
Hammerless Shotguns vs. Hammer Shotguns

Autor:

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Shotguns: Hammerless Shotguns

In this post, we will look at a class of shotguns called "hammerless" shotguns. To understand hammerless shotguns, first let us look at a shotgun that has hammers.

The above picture shows a double-barreled shotgun. The hammers are the two roughly S shaped pieces you see in the image. To cock the shotgun, the user pulls back the hammers using the long spurs at the end of the hammer, until they lock when pulled back. Then the user applies a percussion cap to each of the brass nipples of the shotgun. When the user pulls a trigger, the hammer is released. Due to a spring attached to the hammer, the hammer strikes the percussion cap with considerable force, which detonates it and then discharges the firearm. This sort of design has existed since the earliest shotguns.

Now that we know what a shotgun with a hammer looks like, we will now look at a hammerless shotgun.

In the above picture, we have a hammerless shotgun. Note the absence of the two hammers near the open end of the barrels (the breech). The lever that you see behind the barrels is merely a lever that holds the barrels down when the shotgun breech is closed. So does this mean that this weapon has no hammers? Actually, this weapon does have hammers, but they are hidden inside the weapon. The word "hammerless" is a misnomer and it should really have been called "internal hammers".

Unlike the first shotgun we saw, which had external hammers (or exposed hammers), a hammerless shotgun actually has internal hammers, which are hidden inside the action, as shown in the figure below

In the above diagram, A is the hammer. In this above design, when the barrels are tilted downwards, the projection C rotates the hammer A backwards, against the pressure of spring B. The hammer A rotates until the lever D catches it and holds it in place, as shown in the picture above. When the user pulls the trigger, the lever D pivots and releases the hammer A, which then allows spring B to expand and makes the hammer strike the base of the cartridge, thereby discharging the shotgun.

One of the disadvantages of an external hammer is that the hammer spurs can get caught on items, such as clothing, small branches etc. and thereby cause accidents or failure to fire. With internal hammers, such an event is not possible.

The first hammerless shotguns came from some obscure French and Belgian manufacturers in the early 1800s. In the 1830s, there was a hammerless shotgun developed by a Prussian gunmaker named Dreyse. We studied this gun when studying the side-motion action.

In here, turning the lever at the bottom, not only rotated the barrels around an eccentric path, they also cocked the two internal hammers.

The next advances were by an English gunmaker named Needham in 1856 and another English maker named Daw in 1862:

Needham Hammerless Gun from 1856. Click image to enlarge. Public domain image.

Shotgun made by Daw in 1862. Click image to enlarge. Public domain image.

In these versions, a long lever is placed in front of the triggers, as can be seen in the figures above. This lever can be pushed out to cock the internal hammers and eject the old cartridges and then folded back into place. Many of the early hammerless shotguns used a plan like this.

Of course, with such an approach, the user has to open the breech, then push the lever to eject the old cartridges and cock the gun, pull the lever back into place, then put in new cartridges and then shut the breech and lock the barrels into place, before firing the weapon. In order to make the whole process more efficient, some manufacturers attempted to reduce some of these steps.

During the period of 1875 to 1878, several London and Birmingham gunmakers attempted to make self-cocking guns, which would get cocked automatically upon opening the breech. The first successful hammerless action of this type was the Anson and Deeley action, which was invented in 1875 by two gunsmiths named Anson and Deeley, who were then working for the British manufacturer Westley-Richards and later formed their own company. They were followed by other British manufacturers such as Green, Scott, Parson, Rigby, Greener, Purdey, Walker etc. One such action working on these principles was already described above and we reproduce the illustration again so that the reader doesn't have to scroll up.

The basic Anson and Deeley design quickly became the dominant form of hammerless action and has remained almost unchanged to the present day. Since the original design had only 4 moving parts, it was cheaper and more reliable than other hammerless actions of its day, which contributed to its popularity.

In America, the first hammerless design was by Daniel LeFever in 1878. At that time, he was working with a partner named John Nichols in Nichols & LeFever Co. Like the early European designs, his shotguns had a separate lever to manually cock the shotgun. In 1880, LeFever formed his own separate company, the Lefever Arms Company. In 1883, he improved his hammerless design so that the separate lever was no longer needed. Unlike the European designs which would cock the internal hammers upon opening the breech, his 1883 design would cock the internal hammers upon closing the breech. He also later patented an automatic ejector which would eject the old cartridges when the breech was opened. In 1912, the Lefever Arms Company branched out into manufacturing gear boxes (selective and planetary transmissions) and jackshafts for the newly emerging automobile industry. Lefever Arms Company was an independent manufacturer until 1916, when the gear manufacturing side was merged with the Durston Gear Company and the firearms manufacturing side was bought out by the Ithaca Gun Company. The Ithaca Gun Company made some cheaper weapons using the LeFever name until 1941, but these weren't very good quality and were only exploiting the good reputation of the LeFever brand name. Original Lefever Arms Company guns from before they were bought out, still command high prices today and are regarded as some of the finest shotguns ever made in America.

"Hammerless" actions exist for other types of firearms as well. For instance, one can also find revolvers and pistols that have internal hammers.

Posted by The Editor at 10:17 PM

Shotguns have been around for hundreds of years in one form or another. The blunderbuss and the classic fowling piece, large smoothbore muskets that fired loads of shot, were popular for centuries. What we think of today as modern shotguns started in about the 1830s and over the past 180 or so years has been moved forward by five designs to which just about every gauge in current production can trace its lineage.

1. The first centerfire breechloader

In 1836, French gunsmith Casimir Lefauchaux, taking inspiration from earlier designs by Jean Samuel Pauly that just didn't work, came up with something pretty radical.

Lefauchaux pinfire, breechloading shotgun, 1836.

Lefauchaux's gun, a smoothbore longarm that loaded from the breech rather than the muzzle, in itself was not new. What was new was that he used a self-contained paper tube that held both the charge and the shot in one handy shell. This shell was fired from a pinfire primer in the rear that was struck by a hammer in the rear of breech. To load and reload, one simply cracked the breech open and inserted or extracted the round by hand. Once fired, the empty paper hull was removed and a new one inserted if needed.

Within 40 years, a dozen gunmakers including Remington, Colt and LC Smith had taken Lefauchaux's basic idea and were selling single barrel and double barrel shotguns on both sides of the Atlantic Ocean. Today you can look at the design and see the modern hinge-break shotguns that are still in fast production. Next time you go to the skeet range, you can mutter a little thanks to old Casimir.

2. The first pump

Christopher Miner Spencer was a forward thinker. Best known for his Spencer Carbine, which gave Union Cavalry godlike firepower during the Civil War, he also invented a sewing machine, a horseless carriage and the first pump-action shotgun. In 1882 from his Spencer Arms Company, in Windsor, Connecticut, he began to sell of a 12-gauge pump action shotgun that fed 2 5/8-inch shells from an under barrel tubular magazine. The Spencer Shotgun (what else would it be called?) both fed and ejected through the top of the breech, kind of like an Ithaca or Browning of today but in reverse.

The Spencer Shotgun, 1882.

Spencer sold his patents and company a few years later and by the 1890s, Winchester and other others had their own versions on the market. Today nobody remembers Chris Spencer, but in almost every shooter's closet, there is at least one pump-action shotgun.

3. First semi-auto

While a number of pipedream designs by lesser engineers never left the drawing board, John Moses Browning in 1898 came up with the idea of a long-recoil operated semi-automatic shotgun. Using the same under barrel tubular magazine as the Spencer with the addition of a feed spring, Browning hashed out a 12-gauge shotgun with a reciprocating barrel and bolt that cycles rearward to eject a spent shell hull and feed a new one from the magazine into the chamber. With the magazine holding five shots and the semi-auto action, the gun became known as the Auto 5. Coming just 15 years after the invention of the pump shotgun, which was in itself revolutionary, Browning knew he was on to something. After problems selling the idea to Remington and Winchester, he approached the Belgian firearms megacorporation FN in 1902 and the rest is firearms history.

Browning Auto 5.

In the century that followed more than 3-million FN made Auto 5s and almost as many Franchi, Remington and Savage copies came forth and established the semi auto shotgun as the definitive example of its class for generations. Browning liked the design so much that he considered it his best work, and from a man with more than 128 gun patents that included the Colt 1911, the Winchester 1894, the BAR and the Colt Woodsman, that's really saying something.