A. WINTON & H. B. ANDERSON.

THROTTLE OPERATING MECHANISM FOR EXPLOSIVE ENGINES.

APPLICATION FILED OCT. 20, 1906.

952,398. Patented Mar. 15, 1910.

Fig. 1.

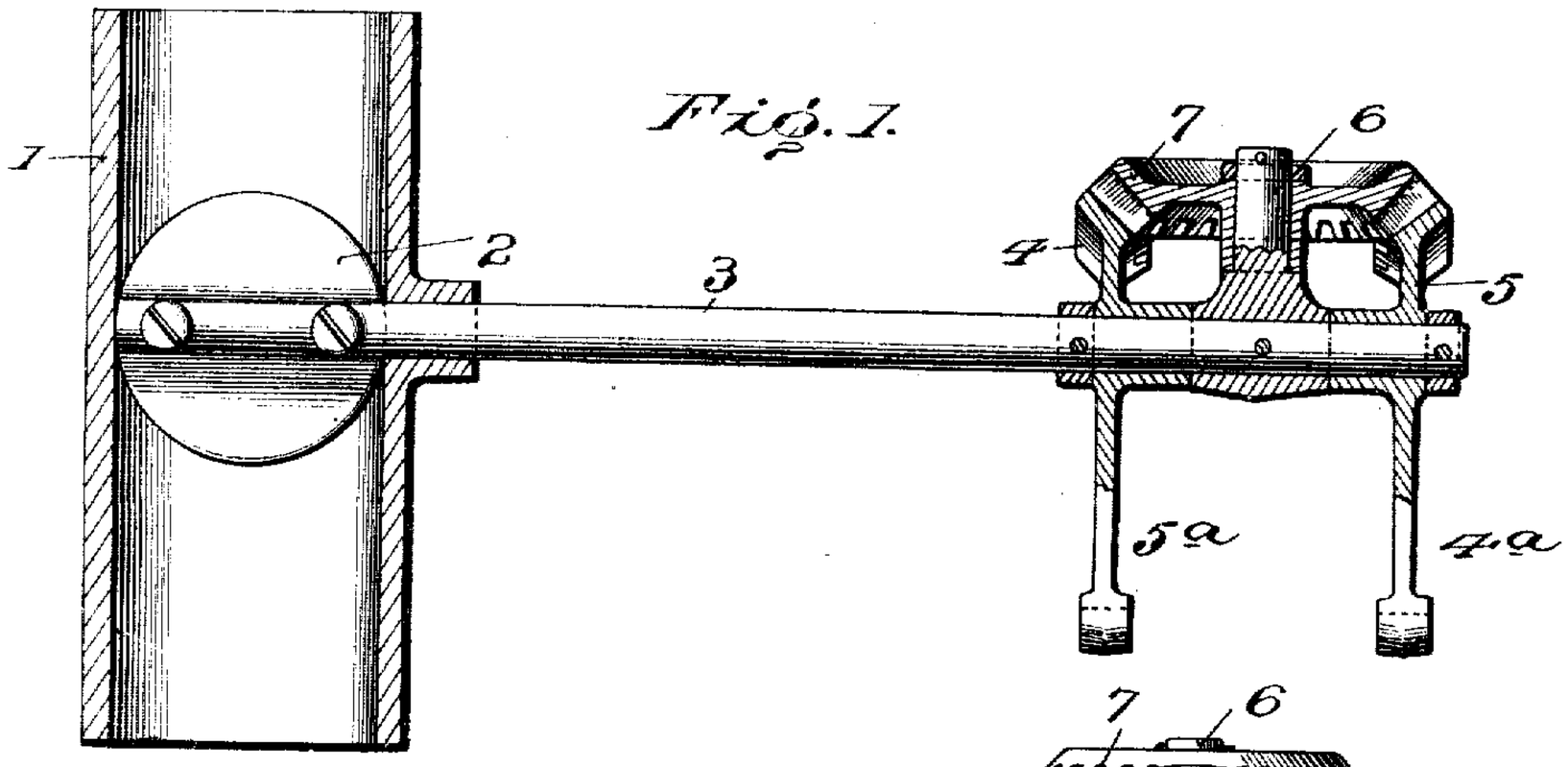
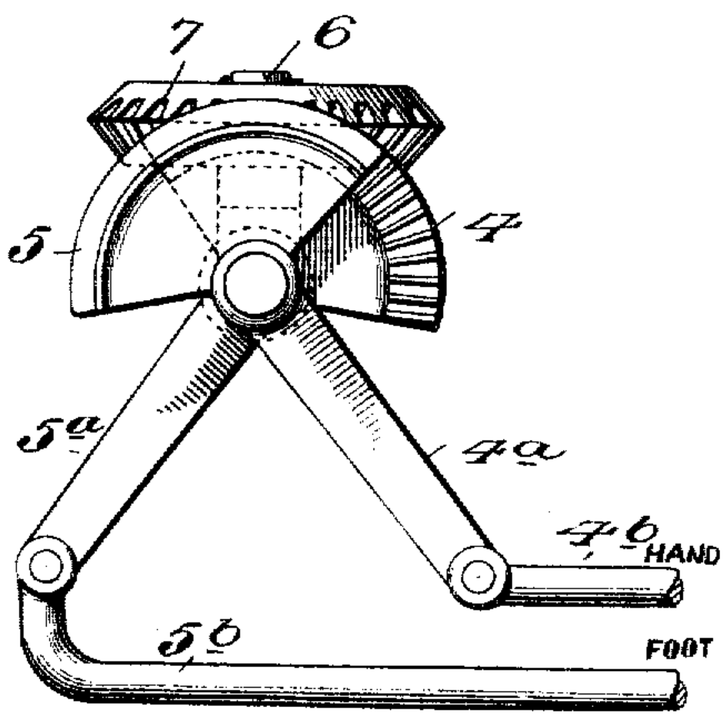


Fig. 2.



Witnesses
A. W. Ehmling
E. R. Peck

Inventors
Alexander Winton
Harold B. Anderson
By A. S. Pattison
Attorney

UNITED STATES PATENT OFFICE.

ALEXANDER WINTON AND HAROLD B. ANDERSON, OF CLEVELAND, OHIO, ASSIGNORS TO THE WINTON MOTOR CARRIAGE COMPANY, OF CLEVELAND, OHIO.

THROTTLE-OPERATING MECHANISM FOR EXPLOSIVE-ENGINES.

952,398. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed October 20, 1906. Serial No. 339,815.

To all whom it may concern:

Be it known that we, ALEXANDER WINTON and HAROLD B. ANDERSON, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Throttle-Operating Mechanism for Explosive-Engines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in throttle operating mechanism for explosive engines, the object of which is to so construct a throttle operating mechanism that it can be independently operated by separate devices (as for instance, by separate hand and foot operated members) without any lost-motion of either, whereby the slightest movement of either device will instantly open the throttle and cause the engine to instantly "pick up" or increase its power and speed.

In the accompanying drawings, Figure 1 illustrates a sectional view of a preferred form of mechanism for carrying out the invention. Fig. 2 is an end view of Fig. 1.

The throttle-operating mechanism forming the subject-matter of this application is especially designed for use in connection with explosive motors for motor carriages. It is common in the high grade cars now on the market to provide separately operated devices for controlling the engine throttle; and thus the power and speed of the engine. One of these devices is under the control of the foot of the driver while the other is under the control of the hand of the driver, or in other words, a hand lever on the steering wheel and a foot button or lever on the floor of the car. In such arrangements the hand lever is intended to remain where placed, and is generally used to regulate the minimum speed of the motor, and the foot button or lever is used for further increase of the power or speed of the engine. The foot button in such construction is usually held up by a moderately stiff spring against the pressure of the foot, so that when the foot is removed the motor is slowed down to the minimum speed, as regulated by the hand lever on the steering wheel, although such constructions permit of motor acceleration at any time by manipulating the hand lever independently of the foot lever or button. Where such construction is applied to a single throttle there is a lost motion between the hand and foot operative devices equal to the distance of the advance movement of either, in all the constructions known to us. That is to say, when the hand device or lever is moved to regulate a speed of the engine, the foot lever or button must be moved a distance equal to the previous movement of the hand lever before the foot device will effect the further movement to open the throttle, and vice versa. Such lost motion has been found to be objectionable, and it is the object of this invention (as previously stated) to construct a mechanism which will permit the independent movement of the two manually-operated controlling devices, and without the aforesaid objectionable lost-motion. In some constructions of motor control, designers have sought to overcome this objection by providing two separate throttles, one operated by the hand lever and the other by the foot, which avoids the lost-motion, but it requires two throttles, which of themselves are objectionable, being quite bulky and having twice the leakage of a single throttle.

Referring to the drawing, 1 is the conduit or pipe which connects the carbureter or gasifying device with the motor, and 2 a disk-form of throttle. This form of throttle is adopted for the purposes of description, as the simplest one, though it will be readily understood that other forms of throttles may be operated by our improved mechanism. As shown, an oscillating shaft 3 is connected with and carries the disk throttle 2. Journaled upon this rod 3 are two oppositely-disposed beveled gear segments 4 and 5, which are loose upon the said shaft. Secured to the shaft 3 between the said beveled gear segments is a gear journal or pin 6, which carries a beveled gear 7 meshing with the aforesaid segments. These gear segments are provided with arms 4^a and 5^a, which project to the opposite side of the shaft from the said segments, and these arms are connected by suitable rods 4^b and 5^b to the hand and foot operated devices (not shown). It is immaterial which one of the segments is connected with the foot and hand devices, but for the purposes of describing the operation thereof it will be assumed that the lever 5^a is connected with the foot operated device, and that the lever 4^a is connected with the hand operated device.

The operation of the construction, is as follows. The hand-operated device moves the segment 4 and rotates the bevel gear 7, the foot-operative segment 5, which is stationary, operates as a fulcrum and thus causes the pin or arm 6 to move in a direction to rotate the shaft 3 and open or close the throttle 2. The hand-operated segment 4 having been moved for the minimum speed of the motor, the further movement of the throttle or valve 2 is effected through the foot-operated device which causes the rotation or oscillation of the segment 5, and the rotation of the bevel gear 7, the segment 4 in this instance acting as a fulcrum which will cause the pin 6 to travel farther in a circular direction, and to still farther move or open the throttle 2. It is well understood that these hand-operated levers for throttles are provided with ratchet or frictional devices for holding them in their adjusted position, and it is not necessary to illustrate such hand lever. It is also well understood by those skilled in the art that the foot-operated devices are provided with springs for holding them, or returning them to their original position after being depressed, and any illustration thereof is therefore needless.

In a device constructed as above described, it will be seen that when the hand-operated device has been moved for controlling the engine, the foot-operated device is not affected thereby, and lost-motion is not caused between it and the throttle, but to the contrary, the throttle will instantly respond to the slightest pressure upon the foot-operated device, and hence the engine be instantly accelerated.

The essential principle of our present invention is to so construct the operating mechanism that the two separate operating devices can be independently moved for controlling the throttle, and without any lost-motion between either of the operating devices and the throttle.

Having thus described our invention, what we claim and desire to secure by Letters Patent, is:—

1. A throttle-operating mechanism comprising a throttle, a gear connected with the throttle, independently movable gear segments engaging opposite sides of the said gear whereby the throttle may be operated independently by the gear segments without respective lost-motion.

2. A throttle-operating mechanism comprising a shaft, a throttle operatively connected therewith, a gear having a journal connected with the shafts, gear segments engaging opposite sides of the gear whereby the gear segments may be independently operated for rotating the gear and moving the throttle without respective lost-motion.

3. A throttle-operating mechanism comprising a throttle, a shaft operatively connected therewith, a gear journal connected to the shaft, gear segments at opposite sides of the gear whereby the gear segments may be moved independently for the purpose described without respective lost-motion.

4. A throttle-operating mechanism comprising a throttle, a shaft operatively connected therewith, a laterally projecting gear journal carried by the shaft and made fast thereto, gear segments journaled on the shaft at opposite sides of said gear and loose upon said shaft to permit independent movement for the purpose described.

5. A throttle-operating mechanism comprising a shaft carrying a throttle, a gear journal made fast to the shaft and projecting laterally therefrom, gear segments loose upon the shaft and at opposite sides of the gear journal, a gear upon the said journal and in mesh with said segments, the parts adapted to operate as described.

6. A throttle-operating mechanism comprising a shaft, a throttle operatively connected therewith, a gear journal projecting laterally from and made fast to said shaft, gear segments loose upon the shaft and at opposite sides of and in engagement with said gear, the gear segments provided with operating levers projecting at the opposite side of the shaft from said gear segments.

7. A throttle-operating mechanism comprising a throttle, a shaft operatively connected therewith, a gear operatively connected with and adapted to rotate the shaft, gear segments located at opposite sides of the gear and in engagement therewith, the said gear segments adapted to be oscillated in opposite directions for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

ALEXANDER WINTON.
HAROLD B. ANDERSON.

Witnesses:
O. F. BAUGHMAN,
P. T. OPPER.