No. 803,289. PATENTED OCT. 31, 1905.

T. B. JEFFERY.

# THROTTLE AND REGULATING DEVICE FOR EXPLOSIVE MOTOR VEHICLES.

APPLICATION FILED JUNE 27, 1904.

Fig. 1.

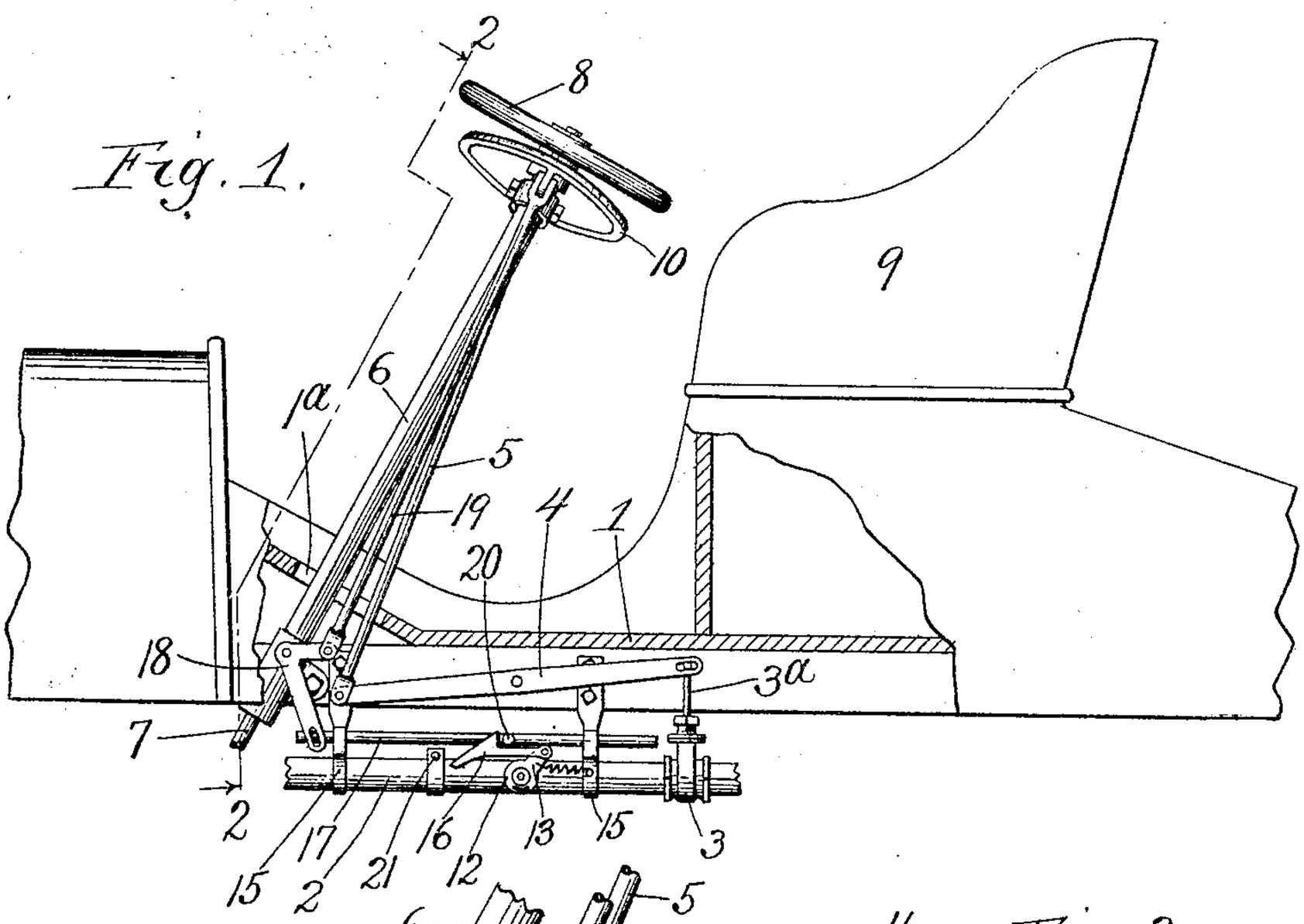



Fig. 3.

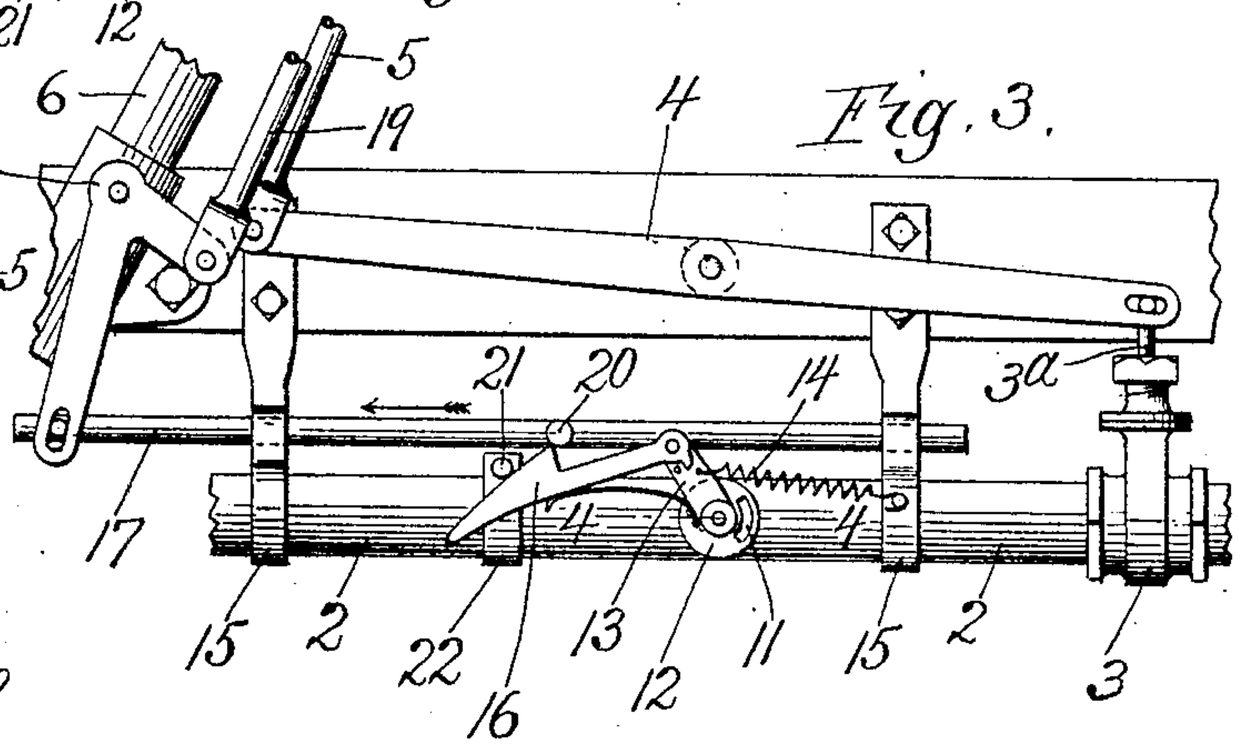



Fig. 2.

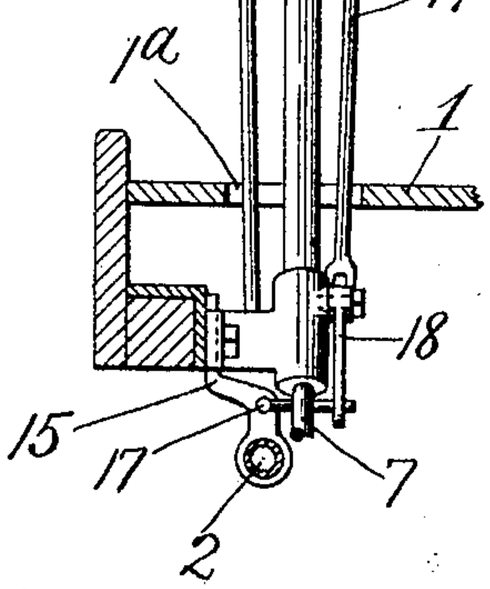



Fig. 4.

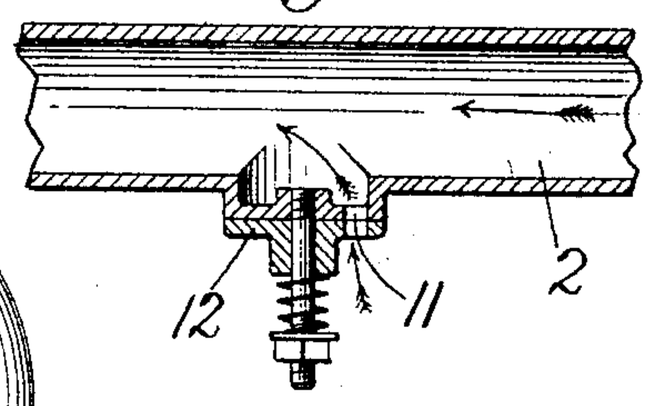
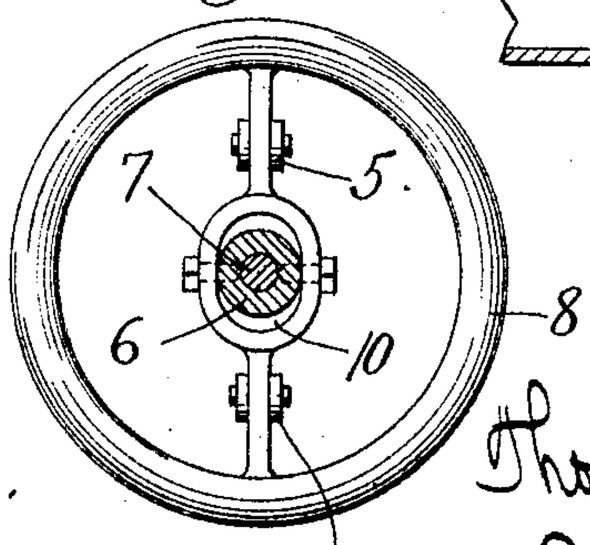



Fig. 5.




Witnesses.
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Thomas B. Jeffery
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his Attys.

# UNITED STATES PATENT OFFICE.

THOMAS B. JEFFERY, OF KENOSHA, WISCONSIN.

## THROTTLE AND REGULATING DEVICE FOR EXPLOSIVE-MOTOR VEHICLES.

No. 803,289. Specification of Letters Patent. Patented Oct. 31, 1905.

Application filed June 27, 1904. Serial No. 214,436.

*To all whom it may concern:*

Be it known that I, THOMAS B. JEFFERY, a citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented new and useful Improvements in Throttle and Regulating Devices for Explosive-Motor Vehicles, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide improved devices by which the operator of a motor-vehicle, driven by an explosive motor, may operate the throttling devices of the motor, and therein also make automatic adjustments for adapting the quality of the explosive fluid to the power required.

It consists of the features of construction set out in the claims.

In the drawings, Figure 1 is a partly-sectional side elevation of a portion of a motor-vehicle having my improved devices, section being made fore and aft through the floor of the vehicle, a portion of the inclosing structure being broken away to disclose the mechanism in question. Fig. 2 is a section at the line 2 2 on Fig. 1. Fig. 3 is an enlarged detail side elevation of a portion of the mechanism seen in Fig. 1. Fig. 4 is a section at the line 4 4 on Fig. 3. Fig. 5 is a section at the line 5 5 on Fig. 2.

I have shown only so much of the vehicle frame and mechanism as necessary to make clear the features constituting my invention and the relation of the same to the vehicle as a whole, and for this purpose I have shown a portion of the body of the vehicle, including the floor 1, under which extends the pipe 2, from the carbureter to the engine-cylinder. (Not shown.)

3 is a gate-valve for throttling or cutting off the supply of gas from the carbureter. This valve is operated by a lever 4, fulcrumed between its ends, the rear end having a slotted connection with the stem $3^a$ of the gate-valve, while the forward end has pivotal connection with a link 5, which extends up through the floor at an opening $1^a$, through which also there is extended the tubular standard 6, in which is journaled the steering rod or shaft 7, having at the upper end above the tubular standard the steering-wheel 8 in proper position in front of the seat 9 to be handled by the operator. On the tubular standard 6, at the upper end, just below the steering-wheel 8, there is mounted a lever, preferably in the form of a disk 10, pivoted for right-and-left oscillation. The hub of said lever-disk has an elongated aperture 10, as seen in Fig. 5, permitting a moderate range of such right-and-left oscillation. The link 5 is pivotally connected at its upper end to the under side of this lever-disk 10 at the right-hand side of the standard, so that when the lever-disk is rocked to elevate the right-hand side thereof, the forward end of the lever 4 being lifted, the rear end is depressed and closes the gate-valve 3. In the pipe 2, forward of the valve 3—that is, between the same and the cylinder, (which is not shown)—there is an air-inlet port 11, controlled by the register-valve 12, having a lever-arm 13, to which there is connected a contractile spring 14, which operates to hold said valve normally closed, said spring being attached to one of the hangers 15, by which the pipe 3 is mounted on the vehicle-frame. To the lever 13 there is pivoted at the end a pawl or ratchet-nosed dog 16, and in the hangers 15 15, which support the pipe 3, there is mounted a slide-bar 17, which is connected at the forward end with the longer arm of the bell-crank lever 18, whose short arm is pivotally connected to the link 19, which extends up to the left-hand side of the standard 6 and is pivoted to the under side of the lever-disk 10 at a point opposite the pivotal connection thereto of the link 5, so that when the one link is elevated the other is depressed. From the side of the bar 17 a tooth 20 projects in position to engage the abrupt shoulder of the pawl 16, when by the depression of the link 19 operating the bell-crank lever 18 the longer arm of said lever draws the rod 17 forward. Such engagement in the continued forward movement of the rod rotates the register-valve 12 to open position for admitting air into the pipe 2. As the pawl 16 is thus drawn forward in rocking the valve, its long sloping nose engages under a projection 21, provided on a bracket or strap 22, mounted on the pipe 3, and the pawl is thereby drawn downward until it becomes disengaged from the projection 20, permitting the rod 17 to continue its forward movement without further action on the valve, which is thereupon returned to closed position by the action of the spring 14.

The operation of this device is as follows: The operator holding the steering-wheel 8 for

steering the vehicle can at any position of the latter operate the lever-disk 10 with one hand or the other, rocking it up at one lateral edge and down at the opposite edge, thrusting down either the link 5 or the link 19. When it is rocked for thrusting down the link 5, the gas-inlet valve 3 is opened and the bar 17 is thrust rearward to the limit of its range of movement and the tooth 20 on said bar runs in over the sloping nose of the pawl 16 and becomes engaged behind the shoulder of the pawl. When the lever-disk is rocked in the opposite direction, so as to draw up the link 5 and thrust down the link 19, the valve 3 is closed wholly or partly, according to the extent to which the lever-disk is rocked, and the links 5 and 19 thrust in opposite directions and in proportion to the extent of movement for closing the valve 3, the bar 17 being drawn forward, the tooth 20 engaging the dog 16 opens the air-inlet valve 12 and admits air into the pipe 3, which supplies the engine, thereby diluting the explosive charge. The utility of the device acting thus may be understood to be that for starting, which requires the maximum power of the motor and for which, therefore, the explosive charge should be at its maximum condition of efficiency. Said charge will be delivered to the cylinder to the full capacity of the valve 3 with a maximum richness with which it is furnished from the carbureter—that is, without dilution by reason of any air through the port 11. The same condition will continue so long as the maximum power is required; but when a less forcible action is required the rocking of the lever-disk 10 for diminishing the charge by more or less closing the valve 3 also admits air through the port 11 to dilute the reduced charge, thus requiring less movement of the valve for a given reduction of force, because of the dilution, which not only diminishes the richness of the gas for explosive purposes, but also diminishes the quantity of gas which is drawn by the suction, because that suction is partly satisfied with the air derived through the port 11 and draws less heavily upon the gas through that valve. When cutting off the gas-supply entirely for stopping the engine, the action of this device tends to make the last charge taken in through the wide-open port 11 of minimum richness—that is, having maximum dilution by reason of the air thus admitted—and causes any subsequent strokes of the piston which may occur from momentum to draw air only into the cylinder.

I claim—

1. In an explosive-motor vehicle in combination with the gas-inlet valve and means for opening and closing it, the gas-inlet pipe having an air-inlet port intermediate the gas-inlet valve and the motor; a valve for controlling such air-inlet port; a spring which tends to close such valve; connections for opening it connected with the means for operating the gas-inlet valve adapted to open said air-inlet as the gas-inlet closes, and a trip for disengaging said air-inlet-valve connection to permit the latter to be closed by the spring without reversing the gas-inlet-valve movement.

2. In an explosive-motor vehicle in combination with the steering-wheel, a lever encompassing the axis of said wheel and pivoted transversely to said axis proximate to said wheel; a gas-inlet valve through which the motor is supplied, and connections for operating said valve connected with said lever for operation by the rocking of the lever on its pivot.

3. In an explosive-motor vehicle in combination with a steering-wheel, a lever encompassing the axis of said wheel and pivoted transversely to said axis proximate to the wheel; a gas-inlet valve through which the motor is supplied; an air-inlet valve for the same; connections for operating the gas-inlet valve and connections for operating the air-inlet valve connected with said lever for operation by the rocking of the latter on its pivot, and adapted to cause the air-inlet valve to be opened by the movement of said lever which closes the gas-inlet valve.

4. In an explosive-motor vehicle in combination with a gas-supply pipe and the gas-inlet valve therein, the spring-closed air-inlet valve for the same pipe having the trip dog or pawl, 16, the bearing, 17, having an abutment for engaging said dog; the lever which operates the gas-inlet valve; a lever for operating said bar; links connected with said two levers respectively, and a lever encompassing the steering-wheel axis and pivoted transversely thereto near the steering-wheel having said links pivotally connected to it at opposite sides of its pivot to said bearing.

5. In an explosive-motor vehicle, in combination with the steering-handle, the gas-inlet pipe and the gas-inlet valve controlling the flow of explosive fluid through the same, said pipe having an air-inlet port between the gas-inlet valve and the motor; a valve which controls such air-inlet port, and connections for opening and closing it extending and mounted for operation in proximity to the steering-handle.

6. In an explosive-motor vehicle, in combination with the steering-wheel, the gas-inlet valve through which the motor is supplied, and connections for operating said valve comprising a lever encompassing the axis of the steering-wheel and pivoted transversely to said axis proximate to said wheel, such lever being extended in circular form about the steering-wheel axis.

7. In an explosive-motor vehicle, in combination with the steering-wheel and gas-inlet pipe through which the motor is supplied with explosive fluid, an air-inlet port in such

pipe, and a valve which controls such air-inlet port; connections for opening and closing such air-inlet valve comprising a lever pivoted transversely to the bearing of the steering-wheel proximate to the same, said lever having both its arms extended in circular form about the axis of said wheel.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Kenosha, Wisconsin, this 22d day of June, A. D. 1904.

THOS. B. JEFFERY.

In presence of—
GEO. H. EDDY,
J. M. GAFFNEY.