W. ZABEL.

SIGNAL.

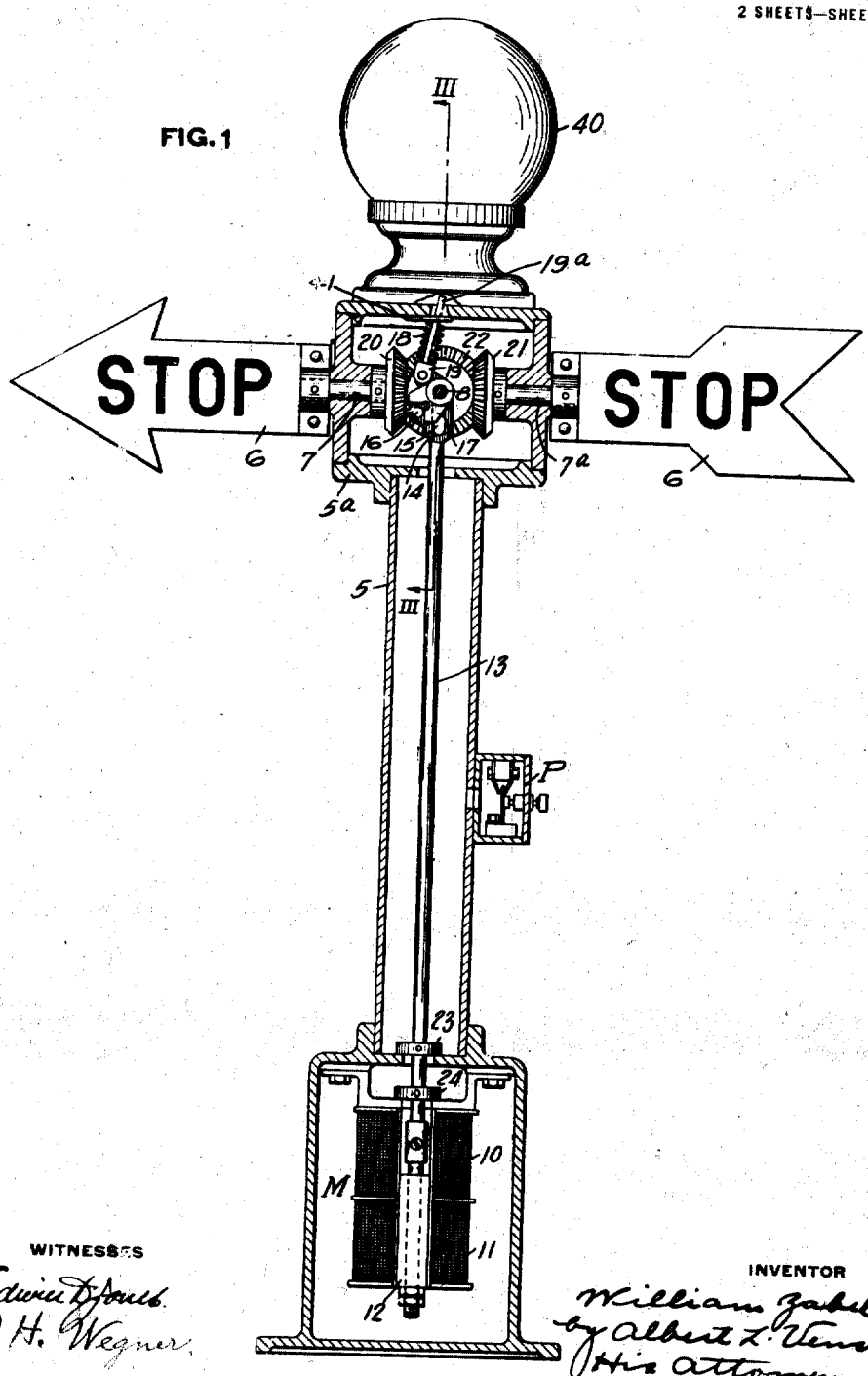
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1,234,249.

Patented July 24, 1917.

2 SHEETS—SHEET 1.

FIG. 1



WITNESSES

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INVENTOR

William Zabel

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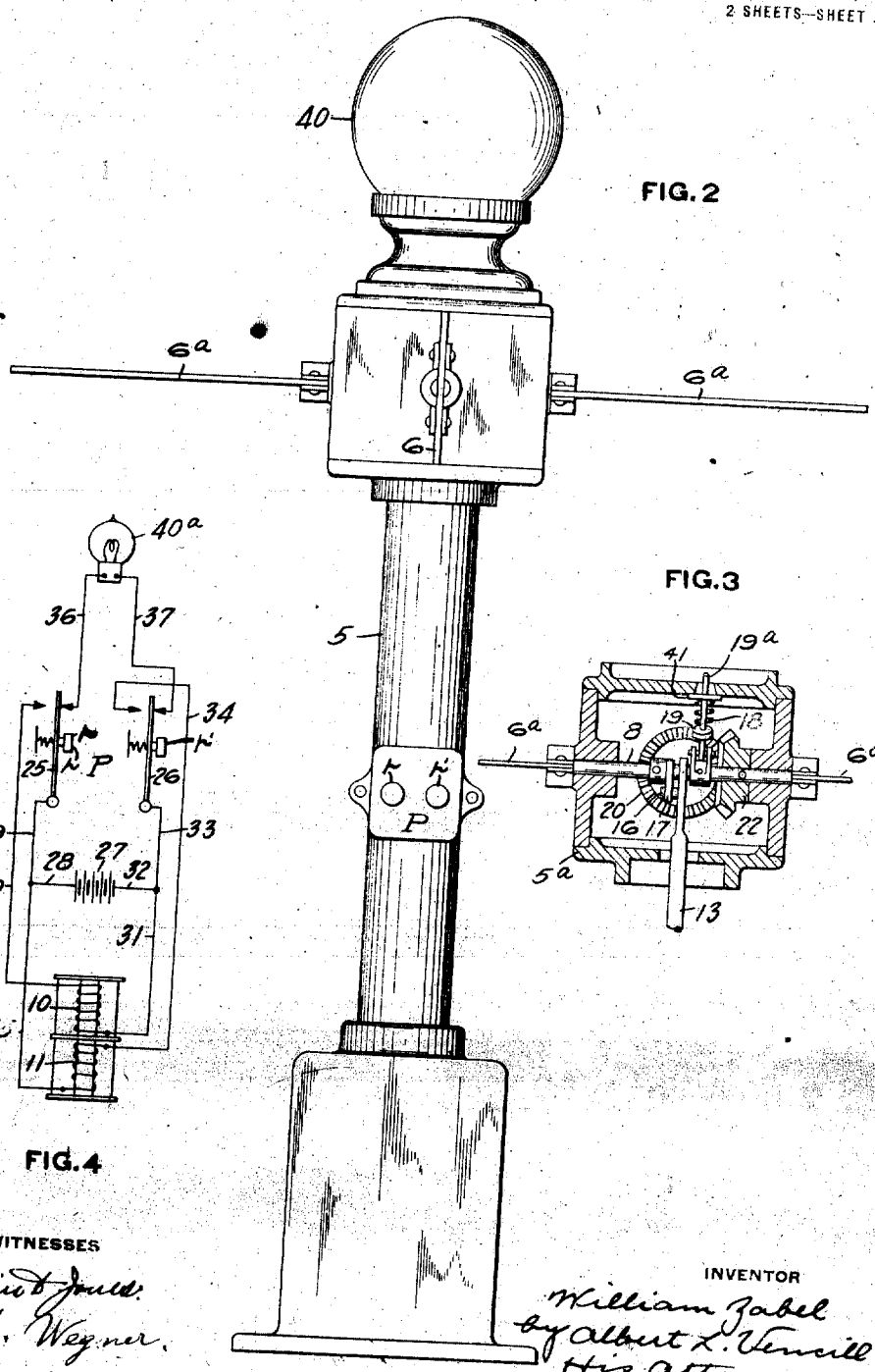


FIG. 2

FIG. 4

FIG. 3

WITNESSES

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SIGNAL.

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Application filed September 5, 1916. Serial No. 118,324.

To all whom it may concern:

Be it known that I, WILLIAM ZABEL, a citizen of the United States, residing at 174 Lloyd St., Edgewood Borough, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Signals, of which the following is a specification.

My invention relates to signals, and particularly to traffic-direction indicating signals for intersections of city streets, highways, etc.

One object of my invention is the provision of a signal simple in construction, and the moving parts of which are light in weight so that the signal can be operated with a minimum consumption of power.

I will describe one form of signal embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawings, Figure 1 is a view showing in front elevation, partly sectioned, one form of signal embodying my invention; Fig. 2 is a view showing in side elevation the signal shown in Fig. 1; Fig. 3 is a sectional view on the line III—III of Fig. 1 looking in the direction indicated by the arrows; Fig. 4 is a diagrammatic view showing one arrangement of circuits for the operation and control of the signal shown in the preceding views.

Similar reference characters refer to similar parts in each of the views.

Referring to Figs. 1, 2 and 3, the reference character 5 designates a support or casing in which all the other parts of the signal are mounted. As here shown, this casing is arranged to stand on the ground, but it is understood that it may equally well be designed for suspension from a pole or other structure above the street level. Mounted in the casing 5, and at right angles to each other, are two direction-indicating devices 6 and 6^a, each of which devices is arranged to oscillate on a horizontal axis. As here shown, device 6 comprises two members located one on each side of a box 5^a constituting part of the casing 5; the two members being fixed respectively to two shaft sections 7 and 7^a, which are in axial alinement and are journaled in suitable bearings in the box 5^a. The other direction-indicating device 6^a also comprises two members located respectively on opposite sides of the box 5^a, but these members are both fixed to a single shaft 8 which extends through the box 5^a.

The shaft 8 is interlocked with the two shaft sections 7 and 7^a in the manner which I will now explain. Fixed to shaft section 7 is a bevel gear 20, and fixed to shaft section 7^a, is a similar bevel gear 21. These gears both mesh with a bevel gear 22 which is fixed to the through shaft 8. It will be seen, therefore, that if shaft 8 is rotated, shaft 7 will be rotated in one direction and shaft 7^a will be rotated in the other direction. As here shown, each member of each direction-indicating device is flat, although I do not wish to limit myself to this construction, and the shafts are interlocked in such relative manner that when the two members 6 are in the vertical plane both members 6^a are in the horizontal plane, and when members 6 are in the horizontal plane, both members 6^a are in the vertical plane. The two members of each device may be constructed so that the device has the appearance of an arrow as shown, and the word "Stop" may be painted thereon as a further indication if desired. It will now be seen that if a pedestrian or a driver of a vehicle approaches the signal from the direction in which Fig. 1 is taken and the indicating devices are in the positions shown in that view, information is given that traffic is then in the other direction and that such person should stop; when, however, devices 6 and 6^a are reversed, the signal will have the appearance of Fig. 2, indicating to the person approaching the same that traffic is in the direction in which he is proceeding and that it is therefore safe for him to cross the street intersection.

The direction-indicating devices may be operated by any suitable type of motive device. As here shown they are operated by a solenoid device comprising two solenoids 10 and 11 and a plunger 12. The plunger is attached to the lower end of a rod 13 which extends upward through the casing and is formed at its upper end into a head 14 having a slot 15 which fits loosely over the shaft 8. This head is provided with a pin or stud 16 which coacts with a jaw 17 attached rigidly to the shaft 8. When the parts are in the positions shown in Fig. 1, upward movement of the rod 13 will cause rotation of shaft 8 in clockwise direction owing to the coaction of stud 16 and

jaw 17. The oscillations of shaft 8 are limited by two collars 23 and 24 fixed on rod 13, which collars are so located that shaft 8 can oscillate through an angle of 90°, that is, through such an angle that device 6ª moves from the horizontal to the vertical position. Shaft 8 is held firmly in each extreme position by a spring 18, one end of which abuts against a washer 41 slidable against the top of the box 5ª and the other end of which abuts against a block 19 pivotally attached to the jaw 17. Integral with the block 19 is a rod 19ª which serves as a guide for the spring.

The solenoid device M is controlled by a circuit controller P comprising two separate contact fingers 25 and 26 (see Fig. 4) having separate push buttons p and p^1. With the parts in the position shown, if contact 25 is pushed inwardly, the upper solenoid 10 will be energized through a circuit from battery 27 through wires 28 and 29, contact 25, wire 30, solenoid 10, wires 31 and 32 to the battery. Solenoid 10 when thus energized raises plunger 12, and so swings device 6 to the horizontal position and device 6ª to the vertical position. During this movement spring 18, is, of course, compressed and toward the end of the movement this spring, which has then passed the dead-center position, assists solenoid 10 in swinging the indicating members to their final positions; this spring also holds the members firmly in position after solenoid 10 is deënergized by the removal of pressure from contact finger 25.

When it is desired to swing the indicating devices back to the positions in which they are shown in the drawings, contact 26 is pushed inwardly thus energizing solenoid 11 through the following circuit: from battery 27, through wires 32 and 33, contact 26, wire 34, solenoid 11, wires 35 and 28, to battery 27. Solenoid 11 being thus energized draws plunger 12 downwardly and pin 16 coacts with jaw 17 to swing shaft 8 counterclockwise as viewed in Fig. 1, thus returning members 6 to the vertical position and members 6ª to the horizontal position. These members are held firmly in their respective positions by spring 18 after the solenoid circuit is opened by releasing contact 26.

Mounted on the top of the casing 5 is a globe 40, which contains an incandescent lamp 40ª, shown in Fig. 3. This lamp is illuminated through a circuit which is closed only when push button contacts 25 and 26 are in their normal positions, the circuit being from battery 27, through wires 32 and 33, contact 26, wire 37, lamp 40ª, wire 36, contact 25, wires 29 and 28, to battery 27. It will be seen that this lamp is normally illuminated but is momentarily extinguished each time that either contact 25 or 26 is operated to reverse the signal. This momentary extinguishing of the lamp serves to call attention to the fact that the direction of traffic permitted by the signal is being reversed. It will be understood, however, that the lamp and its connections can be dispensed with if desired.

Although I have herein shown and described only one form of signal embodying my invention, it is understood that numerous changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

1. A street traffic signal comprising two horizontally disposed shafts, one of which is in two sections, a bevel gear fixed to the undivided shaft, two bevel gears fixed respectively to the two sections of the divided shaft and meshing with the first mentioned gear, means for oscillating one of said shafts, and direction-indicating devices attached to said shafts.

2. A street traffic signal comprising two horizontally disposed shafts, means for interlocking said shafts, a longitudinally reciprocable rod, a pin and jaw connection between said rod and one of said shafts whereby reciprocation of the rod causes oscillation of the shafts, means for reciprocating said rod, and direction-indicating devices attached to said shafts.

3. A street traffic signal comprising two direction-indicating devices mounted substantially at right angles and arranged to oscillate around horizontal axes, means for oscillating said devices simultaneously about said axes, means for limiting the angle through which said devices may oscillate, and a spring device for holding said devices in each extreme position.

4. A street traffic signal comprising two horizontally disposed shafts, means for interlocking said shafts, a longitudinally reciprocable rod, a pin and jaw connection between said rod and one of said shafts whereby reciprocation of the rod causes oscillation of the shafts, two solenoids, a plunger controlled thereby and attached to said rod for shifting said rod in one direction or the other according as one solenoid or the other is energized, means for energizing one solenoid or the other, and direction-indicating devices attached to said shafts.

5. A street traffic signal comprising two horizontal shafts disposed substantially at right angles, two intermeshing gears one attached to each shaft whereby said shafts are interlocked to oscillate in unison, means for oscillating said shafts, and direction-indicating devices attached to said shafts.

6. A street traffic signal comprising two horizontal shafts disposed substantially at

right angles and located in the same horizontal plane, means for oscillating said shafts simultaneously, and direction-indicating devices attached to said shafts.

7. A street traffic signal comprising two direction-indicating members mounted to oscillate about horizontal axes in the same horizontal plane, and disposed at substantially right angles, and means for oscillating said members simultaneously about said axes.

8. A street traffic signal comprising two horizontal shafts disposed substantially at right angles and located in the same horizontal plane, one of said shafts being in two sections between which the other shaft passes, means for oscillating said shafts simultaneously, and direction-indicating devices attached to said shafts.

9. A street traffic signal comprising two direction-indicating devices mounted to oscillate about horizontal axes in the same horizontal plane and disposed substantially at right angles, one of said devices being in two sections between which the other passes, and means for causing simultaneous oscillation of said devices about said axes.

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

WILLIAM ZABEL.

Witnesses:
A. HERMAN WEGNER,
R. L. KISTLER.