

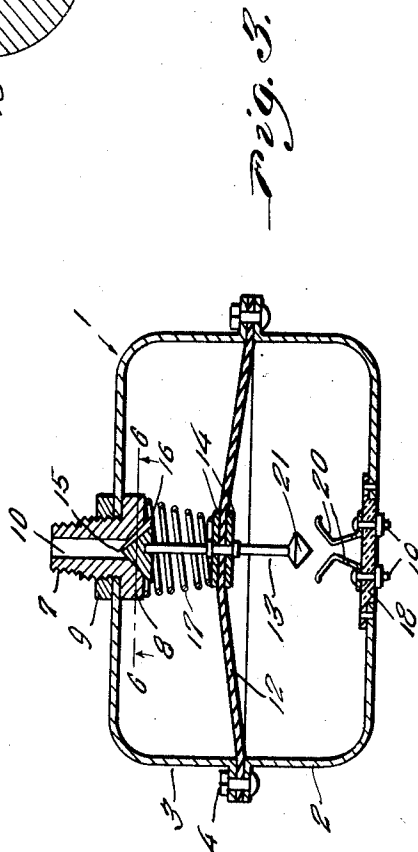
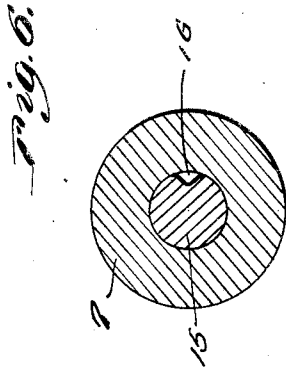
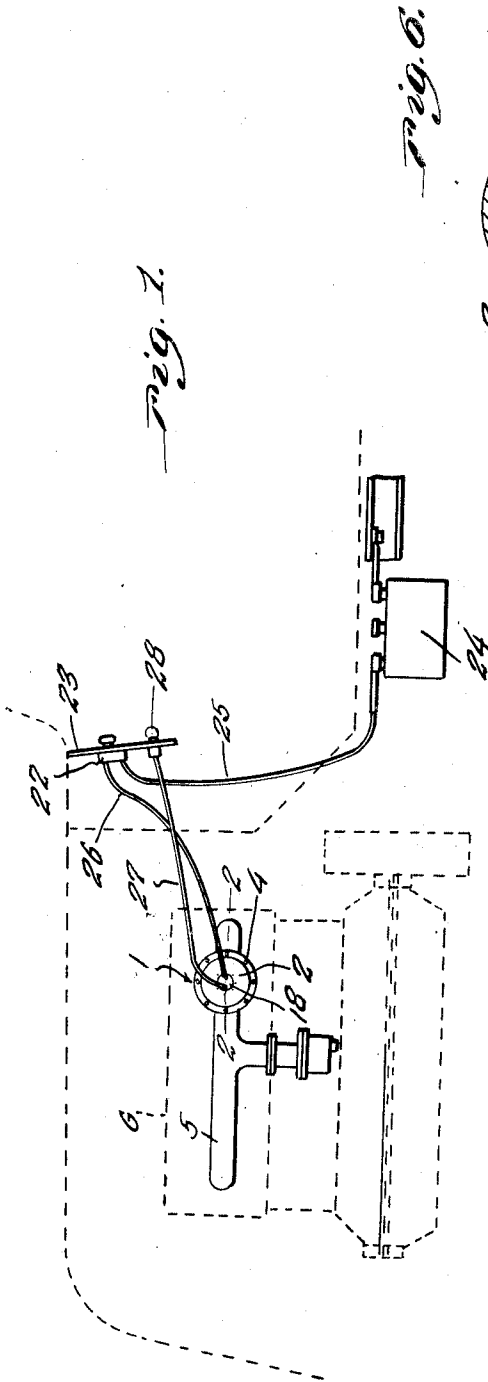
May 1, 1934.

A. KERZAK  
ENGINE SIGNAL SWITCH

1,957,106

Filed Feb. 27, 1933

2 Sheets-Sheet 1



Inventor

*Andrew Kerzak*

By *Clarence A. O'Brien*  
Attorney

May 1, 1934.

A. KERZAK

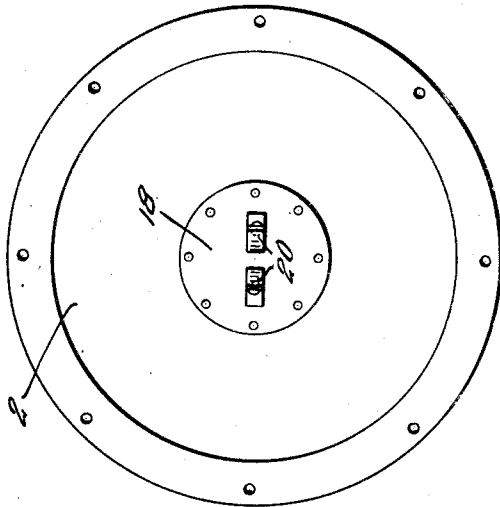
1,957,106

ENGINE SIGNAL SWITCH

Filed Feb. 27, 1933

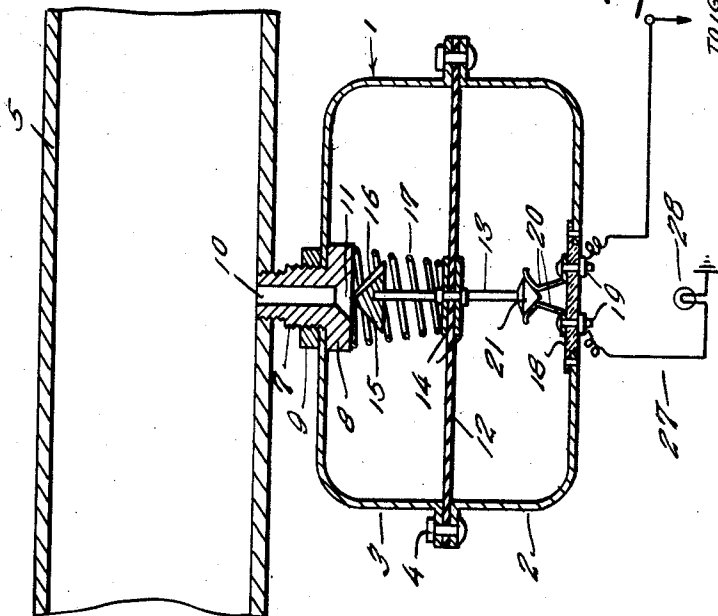
2 Sheets-Sheet 2

*Fig. 4.*



*Fig. 5.*

*Fig. 2.*



Inventor

*Andrew Kerzak*

By *Charles A. O'Brien*  
Attorney

# UNITED STATES PATENT OFFICE

1,957,106

## ENGINE SIGNAL SWITCH

Andrew Kerzak, New York, N. Y.

Application February 27, 1933, Serial No. 658,855

1 Claim. (Cl. 200—83)

The present invention relates to a signaling device or apparatus which is particularly intended for use in connection with the engines of automobiles and has for its primary object to provide, in a manner as hereinafter set forth, a signal embodying a novel construction, combination and arrangement of parts through the medium of which the operator of the automobile will be warned when the engine, which has been idling has stalled.

Another important object of the invention is to provide a signal for indicating when the ignition switch of an automobile is turned on and the engine is not running, thereby preventing the discharge of the battery through carelessness.

Other objects of the invention are to provide a signal of the aforementioned character which will be simple in construction, strong, durable, efficient and reliable in use, compact, and which may be manufactured and installed at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views; and wherein:—

Figure 1 is a view in side elevation, showing a signalling apparatus in accordance with the present invention installed for operation.

Figure 2 is a horizontal sectional view, taken substantially on the line 2—2 of Figure 1, and showing the suction controlled switch in closed position.

Figure 3 is a view in horizontal section through the suction controlled switch, showing said switch open, as when the engine is running.

Figure 4 is a detail view in elevation, looking at the inner side of the diaphragm housing in which the automatic switch contacts are mounted.

Figure 5 is a detail view in elevation of the valve head.

Figure 6 is a detail view in vertical transverse section through the valve, taken substantially on the line 6—6 of Figure 3.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a housing which is designated generally by the reference numeral 1, said housing including complementary half sections 2 and 3 which are secured together, as at 4. The housing 1 is mounted in position on the intake manifold 5 of the engine 6 through the medium of an externally

threaded nipple 7 having a head 8 on one end engaged with the inner side of the section 3 of the housing 1. The reference numeral 9 designates a lock nut which is threaded on the nipple 7 and engaged with the section 3 of the housing 1. The housing 1 communicates with the intake manifold 5 through the bore 10 which extends longitudinally through the nipple 7, said bore 10 being substantially conical at one end to provide a valve seat 11 in the housing 1.

Mounted between the sections 2 and 3 for operation in the housing 1 is a diaphragm 12. The diaphragm 12 is of suitable electricity insulating material, preferably rubber, and has mounted thereon a stem 13 which projects from opposite sides of said diaphragm. Disks 14, also of electricity insulating material, are fixed on the stem 13 against opposite sides of the diaphragm 12.

Fixed on one end of the stem 13 is a valve head 15 which is engageable with the seat 11. The head 15 is provided with a groove or channel 16 through the medium of which limited communication is had between the housing 1 and the intake manifold 5 when said head is engaged on the seat 11. The reference numeral 17 designates a coil spring which encircles the stem 13 in the housing section 3 and which has one end engaged with the head 8 of the nipple 7 and its other end engaged with the adjacent disk 14 for yieldingly urging the head 15 away from the seat 11.

The outer side of the housing section 2 has formed therein an opening in which a disk 18 of insulating material is mounted. Secured on the insulating disk 18, as at 19, are resilient contact fingers 20 which extend toward the diaphragm 12. Fixed on the adjacent end of the stem 13 is a substantially conical head 21 of suitable current conducting material which is adapted to bridge the contacts 20.

The reference numeral 22 designates the usual ignition switch on the instrument board 23 of the automobile. One side of the switch 22 is, of course, connected with the usual storage battery 24 of the automobile by a conductor 25. A conductor 26 connects one of the contacts 20 with the other side of the ignition switch 22. The other contact 20 is electrically connected by a conductor 27 with an electric lamp 28 which is preferably mounted on the instrument board of the automobile.

Briefly, the operation of the invention is as follows:—

When the switch 22 is closed and the engine 6 is running, suction is created by the intake mani-

60

65

70

75

80

85

90

95

100

105

110

fold 5 in the section 3 of the housing 1 through the nipple 7, thus flexing the diaphragm 12 in a direction to disengage the head 21 from the contacts 20 and engage the valve head 15 with the seat 7. By reason of the groove or channel 16, sufficient suction will be maintained in the housing 1 at all times when the engine is running to maintain the head 15 in engagement with the seat 11 against the tension of the coil spring 7 but constant excessive strain on the diaphragm 12 will be avoided. However, should the engine stall, thus eliminating the suction in the section 3 of the housing 1, the diaphragm 12, assisted by the spring 17, will return to its normal position, thereby engaging the head 21 with the contacts 20 for completing the electric circuit between the storage battery 24 and the signal lamp 28. Thus, the operator of the automobile will be warned should the engine stop.

It is believed that the many advantages of a signal constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood

that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

A pressure operated switch comprising a casing having a diaphragm centrally disposed therein dividing the casing into two compartments, one side of said casing above the diaphragm having a threaded tubular projection for connection with a suction conduit, and having a valve seat therein, a valve having one end connected to the diaphragm, a movable contact on the other side of said diaphragm, a stationary electrical contact connected to the casing, and resilient means normally urging the valve from engagement with the valve seat and contacting the movable contact with its stationary electrical contact, said valve having a channel therein for providing limited communication between said suction conduit and said casing when said valve is engaged with said valve seat.

ANDREW KERZAK.

25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
	150