

AGAR “COFFEE MILL” GUN: WILSON AGAR, INVENTOR

by Joseph McClain

Even though the first machine gun in the United States was patented on July 8, 1856, issued patent number 15,315 to C.E. Barnes of Lowell, Massachusetts for the first patented crank operated machine gun; the Agar was a very advanced weapon for the Civil War. Thus was the first adopted United States machine gun used by the Army during war conditions.

History:

The Agar (Coffee Mill) gun was patented on January 17, 1866, according to the patent that I possess.¹ Note: The patent was issued FIVE years after he sold 10 guns to the government and received orders for more. Prior to this invention, Mr. Agar's inventions were successful in agriculture for millstone dress, the process of hulling rice, corn and grain.²

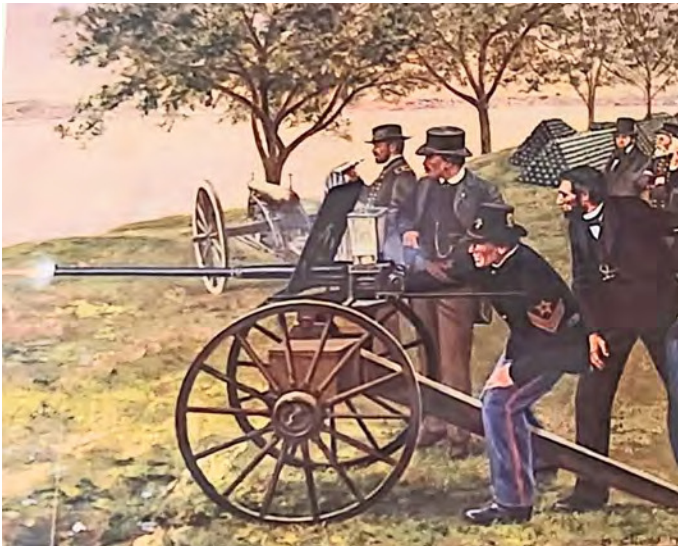


Figure 1. President Lincoln and his General Staff firing the Agar Gun.

The first recorded sale of a machine gun was by J.D. Mills, sales representative for the Union Repeating Gun Company, better known as the Agar Gun. Mills optimistically referred to the gun as “*An army in six feet square*”.³ On October 16, 1861, Mills demonstration for Chief of Ordnance, President Lincoln (depicted in Figure 1), and several key Generals was a success.⁴ It concluded with an order from the President for ten guns at \$1,300 each; in today's money it would be close to \$38,000 each. In comparison at that time, military rifles cost about \$20 each. President Lincoln nicknamed the gun “The Coffee Mill” because of its ammo feed system. The Government would go on to contract more guns at a reduced price of \$735 each.⁵

The Agar Gun:

The Agar Gun (Figure 2) used a revolving breech to achieve rapid fire. A feeding hopper sat atop the guns firing mechanism, and when a hand crank was turned, internal gears forced the steel cartridges against the guns barrel; this tripped a firing hammer and ejected the empty steel cartridges activating like a device to blow

away firing debris and cooling the barrel. It was claimed to fire up to 120 rounds per minute. Today what was thought to be a cartridge is now known as a receiver. Also, the steel cylinder was a bridge between paper rolled cartridges and brass cartridges of today (Figure 3). Its barrel was mounted on a light artillery carriage like the Requa and could be elevated and traversed. A spare barrel, which could be quickly changed in case the original overheated, was included with each gun. The Agar's gun's steel cartridge chamber (receiver) could be reloaded by hand with a conventional .58 caliber paper rifle cartridge then fitted with a nipple primed percussion cap.

Timeline of Usage:⁶

- January 2, 1862. Two of the machine guns were issued to Colonel John Geary, commander of the 28th Pennsylvania Infantry stationed at Harpers Ferry, Virginia. On March 29th, 1862, in Middlebury, Virginia they were used against the Confederate Cavalry.
- Major General John C. Fremont issued two Agar guns for use in West Virginia to fight against Confederate troops and the campaign in the Shenandoah Valley in the spring of 1862.
- April 1862, Colonel Charles H. Van Wych Commander of the 56th New York Volunteers issued two Agar guns. April 21, 1862, they were used at Warwick Court House, Virginia.
- General McClellan took several Agar machine guns with the Army of the Potomac and joined with the 56th New York Volunteers guns in the defense of Yorktown.
- Governor of Pennsylvania Andrew Curtin received Agar guns for the 85th Pennsylvania for the Peninsula Campaign.
- June 28, 1862, 49th Pennsylvania used their guns at Goldings Farm where George Wills, Company D, was wounded while operating this gun.
- 1862, Captain David Porter received four guns through the Navy Ordinance Bureau for the Mississippi Squadron.
- 1863, Eight Guns issued to the Negro Regiment of New York and taken to Louisiana.
- June 1863, 10 guns went to General Rosecrans for Nashville, Tennessee.

Unfortunately, Two Agars were captured by Trimble (C.S.A.) then used at the siege of Petersburg.

Agar Coffee Mill Gun:

Advantages:

- The gun itself was mounted on a light weight two wheeled carriage, with the trunnion held by a pivoting upper assembly that allowed for traverse side to side without having to turn the carriage.
- Being light weight, it could move around by its crew reasonably efficiently.



Figure 2. This is my Agar Gun that I own.

- Rate of fire was about 120 rounds per minute, or to put it into perspective, equal to about 60-man infantry company.⁷

Disadvantages:

- The Agar was prone to overheating in sustained fire operations causing a loss of accuracy due to heavy leading of the barrel. This was somewhat countered by the issue of two spare barrels.
- The range was about 800 yards, and it was felt that a slightly longer range would have been advantageous as it was the same

as the infantry rifle muskets of the era and shorter than ranges typically attained by artillery.

- The pre-loaded chambers did not always seal properly, and gas leakage affected accuracy from one shot to the next.
- The cost was extremely high, with the original price being \$1,300, or roughly equal to about \$38,000 by today's standards. For comparison, an infantry rifle or rifle musket costs around \$15 to \$20 each.

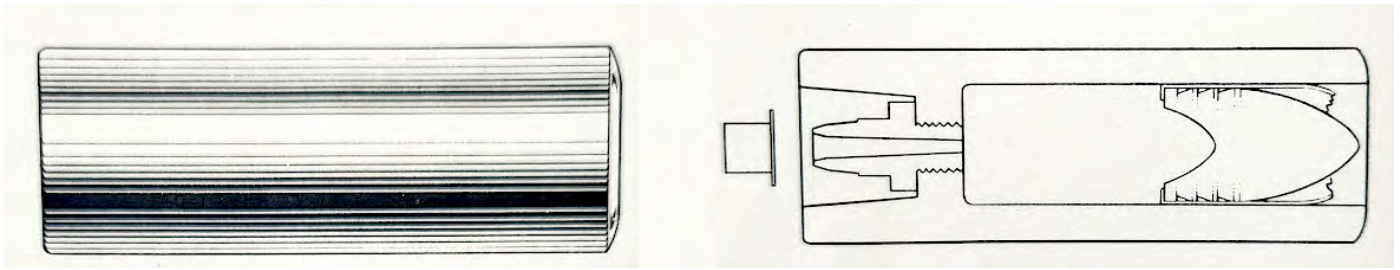


Figure 3. This looks like a shell but accurately this is a receiver for the gun.

- Failure to feed ammunition consistently.⁷

These problems were not initially evident but appeared during use in the field, providing an instructive case study and procedure in evaluating apparently innovative ordnance.

All the Agar guns were returned to the armory by August 1865 for storage not to see the light of day until sold for \$500 some years later.⁸

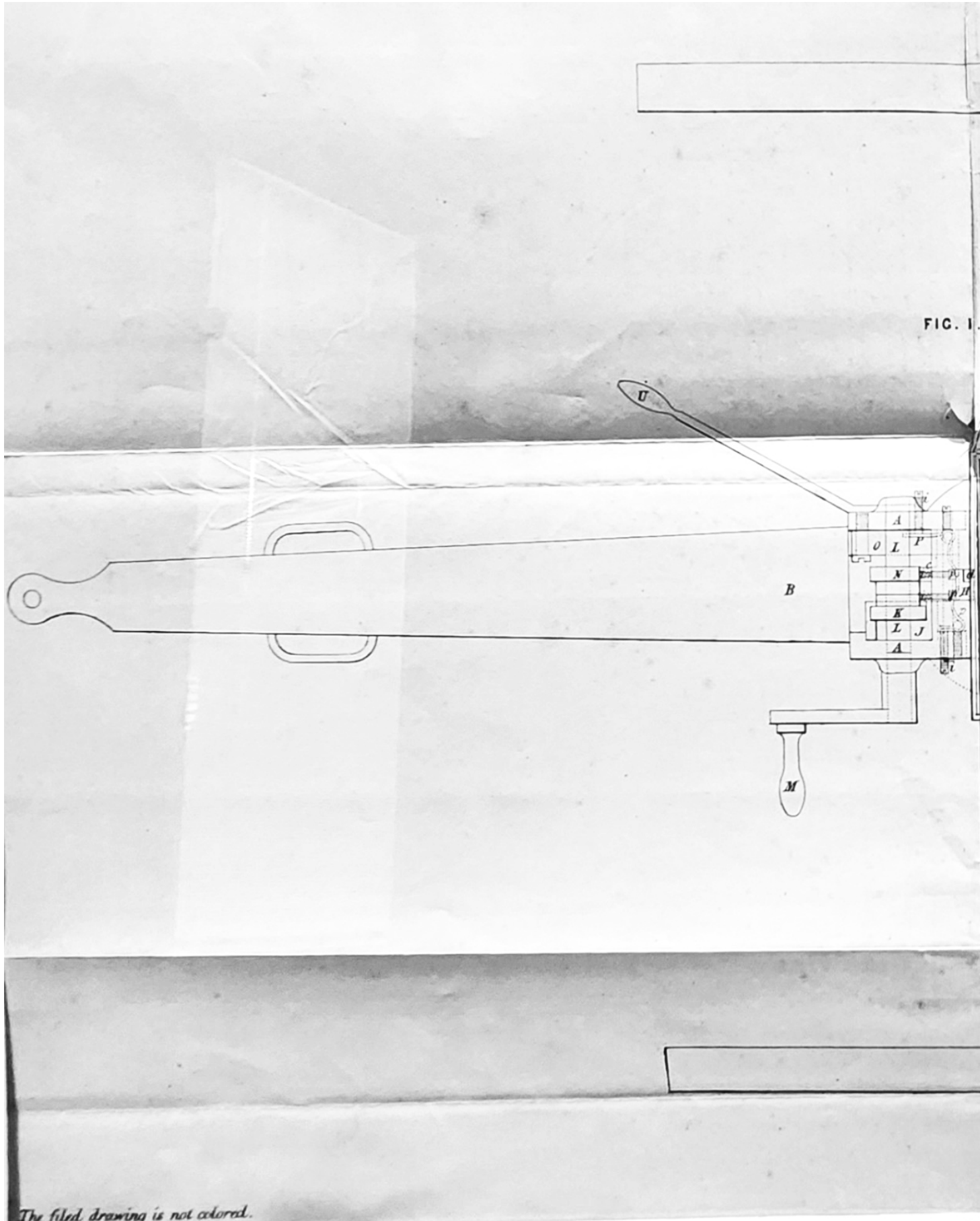
The next evolution to the machine gun was the hand-crank Gatling Gun which went on to solve some of the previous disadvantages that the Arsenals had with the Agar Gun. However, the Gatling Gun was not free of disadvantages, either.⁷

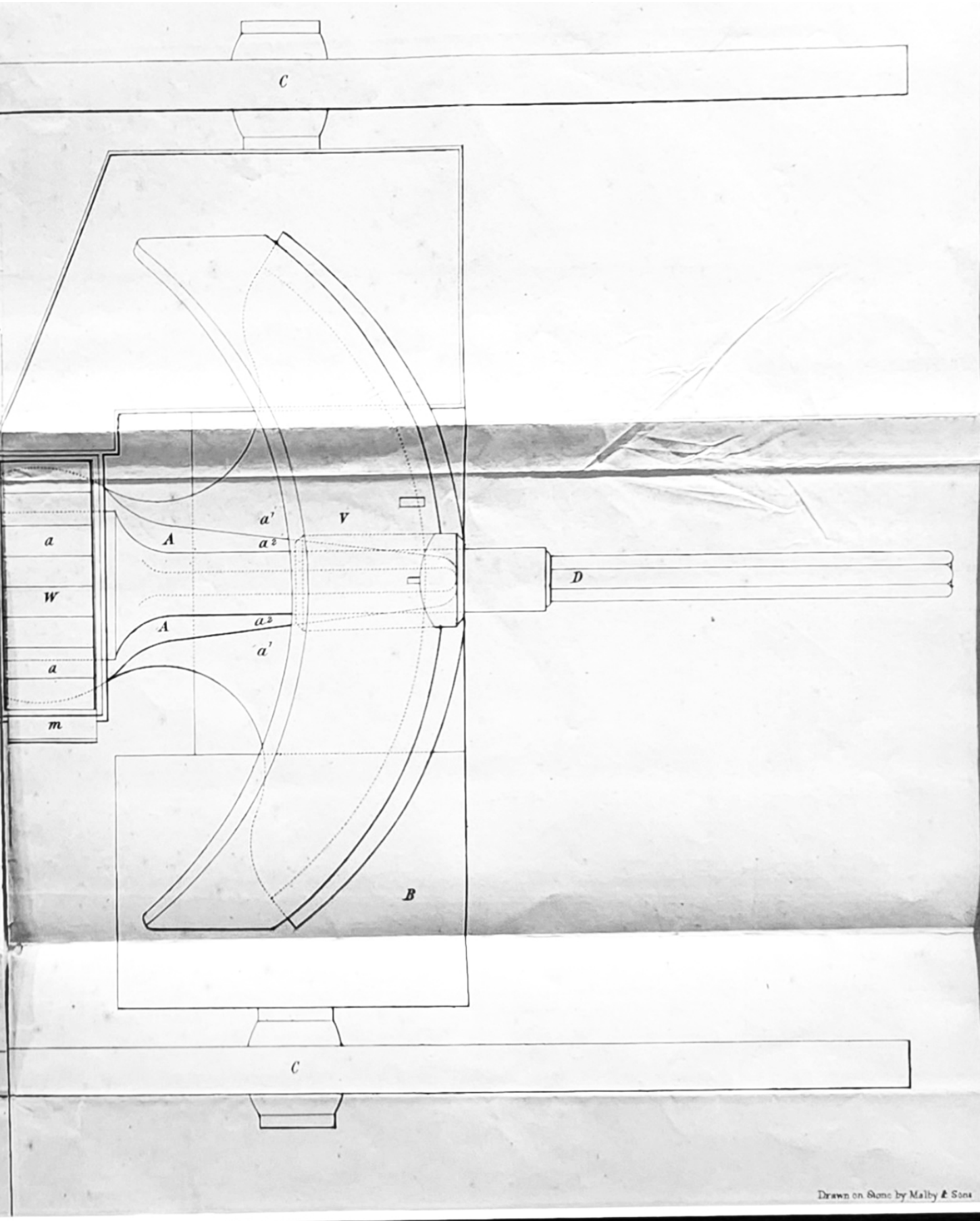
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Appendix 1.

Patent drawings for the Agar Gun from my collection.





Drawn on Stone by Malby & Sons

FIG. 4.

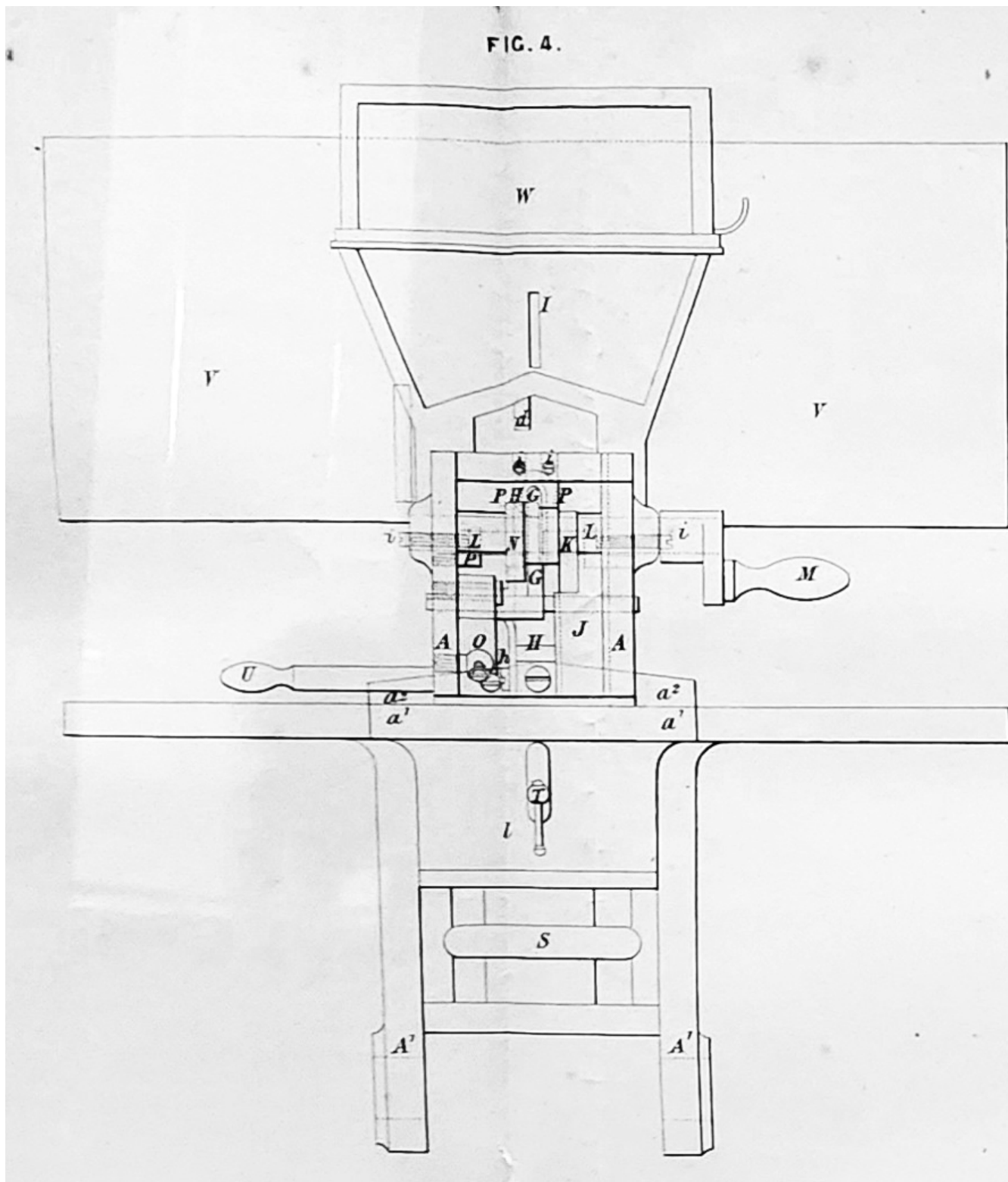


FIG. 3.

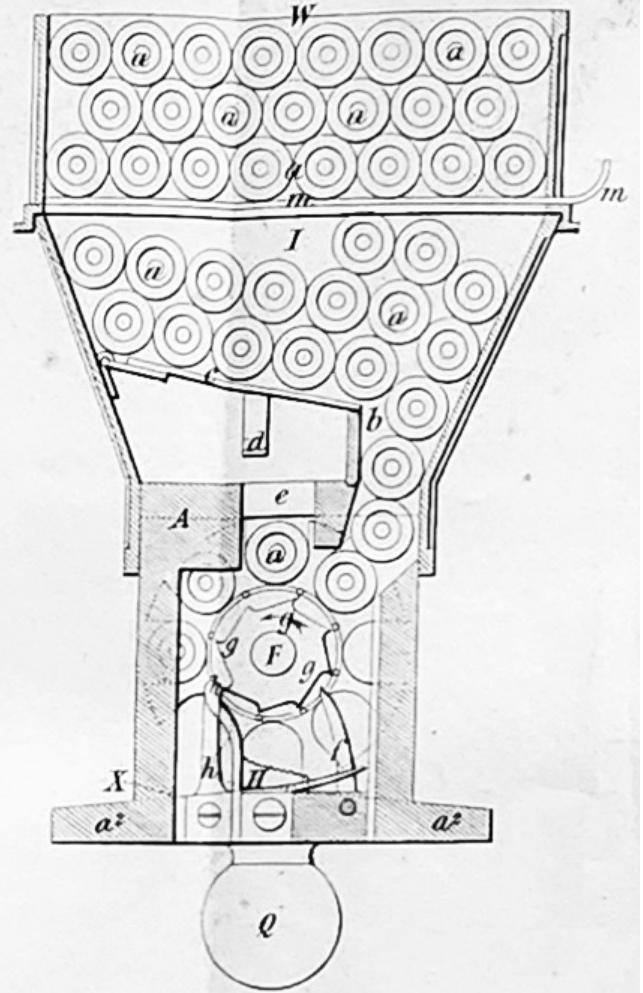
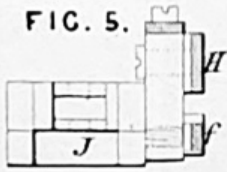
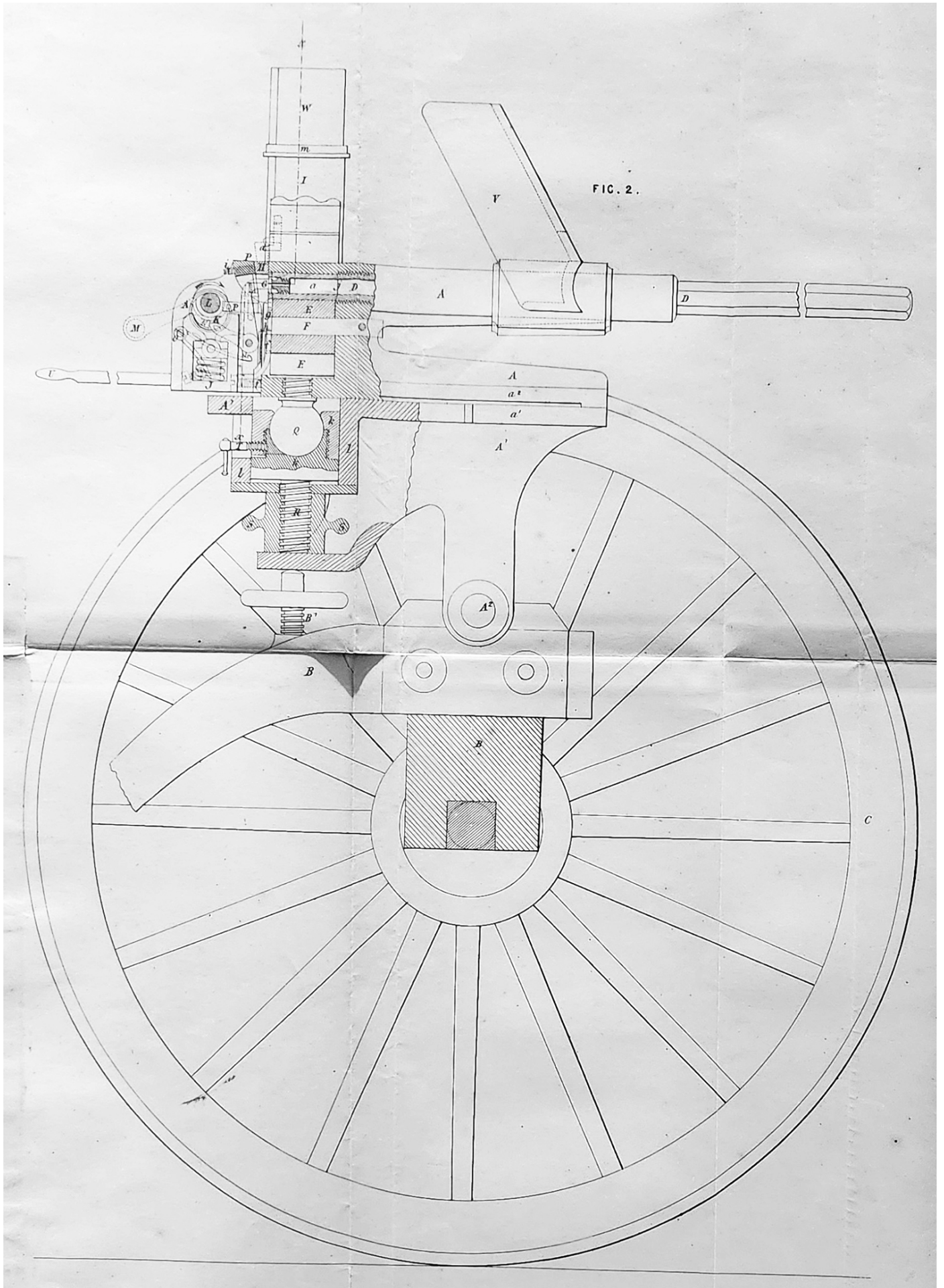


FIG. 5.





Endnotes

- ¹ Patent dated January 17th, 1866 (Numbered 152) by Wilson A. Agar
- ² *American Farmers' Magazine*: Volume #7
- ³ Willbanks, James H. *Machine guns: An Illustrated History of Their Impact*. Bloomsbury Academic. NY. 2004. pp. 28–29.
- ⁴ Wikipedia: Agar Gun
- ⁵ Ordnance Department : 1861-1864, Pages 113-114.
- ⁶ Broadwater, Robert P. *Civil War Special Forces: The Elite and Distinct Fighting Units of the Union and Confederate Armies*. Praeger, 2014. Pp 35-37; Ellis, John. *The Social History of the Machine Gun*. Johns Hopkins University Press. 1986. Pp. 25 & 26; https://en.wikipedia.org/wiki/Agar_gun.
- ⁷ WWW.Quora.com/What were the Pros and Cons of using a Coffee Mill Gun Agar Gun Versus s Gatling Gun in the 1860
- ⁸ Civil War Talk: Cannons & Artillery dated March 20, 2015

