Oct. 7, 1930. E. KASPAR 1,777,370

GOVERNOR FOR INTERNAL COMBUSTION ENGINES

Filed Jan. 12, 1929 2 Sheets-Sheet 1

Fig. 1.

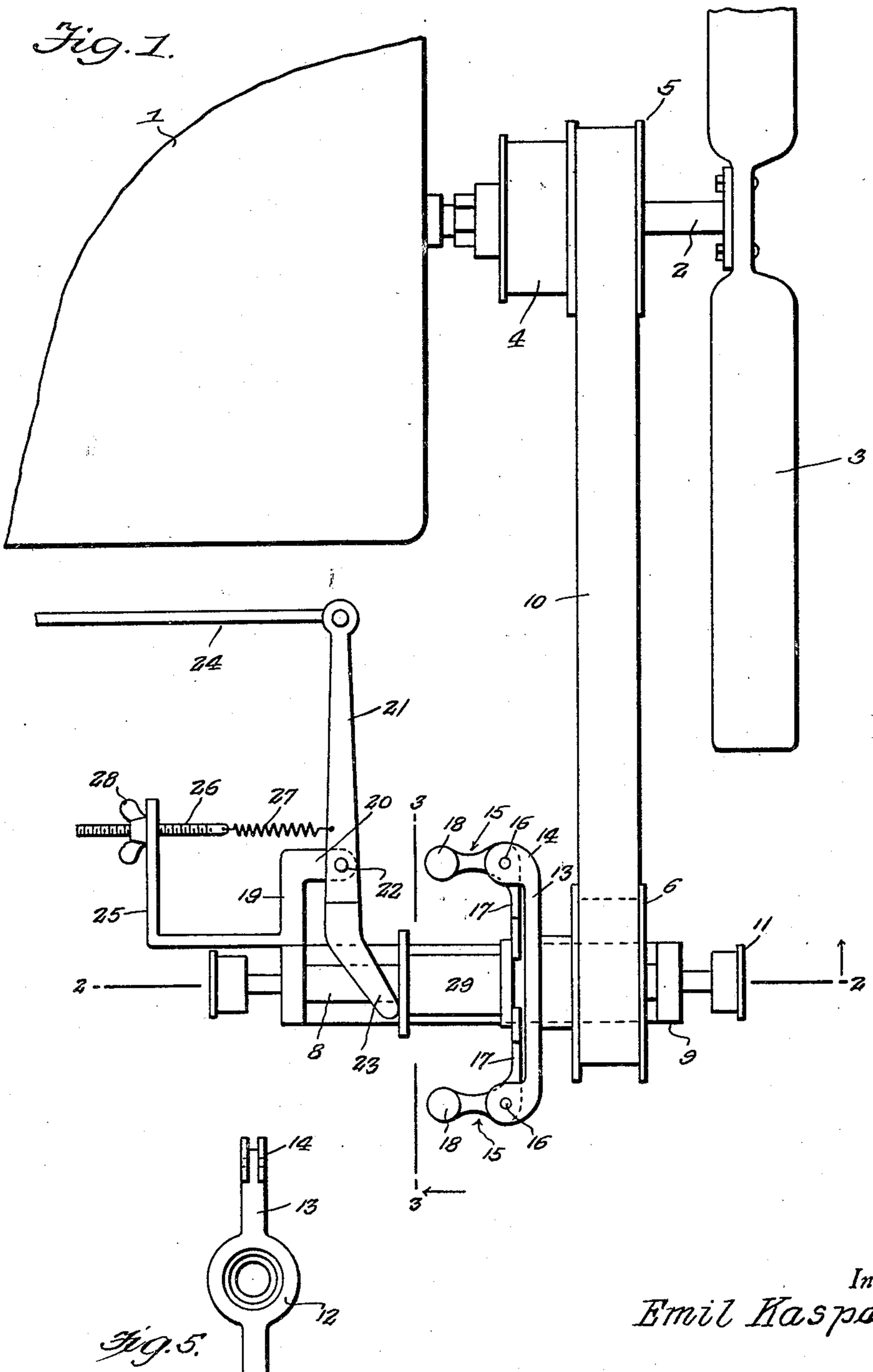

Fig. 5.

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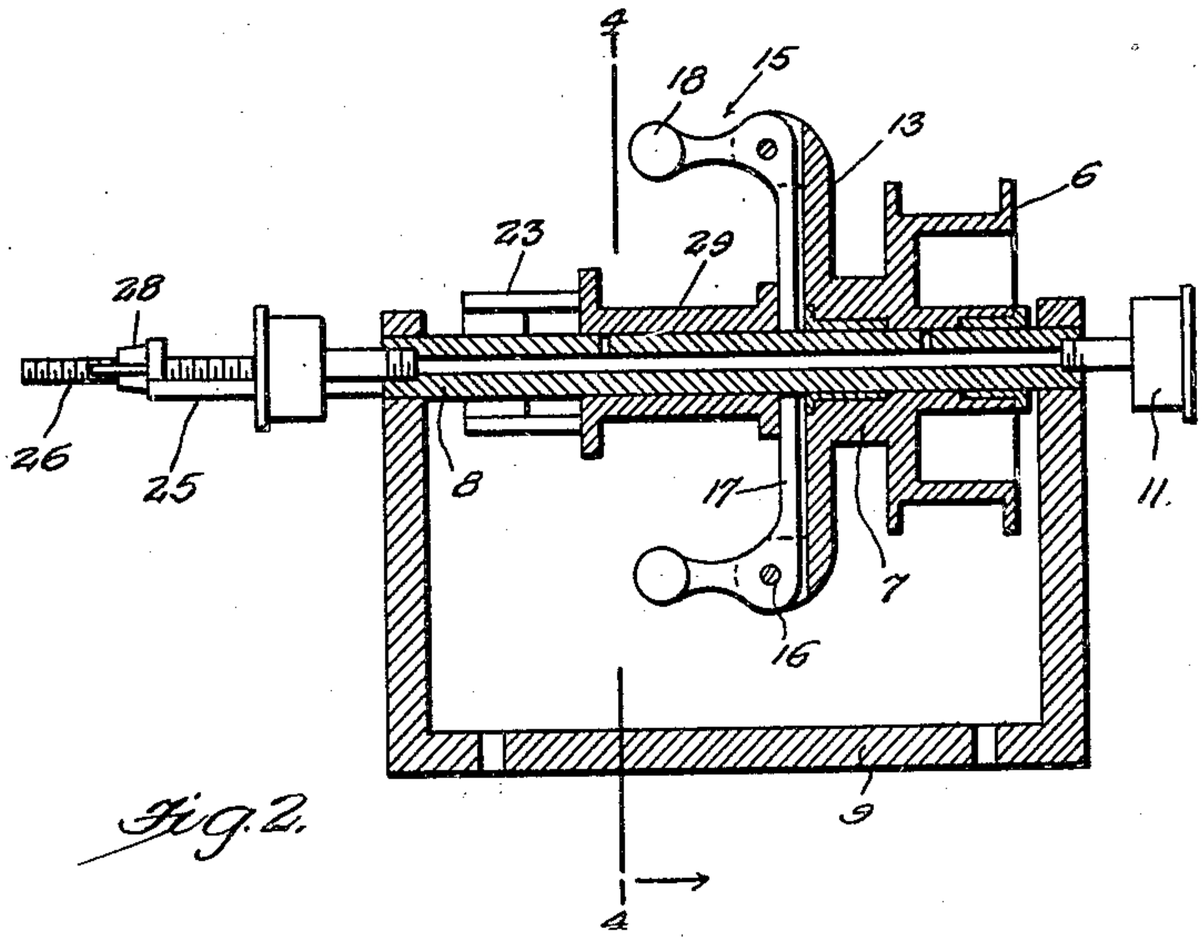

Fig. 2.

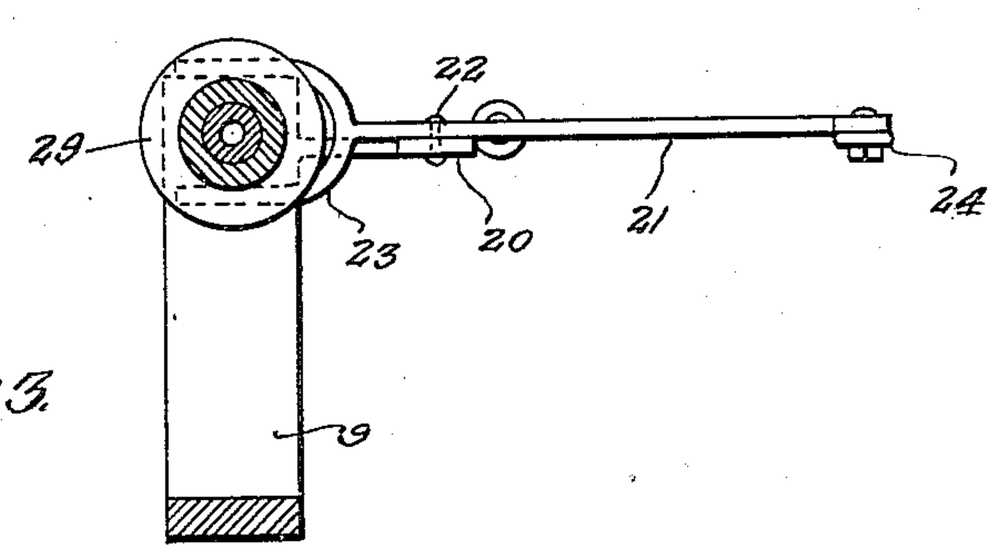

Fig. 3.

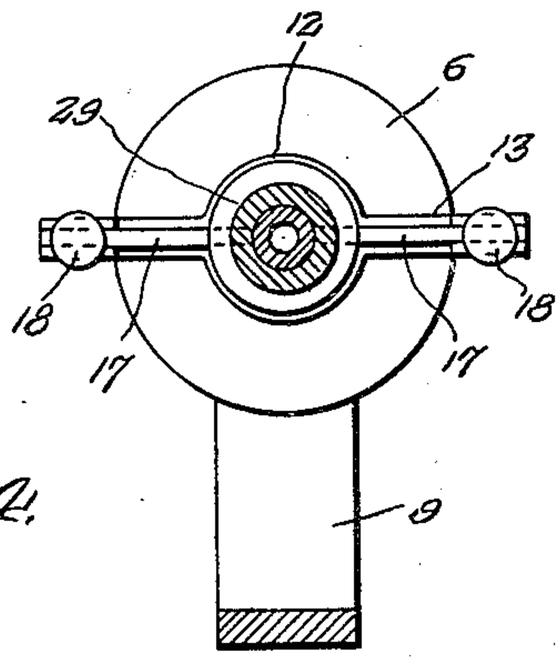

Fig. 4.

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UNITED STATES PATENT OFFICE

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GOVERNOR FOR INTERNAL-COMBUSTION ENGINES

Application filed January 12, 1929. Serial No. 331,934.

The present invention relates to improvements in attachments for automobile motors transformed into stationary engines and has reference more particularly to a governor for association with such automobile motors when transformed into a stationary engine, and used as such to drive corn shellers, wood saws, feed grinders and other machinery.

The one great difficulty the users of these types of motors have experienced when transformed into and used as stationary engines is that nothing is provided to stabilize the power of the motor so as to make its pull constant and uniform. In the case of a corn sheller, it is practically impossible to keep the volume of corn going into the sheller constantly uniform. Consequently in order to have sufficient power when the load is heavy, it is necessary to set the feed of the gasoline so that it will meet the requirements of the heavy load, and when the load becomes lighter, the engine has a surplus power and runs wild. This is unsatisfactory as it creates an uneven operation of the machinery, resulting in heavy wear and tear and loss of motion, and also the use of a greater amount of fuel than would be necessary if the fuel consumption could be properly regulated.

It is therefore one of the principal aims of the present invention to provide a governor that will automatically control the supply of the fuel to the engine so the engine may be regulated in direct ratio to the weight the load being placed upon the engine so that the motion of the machinery is kept constant and uniform.

Another important object is to provide a governor of the above mentioned character that can be readily and easily installed without necessitating any material alterations, the same being further simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawings.

In the accompanying drawings wherein like reference characters indicate corresponding parts throughout the same:

Figure 1 is a top plan view of the governor embodying my invention showing the manner in which the same is operatively connected with the fan shaft of a motor, the latter being shown fragmentarily.

Figure 2 is a sectional view taken approximately on the line 2—2 of Figure 1.

Figure 3 is a vertical section taken on the line 3—3 of Figure 1, and

Figure 4 is a vertical section taken on the line 4—4 of Figure 2, and

Figure 5 is a detail of the fly ball carrying bell crank lever mounting.

In the drawing wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a portion of an automobile internal combustion engine of the conventional construction that is used as a stationary engine for running various kinds of machinery such as corn sheller, wood sawing machines, feed grinders and the like. The fan shaft that extends from the forward end of the engine is indicated at 2, the fan being designated by the reference character 3, while the pulley for driving the fan shaft is shown at 4. In attaching my improved governor, an additional pulley 5 is secured on the fan shaft 2 for rotation therewith, and this pulley is arranged in alinement with a pulley 6 that is formed on one end of a hub 7 that is mounted for rotation on a hollow shaft 8. This shaft is secured across the upper ends of the arms of a substantially U-shaped bracket 9 that is adapted to be anchored at its base on any suitable support adjacent the motor 1. A belt 10 is trained over the alined pulleys 5 and 6 as clearly indicated in Figure 1 for driving the hub 7. Suitable grease cups 11 have connection with the respective ends of the hollow shaft 8 for lubricating the various parts arranged on said shaft as suggested in Figure 2.

Carried by the inner end portion of the hub 7 is the circular ring 12 from which extends at diametrically opposite points the arms 13 that carry at their respective ends

the laterally disposed spaced ears 14 as clearly indicated in Figure 5.

A bell crank lever 15 is pivotally secured at its bend between each pair of spaced ears 14 as at 16 and the radially disposed arms 17 of the bell crank levers terminate at opposite sides of the shaft 8 for a purpose to be presently described. Fly balls 18 are carried by the outer ends of the other arms of the bell crank levers.

A lateral extension 19 is formed on one of the arms of the bracket 9 and the outer end of this extension is disposed inwardly as at 20. A horizontally disposed lever 21 is pivoted adjacent its inner end on this portion 20 as at 22, the inner end of the lever 21 being provided with a yoke 23 that extends around the adjacent portion of the shaft 8 for a purpose also to be presently described. The outer end of this lever 21 is operatively connected to the throttle rod 24 which, by means of a combination with a throttle lever on the carburetor, regulates the amount of fuel drawn by the engine from the carburetor into the engine.

An angular arm 25 extends from the bracket 9 and a threaded rod 26 extends transversely through the outer end portion of this angular arm. One end of the threaded rod is operatively connected with the intermediate portion of the lever 21 by means of the spring 27 and a thumb nut 28 is threaded on this rod for regulating the tension of the spring 27 in the manner readily obvious from the construction disclosed in Figure 1.

Arranged for slidable movement on the intermediate portion of the shaft 8, and disposed between the radial arms 17 and the yoke 23 is the sleeve 29. The ends of this sleeve are formed with annular flanges.

In the operation of my improved governor, when the pulley 6 rotates, the revolving of the hub member 7 will cause the balls 18 to move outwardly under centrifugal force, whereby to actuate the bell crank levers 15 and the inner ends of the radially disposed arms 17 will cooperate with the adjacent ends of the slidable sleeve 29 to move the same on the shaft 8 toward the left and as the yoke 23 is in engagement with the end of the sleeve 29, the lever 21 will be caused to be swung on its pivot 22, thus actuating the throttle rod 24, and in this manner the flow of the fuel into the engine will be regulated. The amount of gasoline that is consumed and the power generated is in direct ratio to the weight of the load pulley, and the motion of the machinery is thereby kept constant and uniform.

It will thus be seen from the foregoing description that I have provided a governor that will at all times be positive and efficient and automatic in its operation and due to its simplicity, the same can be readily and easily installed without necessitating any alterations.

While I have shown the preferred embodiment of my invention it is to be understood that minor changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. An engine control unit comprising a U-shaped supporting bracket, one arm of which is provided with a pair of spaced angular extensions disposed laterally of one side of the brackets, a stationary shaft supported at its ends by the arms of the brackets, a horizontally disposed lever pivoted on one of the said angular extensions of the bracket and one end thereof disposed crosswise of the said stationary shaft, said lever being adapted to have its outer end operatively connected to the throttle of the engine, a tensionable connection between the said lever and the other angular extension of the bracket, a driven element on the said shaft and presenting a driving pulley and a plurality of centrifugally operated pivoted bell cranks operatively connected for simultaneous operation, said pulley being adapted to have operative driving connection with the said engine, and a sleeve slidably mounted on the said shaft and engaged at one end by the said lever and at its other end by the said bell cranks.

2. An engine control unit comprising a U-shaped supporting bracket comprising a pair of vertical spaced parallel leg members, and a horizontally disposed cross member connecting the legs at one end of the legs, a stationary shaft supported at its end by the legs of the bracket, an angular bracket extending laterally from one of said legs, a second angular bracket extending from the first mentioned angular bracket, a horizontally disposed lever pivoted on one of said angular brackets, said lever having one end thereof disposed crosswise of said stationary shaft, said lever being adapted to have its other end operatively connected to the throttle of the engine, an adjustable tensionable connection between said lever and the other of said angular brackets, a driven element on said shaft and presenting a driving pulley and a plurality of centrifugally operated pivoted bell cranks operatively connected for simultaneous operation, said pulley being adapted to have operative driving connection with the said engine, and a sleeve slidably mounted on said shaft engaged at one end by said lever, and at its other end by said bell cranks.

In testimony whereof I affix my signature.

EMIL KASPAR.