R. HUFF.

MOTOR VEHICLE.

APPLICATION FILED APR. 24, 1911

1,087,945.

Patented Feb. 24, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

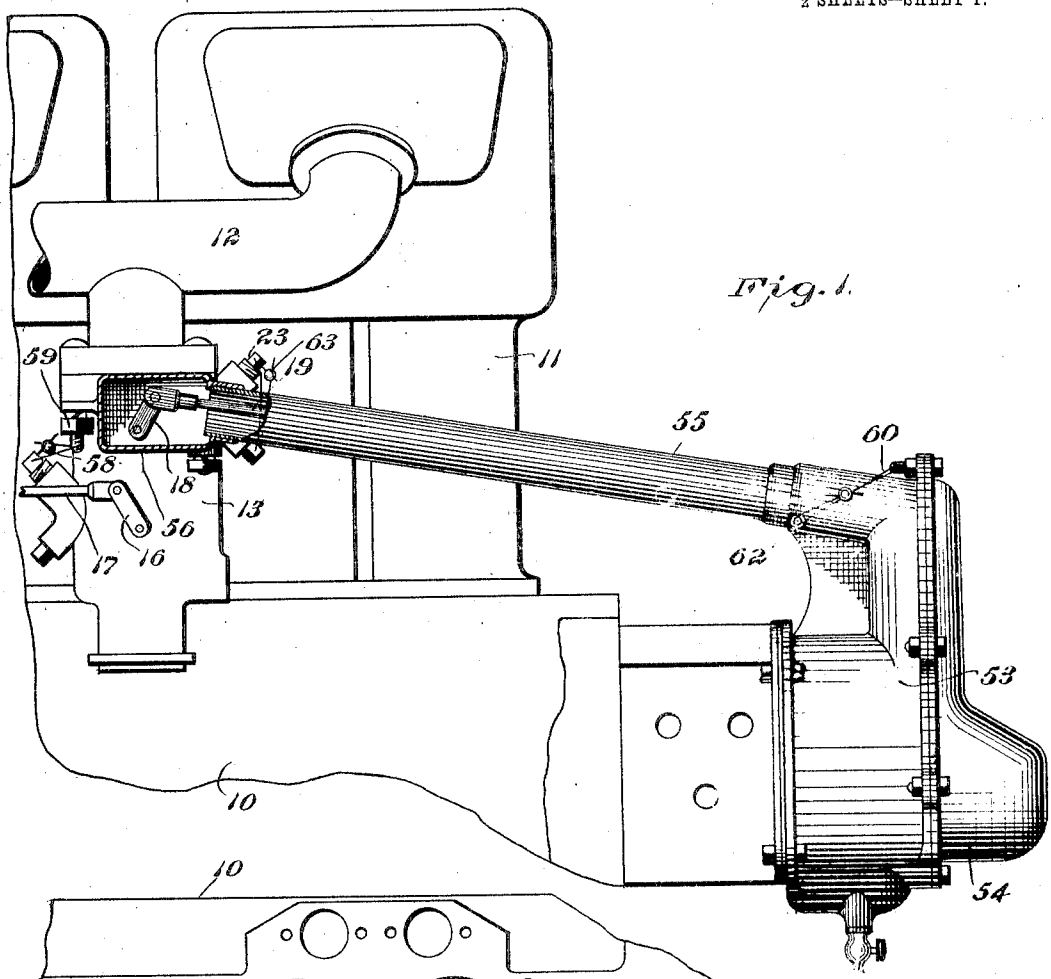
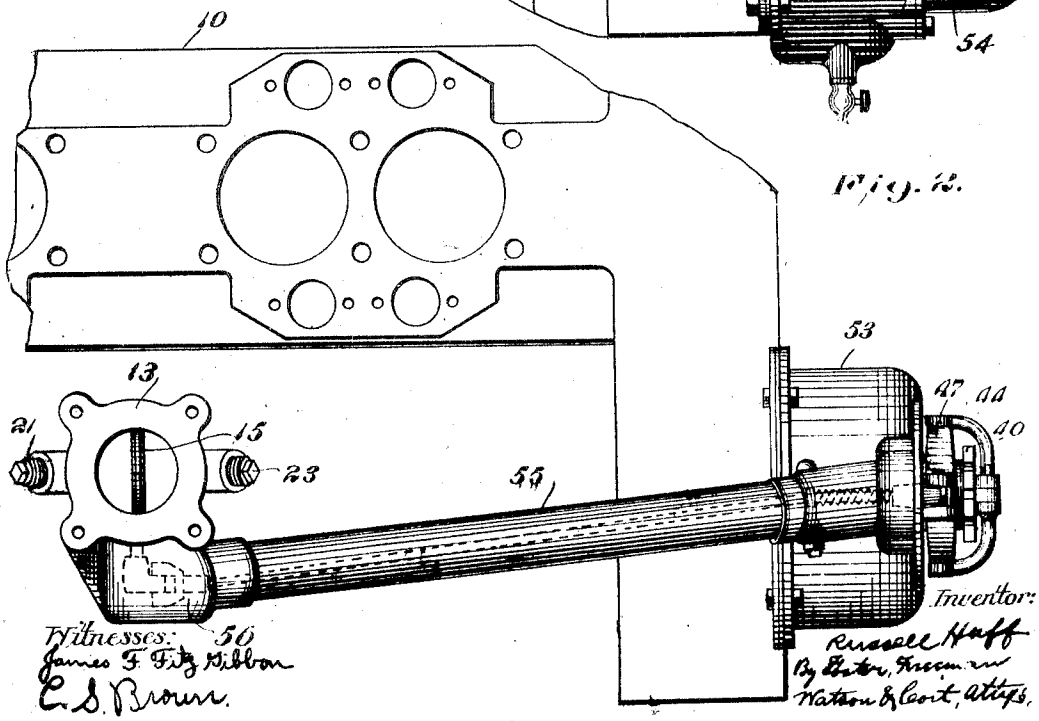


Fig. 2.



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2 SHEETS—SHEET 2.

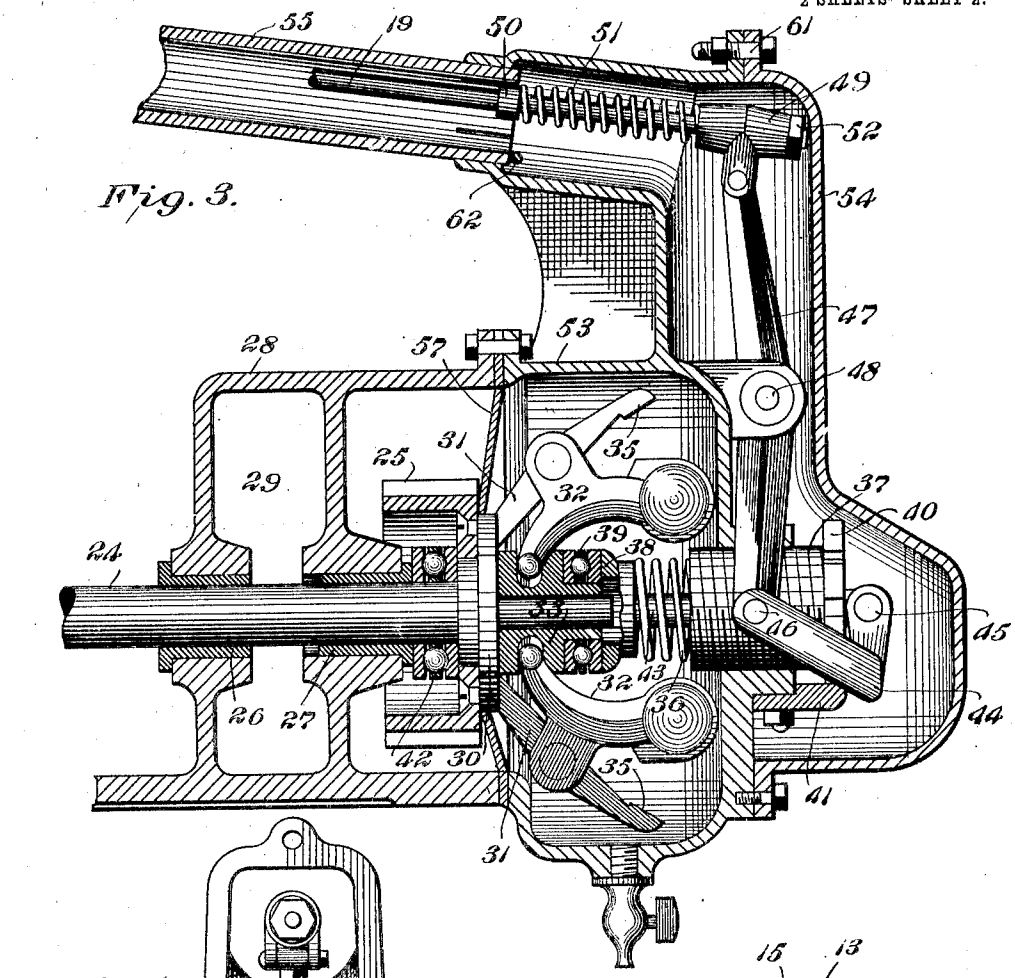


Fig. 3.

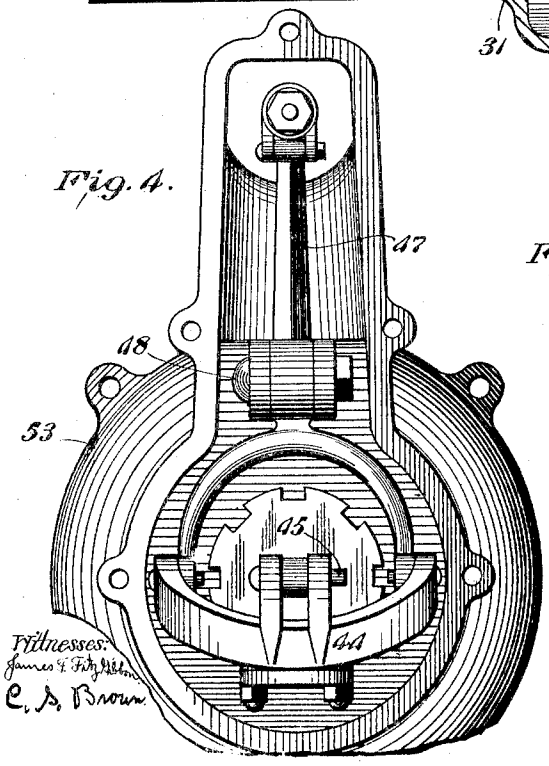


Fig. 4.

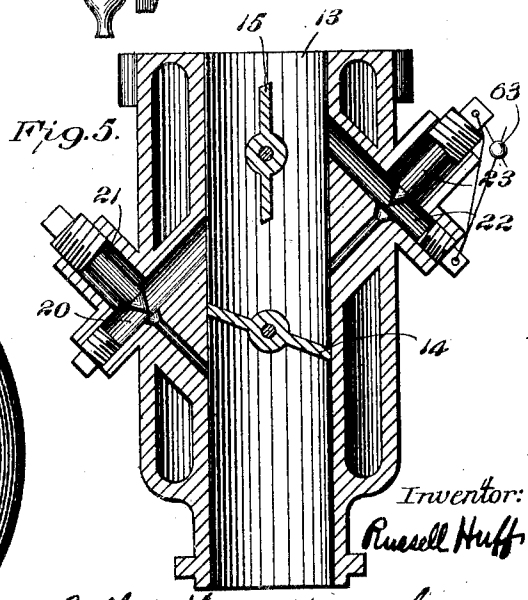


Fig. 5.

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UNITED STATES PATENT OFFICE.

RUSSELL HUFF, OF DETROIT, MICHIGAN, ASSIGNOR TO PACKARD MOTOR CAR COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

MOTOR-VEHICLE.

1,087,945. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed April 24, 1911. Serial No. 623,061.

To all whom it may concern:

Be it known that I, RUSSELL HUFF, a citizen of the United States, and resident of Detroit, Wayne county, State of Michigan, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification.

The present invention relates to automatic speed controlling mechanism for motor vehicles and is in the nature of an improvement on the speed controlling means shown in my application Serial No. 375,961, filed May 27th, 1907.

The object of the invention is to provide means on the motor vehicle for limiting its speed to any desired maximum rate and to securely inclose and protect such means in such manner that they may not be tampered with, at least without the knowledge of persons owning or controlling the car.

While my invention is particularly useful in connection with commercial vehicles which are heavy and which can not be safely operated at high speed, it is also useful in connection with taxicabs and pleasure vehicles when it is desired to limit them to the maximum speeds permitted by law or regulation.

The invention will be described in connection with the accompanying drawing, in which,

Figure 1 is a side elevation of a part of a multiple cylinder hydrocarbon motor of a type commonly used in motor vehicles; Fig. 2 is a plan view of the parts shown in Fig. 1, the cylinders and intake manifold being removed; Fig. 3 is a vertical section through the governor casing and adjacent parts; Fig. 4 is an end view of certain parts shown in Fig. 3; Fig. 5 is a vertical section through the motor intake pipe showing the throttle valves.

Referring to the drawing, 10 indicates the base and crank case of a motor of a type commonly used on motor vehicles, 11 cylinders mounted on the crank case and 12 the intake manifold for conducting the explosive mixture to the various cylinders. Communicating with the intake manifold is a mixture pipe 13 in which are located two throttle valves 14, 15, (Fig. 5). The lower valve 14 is manually controlled through a crank 16, connecting rod 17 and suitable connections usually mounted on the steering wheel and steering column, which are commonly used and need not be herein described. A throttle valve 15 is controlled by a crank 18, connecting rod 19 and governor mechanism which will be hereinafter fully described. Around the throttle valve 14 is a by-pass channel 20 controlled by a needle valve 21, the valve being usually so adjusted as to allow a sufficient amount of gas to flow through the by-pass to operate the engine at a slow rate of speed when the throttle is fully closed. Around the throttle valve 15 is a similar by-pass 22 controlled by a needle valve 23 which may be adjusted in the same manner and for the same purpose as the needle valve 21. The valve 14 may be opened more or less at the will of the operator. The valve 15 stands normally open as shown in Fig. 5, when the engine is not running, but when the engine is running it gradually closes as the speed increases and is adapted to keep the engine running approximately at a predetermined maximum speed if the flow of gas be not restricted by the manually operated valve 14. The by-passes 20 and 22 prevent the engine from being stalled or stopped by the full closure of either or both valves.

Referring more particularly to Figs. 3 and 4, 24 indicates a shaft having fixed thereon a gear 25 which is driven from the crank shaft through suitable connecting gears. The shaft 24 may be used for various purposes, such as running the magneto or the water or oil pumps. It is mounted in bearings 26, 27, in a casing 28 which is preferably an extension of the crank case 10, the bearings receiving oil from the crank case through an inclosed passage 29. Upon the shaft 24 is a disk 30 to which the gear 25 is secured. This disk also carries arms 31 on which are pivoted governor levers 32, the free ends of which carry weights or balls, while the inner ends are interlocked with grooves in a block 33 which is free to slide upon a reduced extension of the shaft 24. The outer ends of the arms 31 are provided with stops, 35 for limiting the outward movement of the free ends of the governor levers.

The governor levers are normally held in the position shown in Fig. 3 by a spring 36, one end of which is arranged within an adjustable cup 37 while the other end bears upon a head 38 surrounding the forward end of the shaft 24. Interposed between the head

38 and the block 33 is a thrust ball bearing 39 which permits the block 33 to revolve freely with the shaft 24 while, at the same time, it may exert pressure upon the non-rotating head 38. The tension of the spring may be adjusted by means of the cup 37, which has a notched flange 40 adapted to be locked in any desired position by a removable bracket 41. A second ball thrust bearing 42 is preferably interposed between the disk 30 and the bearing 27 to reduce the friction caused by the end thrust exerted on the shaft 24 by the governor levers.

The head 38, which is moved in one direction by the governor levers and in the opposite direction by the springs, is carried by a sliding rod 43 mounted in the cup 37. The forward end of this rod extends through the end of the cup and a yoke 44 is pivotally connected to it by means of a pin 45, (Figs. 3 and 4). The yoke 44 is also pivotally connected at 46 with the lower arm of a lever 47, centrally pivoted at 48. The upper end of the lever 48 is pivotally connected with a sleeve 49 adapted to slide on the rod 19 which operates the valve 15. On rod 19 is a fixed collar 50 and a spring 51 is interposed between this fixed collar and the sleeve 49. A nut or head 52 on the end of the rod 19 limits the movement of the sleeve.

The governor is contained in a closed case 53 which is bolted to the forward end of the crank case and the lever 47 and its connections are also contained in a closed case 54 suitably connected with the forward end of the case 53. It will be seen that these two casings, together with the main casing entirely inclose the governor and its connections with the exception of the rod 19. This rod is inclosed by a tube 55, one end of which fits closely a circular opening in the casing 53, while the other end fits an opening in a casing 56, forming part of, or connected to, the mixture pipe 13, the casing 56 being adapted to inclose the crank 18. It is desirable to prevent any parts which may become broken or loose from the governor from entering the compartment of the case in which the gear 25 and its connecting gears run and I therefore separate the governor compartment from the gear compartment by a partition or diaphragm 57 which, as shown, is bolted between the casings 28 and 53 and has a circular opening fitting closely to the disk 30, the diaphragm and disk fully separating the governor and gear compartments. The governor is thus fully inclosed in the casing 53 and it can not be tampered with without removing this case. The movable connections between the governor and the throttle valve 15 are also wholly inclosed, as shown. The parts when thus assembled are designed to be sealed so that access to the governor and its connections can not be had without knowledge of the owner or other person charged with responsibility for the car.

As shown in Fig. 1, a sealed wire 58 prevents removal of the nut 59 which holds the casing 56 in place and also prevents tampering with the valve controlling the by-pass 20. Another sealed wire 60 prevents removal of one of the bolts 61 which holds the casing 54 in place and also prevents removal of the pin 62 which holds the tube 55 in place. Still another sealed wire 63 prevents tampering with the valve 23 controlling the by-pass 22. Other sealing wires may be added if additional security be deemed necessary. The spring 51 serves to cushion the action of the governor upon the throttle valve, preventing shock to either of the parts or their connections when the valve is fully closed due to a sudden increase of speed of the motor. It will be noted that the adjusting sleeve 37 extends through the wall of the governor housing, thus permitting of the adjustment of the governor without opening its casing. It will be further noted that the adjusting means is securely housed and sealed and can not be tampered with without breaking the seal.

The operation of the invention will be obvious from the foregoing description and need not be reviewed in detail. It will be evident that I have provided means for automatically controlling the maximum speed with which the engine of a motor vehicle may be operated and that I have also inclosed these means so that they may not be tampered with and so that the breakage of certain parts of the mechanism will not affect injuriously other moving parts thereof.

Having described my invention what I claim and desire to secure by Letters-Patent is,

1. In a motor vehicle, the combination with the motor having an intake pipe and a throttle valve therefor arranged at the side of the motor, of a governor arranged at one end of the motor and driven thereby, connections between the governor and the throttle valve, a housing for the governor, and a tubular housing for said connections extending from the governor housing to the intake pipe.

2. In a motor vehicle, the combination with the motor having an intake pipe mounted on the motor cylinders, a throttle valve therein, an arm for operating said valve, and a casing for said arm, of a governor having a casing mounted on the motor base, connections between the governor and the throttle valve arm, a housing for said connections, and adjusting means for the governor in one of said casings.

3. In a motor vehicle, the combination with the motor having an intake pipe mounted on the motor cylinders, a throttle

valve therein, an arm for operating said valve, and a casing for said arm, of a governor having a casing mounted on another part of the motor, connections between the governor and the throttle valve arm, and a tubular housing for said connections extending from the governor casing to the intake pipe.

4. In a motor vehicle, the combination with the motor and its intake pipe, of a throttle valve in the intake pipe adapted to seat in its closed position, a governor driven by the motor, and connections between the governor and the throttle valve, said connections including a spring to cushion the governor and permit it to act independently of the valve after the latter has become seated.

In testimony whereof I affix my signature in presence of two witnesses.

RUSSELL HUFF.

Witnesses:
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