

E. E. BOYD.  
REVOLVING SIGN.

APPLICATION FILED JUNE 13, 1904.

2 SHEETS—SHEET 1.



**WITNESSES.**

J. R. Keller

G. Kremer.

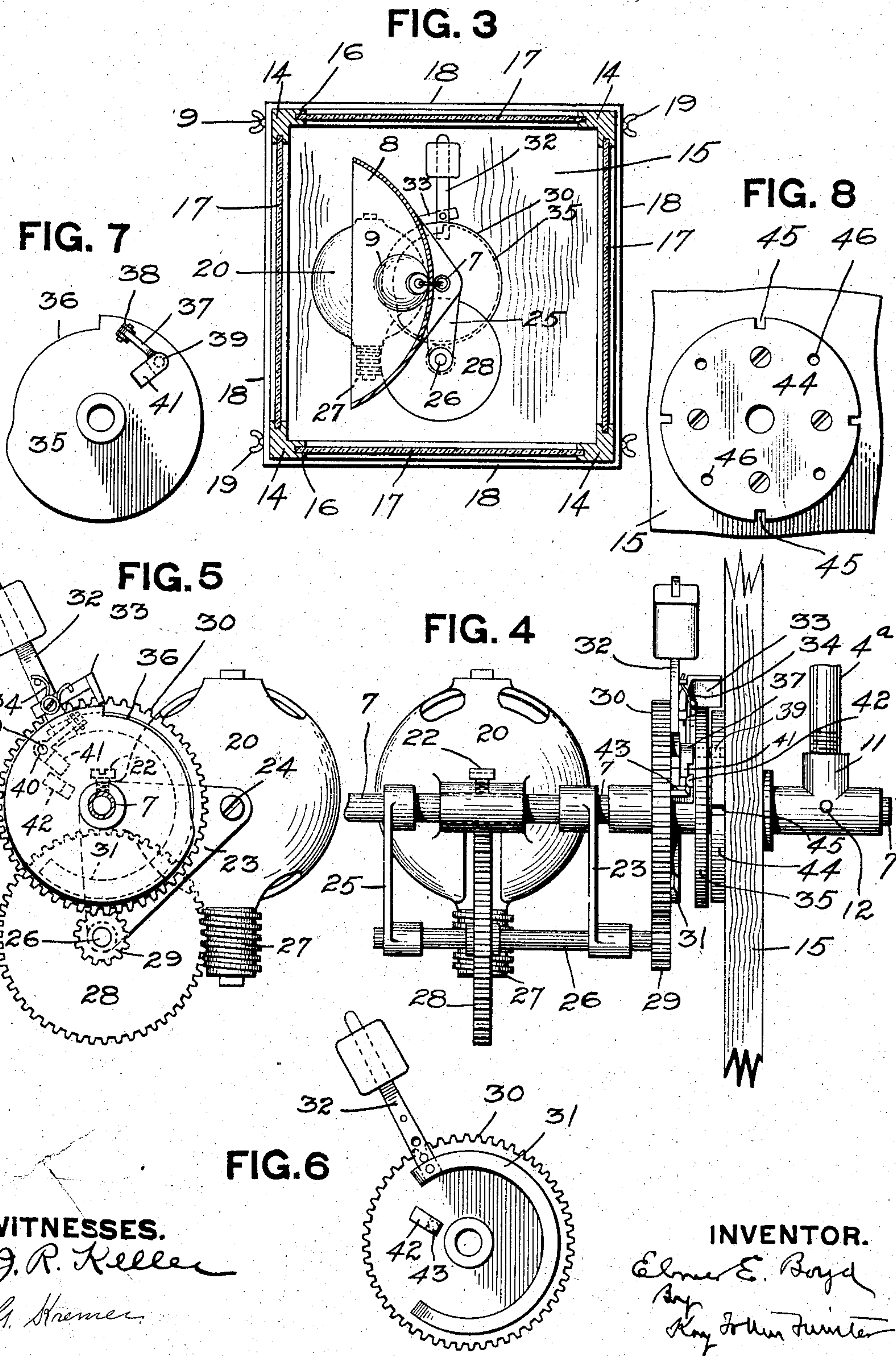
**INVENTOR.**

Elmer E. Boyd

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*G. Bremer*

INVENTOR.

*Elmer E. Boyd*  
*By Roy John Hunter*



# UNITED STATES PATENT OFFICE.

ELMER E. BOYD, OF ASPINWALL, PENNSYLVANIA.

## REVOLVING SIGN.

SPECIFICATION forming part of Letters Patent No. 791,606, dated June 6, 1905.

Application filed June 13, 1904. Serial No. 212,356.

*To all whom it may concern:*

Be it known that I, ELMER E. BOYD, a resident of Aspinwall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Revolving Signs; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to illuminated signs for advertising purposes, its object being to provide an attractive sign which may be used in shop-windows, places of amusement, in the open street, or other places where it is desired to attract the attention of the public.

To these ends my invention comprises the novel features hereinafter set forth and claimed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved sign. Fig. 2 is a longitudinal section thereof and the mechanism for operating the same. Fig. 3 is a section on the line 3-3, Fig. 1. Fig. 4 is an enlarged view of the mechanism for imparting an intermittent movement to said sign. Fig. 5 is an end view of same, and Figs. 6, 7, and 8 are details of the operating mechanism.

Like numerals indicate like parts in each of the figures.

In the accompanying drawings the numeral 2 designates a suitable bracket or support, which may be secured to the ceiling or other framework, said bracket having the tubular portion 3, within which the supporting-rods 4 4<sup>a</sup> fit, having a sliding movement therein. Set-screws 5 secure the rods 4 4<sup>a</sup> within the extensions 3, and by loosening said set-screws it is apparent that the sign may be raised or lowered, according to the height at which it is desired to support the same. The rods 4 4<sup>a</sup> are preferably formed of pipe, as such construction embodies a lighter framework and at the same time provides for the carrying of the electric wires, as hereinafter set forth.

Connected to one of the rods 4 is the T-coupling 6, which forms a support for one end of the shaft 7, formed of tubing. Secured to this tubing 7 is the reflector 8, which

is preferably approximately semicircular in form and constructed of suitable material so as to properly reflect the light from the incandescent bulbs 9 or other lights, which are supported at suitable intervals in said reflector. These electric bulbs 9 are supplied with electricity by means of the wires 10, which lead from a suitable dynamo and pass through one of the rods 4 and through the shaft or tube 7 to the reflector, where said wires are connected up with the bulbs therein. By this construction the wires 10 are concealed and protected by the pipe.

The depending rod 4<sup>a</sup> has a T-coupling 11 secured thereto, with which the opposite end of the shaft 7 engages, said shaft being secured by the pin 12 against rotation. By this construction the reflector 8 is held stationary, no rotary motion being imparted to said reflector by the revolution of the frame 13. The frame 13 is loosely mounted upon the shaft 7, so that said frame 13 is free to rotate independently of said reflector.

The frame 13 is constructed in the following manner: The frame illustrated is a four-sided one, although it is apparent that any number of sides may be employed, and it comprises the four bars or strips 14, secured at their ends to the end pieces 15. These bars may be formed of wood, or, if desired, of metal, and are provided with the grooves 16, which are adapted to receive the glass or other transparent plates 17, bearing the advertisements. These glass plates 17 are free to slide to and fro in the grooves 16, so that said plates may be removed and new ones substituted therefor bearing different forms of advertisements. In order to strengthen the construction, cap-pieces 18 may be employed which engage the ends of the frame and close the ends of the grooves 16, said cap-pieces having the thumb-screws 19, which secure them to the frame. By loosening these thumb-screws said cap-pieces may be removed, so as to permit of the withdrawing of the glass plates bearing the advertisement when it is desired to remove the same and insert new ones. By this construction the quick removal of the glass plates is provided for without removing the revolving frame from its support, so that the signs



may be changed often in a very short time and with very little effort.

Secured to the shaft 7 is the motor 20, which is supplied with power from the wires 10, passing through the shaft 7. The set-screw 22 secures the motor 20 rigidly to the shaft 7. Rigidly secured to the shaft 7 is the bracket 23, said bracket acting to assist in supporting the motor 20 by being connected thereto, as at 24. A bracket 25 is also secured to the shaft 7, said brackets 23 and 25 forming bearings for the shaft 26. A worm 27 on the motor-shaft engages the worm-wheel 28 on the shaft 26. A pinion 29 on the shaft 26 meshes with the gear-wheel 30, loosely mounted upon the shaft 7. On the inner face of the gear-wheel 30 is the camway 31. Secured to the gear-wheel 30 and projecting up therefrom is the weighted arm 32, which acts as a balance to keep the speed of the motor uniform. It is apparent that this weighted arm will act to control the speed of the motor from the fact that it will offer resistance when the gear-wheel 30 is not operating to turn the sign, and as a consequence the motor will have to perform substantially the same work whether the sign is being revolved or not. Secured to the arm 32 is the dog 33, controlled by the spring 34. Secured rigidly to the shaft 7 is the cam-plate 35, having the cam portion 36. Mounted on the cam-plate 35 is the latch 37, which is pivoted to lugs 38 on said cam-plate, said latch having the projection 39, which passes through the opening 40 in said plate. The latch 37 has also the tailpiece 41, which is adapted to engage the curved lug 42 on the projection 43 of the gear-wheel 30, so as to withdraw said latch, as fully hereinafter set forth. Secured to one of the end pieces 15 of the frame is the plate 44, said plate having the notches 45 and the openings 46. The notches 45 are arranged on the quarter with reference to said plate and the openings 46 located between the said notches.

When my improved sign is in use, the transparent plates bearing the advertisements desired are inserted in the frame and the lights turned on and power transmitted from the motor for rotating the frame. The power is transmitted from the motor through the worm 27, gear-wheel 28, and pinion 29 to the gear-wheel 30, which is loosely mounted on the shaft 7. As the gear-wheel 30 revolves the dog 33, traveling over the periphery of the cam-plate 35, arrives at the cam portion 36, whereupon the spring 34 forces said dog down, so that it engages one of the notches 45 in the plate 44. As the gear-wheel 30 continues to revolve the dog engaging the notch 45 in the plate 44 carries the said plate around and with it the frame 13. When the dog 33 passes beyond the cam portion 36 of the cam-plate 35, said dog will be forced out of engagement with the tooth 45 of the plate 44 and the camway 31 on the gear-wheel 30 will have come around in position to engage the latch 37 on the cam-plate

35, whereupon said latch will be operated so that its projection will enter one of the openings 46 in the plate 44, whereupon the frame 13 is locked against rotation, while the gear-wheel 30 continues to revolve until the dog 33 again approaches the cam portion 36 of the cam-plate 35, while at the same time the tail portion 41 of the latch 37 comes in contact with the curved lug 42 on the gear-wheel 30, which acts on the latch 37 to withdraw its projection 39 from the opening 46 in the plate 44. By this operation the plate 44 is freed from the stationary cam-plate 35 and is permitted to rotate again by being engaged by the dog 33, as before, so as to give another quarter-turn to the frame 13. In this manner by each revolution of the gear-wheel 30 the frame 13 is given a quarter-turn, so that the sign or advertisement remains displayed for sufficient length of time to give a passer-by opportunity to read the same, while at the same time it is operated at sufficient speed that it will begin to make another quarter-turn before the passer-by has passed, so as to attract his attention for the next advertisement.

By my invention I provide a revolving sign in which the parts for operating the same are all contained within the frame of the sign and are not exposed to view, so as to detract from the appearance of the sign, while at the same time where the sign is exposed in the open air the operating mechanism is protected from the weather, and when once the sign is put in operation no further attention need be paid to the same.

My improved sign is so simple in construction and mode of operation that it requires practically no attention after being put in operation, while at the same time by the manner of applying the lights within the sign great economy in the cost of operation results, as a few electric lights in a sign of considerable length will give most satisfactory results, and the sign may be operated all night and all day, if desired, at very small cost.

What I claim is—

1. In an advertising-sign, the combination of suitable supports, a stationary reflector carried by said supports, a rotatable frame carrying advertisements, and means for automatically imparting an intermittent rotary movement to said frame.

2. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, an electric motor on said shaft within said frame, mechanism within said frame for imparting a rotary movement to same, and connections between said motor and mechanism within said frame for imparting a rotary movement to said frame.

3. In an advertising-sign, the combination of suitable supports, a stationary hollow shaft, a rotatable box-like frame carrying advertise-



ments mounted on said shaft, an electric motor on said shaft within said frame, wires leading through said shaft to said motor, mechanism within said frame for imparting a rotary movement to same, and connections between said motor and mechanism within said frame for imparting rotary movement to said frame.

4. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, mechanism within said frame for imparting a rotary movement to same, and connections between said motor and mechanism within said frame for imparting an intermittent rotary movement to said frame.

5. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel adapted to engage said frame and means for throwing said dog out of engagement with said frame.

6. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a notched plate on said frame adapted to be engaged by said dog, and means for throwing said dog out of engagement with said plate.

7. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a notched plate on said frame having notches arranged on the quarter adapted to be engaged by said dog, and means for throwing said dog out of engagement with said plate.

8. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, and a notched plate on said frame adapted to be engaged by said dog.

9. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, a notched plate

on said frame adapted to be engaged by said dog, and means for locking said cam-plate to said notched plate.

10. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, a notched plate on said frame adapted to be engaged by said dog, a latch on said cam-plate adapted to engage said notched plate.

11. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, a notched plate on said frame adapted to be engaged by said dog, a latch on said cam-plate adapted to engage said notched plate and means on said gear-wheel for operating said latch.

12. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, a notched plate on said frame adapted to be engaged by said dog, a latch on said cam-plate adapted to engage said notched plate, a camway on said gear-wheel adapted to move in contact with said latch, and means for withdrawing said latch.

13. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, a notched plate on said frame adapted to be engaged by said dog, a latch on said cam-plate adapted to engage said notched plate, a camway on said gear-wheel adapted to move in contact with said latch, and a projection on said gear-wheel in the path of said latch.

14. In an advertising-sign, the combination of suitable supports, a stationary shaft, a rotatable box-like frame carrying advertisements mounted on said shaft, a motor on said shaft within said frame, a gear-wheel loosely mounted on said shaft, a dog carried by said gear-wheel, a cam-plate rigid on said shaft with which said dog engages, a notched plate on said frame adapted to be engaged by said dog, a latch on said cam-plate adapted to engage said notched plate, a camway on said



gear-wheel adapted to move in contact with said latch, a weighted arm on said gear-wheel, and means for withdrawing said latch.

15. In an advertising-sign, the combination  
5 of supports one of which is hollow, a hollow shaft connected to said hollow support, an electric motor on said shaft, wires passing through said hollow support and through said shaft to said motor, a rotatable box-like frame

inclosing said reflector and motor and connections between said motor and mechanism for imparting a rotary movement to said frame.

In testimony whereof I, the said ELMER E. BOYD, have hereunto set my hand.

ELMER E. BOYD.

Witnesses:

GEORGE H. RANKIN.

ROBT. D. TOTTEN.