Sept. 19, 1950 D. G. CHAKIRIS 2,522,930

SIGNALING SYSTEM FOR DRIVE-IN THEATERS

Filed July 12, 1949

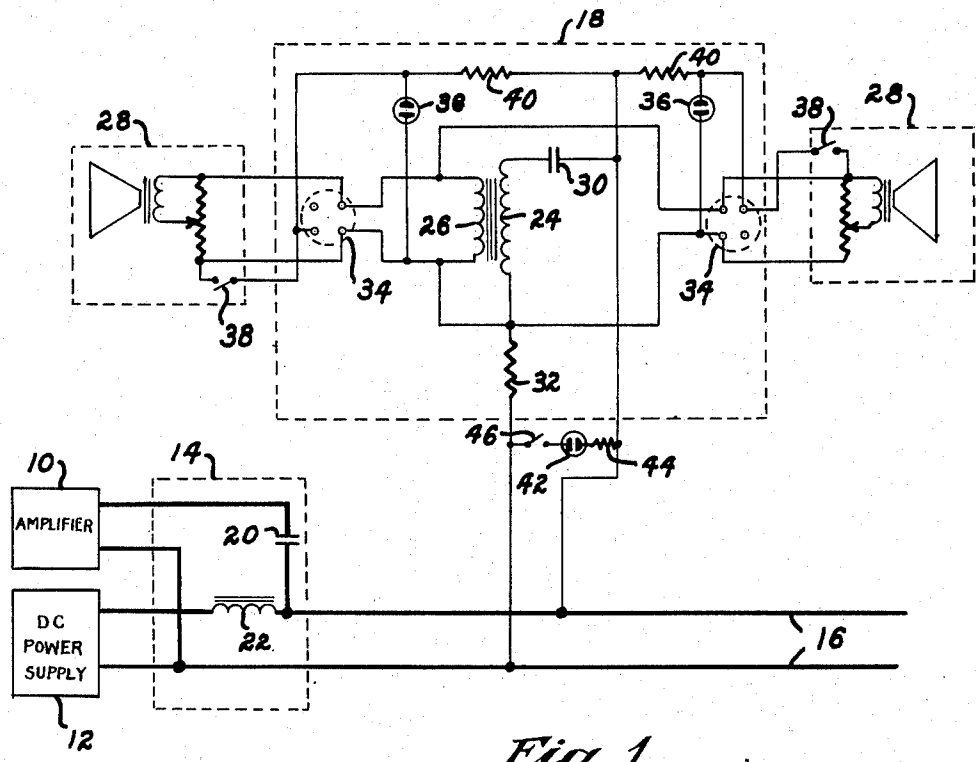


Fig. 1.

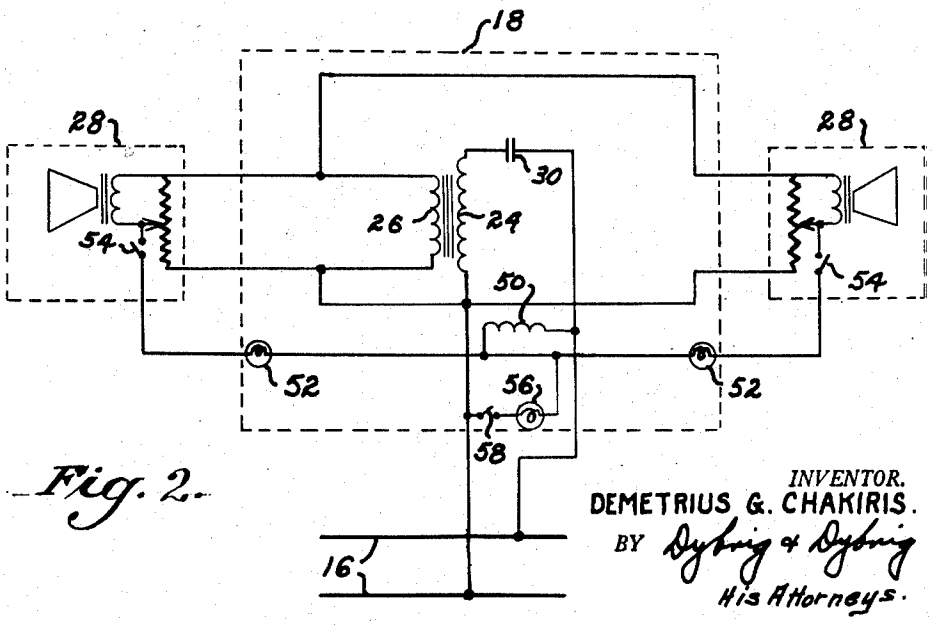


Fig. 2.

INVENTOR.
DEMETRIUS G. CHAKIRIS.
BY Dybvig & Dybvig
His Attorneys.

Patented Sept. 19, 1950 2,522,930

UNITED STATES PATENT OFFICE

2,522,930

SIGNALING SYSTEM FOR DRIVE-IN THEATERS

Demetrius G. Chakiris, Dayton, Ohio, assignor to Autocrat Inc., Dayton, Ohio, a corporation of Ohio

Application July 12, 1949, Serial No. 104,358

12 Claims. (Cl. 179—2)

1

This invention relates to a signaling system and more particularly to a signaling system of the type used in drive-in theaters and the like. It has been found that the patrons of drive-in theaters have their appetites greatly increased as they sit out in the open air watching a movie and that one of the large sources of income in a drive-in theater is obtained by selling peanuts, popcorn, pop, candy, et cetera to the patrons. However, the problem of finding out which patrons in an unlighted drive-in theater want service is a difficult one.

Various signaling arrangements have now gone into rather extensive use including the signaling arrangement shown and claimed in copending application Serial No. 74,802, filed February 5, 1949, of which I am one of the inventors. Various arrangements are shown in said copending application for supplying power for operating individual signal lights arranged throughout the parking area. The one arrangement utilizes power from the amplifier system for energizing small neon signal lights. This system furnishes a flickering light which is operative at all times while sound waves are being supplied to the speaker system, but such lights do not function for short periods of time when there is silence. Another arrangement disclosed therein contemplates the use of additional conductor means for supplying a separate source of power for operating the signal lights. The need for such additional conductor means increases the cost of the wiring installation for any theater and in the case of theaters which have already been installed without a signaling system, it practically necessitates a complete rewiring job which is almost prohibitive from a cost standpoint. It is an object of this invention to provide a signaling system which uses the existing speaker circuits for distributing unfailing power to the signals.

More particularly, it is an object of this invention to provide an arrangement in which a two wire system is used for distributing both direct current power for operating various signal and guide lights throughout the parking area as well as for distributing the output of the main amplifier to the loud speakers disposed in the cars.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

In the drawings:

Figure 1 diagrammatically shows the circuit

2

arrangement used for supplying direct current power and audio signals from a central point in an outdoor theater to the loud speaker stations located throughout the parking area; and

Figure 2 is a fragmentary circuit diagram showing circuit details used for signal lights of the incandescent type.

Referring now to the drawings wherein I have diagrammatically shown a preferred circuit arrangement, reference numerals 10 and 12 designate respectively the main amplifier and a source of pure direct current power and reference numeral 14 designates a mixing unit wherein the audio signals and the direct current power are mixed and fed into the distribution lines 16 which lead from the mixing unit to the various loud speaker stations or junction boxes 18 located throughout the theater. The direct current power supply may be of any type such as the well-known storage batteries, rectifiers, etc. For purposes of simplifying the circuit diagram, only one of the loud speaker stations has been shown, whereas one speaker station would be provided for each pair of parking spaces in accordance with standard practice.

The mixing unit 14 includes a blocking condenser 20 which serves to prevent the flow of direct current from the power supply source 12 to the power amplifier 10. An audio frequency choke 22 has been provided in the circuit, as shown, so as to prevent the flow of audio signals from the amplifier to the direct current power supplying means 12. By virtue of the above described arrangement, it is obvious that the conventional main power lines 16 have supplied thereto both audio signals and direct current power so that each of the speaker stations 18 is supplied with direct current power for operating various lights such as signal lights, guide lights, et cetera.

Each speaker station comprises a transformer having a primary coil 24 and a secondary coil 26. One or more speaker units 28 are connected in circuit with the secondary coil 26 so as to be energized thereby in accordance with standard practice. A blocking condenser 30 is provided in the connection from the main power line 16 to the primary coil 24 so as to prevent the flow of direct current power through the transformer. The usual safety limiting resistor 32 has been provided in the line leading to one side of the transformer coil 24 so as to prevent excessive flow of current to the transformer in the event of a short-circuit in one of the speaker lines or the like. The loud speaker units 28 are con-

nected to the secondary coil of the transformer through conventional plug and socket units designated by the reference numeral 34.

As indicated in Figure 1 of the drawings, three wires lead from each junction box or speaker station to each speaker unit. Each speaker station serves the two cars which are parked on either side of the junction box. Neon signal lights 36 have been provided in the circuit, as shown, for giving signals when the occupants of one or the other of the cars parked next to the speaker station desire to attract the attention of a car hop. One light 36 is provided for each speaker or each car parked in the theater and each of the lights 36 is under control of a switch 38 mounted on the adjacent speaker. These lights are preferably located on the junction box in which the transformer is located. The arrangement of the switch 38 is such that closing of the same places a direct short across the neon lamp and thereby extinguishes the light.

Suitable limiting resistors 40 have been provided in the neon lamp circuit so as to prevent excessive flow of current when the control switches 38 are closed. In some theaters guide lights, such as the light 42, are provided adjacent each speaker station. These lights remain on at all times when the theater is in use and serve the purpose of guiding the patrons to the parking spaces provided adjacent the speaker stations. The guide lights 42 may be directly connected across the main power lines, as shown, through a limiting resistor 44. For purposes of illustration, I have shown a switch 46 in series with the guide light 42. The switch 46 may be omitted in those installations where it is desired to have the guide lights 42 show up at all times. The switch 46 may be a manually operated switch or it may be a relay operated switch controlled from the operating booth. In some installations it may be desired to use treadle switches mounted in the parking spaces which operate to shut off the guide light just as soon as the parking spaces adjacent the speaker station are occupied.

In Figure 2 of the drawings I have shown a slightly modified wiring diagram for use when incandescent lamps are substituted for the neon lamp shown in Figure 1. As indicated in Figure 2 of the drawings, a choke coil 50 is provided in the power line leading to the incandescent lamp 52 so as to prevent needless flow of audio signals to the signal lights 52. The signal lamps 52 are arranged in series circuit relationship with the control switches 54 so that in order to energize the lamps 52, it is necessary to close the switches 54. The guide light 56, which corresponds to the guide light 42 of Figure 1, is connected in series circuit relationship with the switch 58 which in turn corresponds to the switch 46 of Figure 1.

For a more detailed description of the physical construction of the junction boxes and the speakers, reference is hereby made to said copending application Serial No. 74,802.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. In a drive-in theater, an amplifier for audio signals, a plurality of loud speaker stations, each

of which comprises a transformer having a primary coil and a secondary coil, circuit means for connecting said primary coil to the outlet of said power amplifier, a plurality of speakers, means for connecting at least one of said speakers to each of said secondary coils, a source of direct current power, means for connecting said direct current power to said circuit means including audio choke coils for preventing the flow of audio signals from said amplifier to said power source, blocking condenser means in said circuit means ahead of said amplifier for preventing the flow of direct current from said power source to said amplifier, blocking condenser means at each of said speaker stations for blocking the flow of direct current from the power source to said transformers, neon light means at said speaker stations connected to said circuit means so as to be energized by said direct current, and means for short-circuiting said neon light means so as to render the same ineffective for lighting.

2. In a drive-in theater, an amplifier for audio signals, a plurality of loud speaker stations, each of which comprises a transformer having a primary coil and a secondary coil, circuit means for connecting said primary coil to the outlet of said power amplifier, a plurality of speakers, means for connecting at least one of said speakers to each of said secondary coils, a source of direct current power, means for connecting said direct current power to said circuit means including audio choke coils for preventing the flow of audio signals from said amplifier to said power source, blocking condenser means in said circuit means ahead of said amplifier for preventing the flow of direct current from said power source to said amplifier, blocking condenser means at each of said speaker stations for blocking the flow of direct current from the power source to said transformers, neon light means at said speaker stations connected to said circuit means so as to be energized by said direct current, and means for short-circuiting said neon light means so as to render the same ineffective for lighting, said last named means comprising circuit making and breaking means mounted on said speakers.

3. A signaling system for use in a drive-in theater wherein a pair of conductors are provided for distributing audio signals from an amplifier to loud speakers distributed throughout the theater comprising in combination, a source of direct current power, means for connecting said direct current power source to said conductors including audio chokes for preventing the flow of audio signals from said amplifier through said conductors to said source of direct current power, direct current blocking condenser means for blocking the flow of direct current from said source to said speakers, light means distributed throughout said theater, and means for connecting said light means to said conductors.

4. A signaling system for use in a drive-in theater wherein a pair of conductors are provided for distributing audio signals from an amplifier to loud speakers distributed throughout the theater comprising in combination, a source of direct current power, means for connecting said direct current power source to said conductors including audio chokes for preventing the flow of audio signals from said amplifier through said conductors to said source of direct current power, direct current blocking condenser means for blocking the flow of direct current from said source to said speakers, light means distributed throughout said theater, and means for connecting said

light means to said conductors, said last named means including audio choke means for preventing the flow of audio signals to said light means.

5. In a drive-in theater, amplifier means for audio signals, a plurality of speakers, a two-wire distributing system for connecting said speakers to said amplifier means, a concession signal light adjacent each of said speakers, a source of direct current power, means for connecting said source of direct current power to said two-wire distributing system including audio choke means for preventing the flow of audio signals from said two-wire distributing system to said power source, direct current blocking condenser means in said two-wire distributing system for preventing the flow of direct current from said power source to said amplifier means, direct current operated signal means, and means for connecting said signal means to said two-wire distributing system.

6. In combination with a conventional drive-in theater audio signal distributing system wherein a pair of conductors are used for supplying audio signals from an amplifier to a plurality of speaker transformers distributed throughout the theater, light means distributed throughout the theater, a source of direct current power, means for connecting said source of direct current power to said distributing system including audio choke means for preventing the flow of audio signals from said system to said source of power, direct current blocking condenser means in said system between said source of power and said amplifier for preventing the flow of power from said source to said amplifier, means for connecting said light means to said system including audio choke means for preventing the flow of audio signals to said light means, and direct current blocking condenser means connected in the circuit leading to each of said speaker transformers for blocking the flow of direct current to the speakers.

7. In combination with a conventional drive-in theater audio signal distributing system wherein a pair of conductors are used for supplying audio signals from an amplifier to a plurality of speaker transformers distributed throughout the theater, light means distributed throughout the theater, a source of direct current power, means for connecting said source of direct current power to said distributing system including audio choke means for preventing the flow of audio signals from said system to said source of power, direct current blocking condenser means in said system between said source of power and said amplifier for preventing the flow of power from said source to said amplifier, means for connecting said light means to said system including audio choke means for preventing the flow of audio signals to said light means, and direct current blocking condenser means connected in the circuit leading to each of said speaker transformers for blocking the flow of direct current to the speakers, said light means comprising incandescent signal lamps.

8. In a drive-in theater, an amplifier for audio signals, a plurality of loud speaker stations, each of which comprises a transformer having a primary coil and a secondary coil, circuit means for connecting said primary coil to the output of said power amplifier, a plurality of speakers, means for connecting at least one of said speakers to each of said secondary coils, a source of direct current power, means for connecting said direct current power to said circuit means including audio choke coils for preventing the flow of audio signals from said amplifier to said power source, blocking condenser means in said circuit means ahead of said amplifier for preventing the flow of direct current from said power source to said amplifier, blocking condensers at each of said speaker stations for blocking the flow of direct current from said power source to said transformers, light means at said speaker stations, means for connecting said light means to said transformer output circuit at a point between said last named blocking condensers and said audio choke coils.

9. In a drive-in theater, an amplifier for audio signals, a plurality of loud speaker stations, each of which comprises a transformer having a primary coil and a secondary coil, circuit means for connecting said primary coil to the output of said power amplifier, a plurality of speakers, means for connecting at least one of said speakers to each of said secondary coils, a source of direct current power, means for connecting said direct current power to said circuit means including audio choke coils for preventing the flow of audio signals from said amplifier to said power source, blocking condenser means in said circuit means ahead of said amplifier for preventing the flow of direct current from said power source to said amplifier, blocking condensers at each of said speaker stations for blocking the flow of direct current from said power source to said transformers, light means at said speaker stations, means for connecting said light means to said transformer output circuit at a point between said last named blocking condensers and said audio choke coils, said last named means including audio choke means for preventing the passage of audio signals to said light means.

10. In a drive-in theater, an amplifier for audio signals, a plurality of loud speaker stations, each of which comprises a transformer having a primary coil and a secondary coil, circuit means for connecting said primary coil to the output circuit of said power amplifier, a plurality of speakers, means for connecting at least one of said speakers to each of said secondary coils, a source of direct current power, means for connecting said direct current power to said output circuit at a given point including audio choke coils for preventing the flow of audio signals from said amplifier to said power source, blocking condenser means in said output circuit between said amplifier and said given point for preventing the flow of direct current from said power source to said amplifier, blocking condensers in said output circuit at each of said speaker stations for blocking the flow of direct current from said power source to said transformers, a plurality of lights at said speaker stations, circuit means for connecting said light to said output circuit in parallel with one another at a point ahead of said last named blocking condensers, and switch means in series with one of said lights for controlling the flow of current to said one light.

11. In a drive-in theater, a power amplifier for amplifying audio signals, a transformer having a primary coil and a secondary coil, circuit means including a pair of conductors for connecting said primary coil to the output circuit of said power amplifier, a speaker, means for connecting said speaker to said secondary coil, a light means, a source of direct current power, means for connecting said source of direct current power to said pair of conductors, said last named means including audio choke means for

preventing the flow of audio signals from said conductors to said power source, blocking condenser means for preventing the flow of direct current from said power source to said power amplifier, means for connecting said light means to said conductors including audio choke means for preventing the flow of audio signals to said light means, and blocking condenser means arranged adjacent said primary coil for blocking the flow of direct current to said primary coil.

12. In a drive-in theater, a power amplifier for amplifying a signal, a plurality of speaker stations, each of which comprises a transformer having a primary coil and a secondary coil, circuit means for connecting said primary coil to the output of said power amplifier, a source of direct current power, means for connecting said source of power to said circuit means including audio choke coils for preventing the flow of audio signals from said circuit means to said source of direct current power, a plurality of speakers, means for connecting said speakers

to each of said secondary coils, a signal light adjacent each of said speakers, means for connecting said signal light to said circuit means ahead of said transformer including an audio choke coil for preventing the flow of audio signals to said signal light, a blocking condenser connected between said transformer and the connections leading to said signal light, and blocking condensers connected in said circuit means between said power amplifier and said source of direct current so as to block the flow of direct current to said power amplifier.

DEMETRIUS G. CHAKIRIS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,463,339	Wetzel et al.	Mar. 1, 1949
2,469,986	Phyfe	May 10, 1949