To all whom it may concern:

Be it known that I, HARRY D. HILL, a citizen of the United States, residing at Plymouth, in the county of Marshall, State of Indiana, have invented certain new and useful Improvements in Gasoline-Engine Governors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable any one skilled in the art to which it appertains to make and use the same.

This invention relates to gas engine governors, more particularly to governors of the bit and miss design.

15. The present invention contemplates providing a manually controlled regulating means for governors which effect the omission of an explosion by keeping the exhaust valve open throughout the cycle.

20. A further object of the invention is to provide an adjustable tension means for controlling the position of the governor detent arm whereby a wide range of engine speed is effected.

25. The invention resides in a bell crank lever carrying a helical spring which serves to yieldingly hold the detent arm in any adjusted position, it being understood that various modifications may be made in the scope of the appended claim.

In the accompanying drawings forming part of this specification Figure 1 is a side elevation of a gas engine equipped with my invention. Fig. 2 is an end elevation of the gas engine equipped with my invention. Fig. 3 is a plan view of the parts shown in Fig. 1. Fig. 4 is a detail perspective view of the invention.

40. Referring now to the drawings in which like characters of reference designate similar parts, a conventional four-cycle gas engine is shown comprising a supporting frame 10 upon which is supported a cylinder 11, crankshaft 12, and connecting rod 13. The inlet valve 13 is of the automatic variety, and the exhaust valve 14 is mechanically actuated through the instrumentality of a valve rod 15, which is terminally pivoted to a rocking hook up arm 16. The arm 16 is actuated through the instrumentality of a cam 17 carried by a gear 18 which is driven by a gear 19 on the crank shaft.

The governor 20, mounted on the flywheel, is of the ball variety and serves to slide a cam sleeve 21 on the crank shaft.

The bell crank detent arm 22 carries on one leg an idler 23 which rides upon the cam sleeve, the sleeve rocking the detent arm on its pivot when the engine speeds up until the free leg hooks up with the hook up arm 16 thereby holding the same from engagement with the cam 17. In this position of the parts the valve rod remains stationary, the exhaust valve open, and the ignition mechanism 24 which is operated by the valve rod, quiescent. When the engine slows down to normal, the detent arm releases the hook up arm and the parts assume their normal working position.

In the type of engine above described, the speed of the engine is controlled by the pressure which the idler of the detent arm exerts upon the cam sleeve, any lessening of the pressure enabling the governor to actuate the cam sleeve and detent arm while the engine is running under normal speed, and any increase of the pressure forcing the engine to speed up above normal in order to actuate the cam sleeve and detent arm.

The improved means which I have devised for varying the pressure of the detent arm upon the sleeve consists of an inverted V-shaped bracket 25 the legs of which are terminally bolted to the supporting frame in any suitable manner. A bell crank lever 26 is pivoted at its elbow to the right of the bracket one leg of the lever projecting upwardly and forming an operating handle 27, the mating leg 28 extending outwardly over the free leg of the detent arm and being provided with a set screw 29 which works in the slot 30 of an arcuate guide bar 31.

A helical spring 32 is secured at one end to the leg 28 and at its opposite end is secured to the free leg of the detent arm.

The operation of the device may be briefly described as follows:—By referring to Fig. 1 it will be seen that by shifting the bell crank lever in such a direction as to expand 100 and thereby place the spring under greater tension than ordinary, the free leg of the detent arm will be elevated and the idler will be forced into greater frictional engagement with the cam sleeve. In this position of the parts the detent arm will not hook up with the hook up arm until the engine attains a predetermined speed above normal. Conversely by shifting the bell crank lever in such a direction as to diminish the tension of the spring, the idler will bear with less pressure on the cam sleeve than ordinary.
and the detent arm will hook up with the hook up arm before the engine attains normal speed. In this manner a wide range of engine speed is effected.

What is claimed, is:

The combination with a gas engine and a hit and miss governor operated by a cam on the gas engine shaft, said governor including an angular detent arm pivoted at the elbow above the shaft bearing and having at one end a roller riding upon said cam and having the other end extending horizontally and terminally adapted to engage with a governor hook-up arm, of a regulating device for varying the pressure of said roller upon said cam including an inverted V-shaped bracket having the legs offset intermediate the ends and terminally bolted to said shaft bearing whereby the top of said bracket is positioned to overhang the pivot of said detent arm, an angular lever pivoted at the elbow on the top of said bracket and having one leg extending longitudinally and overhanging the free leg of said detent arm, a helical spring connected to the free leg of said detent arm and to said leg of said angular lever, and means for locking said angular lever stationary in various adjusted positions on said bracket whereby to vary the tension of said spring.

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

HARRY D. HILL.

Witnesses:

Charles M. Walker,
Ferdinand Engel.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."