Dec. 18, 1951 H. W. BRELSFORD 2,579,292

COMBINED LIGHT AND HORN SYSTEM

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Fig. 1

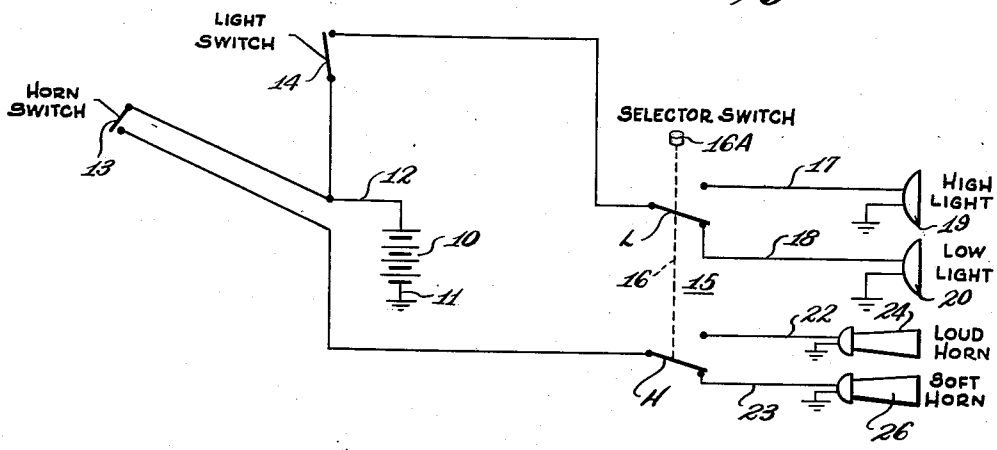
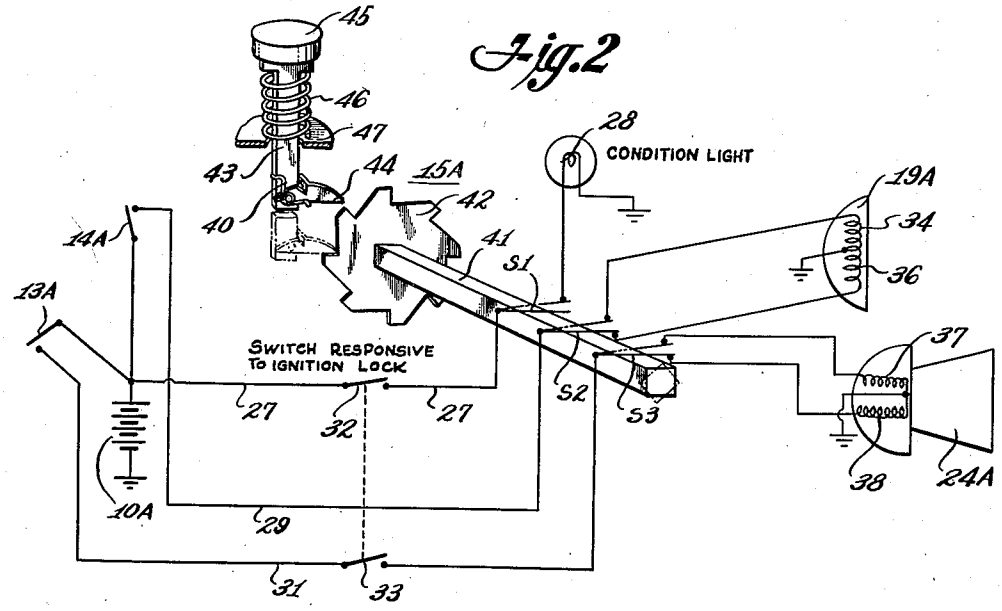


Fig. 2



INVENTOR.

Harry W. Brelsford

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COMBINED LIGHT AND HORN SYSTEM

Harry W. Brelsford, Pasadena, Calif.

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4 Claims. (Cl. 177—7)

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My invention relates to electrical systems for vehicles and has particular reference to a combined headlight and horn combination.

It is well known that vehicles, especially automobiles, employ headlights that may throw a beam of light near or far by the operation of a switch. Thus, for city driving a near or low light is employed, while for highway use a far or high light is employed to illuminate the highway at a distance commensurate with the higher rate of speed. The throw of the light is generally controlled by dimmer switches which may be conveniently operated, for example by a ratchet type rotary switch actuated by the operator's foot.

While less widely used, horns of different sound intensity are employed on automobiles, a soft horn being employed for city driving and a loud horn being employed for highway travel to overcome the louder motor and air noises encountered at the higher speeds. These horns may be selectively operated by switches disposed at a point near to the driver, for example on the dash. Such a switch must be manually activated, thus resulting in inconvenience and requiring the operator to take one hand off of the steering wheel.

In attempting to devise a more suitable control for two tone horns, I was struck with the relationship of high light and loud horns. Immediately I seized upon the idea of combining the horn and the light controls. In carrying out my invention, loud horns are used on the highway when high lights are desired, and soft horns are used in the city when low lights are desired. The problem of daylight travel does not complicate matters unduly inasmuch as light and horns have separate off-on switches.

My invention, therefore, includes the controlling automotive horns by tying the control mechanism to that for high and low lights. Further, my invention includes an electrical switch system that carries out the foregoing in a simple and effective method. This apparatus may include a double selector switch having a single actuator member and preferably is activated by the operator's foot. The lights may be connected to one part of the selector switch and the horns may be connected to the other part. Actuation of the selector to one position places the circuits in condition for operating high lights and loud horns. Actuation of the selector to the other position places circuits in condition for operating the low lights and the soft horn. A refinement may be incorporated in the form of a telltale to indicate the condition of the selector switch.

It is therefore an object of my invention to

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provide operation of headlights and two tone horns whereby the two are interrelated or complementary in operation.

Another object is to provide an electrical circuit for complimentary operation of two position headlights and two tone horns on vehicles.

A further object is to provide such a circuit with a telltale to indicate the condition of selection of the circuit.

Other objects and advantages of my invention will be apparent in the following description and claims considered together with the accompanying drawing forming an integral part of this specification and in which:

Fig. 1 is a simplified schematic of a basic electrical system embodying my invention; and

Fig. 2 is a more detailed wiring diagram of the circuit of Fig. 1 and illustrating a simplified type of rotary switch as the selector switch of the circuit.

Referring to Fig. 1, a battery 10 is illustrated as a source of power for the circuit inasmuch as this is conventional in present day automobiles which may employ my invention. A generator, transformer or other source of power could well be used, however. One terminal of the battery may be grounded as at 11, for example, to the metal frame of an automotive vehicle, and the other terminal may be connected to a branched conductor 12, one branch passing current to a horn button or switch 13 and the other to a light switch 14. The horn button 13 may be disposed at any suitable position, for example at the top of the steering column, and the light switch 14 may be located at the dash or other readily accessible point in an automobile.

It will be appreciated that the horn button and light switch are normally open and therefore closed only when the operator positively actuates them. A conductor from each of these switches may lead to a selector switch 15 that is constantly closed in one position or the other. This selector switch is provided particularly in accordance with my invention and may have a light blade L and a horn blade H that are simultaneously moved by a mechanical actuator 16 indicated by broken line and by a cap 16A.

The selector switch 15 may be a double pole, double throw switch, and conductors 17 and 18 may be provided for the blade L that lead to a high light 19 which has a high light beam or throw, and a low light 20 which has a low light beam or throw respectively. The electrical circuits are completed by connections to ground at each light. Two conductors 22 and 23 may like-

wise lead from blade H to a loud or high intensity horn **24** and a soft or low intensity horn **26** respectively, which also may have connections to ground to complete the circuits.

In the operation of the circuit of Fig. 1, the switch **15** is normally closed at one position or the other. While the switch is shown as closed to the low light and soft horn, it could just as well be illustrated in the other condition as there is no "normal" position for the switch. The fact that the switch is closed does not cause operation of either the lights or horn. When the operator closes either or both switches **13** and **14**, then the lights or horns or both will be operated.

When driving at night in the city, the operator will usually have his lights on low and the switch **15** will be in the position indicated. If he has occasion to use his horn, the soft horn will automatically be sounded. If a loud horn is desired, he merely operates the actuator **16**, and closing the horn switch **13** will cause current to flow through blade H and conductor **22** operating the loud horn **24**. The high lights will be on, but this will scarcely bother an operator who wishes to use his loud horn in the city.

When driving in the city in the daytime, the soft horn will usually be employed and the condition of switch **15** as illustrated will pass current to horn **26**. A loud horn may be employed by actuating switch **15** and the lights will not be affected since the light switch **14** will be open during the day.

When driving on the open highway at night, the switch **15** will be actuated to cause the blades L and H to be in condition to pass current to conductors **17** and **22** respectively. Thus, when the horn is sounded, the loud horn **24** will be energized. When cars approach from the opposite direction, the operator will normally dim his lights by actuating the selector switch **15** and the horn will accordingly be soft. Horns are normally employed on the highway, however, when passing another car when none are approaching from the opposite direction, and hence the loud horn will be available when a horn is needed during normal driving procedures.

The placing of the switch **15** at the floor or other place where it can be quickly operated without interfering with the driving gives an extremely switch control of the horn as well as the lights, so that any emergency can be quickly met. The use of two tone horns permits the use of a highway horn that is louder than present horns, which are necessarily a compromise between a suitable intensity for town and highway. The soft horn makes city driving less irritating and aids in reducing the general noise level.

Illustrated in Fig. 2 is a more detailed wiring diagram embodying my invention. It is well known that a single headlight is capable of different beam positions by employing two filaments having different positions with respect to the reflector and the light lens. Also it is well known that two intensities may be obtained from a single horn by employing two different windings that may be selectively energized. These two structures are accordingly illustrated in Fig. 2. Also, it will be appreciated that the most practical type of selector switch is a rotary switch operated by a ratchet, and in which the various contacts are established by means of rotary plates or fingers. Because of the difficulty of illustrating such a switch, however, a simplified rotatable bar mechanism is illustrated which activates several double contact switch blades as well as a make-and-break switch blade.

Referring to Fig. 2, a battery **10A** may supply current to a horn switch **13A** and a light switch **14A**. Also, the battery may supply current through a conductor **27** to a switch element S1 of a rotary selector switch **15A**, which element when closed energizes an incandescent lamp **28**. Conductors **29** and **31** lead from switches **14A** and **13A** and connect to switch elements S2 and S3 respectively of the selector switch **15A**.

Disposed in conductor **27** of the condition light **28** and in conductor **31** may be a double switch including switches **32** and **33** responsive to the ignition lock of the automobile. The switches may be normally open and may close only when the ignition of the car is on and are ganged to operate together. In this manner there will be no inadvertent use of current by the condition light, and also there will be no accidental noise or battery drain due to the horn when the car is not operating.

Switch element S2 may be a two contact switch for operating a headlight **19A**. This headlight may be of the conventional two filament type, for example, a top filament **34** may be used for extended or high lighting and a bottom filament **36** may be used for retracted or low lighting. Switch element S3 is likewise a two contact switch energizing alternatively a top winding **37** or a lower winding **38** of a horn **24A** for producing loud and soft horn noises respectively.

The illustrative switch **15A** may include a rotatable bar **41** of angular cross section, preferably square. It may be rotated by a ratchet wheel **42** axially connected thereto and rotated in turn by a reciprocable member **43** having a pivoted finger **44** attached to the bottom. A weak spring **40** may urge the finger to the perpendicular position illustrated. The member **43** may have a button **45** formed on the top thereof for engagement by the operators foot, and a spring **46** may bear against this button to urge the member upwardly. The bottom end of the spring **46** may rest on a stationary support **47**. The blades of switch elements S1, S2, and S3 may bear against the angular bar **41** and are thus effectively ganged.

In the operation of the circuit of Fig. 2, upon starting the automobile, the ignition responsive switches **32** and **33** will close, thus delivering control of the horn **24A** to the horn switch **13A** and delivering control of the condition light **28** to the selector switch **15A**. In the illustrated position of the selector switch **15A**, the low light filament **36** and the soft horn winding **38** will be connected and upon the closing of switches **13A** or **14A**, the soft horn or the low lights will be energized. The selector switch may be pedally operated, imparting a downward movement to the member **43** and causing finger **44** to engage a notch in wheel **42**. The downward movement will end at the position illustrated in broken outline, effecting a 45° rotation of the bar **41**. This rotation will dispose an edge of the bar at the top, as shown in broken outline, lifting the blades of switch elements S1, S2, and S3 until the upper contacts are engaged. The compression spring **46** will return the member **43** upwardly to its starting position, the finger **44** deflecting downwardly as weak spring **40** yields. When the starting position is attained, the finger **44** will clear the wheel **42** and will assume its perpendicular position as shown.

The high light filament **34** is accordingly placed in a condition to be energized and the loud horn

winding 37 is also placed in condition for operation. This condition of readiness is indicated by the light 28 which may be a red light, for example, placed on the dash at any convenient point. The operator is accordingly appraised at any time that the ignition switch is on of the condition of the selector switch 15A by the lighting or nonlighting of lamp 28. When the operator closes switches 14A or 13A, the high lights or loud horn will be operated.

I am aware that various switching combinations between lights and horn have been designed, particularly so that the horn will sound to call attention to a special warning light. I do not know, however, of any interconnection between loud and soft horn and headlights, although multi-tone or intensity horns are, of course, very old.

It will be obvious to those skilled in this art that various modifications and additions may be made to my invention. For example, pneumatic horns could be employed in which case the control would include a valve coupled to the light control. Also, flame lights could be employed with any type of horn and these lights could be controlled by a selection of jets or by mechanical operation of the reflector or light mounting.

I claim, however, as part of my invention, all variations which fall within the true spirit and scope of my invention.

I claim:

1. A horn and light system for automobiles comprising: headlights having two throw beam lights; a horn having two sound intensities; a manual light switch, a manual horn switch, and a selector switch located for pedal operation to connect a high beam of the lights and a loud intensity of the horn for operation in one phase of selection, and a low beam and low intensity for another phase of operation.

2. A horn and light system for an automotive vehicle comprising: a distant throw electric light; a near throw electric light; a loud intensity electric horn; a soft intensity electric horn; a source of electrical energy; a light switch; a horn switch; a selector switch having two ganged switches operable alternatively on two contacts; first conductors extending from the source to the light and horn switches; second conductors extending from these switches to the selector switches; and third conductors extending from the selector contacts to the horns and lights and

connected to place the distant throw light and the loud intensity horn simultaneously in an electrical circuit for operation and alternatively to place the near throw light and the soft intensity horn in an electrical circuit for operation.

3. In a vehicle having lights of a plurality of throws and horns of a plurality of intensities, a circuit for interconnected control comprising: a source of energy for the horns; a manual control for operation of the lights by controlling power flow from the light source; a manual control for operation of the horns by controlling power flow from the horn source; and a selector for simultaneously establishing a distant throw of the lights and a loud intensity of the horns in a condition for operation, and alternatively establishing simultaneously a near throw of the lights and a low intensity of the horns in condition for operation, whereby the selected light throws and horn intensities may be separately energized by operation of the associated manual control.

4. In combination: a source of high beam light; a source of low beam light; a source of high intensity noise; a source of low intensity noise; a ganged control switch for selectively connecting the high beam and high intensity sources in one position and the low beam and low intensity sources in another position; a manual control for the light sources; a manual control for the noise sources; and means for energizing all of said sources and subject to control by said switch, whereby the high light and high intensity noise may simultaneously be placed in condition for operation and alternatively the low light and the low intensity noise may be simultaneously placed in condition for operation.

HARRY W. BRELSFORD.

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