Dec. 31, 1929. A. KESSEL 1,741,190

DIRECTION INDICATOR

Filed April 23, 1928 2 Sheets-Sheet 1

Fig. 1.

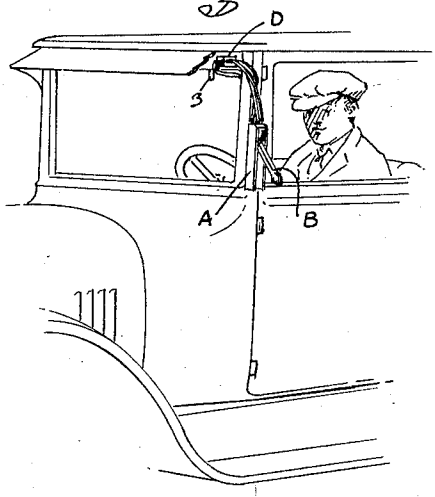
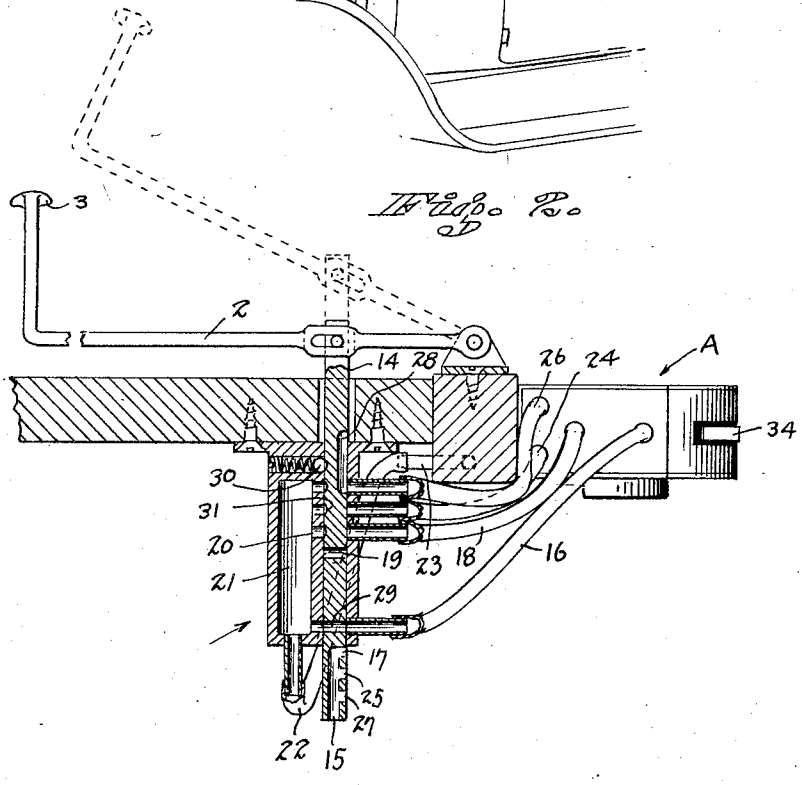


Fig. 2.

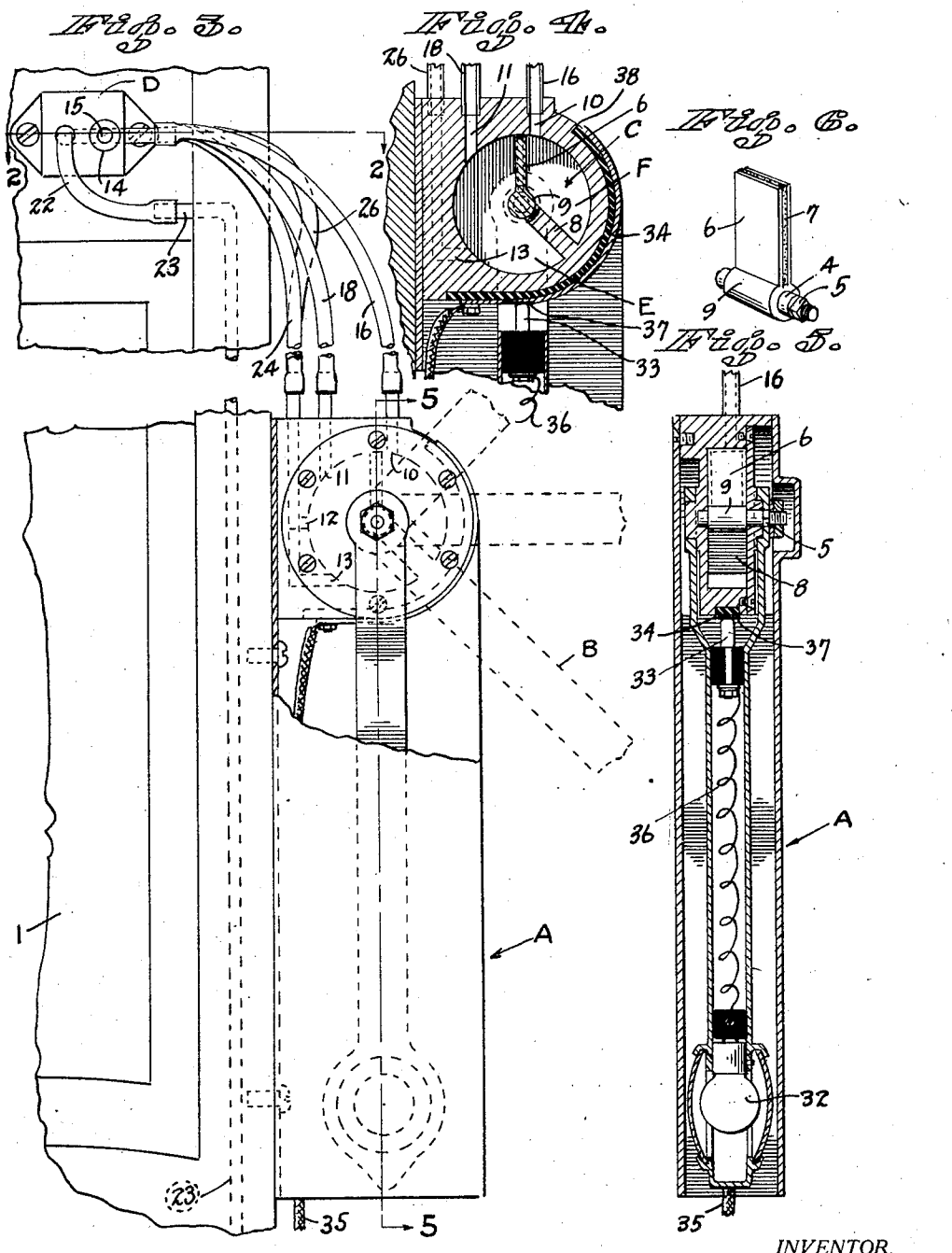


INVENTOR.
ANTON KESSEL
BY
ATTORNEYS.

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DIRECTION INDICATOR

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INVENTOR.
ANTON KESSEL

BY

ATTORNEYS.

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1,741,190

UNITED STATES PATENT OFFICE

ANTON KESSEL, OF SAN JOSE, CALIFORNIA

DIRECTION INDICATOR

Application filed April 23, 1928. Serial No. 272,301.

My invention relates to improvements in direction indicators, and it consists of the combinations, constructions and arrangements hereinafter described and claimed.

An object of my invention is to provide a direction indicator especially adapted for closed cars, and which makes use of an arm disposed to the left of the wind shield where it occupies practically the same position as is now occupied by the driver when he gives signals with his hand and arm. The device operates from the suction of the engine, and a controlling means is provided which permits the operator to swing the arm of the signal into any one of the three accepted positions for indicating stop, left turn, and right turn. It is obvious that the device can be used on open cars if desired.

A further object of my invention is to provide a device of the type described which is relatively simple in construction, positive in operation, and which makes use of a light bulb at the end of the arm for attracting attention to the device, this bulb permitting the device to be used in night driving. It should also be noted that the arm will remain fixed in the position into which it is swung until the driver releases it. This is due to the fact that the device is operated by the suction from the engine, and so long as the engine is running there will be sufficient vacuum created to rigidly hold the arm in the desired position. Many indicating devices now on the market flop around to such an extent that drivers in approaching cars are not sure what the signal indicates.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawing forming a part of this specification, in which—

Figure 1 is a perspective view of a portion of a closed automobile showing my device operatively applied thereto;

Figure 2 is a section along the line 2—2 of Figure 3;

Figure 3 is a front view of the device, a portion of the casing being broken away for clarity;

Figure 4 is a section through the arm-actuating cylinder;

Figure 5 is a section along the line 5—5 of Figure 3; and

Figure 6 is a perspective view of a portion of the device.

In carrying out my invention, I provide a signal consisting of four principal parts, i. e. a casing A, a signal arm B, an arm-actuating cylinder C, and a control valve D. The arm B and the cylinder C are mounted within the casing A, and the arm B may be swung so as to extend from the casing. The casing A is secured to the left-hand side of the windshield 1, while the control valve D is mounted above the windshield and has its actuating lever 2 disposed on the inside of the windshield where the handle 3 thereof may be readily grasped by the driver.

The signal arm B is actuated by the suction from the engine, not shown. The arm is connected to a shaft 4 (see Figure 6) by means of a nut 5. The shaft is in turn rotatably mounted within the cylinder C and carries a vane 6 that is of the same width as the length of the cylinder. This vane extends radially from the shaft 4, and has its outer end contacting with the inner wall of the cylinder. In order to assure an air-tight seal between the vane and the cylinder wall, I provide a leather strip 7 or other suitable packing around the three sides of the vane.

A radially-extending partition 8 (see Figure 4) projects inwardly from the cylinder wall C and contacts with the cylindrical portion 9 of the vane 6. The partition and the movable vane divide the cylinder into two compartments which may be varied in size by the movement of the vane. It will further be seen that a movement of the vane within the cylinder will swing the arm B.

I now provide a series of exhaust ports 10, 11, 12 and 13 for the cylinder C, which are positioned for swinging the vane 6 into four pre-determined positions. For example, when suction is applied to the port 10, the vane 6 will swing into the position shown in Figure 4, and the arm B will be enclosed with-

in the casing A. If, now, suction is applied to port 11, the vane will be moved over, because a vacuum will be created in the compartment E which is strong enough to move the blade until the blade reaches a position with respect to the port 11 that will permit air to flow from the compartment F into the pipe 11. Reference to Figure 2 shows that the control valve D has a plunger 14 which places the port 10 in communication with an air duct 15 that leads to the atmosphere. The air duct 15 communicates with the port 10 by means of a "return" pipe 16 and an opening 17. In order to have suction applied to the port 11, the plunger 14 is moved by the lever 2 and aligns a "stop" pipe 18 communicating with the port 11 with a bore 19 in the plunger 14. The bore 19 in turn places the pipe 18 in communication with an opening 20 in the valve casing D, and this opening in turn communicates with a compartment 21 (see Figure 2). The compartment 21 is kept under constant partial vacuum by a pipe 22 that leads to an air duct 23 (see Figure 3) which in turn taps the intake manifold of the engine.

In swinging the vane 6 into a position to bring the arm B to indicate a left turn, the lever 2 is moved for bringing the bore 19 into registration with a "left" pipe 24. The pipe 24 is placed in communication with the vacuum chamber 21, and this pipe communicates with the port 12, which will place the compartment E under a partial vacuum sufficient to swing the vane 6 so as to uncover the port and permit the port to communicate with the compartment F. The compartment F communicates with the atmosphere by means of the port 10, pipe 16, opening 25 in plunger 14, and duct 15.

The arm B may be swung into a position to indicate a right turn. In this instance, the lever 2 is moved to place a pipe 26 in communication with the vacuum chamber 21 by means of the opening 19. The pipe 26 communicates with the port 13 and causes the vane 6 to swing in order to uncover the port and place it in communication with the compartment F. Atmospheric air enters the compartment F by means of the pipe 16, opening 27 in the plunger 14, and dust 15.

In returning the arm to initial position after it has been swung into any of its three operative positions, the lever 2 is moved into the full line position shown in Figure 2. This places the pipe 26 in communication with the atmosphere by means of a groove 28 in the plunger 14. Air rushes into the compartment E by means of the pipe 26 and port 13. It will also be noted that when the lever 2 is in neutral position, the pipe 16 communicates with the vacuum chamber 21 by means of a bore 29 in the plunger 14. This creates a vacuum within the compartment F and swings the vane back into the full line position shown in Figure 4.

It will be seen from this construction that the driver can swing the arm B into any one of the four positions by merely pulling a lever 2 toward himself step by step. The lever is held in adjusted position by means of a spring-pressed ball 30 that enters recesses 31 in the plunger rod 14. The ball has sufficient force to hold the plunger against accidental movement, but the driver can overcome this resistance by moving the handle 3.

I provide means for illuminating the arm when it is swung into operative position. A light 32 (see Figure 5) is mounted in the end of the arm, and this light is placed in electrical connection with its source of current by means of a contact 33 that rides upon a conductor strip 34. A wire 35 leads from the strip 34 to the source of current, and a wire 36 leads from the contact 33 to the light. The other side of the light is grounded, and of course the source of current has one of its terminals grounded which is the usual practice. An insulating piece 37 prevents the contact 33 from touching the conductor 34 until the arm has been swung out of neutral position. In all other positions of the arm, the light 32 is in electrical connection with the source of current, and therefore the end of the arm will be illuminated. An insulating strip 38 separates the conducting strip 34 from the casing of the cylinder C. The light permits the signal to be seen from the front as well as the back of the car.

Although I have shown and described one embodiment of my invention, it is to be understood that the same is susceptible of various changes, and I reserve the right to employ such changes as may come within the scope of the appended claims.

I claim:

1. An automobile indicator comprising an arm swingable into predetermined positions, a cylinder having a radially-extending partition therein, a radially-extending vane mounted in said cylinder and being operatively connected to said arm, and means for exhausting air from said cylinder at different points for causing said vane to move said arm at a downwardly extending angle, a horizontal position, and an upwardly extending angle.

2. A signal actuated by the suction from an engine and comprising an arm, a cylinder, a radially-disposed vane in said cylinder and being operatively connected to said arm, and manually-controlled means for sucking air from said cylinder at different points for swinging said vane at a downwardly extending angle, a horizontal position, and an upwardly extending angle,

3. An automobile signal comprising a cylinder having a radially-extending partition, a radially-extending vane mounted in said cylinder and forming two compartments within the cylinder, a signal arm secured to

said vane, and manually-controlled means for sucking air from one of said compartments at different points for moving said vane at a downwardly extending angle, a horizontal position, and an upwardly extending angle, and for admitting air to the other compartment.

4. An automobile signal comprising a cylinder having a radially-extending partition, a radially-extending vane mounted in said cylinder and forming two compartments within the cylinder, a signal arm secured to said vane, and manually-controlled means for sucking air from one of said compartments at different points for moving said vane at a downwardly extending angle, a horizontal position, and an upwardly extending angle, and for admitting air to the other compartment when it is desired to swing said arm into operative position, said means reversing the process when moving the signal arm back into neutral position.

5. An automobile signal comprising an arm, a cylinder having a radially-extending partition, a radially-extending vane mounted in said cylinder and being operatively connected to said arm, a chamber placed under partial vacuum by the suction from the engine, a manually-controlled plunger arm, a plurality of pipes connecting said chamber with said cylinder, said plunger arm being movable for creating a suction in any pipe desired for moving said vane and said arm into a predetermined position.

6. A direction indicator comprising a vertically swingable arm pivoted at one end and normally extending downwardly, and pneumatic means for swinging said arm into a downwardly extending angle, a horizontal position, and at an upwardly extending angle, and back to its normal position after it has been caused to move.

7. A direction indicator comprising a vertically swingable arm pivoted at one end and normally extending downwardly, and manually-controlled pneumatic means for swinging said arm into a downwardly-extending angle, a horizontal angle, an upwardly-extending angle, and back to its normal position after it has been caused to move, said means being active on said arm for positively holding it in place as long as it remains in normal position.

8. A direction indicator comprising an arm swingable into three positions indicating right turn, left turn, and stop; pneumatic means for actuating said arm, a valve for controlling the movements of said arm; said valve also being swingable into a position for returning the arm to normal position.

ANTON KESSEL.