United States Patent

Myers

[15] **3,673,917**

[45] **July 4, 1972**

[54] LIQUID FUEL OPERATED AUTOMATIC WEAPONS

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[22] Filed: **April 26, 1971**

[21] Appl. No.: **137,287**

[52] **U.S. Cl.**.....**89/7,** 89/33 CA, 89/161

[51] **Int. Cl.**.....**F41f 1/04**

[58] **Field of Search**.....89/7, 1, 161, 33 R, 33 CA, 89/33 BB

[56] **References Cited**

UNITED STATES PATENTS

1,334,052	3/1920	Putnam	89/161
1,429,370	9/1922	Putnam	89/161 X
1,653,171	12/1927	Hagen	89/7
2,374,816	5/1945	Hansen	89/7
3,380,345	4/1968	Nelson	89/7

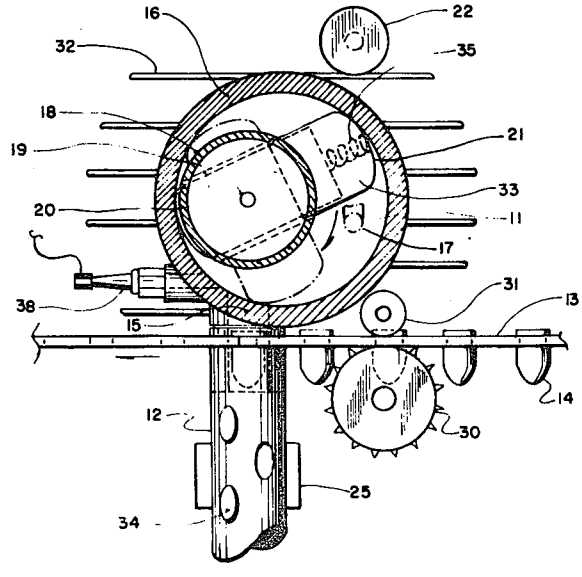
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[57] **ABSTRACT**

The automatic weapon has a compression chamber with a power outlet port aligned with a reciprocating barrel and an intake port aligned with a carburetor. A belt carrying a plurality of projectiles is fed between the reciprocating barrel and the power outlet port. A shaft driven rotor and vane are offset positioned within the compression chamber. The barrel, belt and rotor are synchronized so that carbureted fuel is compressed and ignited when the barrel has forced the belt to sealably engage the power outlet port with a projectile positioned in the barrel.

10 Claims, 5 Drawing Figures



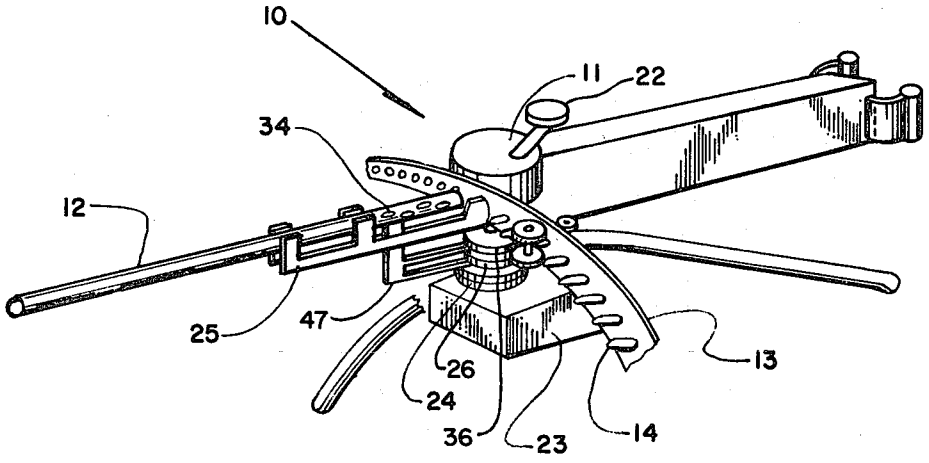


Fig. 1

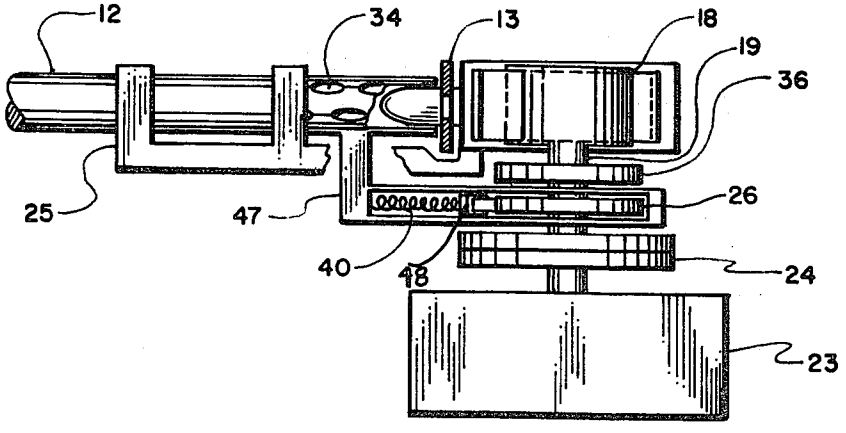


Fig. 2

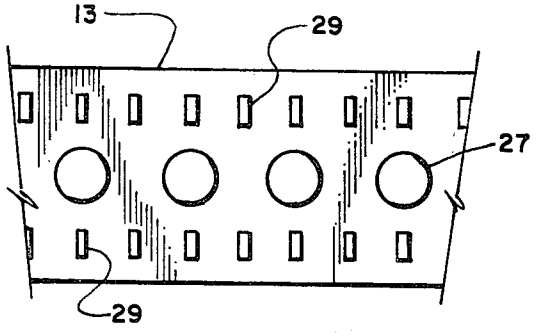


Fig. 5

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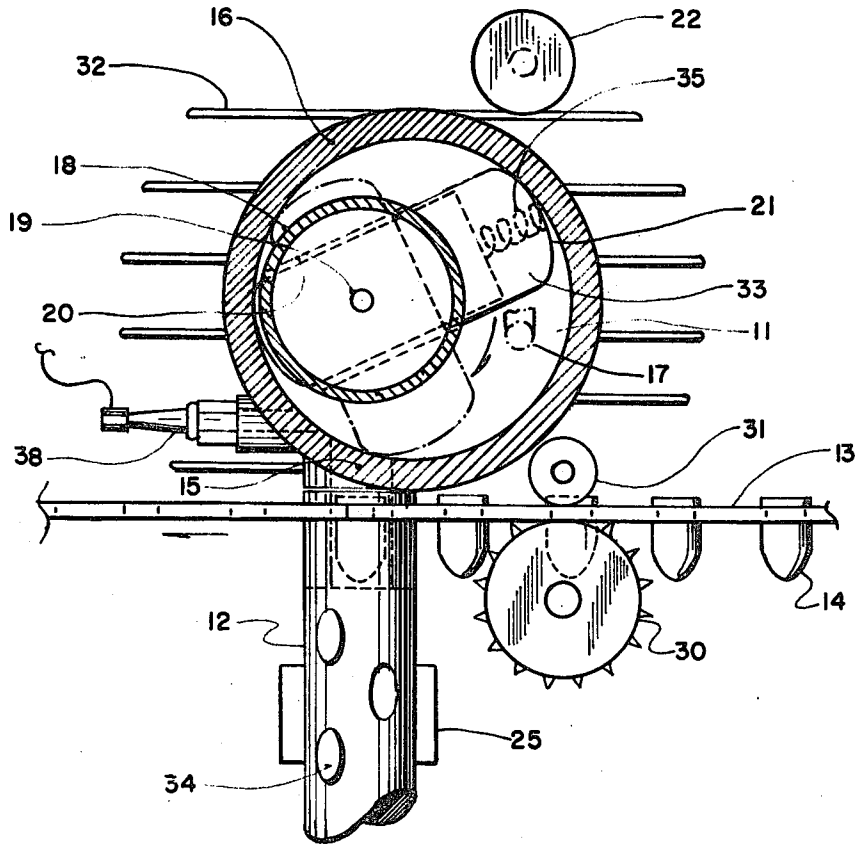


Fig. 3

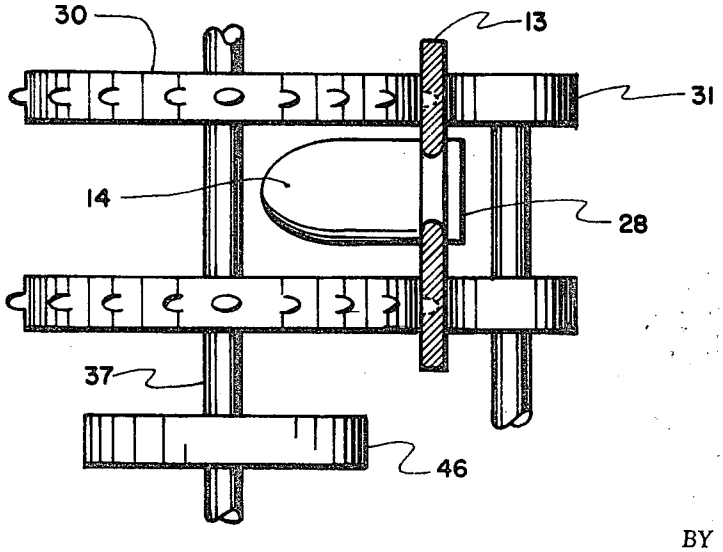


Fig. 4

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LIQUID FUEL OPERATED AUTOMATIC WEAPONS

My invention relates to an article of ordinance and, more particularly, to a liquid fuel operated automatic weapon, such as a machine gun.

The standard automatic weapon is operated by detonation of gun powder in a shell which propels a projectile secured thereto.

My invention eliminates the gun powder, the shell and the detonator, thereby rendering the automatic weapon safer, more transportable and, in general, far more versatile than existing automatic weapons.

In the accompanying drawings, I have shown one preferred embodiment of my invention in which:

FIG. 1 is a schematic of my automatic weapon;

FIG. 2 is a partial broken away view showing the operating mechanisms;

FIG. 3 is a plan view partly broken away to show the operating mechanism;

FIG. 4 is an exploded view of the belt, projectile and drive means; and

FIG. 5 is a plan view of the belt.

My automatic weapon will be generally referred to as machine gun **10**, although it will be recognized that various types of automatic weapons in addition to machine guns may be constructed in accordance with my invention.

Machine gun **10** includes a compression chamber **11**, a reciprocating barrel **12** and a belt **13** carrying the projectiles **14**. The chamber **11** has a cylindrical inner surface formed by wall **16**. Communicating with chamber **11** through wall **16** is intake port **17**, power outlet port **15** and spark plug **38** which extends through wall **16** into the chamber **11** at a point substantially adjacent the power outlet port **15**. Chamber **11** is air-cooled by fins **32** in a known manner, FIGS. **1** and **3**.

A rotor **18** is mounted on a shaft **19** and is positioned in the chamber so that shaft **19** is substantially in alignment with the power outlet port **15**. However, the rotor **18** is offset in the chamber **11** so that it is substantially adjacent the interior wall **16**. Rotor **18** has a slideway **20** above the shaft **19** into which an extensible vane **21** is slidably positioned. Vane **21** is extensible by means of a spring load **35** which forces separate end section **33** outward to sealably engage the interior of wall **16** as vane **21** rotates along with the rotor **18**. The slidable engagement of vane **21** in slideway **20** of rotor **18** and the extensibility of end section **33** permits a constant and continuing sealable relationship between the interior of wall **16** and the vane **21** at both ends of the vane **21**, FIGS. **2** and **3**.

A carburetor **22** is connected to the intake port **17** and provides a carbureted liquid fuel, such as gasoline, thereto. The air and fuel means feeding the carburetor **22** are not shown and do not form a part of this invention.

Shaft **19** extends downward to and is driven by motor **23**. Motor **23** may be a gasoline operated motor, an electrical motor or any other type which will rotate shaft **19**. Friction clutch **24** is positioned along shaft **19** in the standard manner to permit engagement and disengagement of shaft **19** to motor **23**, FIG. **2**.

The reciprocating barrel **12** is supported by barrel rest **25** which connects to a stationary member such as compression chamber **11**, FIG. **2**. Barrel **12** is positioned in alignment with the power outlet port **15** which is built up to have its forward face parallel to the rear face of barrel **12**, FIG. **3**. Barrel **12**, which is free to reciprocate within barrel rest **25**, is operably connected by barrel bracket **47** to the cam **26** on shaft **19**. This connection is formed by cam **26** contacting roller **48** which is connected to the spring **40** positioned between roller **48** and bracket **47** to cause the desired reciprocation of the barrel **12**. Cam **26** operates to reciprocate barrel **12** in synchronization with rotor **18** as will be explained in detail hereinafter. Barrel **12** includes a plurality of exhaust ports **34** therealong. Because of rapid firing, the barrel should be easily replaceable, but this can be accomplished by standard mounting means, FIGS. **1–3**.

The projectile **14** is snugly held onto belt **13** through a frictional push fit arrangement in holes **27** which extend along the length of belt **13** in aligned relationship. The projectile **14** is cone-shaped at its forward end in standard fashion and has a rearward retaining flange **28** to hold it in place in right angle relationship to belt **13**. The belt **13** also contains aligned drive slots **29** along the belt edges. The belt must be made of a material which can serve as a seal for a single use and which will not be disrupted by the residual heat, FIGS. **1**, **2**, **4** and **5**.

A drive sprocket **30**, the teeth of which engage the slots **29** of belt **13**, is positioned to drive the belt **13** between the power outlet **15** and the barrel **12**. An idler sprocket **31** positioned on the opposite side of belt **13** from the drive sprocket **30** maintains the belt **13** in cooperation with the drive sprocket **30** and in proper alignment for feeding. Both the drive sprocket **30** and the idler **31** are spooled to engage the slots **29** of the belt while at the same time maintaining clearance for the projectile **14**. The drive sprocket **30** is connected by shaft **37** to a timing linkage formed by linkage means **46** and cam **32** positioned along shaft **19**. Timing linkages are well known in the art and the particular type of timing linkage does not form a part of my invention. The belt **13** is operated in synchronization with the reciprocation of the barrel **12** and the rotation of rotor **18** and is timed to be stationary when the barrel **12** is in a closed position, FIGS. **2** and **4**.

My machine gun works as follows. The carbureted fuel enters the compression chamber **11** through the intake port **17**. The carbureted fuel is then compressed within the chamber **11** by the vane **21** which rotates with rotor **18** to reduce the effective space between the vane **21** and rotor **18** and the chamber wall **16**. This reduction in space results from the offset position of rotor **18** with respect to wall **16**. When the carbureted fuel has been adequately compressed, the spark plug operated by a magneto (not shown) ignites the mixture. At this time, the barrel **12** is in its closed position so as to engage the belt **13** which, in turn, sealably engages the power outlet **15** in the chamber wall **16**. As stated hereinbefore, the timing linkage operates so that the belt is stationary in position when the barrel **12** reaches its closed position. As explosion takes place, the projectile, which is aligned in front of the power outlet **15** and within the barrel **12**, is propelled outward. The exhaust gases exit the barrel through the exhaust ports **34**.

Continued rotation of shaft **19** opens the barrel **12** and the next projectile **14** on belt **13** is positioned in alignment with power outlet **15**. While this is taking place, the next charge of carbureted fuel has been drawn into the chamber **11** by the vacuum created by the moving vane. The firing rate is, therefore, 2 times for every revolution of the shaft **19**. Therefore, if shaft **19** is driven at 2,500 rpm, 5,000 rounds/min. can be fired. The rate of fire is controllable by gearing down the motor **23** to control the revolutions per minute of the shaft **19**. Clutch **24** is employed to engage or disengage the shaft **19** and motor **23** and thereby control the firing of the weapon.

I claim:

1. A liquid fuel operated automatic weapon including:

A. a compression chamber having an intake port and a power outlet port;

B. a carburetor means connected to the intake port to supply carbureted fuel thereto;

C. compression means within the compression chamber to place the carbureted fuel in a compressed state in the area of the power outlet port;

D. ignition means cooperating with the chamber to fire the carbureted fuel;

E. reciprocating barrel means positioned in operational alignment with the power outlet port;

F. belt means having a plurality of aligned projectiles secured thereto;

G. feed means connected to the belt means to feed the belt between the barrel and the power outlet port; and

H. synchronizing means connecting to the barrel and the feed means to position a projectile in line with the power outlet port and the barrel against the belt means to sealably engage the power outlet port when the ignition means fires.

2. The automatic weapon of claim 1 wherein the compression means includes a shaft driven rotor offset positioned adjacent an interior compression chamber wall and an adjustable vane cooperating with the rotor and the chamber wall to compress the carbureted fuel therebetween.

3. The automatic weapon of claim 2 wherein the rotor has a slideway therethrough and the vane is positioned in the slideway, said vane being extensible to sealably engage the chamber wall at both ends of the vane at all times.

4. The automatic weapon of claim 3 wherein the extensible vane includes a spring loaded outer section which is continually forced outward to sealably engage the chamber wall.

5. The automatic weapon of claim 2 wherein the reciprocating barrel means includes a plurality of exhaust ports therein.

6. The automatic weapon of claim 2 wherein the belt means includes a plurality of aligned holes which frictionally engage the projectiles to secure them thereto, said projectiles having a cone-shaped forward section and a flanged rearward section to maintain the projectile on the belt normal thereto.

7. The automatic weapon of claim 2 wherein the feed means includes a drive sprocket and an idler sprocket positioned on opposing sides of the belt means.

8. The automatic weapon of claim 2 wherein the synchronizing means includes two cams positioned on the shaft which rotates the rotor, one cam connecting to the barrel to cause reciprocation thereof and the other cam connecting to the feed means as part of a timing linkage.

9. The automatic weapon of claim 2 wherein a motor means connects to the shaft, said motor means including a clutch to engage the shaft.

10. The automatic weapon of claim 7 wherein the drive sprocket is in operable engagement with the shaft which drives the rotor through a timing linkage.

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