

# **WINCHESTER**

## **THE GUN THAT WON THE WEST**

*By* **HAROLD F. WILLIAMSON**



**South Brunswick and New York: A. S. Barnes and Company**

**London: Thomas Yoseloff Ltd**

## CHAPTER TWO

AN EXPERIMENT IN  
REPEATING FIREARMS

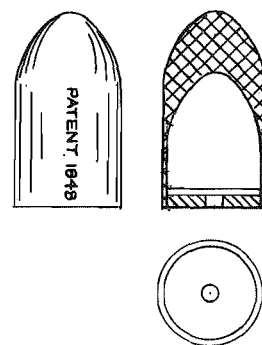
Among the many individuals who contributed to the mechanism that was eventually incorporated in the early Winchester repeating rifles was Walter Hunt. Born in 1796, Hunt learned the machinist's trade in his home town of Martinsburg, New York. In 1826 he moved to New York City where he set himself up as an inventor and mechanic. From that date until his death in 1859, Hunt turned out a remarkable number of inventions, including such diverse items as a flax-spinning machine, a heating stove, an iceboat, a nail-making machine, a fountain pen, and the safety pin. Despite his originality Hunt seems to have had no mind for business and was never able to capitalize on his inventions. This is illustrated in the case of the lock-stitch needle which he perfected between 1832 and 1834, but which he failed to patent. Some twelve years later Elias Howe received a patent for a similar needle and Hunt lost his chance at a fortune and general recognition as the inventor of the sewing machine.<sup>1</sup>

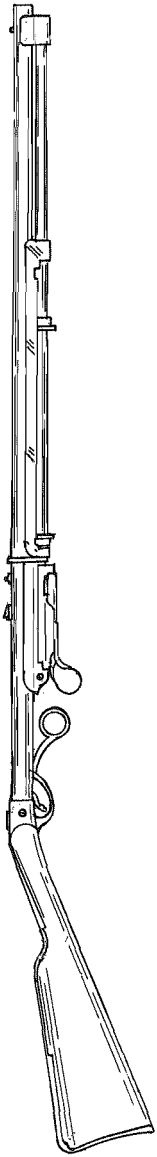
It is not astonishing that such a prolific inventor should turn his attention to firearms. His first move was to devise a loaded bullet for which he received a patent in August 1848 (US 5701) and which he described as a hollow-based, conical projectile, filled with powder and with the base closed by a cork wad having a hole in its center to admit the flame from an independent priming unit.<sup>2</sup>

Hunt's next step was to design a gun that would utilize his ammunition, and in August 1849 he was granted a patent (US 6663) for a repeating firearm with a tubular magazine under the barrel, which he called the "Volitional Repeater." In many respects this gun was a brilliant achievement. It had a straight drive, spiral-spring-driven firing pin that was well ahead of the time, and the tubular magazine under the barrel was to become an integral part of the Winchester repeaters. But the repeating mechanism was far too complicated for practical use.

Not having sufficient funds to promote his inventions, Hunt assigned his patents to a fellow New Yorker, George A. Arrowsmith. Arrowsmith was a model-maker and machinist, who had in his employ Lewis Jennings, a skilled inventor and mechanic in his own right. Jennings was put to work on the problem of improving Hunt's rifle, and within a few months had succeeded in simplifying the lock and repeating mechanism which was patented in December 1849 (US 6973).

At this point Arrowsmith interested a New York capitalist, Courtlandt C. Palmer, in the possibilities of the new firearm. Palmer, one-time president of the Stonington & Providence Railroad, and a leading hardware merchant in New

*The Development of a  
Repeating Firearm**Hunt Cartridge Patented 1848*



*Hunt Rifle Patented 1849*

York, bought the Hunt and Jennings patents from Arrowsmith with the idea of manufacturing the gun. In 1850 he contracted with the already famous firm of Robbins & Lawrence, of Windsor, Vermont, to have 5,000 Jennings Patent Rifles produced. It was in connection with this contract that Palmer became associated with Horace Smith and Daniel B. Wesson, who were later to found the well-known firm that bears their names.

While Smith and Wesson made their lasting reputation as revolver producers, they played an important role in the development of the repeating rifle that, had circumstances worked out a little differently, might have carried their names instead of Winchester's.

Daniel B. Wesson, who in 1850 was working at Robbins & Lawrence, was already an experienced gunsmith, having learned his trade in the shop of his older brother, Frank Wesson, of Worcester, Massachusetts. He became interested in the Jennings gun and began some experimental work on the mechanism for Palmer. About the same time, Palmer engaged Horace Smith to make further experiments with the gun. Smith was also an experienced gunsmith. After working for various arms producers, he set up shop for himself in 1846 at Norwich, Connecticut. For the next eight years he experimented with and produced various types of firearms. Of special interest is the fact that during 1851 and 1852 he was manufacturing the small-caliber .22 Flobert pistol which had been developed in France a few years before.<sup>3</sup>

While this pistol was practically a toy and could be used safely for target practice within the confines of the drawing room, it was a breech-loading firearm and used a metallic cartridge, called a BB cap, containing a charge of fulminate in the head which was the only propellant of the lead ball. Smith's early acquaintance with this type of ammunition was an important link in the development of metallic cartridges in the United States.

In 1851 Smith took out a patent (US 8317) for an improvement of the Jennings rifle and Palmer had hopes that the weapon would be successful. Despite improvements, the gun remained too complicated and not powerful enough for a practical firearm and its production was abandoned in 1852.

The association of the three men continued, however, with Palmer apparently furnishing funds for further developmental work. Out of this experimentation came a new patent (US 10,535) granted to Smith & Wesson in February 1854. The most important feature of this rifle was the mechanism that moved the bolt and locked it in position with its head supporting the cartridge. It was a simple mechanism and, for cartridges of medium power, a highly satisfactory method of obtaining reciprocal movement in the carrier and locking the block in its forward position. This improvement, added to the tubular magazine and the rising breech block of earlier models, completed the essential mechanical features that were subsequently incorporated in the early Winchester rifles.

### *The Smith & Wesson Partnership*

Encouraged by the possibilities of the improved repeating action, Smith, Wesson, and Palmer formed a limited partnership on June 20, 1854, under the partnership name of Smith & Wesson. Manufacturing was carried on in Norwich, Connecticut, apparently at the same location previously owned by Smith. The firm's principal assets included the Hunt, Jennings, Smith, and Smith & Wesson patents already described. In addition, the partners signed an agreement that the

ruary 1856, in a small building located near the corner of Orange and Grove Streets. Compared with the Colt and the Robbins & Lawrence establishments at Hartford, operations were on a relatively modest scale. At the same time the labor force which numbered some fifty employees, including four girls making ammunition, and the amount of machinery used, made this plant well above the average size for the industry.

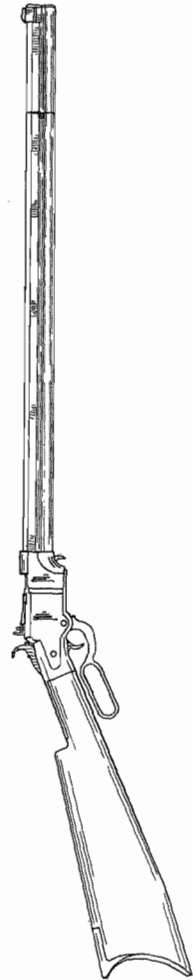
No description of the factory's operations at this time is available, but an inventory made when the Volcanic Company was liquidated gives some indication of the processes used. Included in the inventory were such standard types of machine tools as lathes, millers, drills, reamers, broachers, screw cutters, and the like. More specialized equipment was used in barrel-making and rifling. All of the machinery was apparently purchased from contemporary tool builders.

The machinery on hand was sufficient to permit the fabrication of parts that were reasonably interchangeable. Samples of the pistols and carbines show a considerable amount of file work, but this process was carried only to the point necessary to smooth off machined surfaces so that a more accurate fit was possible. The Company depended upon outside suppliers for frames and receivers, made of brass castings, drilled gun barrels of mild steel, and rough gun stocks.<sup>9</sup> Otherwise the quantity and variety of machinery on hand was extensive enough to have produced practically all of the parts that went into the finished products, plus the making of gauges, jigs, and fixtures.

An examination of the names that appear on the payrolls of the Company indicates that almost all of the labor force was of English or Scottish background. The work-day and the work-week were probably typical for the period in the arms industry; that is, six days per week and ten hours per day. There is evidence of the beginnings of the contract system being utilized in the organization, under which agreements were made with individuals to assume responsibility for the production of specific items within the plant of the Volcanic Company. These early contractors were drawn from the more highly paid men already employed, or from outside the firm. Different individuals assumed contractual obligations from time to time, resuming their status as regular employees after the contract had been filled. It was not uncommon for a man to take on such an obligation in addition to his regular employment.<sup>10</sup> As will be noted subsequently, the contract system became a very important feature of the organization of manufacturing under the Winchester Repeating Arms Company.

The Volcanic Company continued to produce the same types of firearms and ammunition begun by the Smith & Wesson partnership. The principal change was the addition of carbines to the line which used the same repeating action as the pistols. An advertisement in the form of a circular, issued in 1856, lists the following models, all of which were caliber .36:

Type	Length of Barrel	Load
Navy Pistol	6 inches	8 balls
Navy Pistol	8 inches	10 balls
Carbine	16 inches	20 balls
Carbine	20 inches	25 balls
Carbine	24 inches	30 balls



*Volcanic Rifle*



**SIXTY SHOTS PER MINUTE**

**HENRY'S PATENT**

**REPEATING**

**RIFLES**

**The Most Effective Weapon in the World.**

This Rifle can be discharged 16 times without loading or taking down from the shoulder, or even losing aim. It is also slung in such a manner, that either on horse or on foot, it can be **Instantly Used**, without taking the strap from the shoulder.

**For a House or Sporting Arm, it has no Equal;**

**IT IS ALWAYS LOADED AND ALWAYS READY.**

The size now made is 44-100 inch bore, 24 inch barrel, and carries a conical ball 32 to the pound. The penetration at 100 yards is 8 inches; at 400 yards 5 inches; and it carries with force sufficient to kill at 1,000 yards.

**A resolute man, armed with one of these Rifles, particularly if on horseback, CANNOT BE CAPTURED.**

"We particularly commend it for **ARMY USES**, as the most effective arm for picket and vidette duty, and to all our citizens in secluded places, as a protection against guerilla attacks and robberies. A man armed with one of these Rifles, can load and discharge one shot every second, so that he is equal to a company every minute, a regiment every ten minutes, a brigade every half hour, and a division every hour."—*Louisville Journal*.

**Address**

**JNO. W. BROWN,**

Gen'l Ag't., Columbus, Ohio,

At Rail Road Building, near the Depot.

E. NEVINS' Steam Printing Establishment, No's 26, 28 and 40 North High Street, Columbus, Ohio.

*Advertisement for Henry Rifles*

Even prior to the organization of the new company Oliver Winchester had his organization working on an improvement of the Henry rifle. The chief faults of that arm, it will be recalled, had developed in the cartridge extractor, which frequently broke off, and the slotted magazine, which was easily bent and was liable to pick up foreign material when the weapon was dropped. During the latter part of 1865 and continuing into the following year a number of patents were taken out and others acquired which covered various extracting devices and types of magazines.

After several experimental guns had been made up the Company announced a new rifle to the trade in 1866. This was the Model 1866, more commonly referred to as the Model 66, and the first gun to bear the name of the Winchester Repeating Arms Company.

According to the Company's catalog for 1867, ". . . The Winchester Rifle remains in the mechanism for loading and firing precisely the same as the Henry, except the cartridge extractor. The latest improvements consist of an entire change in the magazine and the arrangements for filling it. By these changes, the gun is made stronger yet lighter; the magazine is closed and strongly protected; it is more simple in operation, requiring fewer motions in the one case and fewer pieces in the other. Not only can this gun be fired thirty times a minute continuously as a repeater, but it can be used as a single loader without any attachment to be changed for the purpose, retaining the magazine full of cartridges to be used in an emergency, when the whole fifteen cartridges can be fired in fifteen seconds, or at the rate of sixty shots a minute, or in double-quick time, in seven and a half seconds, or at a rate of one hundred and twenty shots per minute, or two shots per second, loading from the magazines—an effectiveness far beyond that of any other arm." <sup>3</sup>

The gun was produced in several styles, including two sporting rifles, and a military musket. (See *Appendix A-1*.) The rifle carried 17 cartridges and the carbine 12. The ammunition was essentially the same as the original Henry cartridge, being produced with both a 200-grain pointed and a flat-nosed bullet and a standard load of 28 grains of black powder.

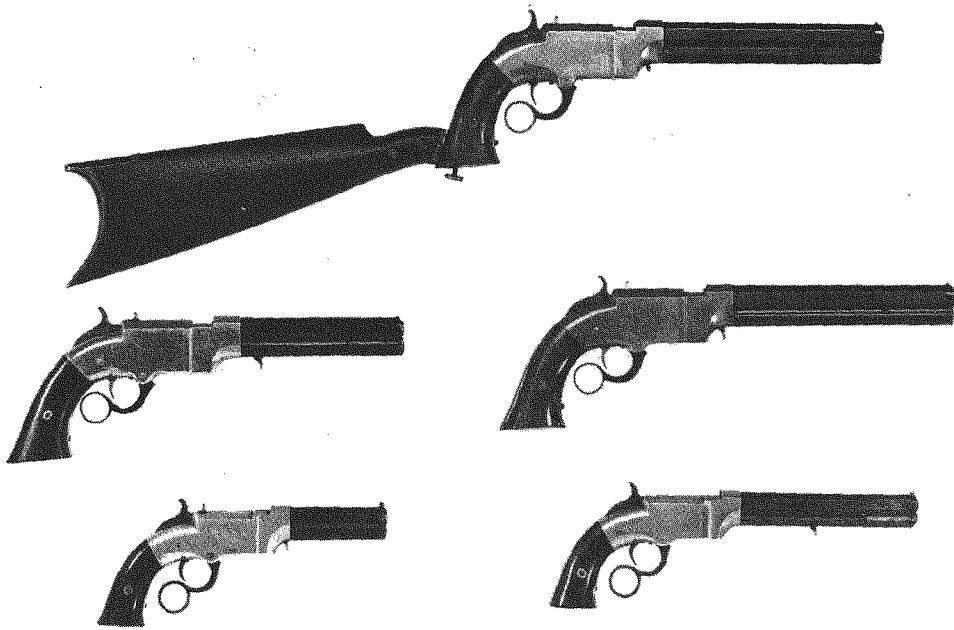
With the advent of the Model 66, the production of the Henry rifle was dropped. A few of the new guns were made during 1866, but manufacture really began the following year, after the move to Bridgeport had been completed. For six years the Company concentrated on this one model and during that period approximately a hundred thousand were manufactured and sold.

As far as Oliver Winchester was concerned the Civil War had demonstrated conclusively the superiority of the repeating rifle over the single-shot. With an improved model, he began an immediate campaign to get the United States military authorities to adopt the Winchester rifle for the services. The attractions of such an adoption were twofold: there would be large and presumably regular purchases, and the prestige would help sales in other markets.

In a long memorandum, entitled "Winchester's Patent Repeating Fire Arm the Coming Gun," which was printed in the Company's catalogs from 1867 to 1875, he reviewed the development of the single-shot breech-loader and the repeating guns and stressed the popularity of the latter among troops during the Civil War. On logical grounds he could see no reason why the Government did

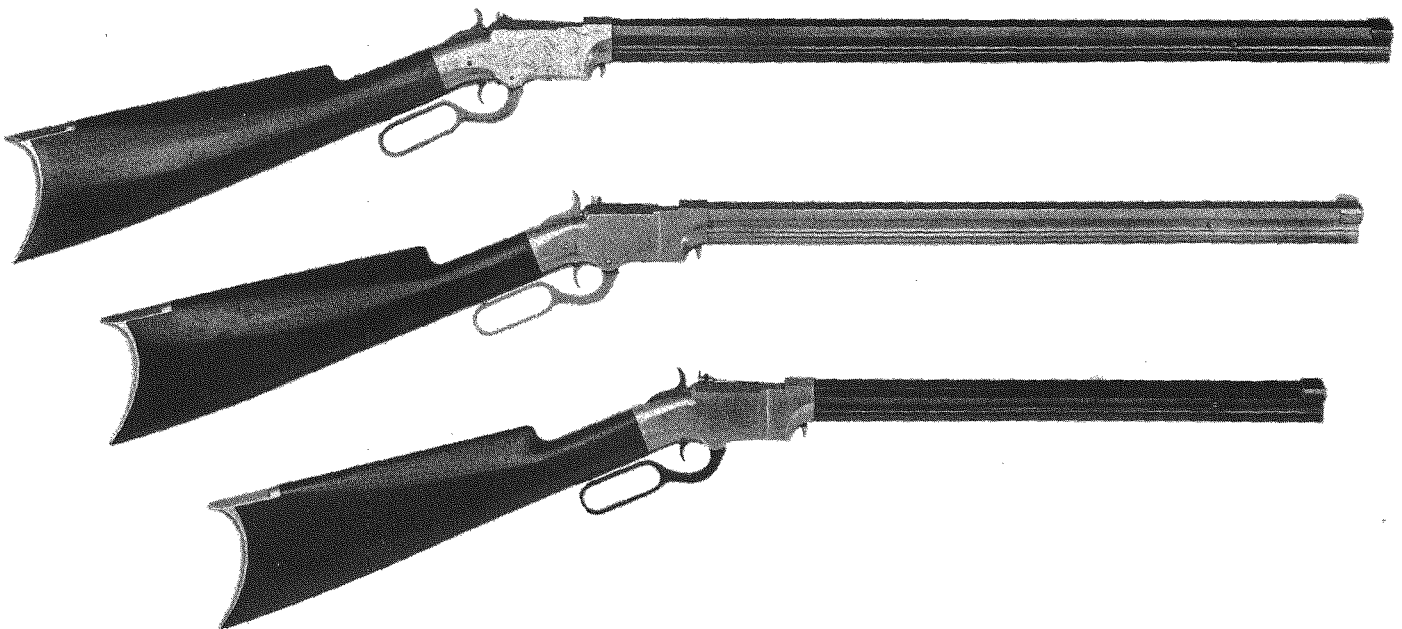
## *The Model 66 Rifle*

*Promotion of Markets:  
Attempt to Obtain  
Government Adoption*



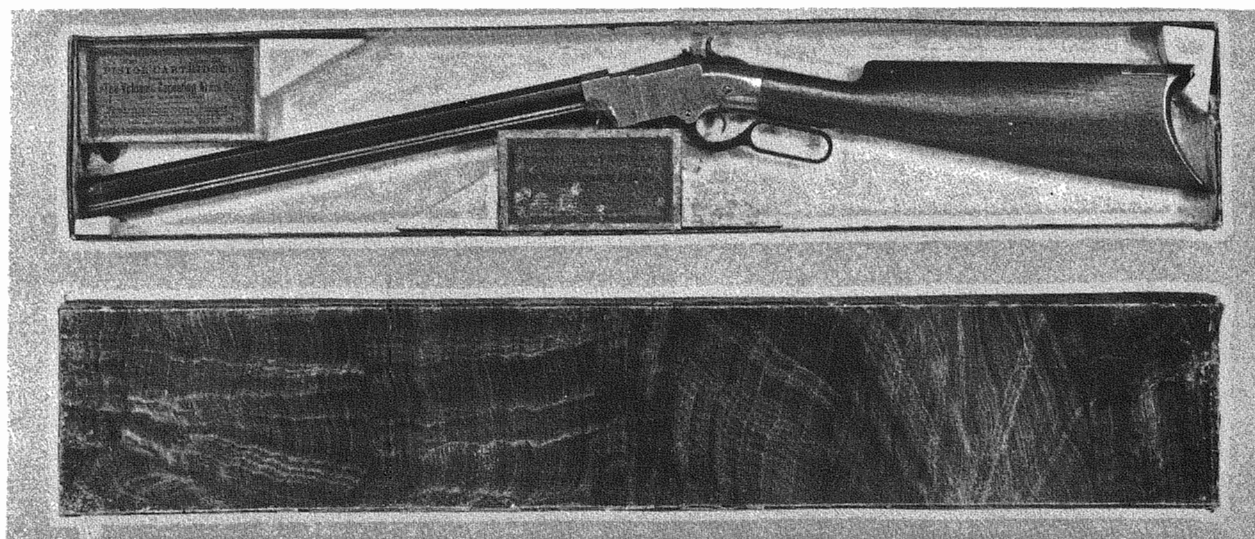
VOLCANIC PISTOLS, caliber .31 and .38. Made by the Volcanic Repeating Arms Company and the New Haven Arms Company, 1856 to 1860.

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VOLCANIC RIFLES, caliber .38. Made by the Volcanic Repeating Arms Company and the New Haven Arms Company, 1856 to 1860.





**VOLCANIC RIFLE, caliber .38, and boxes of cartridges in original packing box.**



**HENRY RIFLE, caliber .44 rimfire. Made by the New Haven Arms Company, 1860 to 1866.**



**HENRY EXPERIMENTAL RIFLE, caliber .44 rimfire. Made at the New Haven Arms Company in 1865 or 1866.**



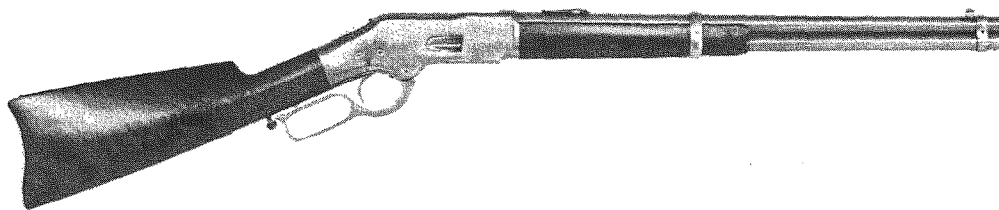
**APPENDIX A-2**

**LIST OF ALL MODELS MANUFACTURED BY  
THE WINCHESTER REPEATING ARMS COMPANY**

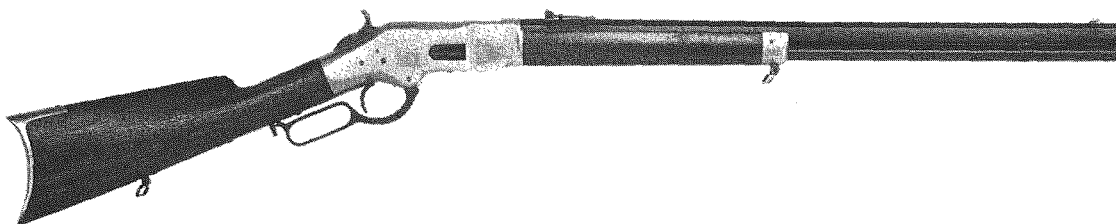
*By Thomas E. Hall and John Peck*



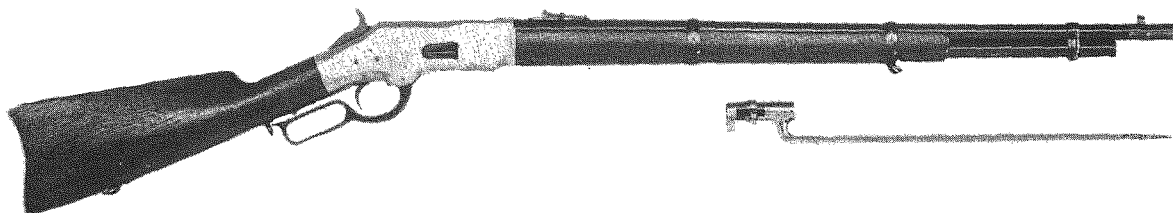
ORIGINAL PATENT MODEL with King's improvement, 1866. (Loading gate in side of receiver).



MODEL 1866 CARBINE, caliber .44 rimfire. Listed in catalogues 1873 to catalogue number 61 dated March 1898. Was left out of catalogues dated 1875 and 1876, but reappeared in 1878. The model 1866 Winchester had been made since 1867, but was not so called in catalogues until 1873.



MODEL 1866 RIFLE, caliber .44 rimfire. Same listing as above.



MODEL 1866 MUSKET, caliber .44 rimfire. Same listing as above.