

April 7, 1925.

1,532,452

G. C. SPALLER

TRAFFIC SIGNAL

Filed May 12, 1923

5 Sheets-Sheet 1

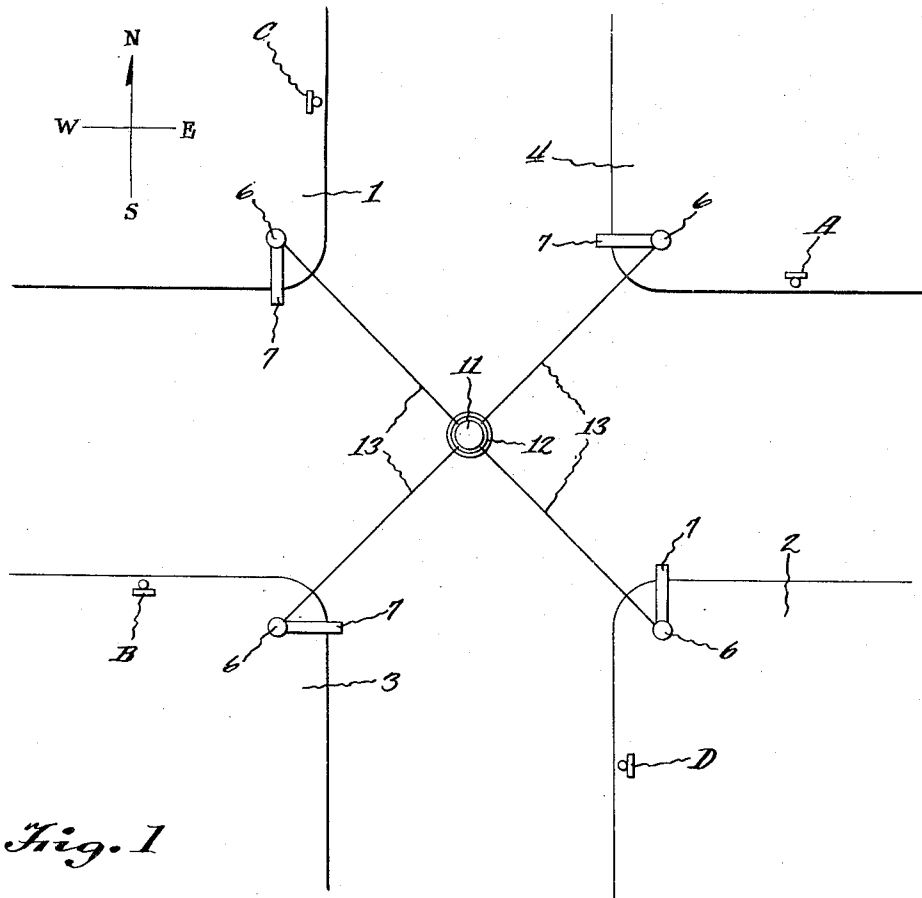


Fig. 1

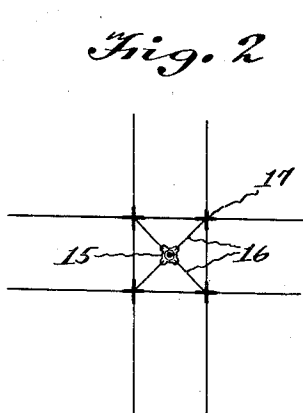


Fig. 2

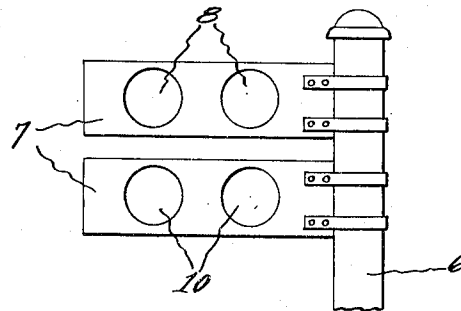


Fig. 3

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5 Sheets-Sheet 2

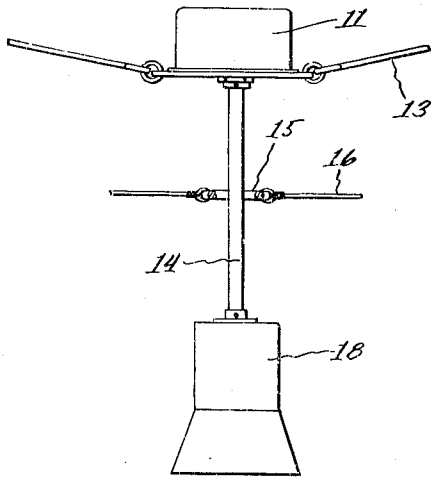


Fig. 4

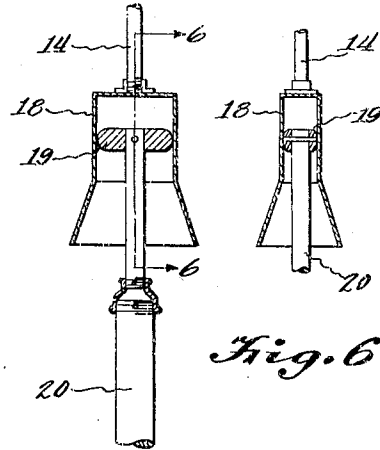
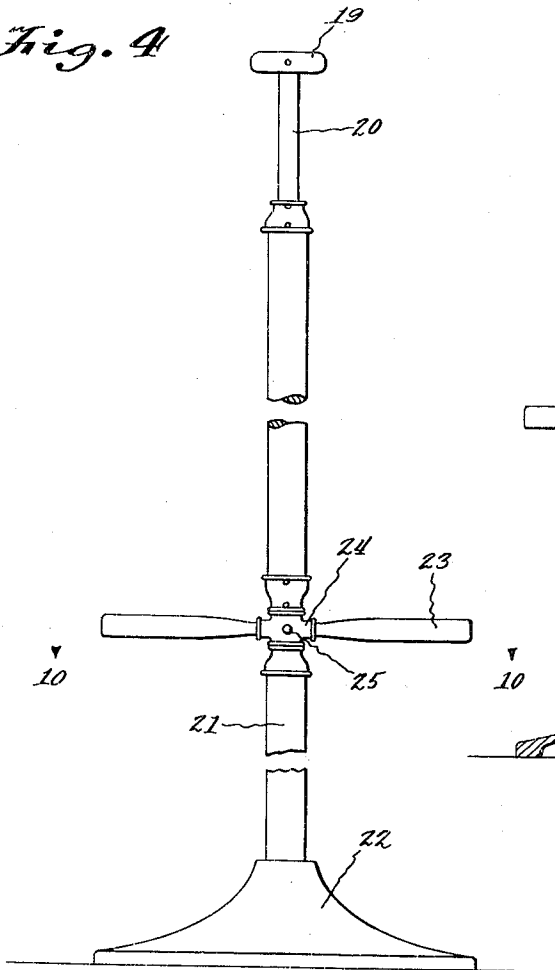
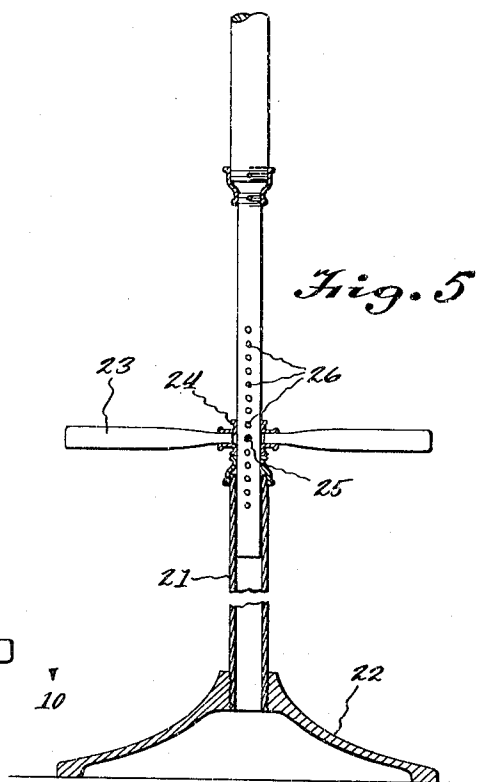


Fig. 6



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Fig. 7

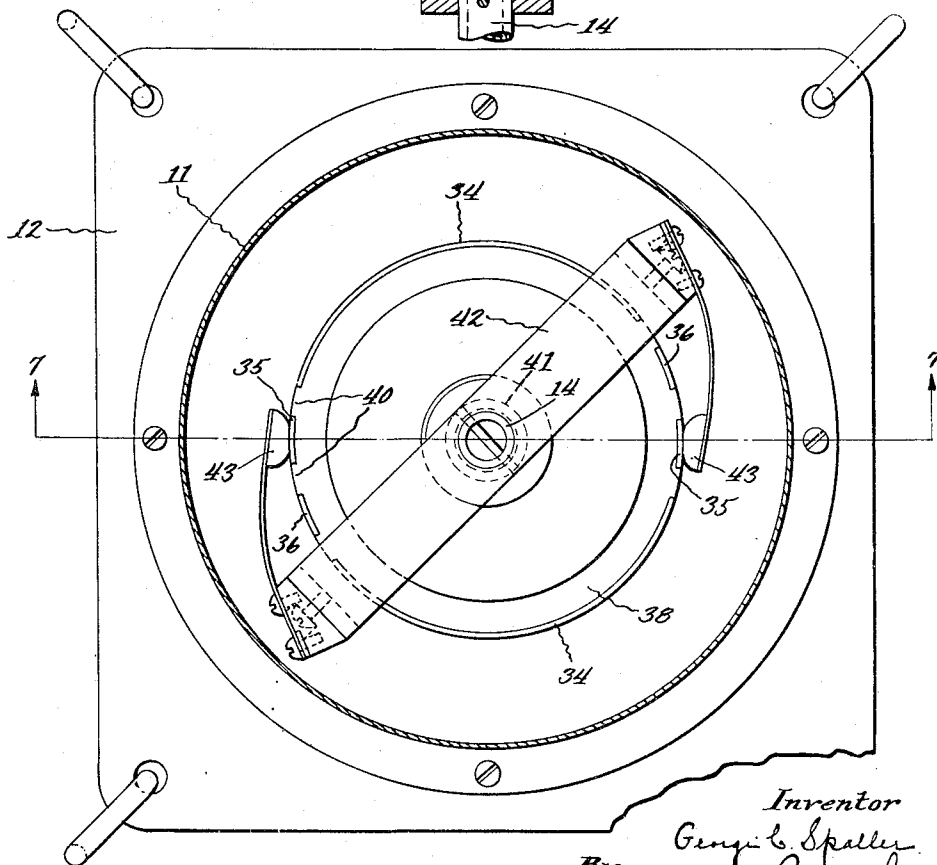
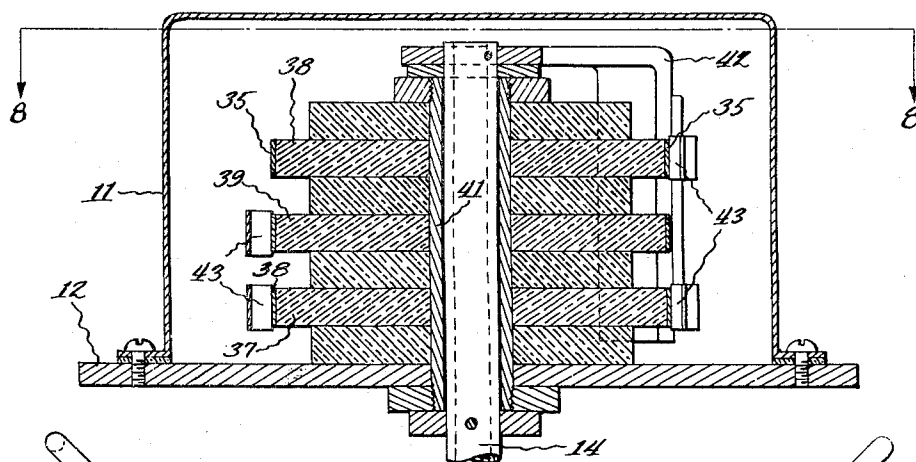


Fig. 8

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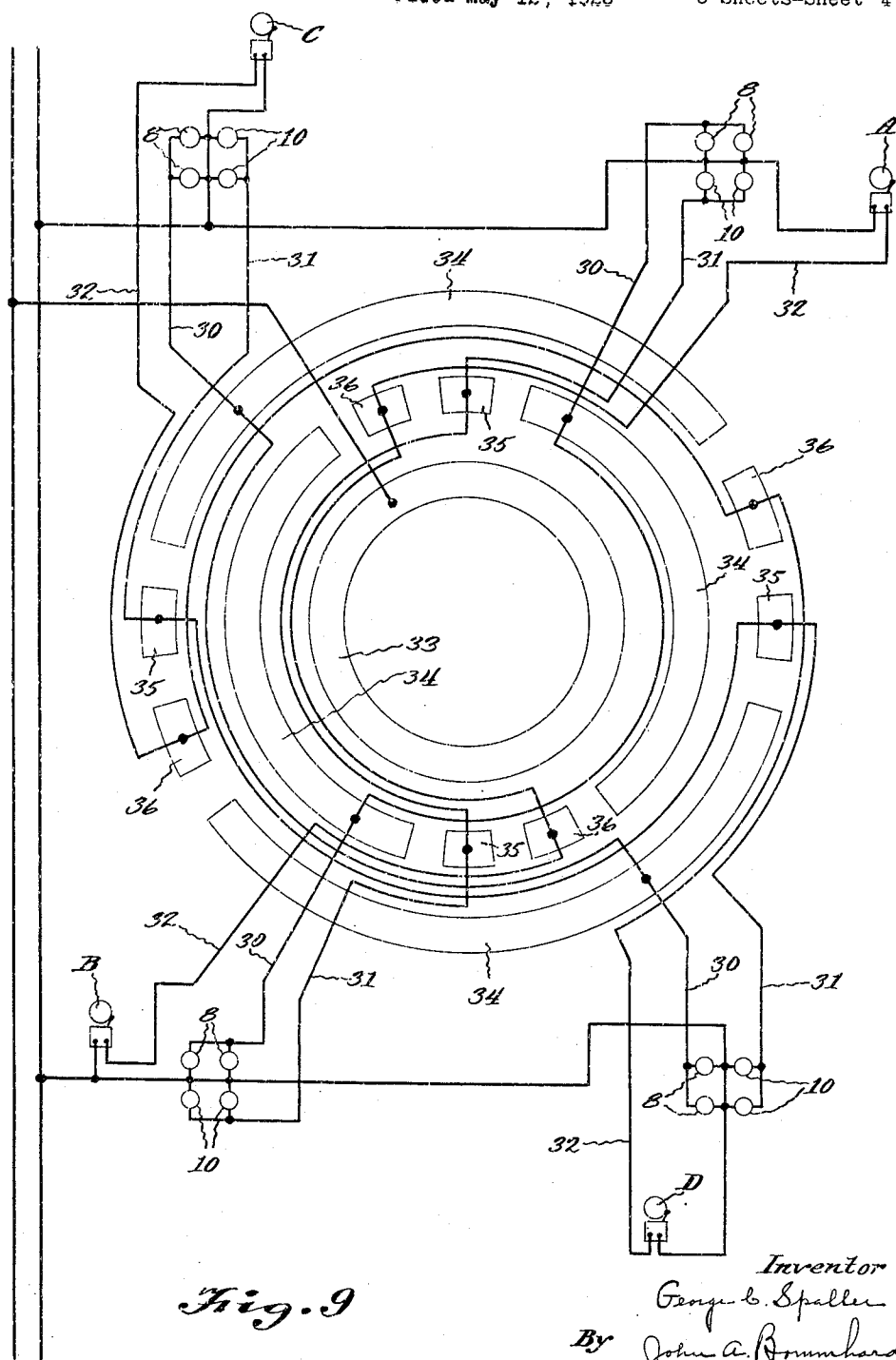
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1,532,452

TRAFFIC SIGNAL

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Fig. 10

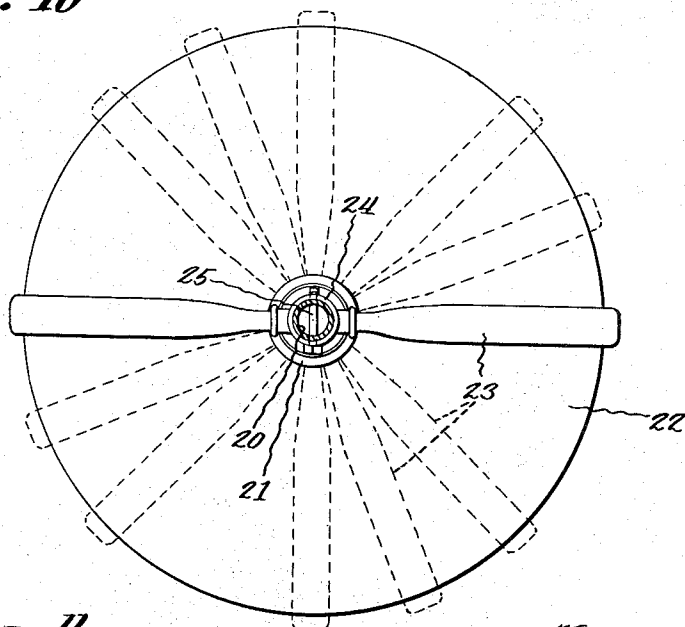


Fig. 11

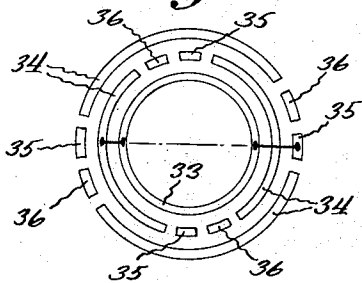


Fig. 12

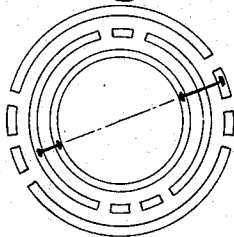


Fig. 13

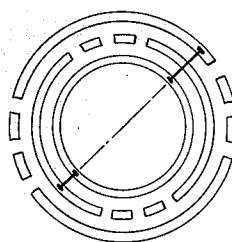


Fig. 14

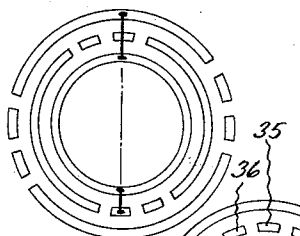


Fig. 15

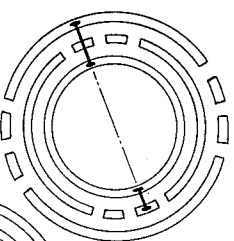


Fig. 16

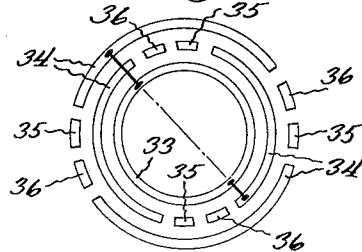
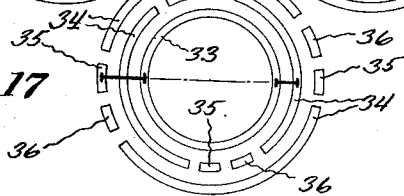


Fig. 17



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UNITED STATES PATENT OFFICE.

GEORGE C. SPALLER, OF CLEVELAND, OHIO.

TRAFFIC SIGNAL.

Application filed May 12, 1923. Serial No. 633,536.

To all whom it may concern:

Be it known that I, GEORGE C. SPALLER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Traffic Signals, of which the following is a specification.

This invention relates to traffic signals and has for its object to provide an improved traffic signal which can be operated to show lights in various directions at the intersection of streets for the purpose of controlling and indicating the direction of traffic, including also warning bells which indicate an imminent change of signals.

The traffic is controlled by an officer stationed at a stand at the middle of the intersection, the stand being provided with a handle whereby it may be turned, and the handle is operatively connected to a switch which is suspended above the stand, as by wires connected to poles or posts on the corners.

The stand is so constructed that it can be removed when the officer is not on duty, leaving the switch suspended over the intersection. For this purpose, the stand has a telescopic post which may be extended, after being set in place, to engage with the switch devices. Or the post can be retracted to permit removal of the stem.

The signals include red and green lights mounted on semaphores at the corners, the red signalling "Stop" and the green signalling "Go." Other colors may be substituted, such as white for green.

The construction and operation will be more fully apparent from the following description and the accompanying drawings in which Fig. 1 is a diagram in plan of the system at the intersection of the streets. Fig. 2 is a plan showing the manner of guiding the switch. Fig. 3 is an elevation of one of the signal post heads or semaphores. Fig. 4 is an elevation showing the stand disconnected from the switch. Fig. 5 is a section showing the same connected. Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 is a section of the switch, on the line 7—7 of Fig. 8. Fig. 8 is a section on the line 8—8 of Fig. 7. Fig. 9 is a wiring diagram. Fig. 10 is a section on the line 10—10 of Fig. 4. Figs. 11 to

17 are diagrams illustrating different positions of the switch.

In the drawings, 1, 2, 3 and 4 indicate the four stations on the corners at which the lights are exhibited, the lights at station 1 being for the west-bound traffic, at station 2 for the east-bound traffic, at station 3 for the south-bound traffic, and at station 4 for the north-bound traffic, and at the various corners are located warning bells A, B, C, and D, which form part of the system.

At each corner is a post 6 having an arm or semaphore 7 showing red lights 8 and another arm or semaphore showing green lights 10. It will be noticed that these arms at their respective stations project at a right angle to the direction of the respective traffic lines. The signals at station 1, for instance, will be seen by traffic going west, and so on.

The switch box 11 is mounted on a plate 12 supported by wires 13 running to the posts 6, or other convenient supports, and from the switch box depends a stem or rod which is rotatable and which extends through a guide ring 15 supported by wires 16 connected to trolley wire cross heads 17 or to other posts to the corners. These parts may be varied as local conditions may require.

At the lower end the shaft or rod 14 has a cap or housing 18 which is oblong in horizontal section, or elongated one way to receive a cross head 19 at the top of the stand rod or pipe 20 to the lower end of which telescopes into a tubular standard 21 supported by a base 22, the rod 20 being provided with handles 23 whereby it may be turned, the handles projecting from a cross fitting 24 which rests on the tube 21 and connected to the rod by a pin 25 fitting in any one of a series of holes 26. By removing the pin, the rod 20 may be lifted to engage its head 19 in the socket or cap 18, as shown in Fig. 5, whereby, when the stand rod is turned the switch stem will also turn. Or the rod may be dropped to disengage the same from the cap, whereupon the stand may be removed, as when the officer goes off duty, leaving the switch box suspended in the air.

The lamps at the respective corners may

be connected to the switch by any suitable system of wires such as illustrated in Fig. 9, and within the mechanical skill of any electrician, the wires being conveniently strung along the cables 13 and embodying circuits 30 to red lights, 31 to the green lights, and 32 to bells at the respective corners. The circuits are all connected to a live ring 33 leading from a suitable source of current and which is always in contact, and the various segmental contacts in the switch, leading to the respective lights and bells, the red segments being indicated at 34, the green segments at 35 and the bell segments 36. The ring 33 is mounted on a circular disc 37 of insulating material; the east and west segments 34, 35 and 36 are mounted on a circular disc 38 of insulating material, the corresponding north and south segments are mounted on a circular disc 39 of insulating material, these discs being separated by insulating spacers 40 and all being mounted on a sleeve 41 fixed upon the base plate 12 of the switch box. The shaft 14 turns within this sleeve and carries arms 42 projecting in opposite directions, and these arms carry brushes 43 which are electrically connected to each other, one brush of each arm being at all times in contact with the live ring 33, and the other brush of each arm respectively contacting with the segments on the discs 38 and 39 respectively, whereby the circuit is completed from the ring 33 through the brushes to the corresponding segments with which the other brushes may be in contact, and closing the circuits to the lights and the bells accordingly.

The operation will be understood from the diagrams, Figs. 11 to 17. In the position shown in Fig. 11, for traffic going east and west, green lights will be shown at stations 1 and 2, permitting it to go, and red lights will be shown at stations 3 and 4, stopping the north and south traffic. By moving the handle 23, to turn the switch to the position shown in Fig. 12, bells A and B will be rung, warning east and west traffic that there is going to be a change of traffic signals, the red lights at stations 3 and 4 however, remaining lighted. Further turn of the switch to the position shown in Fig. 13 closes all the red light circuits, thus holding all traffic until all the vehicles are off the intersection or until the traffic officer wishes to start traffic. Further turn of the switch to the position shown in Fig. 14 shows green at stations 3 and 4, starting north and south traffic, and shows red at 1 and 2, holding east and west traffic. The next position, Fig. 15, rings the warning bells at C and D for the north and south traffic which is moving, indicating that there is going to be a change, the red lights at 1 and 2 remaining. In the next position, shown in Fig. 16, all

of the reds are on to stop traffic in all directions; and the next position, as in Fig. 17, shows the east and west "Go" lights and the north and south "Stop" lights, the same as in Fig. 1. And so the operation can proceed indefinitely by continued rotation of the switch. Or it can be turned backwardly with corresponding changes as desired.

The arrangement permitting removal of the stand is advantageous for periods when the officer is on or off duty, and the stand can be quickly set up and connected to the switch. A suitable controlling switch can be placed in the main circuit to put out all lights when the officer is not on duty. Various modifications of structure are permissible within the scope of the invention and no limitation in this respect is implied.

I claim:

1. In a traffic signal system the combination of an overhead switch and a removable switch operating stand engageable with said switch and adapted to operate the same.
2. In a traffic signal system, the combination of an overhead switch and a removable switch operating stand engageable with said switch and adapted to operate the same, the switch being suspended, and the stand having a device constructed to engage with the switch and operate the same when the stand is set up under the switch.
3. In a traffic signal system, the combination of an overhead switch and a removable switch operating stand engageable with said switch and adapted to operate the same, the switch being suspended, and the stand having a device constructed to engage with the switch and operate the same when the stand is set up under the switch, the stand being extensible to engage said device with the switch.
4. In a traffic signal system, the combination of an overhead switch and a removable switch operating stand engageable with said switch and adapted to operate the same, the stand having telescopic sections whereby it may be extended to engage with the switch when in position.
5. In a traffic signal system, the combination of a switch and a removable switch operating stand engageable with said switch and adapted to operate the same, the switch being suspended overhead and the stand being adapted to be set up thereunder, the switch and stand having interengaging members to operatively connect the same when the stand is set up, the switch having a depending shaft with a socket at the lower end thereof, and the stand having a rotatable rod engageable in said socket to connect the stand with the switch.
6. In a traffic signal system for intersections, the combination of a switch suspended over the intersection and means engageable with the switch to turn the same said means

including a stand having a rotary member engageable with the switch.

7. In a traffic signal system for intersections, the combination of a switch suspended
5 over the intersection, and means engageable with the switch to turn the same said means including a stand having a rotary member engageable with the switch, said stand being

removable to disengage said member from the switch.

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

10

GEORGE C. SPALLER.

Witnesses:

JOHN A. BOMMARDT,
BESSIE F. POLLAK.