

HIT AND MISS ENGINES

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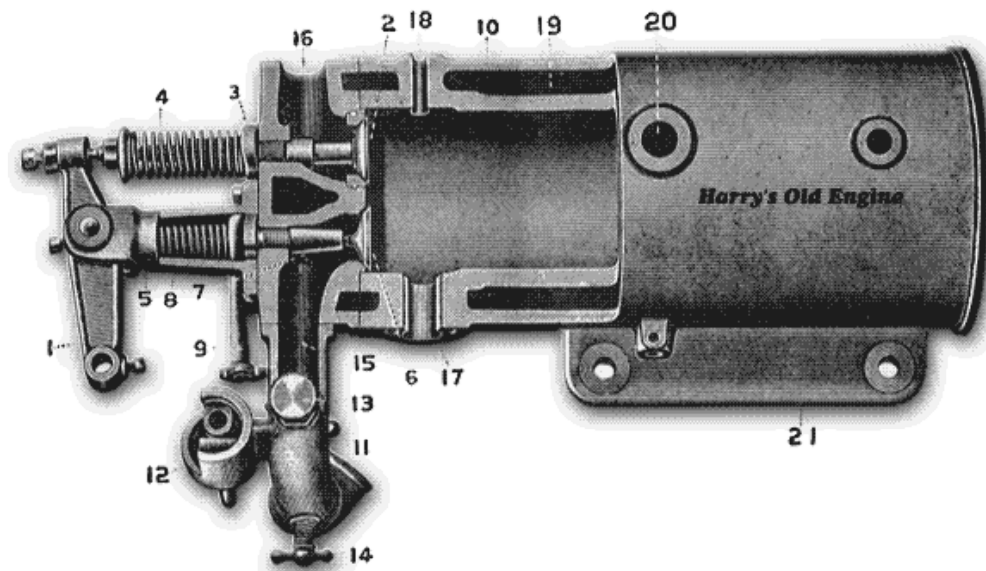
A **hit-and-miss engine** is a type of four-stroke [internal combustion engine](#) that was conceived in the late 19th century and was produced by various companies from the 1890s through approximately the 1940s. The name comes from the method of speed control that is implemented on these engines (as opposed to the "throttle governed" method of speed control). The sound made when the engine is running without a load is a distinctive "POP whoosh whoosh whoosh POP" as the engine fires and then coasts until the speed decreases and it needs to fire again to maintain its average speed.

Hit-and-miss engines were made by a multitude of engine manufacturers during their peak usage which was from approximately 1910 through the early 1930s when they began to be replaced by more modern designs. Some of the largest engine manufacturers were Stover, [Hercules](#), [International Harvester](#) ([McCormick Deering](#)), [John Deere](#) and [Fairbanks Morse](#).

A hit-and-miss engine is a type of [flywheel engine](#).^[1] A flywheel engine is an engine that has a large [flywheel](#) or set of flywheels connected to the [crankshaft](#). The flywheels maintain engine speed during engine cycles that do not produce driving mechanical forces. The flywheels store energy on the combustion stroke and supply the stored energy to the mechanical load on the other three strokes of the piston. When these engines were designed technology was not nearly as advanced as today and all parts were made very large. A typical 6 horsepower (4.5 kW) engine weighs approximately 1000 pounds (454 kg). Typically, the engine material was mainly [cast iron](#) and all significant engine parts cast from it. Small functional pieces are made of [steel](#) and [machined](#) to perform their function.^[1]

Sparks to ignite the fuel mixture are created by either a [spark plug](#) or a device called an [ignitor](#).

Cooling of the majority of hit-and-miss engines is by [hopper cooling](#), with water in an open reservoir. There were a small portion of small and fractional horsepower engines that were air-cooled with the aid of an incorporated fan.



Hit-and-miss engines were made to produce power outputs from 1 through approximately 100 [horsepower](#) (0.75 - 75 kW). These engines are slow speed and typically ran from 250 [revolutions per minute](#) (rpm) for large horsepower engines to 600 rpm for small horsepower engines.

They were used to power [pumps](#) for cultivation, [saws](#) for cutting wood, [generators](#) for electricity in rural areas, running farm equipment and many other stationary applications. Some were mounted on cement mixers. These engines also ran some of the early washing machines. They were used as a labour-saving device on farms, and allowed the farmer to accomplish much more than he was previously able to do.

The engine was typically belted to the device being powered by a wide flat belt, typically from 2 - 6 inches (5 – 15 cm) wide. The flat belt is driven by a pulley on the engine that attached either to a flywheel or to the crankshaft. The pulley is specially made in that its circumference is slightly tapered from the middle to each edge (like an over-inflated car tyre) so that the middle of the pulley is a slightly larger diameter. This design keeps the flat belt in the centre of the pulley.

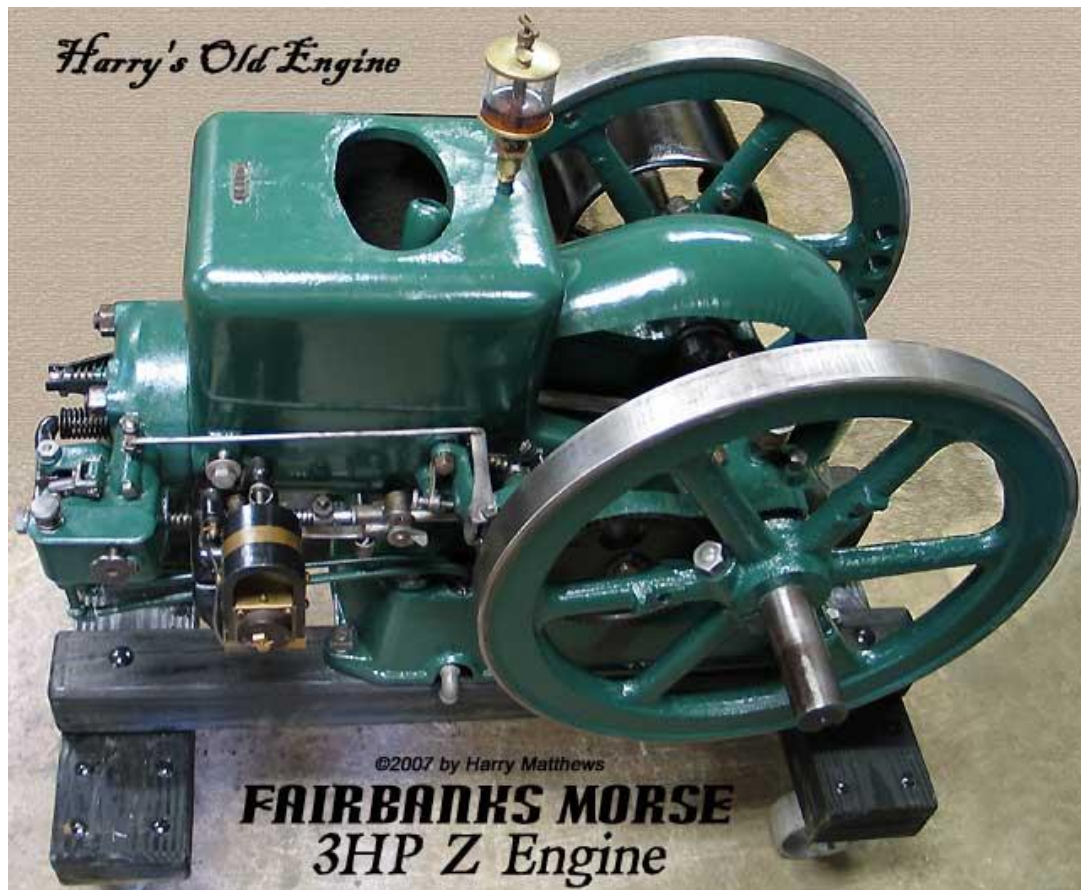
Flywheel engines were and remain extremely heavy for the power produced, run at very slow speeds, required a lot of maintenance, and could not easily be incorporated into mobile applications. With the exception of [oil field](#) applications, in which they continue to be used to the present, flywheel engine production ceased in the 1940s.

Harry's Old Engines <http://www.old-engine.com/engines.shtml>

Gas Engine Magazine <http://www.gasenginemagazine.com/>

WIKI https://en.wikipedia.org/wiki/Hit-and-miss_engine

Antique small engine collectors club <http://www.asecc.com/links.html>



Original paint right from the washer on the back porch!
Collected and photographed by H. Matthews 2002



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