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O. A. MOLDENHAUER

FOOT ACCELERATOR

Filed Sept. 6, 1922

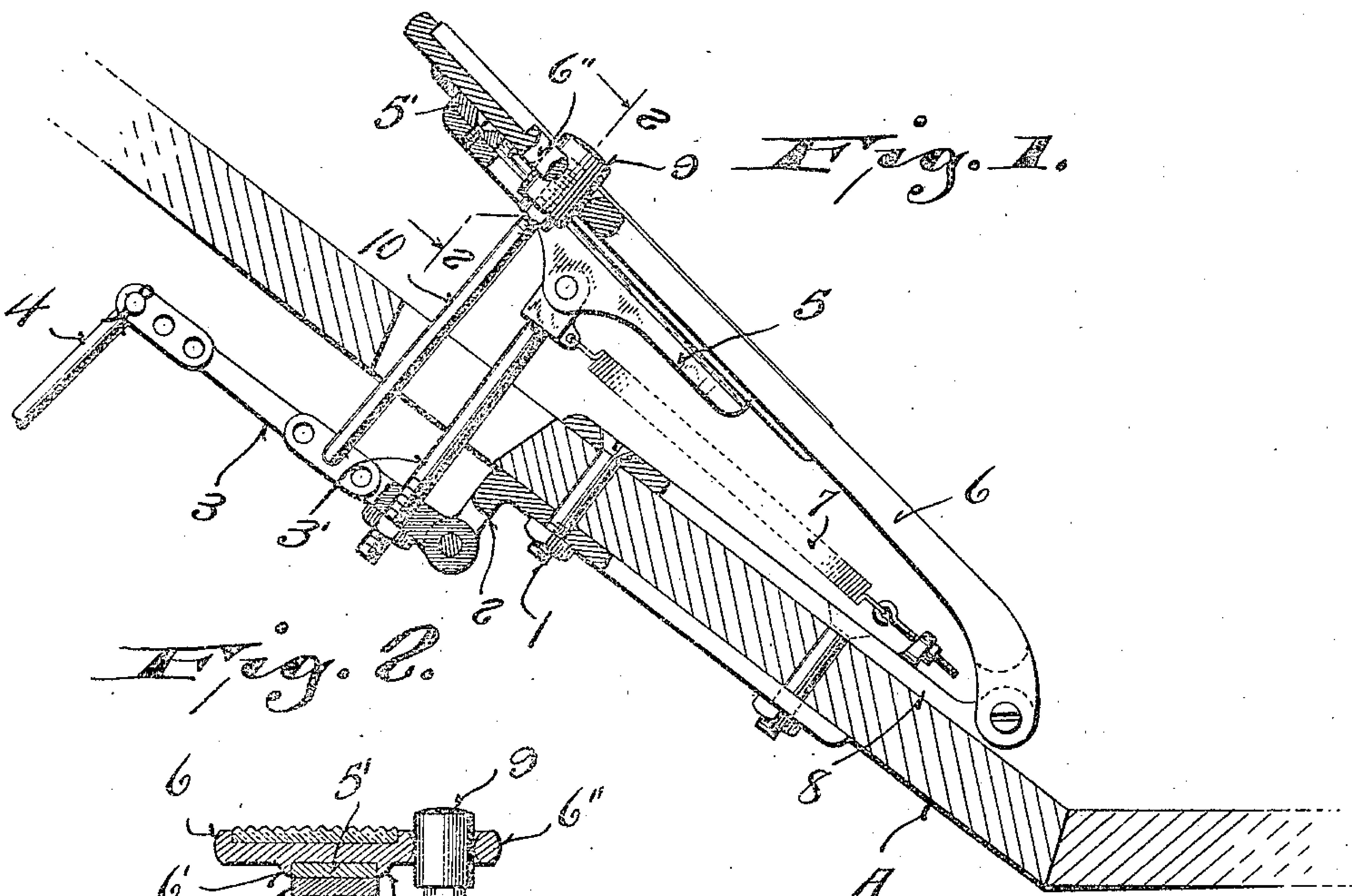


Fig. 1.

Fig. 2.

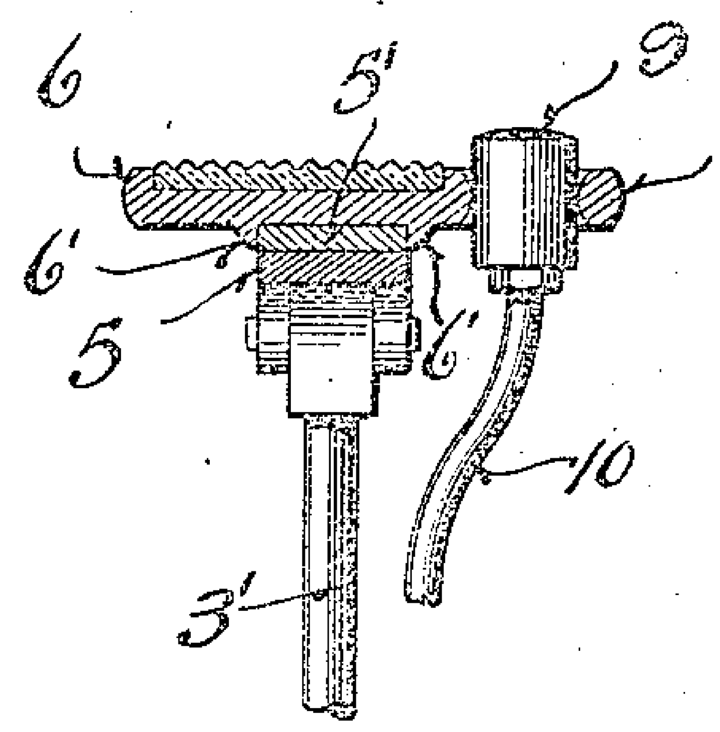
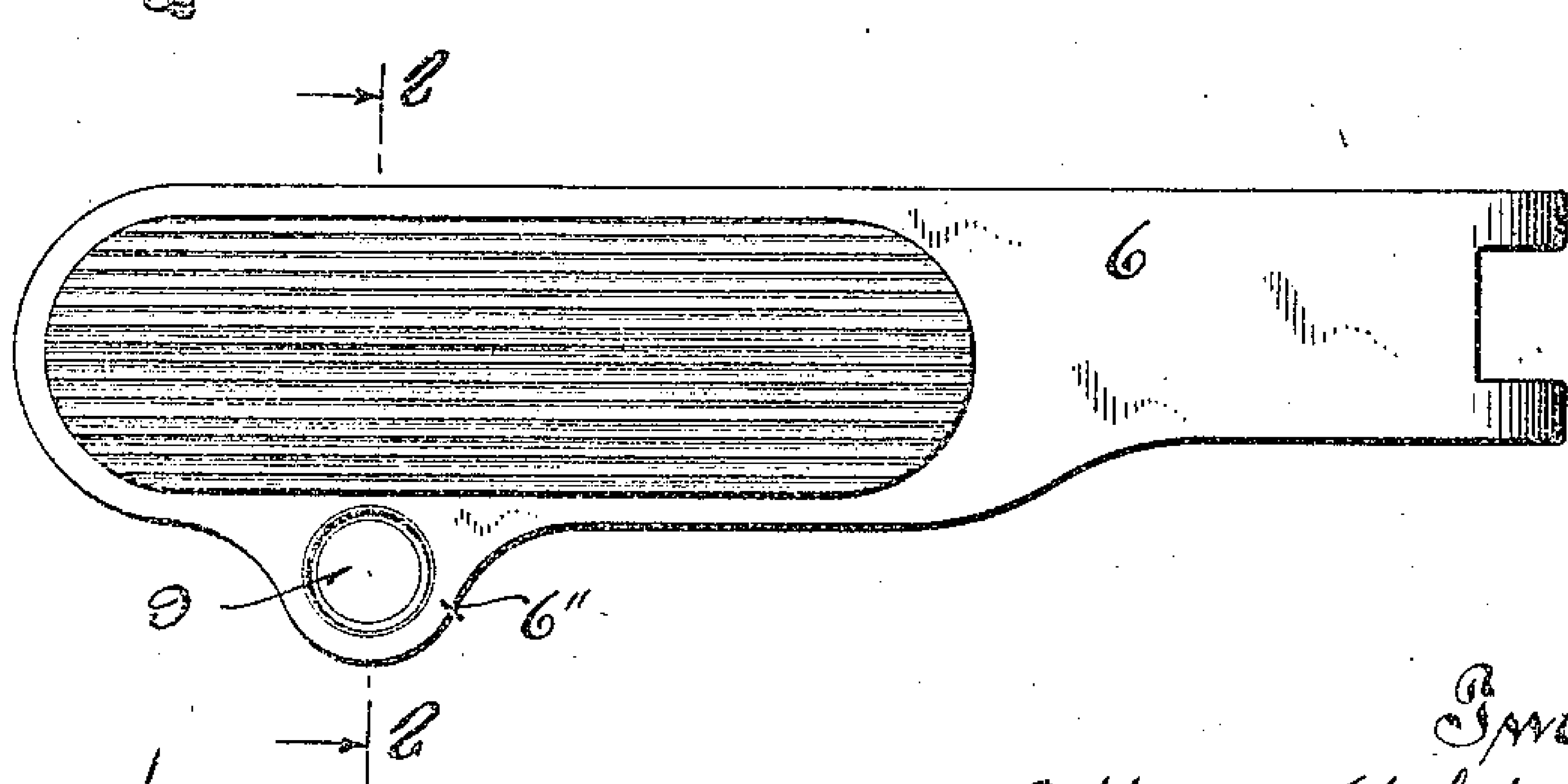


Fig. 3.



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# UNITED STATES PATENT OFFICE.

OTTO A. MOLDENHAUER, OF MILWAUKEE, WISCONSIN.

## FOOT ACCELERATOR.

Application filed September 6, 1922. Serial No. 586,500.

*To all whom it may concern:*

Be it known that I, Otto A. Moldenhauer, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Foot Accelerators; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention refers to foot controlled accelerators for actuating the throttle valve of a carbureter employed in connection with internal combustion engines for vehicles.

The primary object of my invention is to provide a foot accelerator which will insure smooth running of the vehicle and which will absorb road shock, whereby vibration of the accelerator is overcome, the device being constructed to eliminate foot strain of the operator, whereby ease of operation will result to thus reduce foot strain normally required in the control of mechanisms of this general character.

With the above and other minor objects in view, the invention consists in certain pecularities of construction and combination of parts as will be hereinafter set forth with reference to the accompanying drawing, and subsequently claimed.

In the drawings,

Figure 1 represents a side elevation of a foot controlled accelerator mechanism embodying the features of my invention, with parts broken away and other parts in section to more clearly illustrate structural features.

Figure 2, a cross section of the same, the section being indicated by line 2—2 of Figures 1 and 3, and

Figure 3, a plan view of a foot treadle, embodying one of the elements of the structure.

Referring by characters to the drawings, A represents the inclined bottom board of a vehicle cap, which is secured by bolts 1, a bracket 2 having a depending ear which is pivotally mounted, a throttle valve actuating lever 3, having the usual link or rod 4 which is connected to the throttle valve (not shown), whereby the same is controlled. The end of the lever is provided with a series of apertures for adjusting rod 4, whereby its stroke movement may be predeterminedly varied with respect to one arm of the lever 3. This lever 3 is of the bell crank type, and is provided with an actuating arm 3′, the lower end of which is in threaded union with the main arm of the bell crank lever.

The arm 3′ extends up thru the slot in the foot board A, and is formed with a head which is pivotally connected to a shoe 5, which shoe is provided with a fibre faced plate 5′, that is in slidable union with the bottom surface of a foot treadle 6, the said surface of the foot treadle being provided with longitudinally disposed guide ribs 6′ that serve to align the shoe with relation to the treadle. The head of the arm 3′ is connected to one end of a coil spring 7, the opposite end of which coil spring is adjustably secured to a plate 8, the same being connected to the top face of the foot board by the bolts 1 which confine the bracket 2. The plate 8 is formed with an upstanding end to which is pivotally attached, the foot treadle 6.

Hence it will be seen that under normal conditions, the spring 7 will tend to hold the actuating lever 3 upwardly and thereby maintain the throttle valve in its normal full open position, and incidentally the spring will also exert pressure thru its shoe connection with the foot treadle to maintain said foot treadle in its extreme angular position with relation to the foot board, which angular position is conveniently arranged whereby the foot of the operator can easily rest upon the treadle. The said treadle is also positioned with relation to the seat of the vehicle, whereby the foot of the operator can conveniently reach it at some point throughout its length, it being understood that the upper face of said treadle has fitted therein, a suitable rubber pad.

The treadle is provided with an offset apertured ear 6″ for the reception of a button 9, which button normally projects above the upper face of the treadle, as best shown in Figure 2 of the drawings. The button forms an adjustable extension for a pressure link 10, the lower end of which link is in pivotal union with the main arm of the throttle valve actuating lever 3, there being a series of apertures in this arm for receiving the lower end of the link, whereby the leverage of the link is adjusted, under certain conditions, with relation to the fulcrum point of the actuating lever 3. The adjustment of this pressure link is for the purpose of varying the stroke of the throttle valve actuating lever with relation to the button, which button is depressed by the foot of the operator.

From the foregoing description it will be seen that when the accelerator is not functioning, the foot of the operator which is resting upon the treadle 6 is supported and relaxed. Should it be desired to accelerate slightly, the operator shifts the position of his foot so as to engage the button 9 and by slight pressure thereon, the bell crank will be caused to lock in opposition to the spring 7. This action will shift the positions of the shoe 5 forwardly, which shoe previously acted as a wedge to rigidly support the treadle and the weight of the operator's foot. It follows that as soon as the shoe 5 shifts forwardly, it permits the treadle to swing downwardly to a certain degree and locking of the bell crank effects the desired acceleration. After this initial depression of the bell crank, due to the foot of the operator in engagement with the button, the operator's foot is again shifted from the button to its position of rest upon the treadle.

It will be noted that as soon as the foot of the operator is released from the button and shifted to its position of rest upon the treadle, that the spring pressed shoe will again assume its function of a locking wedge and thus hold the treadle in its previously depressed position and, likewise, the accelerator bell crank lever. The parts are thus firmly locked in the initially adjusted position with the accelerator depressed slightly.

Should it be desired to increase acceleration, the same operation is resorted to whereby the bell crank lever is depressed by the operator's foot engaging the button 9. It follows that the shoe will again move forward and permit the foot treadle to swing downwardly still further and upon removal of the operator's foot from the button to a position of rest upon the treadle, the parts will again be locked and this action can be performed successively until full acceleration is obtained.

As soon as the operator releases the pressure, or weight of his foot from the treadle, it will be noted that the spring 7 will cause the shoe immediately to move towards the fulcrum of the treadle and thus wedgingly swing the treadle up to its normal position of rest, as shown in Figure 1, and thereby release the bell crank lever which had previously been depressed and locked.

Hence, it will be seen that the operator can conveniently at all times rest his foot upon the treadle and at will, depress the bell crank lever from time to time for accelerating purposes, whereby said lever will be locked in any pre-determined position by a shift, or weight of the operator's foot to the treadle after such depression. It will thus be noted that the mechanism is positive in its action and that vibration due to road shock, or the like, will not cause the foot accelerator to shift uncertainly back and forth and thereby cause the engine to fluctuate, or operate unevenly.

From the foregoing description, it will be noted that what might be termed a full floating lever mechanism is developed which will act positively under all conditions and which will, due to its full floating tendencies, absorb the shock and thereby render the operation of the vehicle uniform and smooth running.

While I have shown and described a simple exemplification of my invention minutely as to all of its details, it is understood that I may vary the structural features of it within the scope of the claims as interpreted by those skilled in the art.

I claim:

1. A foot controlled accelerator comprising a pivoted treadle, a throttle valve actuating spring controlled lever pivoted thereunder, a shoe in slidable union with the treadle, a pressure link carried by the shoe and connected to the lever, the pressure link being extended above the plane of the treadle for initial control of the lever.

2. A foot controlled accelerator comprising a pivoted treadle, a shoe in slidable union therewith, a bell crank lever having one arm in pivotal union with the shoe, a pressure link connected to the other arm of the lever and extending above the plane of the treadle, and a spring associated with the treadle and bell crank lever for holding the same in normal positions.

3. A foot controlled accelerator comprising a pivoted treadle having an offset apertured ear, and guide ribs depending upon its surface, a shoe in slidable union with the guide ribs, a throttle valve actuating lever pivotally mounted over the treadle, an adjustable arm connecting the throttle arm lever and shoe, and an adjustable pressure link connected to the lever and extending thru the apertured ear of the foot treadle.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

OTTO A. MOLDENHAUER.