE R. HOLLINGSWORTH.

Witnesses:

REINE BAER,
JAN H. DIK.