Oct. 16, 1923. 1,471,078

C. VOGT

CUT-OUT FOR VEHICLE MOTORS

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FIG. I.

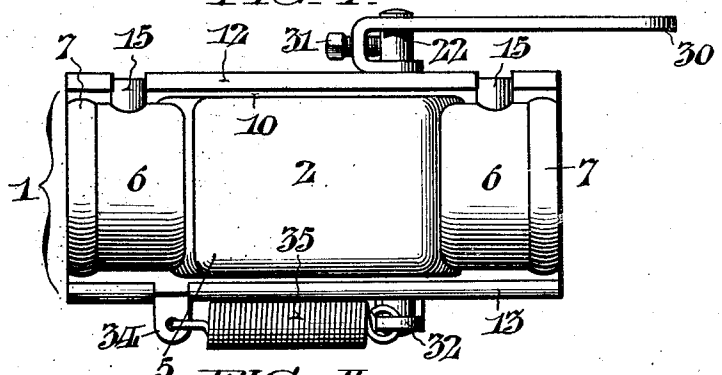


FIG. II.

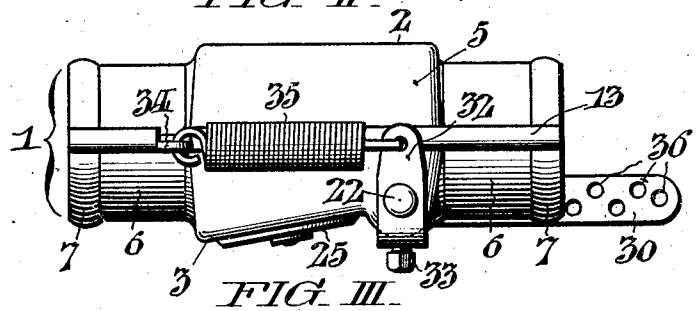


FIG. III.

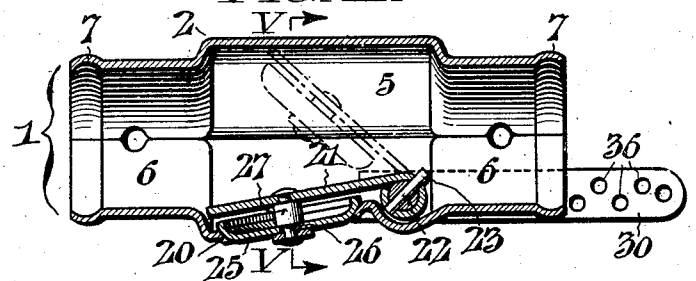
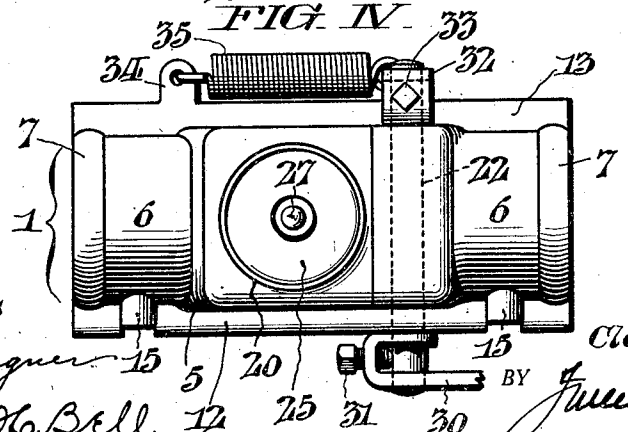


FIG. IV.



WITNESSES

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FIG. V.

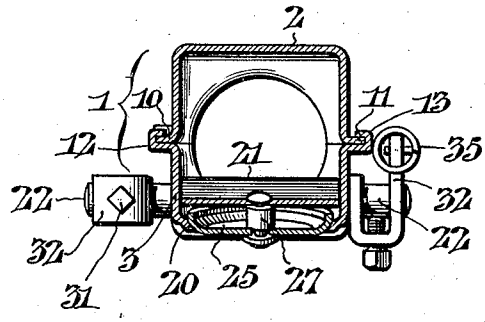


FIG. VI

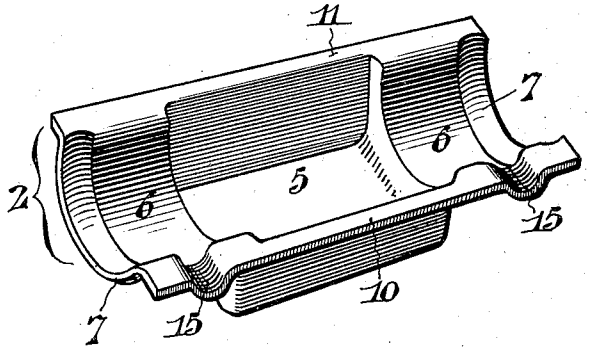
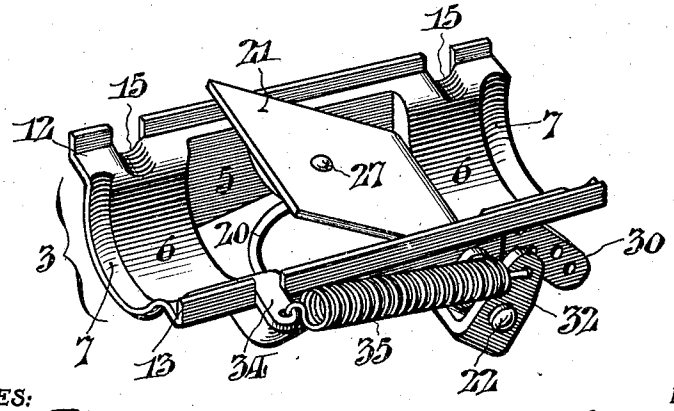


FIG. VII



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Patented Oct. 16, 1923. 1,471,078

UNITED STATES PATENT OFFICE.

CLARENCE VOGT, OF WENONAH, NEW JERSEY, ASSIGNOR TO VOGT BROS. & SQUIER COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

CUT-OUT FOR VEHICLE MOTORS.

Application filed March 25, 1921. Serial No. 455,389.

To all whom it may concern:

Be it known that I, CLARENCE VOGT, a citizen of the United States, residing in Wenonah, in the county of Gloucester and State of New Jersey, have invented certain new and useful Improvements in Cut-Outs for Vehicle Motors, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to cut-outs for vehicle motors such as are used in automobiles and by aid of which the exhaust gases from the motor may, when desired, be caused to discharge directly to the atmosphere without passing through the muffler.

Devices of the character to which my invention pertains ordinarily comprise a casing which is generally tubular in form and adapted to be interposed in the exhaust pipe at a convenient point between the motor and the muffler; and a pivoted deflector element, capable, when in one position, of obstructing passage through the casing and diverting the exhaust gases directly to the atmosphere through an auxiliary opening which is normally maintained closed by said deflector when in its other position. It has been the practice to construct the casings of such cut-outs of cast metal, and in two parts abutting in the plane of the axis of the auxiliary discharge opening and at right angles to the pivotal axis of the deflector element. On account of such construction, the surface about the discharge opening, against which the deflector seated when in normal position, was formed jointly by the two sections of the casing, and the end of the fulcrum rod, or more accurately speaking, the trunnions of the deflector element, had of necessity to be supported in the different casing sections. On account of inaccuracies in casting, difficulty has been experienced not only in effecting proper registry of the two casing members but also in securing proper alignment of the two portions of the seat about the discharge opening, and of the fulcrum supports. As a consequence, the deflector element would not properly seat against said opening, thus permitting escape of some of the exhaust gases and the noises incidental to the explosions of the motor at the times when the muffler was to function.

The object of my invention is to overcome these difficulties, and this I accomplish by so ordering the division of the casing of the cut-out that the deflector element may be pivoted to but one of its component sections, and furthermore by providing the auxiliary discharge opening wholly within the same section so that its seat may be made absolutely continuous. According to my invention, tight closure of the auxiliary discharge opening is rendered absolutely positive by provision of a separate valve disk which is attached to the deflector element in such manner as to be capable of centering itself accurately with respect to said opening.

Other objects and advantages of my invention will become apparent from the detailed description which follows:

In the drawings, Fig. I is a plan view of a cut-out structure conveniently embodying my invention.

Fig. II is a side elevation of the same as viewed from the bottom of Fig. I.

Fig. III is an axial section of the cut-out.

Fig. IV is a bottom plan view of the structure.

Fig. V is a cross sectional view of the cut-out taken as indicated by the line V—V in Fig. III.

Figs. VI and VII are perspective views of the component casing sections of the muffler cut-out structure.

The organization herein represented includes a casing comprehensively indicated at 1, shown as being formed of two sections 2 and 3. Said sections are preferably stamped of sheet metal and so configured as to afford jointly, a through conduit having a central chamber 5 whose cross section, as shown in Fig. V, is rectangular. Said quadrangular chamber 5, as clearly shown, is interposed between axial cylindrical end or neck portions 6, 6, which are adapted to receive sections of the exhaust pipe (not shown) of an internal combustion motor. The neck portions 6, 6 are beaded as at 7, 7 at their outer ends so as to provide internal peripheral grooves for any suitable packing which may be interposed in attaching the exhaust pipe sections. As best shown in Fig. VI, the upper section 2 of the casing is formed with comparatively narrow, laterally extending flanges 10, 11 which in the assemblage of the structure rest against corresponding flanges 12, 13 of the lower casing section 3 (see Figs. V and VII). The flanges 12, 13, it will be noted, are wider

than the flanges 10, 11 of the section 2, so that they may be turned up as shown in Fig. VII and over upon the flanges 10, 11 to secure the two parts together, as indicated in Fig. V. At one side of the casing, centrally of the neck portions 6, 6, the flanges 10, 12 of the respective casing sections have depressions 15, 15 adapted, when in registry, to form hollow bosses which may be threaded, as shown, to receive clamp screws for securing the muffler to the exhaust pipe sections. The flange 12 of the lower section 3 is preferably cut away at the regions of the depressions 15, as clearly shown in Fig. VII, and the overlapped portions of said flange 12 cooperate with the depressions 15 of the flange 10 of the section 2 to prevent relative longitudinal displacement of the casing sections after assemblage.

Referring now more particularly to Figs. II and III, it will be seen that the wall of the lower casing section 3 which serves as the bottom of the chamber 5 is pitched at a slight inclination to the horizontal, and has a circular opening 20 whose periphery is beveled to afford a seat for a valve which will presently be described. Said opening serves as an auxiliary outlet through which the exhaust gases from the motor may be discharged directly to the atmosphere when the muffler is to be cut out. Such discharge is controllable by means of a deflecting element 21 which normally occupies the position shown in Fig. III, so as to permit direct passage of the exhaust gases through the casing, but which may be swung upwardly about its fulcrum axis 22 to the dotted position shown in said figure, so as to obstruct or occlude the direct flow or passage of the exhaust gases through the casing and deflect them downwardly to escape through the opening 20. The element 21 corresponds in width to that of the chamber 5, and its upward movement is limited by the striking of its forward edge against the top wall of said chamber. The axis or fulcrum rod 22 of the element 21 is supported for rotation wholly by the lower casing member 3, and is secured to said element 21, preferably, by means of a pin such as shown at 23. The element 21 carries a dished valve disk 25 which has a central aperture 26 fitting loosely about the reduced end of a shouldered stud 27, so that the valve disk is loosely pivoted on the deflector and has capacity for a limited independent motion to center itself accurately in engaging the beveled seat of the auxiliary discharge opening 20. By this arrangement, a perfect seal of the opening is obtained, so so that all the exhaust gases from the motor, without any leakage whatever, are obliged to pass through the muffler, when the parts are in the position shown in Fig. III.

The ends of the fulcrum rod 22 protrude to the exterior of the casing to afford attachment, at one side, for an operating lever 30. Said lever is preferably bent up out of a single piece of metal to the form clearly shown in Fig. I and provided with a set screw 31 by which it may be secured in different adjusted positions on said rod. To the opposite protruding end of the rod 22, is attached an arm 32 constructed similar to the lever 30 and likewise securable in different adjusted positions by means of a set screw 33. Spanned under tension between the outer end of the arm 32 and an integral lug 34 of the lower casing member 3, is a coiled spring 35 which serves to maintain the deflector element 21 and the attached valve disk 25 normally in the position shown in the cross section of Fig. III. The lever 30 is provided with a series of apertures 36 for selective attachment to any suitable actuating treadle such as ordinarily associated with devices of this character.

Having thus described my invention, I claim;

1. A muffler cut-out comprising a pair of semi-cylindrical sheet metal sections, each pressed outwardly at central points to form a quadrangular casing when the sections are assembled, and cylindrical coupling ends, the meeting edges of the cylindrical portions being recessed to form openings which are threaded to receive anchoring members for attaching the device to a vehicle, one section having a lateral opening formed therein and a valve member to close said opening.

2. A muffler cut-out comprising a pair of semi-cylindrical sheet metal sections for arrangement in opposed relation to form a conduit, flanges formed on the edges of each section, pressed out portions in a pair of contacting flanges forming openings adapted to receive anchoring members to secure the device to a vehicle, an opening formed in one section, and a valve forming a closure for said opening.

3. A muffler cut-out comprising a two-part sheet metal casing having a pressed out portion forming a chamber, one section having a valve seat opening formed with an out-turned curved edge, a deflecting leaf pivoted in the chamber, and a disk valve of sheet metal pivoted centrally to the leaf and having an inwardly curved periphery directed oppositely to the curved edge of said opening to seat thereagainst.

4. A muffler cut-out comprising a two part sheet metal casing defining rectangular compartments, the meeting edges of the parts of the casing being flanged so that one flange may be bent around the other to hold the parts of the casing together, one flange having semi-circular pressed out portions cooperating with similar pressed

out portions on the contacting flange, the latter having cut away portions between which the adjacent pressed out portions of the opposing flange are received to prevent longitudinal relative movement of the casing parts, and a valve controlled aperture in said compartment.

5. A muffler cut-out constructed of sheet metal comprising a two part casing defining a rectangular compartment having a valve opening therein, a shaft journalled in the compartment, a valve carried by the shaft to control the opening, said shaft having its ends extending beyond the casing, a U-shaped arm having its terminals apertured to receive one end of the shaft, a set screw threaded through the U-shaped part of the arm and engaging the shaft, a lug extending from the casing, a spring spanned between the casing lug and the arm, and an arm having a U-shaped terminal end adjustably fixed to the other end of the aforesaid shaft for rotating the same.

6. A muffler cut-out comprising a pair of sheet metal sections each having longitudinal flanges for mutual engagement, contact flanges at one side having pressed out portions defining openings whose axes intersect the longitudinal axis of the casing, whereby said recesses may be threaded to receive anchoring studs.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 21st day of March, 1921.

CLARENCE VOGT.

Witnesses:

NORAH R. MARSDEN,

JAMES H. BELL.